NKAP BOLTING SYSTEM

FUNCTIONAL SPECIFICATION

GROUP 01

DS³ Solutions







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DELIVERABLE 2

THIS DOCUMENT CONTAINS THE FUNCTIONAL SPECIFICATION OF THE SYSTEM WE INTEND TO DEVELOP FOR OUR CLIENT. IN THIS DELIVERABLE WE WILL BE DETAILING THE FUNCTIONAL REQUIREMENTS OF THE SYSTEM THROUGH NARRATIVES, DATA FLOW DIAGRAMS AS WELL AS INPUT, OUTPUT AND VALIDATIONS.

NKAP BOLTING
SPECIALISTS IN FASTENING SYSTEMS

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INTRODUCTION

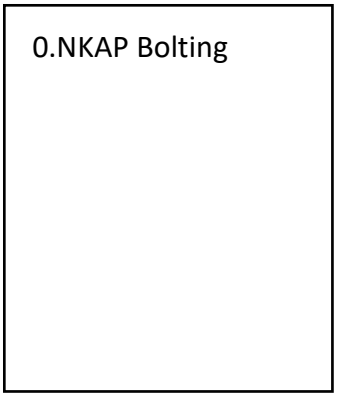
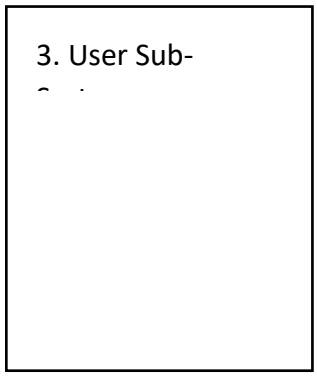
This document contains the functional Specification for the NKAP Bolting System. This document includes the Use Case diagrams, Use case narratives and process models for the proposed system. The process models include a complete context diagram, complete decomposition diagram, high level, middle level, and primitive level data flow diagrams. This document also includes Activity diagrams, a logical data model, interfaces and other inputs, reports and other outputs as well as validations for the proposed system.

2. Use Cases

INTRODUCTION

This section includes the use case diagrams which describe the business processes in the system and who initiates these processes. The use case narrative further describe each use case identified.

2.1. USE CASE DIAGRAMS

Use Case Diagram Key		
Element	**Description**	**Example**
System	Outer Rectangle Element with the system name, 0. NKAP Bolting system and black outline.	
Sub-System	Inner rectangle element with black outline and Sub-System name.	
Use Case	Use Case element with black outline and green fill.	

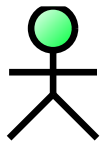
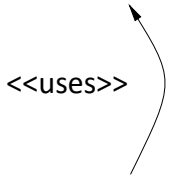
Actor	Use Case actor element with green fill and name of actor and actor type below.	 <<PBA>> Customer
Association	Use Case relationship line with 'initiates' tag.	<<initiates>>
Uses Association	Use case dependency relationship with 'uses' tag.	 <<uses>>

Figure 1 Use Case Diagram Key

2.1.1 Login Sub-System

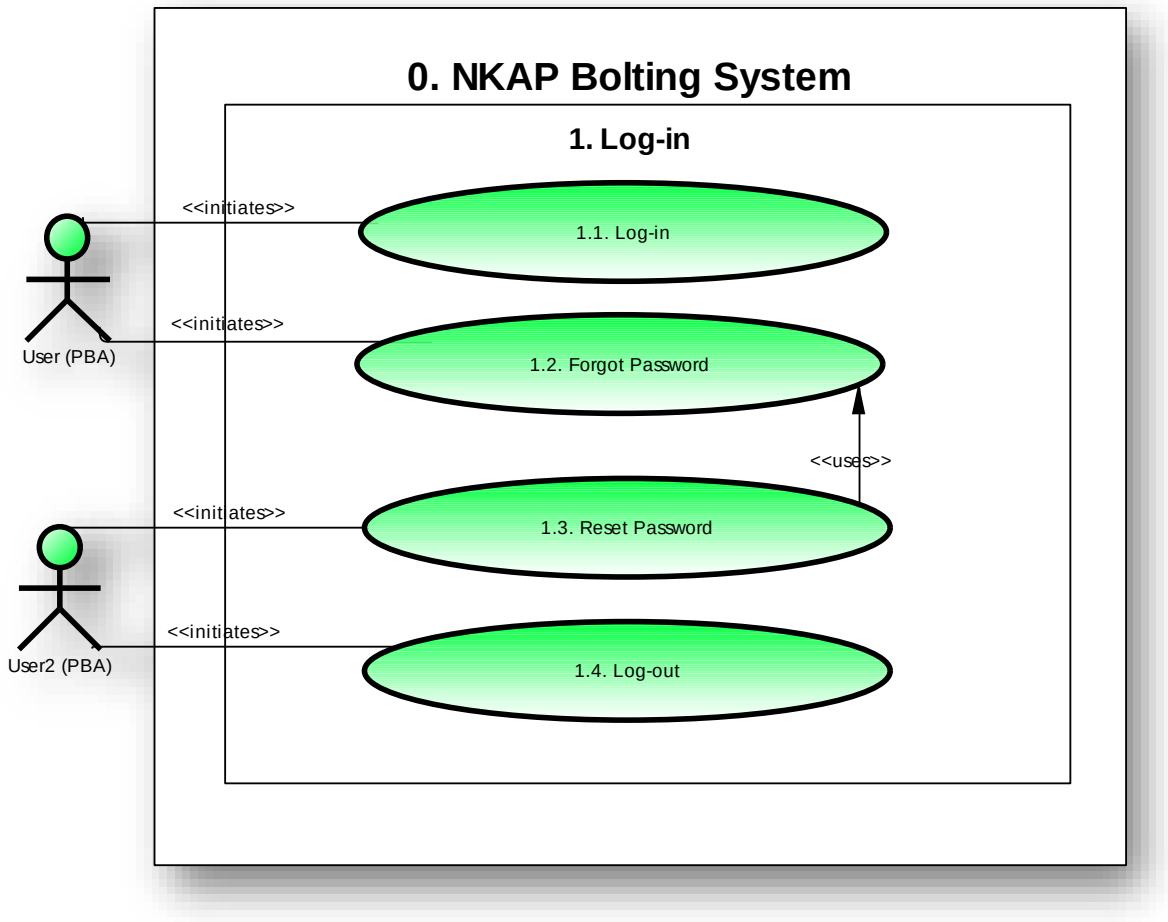


Figure 2: 1. Login Use Case Diagram

2.1.2 Supplier Sub-System

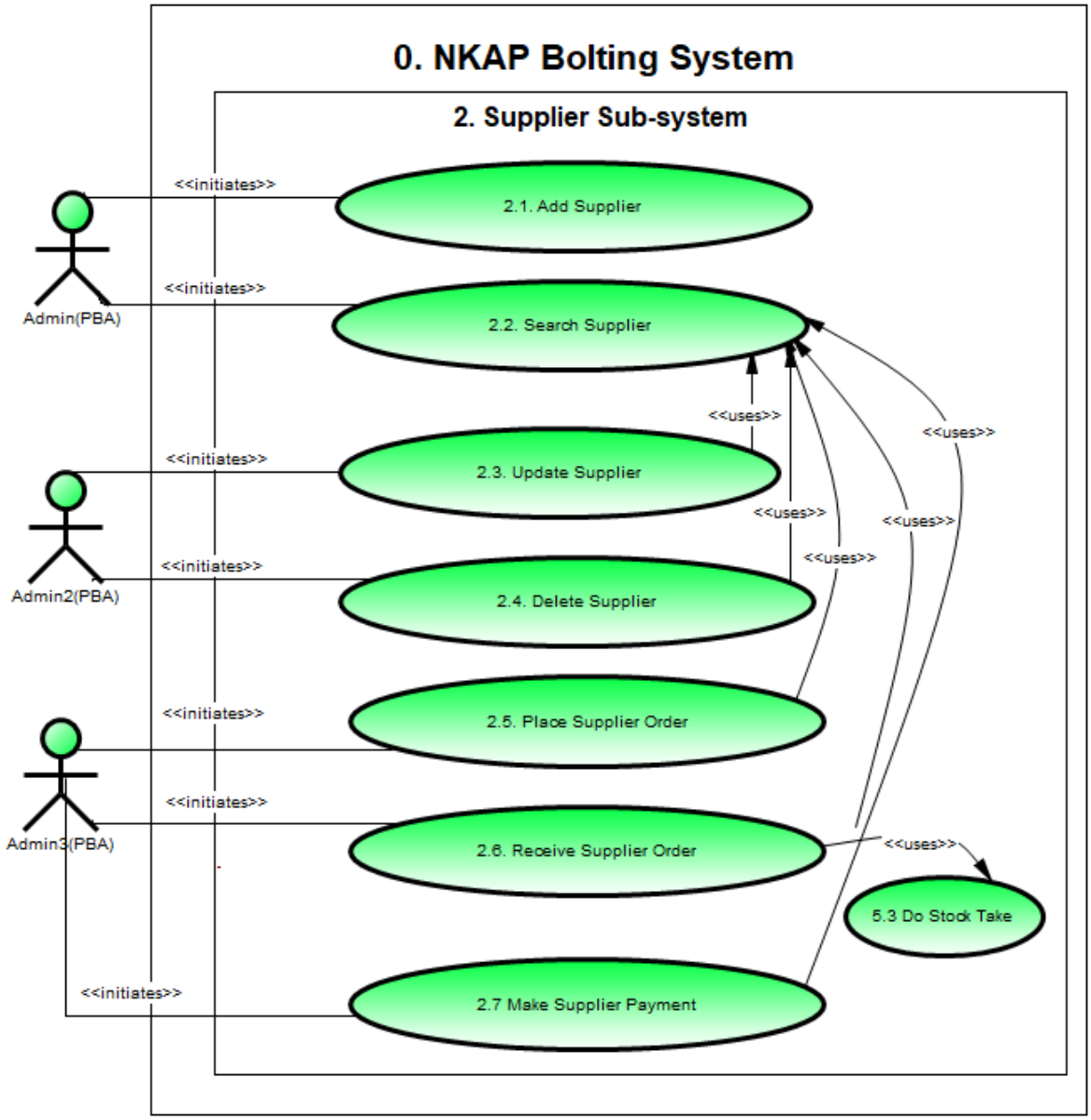


Figure 3: 2. Supplier Use Case Diagram

2.1.3 User Sub-System

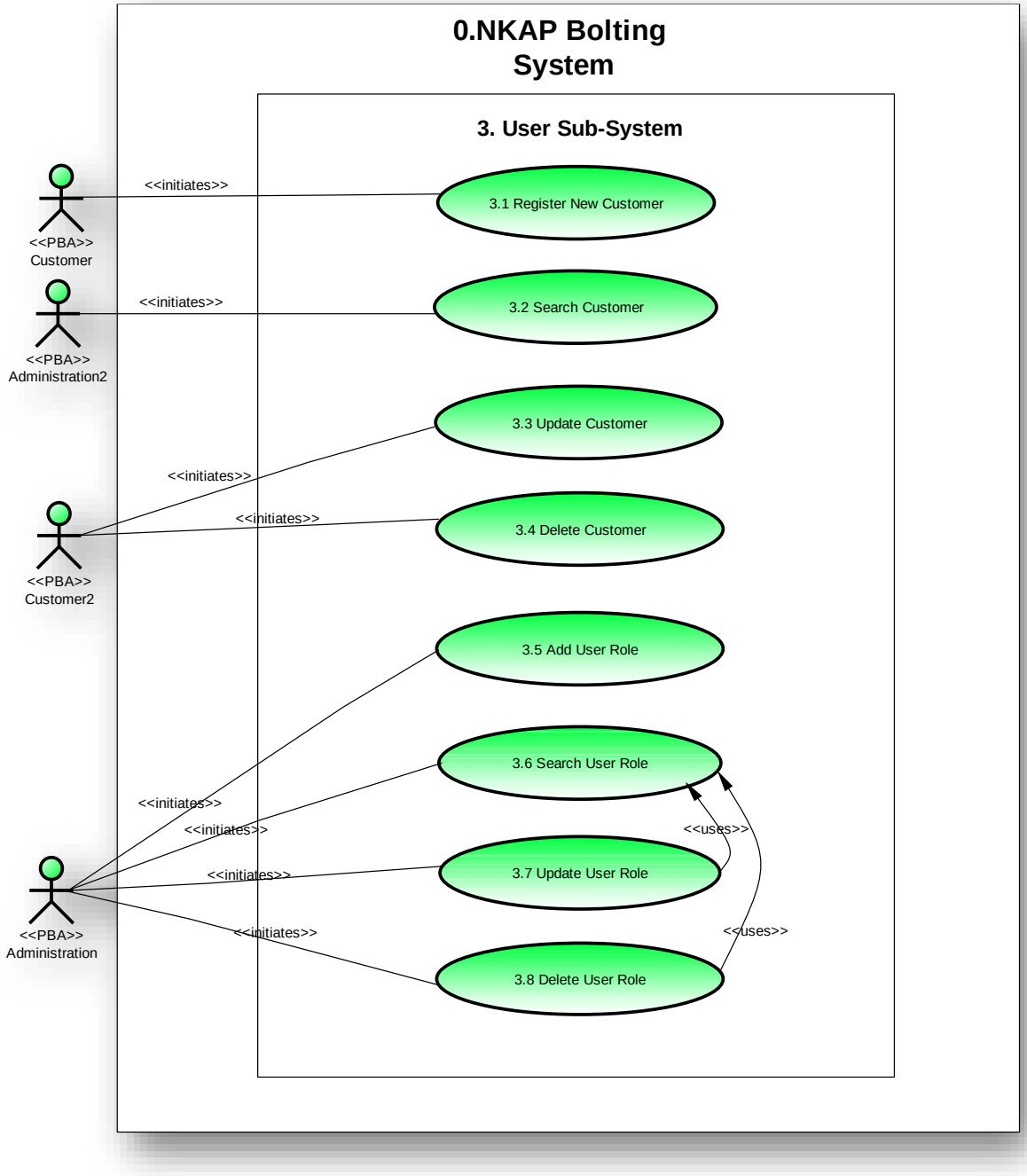


Figure 4: 3. User Use Case Diagram

2.1.4 Employee Delivery Shifts Sub-System

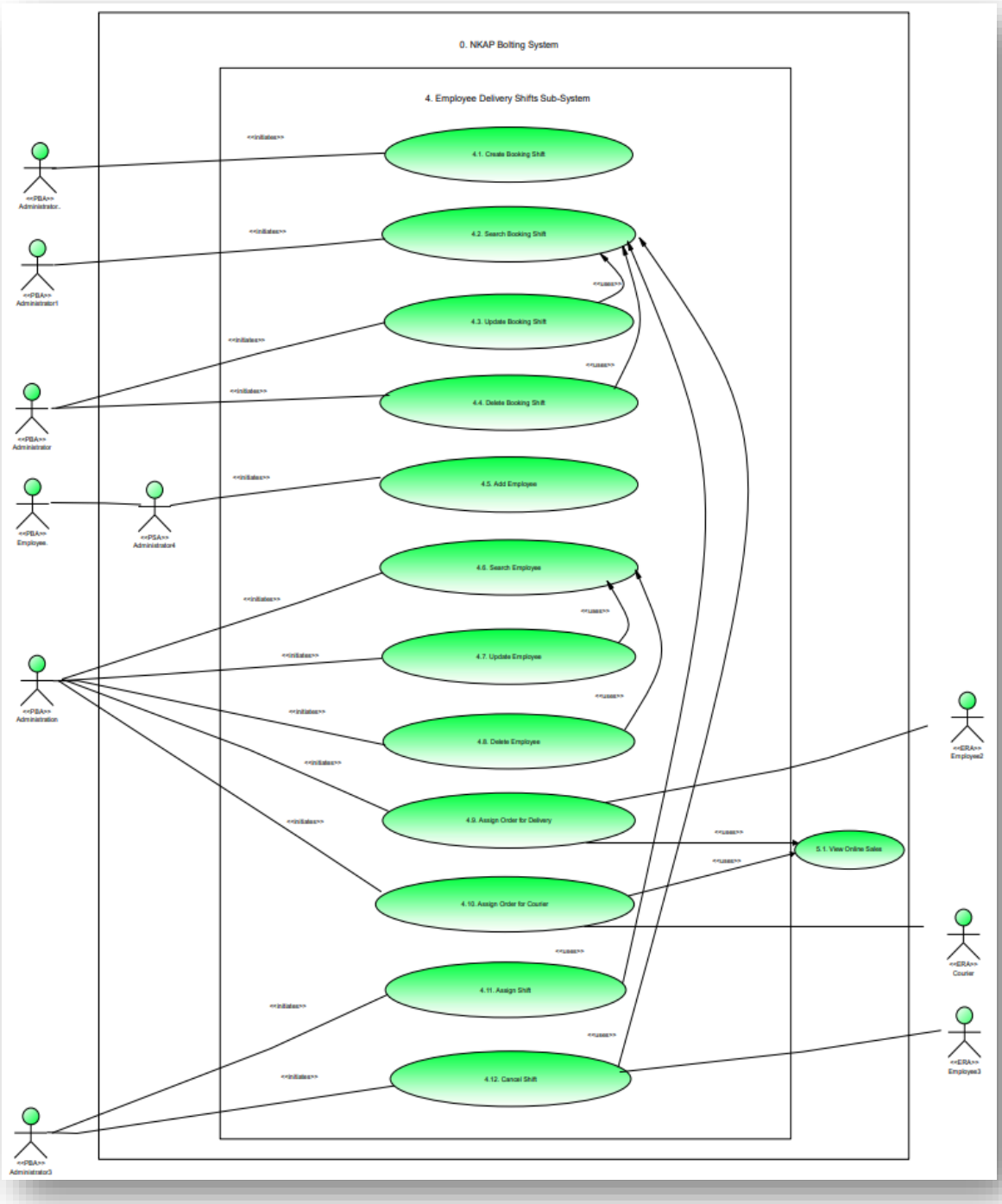


Figure 5: 4. Employee Delivery Shifts Use Case Diagram

2.1.5 Administration Back Office Sub-System

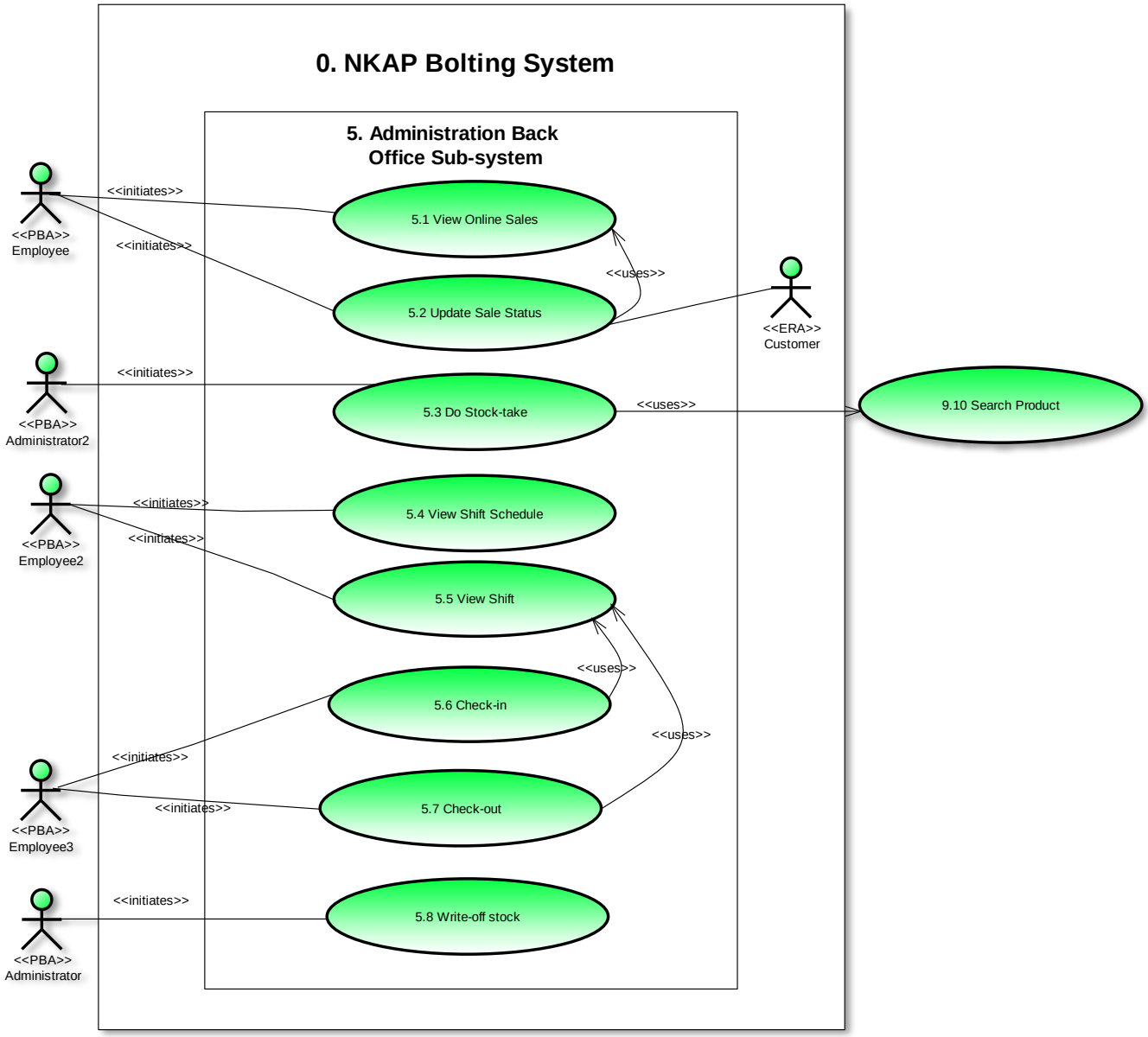


Figure 6:5. Administration Back Office Use Case Diagram

2.1.6 Customer Sub-System

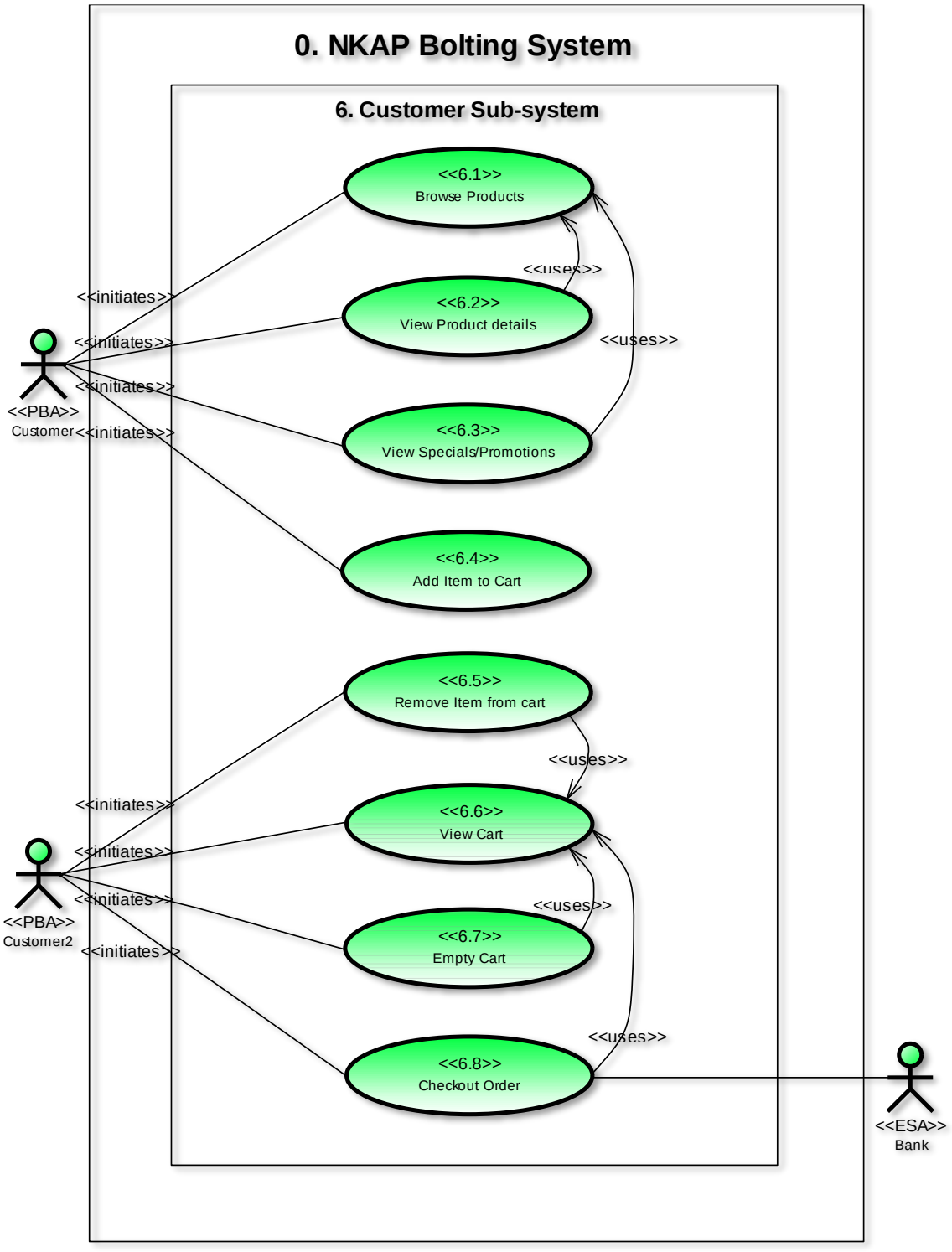


Figure 7: 6. Customer Use Case Diagram

2.1.7 Reports Sub-System

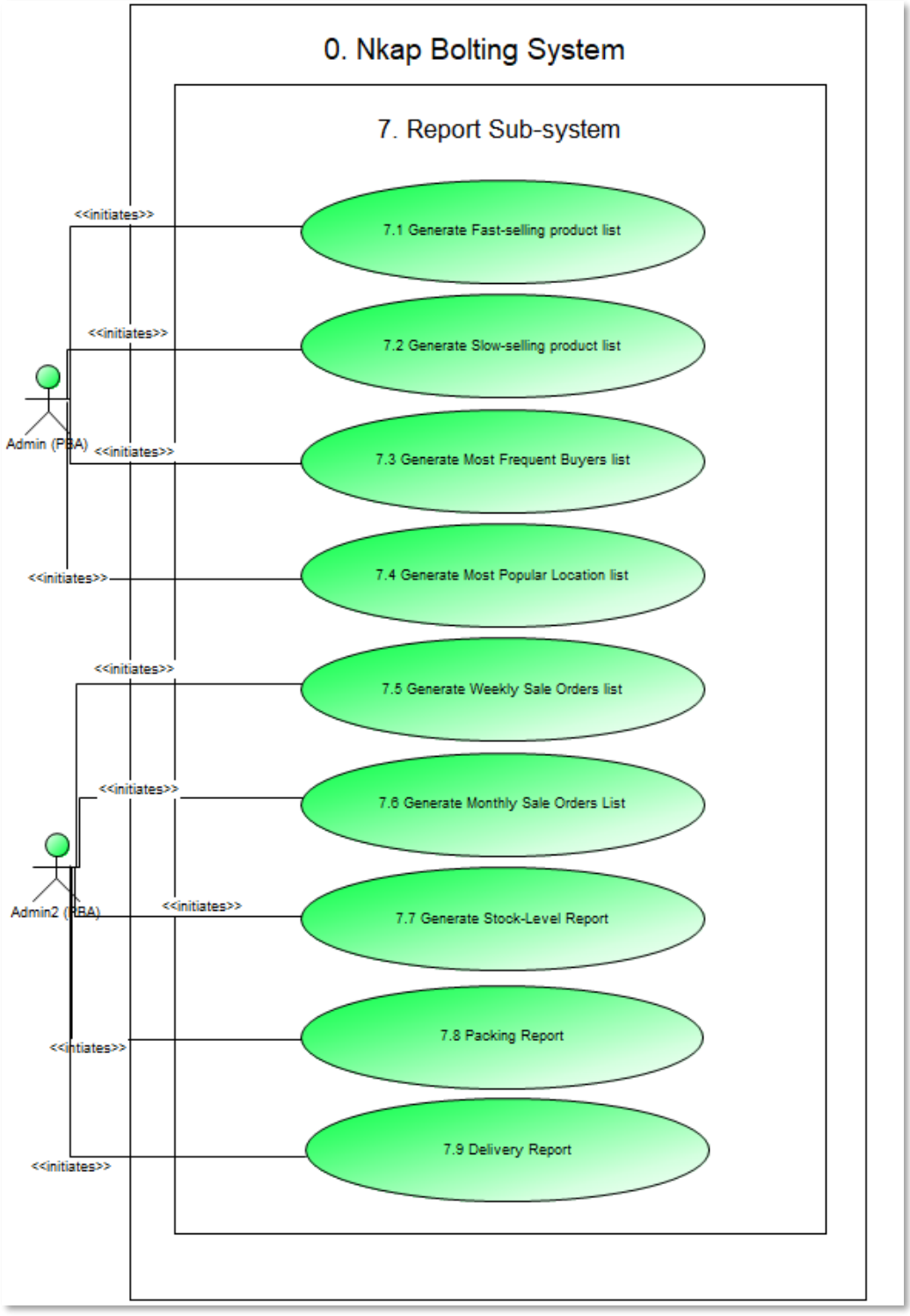


Figure 8: 7. Report Use Case Diagram

2.1.8 Delivery Sub-System

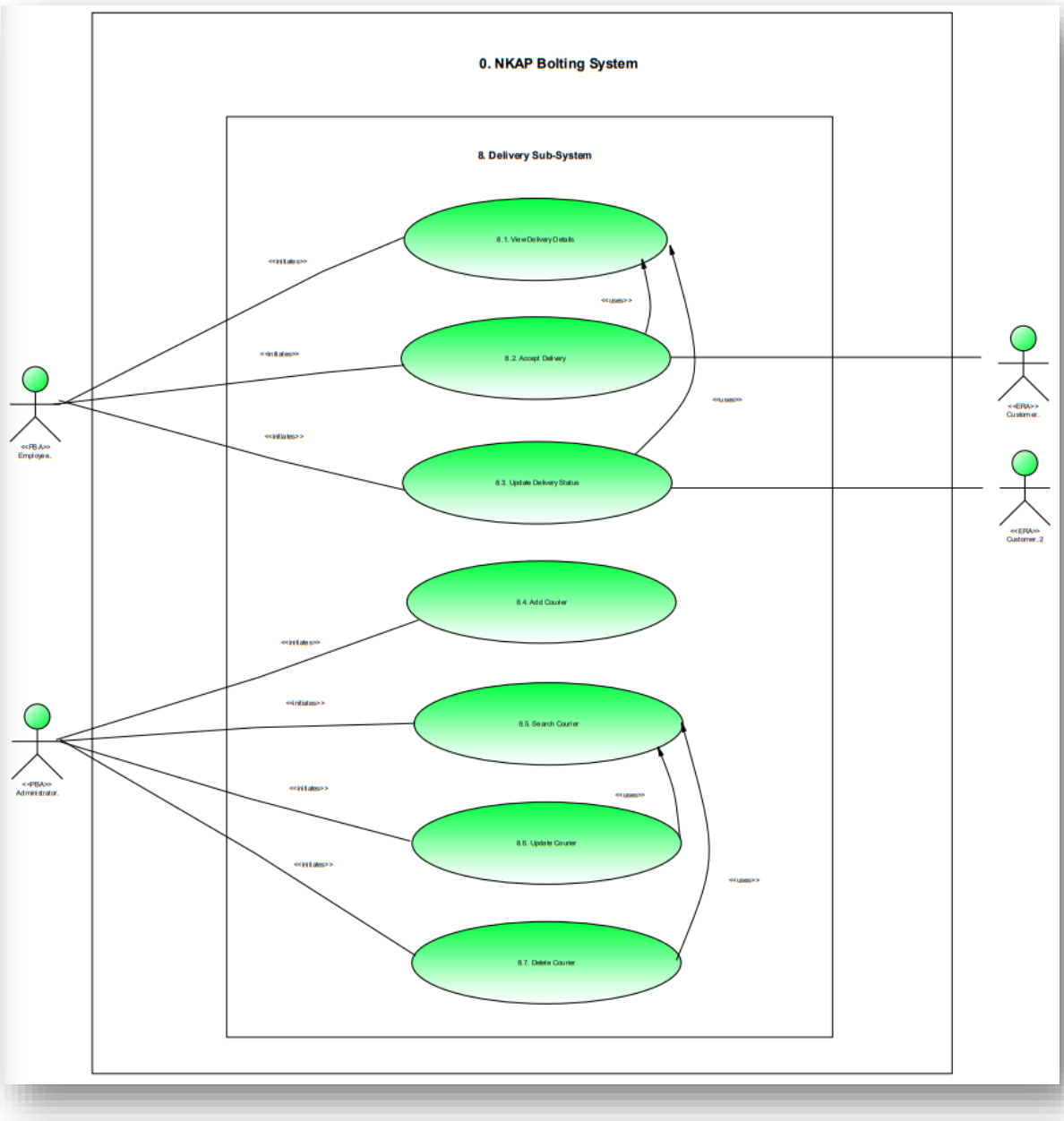


Figure 9:8. Delivery Use Case Diagram

2.1.9 Products Sub-System

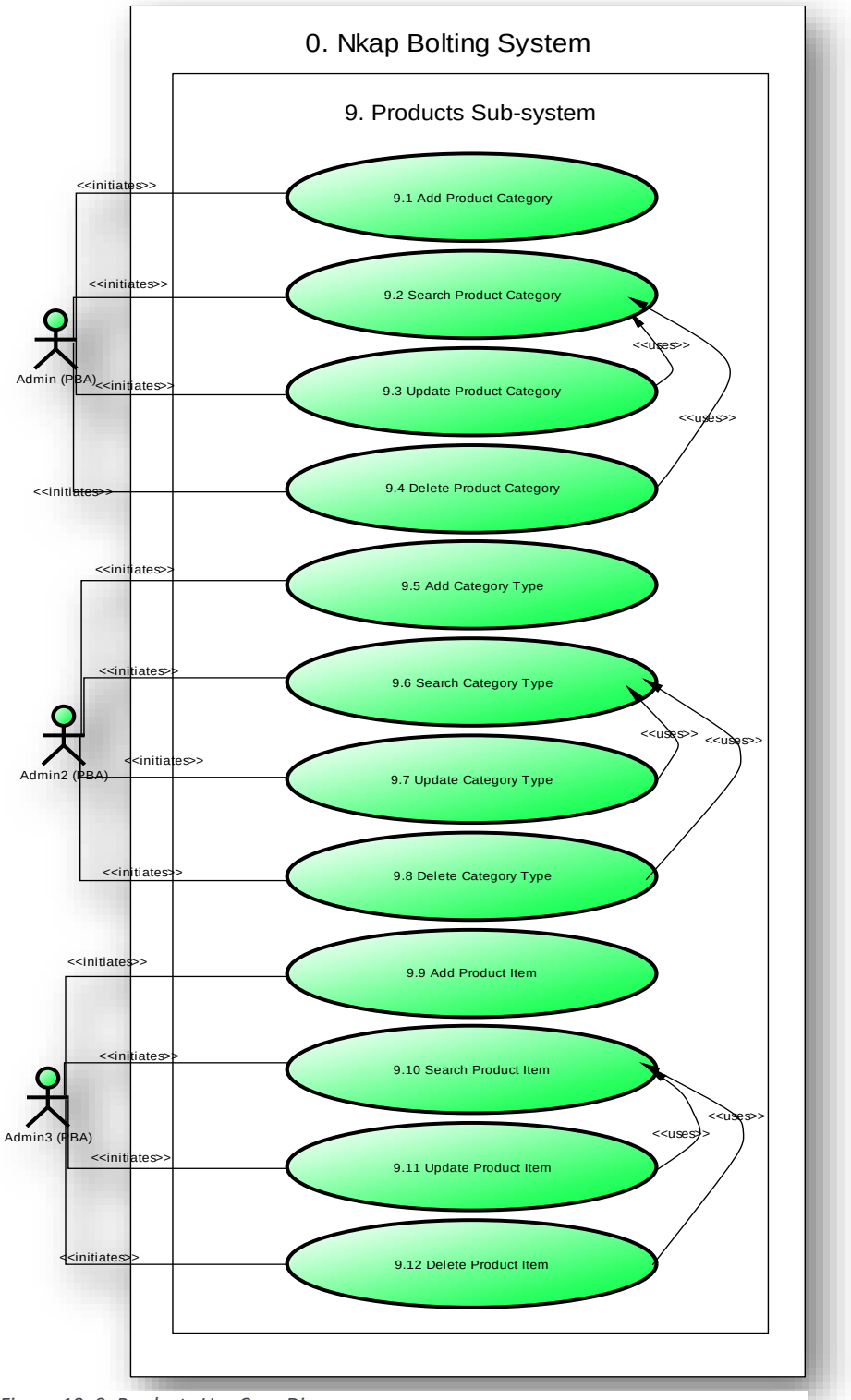


Figure 10: 9. Products Use Case Diagram

2.1.10 Specials Sub-System

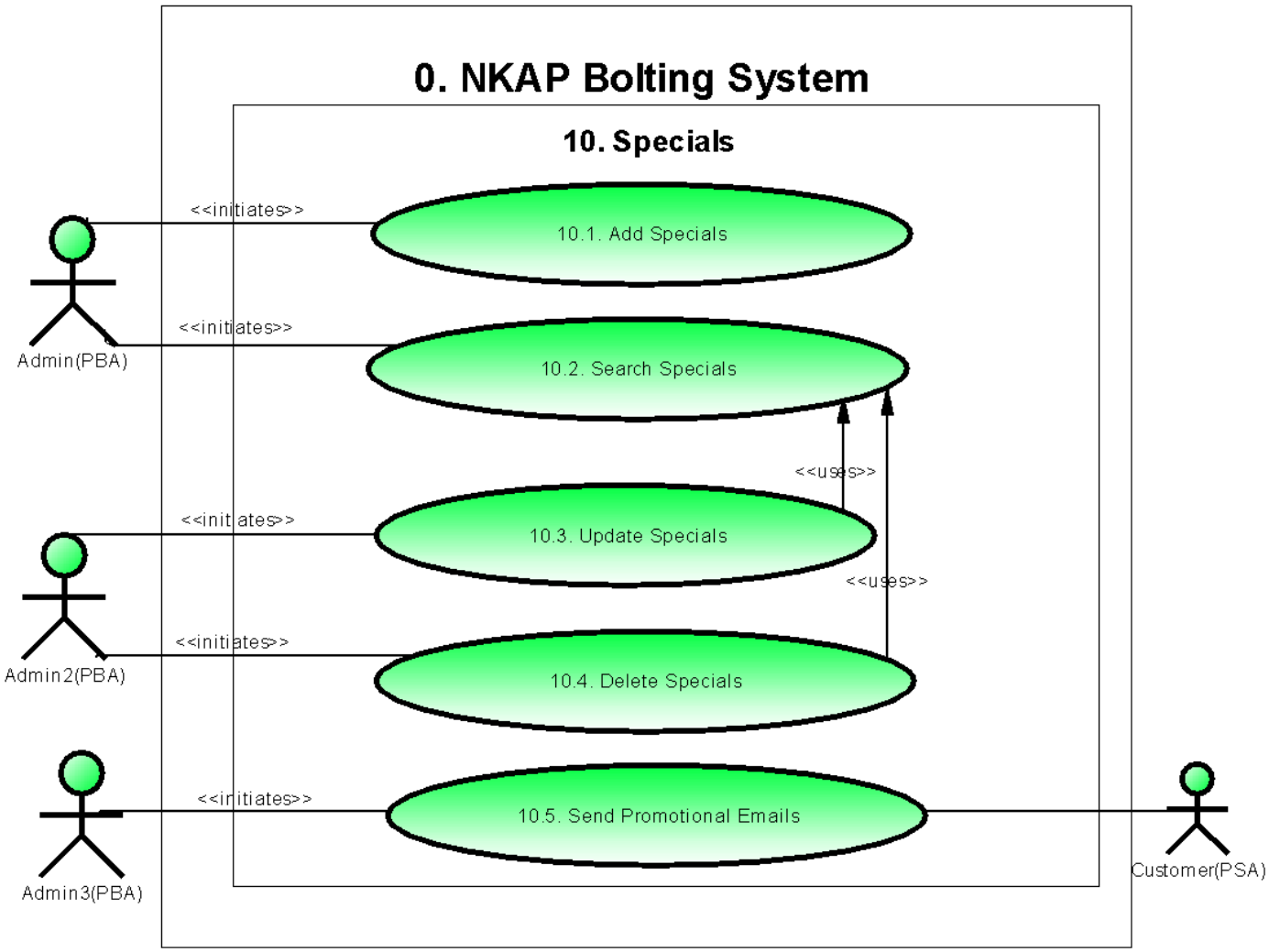


Figure 11: 10. Specials Use Case Diagram

CONCLUSION

2.2. USE CASE NARRATIVES

2.2.1 Login Sub-System

NKAP Bolting System

Author (s): **S'nethemba Xulu** **Date:** **07/05/2021**
Version: **1**

USE CASE NAME:	Log-in	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	1.1	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	User (Customer, Admin)	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where the user logs in to the system and can access the various sub-systems. The system will access user's username and password stored in the **User Entity.** The system will then grant the user access to make use of system functionalities. The use case ends when the user has successfully logged into the system.	
PRE-CONDITION:	• The user must have log in details.	
TRIGGER:	The user wants to access the system	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The user requests to access the system, by logging into the system.	**Step 2:** The system prompts the user for their login credentials.
	Step 3: The user proceeds to type in their login details.	**Step 4:** The system will capture and validate the user's login details to ensure that they correspond to the details stored in the **User entity:** • User_ID

		• User_Password • User_name
		Step 5: The system allows the user to login.
ALTERNATE COURSES:	ALT-STEP 3a: The user forgets the password. The system invokes use case 1.2 Forgot Password.	
	ALT-STEP 3b: The user resets the password. The system invokes use case 1.3 Reset Password.	
	ALT-STEP 4:The system verifies the login details and they are incorrect. **Return to Step 3**	
CONCLUSION:	The use case concludes when the user successfully logs in to the system.	
POST-CONDITION:	The user has successfully logged in and has authorized access to the system	
BUSINESS RULES	• All system users should have log-in details.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 12 1.1. Login Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu

Date: 07/05/2021
Version: 1

USE CASE NAME:	Forgot Password	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	1.2	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	User	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where the system denies access to the user because the login details entered do not correspond with the details stored in the **User Entity.** The system will allow the user the option to select 'forgot password' and prompt the user to reset the password. The use case ends when the user is redirected to reset the password.	
PRE-CONDITION:	• The system must be on • The user must have attempted to login.	
TRIGGER:	The user fails to login.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The user enters the password to access the system.	**Step 2**: The system verifies that the login information is incorrect by comparing it to the details stored in the **User entity.**
	Step 3: The user clicks 'forgot password'	**Step 4**: The system invokes use case **1.3 'reset password'.**
ALTERNATE COURSES:	None	
CONCLUSION:	The use case concludes when the user is redirected to reset the password.	

POST-CONDITION:	• The user is unable to login and is prompted to reset the password.
BUSINESS RULES	• Any user can attempt to reset their password.
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	None

Figure 13 1.2. Forgot Password Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu **Date:** 07/05/2021
Version: 1

USE CASE NAME:	Reset Password	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	1.3	
PRIORITY:	Low	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	User (Customer, Admin)	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where the user is unable to login to the system and selects 'forgot password'. The system will verify that the password reset is being performed by the intended user by using a two-factor authentication. The system will present the user with the 'Reset Password' Page and the user will follow the steps required to reset the password. The system will then reset and save the new password in the **User entity.** The use case ends when the user has successfully reset the password	
PRE-CONDITION:	The user must have attempted to login and selected forgot password.	
TRIGGER:	The user attempts to reset the password.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The user requests to reset their password.	
	Step 2: The user clicks on the option to reset password.	**Step 3**: The system prompts the user to enter their username and email address.
	Step 4: The user enters their username and email address.	**Step 5**: The system validates and captures the username and email by reading the **Username** and **Email Address** from the **User** and

		Customer/Admin table based on the **UserID.**
		Step 6: The system asks the user to create a new password and confirm it.
	Step 7: The user enters a new password and confirms it.	**Step 8**: The system captures and validates the new passwords.
		Step 9: System prompts the user to confirm that they want to reset the password.
	Step 10: The user confirms that they want to reset their password.	**Step 11:** The system sends user a One Time Password (OTP).
	Step 12: The user enters the One Time Password.	**Step 13:** Validate One Time Password, then reset password.
ALTERNATE COURSES:	Alt Step 5: Validation error, due to user entering an invalid username or email address. System alerts user that the username and email address that they entered is incorrect. Return to step 4.	
	Alt Step 8: Validation error, due to user entering a non-matching password. System alerts user that the passwords that they entered do not match. Return to step 7.	
	Alt step 10: User cancels password reset. Return to step 7.	
	Alt step 12: User request a new One Time Password. Return to step 11.	
	Alt step 13: Validation error, due to user entering an invalid One Time Password. System alerts user that the One Time Password that they entered is incorrect. Return to step 12.	
CONCLUSION:	The use case concludes when the password has been successfully reset.	
POST-CONDITION:	The user is redirected to the login page to attempt to login again.	
BUSINESS RULES	• Only users can reset a password on the system.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 14 1.3. Reset Password Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu **Date:** 07/05/2021
Version: 1

USE CASE NAME:	Logout	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	1.4	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	User (Customer, Admin)	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where the user logs out of the system. The use case ends when the user has successfully logged out of the system and is redirected to the login page.	
PRE-CONDITION:	The user must be logged in.	
TRIGGER:	The user attempts to logout.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The user clicks on logout.	**Step 2**: The system asks for confirmation to logout.
	Step 3: The user confirms the logout.	**Step 4**: The system closes and redirects the user to the login page.
ALTERNATE COURSES:	ALT-STEP 3: The user cancels logout	
CONCLUSION:	The use case concludes when the user has successfully logged out of the system.	
POST-CONDITION:	The user is on the login page.	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 15 1.4. Logout Narrative

2.2.2 Supplier Sub-System

NKAP Bolting System

Author (s): **S'nethemba Xulu** **Date:** **07/05/2021**
Version: **1**

USE CASE NAME:	Add Supplier	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	2.1	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	Admin	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes when an admin wants to create a profile for a new supplier. The admin enters the supplier's details with a short description about them.	
PRE-CONDITION:	The admin must be logged into the system. The supplier cannot already exist in the **SUPPLIER** table.	
TRIGGER:	The admin wants to add a new supplier to the system	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to add a new supplier on to the system.	
	Step 2: The admin will click on the add new supplier button.	**Step 3**: The system will show the add supplier screen and the admin will be prompted to add all the details on the new supplier.
	Step 4: The admin will enter all the information on the new supplier.	**Step 5**: The system will capture the information on the new supplier and generate the Supplier_ID and SupplierType_ID automatically by taking the last ID and adding one; then add the supplier information to

		the **SUPPLIER** table with the following attributes: ○ Supplier_ID(PK) ○ Supplier_Name ○ Supplier_CellphoneNumber ○ Supplier_EmailAddress ○ Supplier_Location ○ Supplier_PhysicalAddress ○ SupplierType_ID(FK) and the **SUPPLIER_TYPE** table with the following attributes: • SupplierType_ID(PK) • Description
		Step 6: The system will validate the supplier information.
		Step 7: The system will show a successfully added supplier pop-up.
ALTERNATE COURSES:	Alt-Step 6: Validation for supplier information unsuccessful. Use case terminates.	
CONCLUSION:	The use case concludes when the new supplier is saved on the system	
POST-CONDITION:	The supplier is added to the system	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 16 2.1. Add Supplier Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu

Date: 07/05/2021
Version: 1

USE CASE NAME:	Search Supplier	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	2.2	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The use case occurs when the admin searches for a specific supplier and the system sorts through the **SUPPLIER** table to find a match. When a match is found the system displays the selected supplier information.	
PRE-CONDITION:	• The admin must be logged into the system. • The supplier already exists in the **SUPPLIER** table.	
TRIGGER:	The admin presses the search supplier button.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to search the supplier.	
	Step 2: The admin provides the relevant search supplier information.	**Step 3**: The system displays the information of the selected supplier from the **SUPPLIER** table and the following attributes: ○ Supplier_ID(PK) ○ Supplier_Name ○ Supplier_CellphoneNumber ○ Supplier_EmailAddress

		○ Supplier_Location ○ Supplier_PhysicalAddress ○ SupplierType_ID(FK) • and the **SUPPLIER_TYPE** table with the following attributes: • SupplierType_ID(PK) • Description
		Step 4: The system finds a match and displays the supplier information that were a match with the search details entered by the admin.
	Step 5: The admin selects a specific supplier.	**Step 6**: The system displays the information of the selected supplier from the **SUPPLIER** table and the following attributes: ○ Supplier_ID(PK) ○ Supplier_Name ○ Supplier_CellphoneNumber ○ Supplier_EmailAddress ○ Supplier_Location ○ Supplier_PhysicalAddress ○ SupplierType_ID(FK) • and the SUPPLIER_TYPE table with the following attributes: • SupplierType_ID(PK) • Supplier_Description
ALTERNATE COURSES:	Alt-step 5: The system cannot find the supplier number in the supplier table because the supplier info provided is invalid. Supplier not found message. Use case terminates.	

CONCLUSION:	The use case concludes when the system finds the supplier and displays their information.
POST-CONDITION:	None
BUSINESS RULES	• None
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	None

Figure 17 2.2. Search Supplier Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu

Date: 07/05/2021
Version: 1

USE CASE NAME:	Update Supplier	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	2.3	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	Admin	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This when the admin wants to update the current information that they have already added on the system. This use case is done by the admin selecting the update supplier option and filling in the new information the proceeding to press save. The information is then updated with the corresponding information.	
PRE-CONDITION:	• The admin must be logged into the system. • The supplier already exists in the SUPPLIER table.	
TRIGGER:	Admin wants to update a supplier.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to update supplier information.	**Step 2**: The system will invoke **Use Case 3.3 Search supplier.**
		Step 3: The system displays the information of the selected supplier from the **SUPPLIER** table and the following attributes: ○ Supplier_ID(PK) ○ Supplier_Name ○ Supplier_CellphoneNumber

		○ Supplier_EmailAddress ○ Supplier_Location ○ Supplier_PhysicalAddress ○ SupplierType_ID(FK) • and the SUPPLIER_TYPE table with the following attributes: • SupplierType_ID(PK) • Supplier_Description
	Step 4: The admin provides the updated supplier information by entering it into the system.	**Step 5**: The system shows a save new information prompt.
	Step 6: The admin validates the new information.	**Step 7**: The system displays the information of the selected supplier from the **SUPPLIER** table and the following attributes: ○ Supplier_ID(PK) ○ Supplier_Name ○ Supplier_CellphoneNumber ○ Supplier_EmailAddress ○ Supplier_Location ○ Supplier_PhysicalAddress ○ SupplierType_ID(FK) and the SUPPLIER_TYPE table with the following attributes: • SupplierType_ID(PK) • Supplier_Description
		Step 8: The system displays a pop-up that it has been updated.
ALTERNATE COURSES:	ALT step 3: Invalid supplier information given. Unsuccessful supplier update message pops up. Use case terminates	

CONCLUSION:	The use case concludes when the selected supplier has been updated
POST-CONDITION:	The new supplier information will update in every other table
BUSINESS RULES	• None
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	None

Figure 18 2.3. Update Supplier Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu

Date: 07/05/2021
Version: 1

USE CASE NAME:	Delete Supplier	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	2.4	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	Admin	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The use case describes the event when the admin wants to delete a supplier.	
PRE-CONDITION:	• The admin is logged into the system. • The supplier is in the SUPPLIER table.	
TRIGGER:	The admin requesting to delete a supplier.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to delete a supplier.	**Step 2**: The system invokes **Use Case 3.3. Search Supplier**
		Step 3: The system shows the Supplier screen
	Step 4: The admin selects the delete Supplier.	**Step 5:** The system removes the Supplier from the system and from the **SUPPLIER** table with the following attributes: ○ Supplier_ID(PK) ○ Supplier_Name ○ Supplier_CellphoneNumber ○ Supplier_EmailAddress ○ Supplier_Location ○ Supplier_PhysicalAddress

		○ SupplierType_ID(FK) and the SUPPLIER_TYPE table with the following attributes: • SupplierType_ID(PK) • Supplier_Description
ALTERNATE COURSES:	ALT step 5: The admin cancels the deletion of the supplier. Use case terminates	
CONCLUSION:	The use case concludes when the supplier has been successfully deleted.	
POST-CONDITION:	The Supplier has been removed from the system.	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 19 2.4. Delete Supplier Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu, Jerome Amenigy **Date:** 07/05/2021
Version: 1

USE CASE NAME:	Place Supplier Order	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	2.5	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	Admin	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Supplier (ESA)	
DESCRIPTION:	This use case describes the event where the admin wants to buy more stock from the Supplier.	
PRE-CONDITION:	The admin is logged on to the system	
TRIGGER:	The admin notices that the stock is low.	
TYPICAL COURSE OF EVENTS:	**ACTOR ACTION**	**SYSTEM RESPONSE**
	Step 1: The admin requests to purchase more inventory from a supplier.	**Step 2**: The system will show all the suppliers that are on the system. Reads from the **SUPPLIER** table using the following attributes: ○ Supplier_ID(PK) ○ Supplier_Name ○ Supplier_ContactNumber

		○ Supplier_EmailAddress ○ Supplier_Location ○ Supplier_AddressLine1 ○ Supplier_AddressLine2 ○ Supplier_City_Town ○ Supplier_PostalCode ○ Supplier_Balance ○ SupplierType_ID(FK)
	Step 3: The admin requests to place a supplier order.	**Step 4**: The system invokes **UC 2.2 Search Supplier.**
	Step 5: The admin clicks on the supplier that they want to purchase the order from.	**Step 6**: The system shows the information of the supplier by reading from the **SUPPLIER** table ○ Supplier_ID(PK) ○ Supplier_Name ○ Supplier_ContactNumber ○ Supplier_EmailAddress ○ Supplier_Location ○ Supplier_AddressLine1 ○ Supplier_AddressLine2 ○ Supplier_City_Town ○ Supplier_PostalCode ○ Supplier_Balance ○ SupplierType_ID(FK)
	Step 7: The admin clicks on the place order.	**Step 8**: The system displays a screen whereby the admin can select the items that which need to be ordered The system retrieves the product information from the **ProductItem**

		ProductCategory and **CategoryType** tables • ProductItemID • ProductItem_Name • ProductItem_Desc • ProductItem_Image • Quantity_On_Hand • ProductItem_Cost • CategoryType_ID • CategoryType_ID • CategoryType_Desc • ProductCategory_ID • ProductCategory_ID • ProductCategory_Desc
	Step 9: The admin selects the item(s) and quantities that they want to order from the supplier	**Step 10:** The system displays a confirmation message asking whether the admin would like to order the selected items
	Step 11: The admin confirms the order	**Step 12:** The system saves the supplier order and updates the following attributes in the **SupplierOrder** and **SupplierOrderLine** tables: • SupplierOrder_ID • Supplier_ID • Order_Date_Placed • SupplierOrder_Total • SupplierOrderLine_ID • SupplierOrder_ID • Supplier_Products • Sup_Quantity_Ordered • SupplierOrderLine_Cost

		Step 13: The system displays a supplier order placed success message
Alternate Courses	Alt-Step 11: The admin declines the confirmation message, and the system displays an “order aborted” message and the use case is terminated	
CONCLUSION:	The use case concludes when the system displays the supplier order places success message.	
POST-CONDITION:	the system updates the SupplierOrderLine and SupplierOrder tables.	
BUSINESS RULES	• None	
IMPLEMENTATION CONTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 20 2.5. Place Supplier Order Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu, Jerome Amenigy **Date:** 07/05/2021
Version: 1

USE CASE NAME:	Receive Supplier Order	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	2.6	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where the admin receives the order that they made to the Supplier.	
PRE-CONDITION:	The inventory was ordered from the supplier	
TRIGGER:	The admin has new stock that has arrived.	
TYPICAL COURSE	**ACTOR ACTION**	**SYSTEM RESPONSE**
	Step 1: The admin checks that the Supplier invoice corresponds with the items the Supplier has delivered to the admin.	
	Step 2: The admin accepts the inventory order.	

	Step 3: The admin requests to receive the supplier order.	**Step 4:** The system invokes UC 2.2 "Search Supplier"
	Step 5: The admin selects receive supplier order	**Step 6:** The system displays the supplier invoice fields for the admin to populate with the information he received.
	Step 7: The admin populates the fields with the information on the supplier invoice	**Step 8:** The system saves the information entered and updates the **Supplier, SupplierInvoice** and **SupplierInvoiceLine** Tables with the following attributes: • Supplier_Balance • SupplierInvoice_ID • SupplierInvoice_Date • SupplierInvoice_Total • Supplier_ID • Supplier_InvoiceLine • Quantity_Received • SupplierItem_Name • LineItem_Cost • SupplierInvoice_ID
	Step 9: The admin requests to update the stock available	**Step 10:** The system will invoke **Use Case 5.3 Do Stock Take.**
ALTERNATE COURSES:	Alt-Step 2: The invoice doesn't correspond with the items the supplier delivered. Use case terminates.	
CONCLUSION:	The use case concludes once use case 5.3 has been initialized and the SupplierInvoice and SupplierInvoiceLine tables have been updated.	

POST-CONDITION:	The new items from the Supplier have been captured onto the system successfully.
BUSINESS RULES	• None
IMPLEMENTATION CONTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• The admin is the only one who can access and make changes to the inventory orders.
OPEN ISSUES:	None

Figure 21 2.6. Receive Supplier Order Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu, Jerome Amenigy **Date:** 07/05/2021
Version: 2

USE CASE NAME:	Make a supplier payment	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	2.7	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where the admin wants to make a payment to the supplier. The admin will capture the payment and the information will be added to the **Supplier** table and the **Supplier Payment** table.	
PRE-CONDITION:	The admin making a payment to the supplier.	
TRIGGER:	The admin paying the supplier.	
TYPICAL COURSE OF EVENTS:	**ACTOR ACTION**	**SYSTEM RESPONSE**
	Step 1: The admin requests to add a payment to the supplier.	**Step 2**: The system will **invoke Use Case 2.2 Search Supplier**

	Step 3: The admin will select the supplier they have made a payment to.	**Step 4:** The system will display the information of the supplier.
	Step 5: The admin will add the amount they have paid to the supplier.	**Step 6:** The system capture and validate the information and it will be added to the **Supplier** table: ○ Supplier_Balance And the **SupplierPayment** table: ○ SupplierPayment_ID(PK) ○ Supplier_Date ○ SupplierPayment_Amount ○ Supplier_ID
		Step 7: The system displays a payment capture successful message
ALTERNATE COURSES:	None	
CONCLUSION:	The use case concludes when the system notifies the admin that the payment has been captured successfully.	
POST-CONDITION:	The new payment to the Supplier has been captured onto the system successfully.	
BUSINESS RULES	• None	
IMPLEMENTATION CONTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 22 2.7. Make Supplier Payment Narrative

2.2.3 User Sub-System

NKAP Bolting System

Author (s): **Divya Bagratee** **Date:** **08-05-21**
Version: **1.0**

USE CASE NAME:	Register New Customer	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	3.1	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where a Customer registers on the system. The system will request the Customer Information and validate this information. Once the system has successfully validated the Customer Information, it will be captured and stored in the **User Entity** and the **Customer Entity**. The use case ends when the Customer has successfully registered on the system.	
PRE-CONDITION:	• The customer attempting to register must not already exist on the system.	
TRIGGER:	A Customer attempts to register on the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. A customer wants to register on the system.	**2.** The system will prompt the customer to enter the following user details from the **User Entity:** • User_UserName • User_Password and the following details from the **Customer Entity:** • Customer_Name

		• Customer_Surname • Customer_CellPhoneNumber • Customer_EmailAddress • Customer_BusinessName • CustomerVatReg • Customer_AddressLine1 • Customer_AddressLine2 • Customer_PostalCode The System uses the retrieved City_ID to prompt the customer to choose the City_Description from the **City Entity.** The system uses the retrieved **Title_ID** to prompt the customer to choose the Title_Description from the Title Entity.
	3. The customer provides the information.	**4.** The system validates that all the required fields have been completed in the correct format, and that all the fields contain valid details for: • User_Name • User_Password in the **User Entity** and • Customer_Name • Customer_Surname • Customer_CellPhoneNumber • Customer_EmailAddress • Customer_BusinessName • Customer_VATReg • Customer_Address The System uses the retrieved City_ID to validate the selected

		City_Description from the **City Entity.** The system uses the retrieved **Title_ID** to display Title_Description from the Title Entity. in the **Customer Entity.**
		5. The system requests the customer to confirm the captured information.
	6. The Customer Confirms the Information.	**7.** The system generates a unique Customer_ID by retrieving the last Customer_ID from the **Customer Entity** and setting the new Customer_ID to the next consecutive number. The system also generates a unique User_ID by retrieving the last User_ID from the **User Entity** and setting the new User_ID to the next consecutive number.
		8. The system creates and saves a new Customer with the unique ID generated in Step 7, in the **Customer Entity** with the following details: • Customer_Name • Customer_Surname • Customer_CellPhoneNumber • Customer_EmailAddress • Customer_BusinessName • CustomerVatReg • Customer_AddressLine1 • Customer_AddressLine2 • Customer_PostalCode The System uses the retrieved City_ID to save the selected

		City_Description from the **City Entity.** The system uses the retrieved **Title_ID** to save the selected Title_Description from the Title Entity. and the **User Entity:** • User_UserName • User_Password The System Uses the retrieved UserRole_ID from the **UserRole Entity** and automatically sets it to customer.
		9. The system notifies the user that they have successfully registered on the system.
ALTERNATE COURSES:	ALT-STEP 4: The captured information does not correspond with the requirements for the **User entity** and **Customer entity** and the system displays an error message. **Return to Step 3.**	
	ALT-STEP 6: The customer does not confirm the information. **Terminate Use Case.**	
	ALT-STEP 8: The system fails to create the new user and save the details in the **User entity** and **Customer entity** and the system displays an error message **Terminate Use Case.**	
CONCLUSION:	The use case concludes when the User has been registered successfully.	
POST-CONDITION:	The Customer is able to log in to their account on the NKAP Bolting System.	
BUSINESS RULES	• The user cannot already exist on the system. (They cannot register twice).	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 233.1. Register New Customer Narrative

NKAP Bolting System

Author (s): Divya Bagratee **Date:** 08-05-21
Version: 1.0

USE CASE NAME:	3.2	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	Search Customer	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administration	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The Use Case describes the event where an Admin wants to search for a Customer on the system. The Admin will request to search for a customer and enter a search criterion to filter through all of the customers on the system. The system will display the customer which matched the search criterion entered by the admin. The admin will select the customer they want to view and the use case ends when the system successfully displays the searched customer's information.	
PRE-CONDITION:	• The User must exist on the system.	
TRIGGER:	An admin wants to search for a User.	
TYPICAL COURSE	**Actor Action**	**System Response**
	1. The Admin selects the option to search for a customer.	2. The system displays all the Customer's on the system in a list by using the retrieved Customer_ID to display the: • Customer_Name • Customer_Surname • Customer_BusinessName for each customer in the **Customer Enity** and requests the search criteria from the admin.

	3. The Admin searches for a customer by providing the search criteria (a keyword).	4. The system displays a list of all the Customer's that match the search criteria provided by the Admin.
	5. The Admin selects the Customer they want to view.	6. The system displays the retrieved Customer Information from the **Customer Entity:** • Customer_Name • Customer_Surname • Customer_CellPhoneNumber • Customer_EmailAddress • Customer_BusinessName • Customer_VATReg Customer_AddressLine1 • Customer_AddressLine2 • Customer_PostalCode • City_ID The system uses the retrieved Title_ID to display the selected Title_Description from the **Title Entity.** The System uses the retrieved City_ID to display the selected City_Description from the **City Entity.** for each customer in the **Customer Enity**.
ALTERNATE COURSES:	ALT-STEP 4: No Users matching the criteria entered by the admin is found and the system displays an error message. **Terminate Use Case.**	
CONCLUSION:	The use case concludes when the system successfully displayed the searched Customer's Information.	
POST-CONDITION:	• The Admin can view the searched Customer's Information	
BUSINESS RULES	• Only an Admin can search for a Customer	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None None	

ASSUMPTIONS:	• None
OPEN ISSUES:	None

Figure 24 3.2. Search Customer Narrative

NKAP Bolting System

Author (s): Divya Bagratee **Date:** 08-05-21
Version: 1.0

USE CASE NAME:	3.3	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	Update Customer	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The Use Case describes the event where a Customer wants to update their information. A Customer will select the option to update their information and the system will enable the user to edit their information retrieved from the **User Entity and the Customer Entity.** The system will validate and confirm the changes. The use case ends when the system has successfully updated the Customer's information.	
PRE-CONDITION:	• The Customer must be logged in to the system.	
TRIGGER:	A Customer wants to update their information.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. A Customer wants to update their information and selects the Update option on their profile.	**2.** The system uses the retrieved User_ID to display the: • User_UserName • User_Password from the **User Entity** and the retrieved Customer_ID to display the: • Customer_Name • Customer_Surname • Customer_CellPhoneNumber

		• Customer_EmailAddress • Customer_BusinessName • Customer_VATReg • Customer_AddressLine1 • Customer_AddressLine2 • Customer_PostalCode The System uses the retrieved City_ID to display the selected City_Description from the **City Entity.** The system uses the retrieved **Title_ID** to display the selected Title_Description from the **Title Entity.** from the **Customer Entity**.
		3. The system enables the Customer to update their information and requests the new information.
	4. The Customer provides their new information.	**5.** The system validates that all the required fields have been completed in the correct format, and that all the fields contain valid details for: • User_UserName • User_Password in the **User Entity** and • Customer_Name • Customer_Surname • Customer_CellPhoneNumber • Customer_EmailAddres • Customer_BusinessName • Customer_VATReg • Customer_AddressLine1 • Customer_AddressLine2 • Customer_PostalCode

		The System uses the retrieved City_ID to validate the selected City_Description from the **City Entity.** The system uses the retrieved **Title_ID** to validate the selected Title_Description from the **Title Entity.** in the **Customer Entity.**
		6. The system displays a confirmation message to the Customer to confirm the changes.
	7. The Customer confirms the changes.	**8.** The system updates the User details in the **User Entity** and the Customer Details in the **Customer Entity.**
		9. The system displays a success message to the customer to notify them that their details have been updated.
	ALT STEP 5: The system fails to validate the entered information and displays an error message. **Return to Step 4.**	
ALTERNATE COURSES:	ALT-STEP 7: The User does not confirm the changes. **Terminate Use Case.**	
	ALT STEP 8: The system fails to update the relevant entities and displays a failure message. **Terminate Use Case.**	
CONCLUSION:	The use case concludes when the system successfully updates Customer's Information.	
POST-CONDITION:	• The Customer's Information has been updated.	
BUSINESS RULES	• Only a Customer can update their own details. • The Customer must be logged in to update their details.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None None	
ASSUMPTIONS:	• None	

OPEN ISSUES:	None

Figure 25 3.3. Update Customer Narrative

NKAP Bolting System

Author (s): Divya Bagratee **Date:** 08-05-21
Version: 1.0

USE CASE NAME:	3.4	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	Delete Customer	
PRIORITY:	High	
SOURCE:	NKAP Bolting System	
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The Use Case describes the event where a Customer wants to delete their account. A customer will select the option to delete their account and the system will enable the customer to delete their information retrieved from the **User Entity** and the **Customer Entity.** The system will confirm the deletion. The use case ends when the system has successfully deleted the Customer's Account.	
PRE-CONDITION:	• The Customer must be logged in to the system.	
TRIGGER:	A Customer wants to delete their information.	
TYPICAL COURSE OF EVENTS:	**Actor Action** **1.** A Customer wants to delete their account and selects the Delete option on their profile.	**System Response** **2.** The system uses the retrieved User_ID to display the: • User_Username • User_Password from the **User Entity** and the retrieved Customer_ID to display the: • Customer_Name • Customer_Surname • Customer_CellPhoneNumber • Customer_EmailAddress

		• Customer_BusinessName • Customer_VATReg • Customer_AddressLine1 • Customer_AddressLine2 • Customer_PostalCode The System uses the retrieved City_ID to display the selected City_Description from the **City Entity.** The system uses the retrieved Title_ID to display the Title_Description from the **Title Entity.** from the **Customer Entity**.
		3. The system will display a confirmation message to confirm the deletion.
	4. The Customer confirms the deletion.	**5.** The system deletes the user's information and related dependencies: • User_Username • User_Password in the **User Entity** and the: • Customer_Name • Customer_Surname • Customer_CellPhoneNumber • Customer_EmailAddress • Customer_BusinessName • Customer_VATReg • Customer_AddressLine1 • Customer_AddressLine2 • Customer_PostalCode The System uses the retrieved City_ID to delete the selected

		City_Description from the **City Entity.** The system uses the retrieved Title_ID to delete the selected Title_Description from the **Title Entity.** from the **Customer Entity**.
		6. The system displays a success message to the Customer to notify them that their details have been deleted.
ALTERNATE COURSES:	ALT STEP 4: The Customer does not confirm the deletion. **Terminate Use Case.**	
	ALT STEP 5: The system fails to delete the Customer's information from the relevant entities and displays a failure message. **Terminate Use Case.**	
CONCLUSION:	The use case concludes when the system successfully deletes the Customer's Account.	
POST-CONDITION:	• The Customer's Information has been deleted.	
BUSINESS RULES	• Only a Customer can delete their own Account • The Customer must be logged in to delete their Account.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 26 4.4. Delete Customer Narrative

NKAP Bolting System

Author (s): Divya Bagratee **Date:** 08-05-21
Version: 1.0

USE CASE NAME:	3.5	**USE CASE TYPE**
USE CASE ID:	Add User Role	Business Requirements: ☐
PRIORITY:	High	System Analysis: ✓
SOURCE:	NKAP Bolting System	System Design: ☐
PRIMARY BUSINESS ACTOR	Administration	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The Use Case describes the event where an Admin adds a user role on the system. The system will request the User Role Information and validate this information. Once the system has successfully validated the User Role Information, it will be captured and stored in the **UserRole Entity**. The use case ends when the Admin has successfully added a user role on the system	
PRE-CONDITION:	• The Admin must be logged in to the system.	
TRIGGER:	An Admin wants to add a User Role.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. An admin wants to add a User Role and selects the option to do so.	**4.** 2. The system will prompt the admin to enter the following UserRole details from the **UserRole Entity:** • UserRole_Desc
	3. The Admin provides the User Role Information.	4. The system validates that all the required fields have been completed in the correct format, and that all the fields contain valid details for:

		• UserRole_Desc in the **UserRole Entity.**
		5. The system requests the admin to confirm captured information
	6. The Admin confirms the captured information.	5. The system generates a unique UserRole_ID by retrieving the last UserRole_ID from the **UserRole Entity** and setting the new UserRole_ID to the next consecutive number.
		8. The system creates and saves the new User Role in the **UserRole Entity** and displays a success message to the Admin.
ALTERNATE COURSES:	ALT STEP 4: The system fails to validate the New user role Information and displays an error message.. **Terminate Use Case.**	
	ALT STEP 6: The admin does not confirm the captured information. **Terminate Use Case.**	
	ALT STEP 8: The system fails to create and save the new user role in the **UserRole Entity** and displays an error message. **Terminate Use Case.**	
CONCLUSION:	The use case concludes when the system successfully adds the User Role.	
POST-CONDITION:	• The New User Role can be assigned to a user.	
BUSINESS RULES	• Only an Admin can add a User Role.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 27 3.5. Add User Role Narrative

NKAP Bolting System

Author (s): _Divya Bagratee_ **Date:** _08-05-21_
Version: _1.0_

USE CASE NAME:	3.6	**USE CASE TYPE**
USE CASE ID:	Search User Role	Business Requirements: ☐
PRIORITY:	High	System Analysis: ✓
SOURCE:	NKAP Bolting System	System Design: ☐
PRIMARY BUSINESS ACTOR	Administration	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The Use Case describes the event where an Admin searches for a user role on the system. The Admin will request to search for a User Role and enter a search criterion to filter through all of the User Roles on the system. The system will display the User Role which matched the search criterion entered by the admin. The admin will select the User Role they want to view and the use case ends when the system successfully displays the searched User Role's information.	
PRE-CONDITION:	• The Admin must be logged in to the system.	
TRIGGER:	An Admin wants to search for a User Role.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. An admin wants to search for a User Role and selects the option to do so.	**2.** The system uses the retrieved UserRole_ID to display the • UserRole_ID from the **UserRole Entity** and requests the search parameter from the admin.
	3. The Admin searches for a UserRole by providing the search criteria (a keyword).	**4.** The system displays a list of all the UserRole's that match the search criteria provided by the Admin.

	5. The Admin selects the UserRole they want to view.	**6.** The system displays the retrieved UserRole Information from the **UserRole Entity:** • UserRole_Desc
ALTERNATE COURSES:	ALT-STEP 4: No Users matching the criteria entered by the admin is found. **Terminate Use Case.**	
CONCLUSION:	The use case concludes when the system successfully displays the User Role.	
POST-CONDITION:	• The Admin is able to view the searched User Role	
BUSINESS RULES	• Only an Admin can add a User Role.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 28 3.6. Search User Role Narrative

NKAP Bolting System

Author (s): Divya Bagratee **Date:** 08-05-21
Version: 1.0

USE CASE NAME:	3.7	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	Update UserRole	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The Use Case describes the event where an Admin wants to update a User Role. An admin will select the option to update the User Role and the system will enable the admin to edit the User Role information retrieved from the **UserRoleEntity.**The system will validate and confirm the changes. The use case ends when the system has successfully updated the UserRole.	
PRE-CONDITION:	• The Admin must be logged in to the system.	
TRIGGER:	An admin wants to update the employee user role.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. An Admin wants to update a User Role and selects the option to update Employee.	2. **The system invokes Use Case 3.7 Search User Role**
		3. The system will use the retrieved UserRole_ID to display the: • UserRole_Desc from the **UserRole Entity.**
		4. The system will enable the admin to update the UserRole and requests the new information.
	5. The admin changes the UserRole.	**6.** The system validates that all the required fields have been completed

		in the correct format, and that all the fields contain valid details for: • UserRole_Desc from the **UserRole Entity.**
		7. The system displays a confirmation message to the Admin to confirm the changes.
	2. The Admin confirms the changes.	**3.** The system updates the UserRole in the **UserRoleEntity**.
		4. The system displays a success message to the admin to notify them that the user role was successfully updated,
	ALT STEP 6: The system fails to validate the entered information. **Return to Step 4.**	
ALTERNATE COURSES:	ALT-STEP 8: The Admin does not confirm the changes. **Terminate Use Case.**	
	ALT STEP 9: The system fails to update the relevant entities and displays a failure message. **Terminate Use Case.**	
CONCLUSION:	The use case concludes when the system successfully updates Employee's UserRole.	
POST-CONDITION:	• The Employee's User Role has been updated.	
BUSINESS RULES	• Only an Admin can update an Employee User Role.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 29 3.7. Update User Role Narrative

NKAP Bolting System

Author (s): Divya Bagratee **Date:** 08-05-21
Version: 1.0

USE CASE NAME:	3.8	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	Delete UserRole	
PRIORITY:	High	
SOURCE:	NKAP Bolting System	
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The Use Case describes the event where an Admin wants to delete a UserRole. An admin will select the option to delete the User Role and the system will enable the admin to delete it from the **UserRole Entity.** The system will confirm the deletion. The use case ends when the system has successfully deleted the User Role.	
PRE-CONDITION:	• The Customer must be logged in to the system.	
TRIGGER:	A Customer wants to delete their information.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. An admin wants to delete a User Role and selects the Delete option.	2. **The system invokes use case 3.7 Search UserRole.**
		3. The system will display a confirmation message to confirm the deletion.
	4. The Admin confirms the deletion.	5. The system deletes the • UserRole_Desc from the **UserRole Entity** and displays a success message to the Admin to notify them that the User Role has been deleted.

ALTERNATE COURSES:	ALT STEP 4: The Admin does not confirm the deletion. **Terminate Use Case.**
	ALT STEP 5: The system fails to delete the User Role from the **UserRole Entity** and displays an error message. **Terminate Use Case.**
CONCLUSION:	The use case concludes when the system successfully deleted the User Role.
POST-CONDITION:	• The User Role has been deleted.
BUSINESS RULES	• Only an Admin can delete a User Role.
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	None

Figure 30 3.8. Delete UserRole Narrative

2.2.4 EmployeeDeliveryShifts Sub-System

NKAP Bolting System

Author (s): **Sonali Badrinath** **Date:** **09-05-21**
Version: **1.0**

USE CASE NAME:	Create Booking Shift	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	4.1.	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Employee	
DESCRIPTION:	This use case describes the event by which the admin creates a new booking shift. The system will generate a new booking shift by saving the booking shift information entered by the admin. The use case concludes when the system displays a message of success to the admin.	
PRE-CONDITION:	• The admin must be logged on to the system. • The booking shift that the admin wants to add should not already exist.	
TRIGGER:	The admin wants to create a booking shift.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin wants to create a booking shift. The admin requests to create a booking shift on the system.	**Step 2:** The system prompts the administrator to provide the booking shift details such as the: • Date • Time
	Step 3: The administrator enters the required shift booking information. The	**Step 4:** The system will display a confirmation box regarding to

	administrator selects the Add option.	proceed with the booking shift creation process.
	Step 5: The administrator selects the Yes option to proceed.	**Step 6:** The system will validate that the information satisfies the parameters of the Schedule Entity.
		Step 7: The system will generate a unique number for the shift in the Schedule Entity. (Schedule_ID)
		Step 8: The system creates and saves the new booking shift details to the relevant attributes in the Schedule Entity such as: ● Date_ID ● Time_ID
		Step 9: The system will display a notification of success to the admin.
ALTERNATE COURSES:	**ALT Step 5:** The admin selects No option. **Return to Step 3.**	
	ALT Step 6: The booking shift for that date and time already exists. The system displays a validation unsuccessful message. **Return to Step 3.**	
	ALT Step 8: The system fails to create the new booking shift**. Terminate Use Case.**	
CONCLUSION:	The use case concludes when the administrator has successfully created a new booking shift.	
POST-CONDITION:	The employee can book a shift in a booking shift.	
BUSINESS RULES	● Only the administrator can create a new booking shift.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	● None	
ASSUMPTIONS:	● None	
OPEN ISSUES:	None	

Figure 31 4.1. Create Booking Shift Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Search Booking Shift	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	4.2.	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The admin wants to search for an existing booking shift. The admin will enter the search parameters for the shift and initiate the search process. The system will search for the corresponding booking shift that matches the parameters provided by the admin to that on the database. The use case ends when the system displays the booking shift details.	
PRE-CONDITION:	• The booking shift should exist on the system. • The admin must be logged onto the system.	
TRIGGER:	The admin wants to search for an existing shift from the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin wants to search for an existing shift from the system.	
	Step 2: The administrator requests to search for an existing booking shift on the system.	**Step 3:** The system prompts the administrator to enter the: • Date
	Step 4: The administrator enters the requested date information.	**Step 5:** The system will validate the parameters entered by the administrator by checking the following:

		Date Entity: ● DayOfTheWeek: check if an existing DayOfTheWeek matches the Date entered by the administrator. ● Once matched, find the Date_ID of that Day of the week. ShiftSchedule Entity: ● Use the Date_ID to find the corresponding ShiftSchedule_ID. Furthermore, the system will use the ShiftSchedule_ID to find the corresponding to retrieve the Employee information.
		Step 6: The system retrieves and displays the search results to the admin in a table format with information such as the Date, Time, Employee assigned(if assigned).
ALTERNATE COURSES:	**ALT Step 5:** The system cannot find information that match the search criteria. The system will display an error message. **Return to Step 4.**	
CONCLUSION:	The use case concludes when the booking shift's information is displayed.	
POST-CONDITION:	The administrator can access the booking shift information.	
BUSINESS RULES	● Only the admin can search for booking shifts in the system	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	● None	
ASSUMPTIONS:	● None	
OPEN ISSUES:	None	

Figure 32 4.2. Search Booking Shift Narrative

NKAP Bolting System

Author (s): Sonali Badrinath **Date:** 09-05-21
Version: 1.0

USE CASE NAME:	Update Booking Shift	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	4.3.	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Employee	
DESCRIPTION:	The admin will search for the booking shift which they want to update. After the booking shift information is found and displayed; the admin will select the update option. The system will allow the admin to edit the booking shift information and then select the submit option. The system will display a confirmation message box. Once the admin accepts; the system will update the booking shift information in the database and display a successful message box.	
PRE-CONDITION:	• The booking shift should exist on the system. • The admin must be logged onto the system.	
TRIGGER:	The admin wants to search and update an existing booking shift from the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin wants to search and update an existing booking shift from the system.	**Step 2:** The administrator invokes use case **'4.2. Search Booking Shift'**
	Step 3: The admin will select the update option.	**Step 4:** The system will enable the admin to update the following attributes using the Schedule Entity: • Date • Time

	Step 5: The admin updates the relevant information and selects the 'Done' option.	**Step 6:** The system validates the new information and updates it in the Schedule Entity.
		Step 7: The system displays a message of success to the admin.
ALTERNATE COURSES:	**ALT Step 6** The system doesn't validate the changes made. The system displays a message informing the admin that the wrong information was entered. **Return to step 4.**	
	ALT STEP 7: The system fails to update the relevant entities and displays an unsuccessful message. **Terminate Use Case.**	
CONCLUSION:	The use case concludes when the booking shift's information is updated successfully, and the admin is informed.	
POST-CONDITION:	The booking shift information is updated on the system.	
BUSINESS RULES	• Only an admin can update employee information.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 33 4.3. Update Booking Shift Narrative

NKAP Bolting System

Author (s): Sonali Badrinath **Date:** 09-05-21
Version: 1.0

USE CASE NAME:	Delete Booking Shift	**USE CASE TYPE**
USE CASE ID:	4.4.	Business Requirements: ☐
PRIORITY:	Medium	System Analysis: ✔
SOURCE:	NKAP Bolting System Requirements	System Design: ☐
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Employee	
DESCRIPTION:	The admin will search for the booking shift which they want to delete. After the booking shift information is found and displayed; the admin will select the delete option. The system will display a confirmation message box. Once the admin accepts; the system will delete all the booking shift information in the database and display a successful message box.	
PRE-CONDITION:	• The booking shift should exist on the system. • The admin must be logged onto the system.	
TRIGGER:	The admin wants to search and delete an existing booking shift from the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin wants to search and delete an	**Step 2:** The administrator invokes use case **'4.2. Search Booking Shift'**.

	existing booking shift from the system.	
	Step 3: The admin will select the Delete option next to the searched booking shift details.	**Step 4:** The system will display a message to confirm the deletion.
	Step 5: The admin will select the Yes option.	**Step 6:** The system proceeds to permanently remove the booking schedule information from the Schedule Entity: ● Schedule_ID
		Step 7: The system displays a message of success to the admin.
ALTERNATE COURSES:	**ALT Step 5:** The admin selects the No option. **Return to Step 2.**	
	ALT STEP 7: The system fails to delete the booking shift information from the relevant entities and displays a failure message. **Terminate Use Case**	
CONCLUSION:	The use case concludes when the booking shift information is successfully deleted.	
POST-CONDITION:	The booking shift information no longer exists on the system.	
BUSINESS RULES	● Only the admin can delete a booking shift.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	● None	
ASSUMPTIONS:	● None	
OPEN ISSUES:	None	

Figure 34 4.4. Delete Booking Shift Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Add Employee	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	4.5.	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	Employee	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event whereby a new employee joins the business and the administrator wants to add the new employee's details to the system. This information will thereafter be captured and stored in the database. The use case concludes when the employee has been successfully added.	
PRE-CONDITION:	• The administrator must be logged onto the system.	
TRIGGER:	A new employee starts working at the business.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The administrator makes a request to capture the new employee.	**Step 2:** The system prompts the administrator to provide the employee information. The administrator will ask the employee for the following details: • Name • Surname • Cell Number • Address • Date of Birth • ID Number

	Step 3: The admin will provide the requested details.	**Step 4:** The system will perform a validation on the captured information.
		Step 5: The system generates a unique number for the employee in the Employee Entity.
		Step 6: The system will save the new employee details in the Employee entity to the relevant attributes such as: ● Employee_Name ● Employee_Surname ● Employee_Number ● Employee_Address ● Employee_DOB ● Employee_IDNumber The system will prompt the admin to enter the login details for the new employee.
	Step 7: The admin will create the new login details.	**Step 8:** The system will verify the new login details and create a new password for the new employee in the User Entity: ● User_Password ● User_Username
		Step 9: The system captures and saves the new employee information in the User entity.
		Step 10: The system will display a message of success to inform the administrator that the employee is added.
ALTERNATE COURSES:	**ALT Step 4:** The validation of the captured information does not correspond to the requirements for the Employee entity. **Return to Step 3.**	
	ALT Step 10: The system fails to create the new employee**. Terminate Use Case.**	
CONCLUSION:	The use case concludes when the new employee has been added to the system successfully.	
POST-CONDITION:	● The administrator can now access the employee information on the system.	

	● The employee can perform their user specific functions on the system.
BUSINESS RULES	● Only admin can add an employee.
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	None
ASSUMPTIONS:	None
OPEN ISSUES:	None

Figure 35 4.5. Add Employee Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Search Employee	**USE CASE TYPE**
USE CASE ID:	4.6.	Business Requirements: ☐
PRIORITY:	Medium	System Analysis: ✔
SOURCE:	NKAP Bolting System Requirements	System Design: ☐
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Employee	
DESCRIPTION:	This use case starts when an admin wants to search for an existing employee on the system. The admin will enter the search parameters to initiate the search process. The system will search for the corresponding employee that matches the parameters provided by the admin to that on the database. The use case ends when the system displays the employee's details.	
PRE-CONDITION:	• The administrator must be logged onto the system. • The employee should exist on the system.	
TRIGGER:	The admin wants to search for an existing employee from the system.	
TYPICAL COURSE	**Actor Action**	**System Response**

OF EVENTS:	**Step 1:** The admin wants to search for an existing employee from the system.	
	Step 2: The administrator requests to search for an employee on the system.	**Step 3:** The system prompts the administrator to enter the employee's: ● Name ● Surname Within the provided search parameters.
	Step 4: The administrator enters the requested employee information.	**Step 5:** The system will validate the parameters entered by the administrator by checking if the entered information matches information stored in the Employee Entity: ● Employee_Name ● Employee_Surname
		Step 6: The system retrieves displays the search results to the administrator using the following attributes from the Employee Entity: ● Employee_Name ● Employee_Surname ● Employee_Number ● Employee_Address ● Employee_DOB ● Employee_IDNumber
ALTERNATE COURSES:	**ALT Step 5:** The system cannot find information that match the search criteria. The system will display an error message. **Return to Step 4.**	
CONCLUSION:	The use case concludes when the employee's information is displayed.	

POST-CONDITION:	The administrator can access the employee information.
BUSINESS RULES	• Only the admin can search for employees in the system
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	None

Figure 36 4.6. Search Employee Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Update Employee	**USE CASE TYPE**
USE CASE ID:	4.7.	Business Requirements: ☐
PRIORITY:	High	System Analysis: ✔
SOURCE:	NKAP Bolting System Requirements	System Design: ☐
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Employee	
DESCRIPTION:	This use case describes the event where the admin searches for an employee and updates their information. The admin will first search for the employee and the system will prompt the admin to update employee details. The admin will edit the details accordingly then the system will display a confirmation message. The admin selects the Yes option. The system will save the update the information and display a message of success.	
PRE-CONDITION:	• The employee must be already on the system. • The admin must be logged onto the system.	
TRIGGER:	The administrator attempts to update a specific employee's information.	
TYPICAL COURSE	**Actor Action**	**System Response**

OF EVENTS:	**Step 1**: The administrator attempts to update a specific employee's information.	**Step 2:** The administrator invokes use case **'4.6. Search Employee'**.
	Step 3: The admin will select the update option.	**Step 4:** The system will enable the admin to update the following attributes from the Employee Entity: ● Employee_Name ● Employee_Surname ● Employee_Number ● Employee_Address ● Employee_DOB ● Employee_IDNumber
	Step 5: The admin updates the relevant information and selects the 'Done' option.	**Step 6:** The system validates the new information and updates it in the Employee Entity.
		Step 7: The system displays a message of success to the admin.
ALTERNATE COURSES:	**ALT Step 6** The system doesn't validate the changes made. The system displays a message informing the admin that the wrong information was entered. **Return to step 4.**	
	ALT STEP 7: The system fails to update the relevant entities and displays a failure message. **Terminate Use Case.**	
CONCLUSION:	The use case concludes when the employee's information is updated successfully, and the admin is informed.	
POST-CONDITION:	The employee information is updated on the system.	
BUSINESS RULES	● Only an admin can update employee information.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	● None	
ASSUMPTIONS:	● None	
OPEN ISSUES:	None	

Figure 37 4.7. Update Employee Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Delete Employee	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	4.8.	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Employee	
DESCRIPTION:	The admin searches and selects an employee which is already on the system. The admin selects the delete option next to the employee's name. Message to confirm the removal of the employee is displayed. The use case ends when the employee is permanently deleted and a message of success is displayed.	
PRE-CONDITION:	• The employee must be already on the system. • The admin must be logged onto the system.	
TRIGGER:	The admin wants to delete an employee from the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin wants to delete an employee from the system.	**Step 2:** The administrator invokes use case **'4.6. Search Employee'**.
	Step 3: The admin will select the Delete option next to the searched employee's details.	**Step 4:** The system will display a message to confirm the deletion.
	Step 5: The admin will select the Yes option.	**Step 6:** The system proceeds to permanently remove the employee information from the Employee Entity: • Employee_ID

		Step 7: The system displays a message of success to the admin.
ALTERNATE COURSES:	**ALT Step 5:** The admin selects the No option. **Return to Step 2.**	
	ALT STEP 7: The system fails to delete the Booking Shift information from the relevant entities and displays an unsuccessful message. **Terminate Use Case**	
CONCLUSION:	The use case concludes when the employee's information is successfully deleted.	
POST-CONDITION:	• The employee's information no longer exists on the system.	
BUSINESS RULES	• Only the admin can delete an employee.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 38 4.8. Delete Employee Narrative

NKAP Bolting System

Author (s): Sonali Badrinath **Date:** 09-05-21
Version: 1.0

USE CASE NAME:	Assign Order for Delivery	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	4.9.	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• Employee	
OTHER INTERESTED STAKEHOLDERS:	• Customer	
DESCRIPTION:	The admin wants to assign an order to be delivered. The admin will identify that an order is required to be delivered. The admin allocates the delivery to an employee that is also a driver and notifies the driver of the details of the delivery. The system sends a notification to the driver for the delivery.	
PRE-CONDITION:	• The admin must be logged in.	
TRIGGER:	The admin wants to assign an order to be delivered.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin wants to assign an order to be delivered. The admin requests to view the online sales.	**Step 2:** The system invokes use case '**5.1. View Online Sales**'.
	Step 3: The admin selects the option to filter non-collection saleorders.	**Step 4:** The system displays the information of all saleorders (retrieved from the SaleOrder Entity) that are placed by customers that: • Have a Collection_Status of 'Available' • Have a SaleOrder_ReceiveType of 'Delivery'

		• Have a SaleOrder_Assign attribute that is 'False' • City_ID (retrieved by using the Customer_ID attribute) • SaleOrder_ID • Option to assign a delivery or assign a courier.
	Step 5: The admin selects the Assign delivery option next to the specific delivery that they want to be delivered.	**Step 6:** The system enables the admin to select the employee to which they want the delivery to be assigned to.
	Step 7: The admin selects the employee to which they want the delivery to be assigned to.	**Step 8:** Once the employee field is populated, the system enables the Done and Cancel option.
	Step 9: The admin selects the Done option.	**Step 10:** The system displays a confirmation message to finalize the assigning of the delivery.
	Step 11: The admin selects the Yes option.	**Step 12:** The system generates a unique number in the Delivery Entity. Using the SaleOrder Entity; the system captures the Customer_ID, Employee_ID and Delivery_Status information.
		Step 13: The system sends the delivery information to the Employee that is assigned to do the delivery.
ALTERNATE COURSES:	**ALT Step 5:** The admin selects the Assign courier option. **Use Case 4.10. Assign Order for Courier.**	
	ALT Step 9: The admin selects the Cancel option. **Return to Step 7.**	
	ALT Step 11: The admin selects the No option. **Return to Step 7.**	
CONCLUSION:	The saleorder is assigned to an employee for a delivery.	
POST-CONDITION:	The saleorder is assigned to an employee	
BUSINESS RULES	• Only the admin can assign an order for delivery.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 39 4.9. Assign Order for Delivery Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Assign Order for Courier	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	4.10.	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• Courier	
OTHER INTERESTED STAKEHOLDERS:	• Customer	
DESCRIPTION:	The admin wants to assign an order to be delivered via courier. The admin will identify that an order is required to be delivered and based on the distance of the delivery location will set the order to be couriered. The admin allocates the delivery to the courier and notifies the courier of the details of the delivery.	
PRE-CONDITION:	• The admin must be logged onto the system.	
TRIGGER:	The admin wants to assign an order to be delivered via courier.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin wants to assign an order to be delivered by a courier. The admin requests to view the online sales.	**Step 2:** The system invokes use case '**5.1. View Online Sales**'.
	Step 3: The admin selects the option to filter non-collection saleorders.	**Step 4:** The system displays the information of all saleorders (retrieved from the SaleOrder Entity) that are placed by customers that:

		• Have a Collection_Status of 'Available' • Have a SaleOrder_ReceiveType of 'Delivery' • Have a SaleOrder_Assign attribute that is 'False' • City_ID (retrieved by using the Customer_ID attribute) • SaleOrder_ID • Option to assign a delivery or assign a courier.
	Step 5: The admin selects the Assign courier option next to the specific delivery that they want to be delivered.	**Step 6:** The system displays all courier information retrieved from the Courier Entity with the following attributes: • Courier_Name • Courier_Number • Courier_Type • Courier_Email (as a link) The system also displays the following: • A tick box unticked to show that the order is not assigned by retrieving the SaleOrder_Assign attribute information from the SaleOrder Entity. • A textbox with the SaleOrder_ID.
	Step 7: The admin selects the email link of the courier which the order must be couriered by.	**Step 8:** The system opens a draft on the mail web application on the web browser where the email address of the courier will be automatically filled in the "To:" section.
	Step 9: The admin will enter the courier information and select the send email option.	
	Step 10: The admin returns to the screen with the	

	courier information and ticks the tick box to show that the order was assigned.	
	Step 11: The admin selects the Done option.	**Step 12:** The system displays a message with the following: “Have you remembered to tick the box now that you have assigned your order?”
	Step 13: The admin selects the Yes option to proceed.	**Step 14:** The system will save the Courier_ID with the SaleOrder_ID of the order that was assigned and the tick box information by updating the SaleOrder_Assign attribute from the SaleOrder table to ‘True’.
		Step 15: The system displays a message of successfully assigning an order to a courier.
	Step 17: The admin selects the customer email address to compose an email to inform the customer of the courier details.	**Step 16:** The system displays the specific saleorder information such as: ● SaleOrder_ID ● Courier_Name (retrieved by using the Courier_ID attribute present in the SaleOrder Entity) ● Customer_Email (retrieved by using the Customer_ID attribute present in the SaleOrder Entity)
ALTERNATE COURSES:	**ALT Step 5:** The admin selects the Assign courier option. **Use Case 4.9. Assign Order for Delivery.**	
	ALT Step 11a: The admin selects the Cancel option. The system displays a confirmation message for if the admin is sure to cancel the use case. The admin selects the ‘Yes’ option. **Terminate Use Case.** **ALT Step 11b:** The admin selects the Cancel option. The system displays a confirmation message for if the admin is sure to cancel the use case. The admin selects the ‘No’ option. **Proceed Step 12.**	
	ALT Step 13: The admin selects the ‘No’ option. **Return to Step 10.**	
CONCLUSION:	The order is assigned to a courier.	
POST-CONDITION:	● The order is recorded as assigned. ● The courier has been provided the details for the courier.	
BUSINESS RULES	● Only an admin can perform this use case.	

IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	None

Figure 40 4.10. Assign Order for Courier Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Assign Shift	**USE CASE TYPE**
USE CASE ID:	4.11.	Business Requirements: ☐
PRIORITY:	High	System Analysis: ✔
SOURCE:	NKAP Bolting System Requirements	System Design: ☐
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• Employee	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The Admin will select the shift and the employee that they want to work in that shift on the system which includes: • Date • Start Time • End Time • EmployeeID The system will update the slot to reflect the new shift information and add it to the schedule.	
PRE-CONDITION:	• The shift cannot be assigned if it is assigned to another employee	
TRIGGER:	An admin wants to assign a shift to an employee.	
TYPICAL COURSE	**Actor Action**	**System Response**

OF EVENTS:	**Step 1:** An admin wants to assign a shift to an employee.	**Step 2:** The system will invoke use case **'4.2. Search Booking Shift'**
	Step 3: The admin will select the Assign Shift option.	**Step 4:** The system will prompt the admin to select an employee of which they want to assign to that shift. This information is retrieved from the Employee Entity which is the Employee_Name attribute.
	Step 5: The admin selects the Employee name and selects the Proceed option.(ALT)	**Step 6:** The system displays a message to the admin to confirm the assigning of the shift.
	Step 7: The admin selects the Yes option.(ALT)	**Step 8:** The system saves the selected employee's Employee_ID attribute from the Employee Entity to the Shift Entity. The system informs the Employee of the shift they are assigned to.
		Step 9: The system displays a message of success to the admin.
ALTERNATE COURSES:	**ALT Step 5:** The admin selects the Cancel option. **Terminate Use Case.**	
	ALT Step 7: The admin selects the No option. **Return to Step 4.**	
CONCLUSION:	The shift is assigned to the employee.	
POST-CONDITION:	The shift is no longer available to be assigned. The shift is assigned to an employee.	
BUSINESS RULES	• Only Admin can assign a shift	

IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	None

Figure 41 4.11. Assign Shift Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Cancel Shift	**USE CASE TYPE**
USE CASE ID:	4.12.	Business Requirements: ☐
PRIORITY:	High	System Analysis: ✔
SOURCE:	NKAP Bolting System Requirements	System Design: ☐
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Employee	
DESCRIPTION:	An Admin will be able to view the specific shift and cancel it. The system will update the shift to be available on the shift schedule.	
PRE-CONDITION:	• The admin must be logged in.	
TRIGGER:	An Admin wants to cancel a shift on the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: An Admin wants to cancel a shift on the system. The admin requests to search the booking slot.	**Step 2:** The system will invoke use case **'4.2. Search Booking Shift'**
	Step 3: The admin will select the "Cancel Shift" option	**Step 4:** The system will display a confirmation box to the admin to confirm the cancellation.

	Step 5: The admin selects the Yes option to proceed.	**Step 6:** The system will remove the ShiftSchedule_ID that corresponds to the searched Shift_ID from the Shift Entity.
		Step 7: The system displays a message of success to the admin.
ALTERNATE COURSES:	**ALT Step 3:** There is no shift assigned to an employee. The system will display a message informing the admin that the shift is not yet assigned to an employee so there cannot be a cancellation performed. **Return to Step 2.**	
	ALT Step 5: The admin selects the No option. **Terminate Use Case.**	
CONCLUSION:	The shift is now available to be assigned to an employee.	
POST-CONDITION:	The shift is available.	
BUSINESS RULES	• Shifts can only be cancelled by the admin.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 42 4.12. Cancel Shift Narrative

2.2.5 Administration Back Office Sub-System

NKAP Bolting System

Author (s): Divya Bagratee

Date: 08-05-21
Version: 1.0

USE CASE NAME:	5.1	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	View Online Sales	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Employee	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This Use Case Describes the Event where an employee views a SaleOrder Placed by a customer. The system will retrieve the list of Orders from the **SaleOrder Entity** and display it to the employee. The Employee will be able to select a Saleorder and view the order details. The Use Case Ends when the system has successfully displayed the SaleOrder to the Employee.	
PRE-CONDITION:	• The SaleOrder must exist on the system. • The employee must be logged in	
TRIGGER:	An Employee wants to view a Sale Order	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. An Employee wants to view a Sale Order.	**2.** The system retrieves and displays all of the SaleOrder's on the system by their • SaleOrder_Number in a list using the SaleOrder_ID from the **Sale Order Entity.**
	3. The Employee Selects a Sale Order they want to view.	**4.** The system retrieves and displays the SaleOrder Details from the **Sale Order Entity:**

		• SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • SaleOrder_RecieveType • SaleOrder_Assign • Payment_Date • Payment_Amount The system uses the retrieved Employee_ID to display the • Employee_Name • Employee_Surname from the **Employee Entity** if the customer chose to have their order couriered. The system uses the retrieved PaymentType_ID to display the • PaymentType_Description from the **PaymentType Entity** if the customer chose to pick up their order. The system uses the retrieved OrderStatus_ID to display the • OrderStatus_Desc from the **OrderStatus Entity** if the customer chose to pick up their order. The system uses the retrieved Customer_ID to display the • Customer_Name • Customer_Surname from the **Customer Entity**.
ALTERNATE COURSES:	ALT-STEP 2: The system fails to display retrieve the SaleOrder's from the **SaleOrder Entity** and displays an error message**.** **Terminate Use Case.**	
CONCLUSION:	The Use Case Concludes when the system has successfully displayed the sale order.	
POST-CONDITION:	The Employee is able to View the Sale Order.	
BUSINESS RULES	• Only an Employee and Admin can view Sale Orders	

IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	• None

Figure 43 5.1. View Online Sales Narrative

NKAP Bolting System

Author (s): Divya Bagratee

Date: 08-05-21
Version: 1.0

USE CASE NAME:	5.2	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	Update Sale Status	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Employee	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This Use Case Describes the Event where an employee updates the status of an order in the **OrderStatus Entity** according to the state of the order. This will include updating the status to Available for collection, available for delivery and collected. The use case ends when the Employee has successfully updated the status.	
PRE-CONDITION:	• The employee must be aware of the order state to update its status. • The employee must be logged in	
TRIGGER:	An Employee wants to update the status of an order	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. An Employee wants to update the status of an order.	**2. The system invokes Use Case 5.1 View Online Sales**
	3. The employee updates the order status.	**4.** The system uses the retrieved OrderStatus_ID to validate the selected OrderStatus_Description from the **OrderStatus Entity** and requests the employee to confirm the update.

	5. The employee confirms the changes.	**6.** The system updates the Order Status in the **OrderStatus Entity** and displays a success message to the employee.
		7. The system uses the Customer_ID to retrieve the: • Customer_CellphoneNumber from the **Customer Entity** to notify the customer via SMS that their order is available for collection or ready for delivery.
ALTERNATE COURSES:	ALT-STEP 4: The system fails to validate the order status**.** **Terminate Use Case.**	
	ALT-STEP 5: The employee does not confirm the changes. **Terminate Use Case.**	
	ALT-STEP 5: The system fails to update the order status in the **OrderStatus Entity** and displays an error message. **Terminate Use Case.**	
CONCLUSION:	The Use Case Concludes when the system has successfully updated the delivery status or the collection status to available.	
POST-CONDITION:	The order is ready for delivery or collection.	
BUSINESS RULES	• Only an Employee can pack Orders.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	• None	

Figure 44 5.2. Update Sale Status Narrative

NKAP Bolting System

Author (s): Divya Bagratee

Date: 08-05-21
Version: 1.0

USE CASE NAME:	5.3	**USE CASE TYPE**
USE CASE ID:	Do Stock Take	Business Requirements: ☐
PRIORITY:	High	System Analysis ✓
SOURCE:	NKAP Bolting System Requirements	System Design: ☐
PRIMARY BUSINESS ACTOR	Administration	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This Use Case Describes the Event where an Admin conducts a stock take for an item. The admin will record the stock take date in the **StockTake Entity** and the quantity of the stock in the **ProductItem_StockTake Entity.** The system will then adjust the quantity on hand for the item in the **ProductItem Entity.** The Use Case Ends when the system has successfully completed the stock take.	
PRE-CONDITION:	• The Admin must know the value of stock on hand for an item • The Admin must be logged in	
TRIGGER:	An Employee wants to update the stock on hand.	
TYPICAL COURSE OF EVENTS:	**ACTOR ACTION**	**SYSTEM RESPONSE**
	1. An Admin wants to do a stock take for an item.	**2. The system invokes Use Case 9.10 Search Product**

	3. The Admin selects 'Do stock-take'	**4.** The system will request the • StockTake_Date from the **StockTake_Entity**, and the • StockTake_Quantity from the **ProductItem_StockTake Entity.**
	5. The admin will provide the stock take information.	**6.** The system validates that the • StockTake_Quantity • StockTake_Date field has been completed in the correct format and contains valid details.
		7. The system displays a confirmation message to the Admin to confirm the Stock Take Information.
	8. The Admin confirms the Stock Take Information.	**9.** The system will save the stock take information: • StockTake_Date in the **StockTake_Entity**, and the • StockTake_Quantity in the **ProductItem_StockTake Entity.** and will update the • Quantity_on_hand in the **ProductItem Entity** for the specific product.

		10. The system will display a success message to the employee.
	ALT-STEP 8: The admin does not confirm the stock take information. **Terminate Use Case.**	
ALTERNATE COURSES:	ALT-STEP 6: The system fails to validate the Stock Take information and displays an error message. **Terminate Use Case.**	
	ALT-STEP 9: The system fails to update the Quantity on Hand in the **ProductItem Entity** and save the stock take information in the **StockTake** and **ProductItem_StockTake Entites** and displays an error message. **Terminate Use Case**.	
CONCLUSION:	The Use Case Concludes when the system has successfully completed the stock take.	
POST-CONDITION:	The quantity on hand for a product is accurate.	
BUSINESS RULES	• Only an admin can do a stock take.	
IMPLEMENTATION CONTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	• None	

Figure 45 5.3. Do Stock Take Narrative

NKAP Bolting System

Author (s): Divya Bagratee

Date: 08-05-21
Version: 1.0

USE CASE NAME:	5.4	**USE CASE TYPE**
USE CASE ID:	View Shift Schedule	Business Requirements: ☐
PRIORITY:	High	System Analysis ✓
SOURCE:	NKAP Bolting System Requirements	System Design: ☐
PRIMARY BUSINESS ACTOR	Employee	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This Use Case Describes the Event where an employee views the Shift Schedule. The system will retrieve the shift schedule information from the **ShiftSchedule Entity.** The use case ends when the system has successfully displayed the Shift Schedule to the employee.	
PRE-CONDITION:	• The employee must be logged in	
TRIGGER:	An Employee wants to view the shift schedule	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. An Employee selects View Shift Schedule.	**2.** The system uses the retrieved ShiftSchedule_ID from the **ShiftSchedule Entity** to display the shifts in a schedule format. The system uses the retrieved Shift_ID to display the: • Check-in_Time • Check-out_Time from the **Shift Entity.** The system uses the retrieved Schedue_ID to display the

		• Date_ID • Time_ID From the **Schedule entity.** The system uses the retrieved Employee_ID to display the: • Employee_Name • Employee_Surname from the **Employee Entity.**
ALTERNATE COURSES:	ALT-STEP 2: The system fails to display the shift schedule and displays an error message. **Terminate Use Case.**	
CONCLUSION:	The Use Case Concludes when the system has successfully displayed the shift schedule to the employee.	
POST-CONDITION:	The employee knows when their next shift is	
BUSINESS RULES	• Only an Employee and admin can view the shift schedule.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	• None	

Figure 46 5.4. View Shift Schedule Narrative

NKAP Bolting System

Author (s): Divya Bagratee

Date: 08-05-21
Version: 1.0

USE CASE NAME:	5.5	**USE CASE TYPE** Business Requirements: ☐ System Analysis ✓ System Design: ☐
USE CASE ID:	View Shift	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Employee	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This Use Case Describes the event where an employee views their shift. The employee will select the shift and the system will retrieve the shift information from the **Shift Entity.** The use case ends when the system has successfully displayed the shift to the employee.	
PRE-CONDITION:	• The employee must be logged in • The employee must have assigned shifts	
TRIGGER:	An Employee wants to view the shift.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. An Employee selects View Shift.	**2.** The system uses the retrieved Shift_ID to display the: • Check-in_Time • Check-out_Time from the **Shift Entity.**
ALTERNATE COURSES:	ALT-STEP 2: The system fails to display the shift from the **Shift Entity** and displays an error message. **Terminate Use Case.**	
CONCLUSION:	The Use Case Concludes when the system has successfully displayed the shift to the employee.	
POST-CONDITION:	The employee can view their shift information.	
BUSINESS RULES	• Only an Employee can view their shift.	

IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	• None

Figure 47 5.5. View Shift Narrative

NKAP Bolting System

Author (s): Divya Bagratee

Date: 08-05-21
Version: 1.0

USE CASE NAME:	5.6	**USE CASE TYPE** Business Requirements: ☐ System Analysis ✓ System Design: ☐
USE CASE ID:	Check-in	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Employee	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This Use Case Describes the event where an employee checks-in for their shift. The system retrieves the shift information from the **Shift Entity** and will allow the employee to check-in. The system will update the check-in time in the shift entity. The use case ends when the employee has successfully checked in for their shift.	
PRE-CONDITION:	• The employee must be logged in	
TRIGGER:	An Employee wants to check-in for their shift.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. An Employee wants to check in for a shift.	**2. The system invokes use case 5.5 View Shift**
	3. The employee selects the check-in option.	**4.** The system captures the time and updates the • Check-in Time in the **Shift Entity** to the current time and notifies the employee that they have successfully checked in to their shift.
ALTERNATE COURSES:	ALT-STEP 4: The system fails to check in the employee and displays an error message. **Terminate Use Case.**	

	ALT-STEP 5: The employee has already checked in to the shift. Terminate Use Case.
CONCLUSION:	The Use Case Concludes when the system has successfully displayed the approved quotes to the employee.
POST-CONDITION:	The employee can view the approved quotes and pack the order.
BUSINESS RULES	• Only an employee and admin can view approved quotes.
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	• None

Figure 48 5.6. Check-In Narrative

NKAP Bolting System

Author (s): Divya Bagratee

Date: 08-05-21
Version: 1.0

USE CASE NAME:	5.7	**USE CASE TYPE** Business Requirements: ☐ System Analysis ✓ System Design: ☐
USE CASE ID:	Check-Out	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Employee	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This Use Case Describes the event where an employee checks-out of their shift. The system retrieves the shift information from the **Shift Entity** and will allow the employee to check-out. The system will update the check-out time in the shift entity. The use case ends when the employee has successfully checked out of their shift.	
PRE-CONDITION:	• The employee must be logged in	
TRIGGER:	An Employee wants to check-out of their shift	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	1. An Employee wants to check out of a shift.	**2. The system invokes use case 5.5 View Shift**
	3. The employee selects the check-out option.	**5.** The system captures the time and updates the • Check-Out Time in the **Shift Entity** to the current time and notifies the employee that they have successfully checked in to their shift.
ALTERNATE COURSES:	ALT-STEP 4: The system fails to check out the employee and displays an error message. **Terminate Use Case.**	

	ALT-STEP 5: The employee has already checked in to the shift. Terminate Use Case.
CONCLUSION:	The Use Case Concludes when the system has successfully displayed the approved quotes to the employee.
POST-CONDITION:	The employee can view the approved quotes and pack the order.
BUSINESS RULES	• Only an employee and admin can view approved quotes.
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	• None

Figure 49 5.7. Check-Out Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Write-off Stock	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	5.8.	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The Admin will be able to write-off stock if damaged goods are found. The employee will be able to update the stock on hand for the specific product.	
PRE-CONDITION:	• The admin must be logged onto the system.	
TRIGGER:	The admin wants to write-off stock.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin wants to write-off stock. The admin navigates to the Write-off Stock screen.	**Step 2:** The system will prompt the admin to enter the ProductItem_ID.
	Step 3: The admin enters the Product Item's ID. The admin will select the Next option.	**Step 4:** The system will retrieve attributes and display the ProductItem information in the form of a table. The table is populated using the following attributes from the ProductItem Entity: • ProductItem_ID • ProductItem_Description

		• Quantity_On_Hand The system also prompts the admin to enter the quantity they want to write-off, date and to provide a reason for write-off.
	Step 5: The admin enters the quantity, date and reason information. Thereafter, the admin selects the Delete option.	**Step 6:** The system displays a confirmation message to the admin.
	Step 7: The admin selects the Yes option.	**Step 8:** The system updates the selected ProductItem information by doing the following in the Write-Off Entity: • Generate a unique number as the WriteOff_ID attribute. • Save the date of the write-off as the WriteOff_Date. In the ProductItem_WriteOffStock Entity: • Save the reason as the WriteOff_Reason attribute. • Save the write off quantity as the WriteOff_Quantity attribute. • Save the ProductItem_ID of the written-off stock. • Save the generated WrieOff_ID. The system decreases the Quantity_On_Hand in the ProductItem Entity by the write-off quantity specified by the admin.
		Step 8: The system displays a message of success to the admin.
ALTERNATE COURSES:	**ALT Step 5**: The owner clicks on the cancel button. **Terminate use case.**	
	ALT Step 7: The owner clicks on the No option. **Return to Step 2.**	

	ALT Step 9: The system displays a message of the write off being unsuccessful to the admin. **Terminate Use Case.**
CONCLUSION:	There is record of the stock being written-off and the stock is no longer available for sale.
POST-CONDITION:	• The stock is written-off and is not available for sale anymore.
BUSINESS RULES	• Only an Admin can write-off stock.
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	None

Figure 50 5.8. Write off Stock Narrative

2.2.6 Customer Sub-System

NKAP Bolting System

Author (s): **Chardé Devine Vries**

Date: **08-05-21**
Version: **1.0**

USE CASE NAME:	Browse Products	**USE CASE TYPE**
USE CASE ID:	6.1	Business Requirements: ☐
PRIORITY:	High	System Analysis: ☒
SOURCE:	NKAP Bolting system	System Design: ☐
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	None	
OTHER INTERESTED STAKEHOLDERS:	None	
DESCRIPTION:	This use case describes the event where a customer would like to browse all available products. The use case starts when the customer clicks on the products tab, they can invokethe “view product details” use cases in order to select a product. The system will retrieve information from the following entities “ProductItem”, “Price” and calculates price of each product using these entities. The system displays all the relevant information. The customer is able to view and browse through all available product.	
PRE-CONDITION:	The customer must have an account and be logged into the system	
TRIGGER:	A user wishes to browse the products on the system	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: A customer would like to view all available products and clicks on the products tab.	**Step 2**: The system loads a page which displays all the available products. This information is retrieved from the following entities **ProductItem**: • Product_ID • Product_Name • Product_Image

		Retrieving the current price using the current date **Price**: • Price_ID • Price_Description • Price_Date The system displays all products with the following attributes and calculated amounts for each product.
	Step 3: The customer can view and browse through all the products.	
ALTERNATE COURSES:	None	
CONCLUSION:	• The use case concludes when the customer can browse through all the products.	
POST-CONDITION:	• The system displays all available products	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• The user has an account and is logged into the system	
OPEN ISSUES:	• None	

Figure 51 6.1. Browse Products Narrative

NKAP Bolting System

Author (s): Chardé Devine Vries

Date: 08-05-21
Version: 1.0

USE CASE NAME:	View Product Details	**USE CASE TYPE**
USE CASE ID:	6.2	Business Requirements: ☐
PRIORITY:	High	System Analysis: ☒
SOURCE:	NKAP Bolting system	System Design: ☐
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	None	
OTHER INTERESTED STAKEHOLDERS:	None	
DESCRIPTION:	This use case describes the event where a customer would like view all details of a specific item on the product screen. The system will retrieve information from the following entities “ProductItem”, “CategoryType”, “Price”, “Special”, “Discount”, “VAT” and calculates price of each product using these entities. The system displays all the relevant information. The customer is able to view and add this item to their cart.	
PRE-CONDITION:	The customer must have an account and be logged into the system	
TRIGGER:	A user wishes to view a specific product on the system	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The customer would like to view all details of a specific item on the product screen.	
	Step 2: The customer clicks on the product they would like to view.	**Step 3**: The system opens a pop-up screen, which displays more information on the specific product. This includes an “add to cart” button. The product’s information is retrieved from the following entities **ProductItem**:

		• Product_ID • Product_Name • Product_Description • Product_Image **CategoryType**: • CategoryType_Description • CateogryType_ID Retrieving and calculating the current price using the current date **Price**: • Price_ID • Price_Description • Price_Date **VAT**: • VAT_ID • VAT_Amount • Date The system also retrieves information from the following tables, if the customer receives a discount or special price on the specific product: **Discount**: • Discount_ID • Discount_Percentage **Special:** • Special_ID • Special_Price The system calculates the discounts and VAT on all relevant products. The relevant attributes and calculated amounts are displayed: • Product_Name • Product_Description • Product_Image • CategoryType_Description

		• Price_Description • Special_Price • Discount Amount • VAT Amount
	Step 4: The customer can view the product with all its relevant details including applicable specials and discounts.	
ALTERNATE COURSES:	None	
CONCLUSION:	• The use case concludes when the customer can see the product view pop-up.	
POST-CONDITION:	• The order is recorded in the ORDER table in the database	
BUSINESS RULES	• Promotions and discounts may or may not apply	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• Customer has an account and is logged in	
OPEN ISSUES:	• None	

Figure 52 6.2. View Product Details Narrative

NKAP Bolting System

Author (s): Chardé Devine Vries

Date: 08-05-21
Version: 1.0

USE CASE NAME:	View Specials/Promotions	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ☒ System Design: ☐
USE CASE ID:	6.3	
PRIORITY:	High	
SOURCE:	NKAP Bolting system	
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	None	
OTHER INTERESTED STAKEHOLDERS:	None	
DESCRIPTION:	This use case describes the event where a customer would like view all specials and promotions of a specific item in the specials table. The system will retrieve information from the following entities “ProductItem”, “CategoryType”, “Price”, “Special”, “Discount”, “VAT” and calculates price of each product using these entities. The system will retrieve all products or items with a special or promotion connected to it and display.	
PRE-CONDITION:	The customer must have an account and be logged into the system	
TRIGGER:	The customer would like to view all current specials and promotions.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The customer would like to view all current specials and promotions on products.	
	Step 2: The customer clicks on the “Special and Promotions” tab	**Step 3:** The system loads and displays the Specials and promotions screen. The following entities and attributes are used to display the information on the screen.

		ProductItem: • Product_ID • Product_Name • Product_Description • Product_Image **CategoryType**: • CategoryType_Description • CateogryType_ID The system will retrieve all products or items with a special or promotion connected to it and display it from the following tables, if the customer receives a discount or special price on the specific product: **Special:** • Special_ID • Special_Price The system calculates the discounts and VAT on all relevant products. The relevant attributes and calculated amounts are displayed: • Product_Name • Product_Description • Product_Image • CategoryType_Description • Price_Description • Special_Price [ALT]
ALTERNATE COURSES:	**ALT Step 3:** There aren't any promotions or specials to display. The system displays a messages informing the customer that there aren't any promotions or specials available.	
CONCLUSION:	• The use case concludes when the customer can view all current specials and promotions.	
POST-CONDITION:	• All current specials and promotions must be on screen.	
BUSINESS RULES	• Promotions and discounts may or may not apply	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• Customer will see promotions or specials if there are any.	
OPEN ISSUES:	• None	

Figure 53 6.3. View Specials/Promotions Narrative

NKAP Bolting System

Author (s): Chardé Devine Vries

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Add Item To Cart	**USE CASE TYPE**
USE CASE ID:	6.4	Business Requirements: ☐
PRIORITY:	High	System Analysis: ☒
SOURCE:	NKAP Bolting system	System Design: ☐
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	None	
OTHER INTERESTED STAKEHOLDERS:	None	
DESCRIPTION:	This use case describes the event where a customer would like to add an item to their cart. The use case starts when the customer clicks on the “add to cart” button, which is located in the “View Product” pop-up. Once the customer has selected the size and quantity of the item they have selected, the item will be added to the cart. This will update the order entity. The process cab be repeated if they desire to add another item into their cart.	
PRE-CONDITION:	The customer must have an account and be logged into the system	
TRIGGER:	A user wishes to add an item to the cart.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: A customer wishes to add an item to the cart.	**Step 2**: The system is already displaying the “Product pop-up”, which includes the product information and an “add to cart” button.
	Step 3: The user click on the “add to cart button”	**Step 4**: The system retrieves the product information from the ProductItem entity and updates the Cart entity. The following entity is updated **Cart:** • SaleOrder_Line_ID (PK)

		• Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK) **[ALT]**
		Step 5: The system displays a notification message box informing the customer that the item has been added to the cart.
ALTERNATE COURSES:	**Alt step 5:** The customer has not selected the relevant information. • The system displays an error messages, asking the customer to select and fill in the relevant order information.	
CONCLUSION:	• The use case concludes when the customer receives a confirmation message that an order has been made.	
POST-CONDITION:	• The order is recorded in the Cart table in the database	
BUSINESS RULES	• Order is only confirmed with an invoice once the payment has been made • Promotions and discounts may or may not apply	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• Customer will receive a notification message box informing the customer that the item has been added to the cart.	
OPEN ISSUES:	• None	

Figure 54 6.4. Add Item to Cart Narrative

NKAP Bolting System

Author (s): Chardé Devine Vries

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Remove Item From Cart	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ☒ System Design: ☐
USE CASE ID:	6.5	
PRIORITY:	High	
SOURCE:	NKAP Bolting system	
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	None	
OTHER INTERESTED STAKEHOLDERS:	None	
DESCRIPTION:	This use case describes the event where a customer would like to remove an item to their cart. The use case starts when the customer clicks on the “remove” button, which is located in the “View Cart” screen. This will remove the item from the Cart entity. The process can be repeated if they desire to remove another item into their cart.	
PRE-CONDITION:	The customer must have an account and be logged into the system	
TRIGGER:	A user wishes to place an order on the system	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: A customer wishes to remove an item to the cart.	**Step 2**: The system is already displaying the “View cart” screen, which includes a list of items that has been added to the cart.
	Step 3: The user click on the “remove” button.	**Step 4**: The system retrieves the product information from the ProductItem entity and removes it from the Cart entity. The following entity is updated **Cart:** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered

		• SaleOrder_ID (FK) • Product_ID (FK)
		Step 5: The system removes the item from the list on the screen.
		Step 6: The system displays a notification message box informing the customer that the item has been added to the cart.
ALTERNATE COURSES:	None	
CONCLUSION:	• The use case concludes when the customer receives a confirmation message the item removed.	
POST-CONDITION:	• The order is removed from the Cart table in the database	
BUSINESS RULES	• Promotions and discounts may or may not apply • Payment has not been made.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• Customer will receive a notification message that the item has been removed.	
OPEN ISSUES:	• None	

Figure 55 6.5. Remove Item From Cart Narrative

NKAP Bolting System

Author (s): Chardé Devine Vries **Date:** 08-05-21
Version: 1.0

USE CASE NAME:	View Cart	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ☒ System Design: ☐
USE CASE ID:	6.6	
PRIORITY:	High	
SOURCE:	NKAP Bolting system	
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	None	
OTHER INTERESTED STAKEHOLDERS:	None	
DESCRIPTION:	This use case describes the event where a customer would like to view the cart. The use case starts when the user clicks on the cart icon. This action will allow the system to display the View cart screen and retrieve the information from the Cart entity, which includes a list of items that has been added to the cart.	
PRE-CONDITION:	The customer must have an account and be logged into the system	
TRIGGER:	A user wishes to view the cart	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: A customer would like to view the cart.	
	Step 2: A customer clicks on the “View cart” icon.	**Step 3:** The system loads the View cart screen. Displaying a list of items that have been added to the cart, a checkout button, a clear cart button, the total and each item has a remove button. The information is retrieved and displayed form the database using the following entities: **Cart:** • SaleOrder_Line_ID (PK) • Line_Item_Name

		• Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK) **ProductItem**: • Product_ID • Product_Name • Product_Description • Product_Image Retrieving and calculating the current price using the current date **Price**: • Price_ID • Price_Description • Price_Date **VAT**: • VAT_ID • VAT_Amount • Date
	Step 3: The customer can see the View cart page.	
ALTERNATE COURSES:	None	
CONCLUSION:	• The use case concludes when the customer can see the View Cart page	
POST-CONDITION:	• Cart can be cleared • User can pay by clicking checkout button	
BUSINESS RULES	• Promotions and discounts may or may not apply	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• Customer will see the View cart page	
OPEN ISSUES:	• None	

Figure 56 6.6. View Cart Narrative

NKAP Bolting System

Author (s): Chardé Devine Vries

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Empty Cart	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ☒ System Design: ☐
USE CASE ID:	6.7	
PRIORITY:	High	
SOURCE:	NKAP Bolting system	
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	None	
OTHER INTERESTED STAKEHOLDERS:	None	
DESCRIPTION:	This use case describes the event where a customer would like to empty their cart, this will remove all the products they have added to the cart. The use case starts when the user clicks on the “Clear cart” button. The system will remove all the products from the cart, in the database it will clear the specific SaleOrders’ cart by retrieving and deleting information from the Cart entity.	
PRE-CONDITION:	The customer must have an account and be logged into the system	
TRIGGER:	A user wishes to place an order on the system	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: A customer wishes to clear all item from the cart.	**Step 2**: The system is already displaying the “View cart” screen, which includes a list of items that has been added to the cart.
	Step 3: The user click on the “Clear cart” button.	**Step 4**: The system retrieves and removes the information from the Cart entity. The following entities and attributes are updated **Cart:** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered

		• SaleOrder_ID (FK) • Product_ID (FK)
		Step 5: The system removes all items from the list on the screen.
		Step 6: The system displays a notification message box informing the customer that all items have been removed from the cart.
ALTERNATE COURSES:	None	
CONCLUSION:	• The use case concludes when the customer receives a notification message box informing the customer that all items have been removed from the cart.	
POST-CONDITION:	• The order is removed from the Cart table in the database	
BUSINESS RULES	• Promotions and discounts may or may not apply • Payment has not been made.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• Customer will receive a notification message box informing the customer that all items have been removed from the cart.	
OPEN ISSUES:	• None	

Figure 57 6.7. Empty Cart Narrative

NKAP Bolting System

Author (s): Chardé Devine Vries

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Checkout Order	**USE CASE TYPE**
USE CASE ID:	6.8	Business Requirements: ☐
PRIORITY:	High	System Analysis: ☒
SOURCE:	NKAP Bolting system	System Design: ☐
PRIMARY BUSINESS ACTOR	Customer	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	Virtual card Services (External server)	
OTHER INTERESTED STAKEHOLDERS:	Administrator	
DESCRIPTION:	This use case describes the event where a customer would like to go to the checkout screen to pay for an order. The customer goes to the checkout page and sees a summary of items they would like to order, quantities, specifications and prices thereof. When the user clicks on the proceed button they will be prompted to make a payment towards the order. They select a payment method of choice and the system displays the amount due. The customer will be notified that the payment has been made and they will receive an invoice with the order details.	
PRE-CONDITION:	The customer must have an account and be logged into the system	
TRIGGER:	A user attempts to pay for an order by proceeding to checkout.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The user would like to proceed to checkout.	
	Step 2: The user clicks on the “checkout” button	**Step 3**: The system displays a pop-up message asking the user if they would like their order to be delivered.
	Step 4: The customer clicks on the yes button. [ALT]	**Step 5**: The system updates the following entities. **Delivery:** • Delivery_ID (PK) • Employee_ID • Date **DeliveryStatus:** • DeliveryStatus_ID (PK) • Description **DeliveryPrice:** • DeliveryPrice_ID (PK) • Distance

		Step 6: The system displays the amount due which is calculated using the following entities: **Price**: • Price_ID • Price_Description • Price_Date **DeliveryPrice:** • DeliveryPrice_ID (PK) • Distance **VAT**: • VAT_ID • VAT_Amount • Date **Discount**: • Discount_ID • Discount_Percentage **Special:** • Special_ID • Special_Price The system displays the Sale Order by using the following entity: **SaleOrder:** • SaleOrder_ID (PK) • SaleOrder_Number • SaleOrder_Description • SaleOrder_Date • CollectionStatus_ID
		Step 7: The system prompts the user to make a payment towards the order with a message box prompting them to select a payment method.
	Step 8: The user select a payment method of choice.	**Step 9:** The system loads the payment gateway with the amount due for the selected item
	Step 10: Virtual card services System displays the payment successful message [ALT]	**Step 11:** The system records the transaction in the Sale Order by using the following entity: **SaleOrder:** • SaleOrder_ID (PK) • SaleOrder_Number • SaleOrder_Description • SaleOrder_Date • CollectionStatus_ID

		Step 12: The system notifies the customer that the order has been successful and sends them the invoice.
ALTERNATE COURSES:	**ALT Step 3:** The customer does not want their order to be delivered, they click the no button. Proceed to Use Case 6.9.4	
	ALT Step 10: Payment unsuccessful message displayed. Return to Step 7	
CONCLUSION:	• This use case concludes when the customer receives the payment confirmation e-mail.	
POST-CONDITION:	• The payment is recorded in the database	
BUSINESS RULES	• Payment can only be made toward an order • NKAP Bolting retains the right to change the tariffs or items without prior notification	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• Cash payments are only accepted at the physical store. • Customer is in possession of credit/debit card.	
OPEN ISSUES:	• None	

Figure 58 6.8. Checkout Order Narrative

2.2.7 Reports Sub-System

NKAP Bolting System

Author (s): **Jerome Amenigy**

Date: **08-05-21**
Version: **1.0**

USE CASE NAME:	Generate fast-selling product list	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	7.1	
PRIORITY:	High	
SOURCE:	NKAP Bolting system requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event whereby a list is generated based on the fast-selling products by the admin. The admin will first navigate to the products tab and select the “fast-selling product list” report in the report’s menu item in the products tab and enter the period for which the list should be generated. The system will then retrieve and display those items which had the most sales in the period the admin has selected.	
PRE-CONDITION:	Sales have occurred on the system.	
TRIGGER:	The admin wants to review the fastest selling items available on the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The requests to generate a report	
	Step 2: The admin selects the “Fast-selling product list”	**Step 3:** The system prompts the user to select the period over which the report should be generated for.
	Step 4: The admin selects the required period.	**Step 5:** The system retrieves the following information from the ProductItem table • ProductItem_ID • ProductItem_Name

		• ProductItem_Desc • ProductItem_Image • CategoryType_ID , • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc From the SaleOrder table and • SaleOrderLine_ID • ProductItem_ID • SaleOrder_ID • Product_Name • Quantity_Ordered From the Cart entity.
		Step 6: The system compiles the retrieved information into a list and displays the Product Items which experienced the most sales for the selected period.
ALTERNATE COURSES:		
CONCLUSION:	A list based on the fastest selling items is generated and displayed to the admin	
POST-CONDITION:	The admin has viewed the generated list	
BUSINESS RULES	• The list is generated from the fastest selling items available in the system	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 59 7.1. Generate Fast Selling Product List Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Generate slow-selling product list	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	7.2	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting system requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event whereby a list is generated based on the slow-selling products by the admin. The admin will first navigate to the products tab and select the "slow-selling product list" report in the report's menu item in the products tab and enter the period for which the list should be generated. The system will then retrieve and display those items which had the lowest amount sales in the period the admin has selected.	
PRE-CONDITION:	Sales have occurred on the system.	
TRIGGER:	The admin wants to review the items which are not being sold very often in comparison to other items.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The requests to generate a report	
	Step 2: The admin selects the "Slow-selling product list"	**Step 3:** The system prompts the user to select the period over which the report should be generated for.
	Step 4: The admin selects the required period.	**Step 5:** The system retrieves the following information from the ProductItem table • ProductItem_ID • ProductItem_Name • ProductItem_Desc

		• ProductItem_Image • CategoryType_ID , • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc From the SaleOrder table and • SaleOrderLine_ID • ProductItem_ID • SaleOrder_ID • Product_Name • Quantity_Ordered From the Cart entity.
		Step 6: The system compiles the retrieved information into a list and displays the Product Items which experienced the lowest amount of sales for the selected period.
ALTERNATE COURSES:		
CONCLUSION:	A list based on the slowest selling items is generated and displayed to the admin	
POST-CONDITION:	The admin has viewed the generated list	
BUSINESS RULES	• The list is generated from the slowest selling items available in the system	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 60 7.2. Generate Slow Selling Product List Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Generate most frequent buyers report	**USE CASE TYPE**
USE CASE ID:	7.3	Business Requirements: ☐
PRIORITY:	High	System Analysis: ✔
SOURCE:	NKAP Bolting system requirements	System Design: ☐
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process whereby the admin generates a report based on the Customers who have placed the most orders. The system will retrieve information from the Customer and SaleOrder tables and then display a list of the customers who have completed the most purchases in the past month.	
PRE-CONDITION:	Sales have occurred on the system.	
TRIGGER:	The admin wants to view who the most frequent customers are buying from the business.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin clicks on the sales tab	**Step 2:** The system displays the sales page.
	Step 3: The admin clicks on the report's menu item	**Step 4:** The system displays all available reports relating to sales
	Step 5: The admin selects the "most frequent" buyers report.	**Step 6:** The system retrieves: • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • Delivery_ID • Courier_ID

		And • Customer_ID • Customer_Name • Customer_Surname • Customer_Cellphone • Customer_EmailAddress • Customer_Businesname • Customer_VATReg • Customer_Address From the SaleOrder and Customer tables
		Step 7: The system then sorts the retrieved information to find which customers made the most purchases in the past month.
		Step 8: The system displays the sorted information out in a list.
ALTERNATE COURSES:		
CONCLUSION:	The list of the most frequent buyers has been generated and displayed.	
POST-CONDITION:	The admin views the generated list	
BUSINESS RULES	• Sales must have occurred during the past month	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 61 7.3. Generate Most Frequent Buyers Report

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Generate most popular location report	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	7.4	
PRIORITY:	Low	
SOURCE:	NKAP Bolting system requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process where the admin generates a list based on the areas in which the most purchases were made through the system.	
PRE-CONDITION:	Sales must have occurred over the past month	
TRIGGER:	The admin wants to view a report based on the locations where customers are ordering the most.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The requests to generate a report	
	Step 2: The admin selects the "most popular location report"	**Step 3:** The system retrieves the following information from the Customer table • Customer_ID • Customer_Name • Customer_Surname • Customer_Cellphone • Customer_EmailAddress • Customer_Businesname • Customer_Address , • SaleOrder_ID

		• SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc From the SaleOrder table, • City_ID • City_Description • Province_ID From the City table and • Province_ID • Province_Description From the Province entity.
		Step 4: The system then displays a list of the provinces and cities in those provinces which had the highest number of sales in the past month.
ALTERNATE COURSES:		
CONCLUSION:	The most popular location report has been generated and displayed	
POST-CONDITION:	The admin views the most popular location report	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 62 7.4. Generate Most Popular Location Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Generate Weekly Sale Order List	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	7.5	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting system requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where the admin generates a report on the sale orders which have occurred over the past week made by customers. The admin will first navigate to the sales tab and then select reports and select the “weekly sale order list” report and then the system will retrieve and display the list based on all the sale orders which have taken place over the past week.	
PRE-CONDITION:	Sales have occurred over the past week The admin is logged in	
TRIGGER:	The admin wants to view all the sale orders which have taken place over the past week.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The requests to generate a report	
	Step 2: The admin selects the “weekly sale order list” report.	**Step 3:** The system retrieves: • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • Delivery_ID • Courier_ID

		And • Customer_ID • Customer_Name • Customer_Surname • Customer_Cellphone • Customer_EmailAddress • Customer_Businesname • Customer_VATReg • Customer_Address From the SaleOrder and Customer tables
		Step 4: The system then selects the SaleOrders which have occurred in the past week and puts them in a list with the corresponding customers who made those sale orders also in the list.
		Step 5: The system then displays the weekly sale order list to the admin
ALTERNATE COURSES:		
CONCLUSION:	The weekly sale order list has been generated and displayed	
POST-CONDITION:	The admin views the generated sale order list	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 63 7.5. Generate Weekly Sale Order List Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Generate Monthly Sale Order List	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	7.6	
PRIORITY:	High	
SOURCE:	NKAP Bolting system requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where the admin generates a report on the sale orders which have occurred over the past month made by customers. The admin will first navigate to the sales tab and then select reports and select the “monthly sale order list” report and then the system will retrieve and display the list based on all the sale orders which have taken place over the past month.	
PRE-CONDITION:	Sales have occurred over the past month The admin is logged in	
TRIGGER:	The admin wants to view all the sale orders which have taken place over the past month.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The requests to generate a report	
	Step 2: The admin selects the “monthly sale order list” report.	**Step 3:** The system retrieves: • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • Delivery_ID • Courier_ID

		And • Customer_ID • Customer_Name • Customer_Surname • Customer_Cellphone • Customer_EmailAddress • Customer_Businesname • Customer_VATReg • Customer_Address From the SaleOrder and Customer tables
		Step 4: The system then selects the SaleOrders which have occurred in the past month and puts them in a list with the corresponding customers who made those sale orders also in the list.
		Step 5: The system then displays the month sale order list to the admin
ALTERNATE COURSES:		
CONCLUSION:	The monthly sale order list has been generated and displayed	
POST-CONDITION:	The admin views the generated sale order list	
BUSINESS RULES	None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 64 7.6. Generate Monthly Sale Order List Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Generate Stock-Level Report	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	7.7	
PRIORITY:	High	
SOURCE:	NKAP Bolting system requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where a stock-level report is generated by the admin. The admin navigates to the report's menu item in the products tab and chooses the generate stock-level report. The system will retrieve information from the ProductItem entity and display it to the admin. The use case ends once the report has been displayed to the admin.	
PRE-CONDITION:	There are products added to the system The admin is logged in	
TRIGGER:	The admin wants to view the inventory available in the system	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The requests to generate a report	
	Step 2: The admin clicks on the "Stock-level report" option	**Step 3:** The system retrieves • ProductItem_ID • ProductItem_Name • ProductItem_Desc • ProductItem_Image • CategoryType_ID • Quantity on hand ,

		• CategoryType_ID • CategoryType_Desc • ProductCategory_ID And • ProductCategory_ID • ProductCategory_Desc From the ProductItem, CategoryType and ProductCategory tables.
		Step 4: The system categorizes each ProductItem its category type and each category type into its Product Category.
		Step 5: The system then displays the ProductItem names and quantity on hand of each product item present in the system.
ALTERNATE COURSES:		
CONCLUSION:	The stock-level report is generated and displayed	
POST-CONDITION:	The admin views the stock-level report	
BUSINESS RULES	None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 65 7.7. Generate Stock-Level Report Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Packing Report	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	7.8	
PRIORITY:	High	
SOURCE:	NKAP Bolting system requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event whereby an admin generates a report based on the SaleOrders which still need to be packed. Firstly, the admin requests to generate a packing report on the system. The system will then retrieve all the SaleOrders which have a status of ready to be packed. The system will then populate and display a list with the SaleOrder details.	
PRE-CONDITION:	The admin is logged into the system Sales have taken place	
TRIGGER:	The admin wants to view all the orders that still needs to be packed	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to generate the Packing Report	**Step 2:** The system retrieves • SaleOrder_ID • Employee_ID • OrderStatus_ID • SaleOrder_Number • SaleOrder_Desc • SaleOrder_Date • SaleOrder_Assign • SaleOrder_ReceiveType • Payment_Date • Payment_Amount And

		• OrderStatus_ID • OrderStatus_Desc from the SaleOrder and SaleOrderStatus entities which have the order status of “ready for packing”
		Step 3: The system sorts the retrieved orders from the first made to the most recent
		Step 4: The system displays the list of SaleOrders to the admin as the Packing Report
ALTERNATE COURSES:		
CONCLUSION:	The Packing report is generated from the SaleOrders which have a status of “ready for packing”	
POST-CONDITION:	The system generates and displays the packing report	
BUSINESS RULES	• The packing report is generated from the Sale Orders which have a status of “ready for packing”	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 66 7.8. Packing Report Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Delivery Report	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	7.9	
PRIORITY:	High	
SOURCE:	NKAP Bolting system requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event whereby an admin generates a report based on the SaleOrders which still need to be delivered. The admin will first request to generate a delivery report on the system. The system will then retrieve the Sale Orders with a delivery Status of "ready for delivery" and an Order Status of "Packed"	
PRE-CONDITION:	The admin is logged in to the system Sales have taken place	
TRIGGER:	The admin wants to view all the sale orders that still needs to be delivered	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to generate the Delivery Report	**Step 2:** The system retrieves • SaleOrder_ID • Employee_ID • OrderStatus_ID • SaleOrder_Number • SaleOrder_Desc • SaleOrder_Date • SaleOrder_Assign • SaleOrder_ReceiveType • Payment_Date • Payment_Amount

		, • OrderStatus_ID • OrderStatus_Desc , • Delivery_ID • DeliverStatus_ID • Employee_ID • Courier_ID • Delivery_Date And • DeliverStatus_ID • DeliveryStatus_Desc from the SaleOrder, SaleOrderStatus, Deliver and DeliverStatus entities which have the order status of “Packed” and the delivery status of “ready for delivery”
		Step 3: The system then filters through the retrieved sale orders and sorts them according to SaleOrder_Date.
		Step 4: The system then displays the list of retrieved SaleOrders to the admin in the correct order as the Delivery Report
ALTERNATE COURSES:		
CONCLUSION:	The delivery report is generated from the SaleOrder, Delivery, DeliveryStatus and OrderStatus tables and displayed to the admin.	
POST-CONDITION:	The system has generated and displayed the delivery report	
BUSINESS RULES	• The SaleOrders displayed in the report must have a delivery status of “ready for delivery”	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 67 7.9. Delivery Report Narrative

2.2.8 Delivery Sub-System

NKAP Bolting System

Author (s): **Chardé Devine Vries** **Date:** **08-05-21**
Version: **1.0**

USE CASE NAME:	View Delivery Details	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ☒ System Design: ☐
USE CASE ID:	8.1	
PRIORITY:	High	
SOURCE:	NKAP Bolting system	
PRIMARY BUSINESS ACTOR	Employee	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	None	
OTHER INTERESTED STAKEHOLDERS:	None	
DESCRIPTION:	This use case describes the event where an employee navigates to a specific delivery to view its details. The employee selects a delivery and the details are displayed on screen.	
PRE-CONDITION:	• The customer must have an account and be logged into the system • At least one order must have been made	
TRIGGER:	Employee attempts to view delivery details.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: Employee attempts to view delivery details.	**Step 2**: The system requests the client to enter the DeliveryID.
	Step 3: Employee enters the DeliveryID.	**Step 4**: The system captures the DeliveryID and validates it.
		Step 5: The system loads the retrieved data from the Delivery entity using the DeliveryID. The following enitites are used: **Delivery:** • Delivery_ID (PK) • Employee_ID

		• Date **DeliveryStatus:** • DeliveryStatus_ID (PK) • Description
		Step 6: The system displays the retrieved results with the delivery details. **[ALT]**
ALTERNATE COURSES:	**ALT Step 6:** Delivery not found Display error message Return to step 2	
CONCLUSION:	• This use case concludes when the delivery details are displayed	
POST-CONDITION:	• The delivery details are successfully retrieved and accessible by the • employee	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• DeliveryID for which a employee wishes to view the details for is known.	
OPEN ISSUES:	• None	

Figure 68 8.1. View Delivery Details Narrative

NKAP Bolting System

Author (s): Chardé Devine Vries

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Accept Delivery	**USE CASE TYPE**
USE CASE ID:	8.2	Business Requirements: ☐
PRIORITY:	High	System Analysis: ☒
SOURCE:	NKAP Bolting system	System Design: ☐
PRIMARY BUSINESS ACTOR	Employee	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	None	
OTHER INTERESTED STAKEHOLDERS:	None	
DESCRIPTION:	This use case describes the event where an employee navigates to a specific delivery to accept it. The employee selects a delivery, the details are displayed on screen and they accept it.	
PRE-CONDITION:	• The employee must have an account and be logged into the system	
TRIGGER:	Employee attempts to accept a deliver.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: Employee attempts to accept a delivery.	**Step 2**: The system invokes Use Case 8.1 View Delivery details
		Step 4: The system prompts the user to accept or decline a delivery.
	Step 3: Employee accepts the delivery [ALT]	**Step 5**: The system saves the accepted delivery information and updates the delivery in the following entities: **Delivery:** • Delivery_ID (PK) • Employee_ID • Date **DeliveryStatus:**

		• DeliveryStatus_ID (PK) • Description
		Step 6: The system displays a message box that informs the employee that the delivery has been accepted on the system,
ALTERNATE COURSES:	**ALT Step 3:** Employee declines Display error message Terminate Use Case	
CONCLUSION:	• This use case concludes when the delivery details are displayed	
POST-CONDITION:	• The delivery details are successfully retrieved and accessible by the • employee	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• DeliveryID for which a employee wishes to view the details for is known.	
OPEN ISSUES:	• None	

Figure 69 8.2. Accept Delivery Narrative

NKAP Bolting System

Author (s): Chardé Devine Vries

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Update Delivery Status	**USE CASE TYPE**
USE CASE ID:	8.3	Business Requirements: ☐
PRIORITY:	High	System Analysis: ☒
SOURCE:	NKAP Bolting system	System Design: ☐
PRIMARY BUSINESS ACTOR	Employee	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	Customer (ERA)	
OTHER INTERESTED STAKEHOLDERS:	None	
DESCRIPTION:	This use case describes the event where an employee navigates to a specific delivery to update its status. The employee selects a delivery they would like to update. The system prompts the user to confirm the modification and the user confirms it. The modified details are displayed on screen and updated in the database.	
PRE-CONDITION:	• The customer must have an account and be logged into the system • The delivery exists	
TRIGGER:	Employee attempts to update the delivery status.	

TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: Employee attempts to update delivery status.	**Step 2**: The system invokes Use Case 8.1 View Delivery details
		Step 3: The system prompts changes to delivery status.
	Step 4: Employee enters the changes.	**Step 5**: The System captures and validates changes to be made to the delivery status.
		Step 6: The System prompts the client to confirm the changes to be made
	Step 7: Client confirms the changes made. [ALT]	**Step 8:** System saves the modifications to

		the delivery status to the Delivery entity associated with a delivery. The following enitites are used: **Delivery:** • Delivery_ID (PK) • Employee_ID • Date **DeliveryStatus:** • DeliveryStatus_ID (PK) • Description
		Step 9: System displays a Successfully updated delivery status message.
ALTERNATE COURSES:	**ALT Step 4:** System fails to validate entered details Display error message Return to step 3	
	ALT Step 6: Client does not confirm changes Display error message Return to step 3	
CONCLUSION:	• This use case concludes when the delivery status is updated.	
POST-CONDITION:	• The delivery status detaild are successfully updated	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• System is offline	
ASSUMPTIONS:	• None	
OPEN ISSUES:	• None	

Figure 70 8.3. Update Delivery Status Narrative

NKAP Bolting System

Author (s): **Sonali Badrinath**

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Add Courier	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	8.4.	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Courier	
DESCRIPTION:	This use case describes the event where the admin wants to add a new Courier. The admin will enter all information pertaining to the Courier that they want to add. This information will be added to the Courier entity. The use case ends when the addition process is completed, and a message of success is displayed to the admin.	
PRE-CONDITION:	The admin must be logged on to the system.	
TRIGGER:	The Admin wants to add a courier to the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The Admin wants to add a courier to the system. The administrator makes a request on the system to capture the new courier.	**Step 2:** The system prompts the administrator to provide the following courier information. • Courier Type • Courier Name • Courier Number • Courier Email
	Step 3: The administrator will enter the new courier information on the system.	**Step 4:** The system will perform a validation on the captured information.

		Step 5: The system generates a unique number for the courier in the Courier Entity.
		Step 6: The system will save the new courier details in the Courier entity to the relevant attributes such as: ● CourierType_ID ● Courier_Name ● Courier_Number ● Courier_Email
		Step 7: The system will display a message of success to inform the administrator that the new courier is added.
ALTERNATE COURSES:	**ALT Step 4:** The validation of the captured information does not correspond to the requirements for the Courier entity. The system will display a message stating that the validation was unsuccessful. **Return to Step 3.**	
	ALT Step 7: The system fails to create the new courier**. Terminate Use Case.**	
CONCLUSION:	The use case concludes when the new courier has been added to the system successfully.	
POST-CONDITION:	● The administrator can now access the courier information on the system.	
BUSINESS RULES	● Only admin can add a courier.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	● None	
ASSUMPTIONS:	● None	
OPEN ISSUES:	None	

Figure 71 8.4. Add Courier Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Search Courier	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	8.5.	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case starts when an admin wants to search for an existing courier on the system. The admin will enter the search parameters to initiate the search process. The system will search for the corresponding courier that matches the parameters provided by the admin. The use case ends when the system displays the courier's details.	
PRE-CONDITION:	• The administrator must be logged onto the system. • The courier should exist on the system.	
TRIGGER:	The Admin wants to search for a courier on the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The Admin wants to search for a courier on the system.The administrator requests to search for a courier on the system.	**Step 2:** The system prompts the administrator to enter the: • Courier Name Within the provided search parameter.
	Step 3: The administrator enters the requested courier information.	**Step 4:** The system will validate the parameters entered by the administrator by checking if the entered information matches information stored in the Courier Entity:

		• Courier_Name
		Step 5: The system retrieves displays the search results to the owner using the following attributes from the Courier Entity: • CourierType_Desc • Courier_Name • Courier_Number • Courier_Email
ALTERNATE COURSES:	**ALT Step 4:** The system cannot find information that match the search criteria. The system will display an error message. **Return to Step 3.**	
CONCLUSION:	The use case concludes when the courier's information is displayed.	
POST-CONDITION:	The administrator can access the courier information.	
BUSINESS RULES	• Only the admin can search for couriers in the system	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 72 8.5. Search Courier Narrative

NKAP Bolting System

Author (s): **Sonali Badrinath**

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Update Courier	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	8.6.	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Courier	
DESCRIPTION:	The use case starts when an admin selects an existing courier and want to update the details. The admin to makes changes and once the admin is complete with the edit, they will save the information in the courier entity. This use case ends when the courier information is successfully updated.	
PRE-CONDITION:	• The admin must be logged in. • The courier must have been previously added on the system.	
TRIGGER:	The Admin wants to update a courier on the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The Admin wants to update a courier on the system.	**Step 2:** The administrator invokes use case **'8.5. Search Courier'**.
	Step 3: The admin will select the update option.	**Step 4:** The system will enable the admin to update the following attributes from the Courier Entity: • Courier_Type • Courier_Name • Courier_Number • Courier_Email

	Step 5: The admin updates the relevant information and selects the 'Done' option.	**Step 6:** The system validates the new information and updates it in the Courier Entity: ● Courier_Type ● Courier_Name ● Courier_Number ● Courier_Email
		Step 7: The system displays a message of success to the admin.
ALTERNATE COURSES:	**ALT Step 3:** The admin chooses the Cancel option. **Return to Step 2.**	
	ALT Step 6: The system doesn't validate the changes made. The system displays a message informing the admin that the wrong information was entered. **Return to step 4.**	
	ALT Step 8: The system could not successfully update the information. The system displays a message informing that the update was unsuccessful. **Terminate use case.**	
CONCLUSION:	The use case concludes when the courier's information is updated successfully, and the admin is informed.	
POST-CONDITION:	The courier information is updated on the system.	
BUSINESS RULES	● Only an admin can update employee information.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	● None	
ASSUMPTIONS:	● None	
OPEN ISSUES:	None	

Figure 73 8.6. Update Courier Narrative

NKAP Bolting System

Author (s): Sonali Badrinath

Date: 09-05-21
Version: 1.0

USE CASE NAME:	Delete Courier	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	8.7	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Administrator	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• Courier	
DESCRIPTION:	This use case starts when an admin wants to delete a courier. The admin will search and selects the delete button next to the courier name. The admin confirms the removal of the courier. The use case ends when the courier is permanently deleted from the system.	
PRE-CONDITION:	• The admin must be logged in. • The courier must have been previously added on the system.	
TRIGGER:	The Admin wants to delete a courier from the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin wants to delete a courier from the system.	**Step 2:** The administrator invokes use case **'8.5. Search Courier'**.
	Step 3: The admin will select the Delete option next to the searched courier details.	**Step 4:** The system will display a message to confirm the deletion.
	Step 5: The admin will select the Yes option.	**Step 6:** The system proceeds to permanently remove the courier information from the Courier Entity: • Courier_ID

		Step 7: The system displays a message of success to the admin.
ALTERNATE COURSES:	**ALT Step 5:** The admin selects the No option. **Return to Step 2.**	
	ALT Step 7: The system could not successfully delete the courier information. The system displays a message informing that the deletion was unsuccessful. **Terminate use case.**	
CONCLUSION:	The use case concludes when the courier information is successfully deleted.	
POST-CONDITION:	The courier information no longer exists on the system.	
BUSINESS RULES	• Only the admin can delete a courier.	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 74 8.7. Delete Courier Narrative

2.2.9 Products Sub-System

NKAP Bolting System

Author (s): **Jerome Amenigy** **Date:** **08-05-21**
Version: **1.0**

USE CASE NAME:	Add Product Category	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.1	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process whereby an admin adds a new Product Category to the system. The admin will select an option to add a product category to the system and then enter the specified product category's information and upon saving the addition the system will add it to the ProductCategory Entity.	
PRE-CONDITION:	The admin is logged in to the system.	
TRIGGER:	The admin wants to add a new product category to the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to add a new product category on the system	
	Step 2: The admin clicks on the add new Product Category button in the "Products" page	**Step 3:** The system displays the product category page where the admin can enter the required fields.
	Step 4: The admin enters the specified product category's details and clicks save.	**Step 5:** The system captures the product category information and saves it in the ProductCategory entity. It updates the following attributes • ProductCategory_ID

		• ProductCategory_Desc With the provided information.
		Step 6: The system displays a message saying that the ProductCategory has been successfully added.
ALTERNATE COURSES:		
CONCLUSION:	The use case concludes once a new Product Category has been added on to the system.	
POST-CONDITION:	A new product category has been added	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 75 9.1. Add Product Category Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Search Product Category	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.2	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process where the admin searches for a specific Product Category. Once the admin enters the search criteria the system will retrieve the matching results from the ProductCategory entity the use case ends once the retrieved results have been displayed to the admin.	
PRE-CONDITION:	The admin is logged in to the system The ProductCategory exists on the system	
TRIGGER:	The admin wants to search for a product category	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to search for a product category	
	Step 2: The owner enters the specified product category's search criteria	**Step 3:** The system retrieves the matching product category information from the ProductCategory entity the system retrieves the following attributes: • ProductCategory_ID • ProductCategory_Desc
		Step 4: The system displays the matching product categories retrieved from the system which

		match the admin's entered search criteria.
	Step 5: The admin selects a specific product category.	**Step 6:** The system displays the full details of the selected Product Category.
ALTERNATE COURSES:	**Step 3b**: The system cannot find any product categories matching the entered criteria, the system then displays an error message stating that the searched product category cannot be found, and the use case is terminated.	
CONCLUSION:	The searched product category is displayed to the admin.	
POST-CONDITION:	None	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 76 9.2. Search Product Category Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Update Product Category	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.3	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event whereby an already existing Product Category is updated by an admin. Firstly the admin indicates that they want to update a product category, next the system invokes Use Case 9.2 Search category, after the relevant information is displayed the admin chooses to edit the product category. After editing and saving the changes the system updates the ProductCategory entity with the changes made.	
PRE-CONDITION:	The ProductCategory already exists on the system The admin is logged in to the system.	
TRIGGER:	The admin wants to update the Product Category on the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to update a Product Category.	**Step 2**: The system invokes UC 9.2 "Search Product Category"
	Step 3: The admin clicks on the update button	**Step 4:** The system displays the update Product Category fields.
	Step 5: The admin edits and makes all the changes they want to make to the product category.	

	Step 6: The admin clicks save	**Step 7:** The system saves the changes made to the specific product item. The system updates the changes made to the ProductCategory entity. • ProductCategory_ID • ProductCategory_Desc With the provided information.
		Step 8: The system displays a pop-up stating the update to the product category has been successful.
ALTERNATE COURSES:	**Step 2b:** The system could not find the required product category and the use case is terminated.	
	Step 6b: The admin clicks cancel, and the use case is terminated	
CONCLUSION:	The Product Category has been updated on the system and a success message is shown	
POST-CONDITION:	The ProductCategory entity has been updated.	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 77 9.3. Update Product Category Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Delete Product Category	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.4	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process where the admin deletes a Product Category from the system. Upon indicating that the admin wants to delete a product category the system will invoke use case 9.2, the admin will then proceed to delete the selected product category and the system will remove the selected product category from the ProductCategory entity.	
PRE-CONDITION:	The admin is logged in to the system The Product category already exists on the system	
TRIGGER:	The admin wants to delete a category type	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to delete a product category	**Step 2:** The system invokes use case 9.2
	Step 3: The admin clicks on the delete button	**Step 4:** The system displays a confirmation message asking whether the user wants to delete the selected product category.
	Step 5: The admin confirms the message	**Step 6:** The system removes the selected product category from the ProductCategory entity. The system removes • ProductCategory_ID • ProductCategory_Desc

		From the entity
		Step 7: The system displays a pop-up saying the selected product category has been deleted.
ALTERNATE COURSES:	**Step 5b:** The admin declines the confirmation message, and the use case is aborted.	
	Step 2b: The product category could not be found, and the use case is terminated.	
CONCLUSION:	The searched product category has been deleted from the system.	
POST-CONDITION:	The product category is deleted.	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 78 9.4. Delete Product Category Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Add Category Type	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.5	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process whereby an admin adds a new Category Type to the system. The admin will select an option to add a category type to the system and then enter the specified category type's information and upon saving the addition the system will add it to the CategoryType Entity.	
PRE-CONDITION:	The relating Product Category exists on the system The admin is logged in to the system	
TRIGGER:	The admin wants to add a CategoryType to the system	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to add a new category type on the system	
	Step 2: The admin clicks on the add new Category Type button in the "Products" page	**Step 3:** The system displays the product category page and retrieves the following attributes from the ProductCategory entity • ProductCategory_ID • ProductCategory_Desc
	Step 4: The admin selects the Product Category he	**Step 5:** The system displays the category type page where the admin

	wants to add the Category Type to.	can enter information into the required fields.
	Step 6: The admin enters the required Category Type information and clicks save	**Step 7:** The system adds the category type to the system and saves the entry in the CategoryType entity. It updates the • CategoryType_ID and • CategoryType_Desc Attributes.
		Step 8: The system displays a message saying the CategoryType has been successfully added.
ALTERNATE COURSES:	**Step 3b:** The system cannot retrieve any product categories and an error message is displayed and the use case is terminated.	
CONCLUSION:	The new category type has been added to the system	
POST-CONDITION:	The new category type has been added to the system	
BUSINESS RULES	• A CategoryType must be linked to a ProductCategory	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 79 9.5. Add Category Type Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Search Category Type	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.6	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process where the admin searches for a specific Category Type. Once the admin enters the search criteria the system will retrieve the matching results from the CategoryType entity the use case ends once the retrieved results have been displayed to the admin.	
PRE-CONDITION:	The admin is logged in to the system The CategoryType exists on the system	
TRIGGER:	The admin wants to search for a category type	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to search for a category type	
	Step 2: The owner enters the specified category type's search criteria	**Step 3:** The system retrieves the matching category type information from the CategoryType entity the system retrieves the following attributes: • CategoryType_ID • CategoryType_Desc • ProductCategory_ID

		Step 4: The system displays the matching category type retrieved from the system which match the admin's entered search criteria.
	Step 5: The admin selects a specific category Type.	**Step 6:** The system displays the full details of the selected Category Type.
ALTERNATE COURSES:	**Step 3b**: The system cannot find any category types matching the entered criteria, the system then displays an error message stating that the searched category type cannot be found, and the use case is terminated.	
CONCLUSION:	The searched category type is displayed to the admin	
POST-CONDITION:	None	
BUSINESS RULES	• A CategoryType must be linked to a ProductCategory	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 80 9.6. Search Category Type Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Update Category Type	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.7	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event whereby an already existing Category Type is updated by an admin. Firstly the admin indicates that they want to update a category type, next the system invokes Use Case 9.6 Search category type, after the relevant information is displayed the admin chooses to edit the category type. After editing and saving the changes the system updates the CategoryType entity with the changes made.	
PRE-CONDITION:	The CategoryType already exists on the system The admin is logged in to the system.	
TRIGGER:	The admin wants to update the Product Category on the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to update a Category Type.	**Step 2**: The system invokes UC 9.6 "Search Category Type"
	Step 3: The admin clicks on the update button	**Step 4:** The system displays the update category item page.
	Step 5: The admin edits and makes all the changes they want to make to the category type.	
	Step 6: The admin clicks save	**Step 7:** The system saves the changes made to the specific category type.

		The system updates the changes made to the CategoryType entity. • CategoryType_ID • CategoryType_Desc Are updated
		Step 8: The system displays a pop-up stating the update to the category type has been successful.
ALTERNATE COURSES:	**Step 2b:** The system could not find the required category type and the use case is terminated.	
	Step 6b: The admin clicks cancel, and the use case is terminated	
CONCLUSION:	The specified Category Type is updated and saved in the CategoryType entity	
POST-CONDITION:	The changes made to the category type are saved	
BUSINESS RULES	• A CategoryType must be linked to a ProductCategory	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 81 9.7. Update Category Type Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Delete Category Type	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.8	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process where the admin deletes a Category Type from the system. Upon indicating that the admin wants to delete a category type the system will invoke use case 9.6, the admin will then proceed to delete the selected category type and the system will remove the selected category type from the CategoryType entity.	
PRE-CONDITION:	The admin is logged in to the system The category Type already exists on the system	
TRIGGER:	The admin wants to delete a category type	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**Actor Action**
	Step 1: The admin requests to delete a category type	**Step 2:** The system invokes use case 9.6
	Step 3: The admin clicks on the delete button	**Step 4:** The system displays a confirmation message asking whether the user wants to delete the selected category type.
	Step 5: The admin confirms the message	**Step 6:** The system removes the selected category type from the CategoryType entity. • CategoryType_ID • CategoryType_Desc • ProductCategory_ID

		Are removed from the entity
		Step 7: The system displays a pop-up saying the selected category type has been deleted.
ALTERNATE COURSES:	**Step 2b:** The category type could not be found, and the use case is terminated.	
	Step 5b: The admin declines the confirmation message, and the use case is aborted.	
CONCLUSION:	The selected category type is deleted	
POST-CONDITION:	The category type has been removed from the system	
BUSINESS RULES	• A CategoryType must be linked to a ProductCategory	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 82 9.8. Delete Category Type Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Add Product Item	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.9	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process whereby an admin adds a new Product Item to the system. The admin will select an option to add a product item to the system and then enter the specified product item's information and upon saving the addition the system will add it to the ProductItem Entity.	
PRE-CONDITION:	The admin is logged in to the system.	
TRIGGER:	The admin wants to add a new product category to the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to add a new product item on the system	
	Step 2: The admin clicks on the add new Product Item button in the "Products" page	**Step 3:** The system displays the category type page and retrieves the following attributes from the CategoryType entity • CategoryType_ID • CategoryType_Desc
	Step 4: The admin selects the Category Type he wants to add the Product Item to.	**Step 5:** The system displays the product item page where the admin can enter information into the required fields.

	Step 6: The admin enters the required Product Item information and clicks save	**Step 7:** The system adds the Product Item to the system and saves the entry in the ProductItem entity. It updates the • ProductItem_ID and • ProductItem_Name • ProductItem_Desc • ProductItem_Image • Quantity_On_Hand Attributes.
		Step 8: The system displays a message saying the Product Item has been successfully added.
ALTERNATE COURSES:	**Step 3b:** The system cannot retrieve any category types and an error message is displayed and the use case is terminated.	
CONCLUSION:	A new product item has been added to the system	
POST-CONDITION:	The ProductItem entity is updated	
BUSINESS RULES	• A ProductItem must be linked to a CategoryType	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 83 9.9. Add Product Item Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Search Product Item	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.10	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process where the admin searches for a specific Product Item. Once the admin enters the search criteria the system will retrieve the matching results from the ProductItem entity the use case ends once the retrieved results have been displayed to the admin.	
PRE-CONDITION:	The admin is logged in to the system The ProductItem exists on the system	
TRIGGER:	The admin wants to search for a Product Item	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to search for a product item	
	Step 2: The owner enters the specified product item's search criteria	**Step 3:** The system retrieves the matching Product Item type information from the ProductItem entity the system retrieves the following attributes: • ProductItem_ID • CategoryType_ID • ProductItem _Desc • ProductItem _Name • ProductItem_Image • Quantity_On_Hand

		• SupplierOrderLine_ID
		Step 4: The system displays the matching Product items retrieved from the system which match the admin's entered search criteria.
	Step 5: The admin selects a specific Product item.	**Step 6:** The system displays the full details of the selected Product Item.
ALTERNATE COURSES:	**Step 3b**: The system cannot find any product items matching the entered criteria, the system then displays an error message stating that the searched category type cannot be found, and the use case is terminated.	
CONCLUSION:	The searched category type is displayed to the admin	
POST-CONDITION:	None	
BUSINESS RULES	• A ProductItem must be linked to a CategoryType	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 84 9.10. Search Product Item Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Update Product Item	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.11	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event whereby an already existing Product Item is updated by an admin. Firstly the admin indicates that they want to update a Product Item, next the system invokes Use Case 9.10 Search Product Item, after the relevant information is displayed the admin chooses to edit the Product Item. After editing and saving the changes the system updates the ProductItem entity with the changes made.	
PRE-CONDITION:	The ProductItem already exists on the system The admin is logged in to the system.	
TRIGGER:	The admin wants to update the Product Item on the system.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to update a Product Item.	**Step 2**: The system invokes UC 9.10 "Search Product Item"
	Step 3: The admin clicks on the update button	**Step 4:** The system displays the update ProductItem page.
	Step 5: The admin edits and makes all the changes they want to make to the product item.	
	Step 6: The admin clicks save	**Step 7:** The system saves the changes made to the specific product item.

		The system updates the changes made to the ProductItem entity. • ProductItem_ID • ProductItem_Name • ProductItem_Desc • ProductItem_Image • Quantity_On_Hand Are updated in the ProductItem entity
		Step 8: The system displays a pop-up stating the update to the category type has been successful.
ALTERNATE COURSES:	**Step 2b:** The system could not find the required product item and the use case is terminated.	
	Step 6b: The admin clicks cancel, and the use case is terminated	
CONCLUSION:	The specified Product Item is updated and saved in the ProductItem entity	
POST-CONDITION:	The changes made to the Product Item are saved	
BUSINESS RULES	• A ProductItem must be linked to a CategoryType	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 85 9.11. Update Product Item Narrative

NKAP Bolting System

Author (s): Jerome Amenigy

Date: 08-05-21
Version: 1.0

USE CASE NAME:	Delete Product Item	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✔ System Design: ☐
USE CASE ID:	9.12	
PRIORITY:	Medium	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the process where the admin deletes a Product Item from the system. Upon indicating that the admin wants to delete a product item the system will invoke use case 9.10, the admin will then proceed to delete the selected product item and the system will remove the selected product item from the ProductItem entity.	
PRE-CONDITION:	The admin is logged in to the system The product item already exists on the system	
TRIGGER:	The admin wants to delete a product item	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to delete a product item	**Step 2:** The system invokes use case 9.10
	Step 3: The admin clicks on the delete button	**Step 4:** The system displays a confirmation message asking whether the user wants to delete the selected product item
	Step 5: The admin confirms the message	**Step 6:** The system removes the selected product item from the ProductItem entity.
		Step 7: The system displays a pop-up saying the selected product item has been deleted.

ALTERNATE COURSES:	**Step 2b:** The product item could not be found, and the use case is terminated.	
	Step 5b: The admin declines the confirmation message, and the use case is aborted.	
CONCLUSION:	The selected product item is deleted	
POST-CONDITION:	The product item has been removed from the system	
BUSINESS RULES	• A ProductItem must be linked to a CategoryType	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 86 9.12. Delete Product Item Narrative

2.2.10 Specials Sub-System

NKAP Bolting System

Author (s): **S'nethemba Xulu** **Date:** **07/05/2021**
Version: **1**

USE CASE NAME:	Add Specials	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	10.1	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where the admin wants to add a new special for the customers. The admin will enter the details of the new special. And it will be added to the **SPECIAL** table.	
PRE-CONDITION:	The admin must be logged on to the system.	
TRIGGER:	The admin wants to add a new special.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to add a new special on to the system.	
	Step 2: The admin will click on the add new special button.	**Step 3**: The system will show the add special screen and the admin will be prompted to add all the details on the new special.
	Step 4: The admin will enter all the information on the new special.	**Step 5**: The system will capture the information on the new special and generate the Special_ID automatically by taking the last ID and adding one; then add the special information to the **SPECIAL** table with the following attributes:

		• Special_ID(FK) • Special_Price • Special_StartDate • Special_EndDate • CategoryItem(FK)
		Step 6: The system will validate the special information.
		Step 7: The system will show a successfully added special pop-up.
ALTERNATE COURSES:	Alt-Step 6: Validation for special information unsuccessful. Use case terminates.	
CONCLUSION:	The use case concludes when the new special is saved on the system	
POST-CONDITION:	The special is added to the system	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 87 10.1. Add Specials Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu

Date: 07/05/2021
Version: 1

USE CASE NAME:	Search Specials	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	10.2	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	Admin	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	This use case describes the event where the admin wants to search for a special. The use case begins when the admin enters the specials name. The use case concludes when the system returns a list of all the names matching the search query.	
PRE-CONDITION:	The admin must be logged on to the system.	
TRIGGER:	The admin wants to search for a special.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to search for a special.	**Step 2**: The system prompts the admin to enter or select a search query.
	Step 3: The admin enters a search query.	**Step 4**: The system will search for the query by reading from the **SPECIAL** table. • Special_ID • Special_Price • Special_StartDate • Special_EndDate • Category_Item(FK)
		Step 5: The system will retrieve a list of all the matches of the search

		query by reading the **SPECIAL** table. • Special_ID • Special_Price • Special_StartDate • Special_EndDate • Category_Item(FK)
ALTERNATE COURSES:	Alt-Step 4: The admin entered an invalid search query. The system will notify the admin of the invalid search query then return to step 3.	
	Alt-Step 5: There are no matches to the search.	
CONCLUSION:	The system will return a list of the specials that match the search query.	
POST-CONDITION:	The admin will view the special they have searched.	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 88 10.2. Search Specials Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu

Date: 07/05/2021
Version: 1

USE CASE NAME:	Update Specials	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	10.3	
PRIORITY:	Low	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The use case describes the event where the admin wants to update a special. The use case begins when the admin wants to update a special and the system prompts the admin to search for a special that they want to update. The admin enters the search query, and the use case 10.2 Search specials will be invoked. The system will open the details on the specials and the admin will be able to add the new information. The use case ends when the information is saved and updated in the relevant tables.	
PRE-CONDITION:	The special must be already on the system. The admin must be logged on to the system.	
TRIGGER:	The admin wants to update a special.	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to update a special.	**Step 2**: The system prompts the admin to select a search query which will Invoke **UC 10.2 Search Specials.**
	Step 3: The admin will update the details of the special.	**Step 4**: The system will capture and validate the new details.

	Step 5: The admin will confirm the update of the special.	**Step 6**: The system saves the updated information in the **SPECIAL** table: • Special_ID • Special_Price • Special_StartDate • Special_EndDate • Category_Item(FK)
ALTERNATE COURSES:	Alt-Step 4: The new details created a validation error. Return to step 3	
	Alt-Step 6: The admin cancels the update. Return to step 3.	
CONCLUSION:	The system updates the specials.	
POST-CONDITION:	The special is updated on to the system.	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 89 10.3. Update Specials Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu

Date: 07/05/2021
Version: 1

USE CASE NAME:	Delete Specials	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	10.4	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The use case describes the event when the admin wants to delete a special.	
PRE-CONDITION:	• The admin is logged into the system. • The special is in the SPECIAL table.	
TRIGGER:	The admin requesting to delete a special	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin requests to delete a special.	**Step 2**: The system invokes **Use Case 10.2. Search Special**
		Step 3: The system shows the Special screen
	Step 4: The admin selects the delete Special.	**Step 5:** The system removes the Special from the system and from the **SPECIAL** table with the following attributes: • Special_ID • Special_Price • Special_StartDate • Special_EndDate • Category_Item(FK)
ALTERNATE COURSES:	ALT step 5: The admin cancels the deletion of the special.	

	Use case terminates
CONCLUSION:	The use case concludes when the special has been successfully deleted.
POST-CONDITION:	The Special has been removed from the system.
BUSINESS RULES	• None
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None
ASSUMPTIONS:	• None
OPEN ISSUES:	None

Figure 90 10.4. Delete Specials Narrative

NKAP Bolting System

Author (s): S'nethemba Xulu

Date: 07/05/2021
Version: 1

USE CASE NAME:	Send Promotional emails	**USE CASE TYPE** Business Requirements: ☐ System Analysis: ✓ System Design: ☐
USE CASE ID:	10.5	
PRIORITY:	High	
SOURCE:	NKAP Bolting System Requirements	
PRIMARY BUSINESS ACTOR	Admin	
PRIMARY SYSTEM ACTOR	None	
OTHER PARTICIPATING ACTORS:	• None	
OTHER INTERESTED STAKEHOLDERS:	• None	
DESCRIPTION:	The use case describes the event where the person wants to Send Promotional emails. The use case starts with the admin requesting to The use case starts with the admin requesting to post an announcement, the system then prompts the admin to select the specials that they want to promote from the existing specials. The admin sends the email to all the customers emails.	
PRE-CONDITION:	The admin must be logged in.	
TRIGGER:	The admin wants to send a promotional email	
TYPICAL COURSE OF EVENTS:	**Actor Action**	**System Response**
	Step 1: The admin wants to send promotional email.	**Step 2**: The system prompts the admin to select the specials that they want to include in the email.
	Step 3: The admin selects the specials that are already in the system.	**Step 4**: The system collects the selected specials by reading from the **SPECIAL** table. • Special_ID • Special_Price • Special_StartDate • Special_EndDate • Category_Item(FK)
	Step 5: The admin confirms the information.	**Step 6**: The system gets the details from The **CUSTOMER** table: • Customer_ID

		• Customer_Email
		Step 7: The system compiles the email and sends it to the customers.
ALTERNATE COURSES:	Alt-Step 5: The admin cancels. The use case terminates.	
CONCLUSION:	The promotional emails have been sent to the customers.	
POST-CONDITION:	The emails are sent to the customers.	
BUSINESS RULES	• None	
IMPLEMENTATION CONSTRAINTS AND SPECIFICATIONS	• None	
ASSUMPTIONS:	• None	
OPEN ISSUES:	None	

Figure 91 10.5. Send Promotional Emails Narrative

CONCLUSION

This section concludes. It contained the use case diagrams which described the business processes in the system and who initiates these processes. The use case narrative further described each use case identified.

3. Process Models of New Proposed System

INTRODUCTION

The section contains the process models for the system, which includes the context diagram, a complete functional decomposition diagram, and a complete set of data flow diagram (High level, middle level and primitive level) for the proposed system.

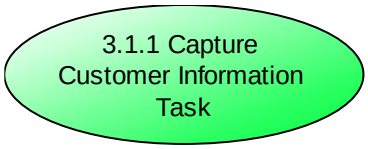
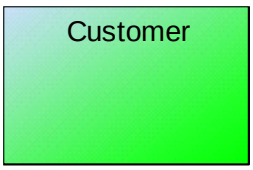
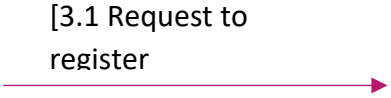
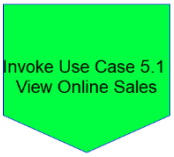
Process Model Diagram Key		
Element	**Description**	**Example**
Process	Process element with black outline and green fill.	
External Actor	External actor element represented by green rectangle with blue gradient and black outline.	
Data Store	Data Store element represented by green rectangle with black outline.	
Data Flow (Typical Course)	Data flow (Typical Course) element represented by blue arrow and data flow information in [ ] brackets and black text.	
Data Flow (Alternate Course)	Data flow (Alternate Course) element represented by blue arrow and data flow information in [ ] brackets and red text.	
Invoke	Invoke element with green fill and black text.	

Figure 92 Process Model Diagram Key

3.1. CONTEXT DIAGRAM

3.1.1 Log-in Sub-System

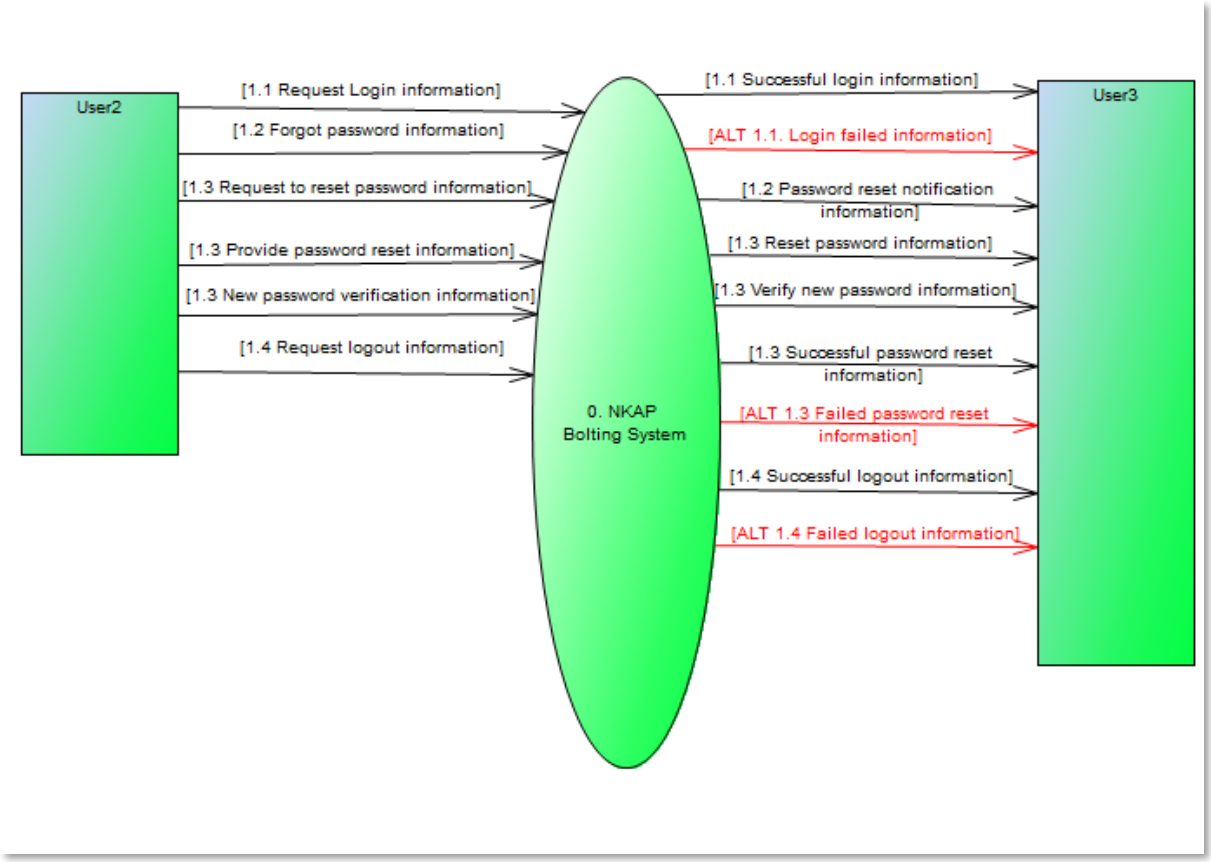


Figure 93 3.1.1. Login Subsystem Context Diagram

3.1.2 Supplier Sub-System

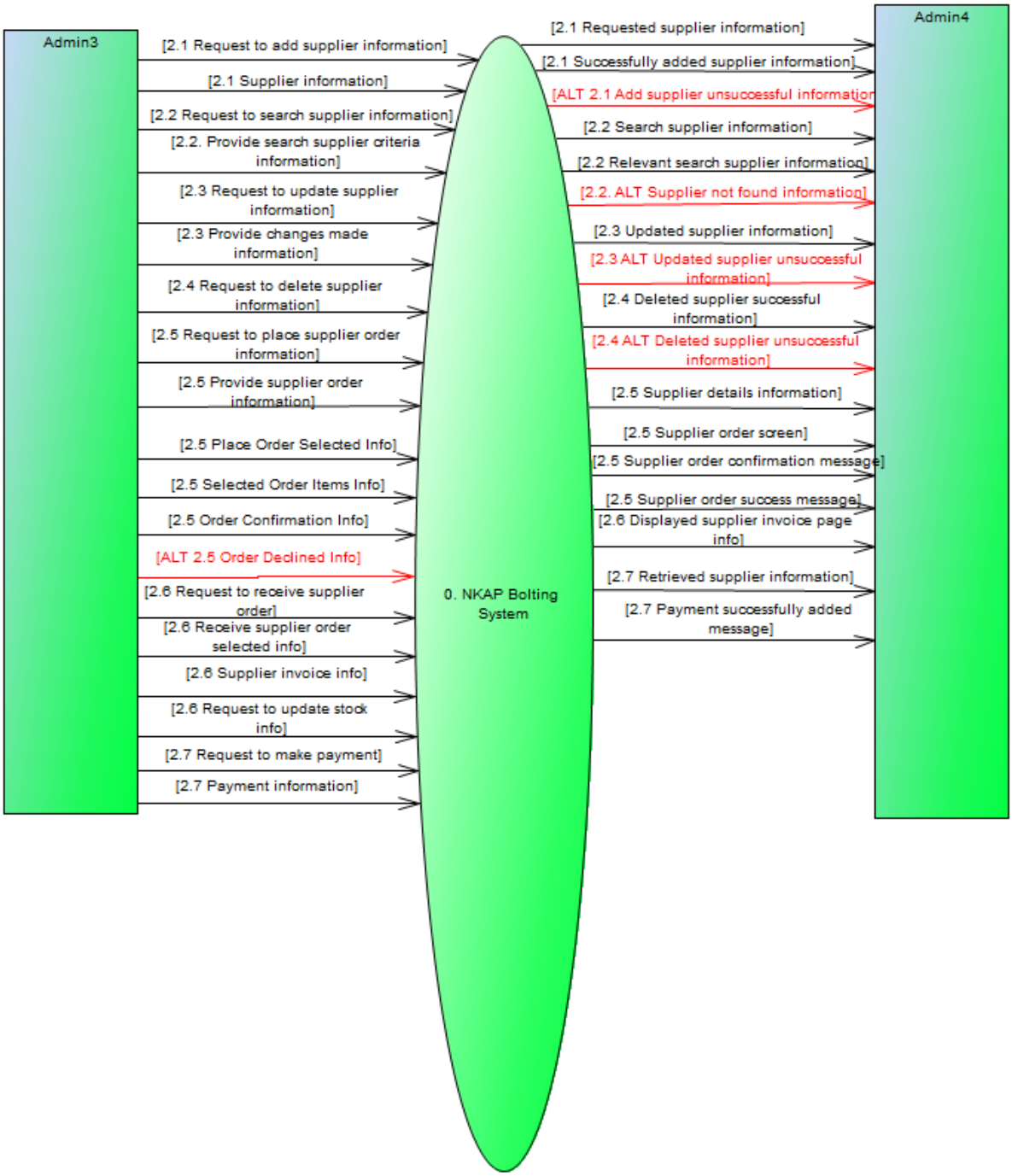


Figure 94 3.1.2. Supplier Subsystem Context Diagram

3.1.3 User Sub-System

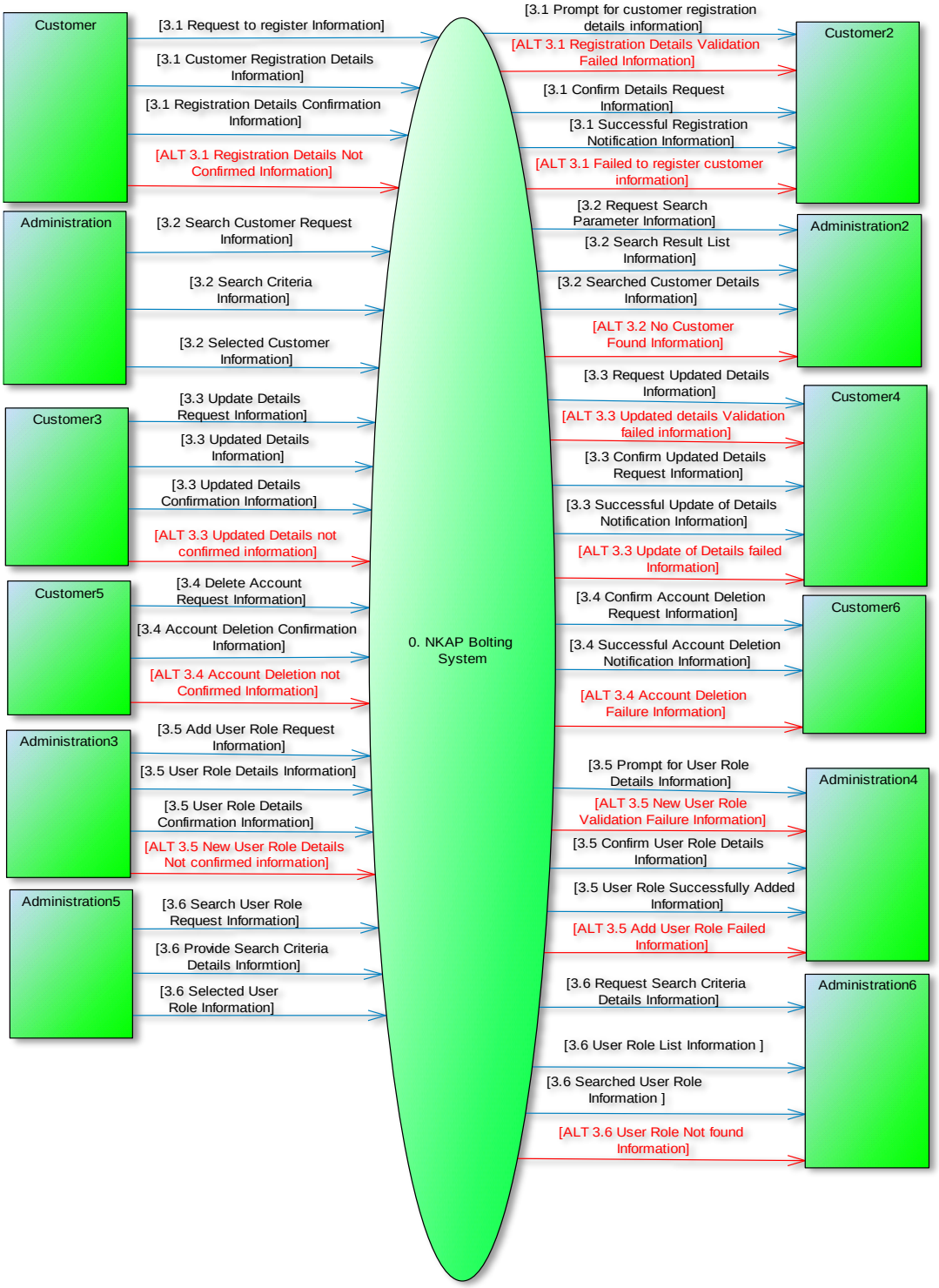
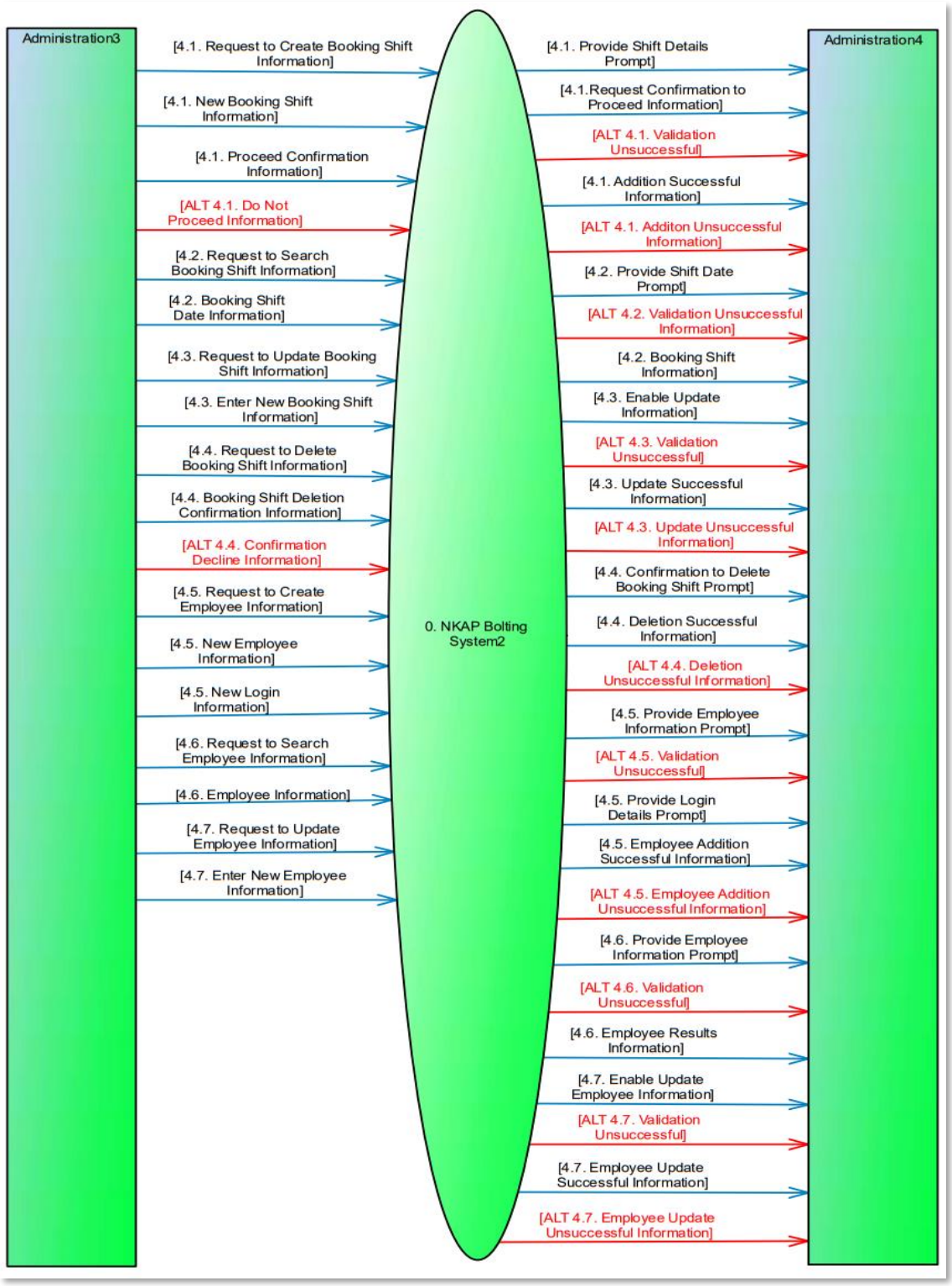
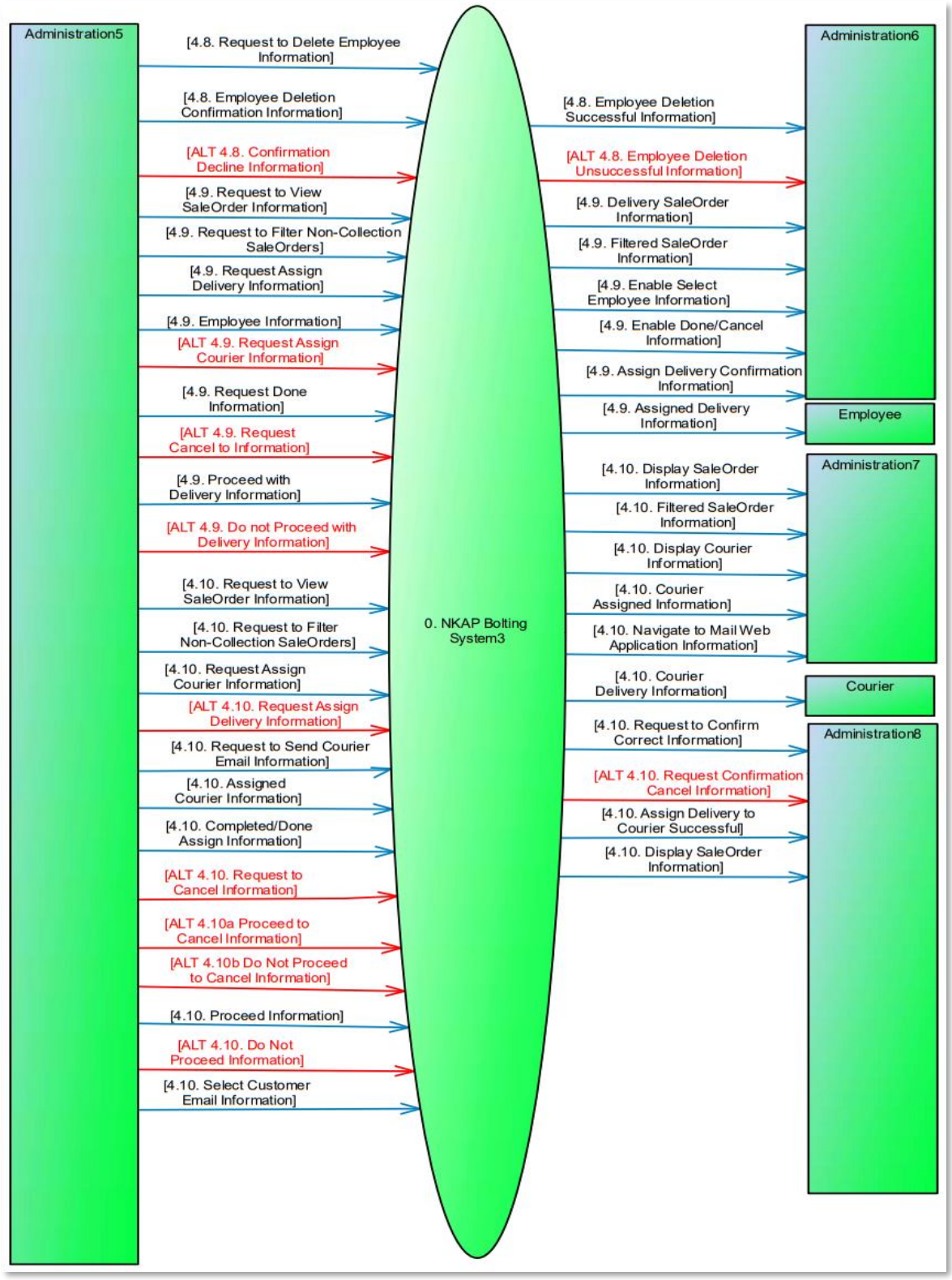


Figure 95 3.1.3. User Subsystem Context Diagram

3.1.4 Employee Delivery Shifts Sub-System




Administration5
[4.8. Request to Delete Employee Information]
[4.8. Employee Deletion Confirmation Information]
[ALT 4.8. Confirmation Decline Information]
[4.9. Request to View SaleOrder Information]
[4.9. Request to Filter Non-Collection SaleOrders]
[4.9. Request Assign Delivery Information]
[4.9. Employee Information]
[ALT 4.9. Request Assign Courier Information]
[4.9. Request Done Information]
[ALT 4.9. Request Cancel to Information]
[4.9. Proceed with Delivery Information]
[ALT 4.9. Do not Proceed with Delivery Information]
[4.10. Request to View SaleOrder Information]
[4.10. Request to Filter Non-Collection SaleOrders]
[4.10. Request Assign Courier Information]
[ALT 4.10. Request Assign Delivery Information]
[4.10. Request to Send Courier Email Information]
[4.10. Assigned Courier Information]
[4.10. Completed/Done Assign Information]
[ALT 4.10. Request to Cancel Information]
[ALT 4.10a Proceed to Cancel Information]
[ALT 4.10b Do Not Proceed to Cancel Information]
[4.10. Proceed Information]
[ALT 4.10. Do Not Proceed Information]
[4.10. Select Customer Email Information]
0. NKAP Bolting System3
Administration6
[4.8. Employee Deletion Successful Information]
[ALT 4.8. Employee Deletion Unsuccessful Information]
[4.9. Delivery SaleOrder Information]
[4.9. Filtered SaleOrder Information]
[4.9. Enable Select Employee Information]
[4.9. Enable Done/Cancel Information]
[4.9. Assign Delivery Confirmation Information]
[4.9. Assigned Delivery Information]
Employee
Administration7
[4.10. Display SaleOrder Information]
[4.10. Filtered SaleOrder Information]
[4.10. Display Courier Information]
[4.10. Courier Assigned Information]
[4.10. Navigate to Mail Web Application Information]
[4.10. Courier Delivery Information]
Courier
[4.10. Request to Confirm Correct Information]
[ALT 4.10. Request Confirmation Cancel Information]
[4.10. Assign Delivery to Courier Successful]
[4.10. Display SaleOrder Information]
Administration8

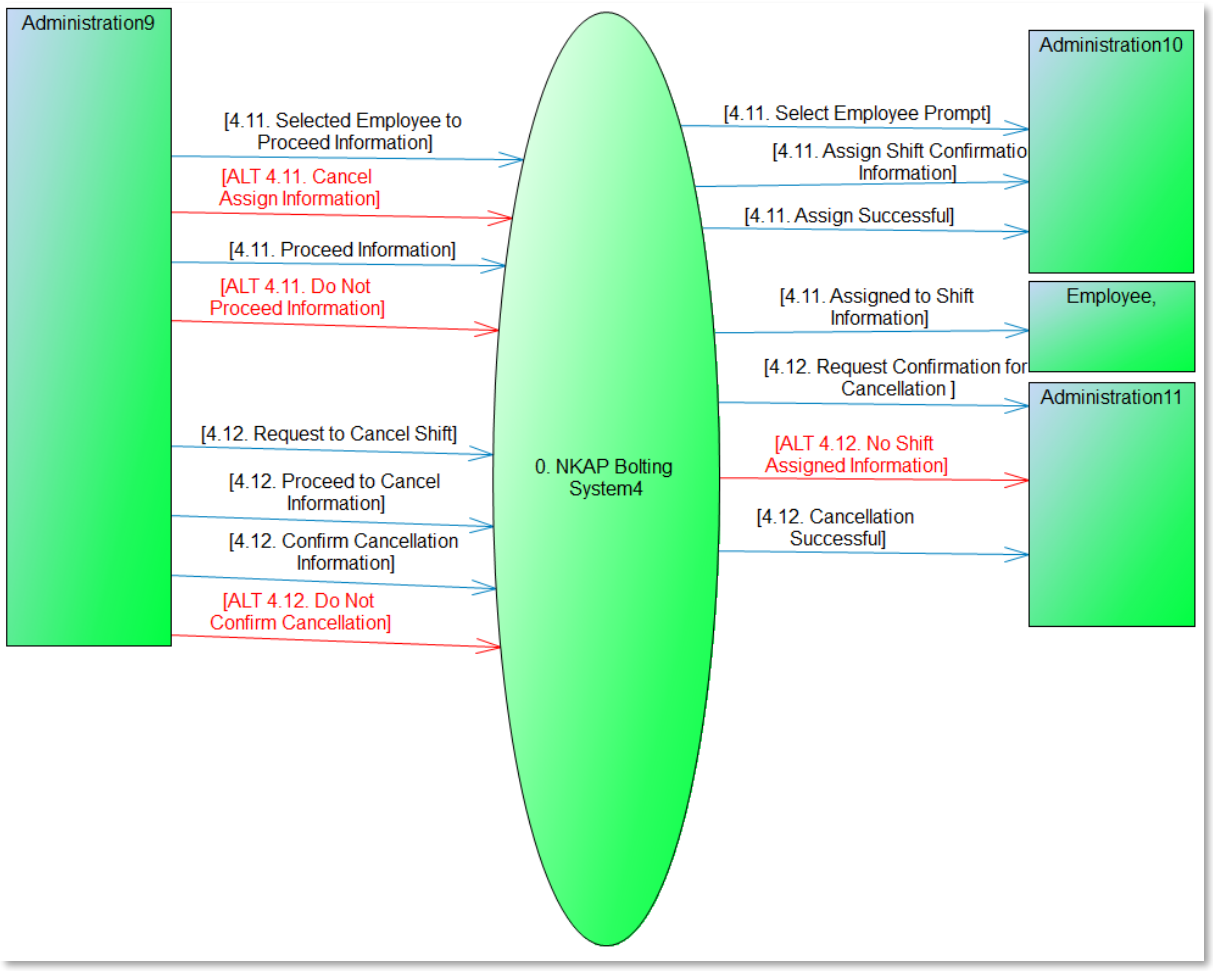


Figure 96 3.1.4. Employee Delivery Shifts Subsystem Context Diagram

3.1.5 Administration Back Office Sub-System

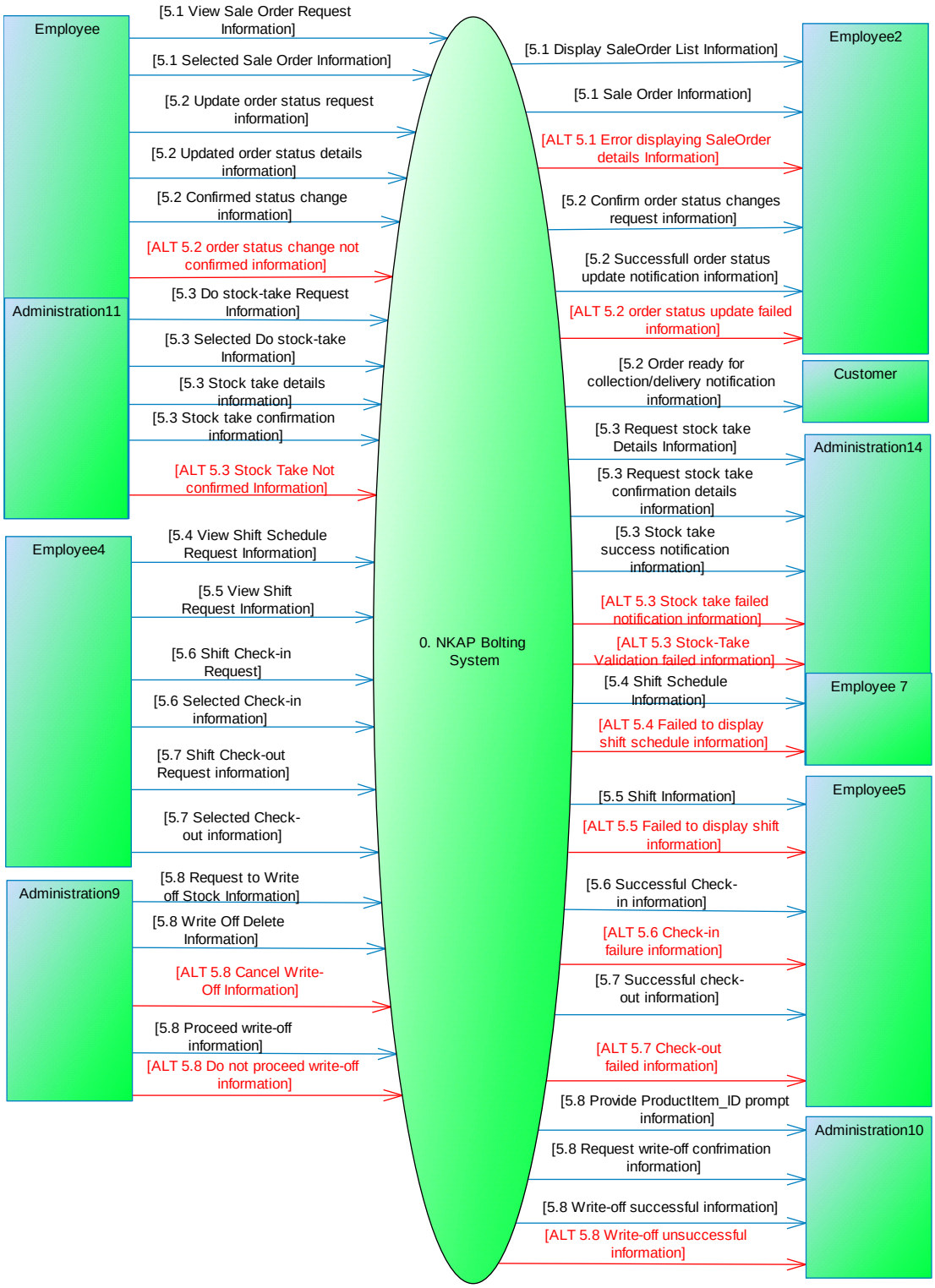


Figure 97 3.1.5. Administration Back Office Subsystem Context Diagram

3.1.6 Customer Sub-System

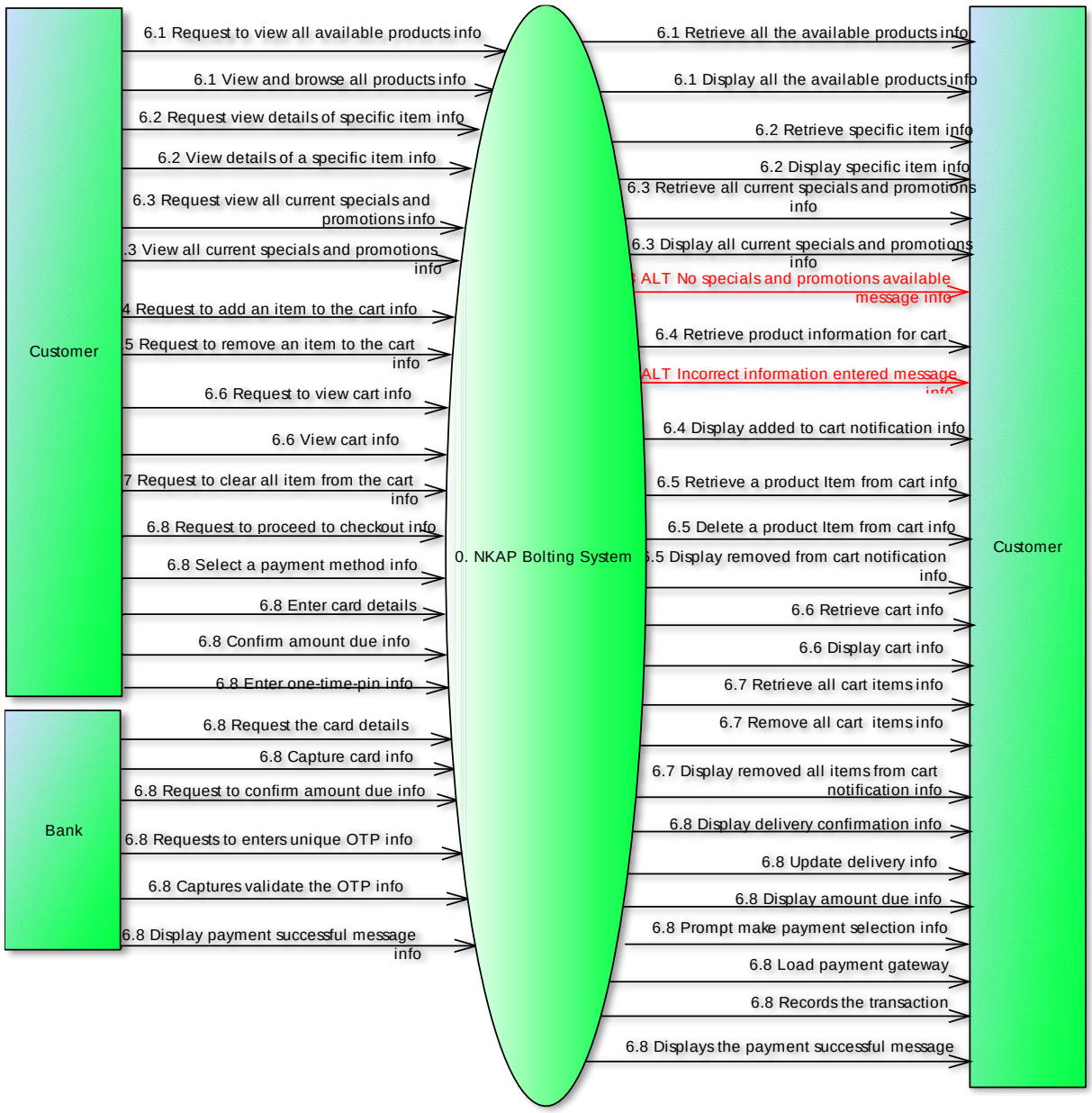


Figure 98 3.1.6. Customer Subsystem Context Diagram

3.1.7 Reports Sub-System

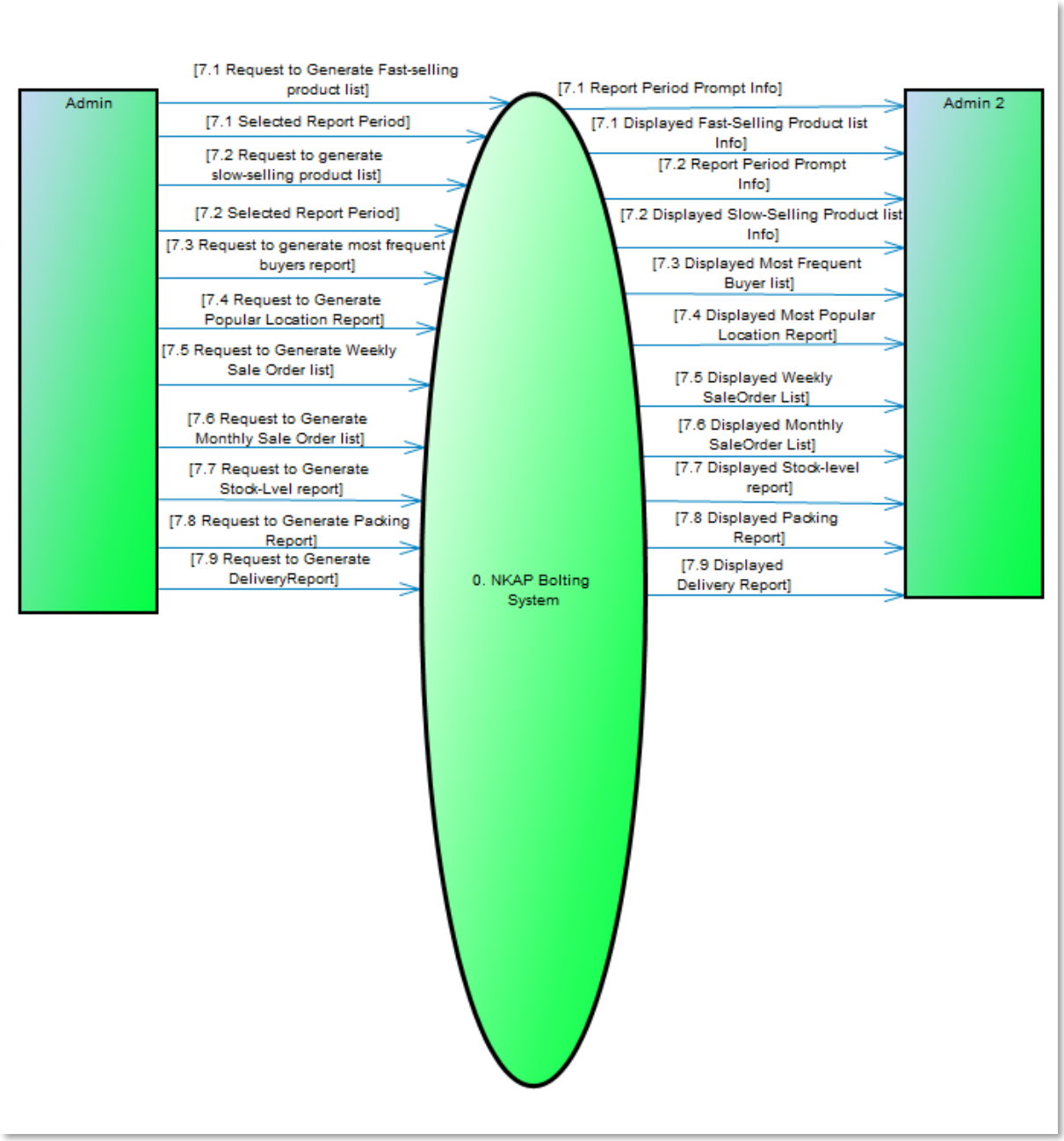


Figure 99 3.1.7. Reports Subsystem Context Diagram

3.1.8 Delivery Sub-System

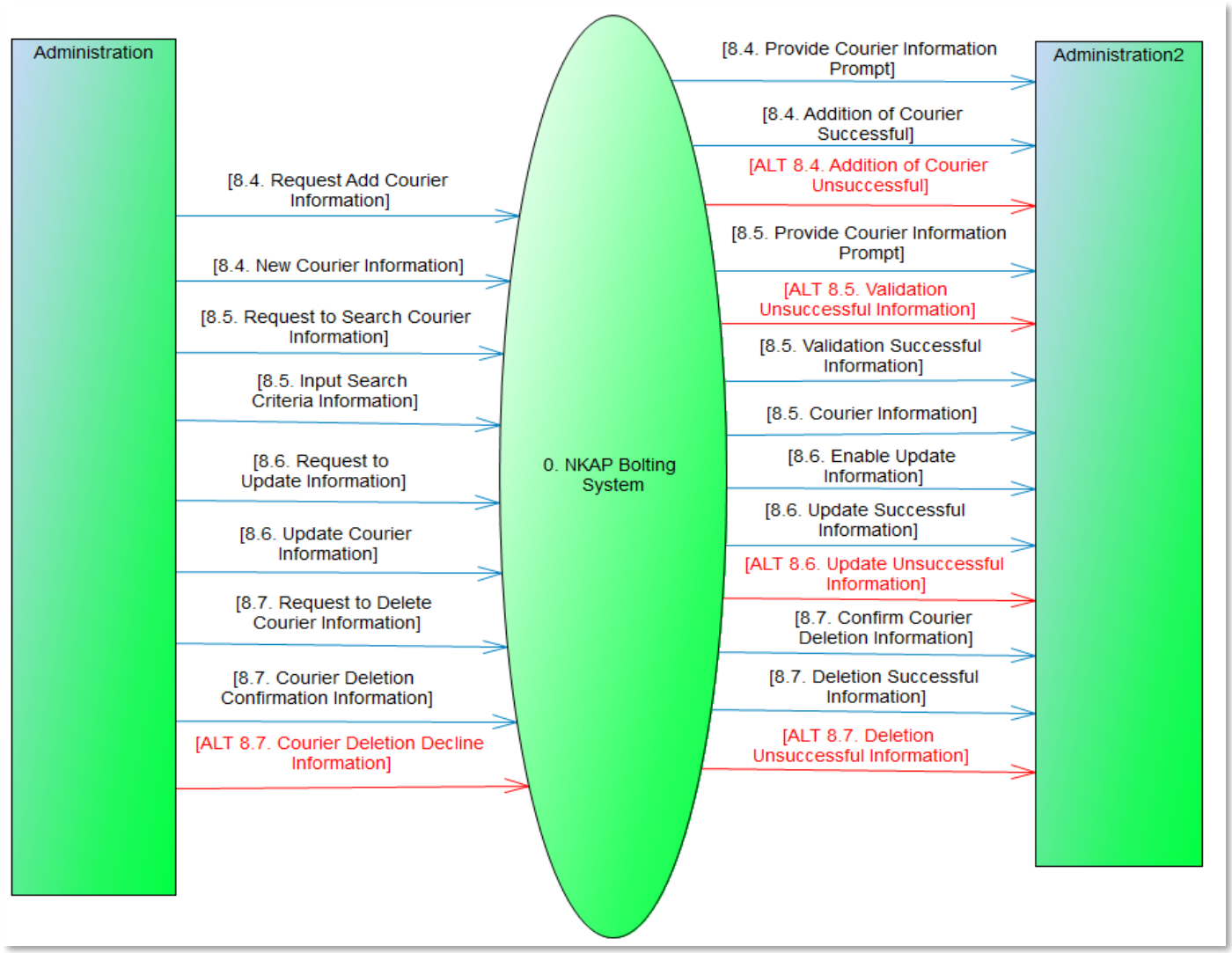


Figure 100 3.1.8. Delivery Subsystem Context Diagram

3.1.9 Products Sub-System

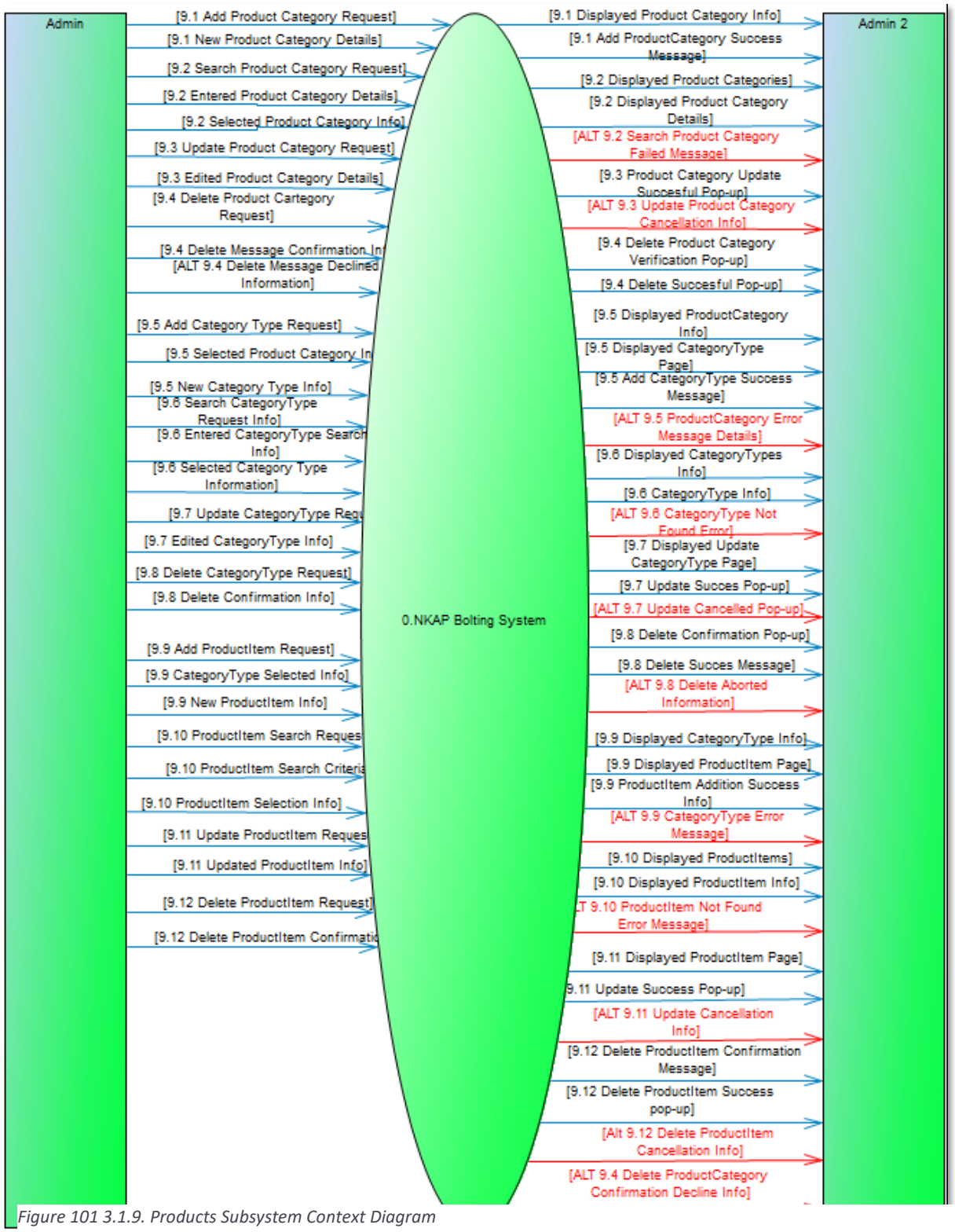


Figure 101 3.1.9. Products Subsystem Context Diagram

3.1.10 Specials Sub-System

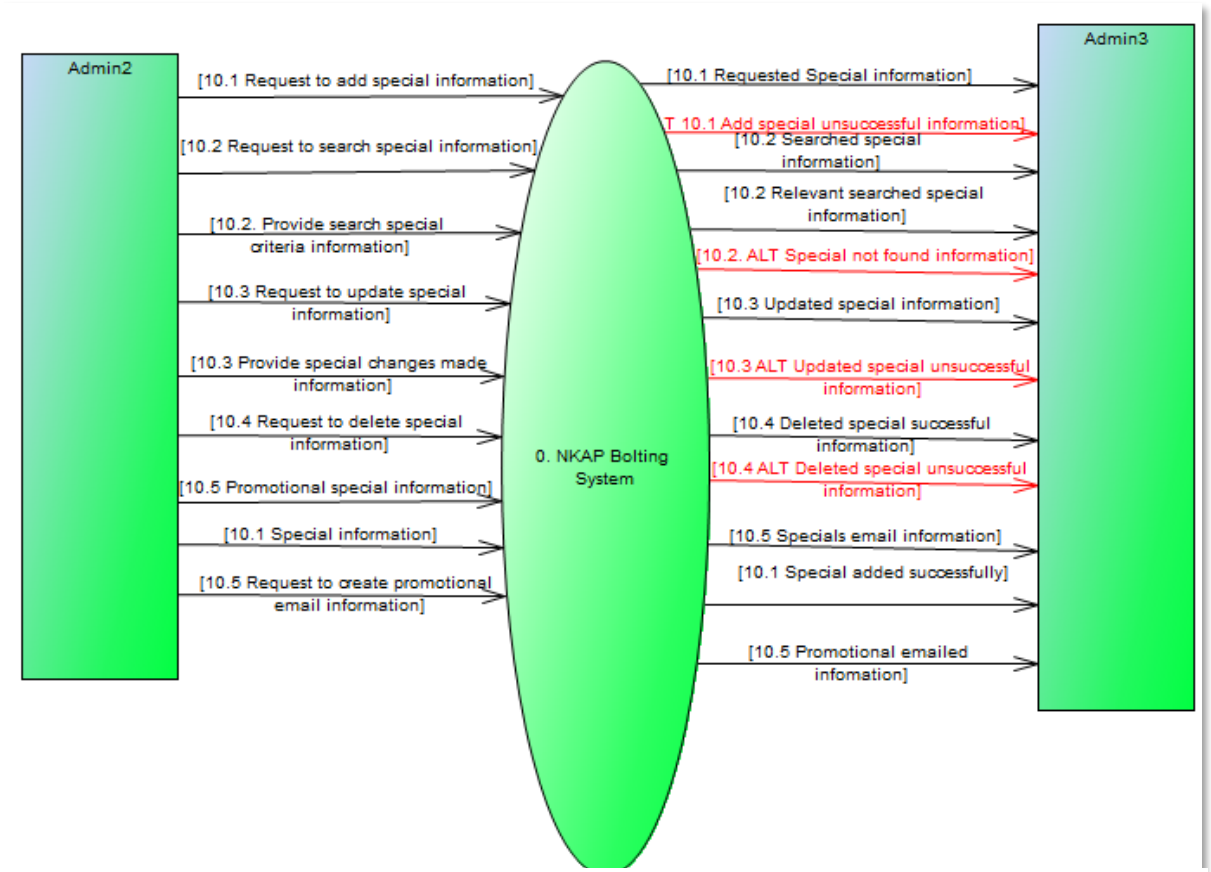


Figure 102 3.1.10. Specials Subsystem Context Diagram

3.2. FUNCTIONAL DECOMPOSITION DIAGRAM

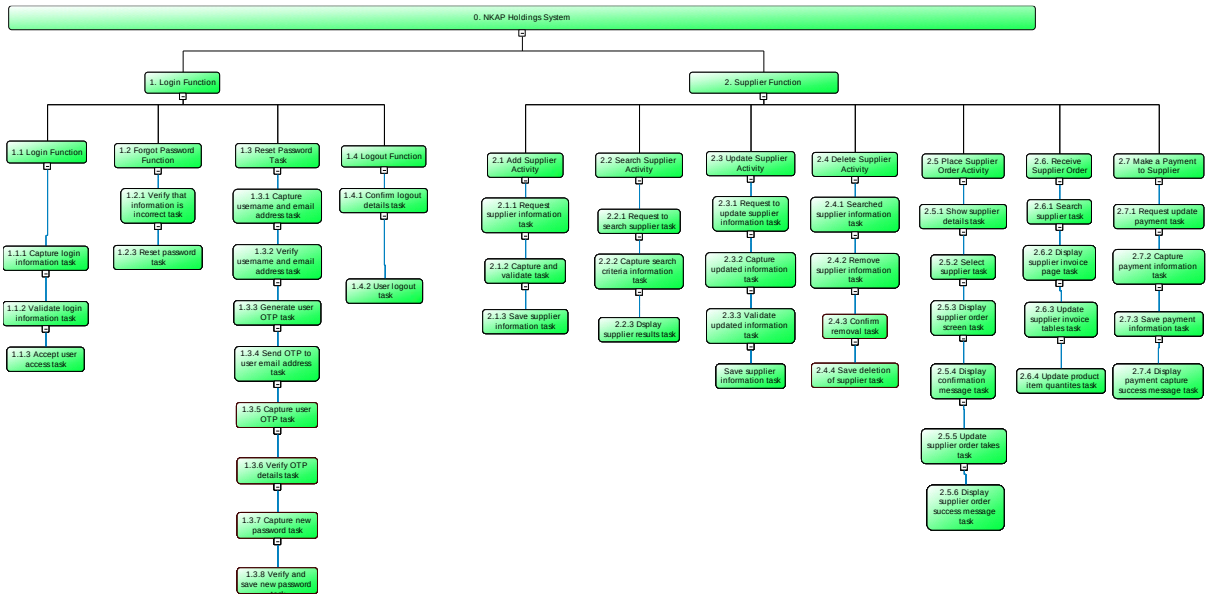


Figure 103 Login & Supplier Decomposition Diagram

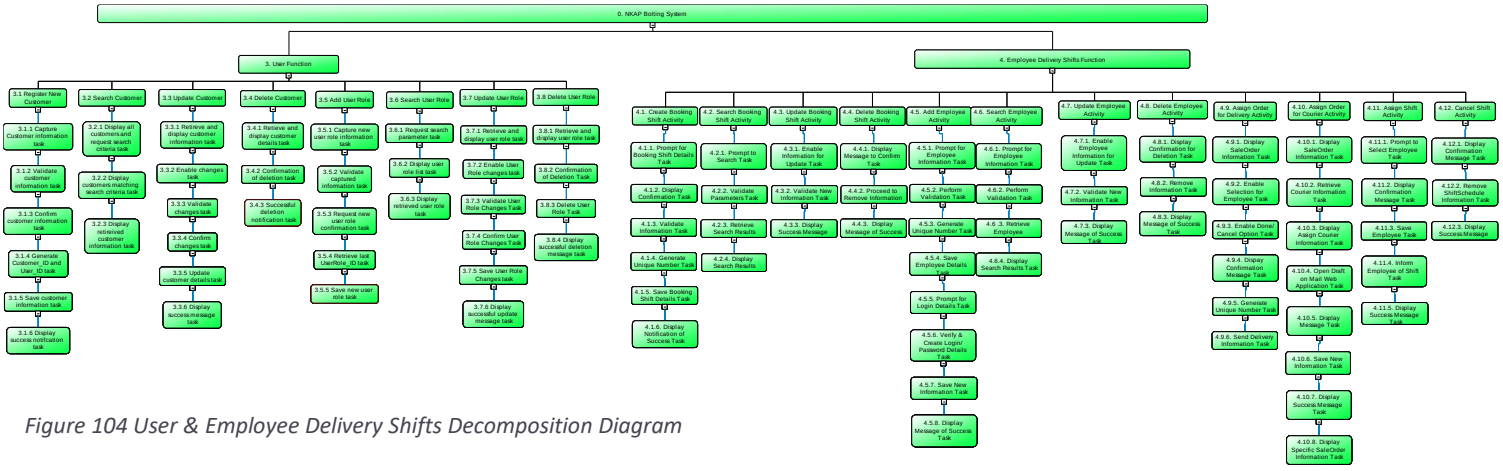


Figure 104 User & Employee Delivery Shifts Decomposition Diagram

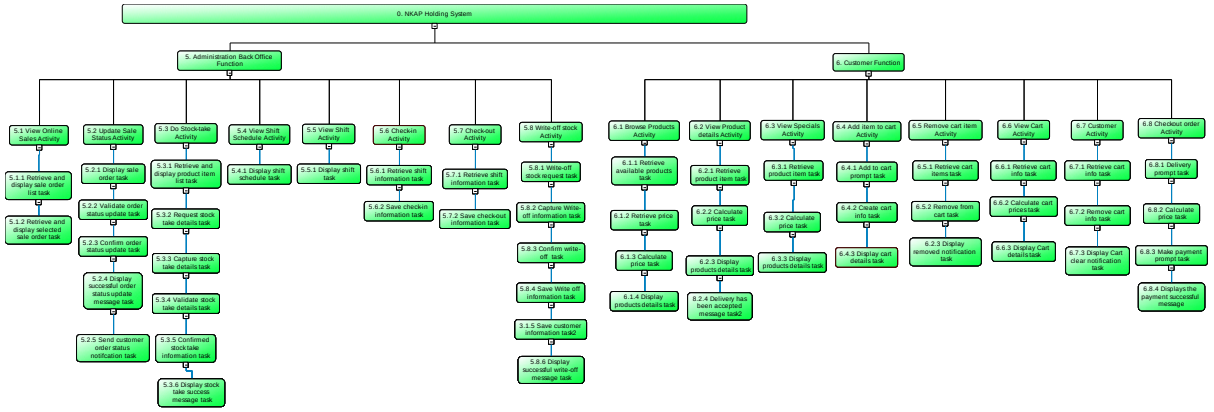


Figure 105 Administration Back-Office & Customer Decomposition Diagram

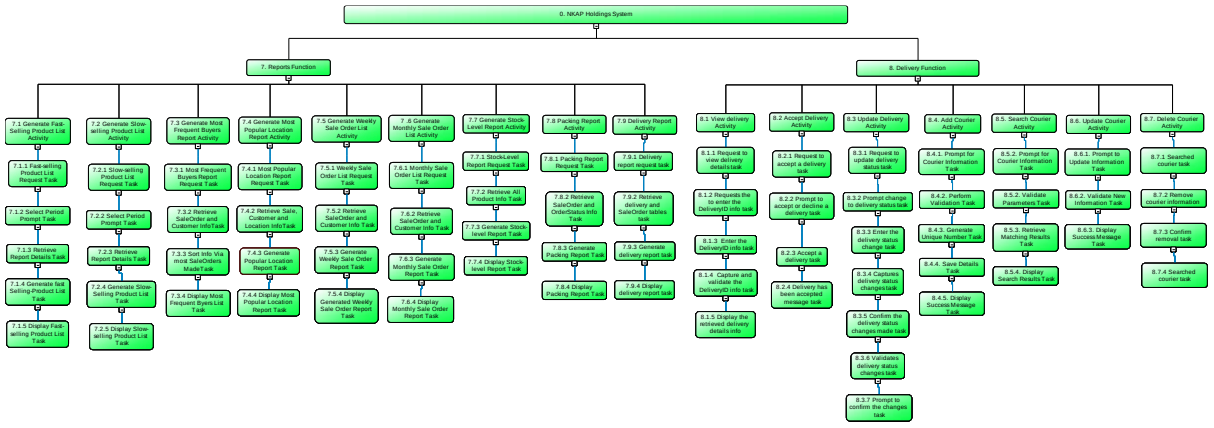


Figure 106 Reports & Delivery Decomposition Diagram

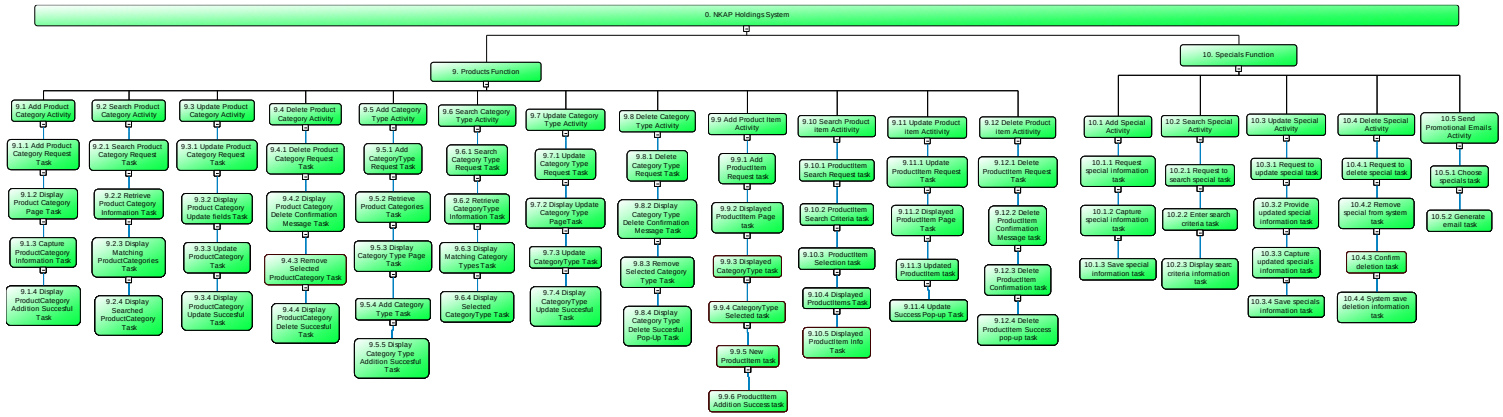


Figure 107 Product & Special Decomposition Diagram

3.2.1 Log-in Sub-System

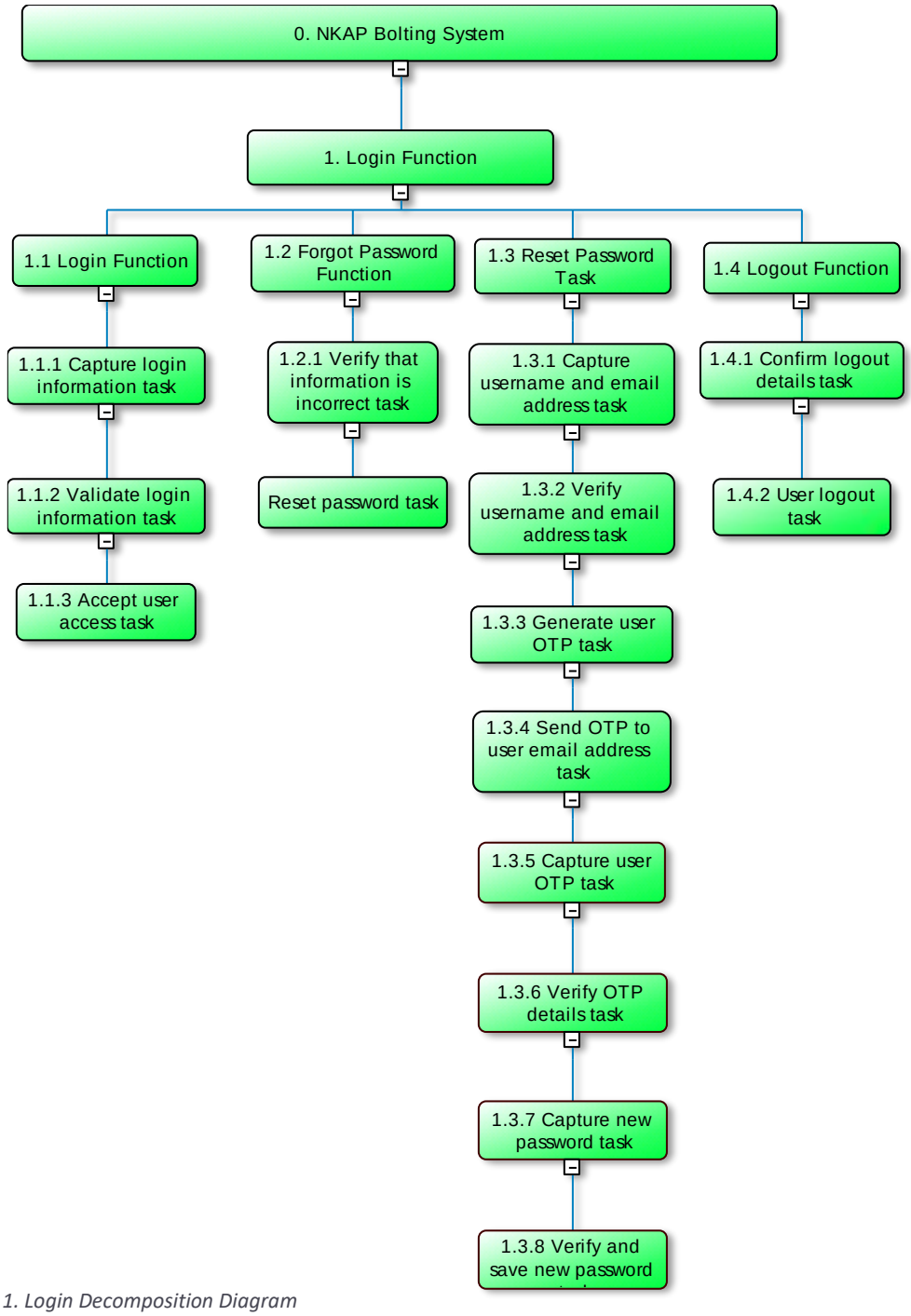


Figure 108 1. Login Decomposition Diagram

3.2.2 Supplier Sub-System

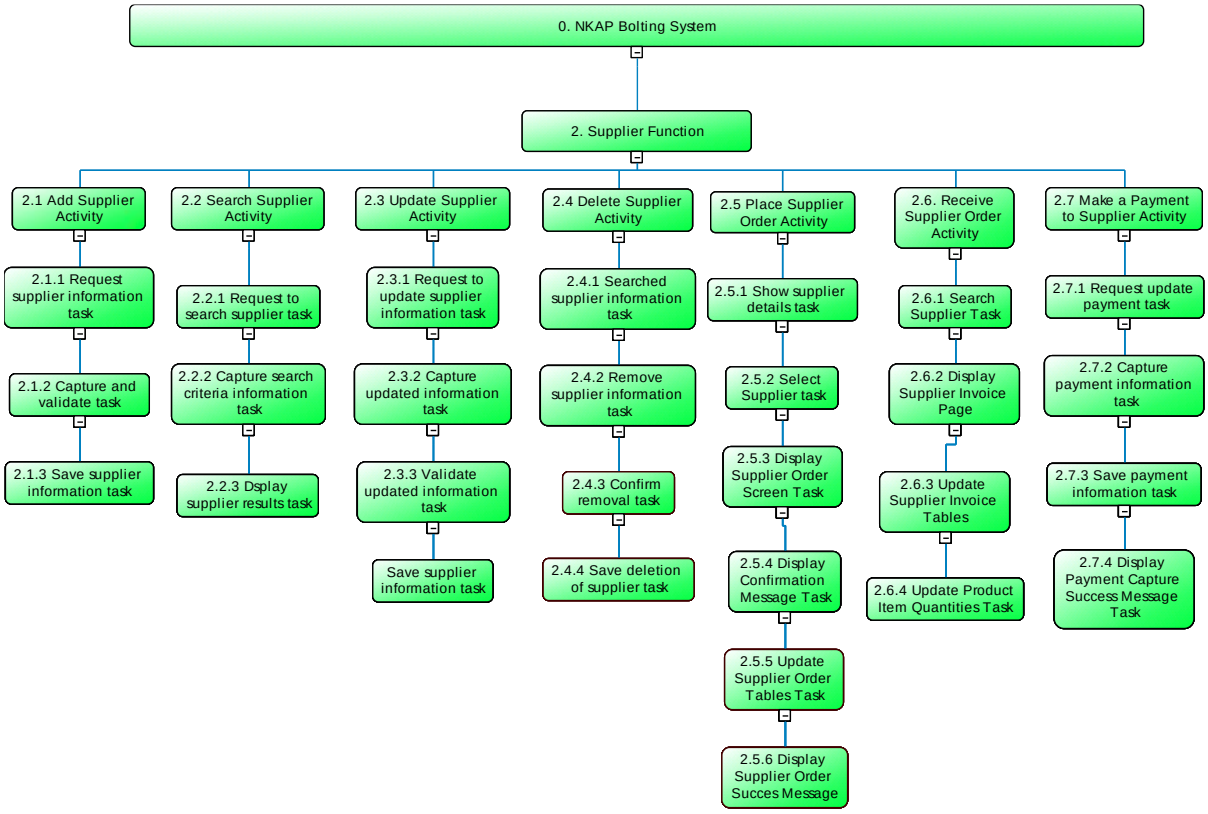


Figure 109 2. Supplier Decomposition Diagram

3.2.3 User Sub-System

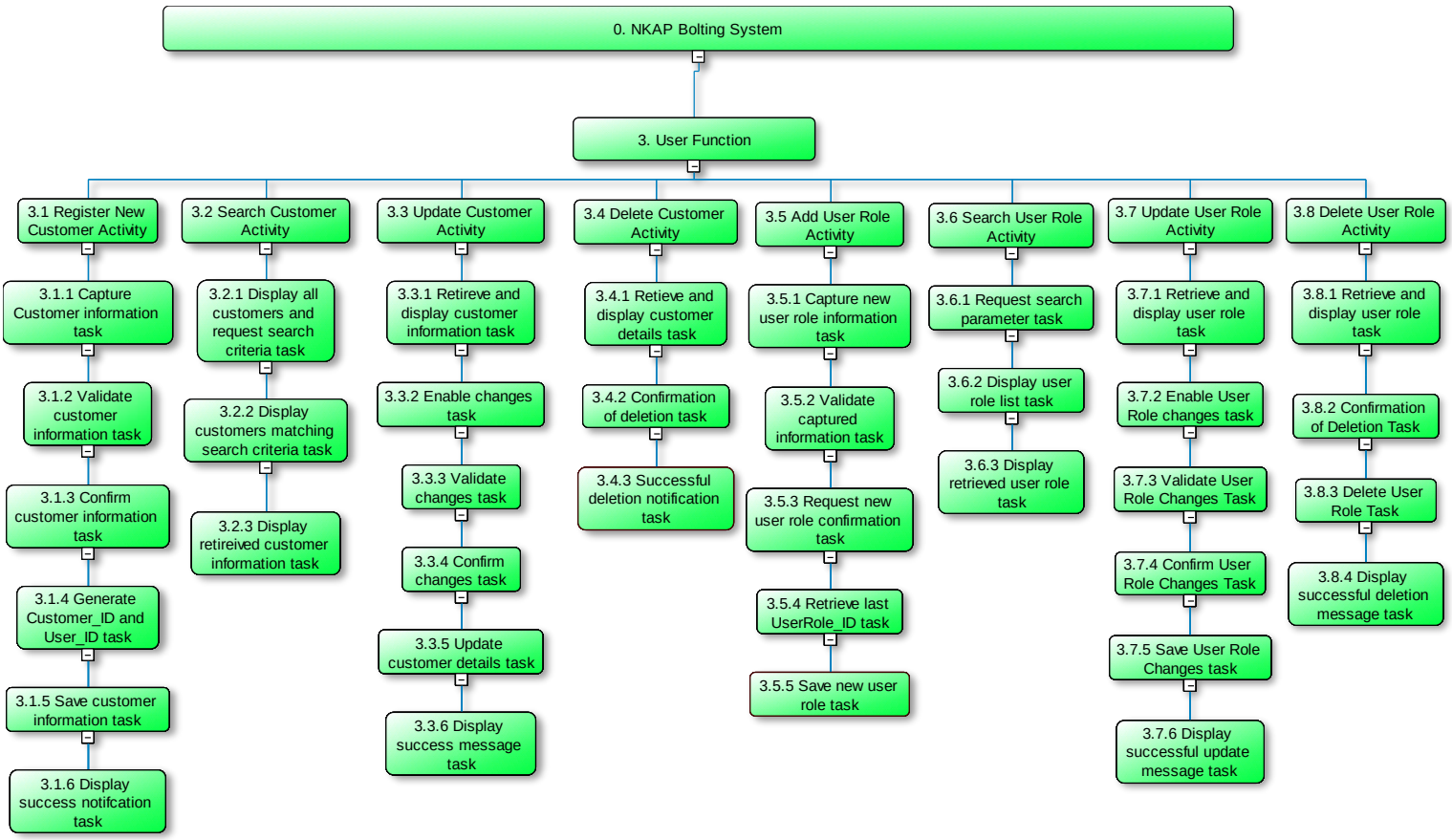


Figure 110 3. User Decomposition Diagram

3.2.4 Employee Delivery Shifts Sub-System

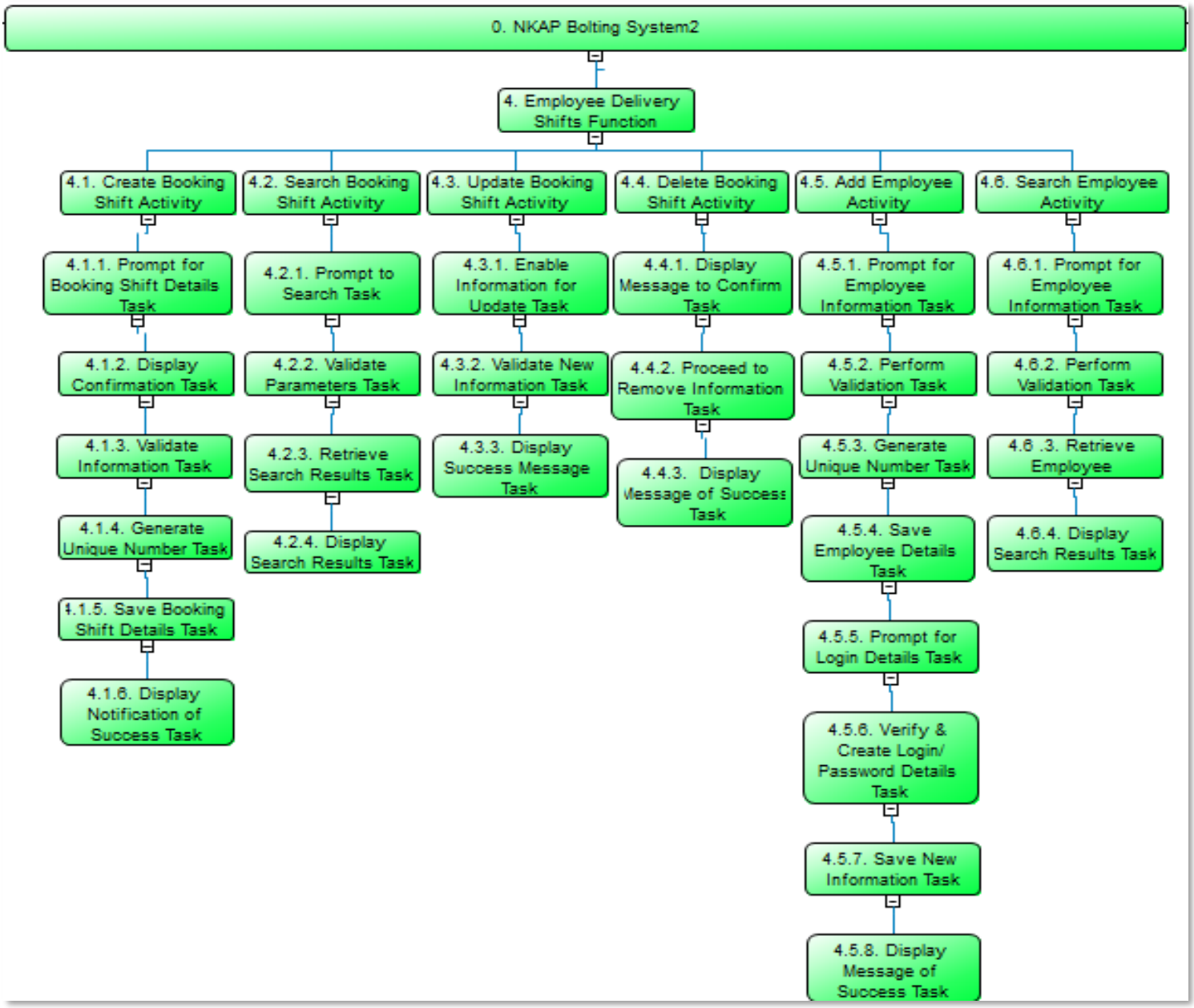


Figure 111 4. Employee Delivery Shifts Decomposition Diagram Part 1

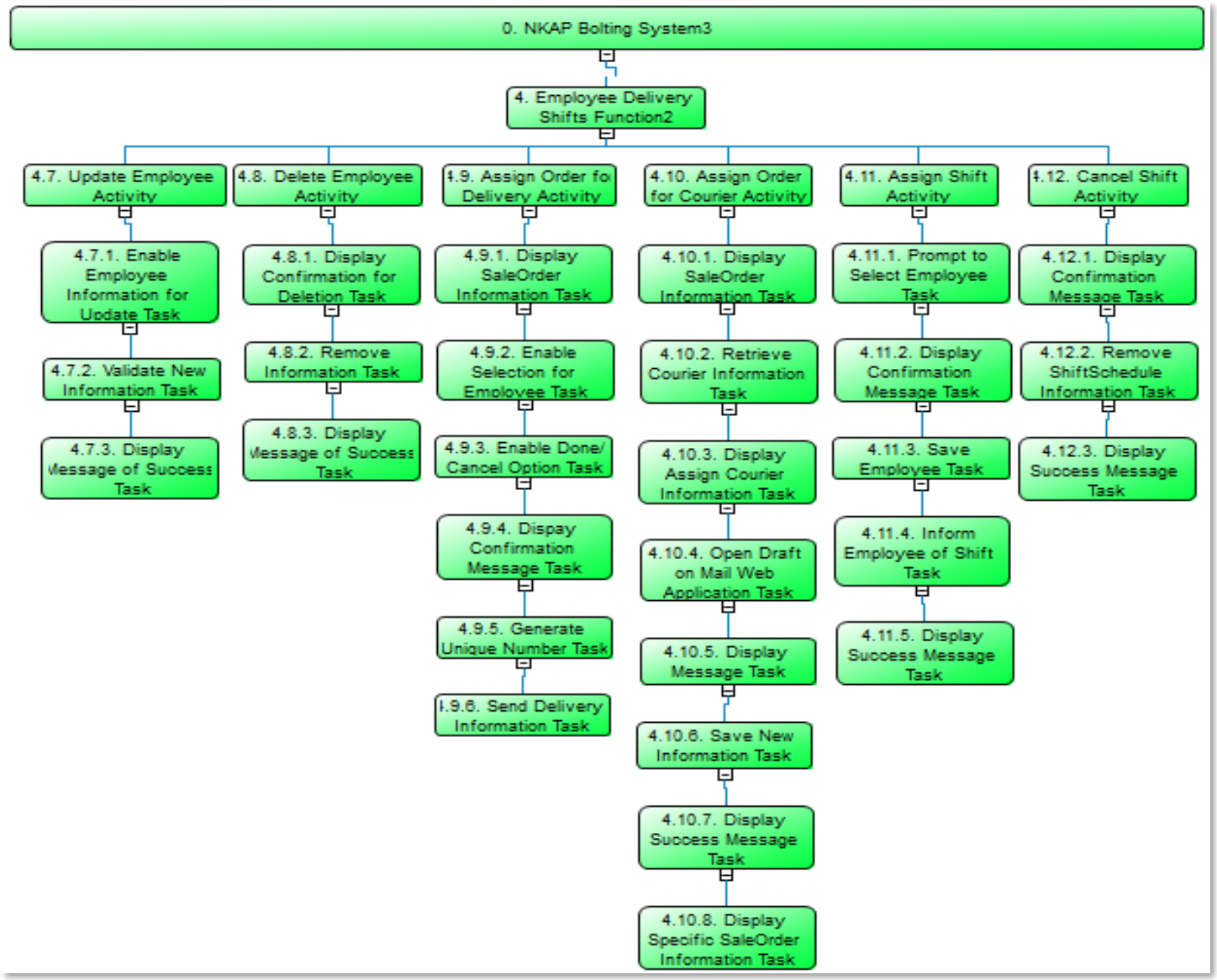


Figure 112 4. Employee Delivery Shifts Decomposition Diagram Part 2

3.2.5 Administration Back Office Sub-System

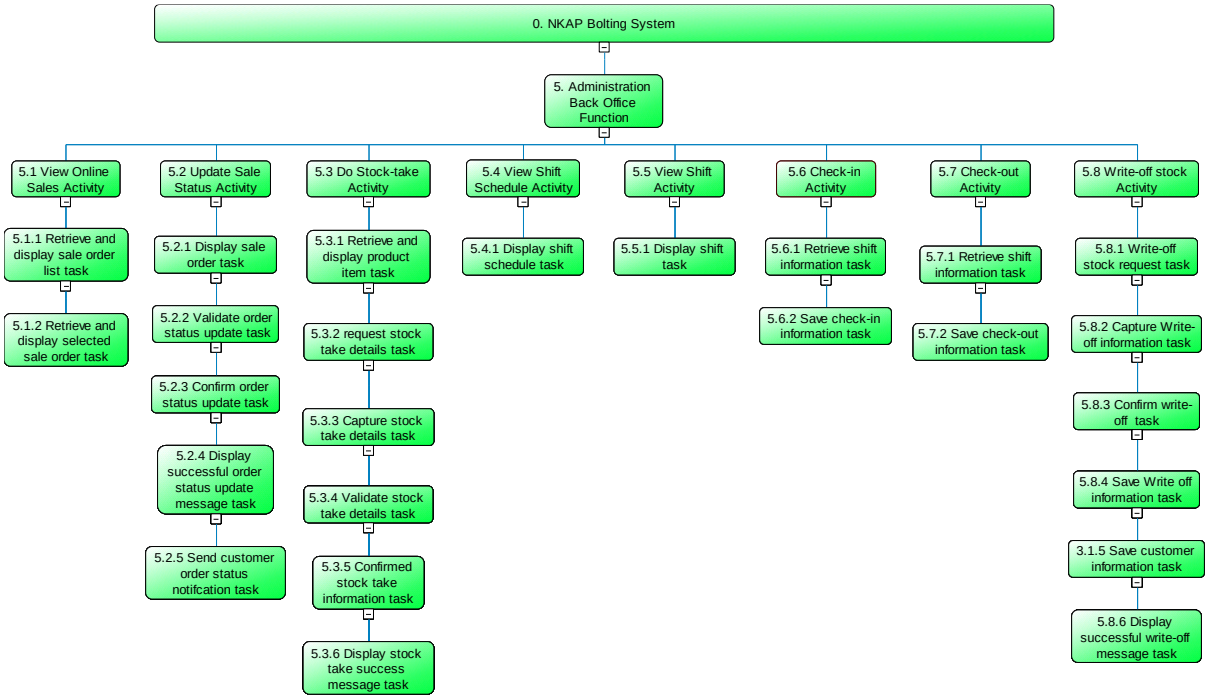


Figure 113 8. Administration Back-Office Decomposition Diagram

3.2.6 Customer Sub-System

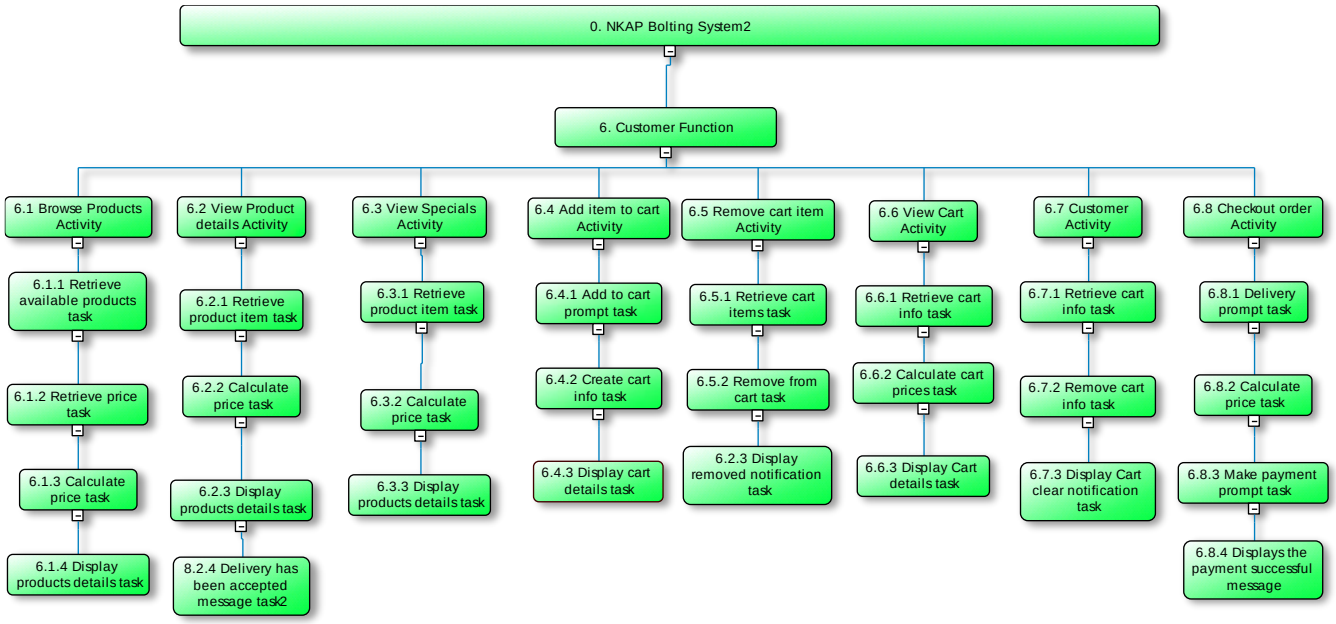


Figure 114 8. Customer Decomposition Diagram

3.2.7 Reports Sub-System

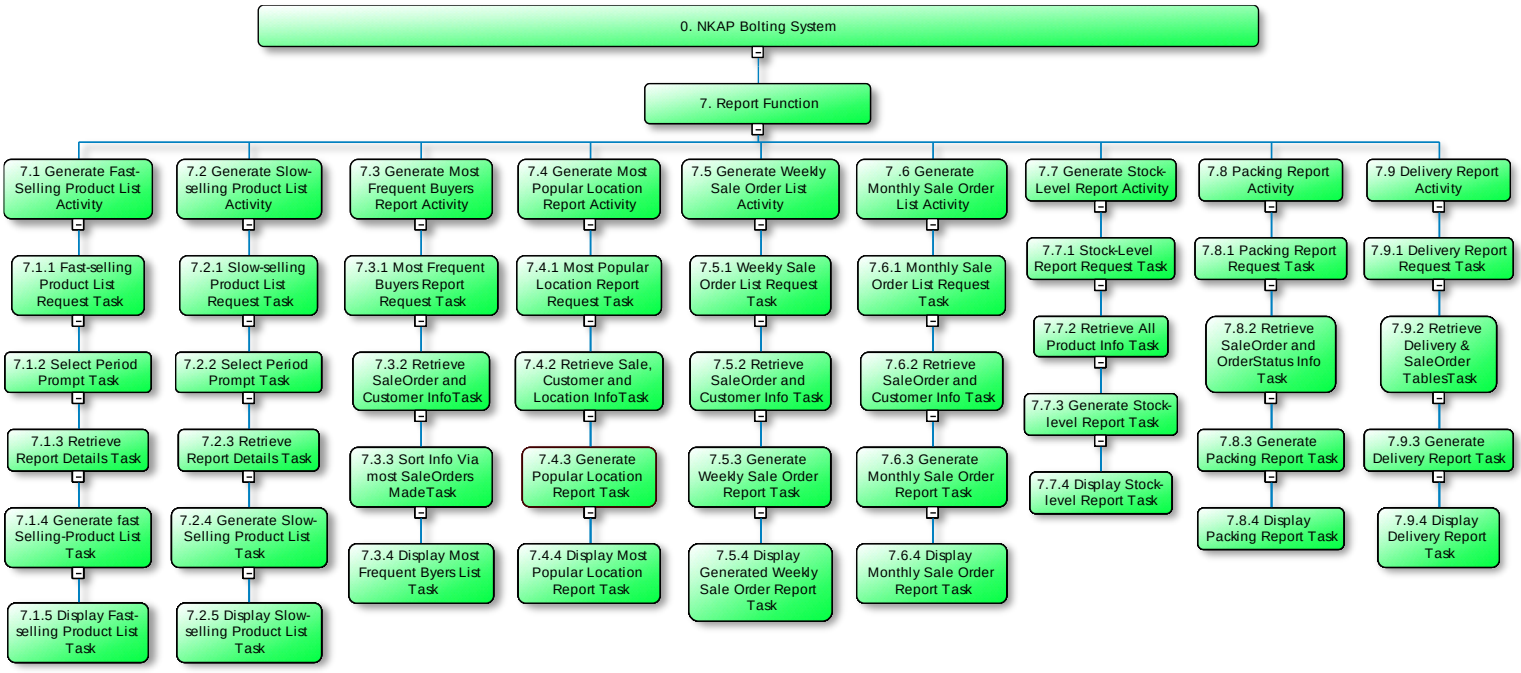


Figure 115 7. Reports Decomposition Diagram

3.2.8 Delivery Sub-System

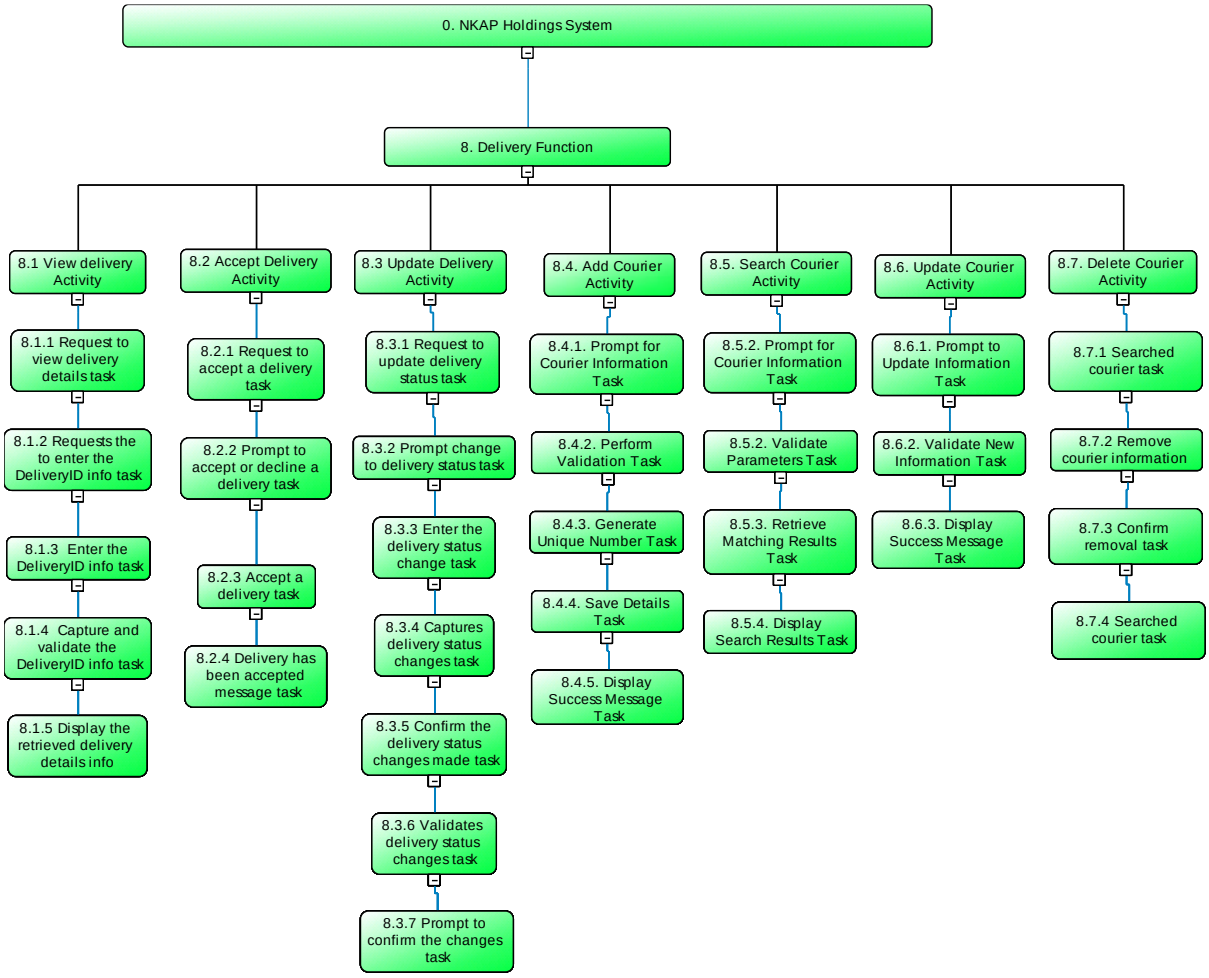


Figure 116 8. Delivery Decomposition Diagram

3.2.9 Products Sub-System

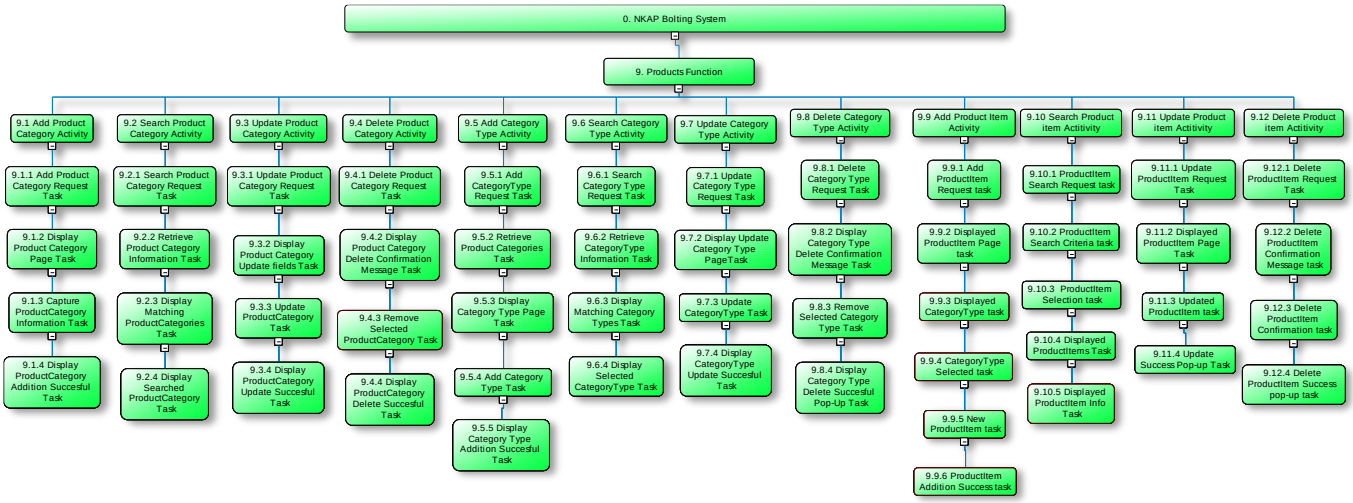


Figure 117 9. Products Decomposition Diagram

3.2.10 Specials Sub-System

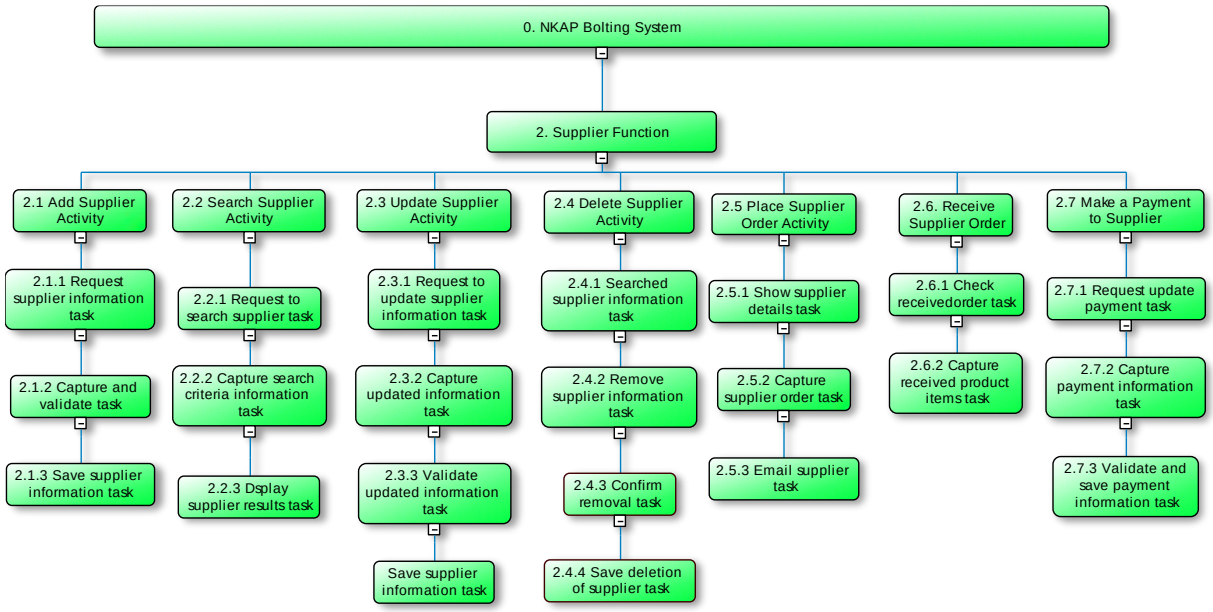


Figure 118 10. Specials Decomposition Diagram

3.3. DATA FLOW DIAGRAMS

3.3.1. HIGH LEVEL DATA FLOW DIAGRAM

3.3.1.1 Log-In Function

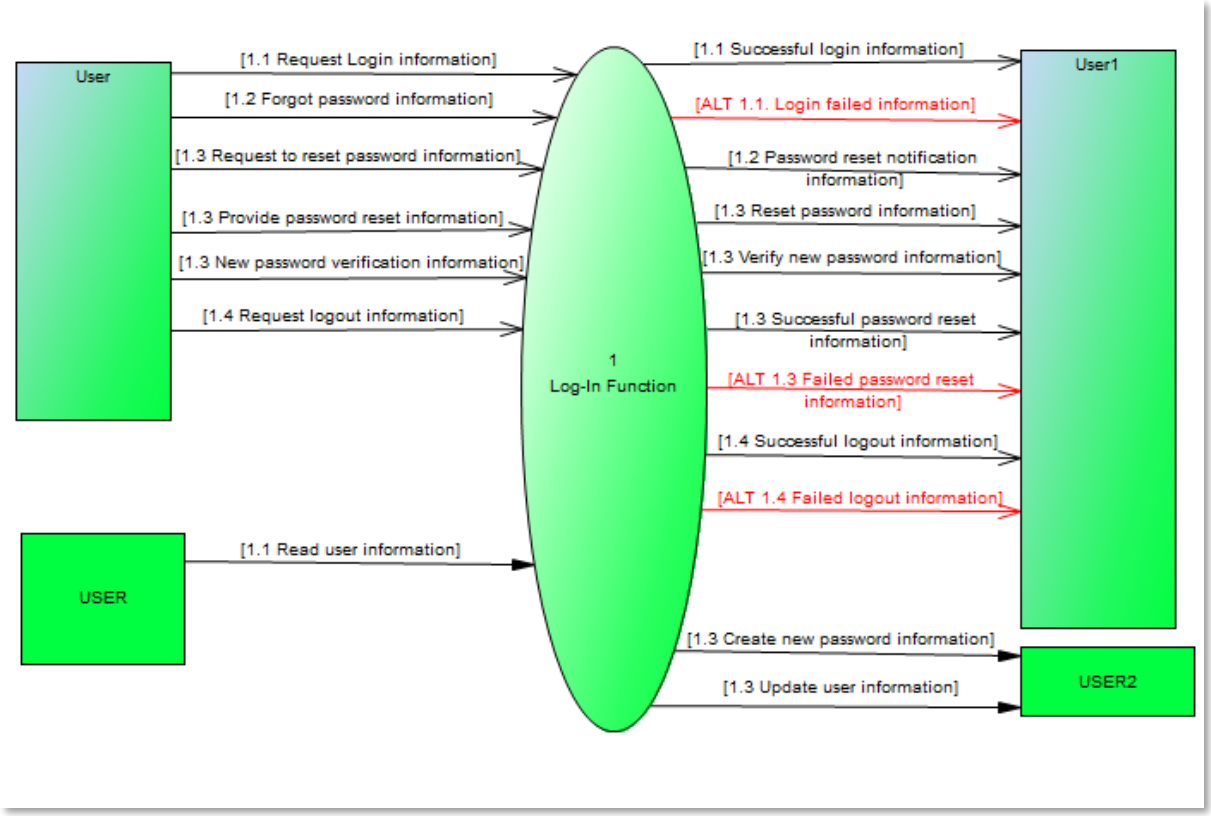


Figure 119 1. Login High Level Data Flow Diagram

3.3.1.2 Supplier Function

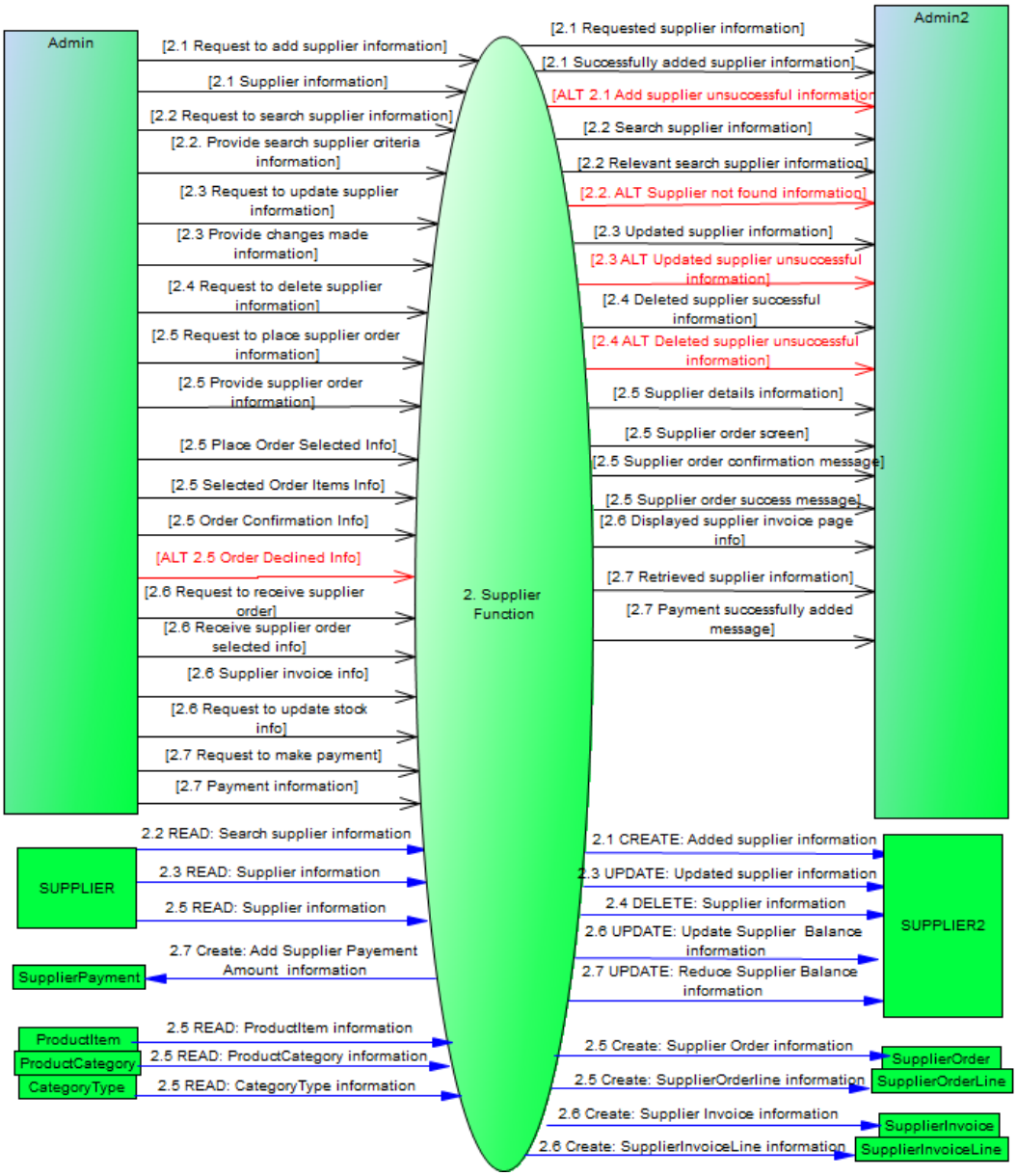


Figure 120 2. Supplier High Level Data Flow Diagram

3.3.1.3 User Function

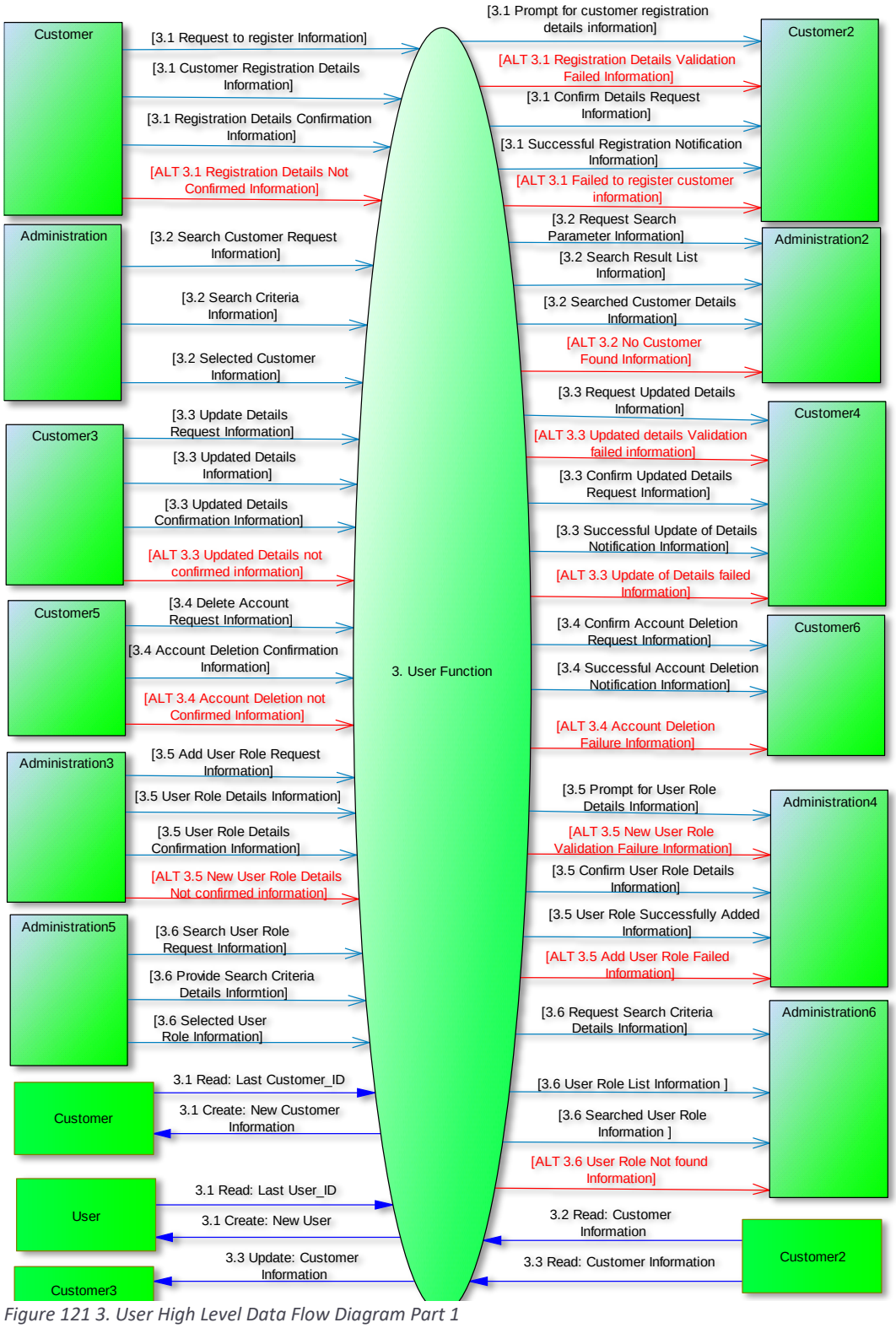


Figure 121 3. User High Level Data Flow Diagram Part 1

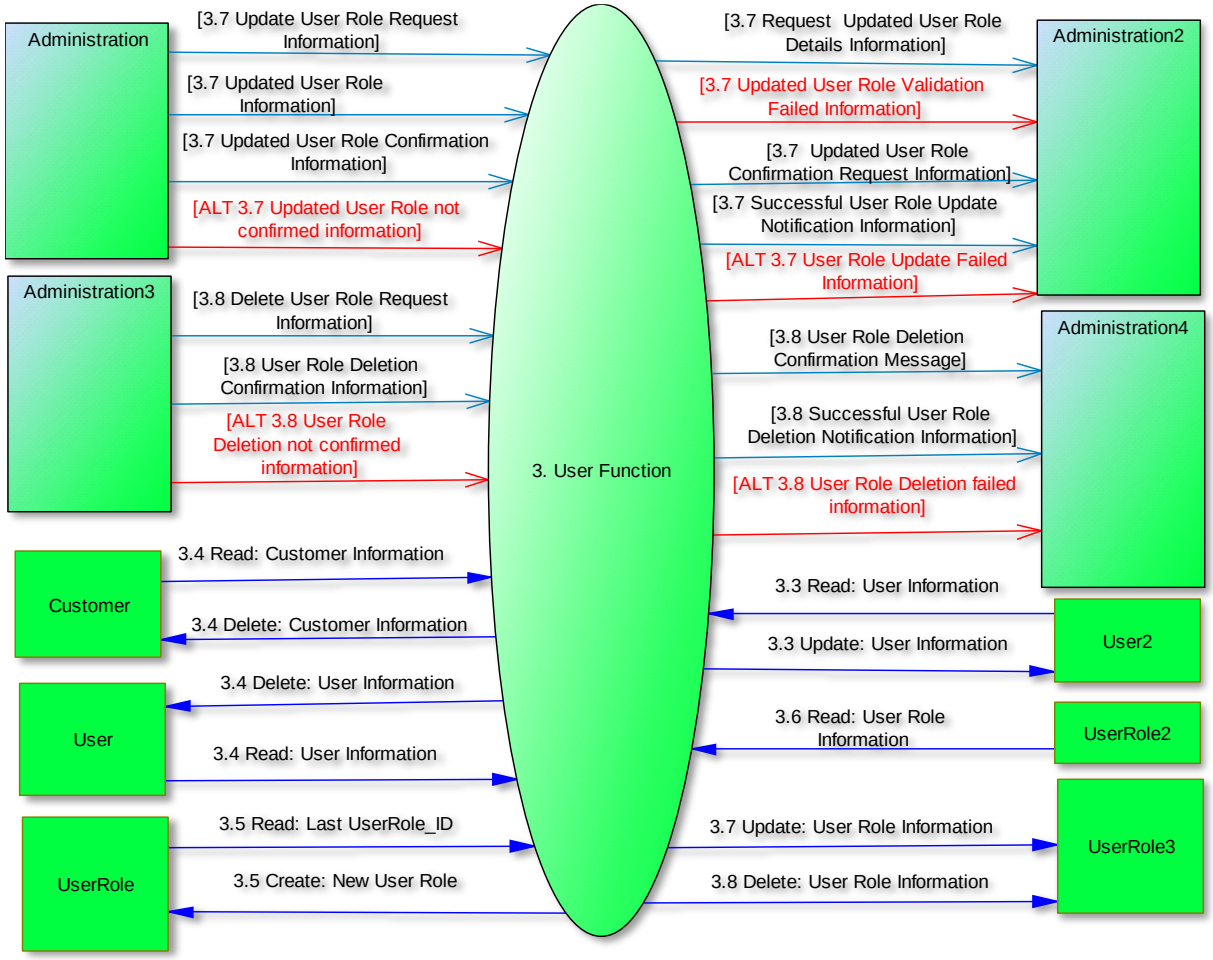


Figure 122 3. User High Level Data Flow Diagram Part 2

3.3.1.4 Employee Delivery Shifts Function

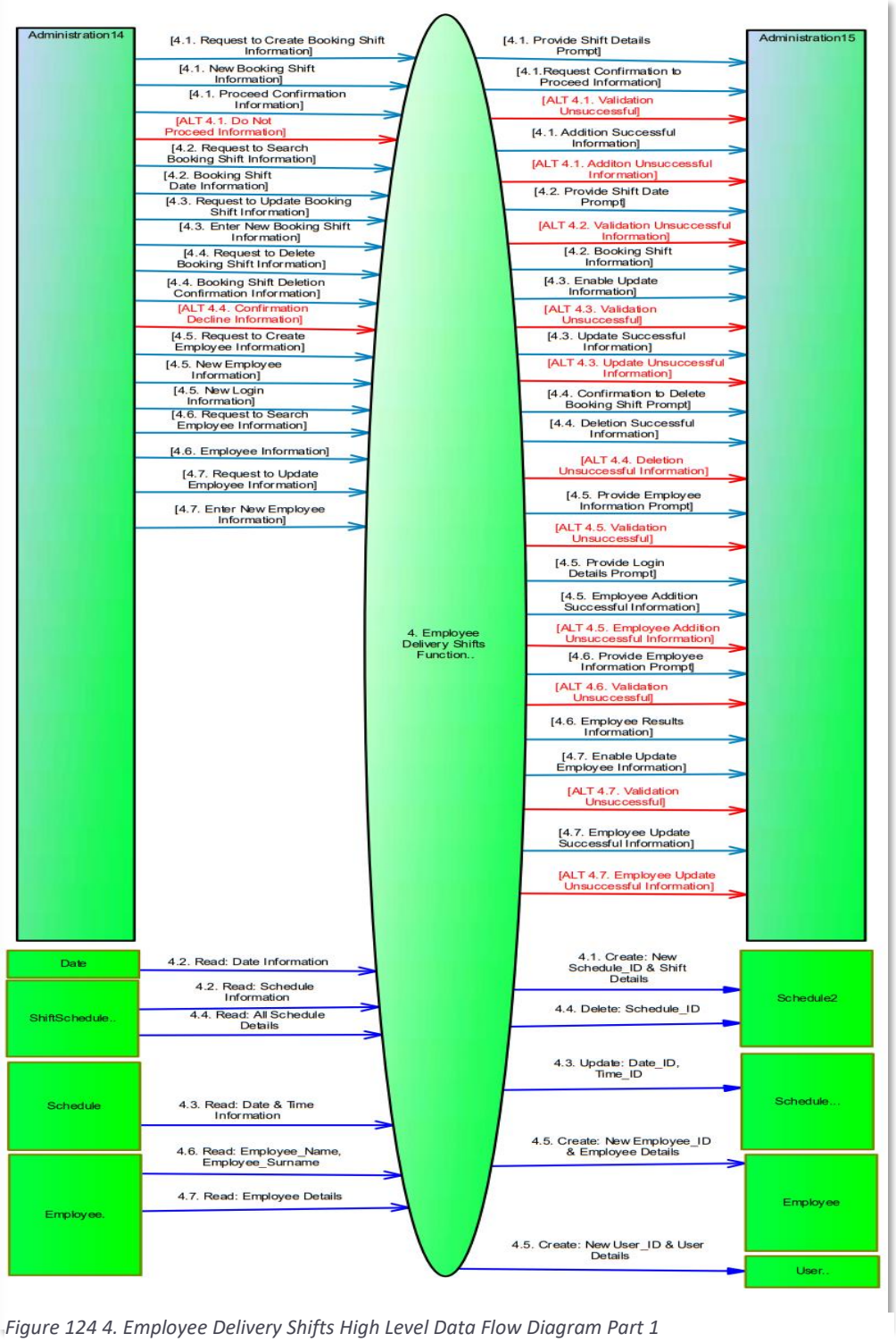


Figure 124 4. Employee Delivery Shifts High Level Data Flow Diagram Part 1

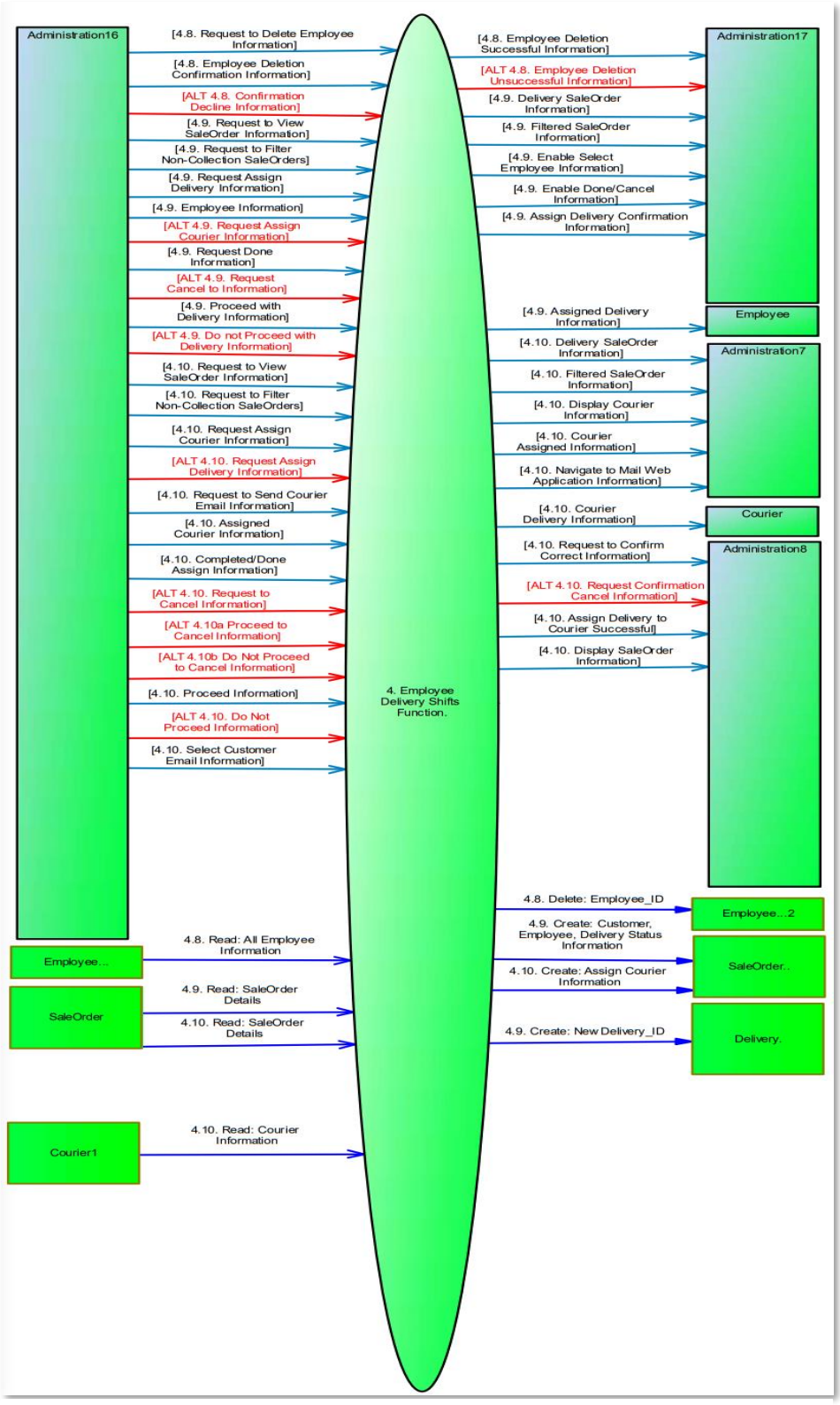


Figure 125 4. Employee Delivery Shifts High Level Data Flow Diagram Part 2

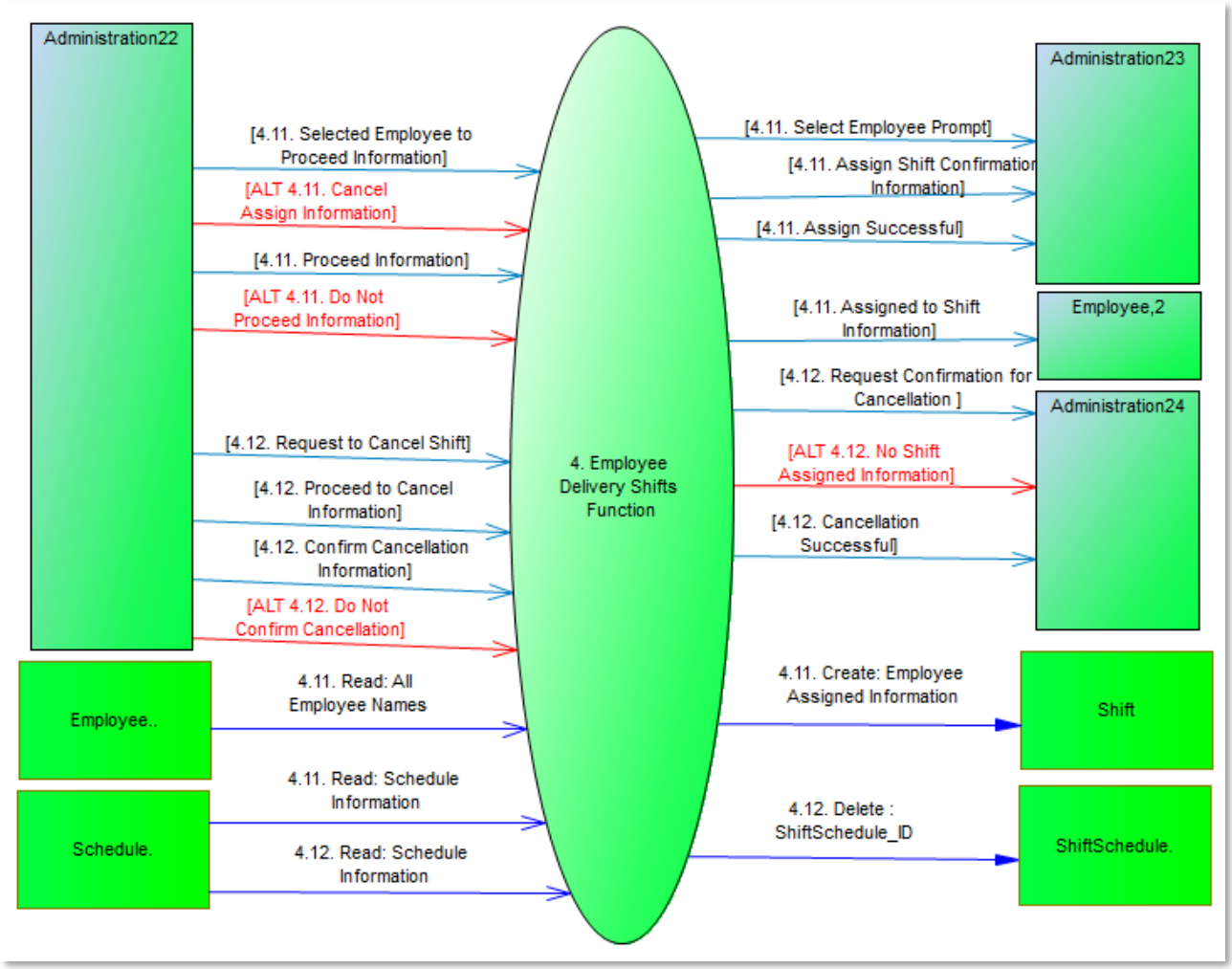


Figure 126 4. Employee Delivery Shifts High Level Data Flow Diagram Part 3

3.3.1.5 Administration Back Office Function

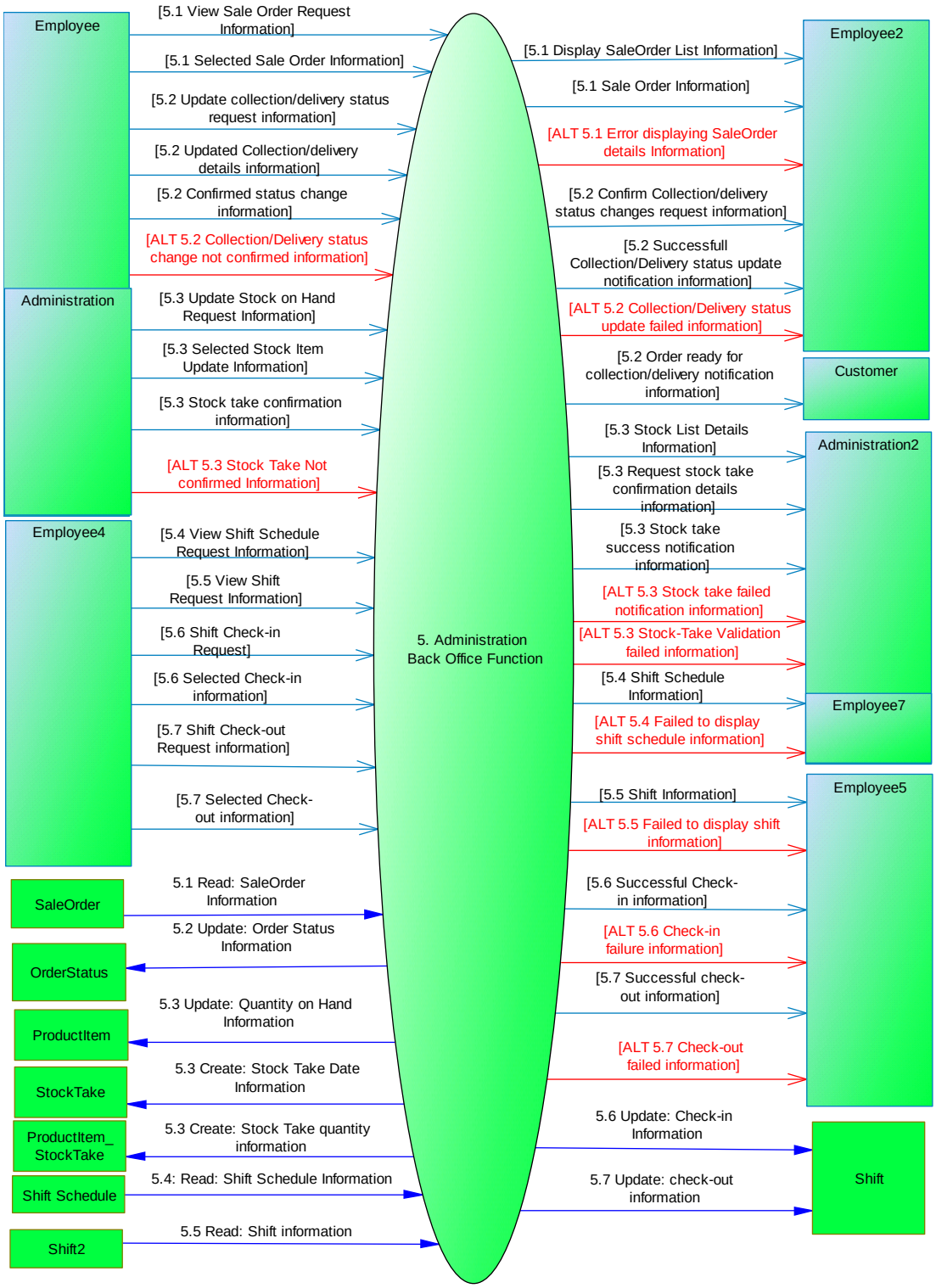


Figure 127 5. Administration Back Office High Level Data Flow Diagram Part 1

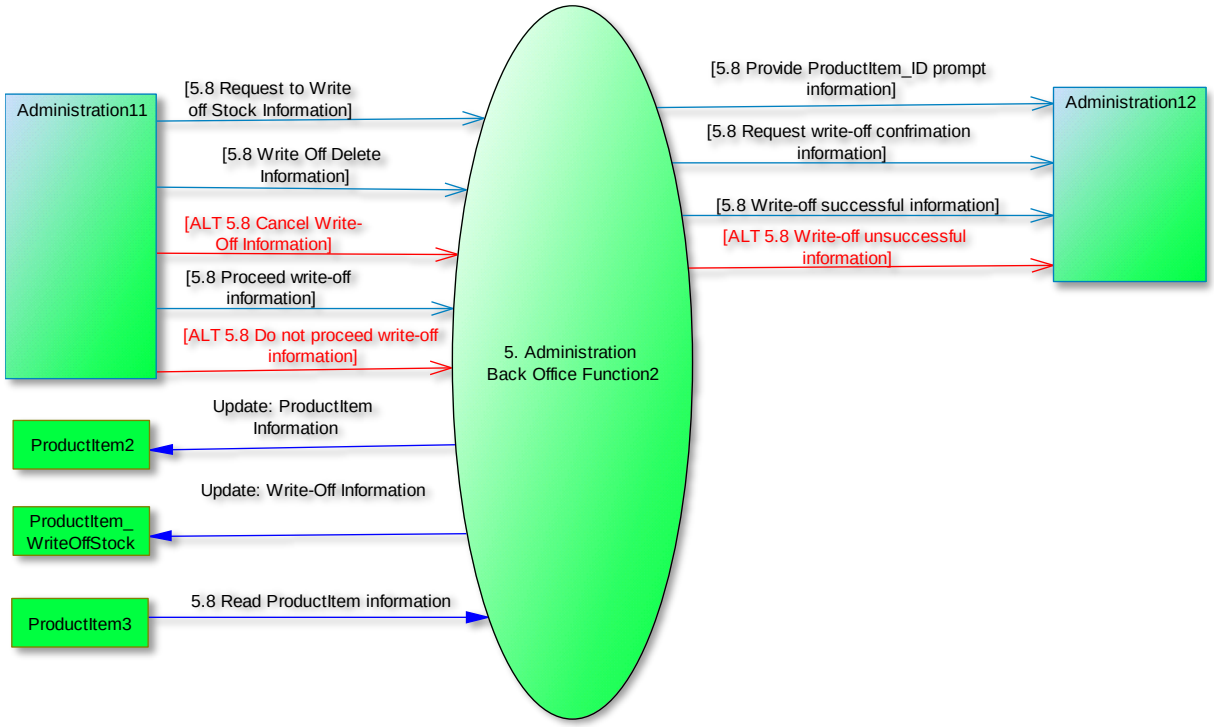


Figure 128 5. Administration Back Office High Level Data Flow Diagram Part 2

3.3.1.6 Customer Function

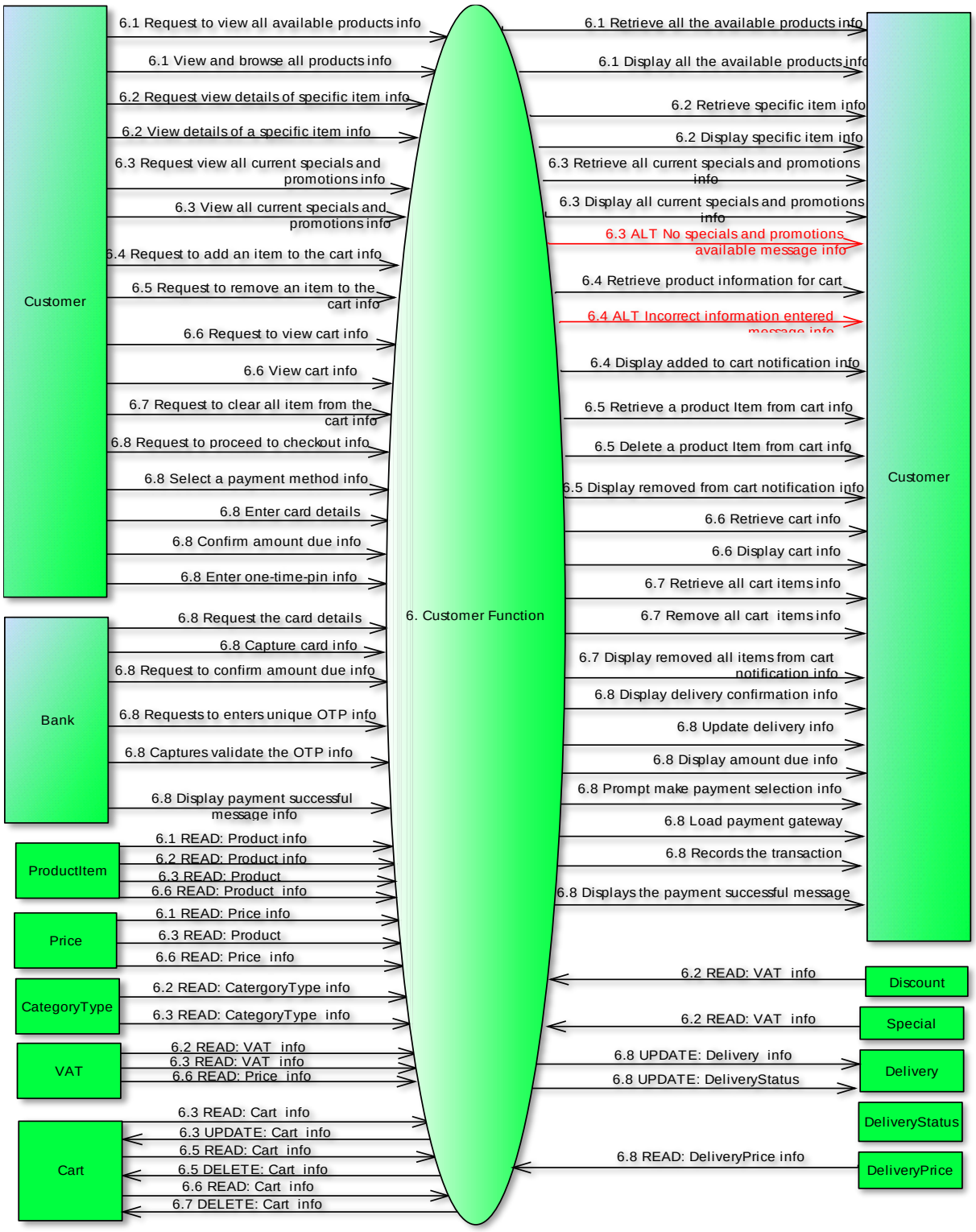


Figure 129 6. Customer High Level Data Flow Diagram

3.3.1.7 Reports Function

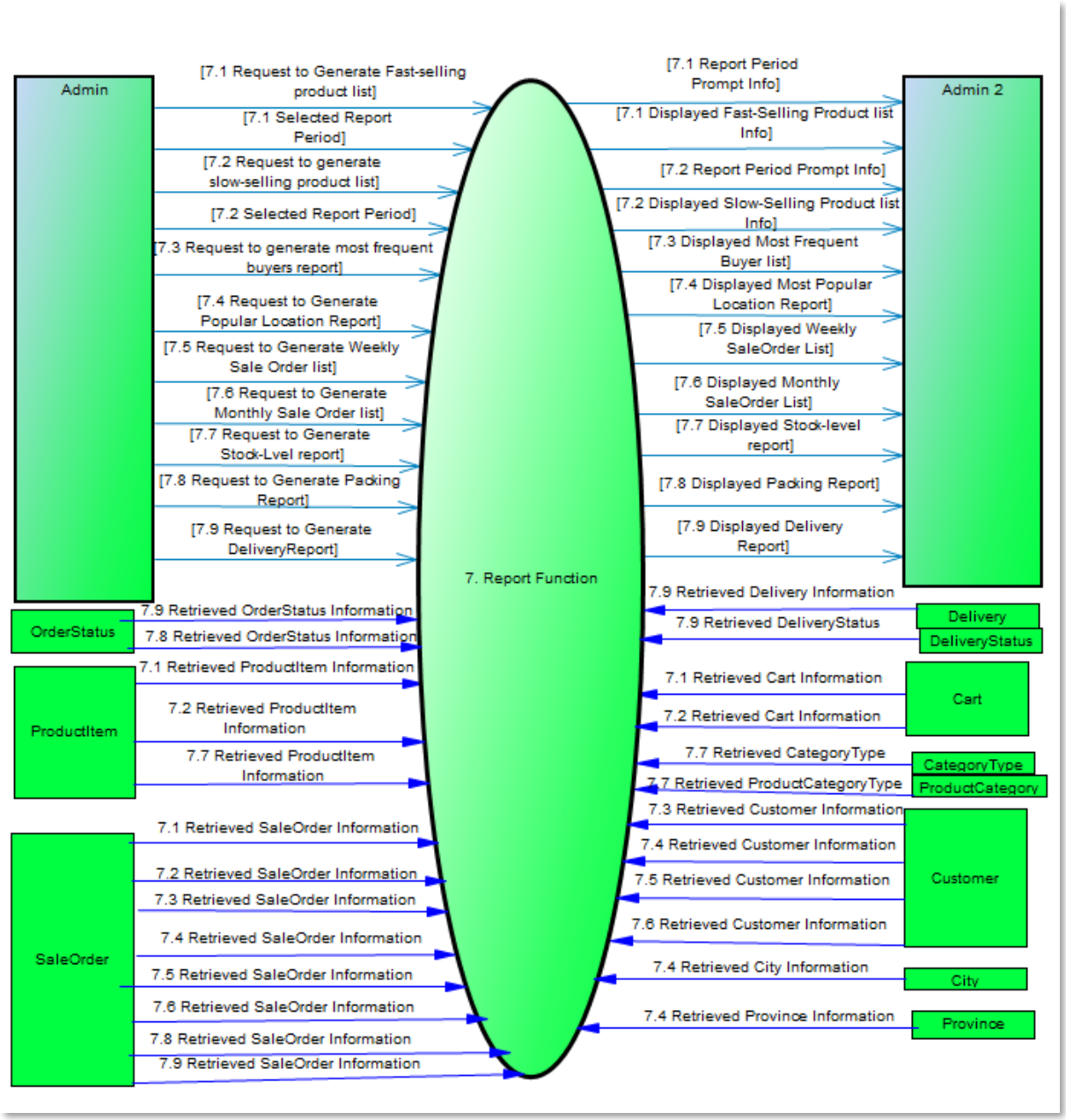


Figure 130 7. Report High Level Data Flow Diagram

3.3.1.8 Delivery Function

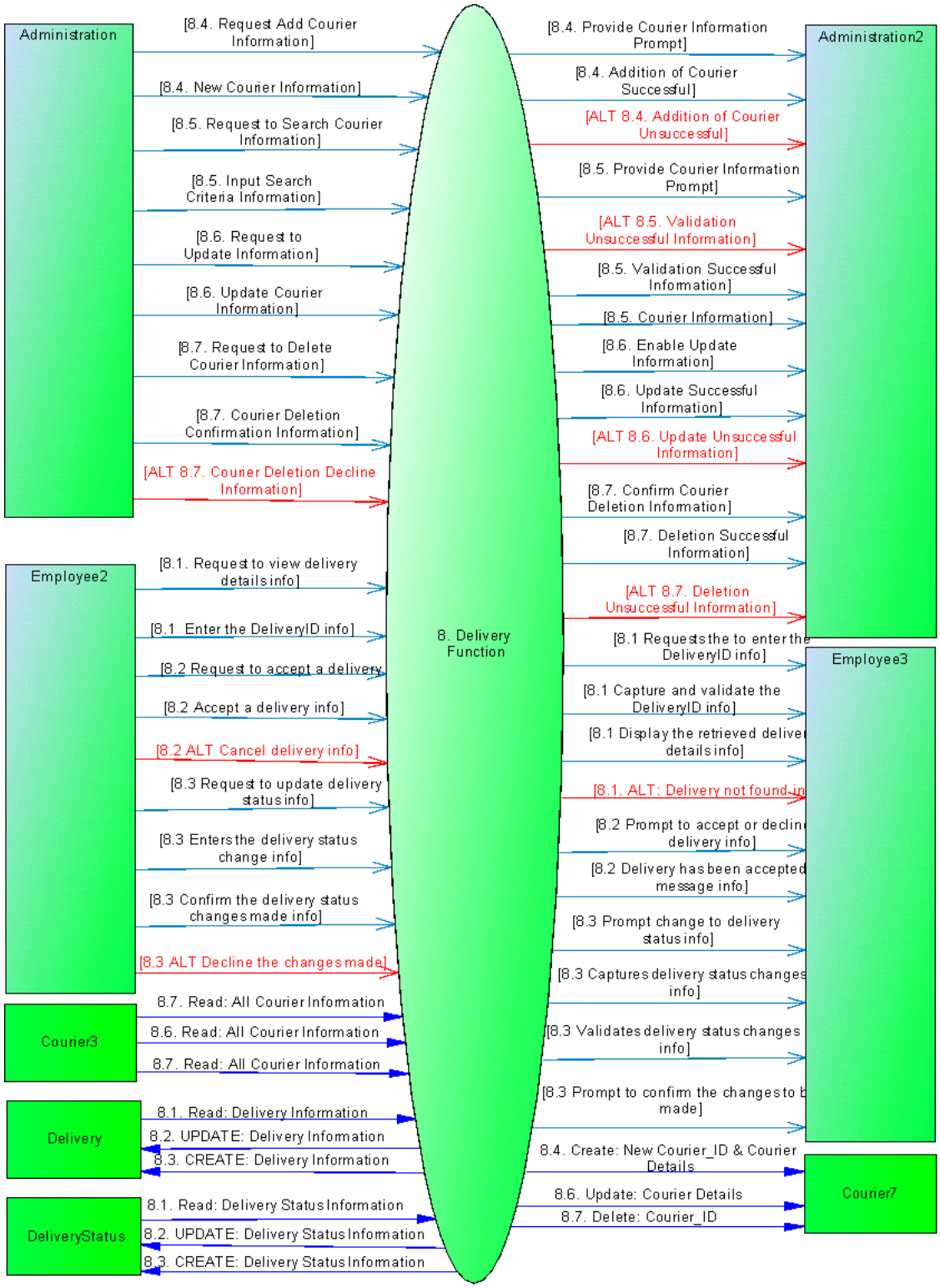


Figure 131 8. Delivery High Level Data Flow Diagram

3.3.1.9 Products Function

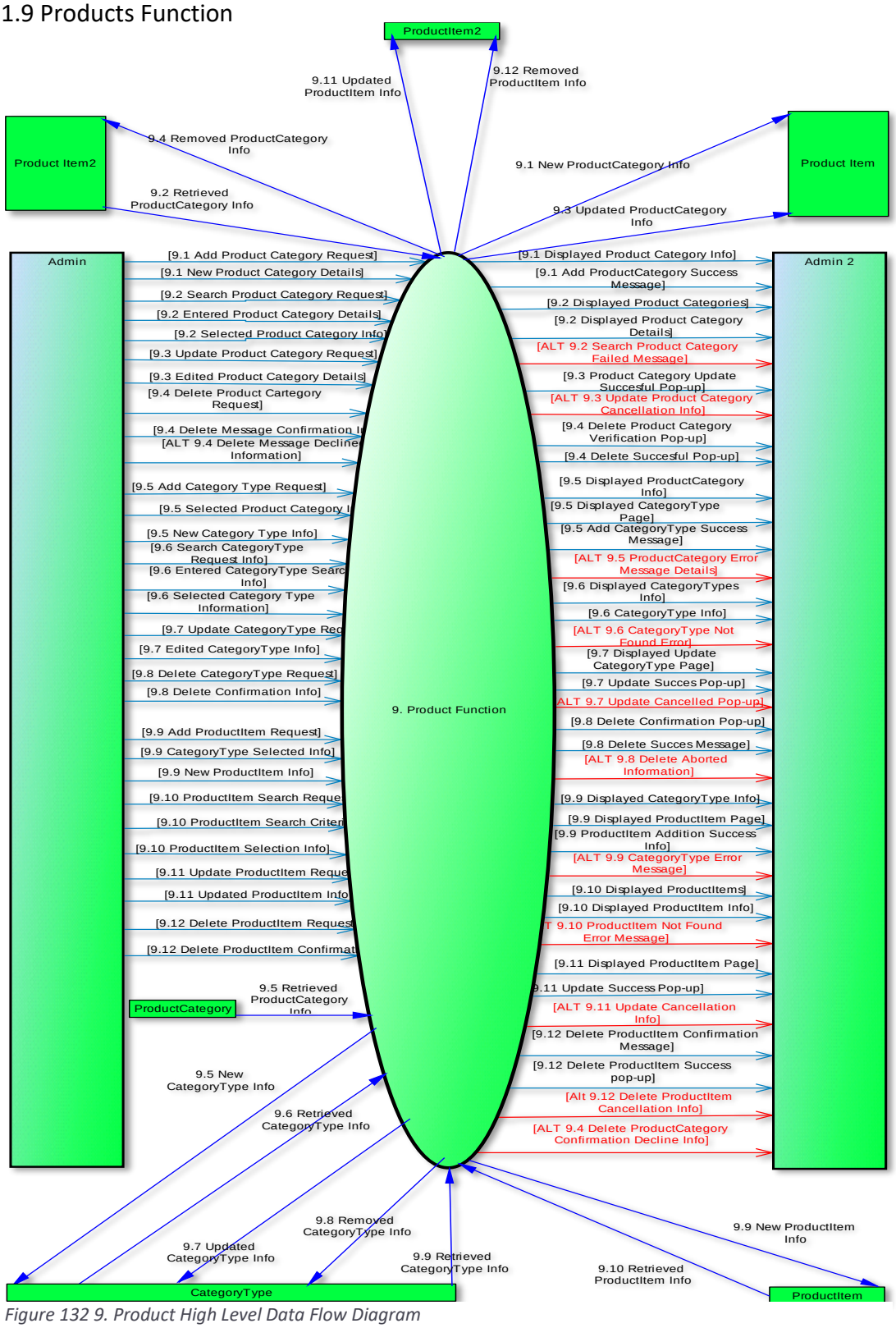


Figure 132 9. Product High Level Data Flow Diagram

3.3.1.10 Specials Function

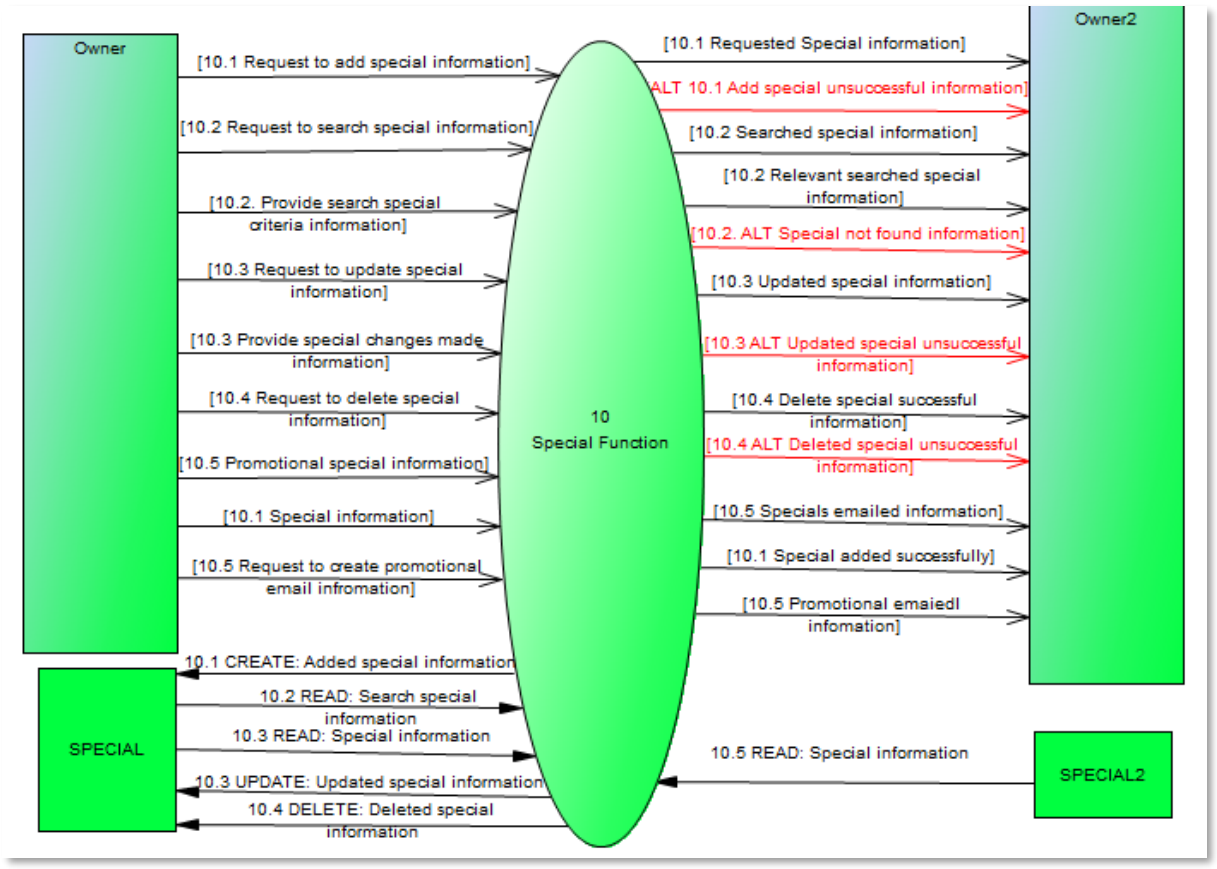


Figure 133 10. Specials High Level Data Flow Diagram

3.3.2. MIDDLE LEVEL DATA FLOW DIAGRAM

3.3.2.1 Log-in Activity

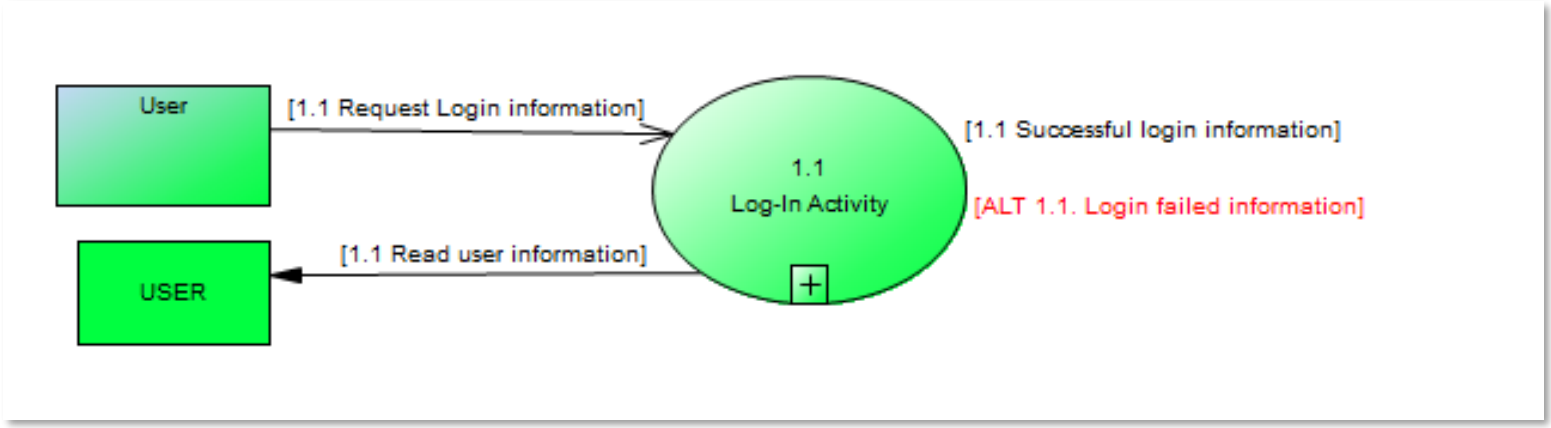


Figure 135 1.1. Login Middle Level Data Flow Diagram

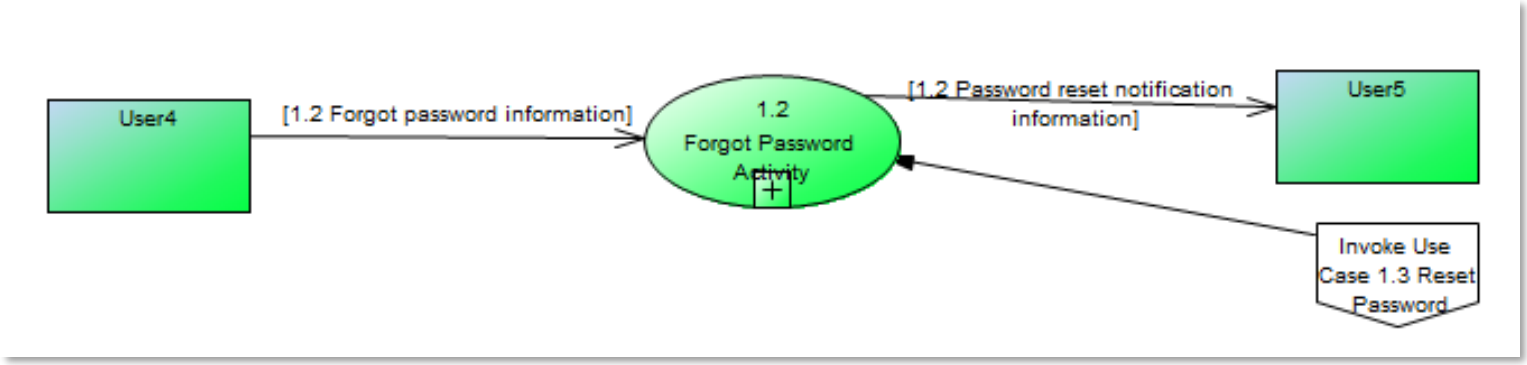


Figure 134 1.2. Forgot Password Middle Level Data Flow Diagram

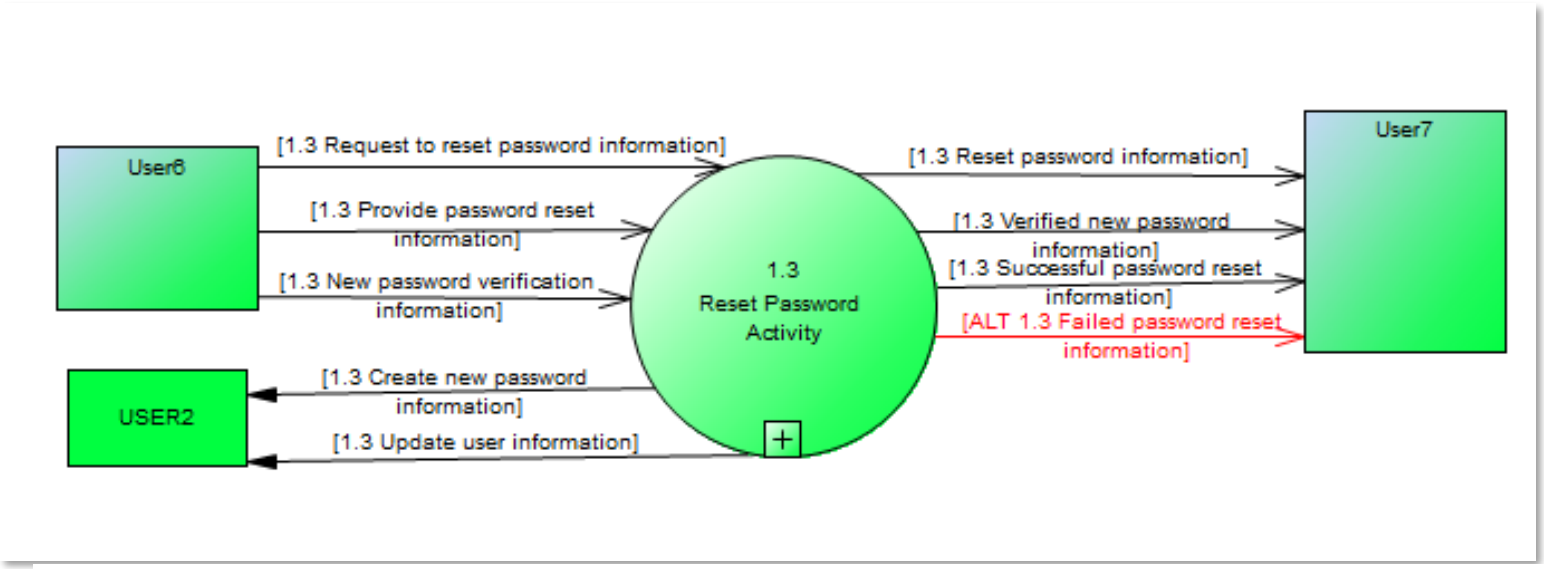


Figure 137 1.3. Reset Password Middle Level Data Flow Diagram

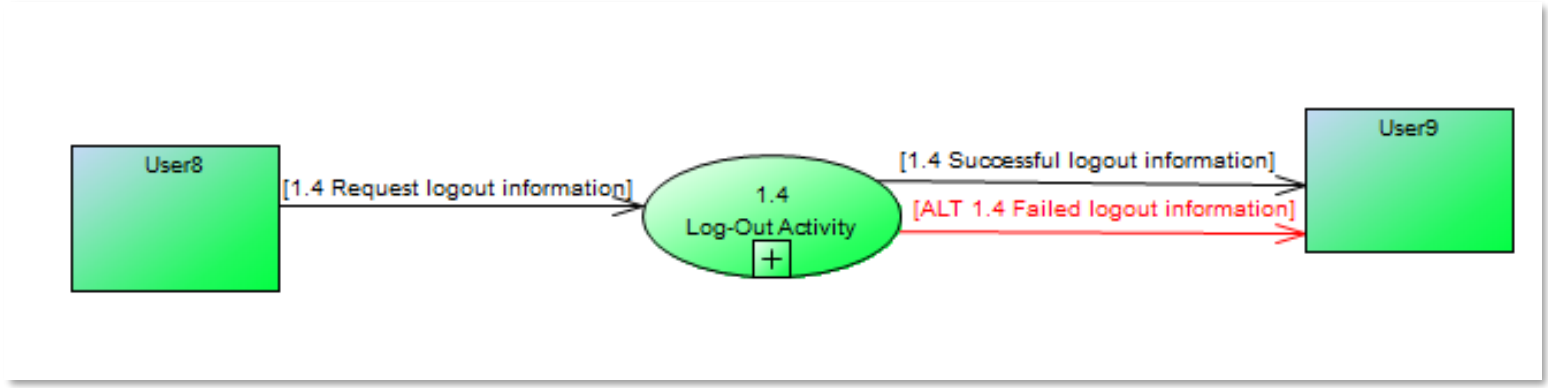


Figure 136 1.4. Log Out Middle Level Data Flow Diagram

3.3.2.2 Supplier Activity

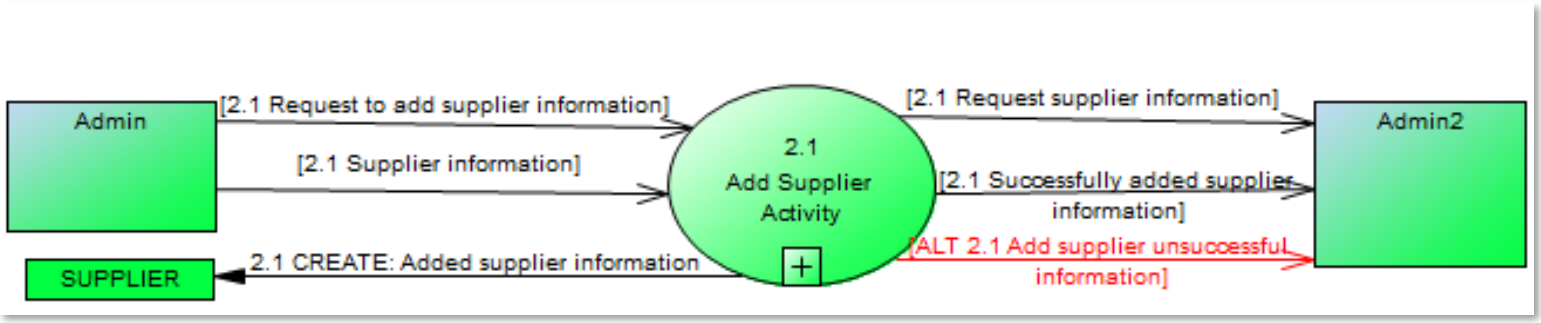


Figure 138 2.1. Add Supplier Middle Level Data Flow Diagram

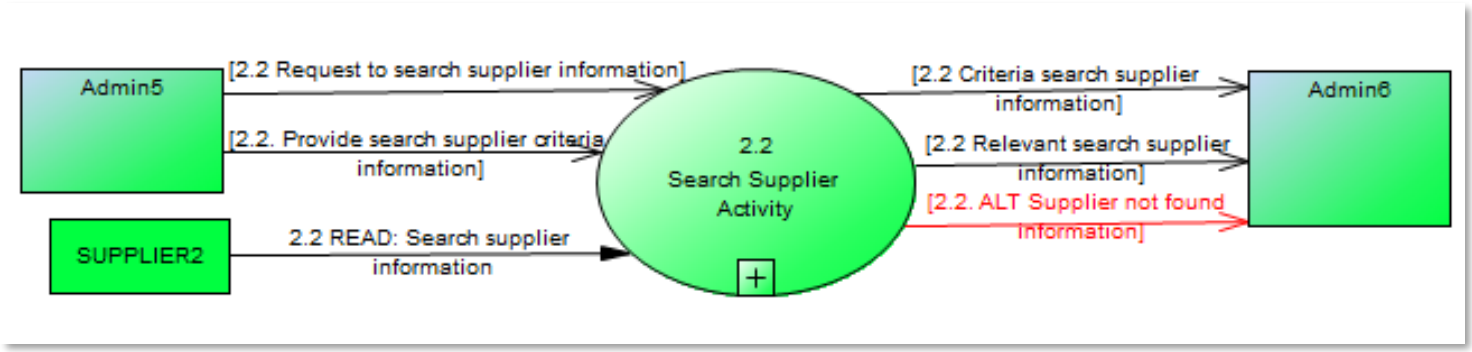


Figure 139 2.2. Search Supplier Middle Level Data Flow Diagram

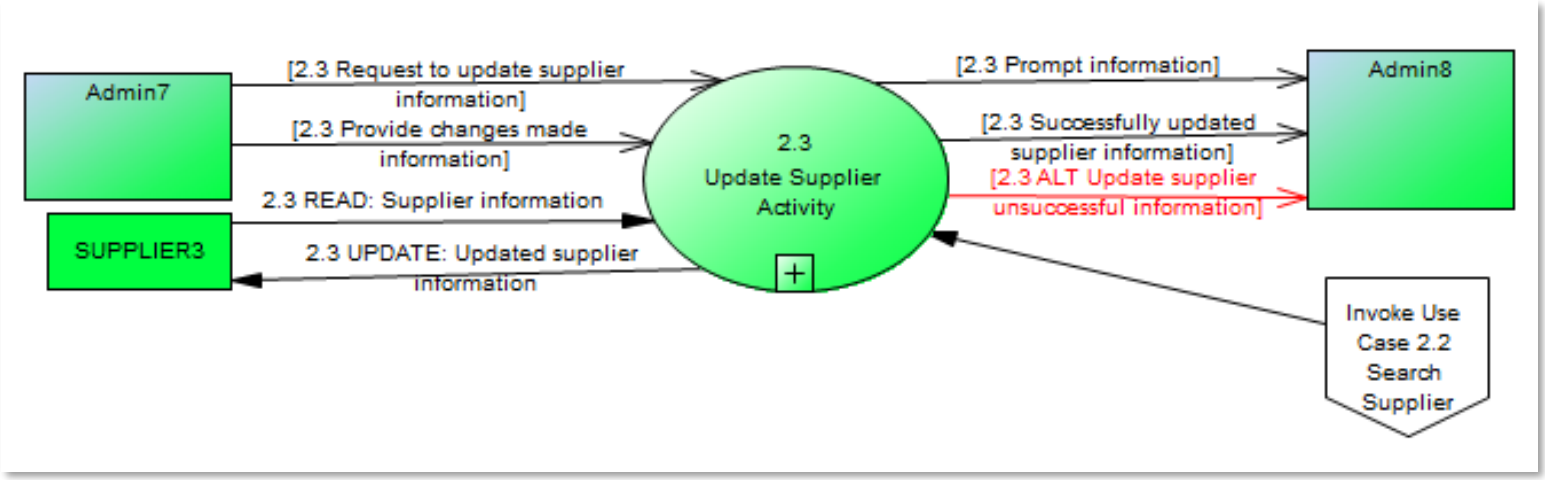


Figure 140 2.3. Update Supplier Middle Level Data Flow Diagram

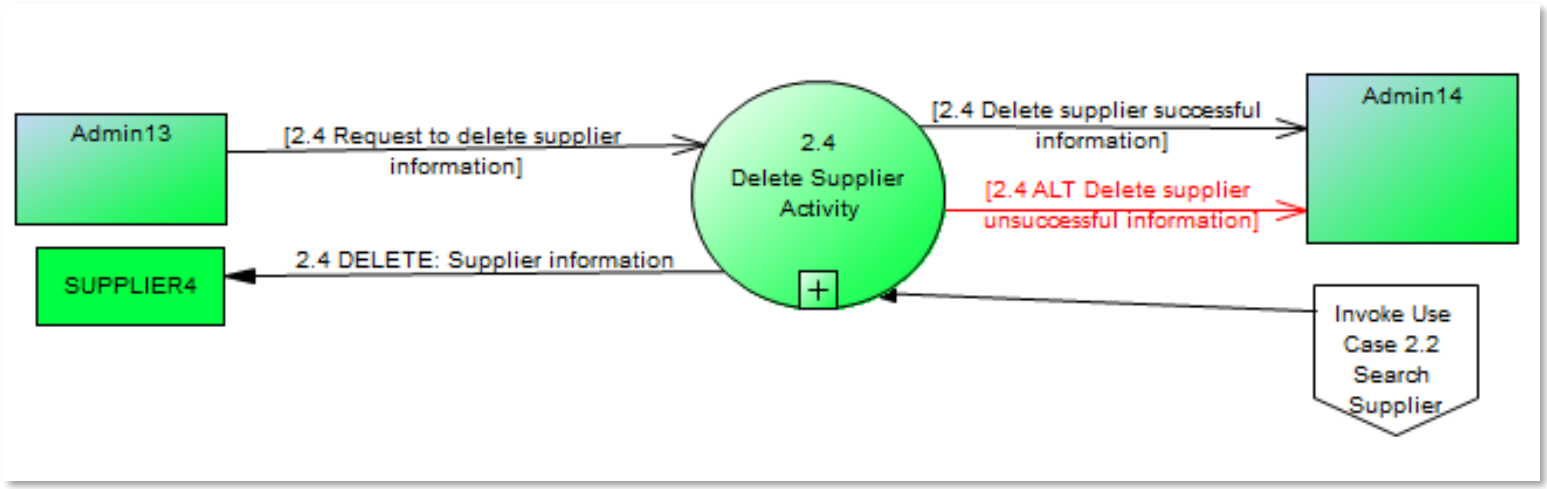


Figure 141 2.4. Delete Supplier Middle Level Data Flow Diagram

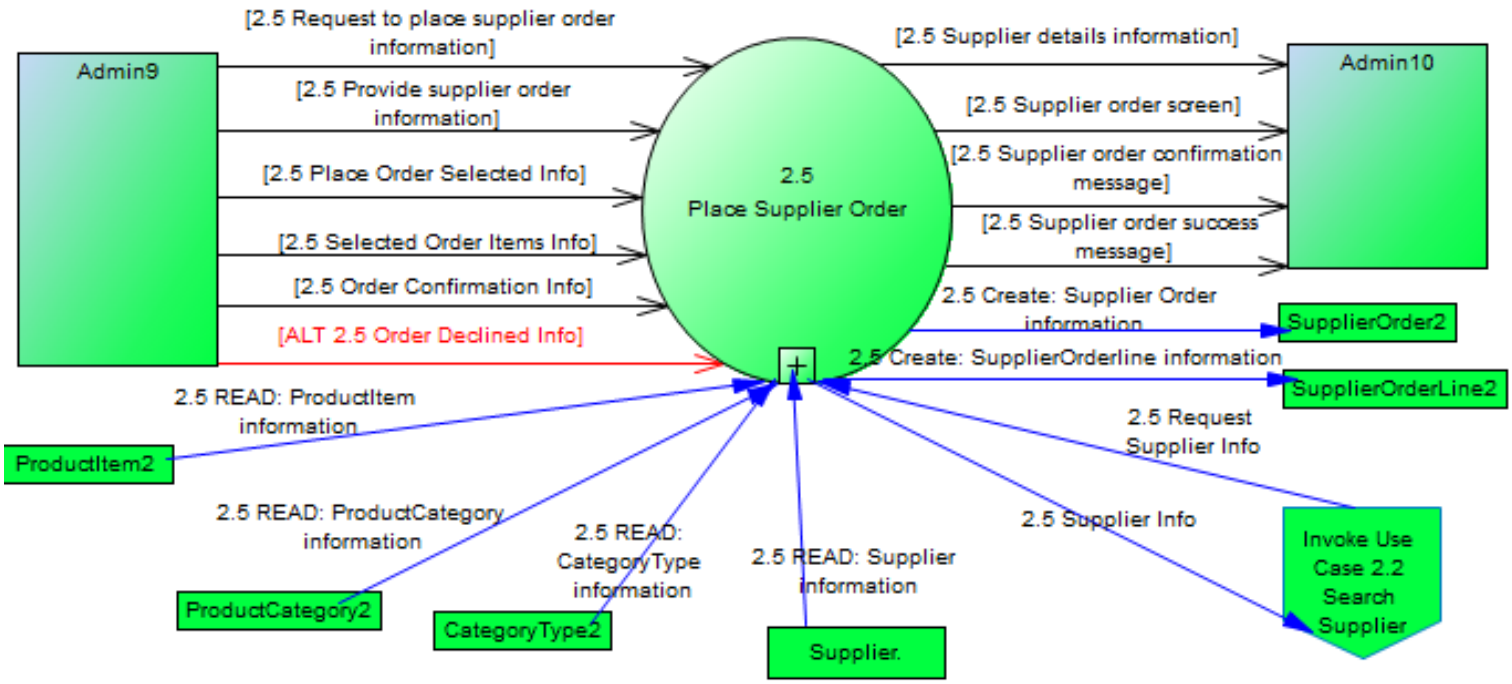


Figure 142 2.5. Place Supplier Order Middle Level Data Flow Diagram

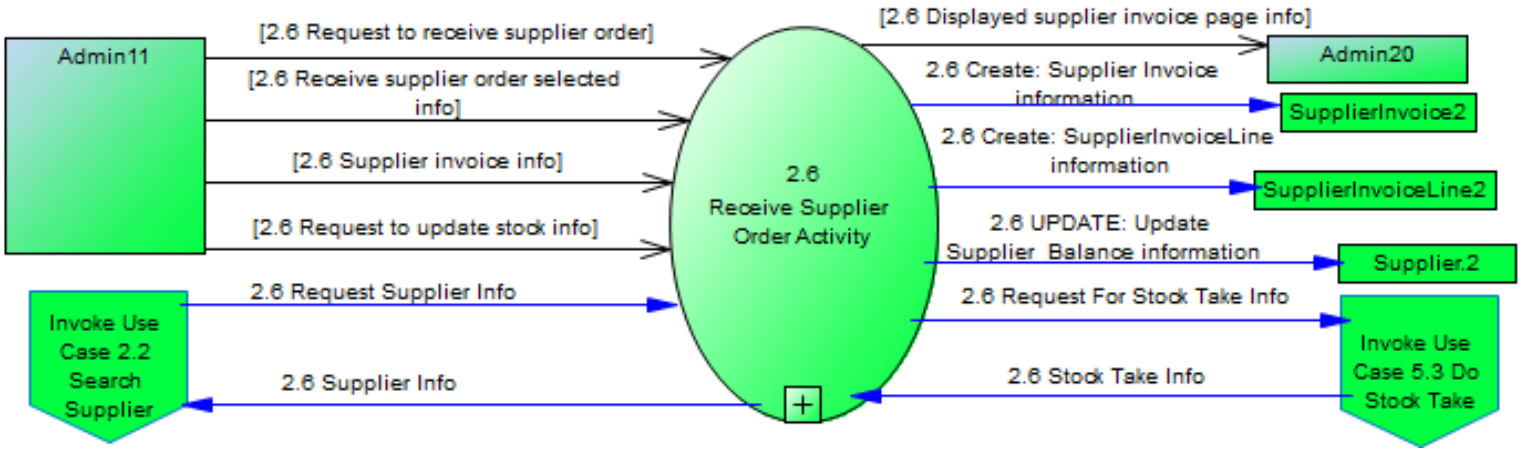


Figure 143 2.6. Receive Supplier Order Middle Level Data Flow Diagram

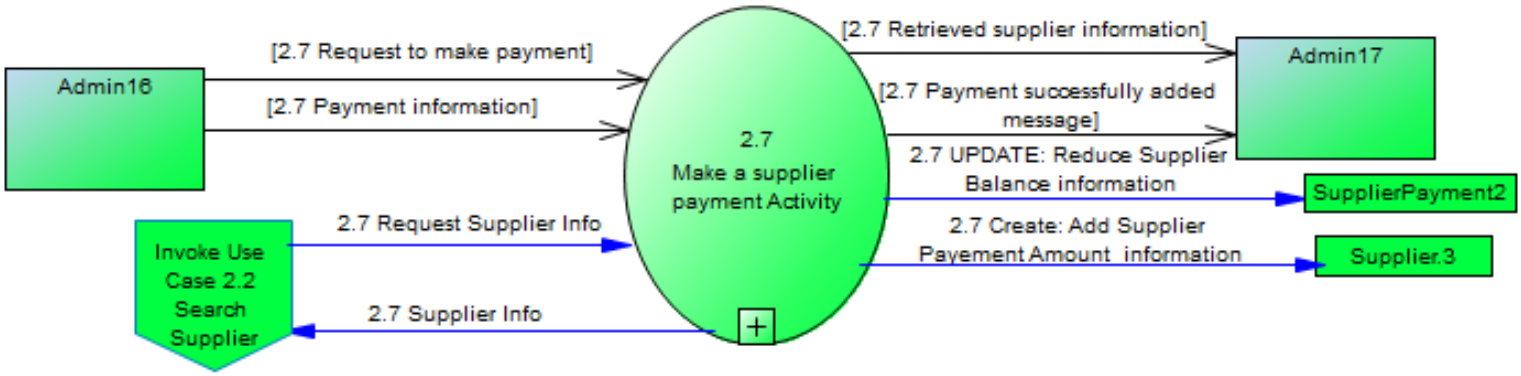


Figure 144 2.7. Make a Supplier Payment Middle Level Data Flow Diagram

3.3.2.3. User Activity

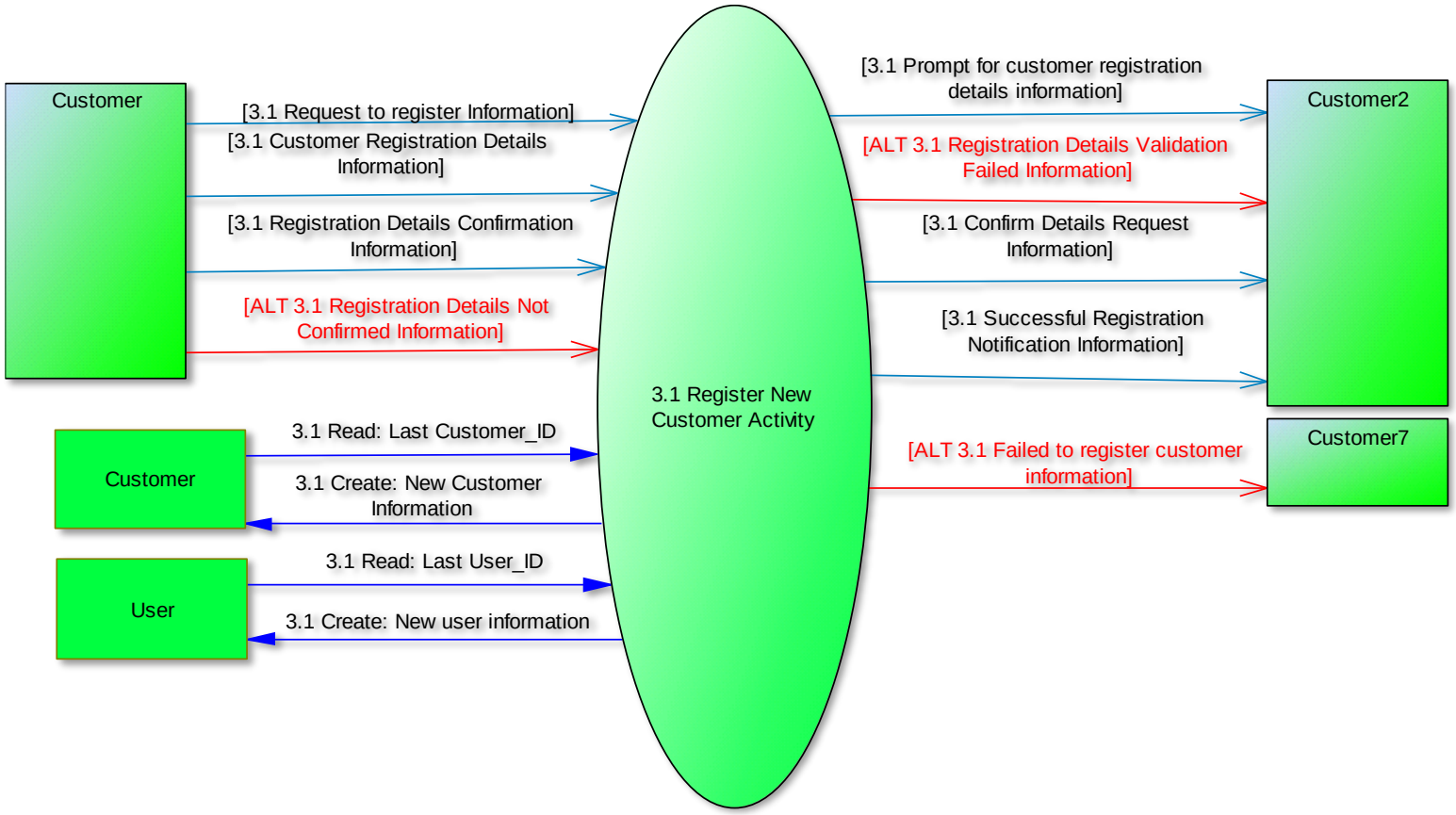


Figure 145 3.1. Register New Customer Middle Level Data Flow Diagram

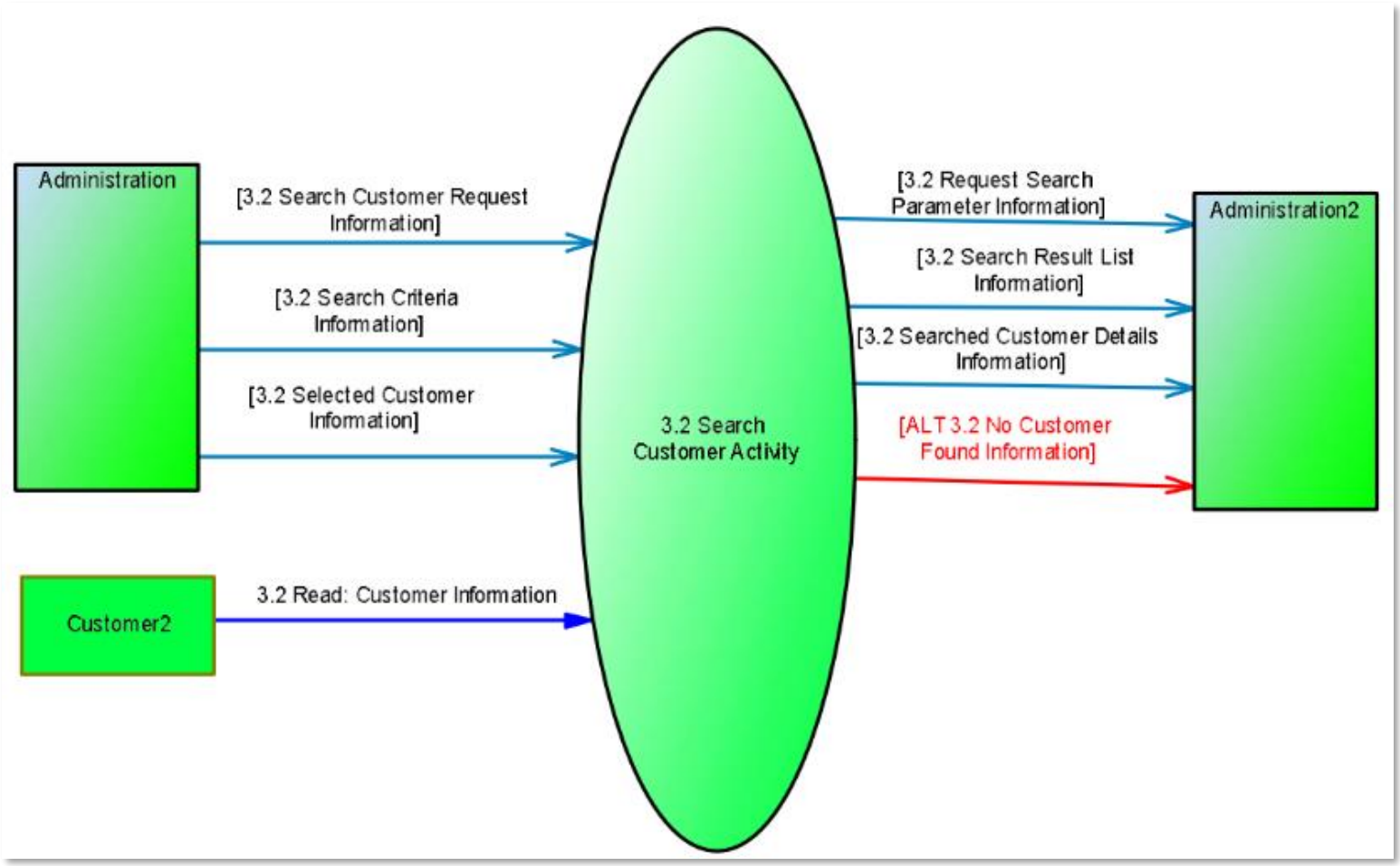


Figure 146 3.2. Search Customer Middle Level Data Flow Diagram

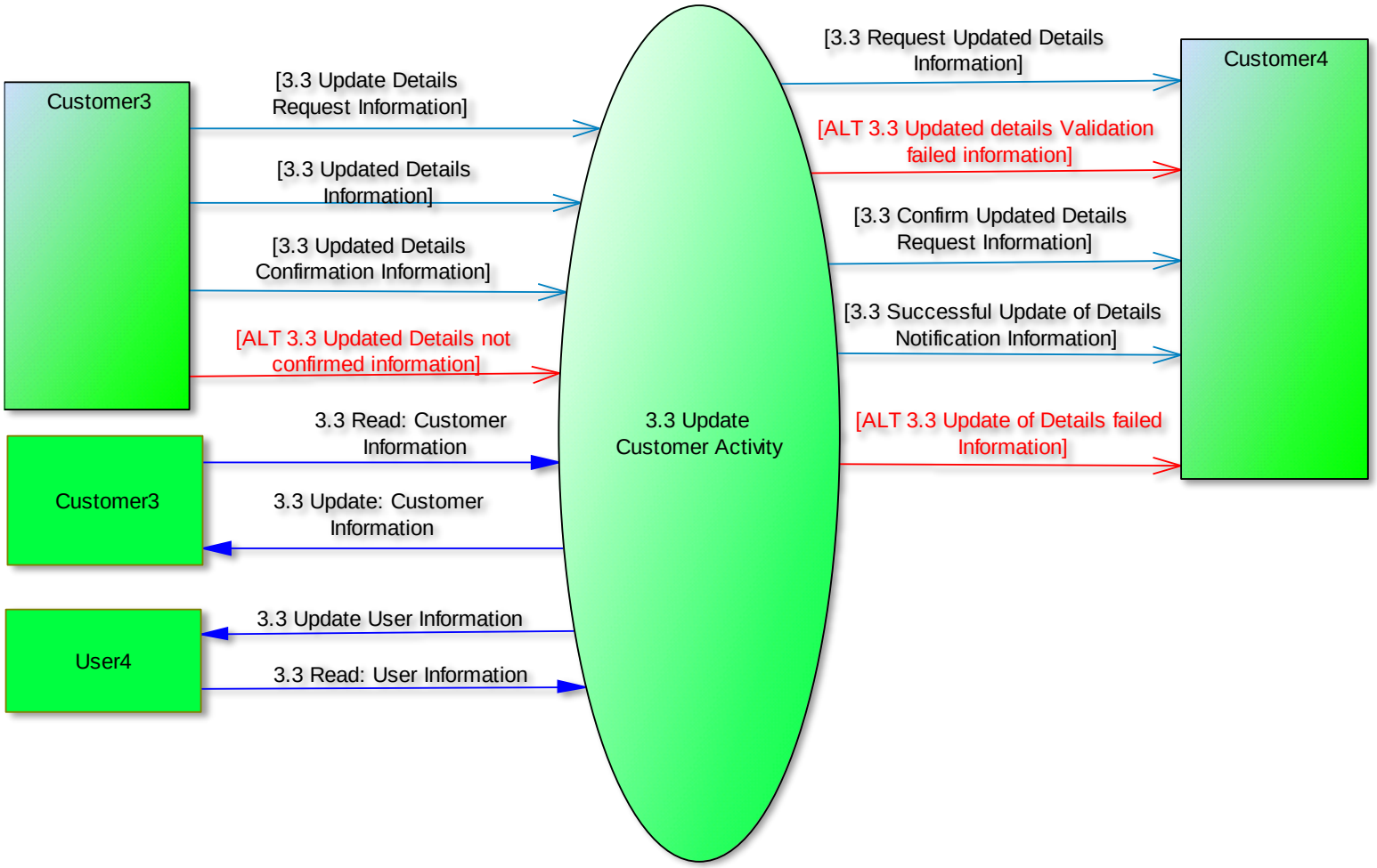


Figure 147 3.3. Update Customer Middle Level Data Flow Diagram

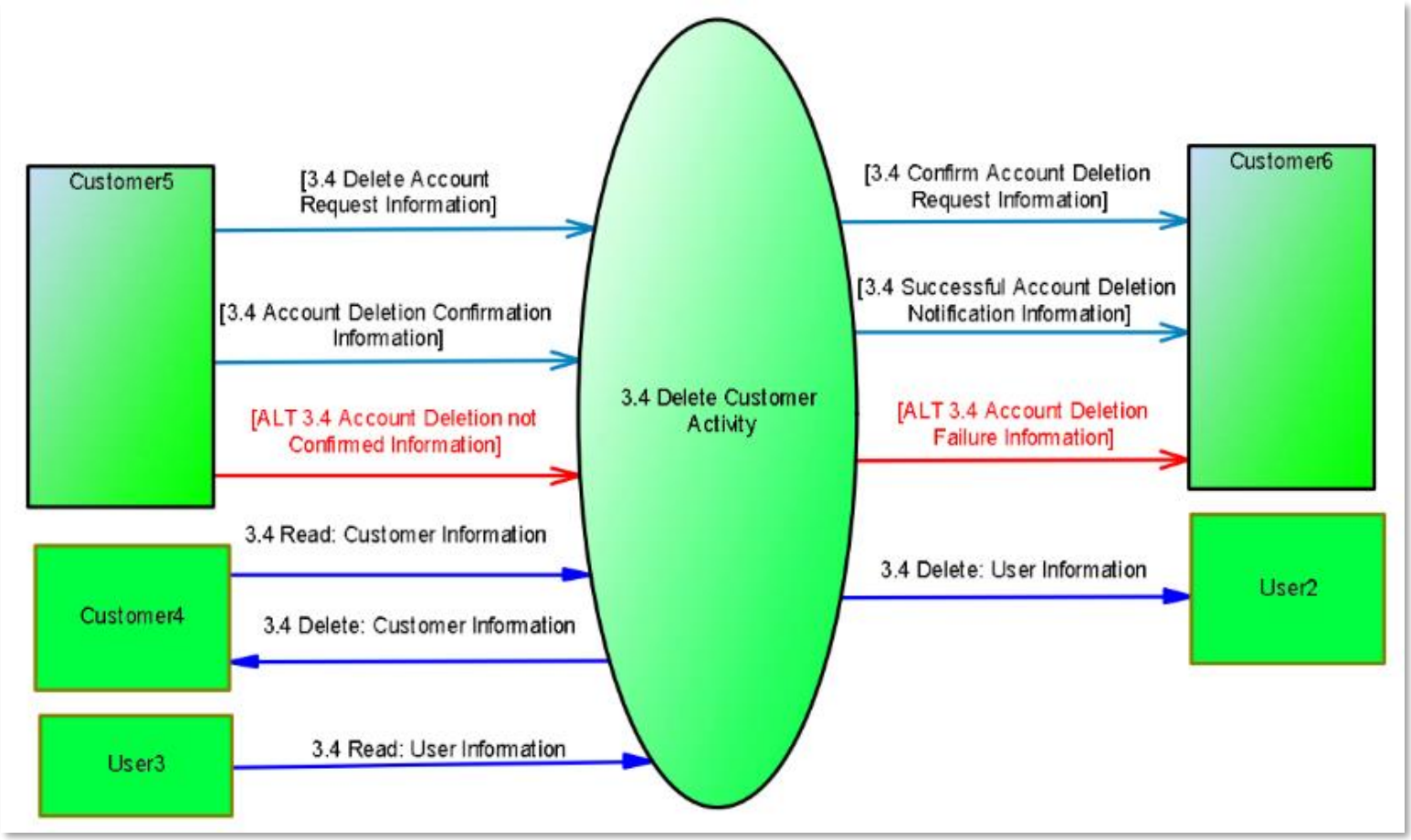


Figure 148 3.4. Delete Customer Middle Level Data Flow Diagram

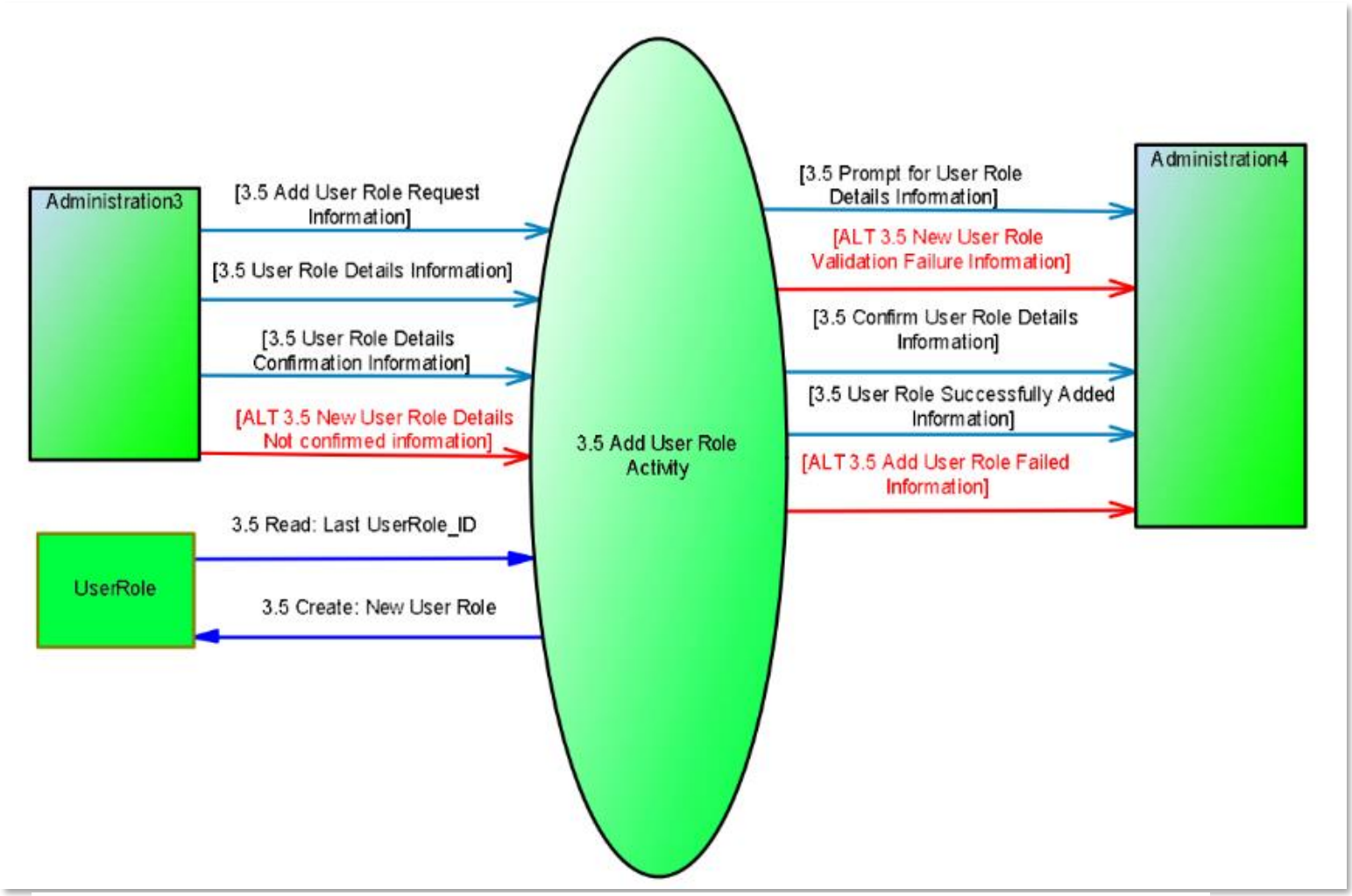


Figure 149 3.5. Add User Role Middle Level Data Flow Diagram

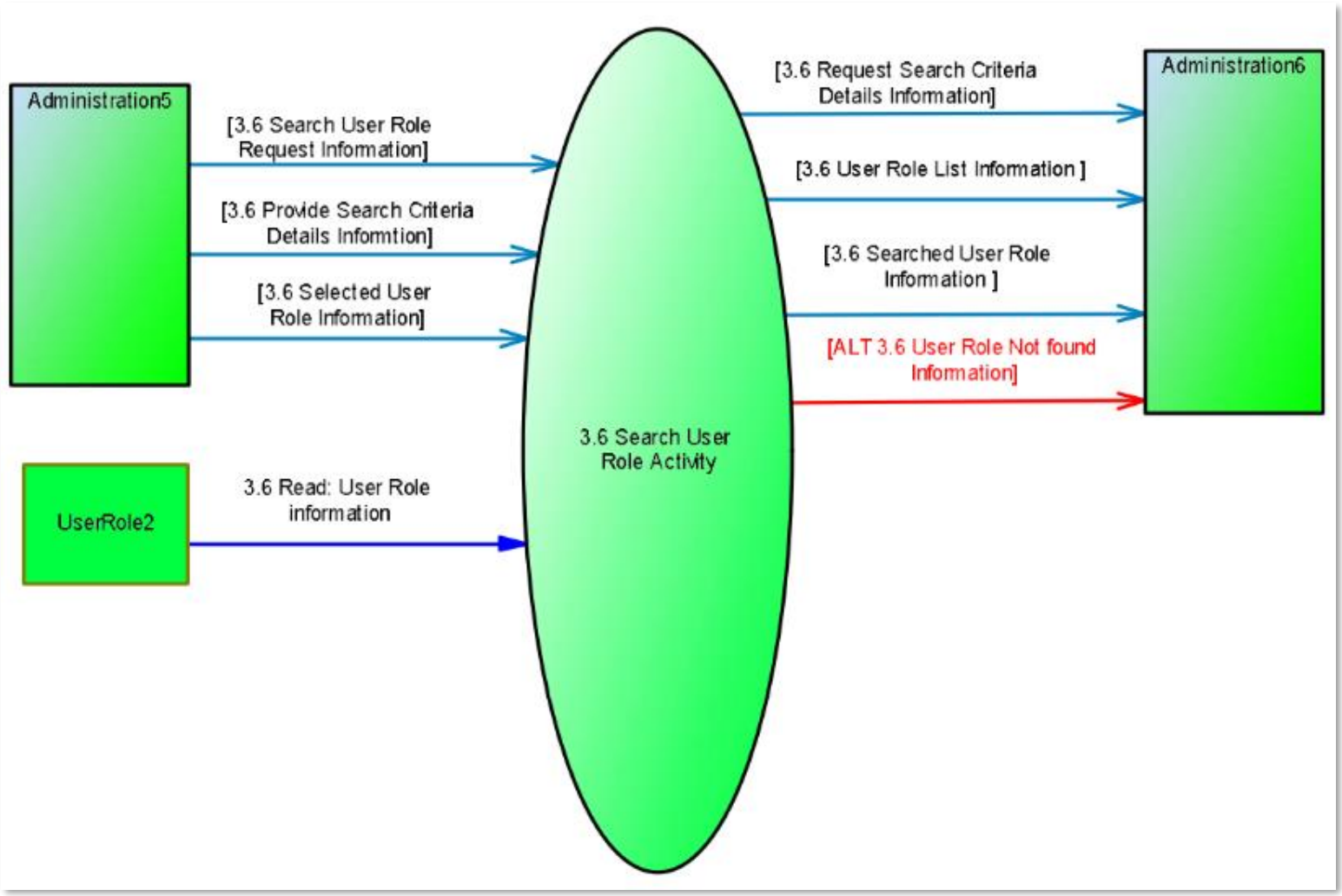


Figure 150 3.6. Search User Role Middle Level Data Flow Diagram

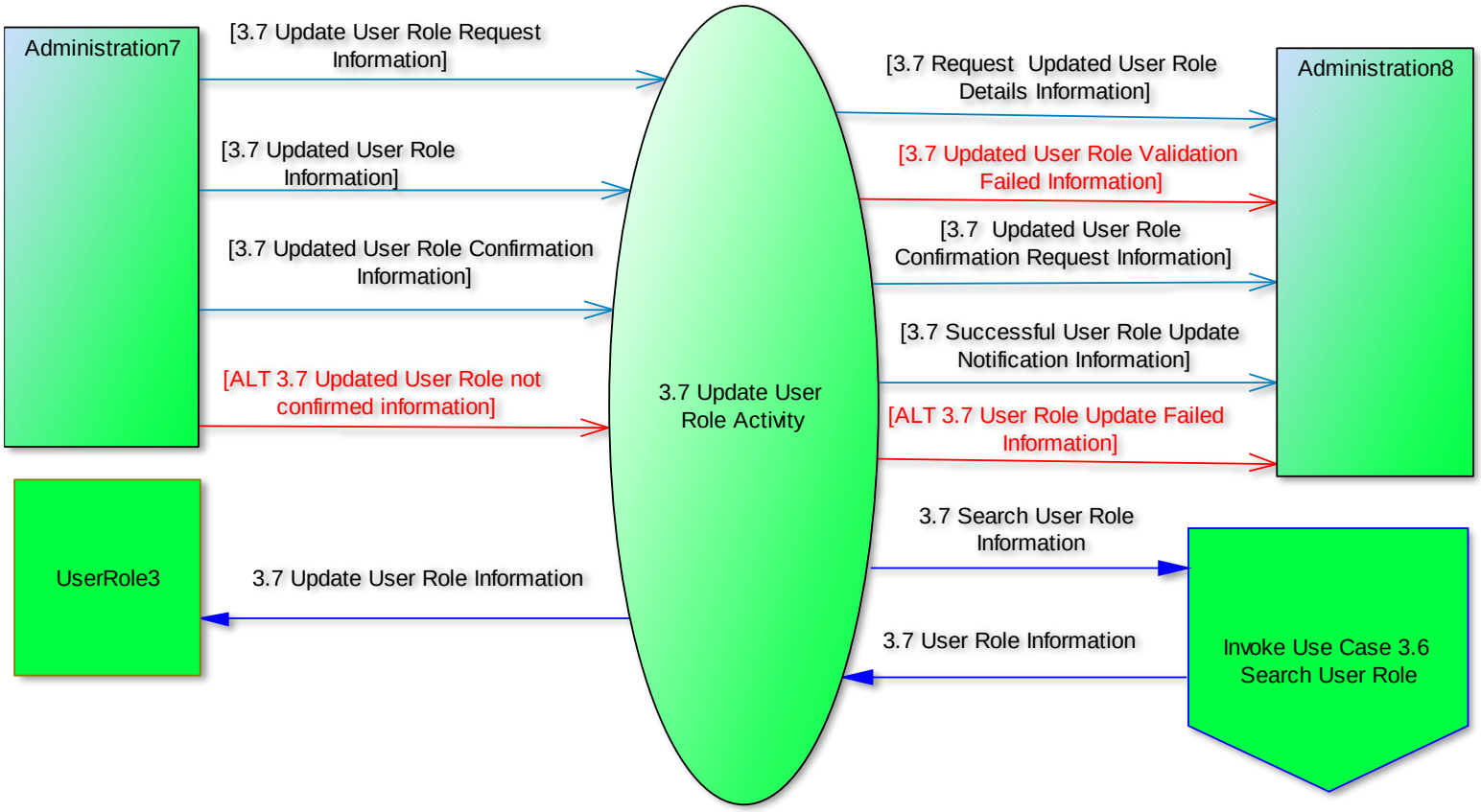


Figure 151 3.7. Update User Role Middle Level Data Flow Diagram

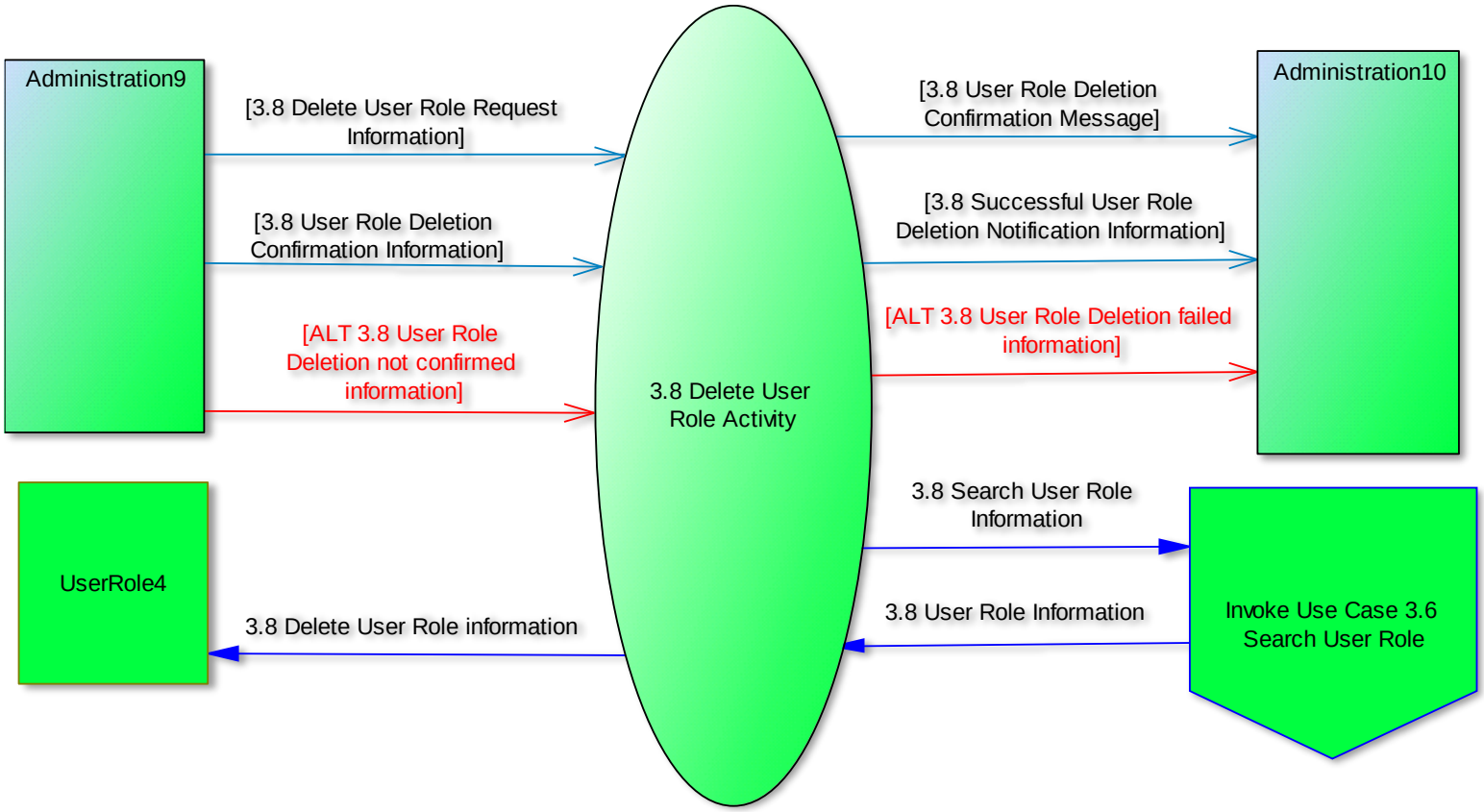


Figure 152 3.8. Delete User Role Middle Level Data Flow Diagram

3.3.2.4 Employee Delivery Shifts Activity

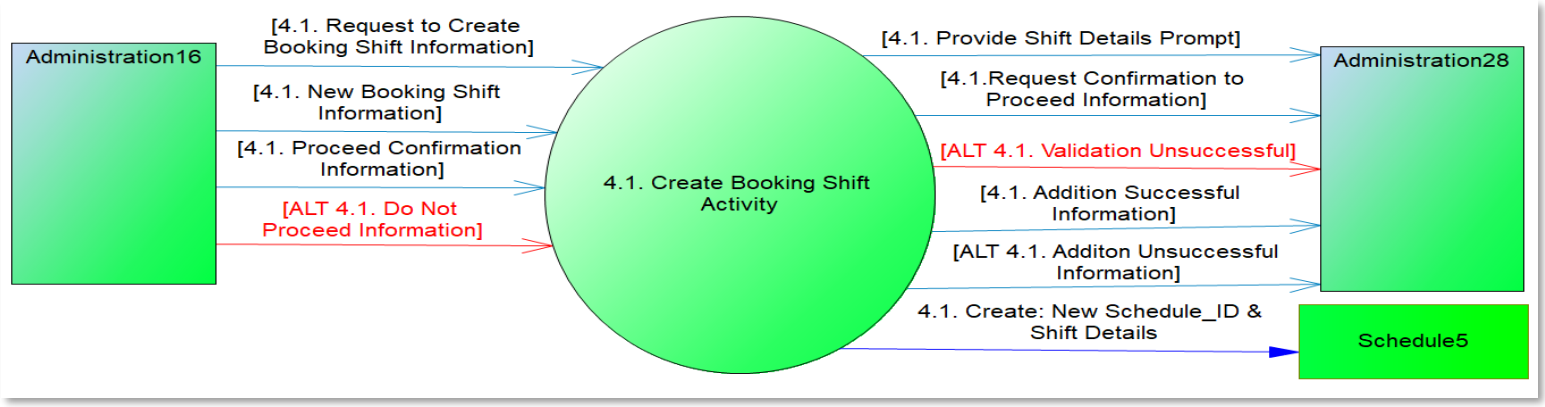


Figure 153 4.1. Create Booking Shift Middle Level Data Flow Diagram

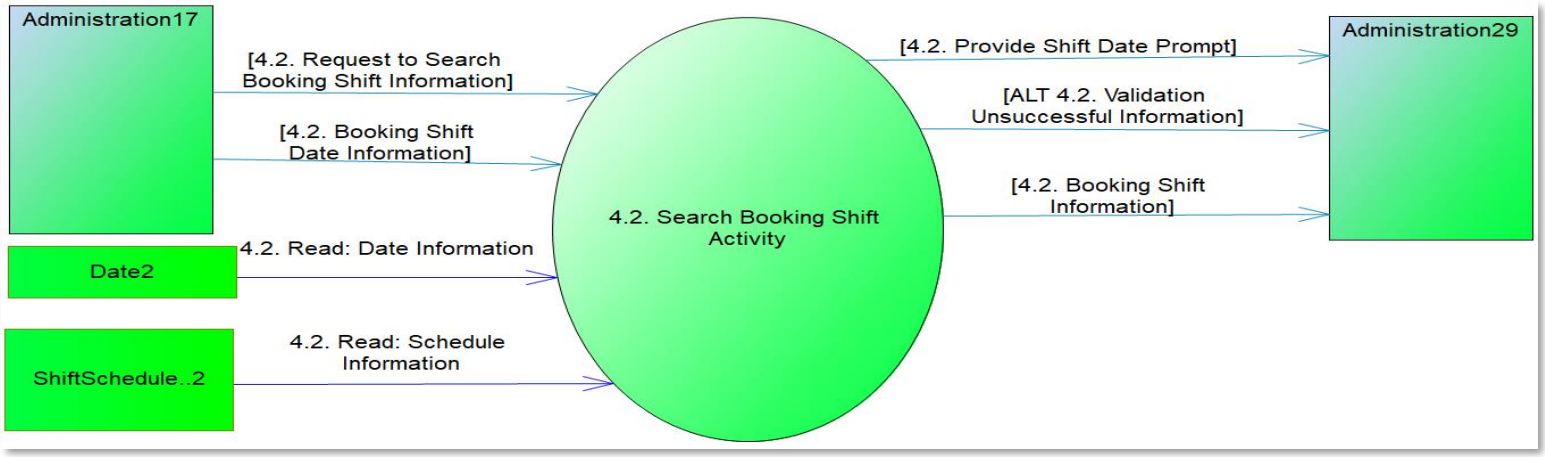


Figure 154 4.2. Search Booking Shift Middle Level Data Flow Diagram

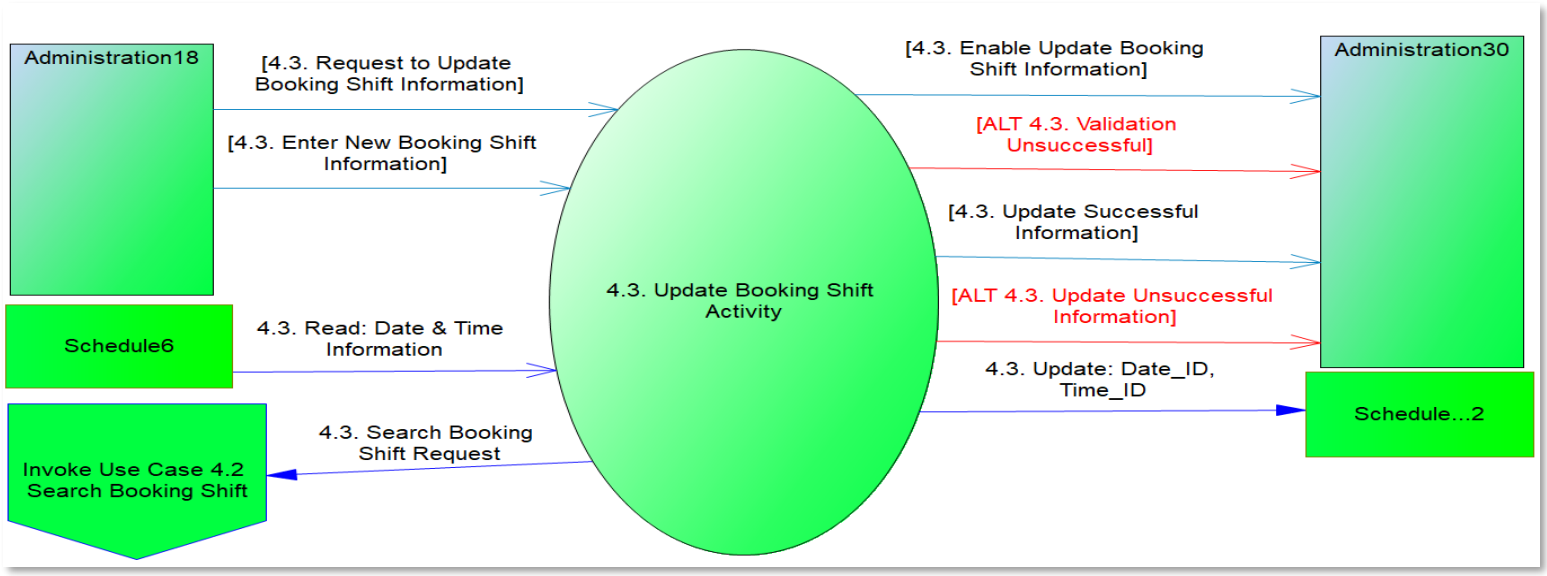


Figure 155 4.3. Update Booking Shift Middle Level Data Flow Diagram

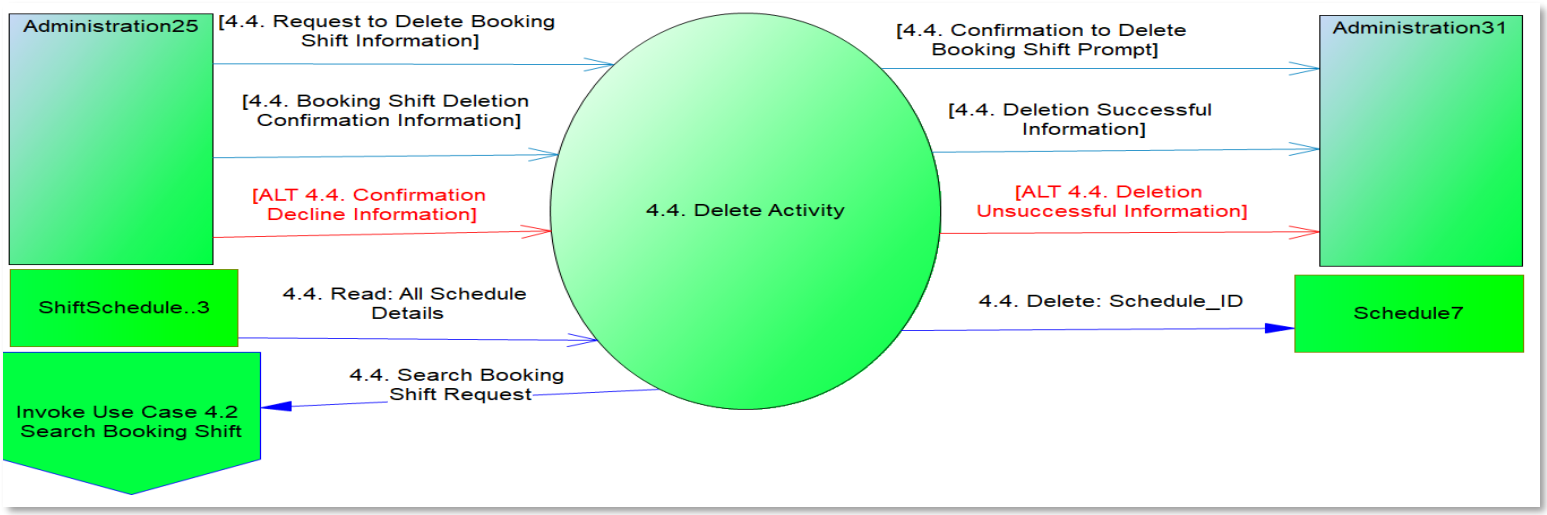


Figure 156 4.4. Delete Booking Shift Middle Level Data Flow Diagram

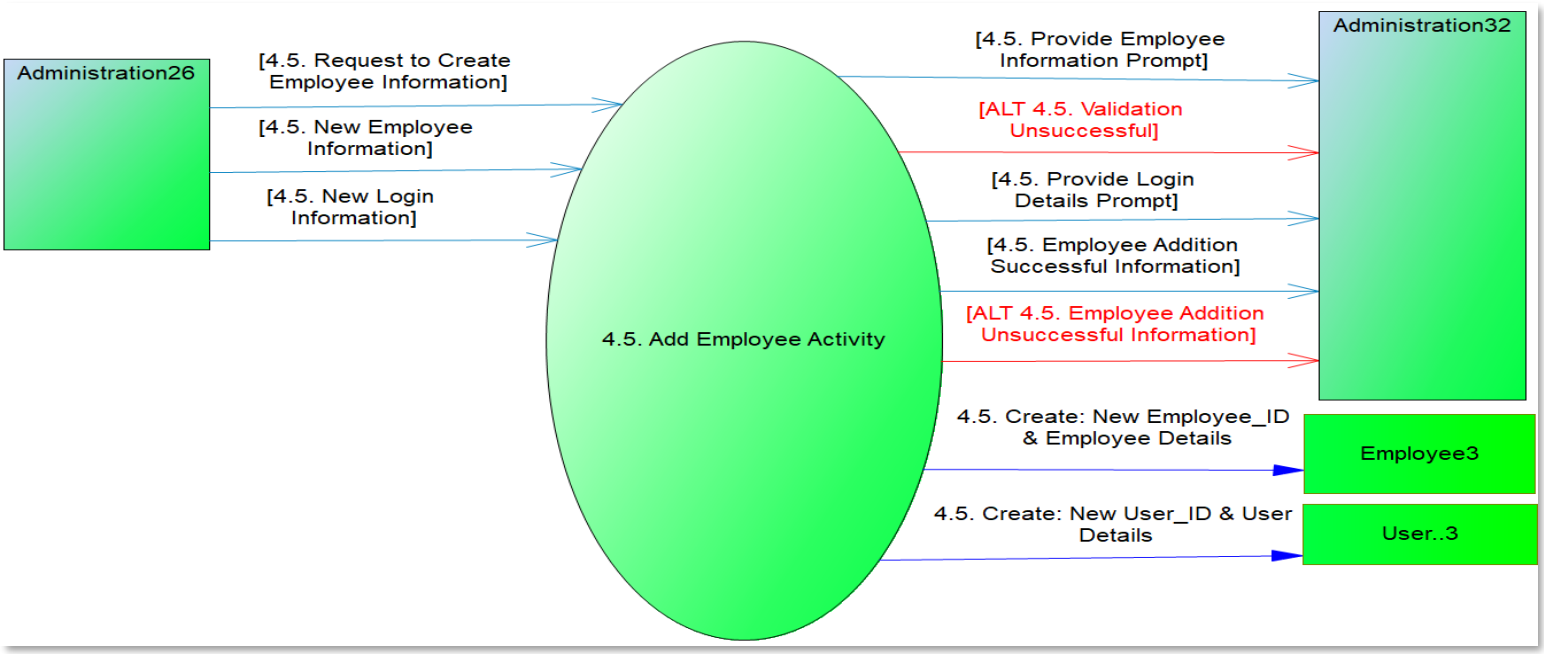


Figure 157 4.5. Add Employee Middle Level Data Flow Diagram

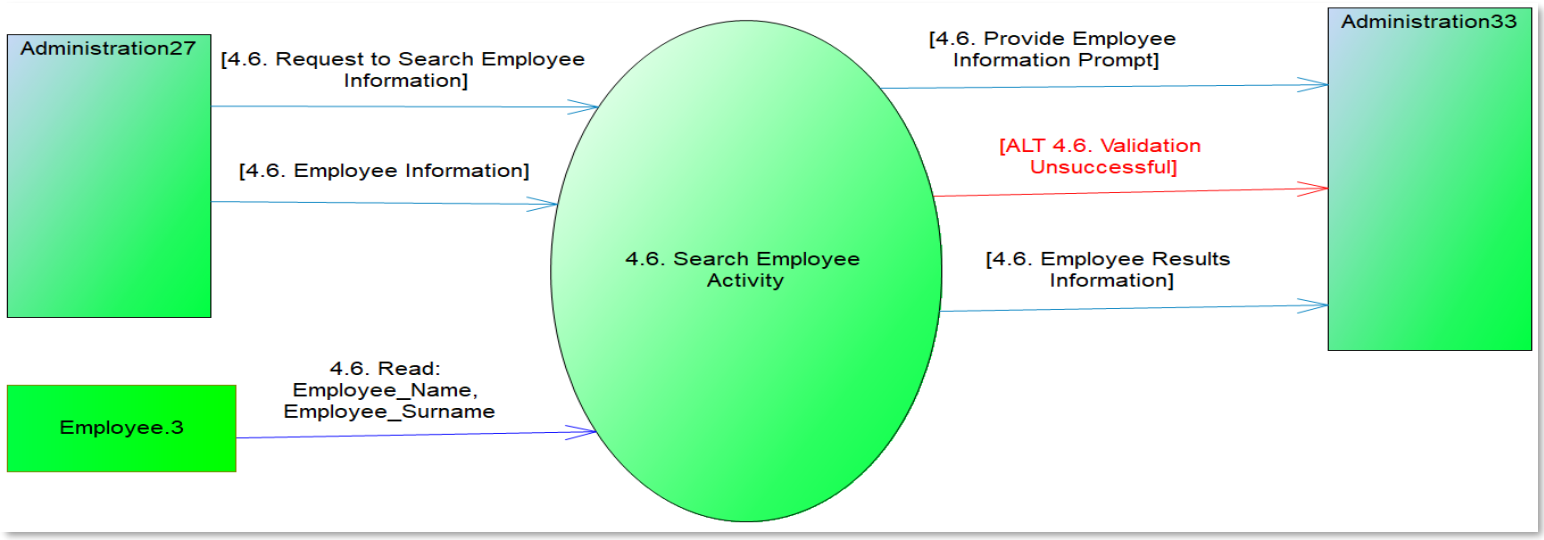


Figure 158 4.6. Search Employee Middle Level Data Flow Diagram

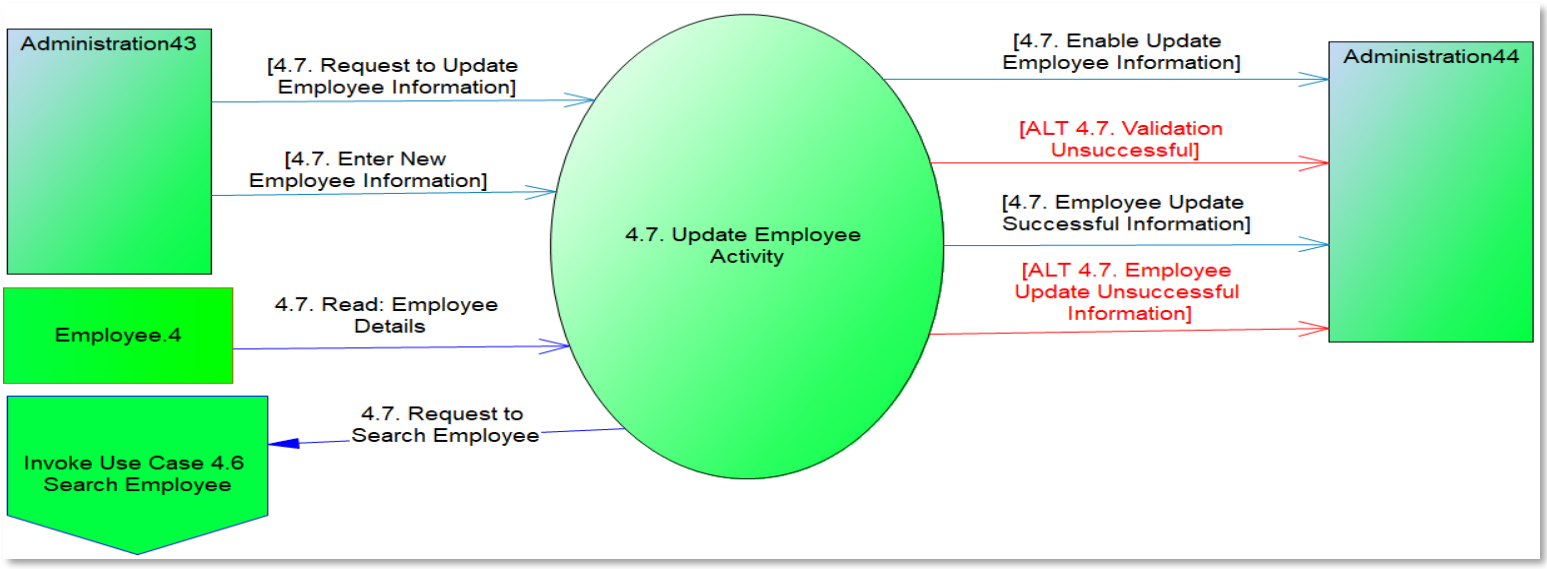


Figure 159 4.7. Update Employee Middle Level Data Flow Diagram

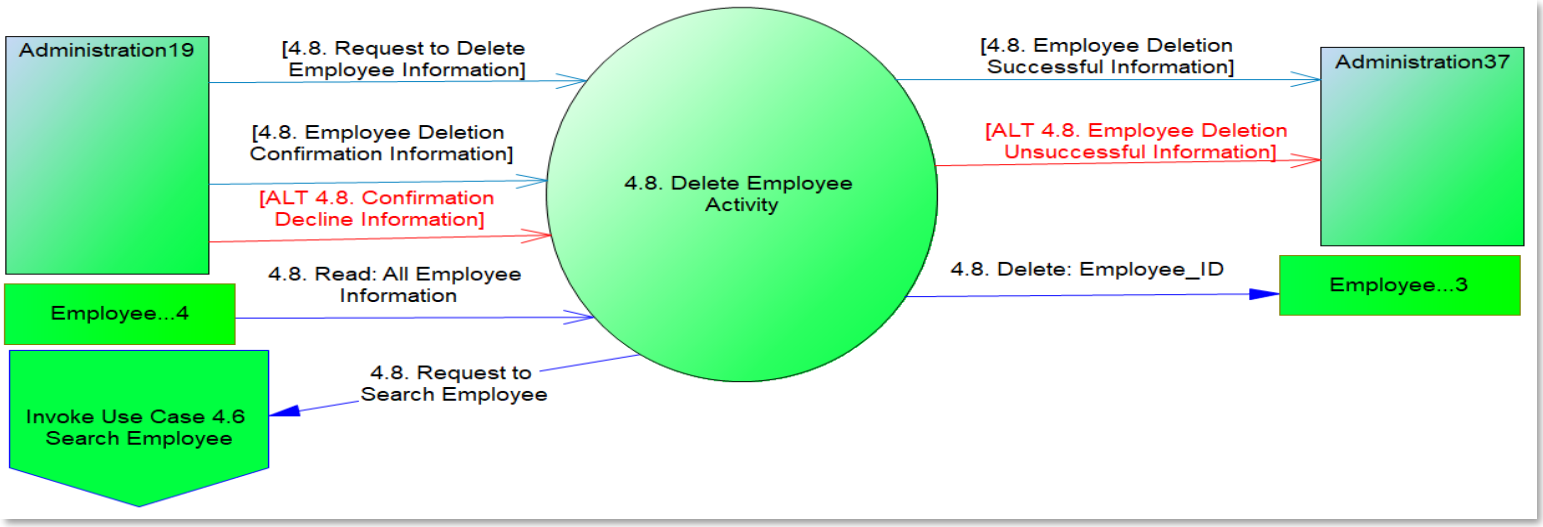


Figure 160 4.6. Delete Employee Middle Level Data Flow Diagram

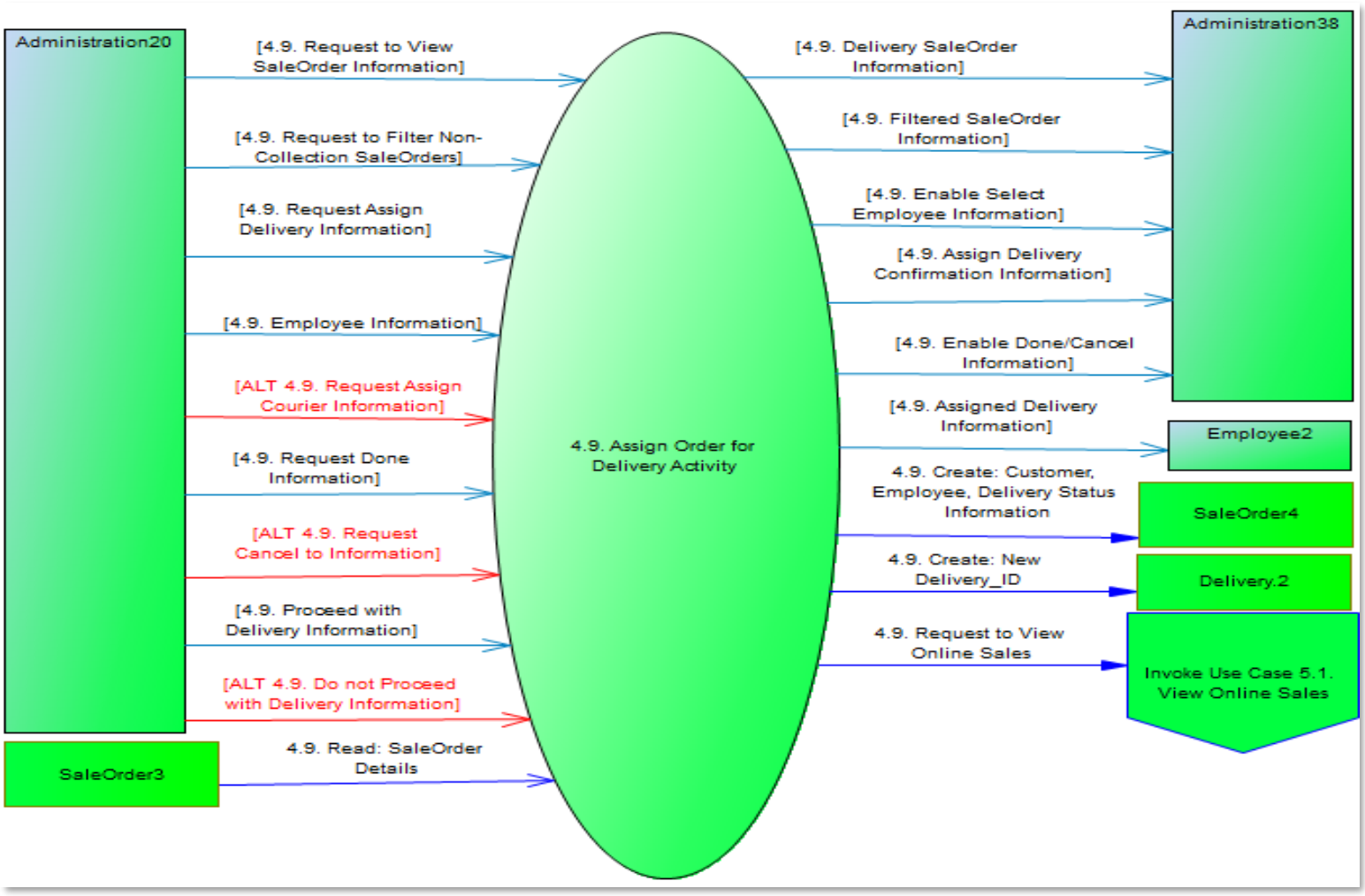


Figure 161 4.9. Assign Order for Delivery Middle Level Data Flow Diagram

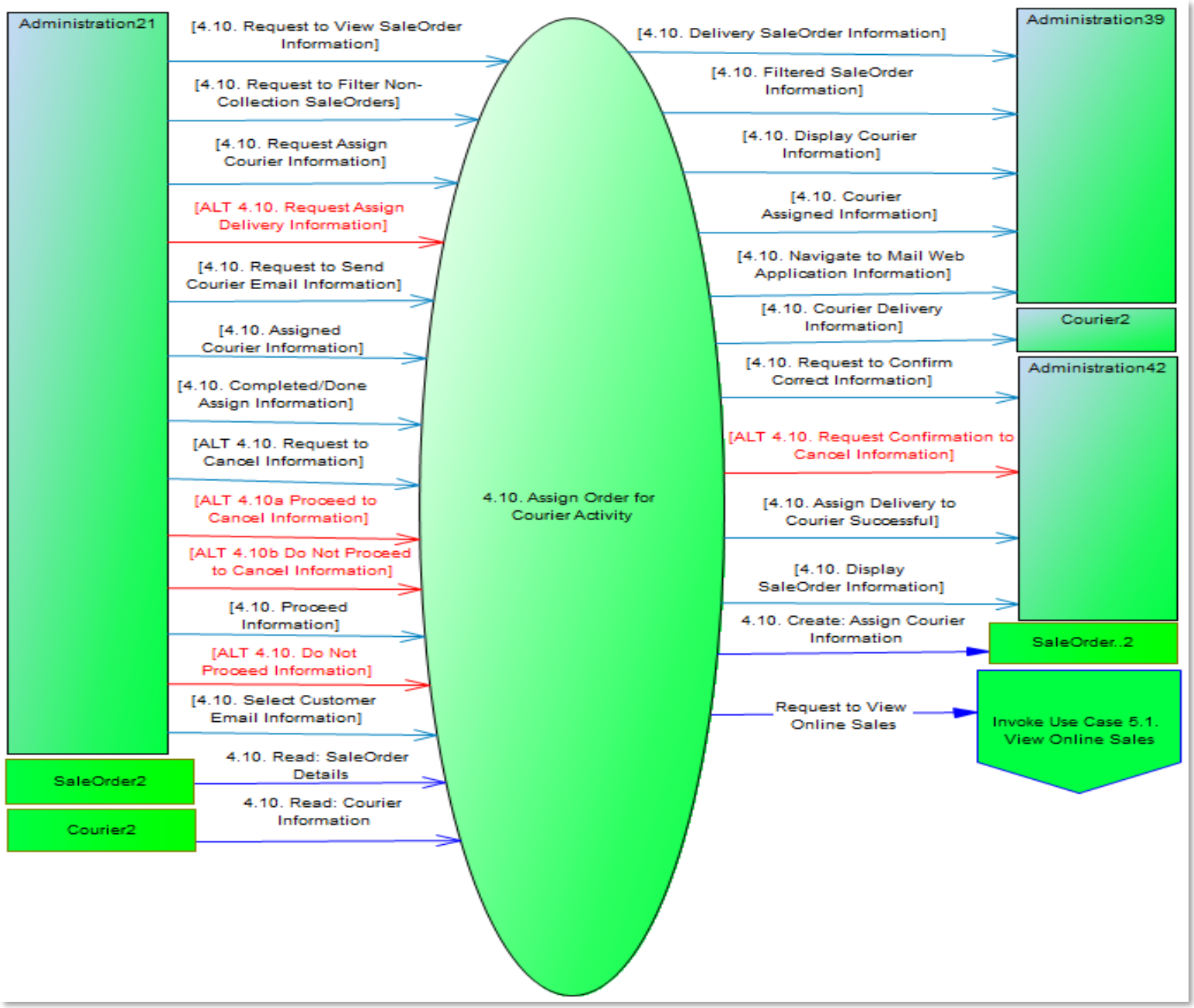


Figure 162 4.10. Assign Order for Courier Middle Level Data Flow Diagram

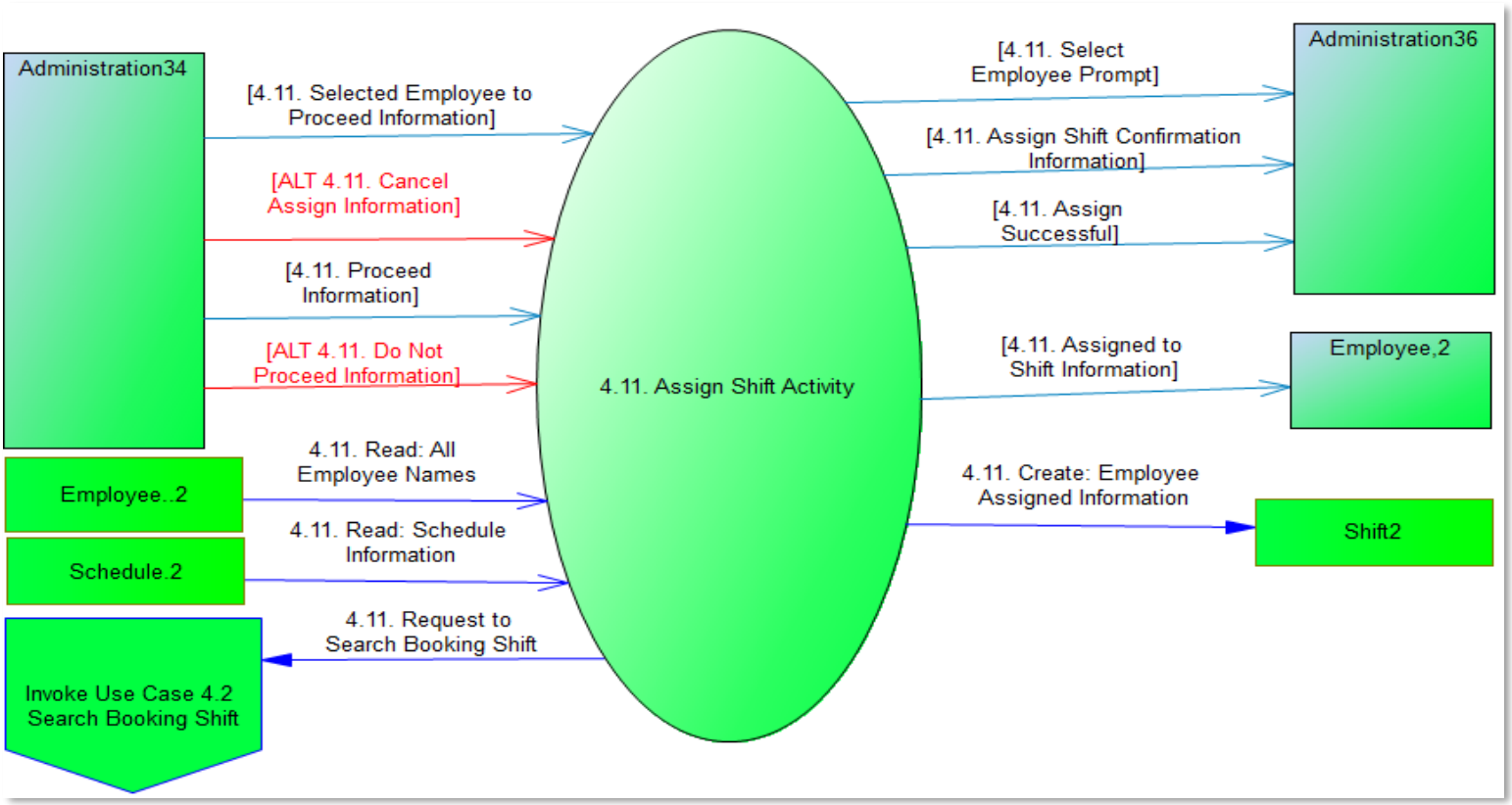


Figure 163 4.11. Assign Shift Middle Level Data Flow Diagram

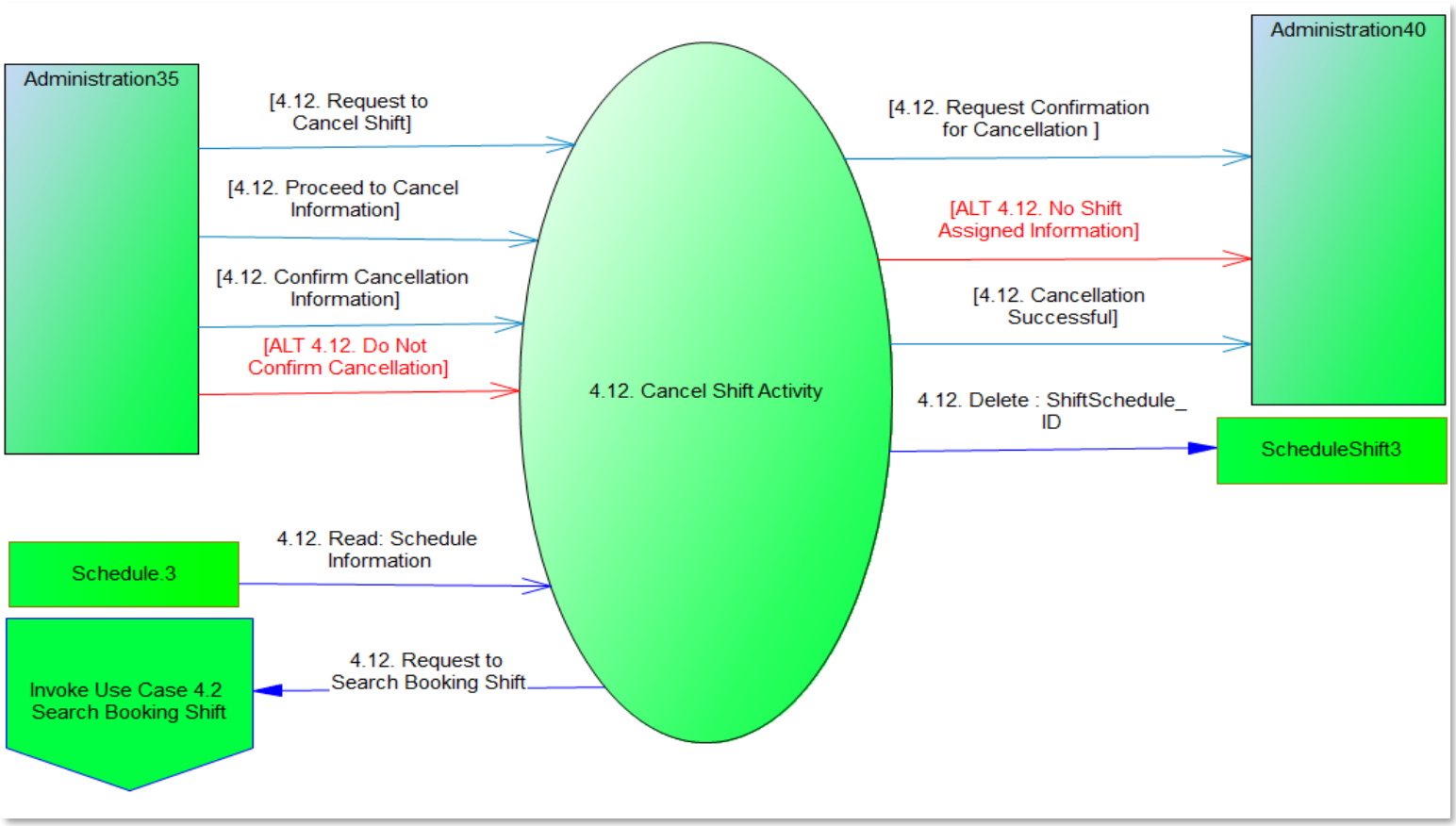


Figure 164 4.12. Cancel Shift Middle Level Data Flow Diagram

3.3.2.5. Back Office Administration Function

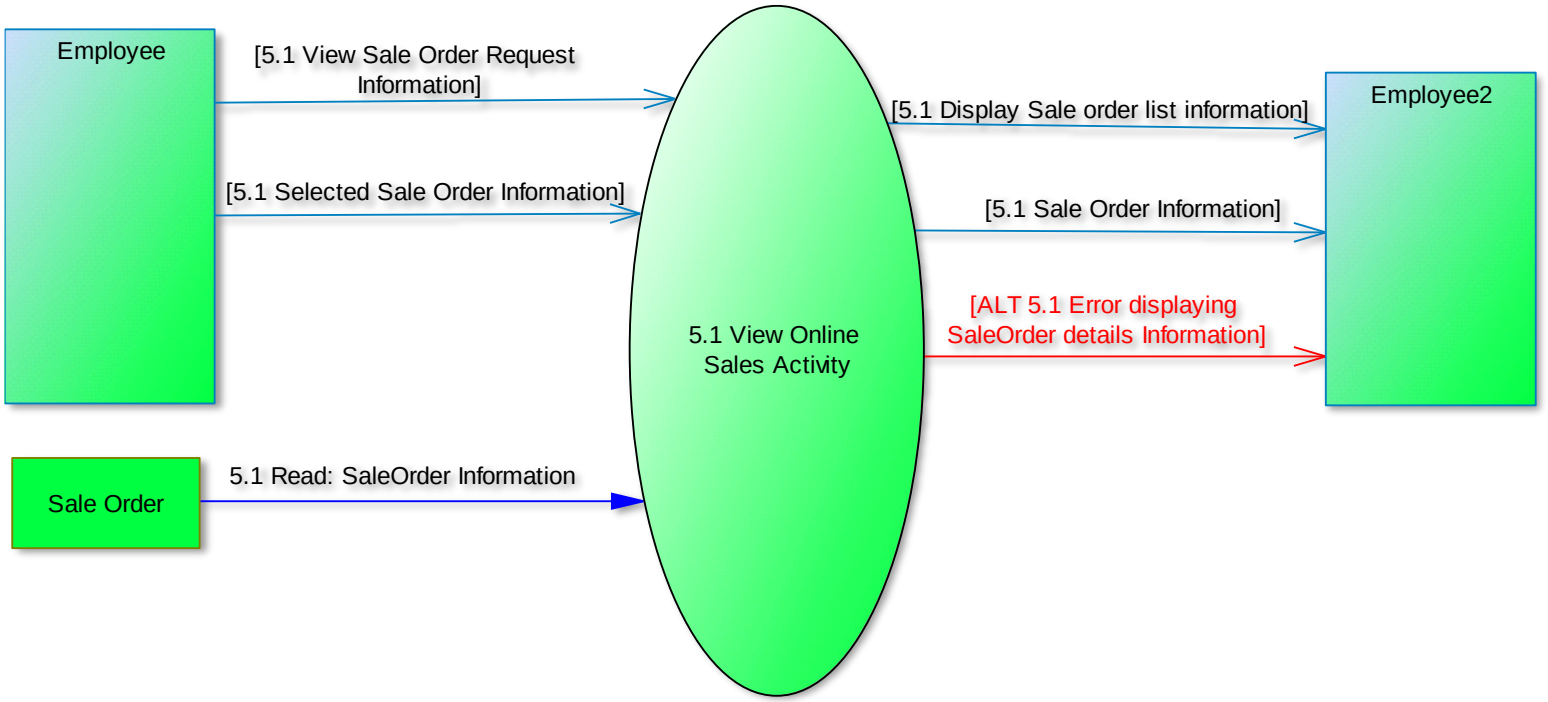


Figure 166 5.1. View Online Sales Middle Level Data Flow Diagram

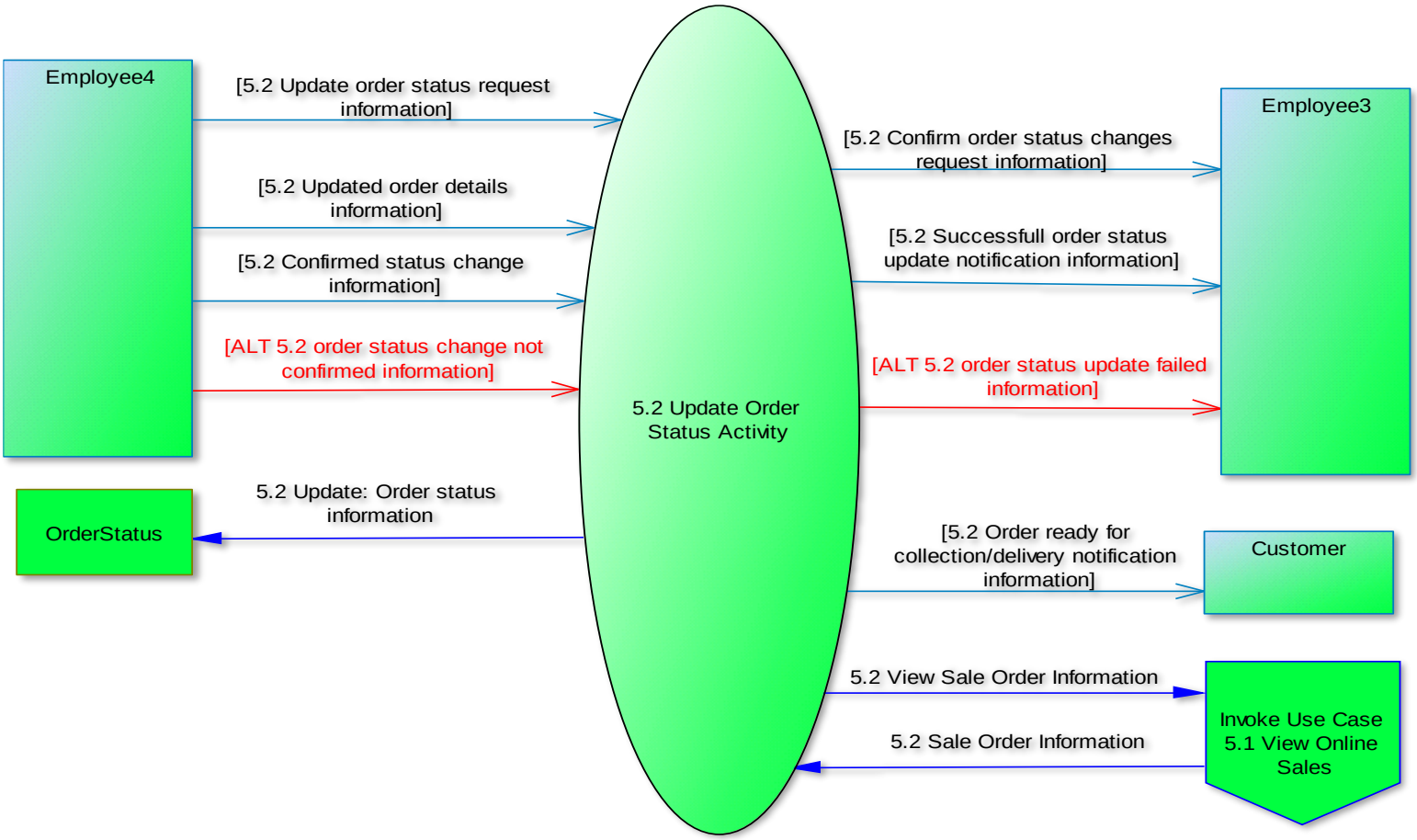


Figure 165 5.2. Update Order Status Middle Level Data Flow Diagram

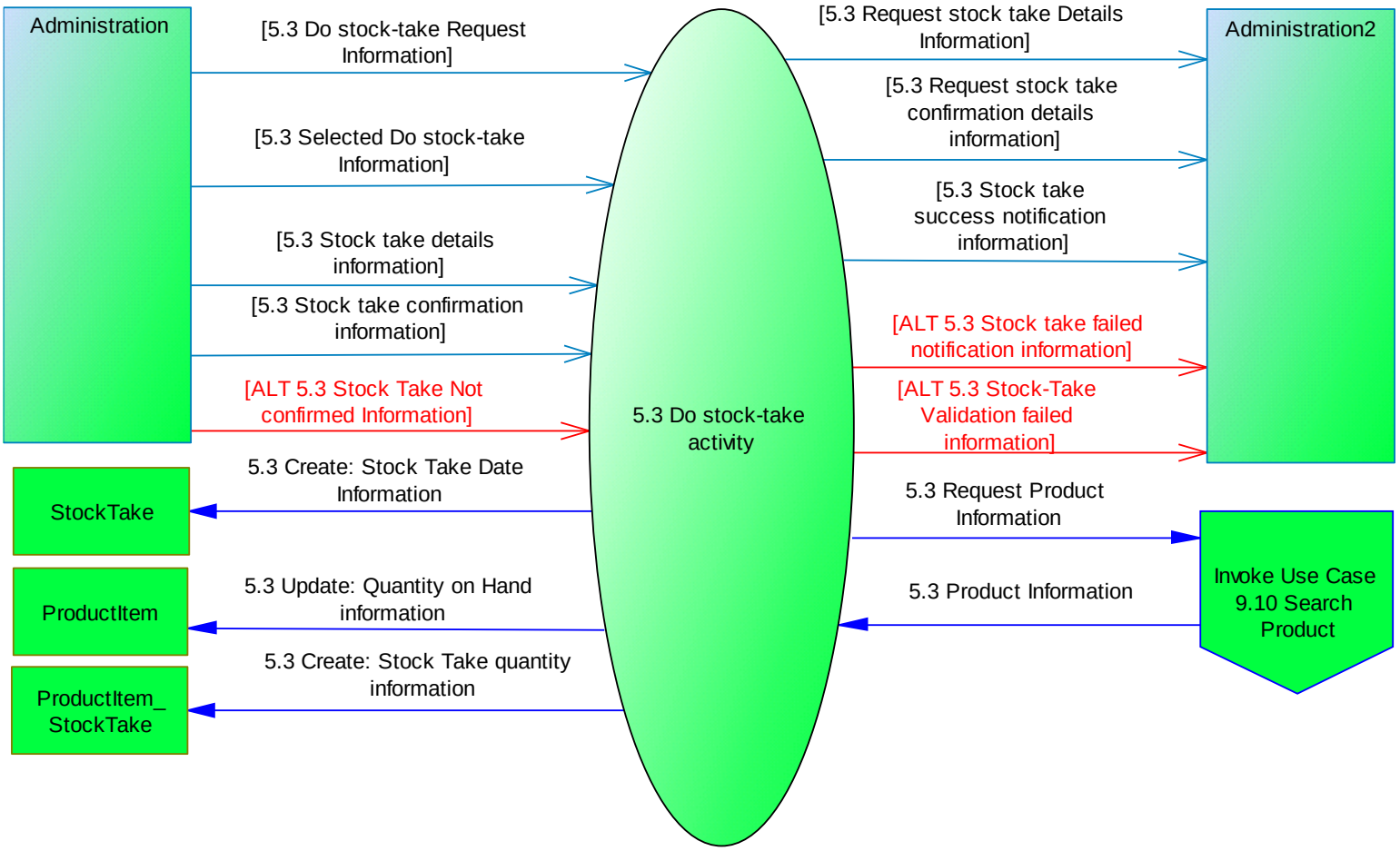


Figure 168 5.3. Do Stock Take Middle Level Data Flow Diagram

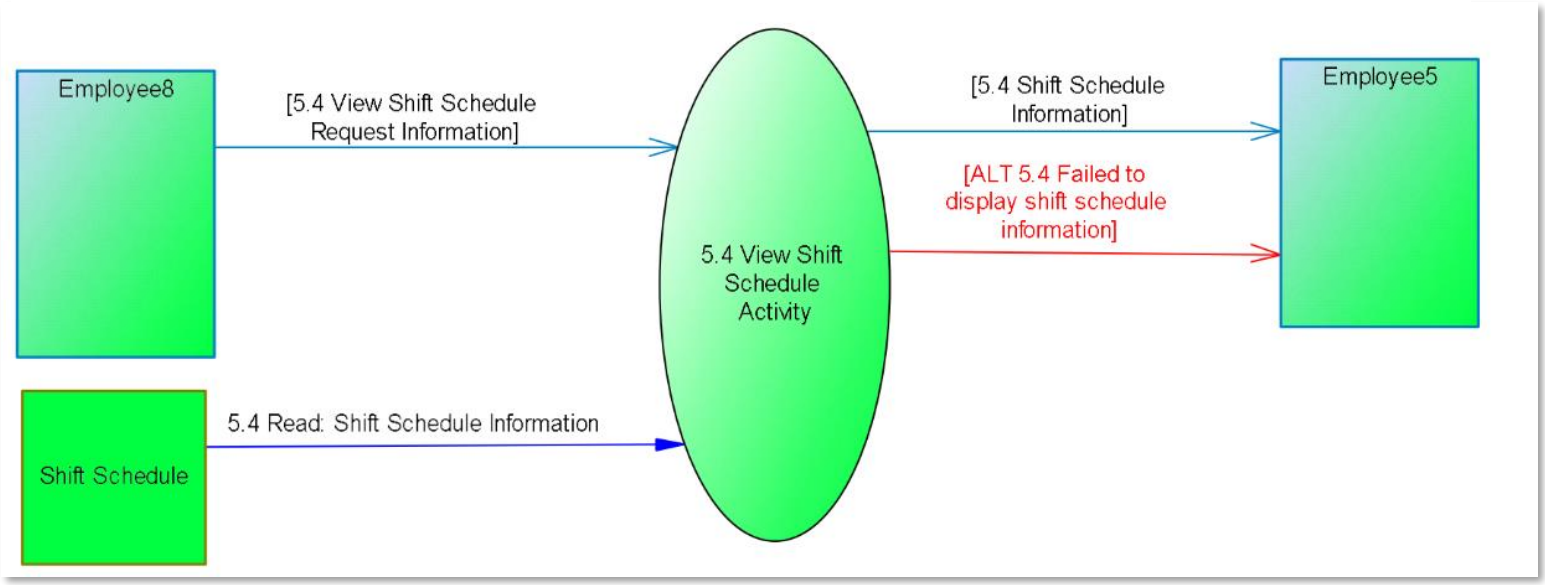


Figure 167 5.4. View Shift Schedule Middle Level Data Flow Diagram

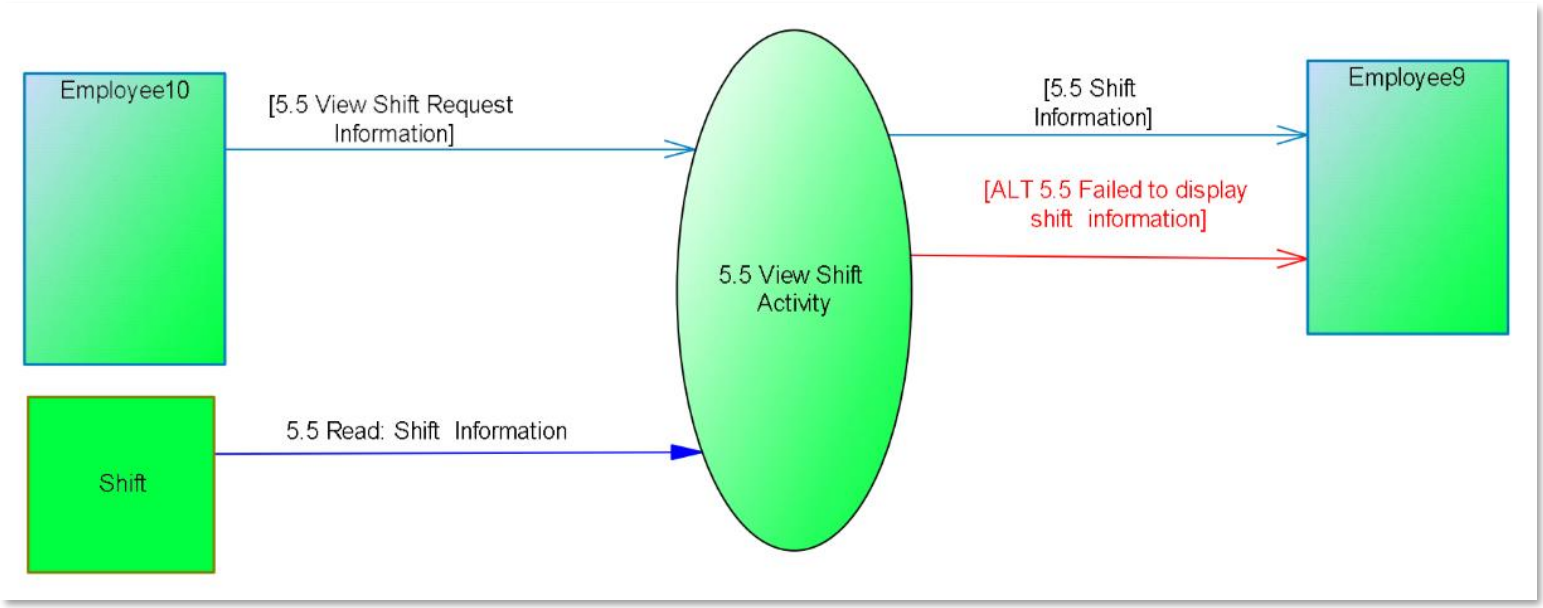


Figure 170 5.5. View Shift Middle Level Data Flow Diagram

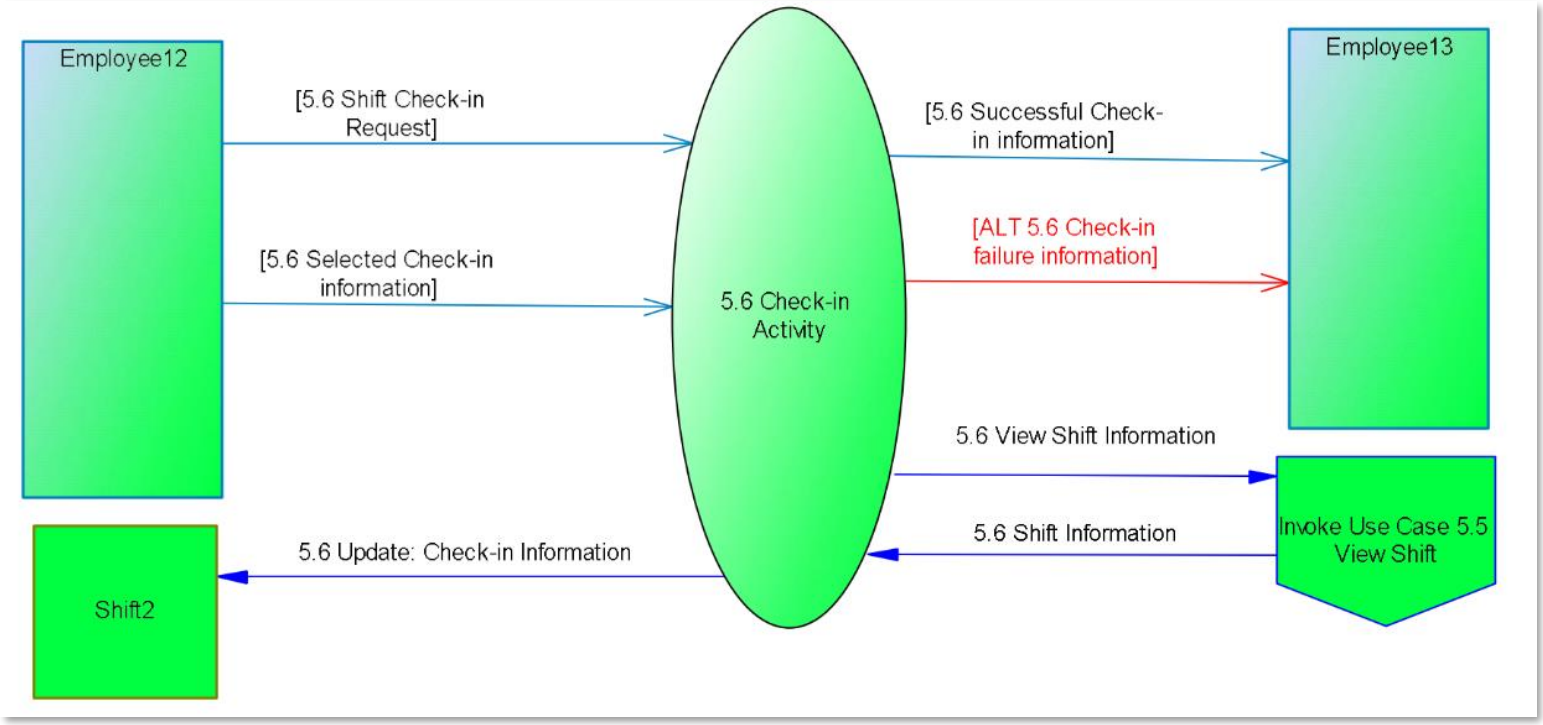


Figure 169 5.6. Check-In Middle Level Data Flow Diagram

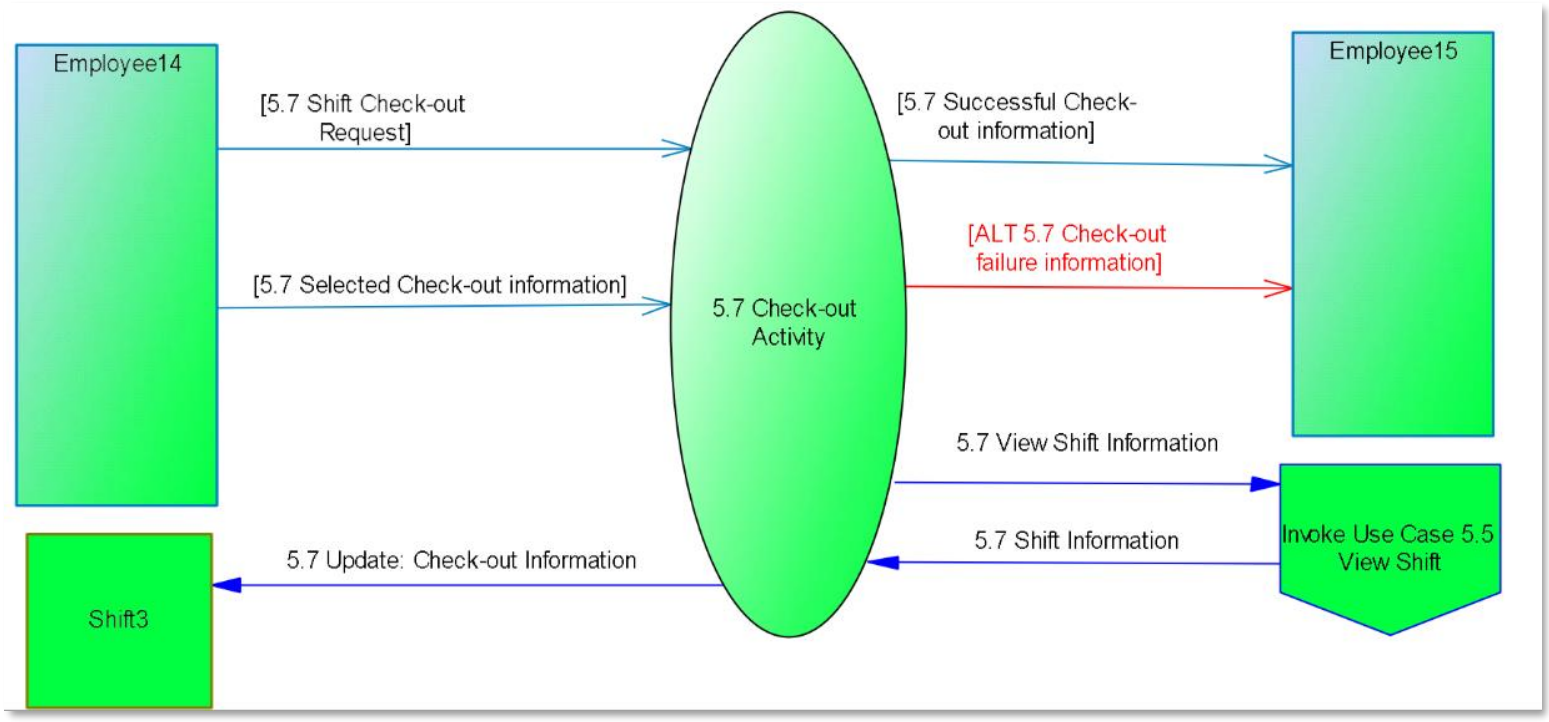


Figure 171 5.7. Check Out Middle Level Data Flow Diagram

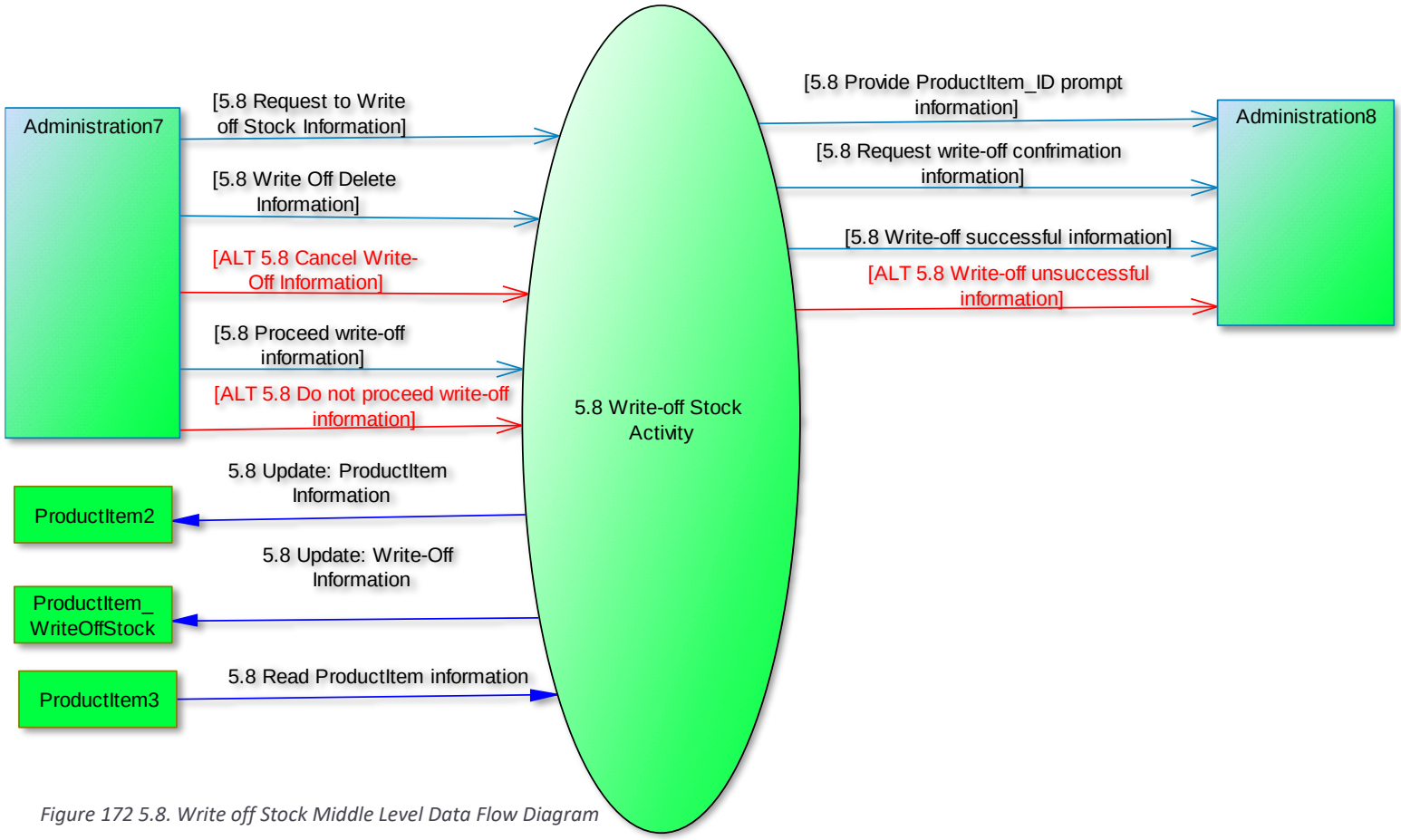


Figure 172 5.8. Write off Stock Middle Level Data Flow Diagram

3.3.2.6 Customer Activity

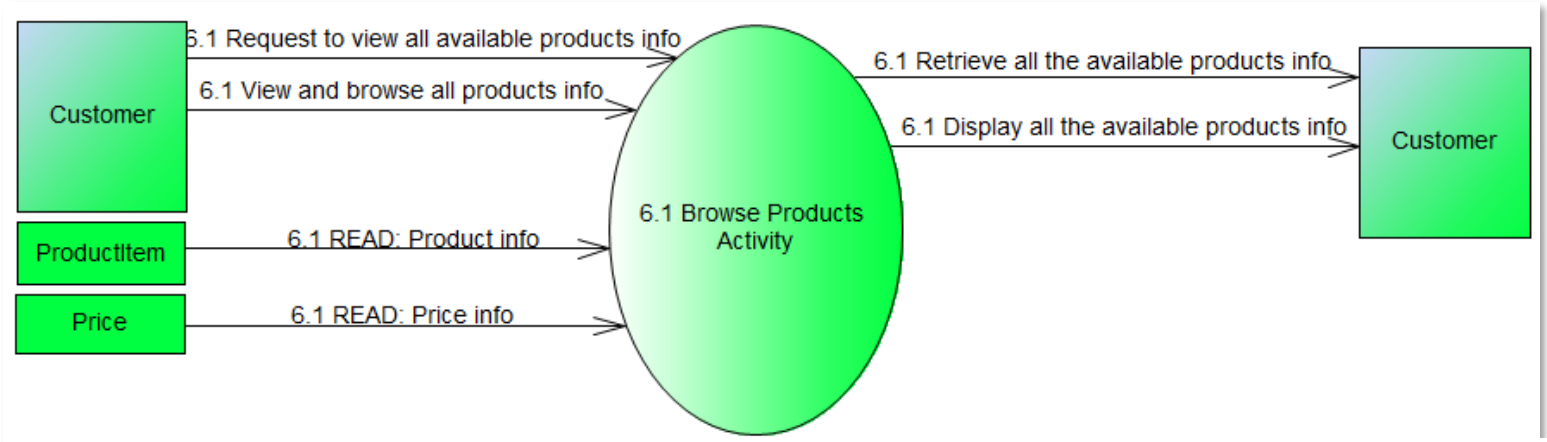


Figure 175 6.1. Browse Products Middle Level Data Flow Diagram

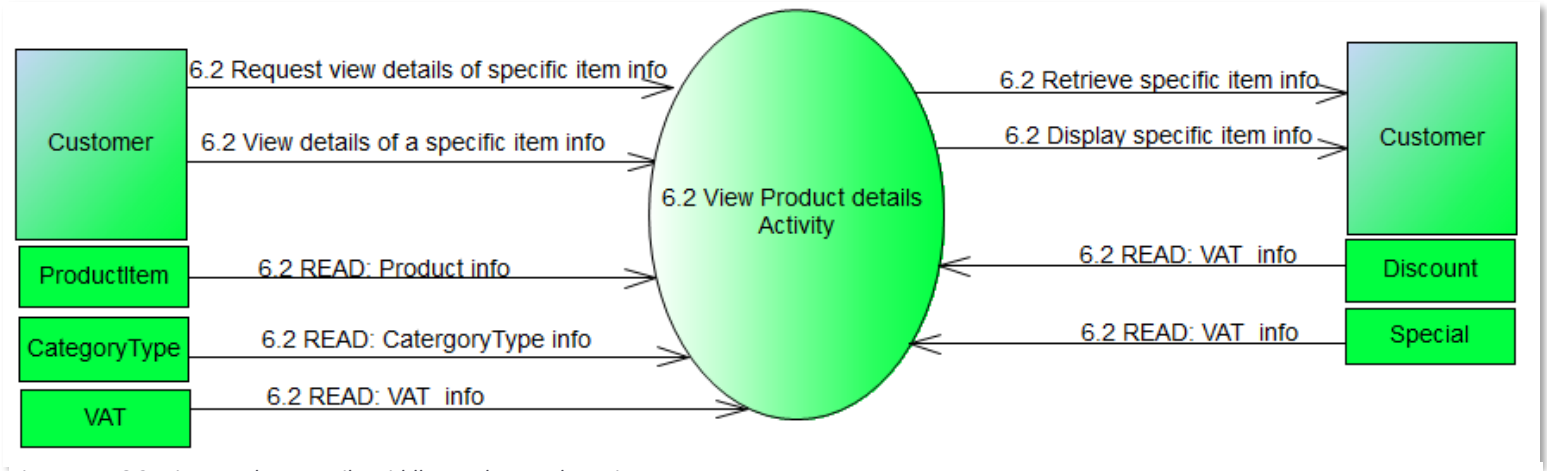


Figure 174 6.2. View Product Details Middle Level Data Flow Diagram

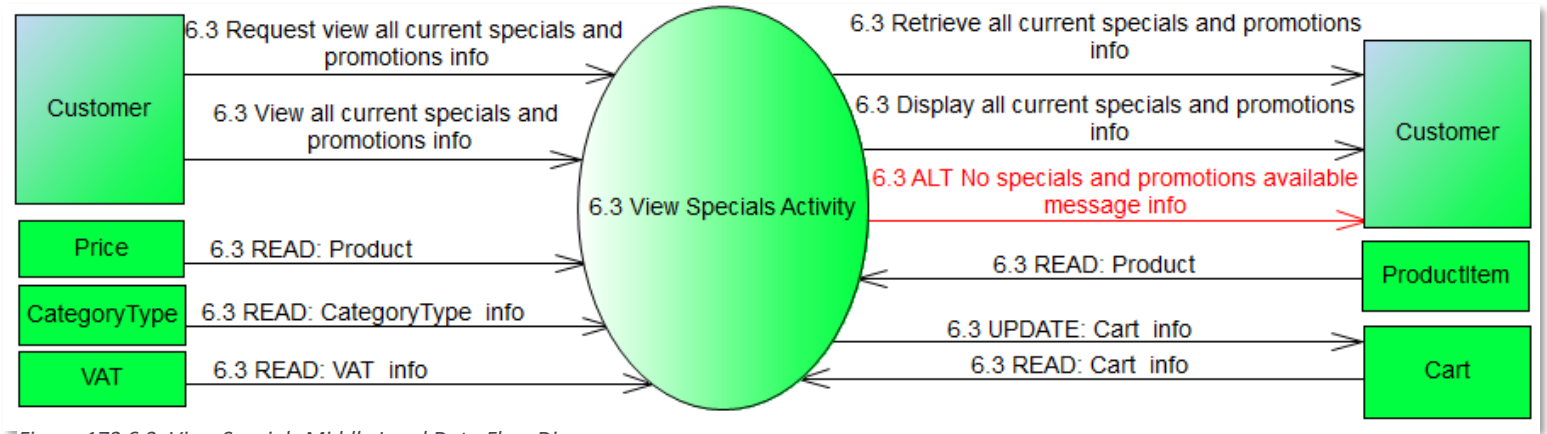


Figure 173 6.3. View Specials Middle Level Data Flow Diagram

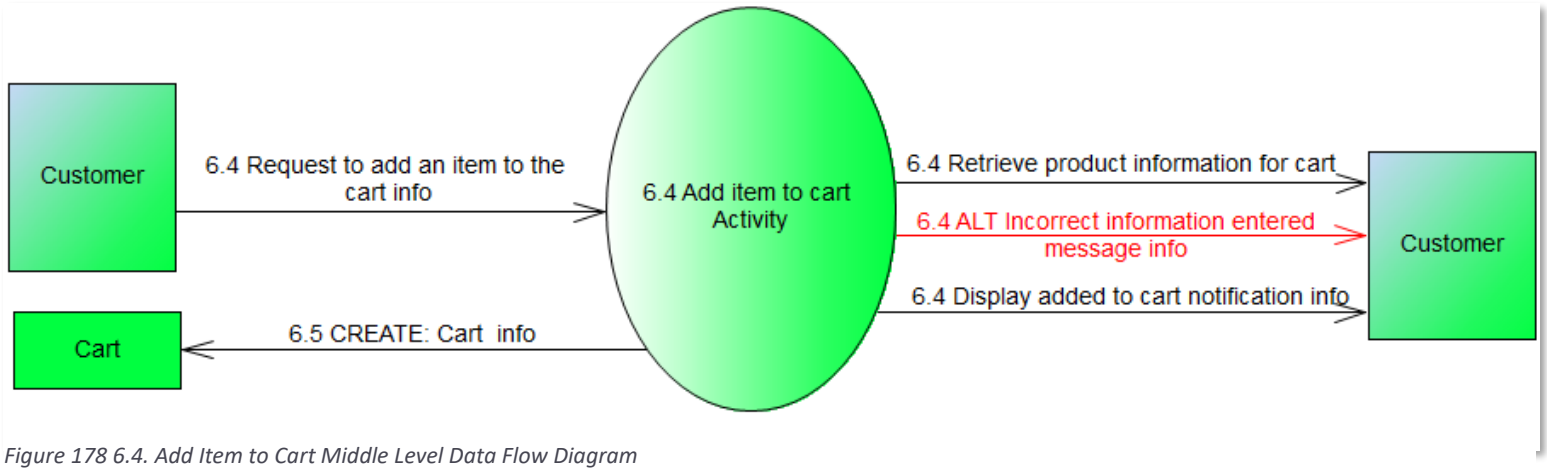


Figure 178 6.4. Add Item to Cart Middle Level Data Flow Diagram

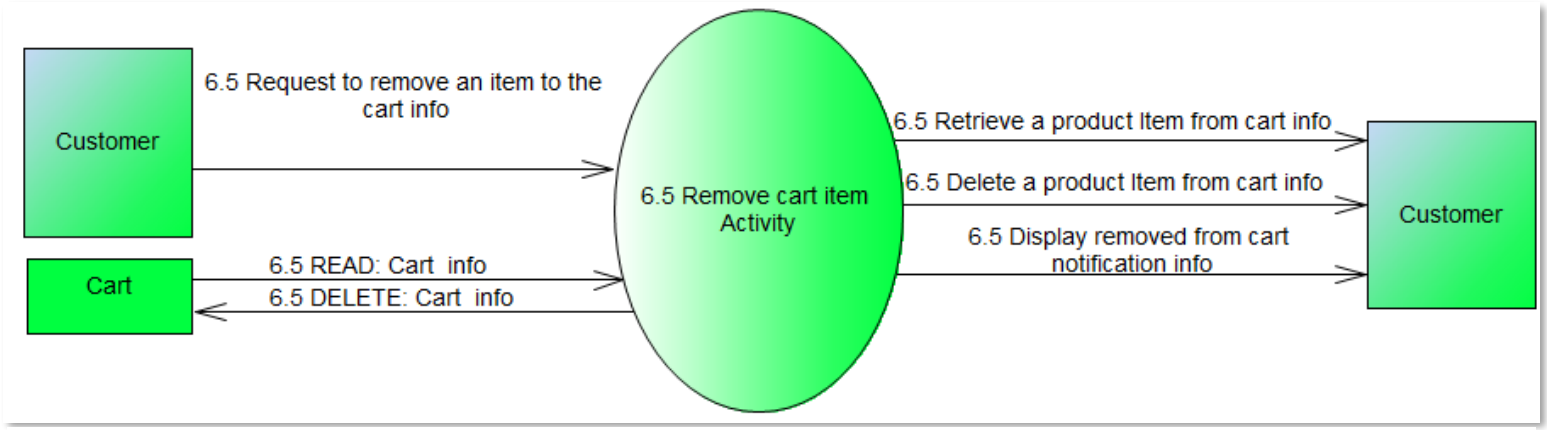


Figure 177 6.5. Remove Cart Item Middle Level Data Flow Diagram

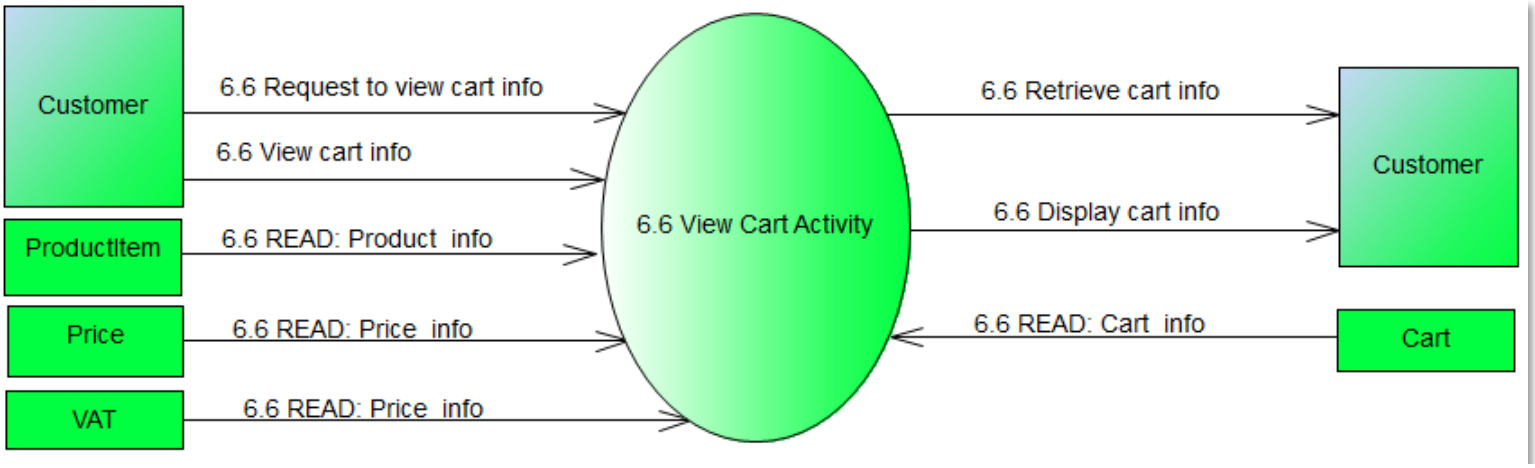


Figure 176 6.6. View Cart Middle Level Data Flow Diagram

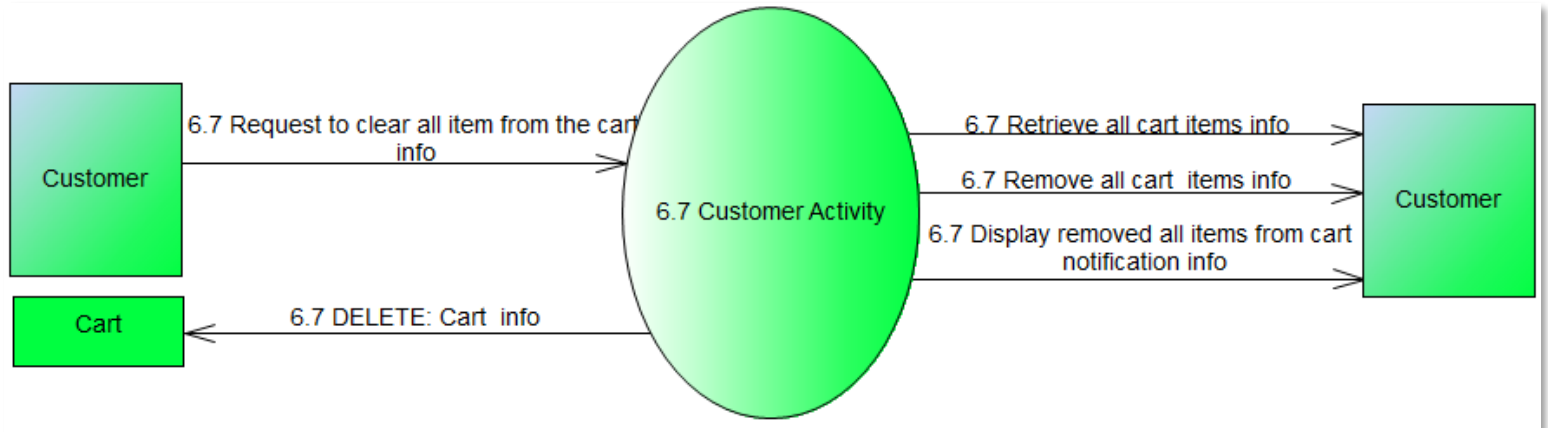


Figure 179 6.7. Middle Level Data Flow Diagram

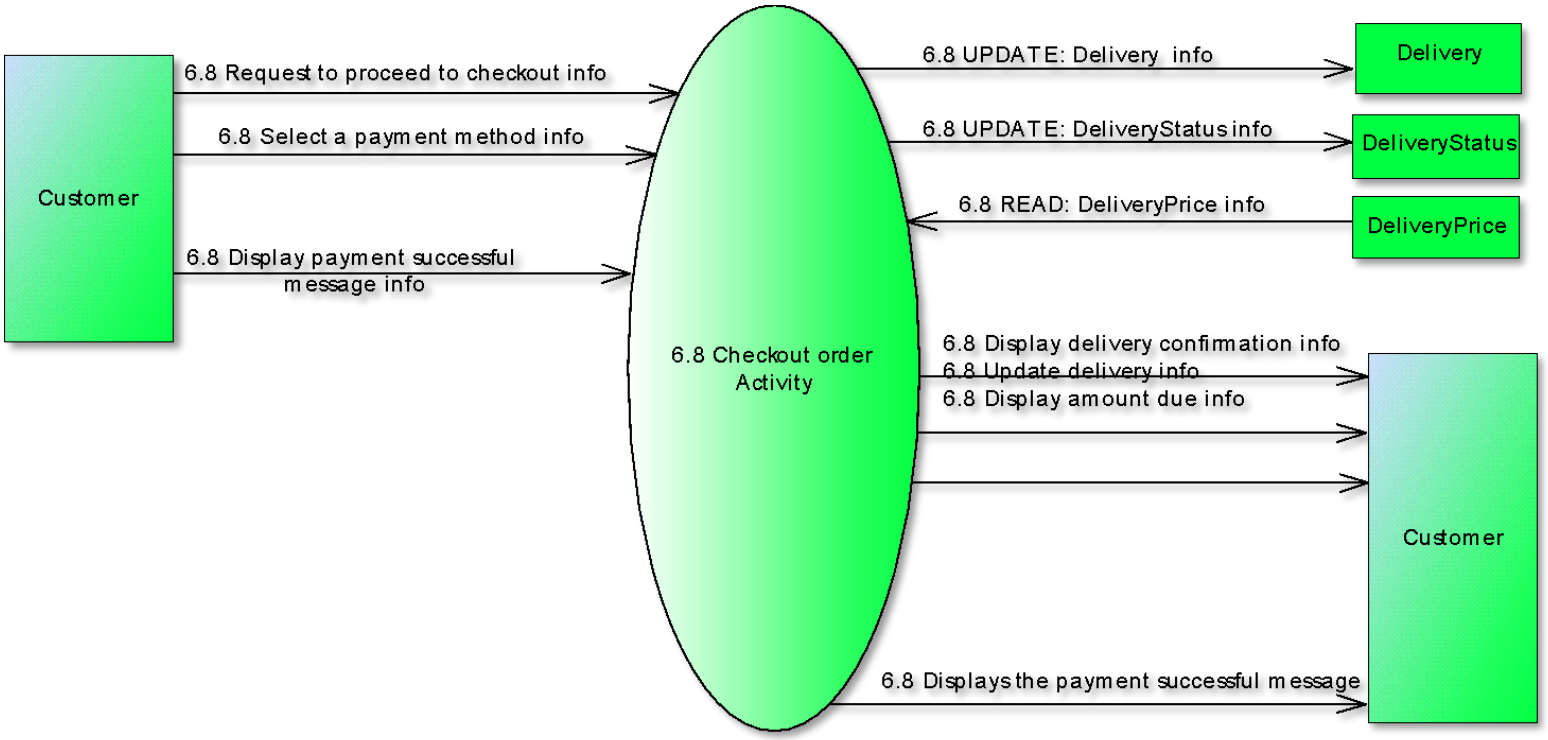


Figure 180 6.8. Checkout Order Middle Level Data Flow Diagram

3.3.2.7 Reports Activity

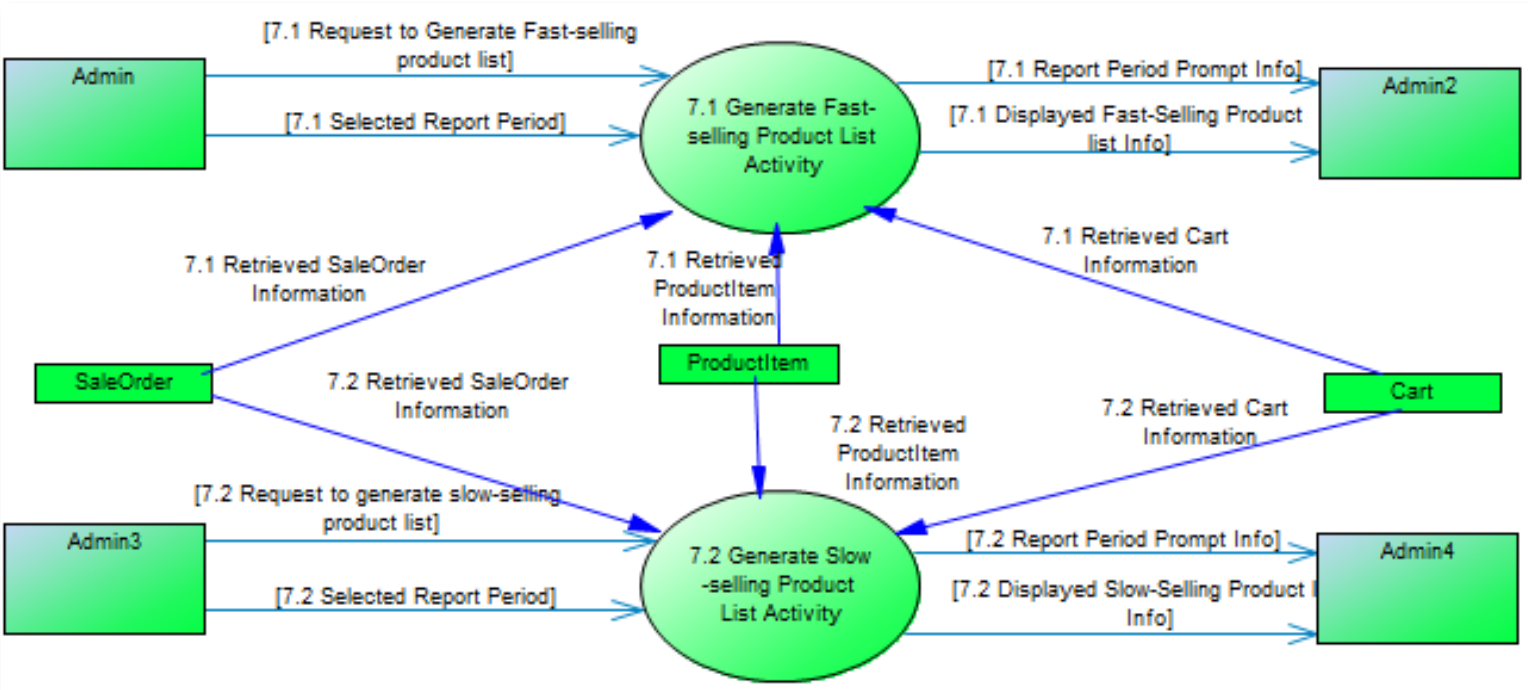


Figure 181 7.1 & 7.2. Middle Level Data Flow Diagram



Figure 182 7.3. Generate Most Frequent Buyers Report Middle Level Diagram



Figure 183 7.4. Generate Most Popular Location Report Middle Level Diagram



Figure 184 7.5. Generate Weekly SaleOrder List Middle Level Diagram



Figure 185 7.6. Generate Monthly SaleOrder List Middle Level Diagram



Figure 188 7.7. Generate Stock Level Report Middle Level Diagram



Figure 187 7.8. Packing Report Middle Level Diagram



Figure 186 7.9. Delivery Report Middle Level Diagram

3.3.2.8 Delivery Activity

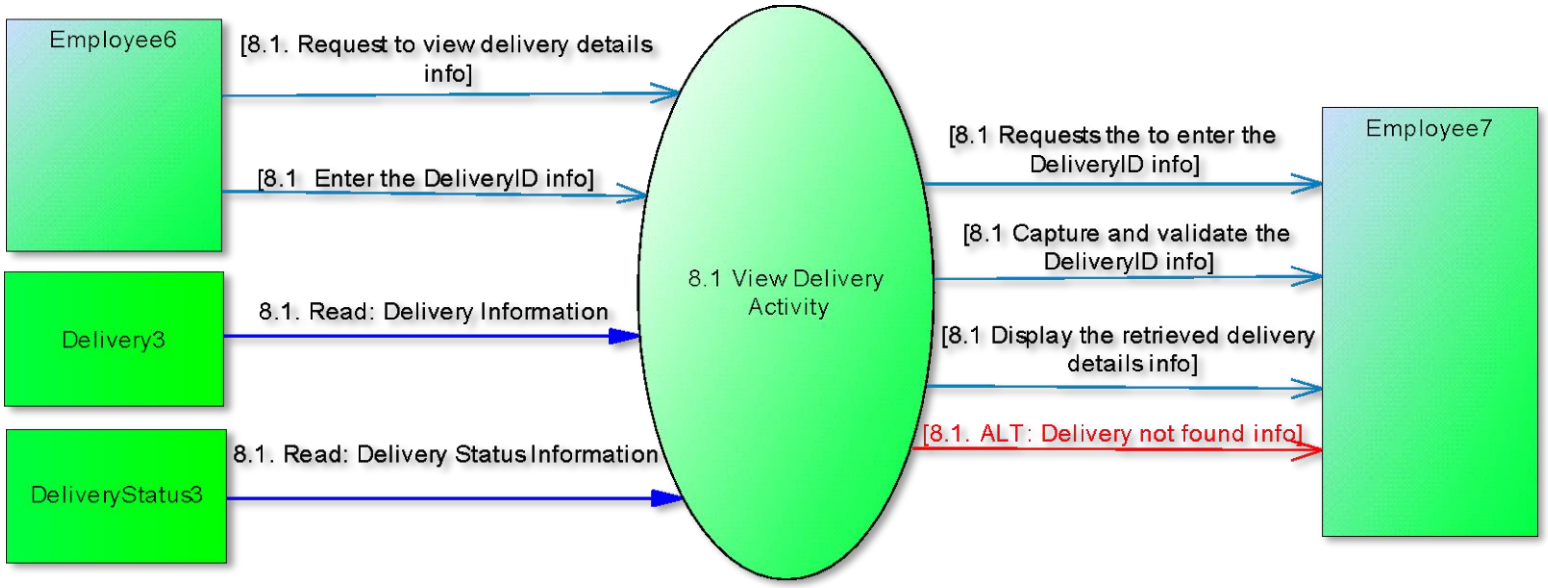


Figure 189 8.1. View Delivery Middle Level Data Flow Diagram

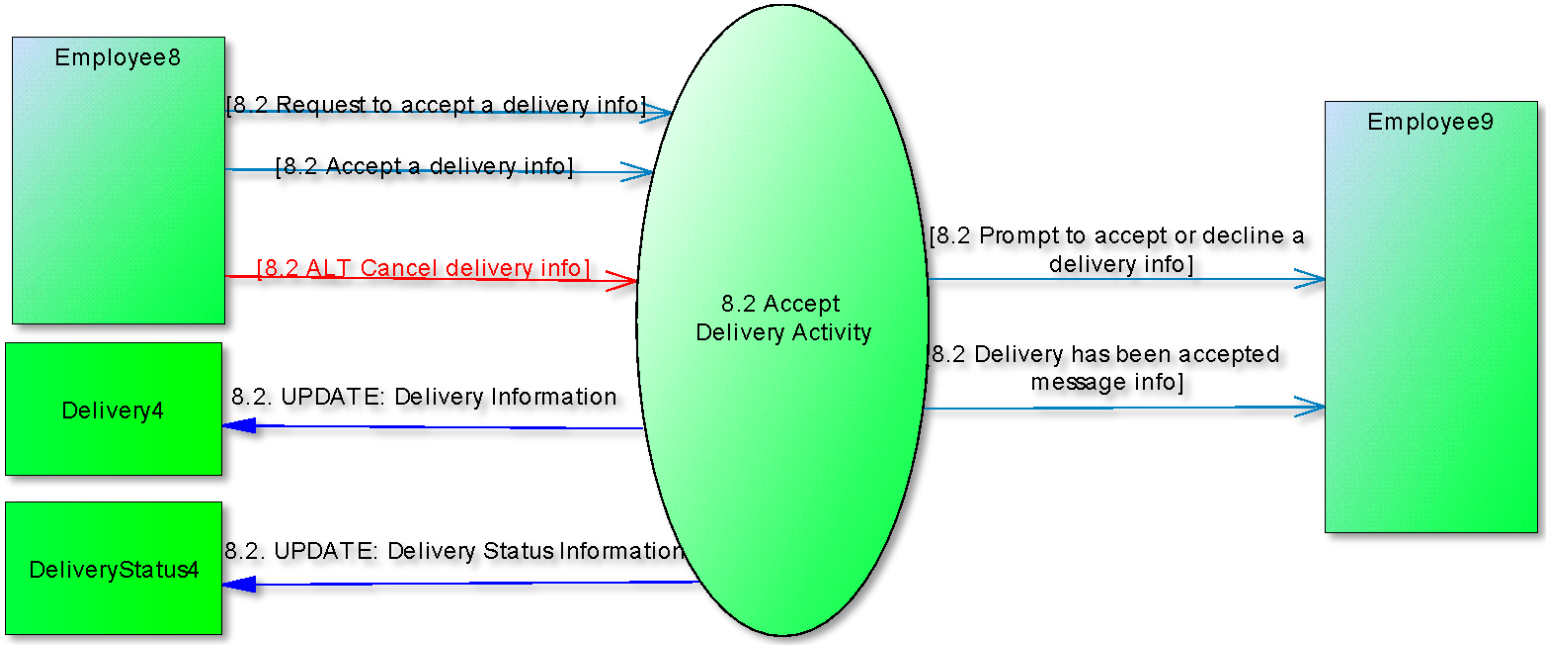


Figure 190 8.2. Accept Delivery Middle Level Data Flow Diagram

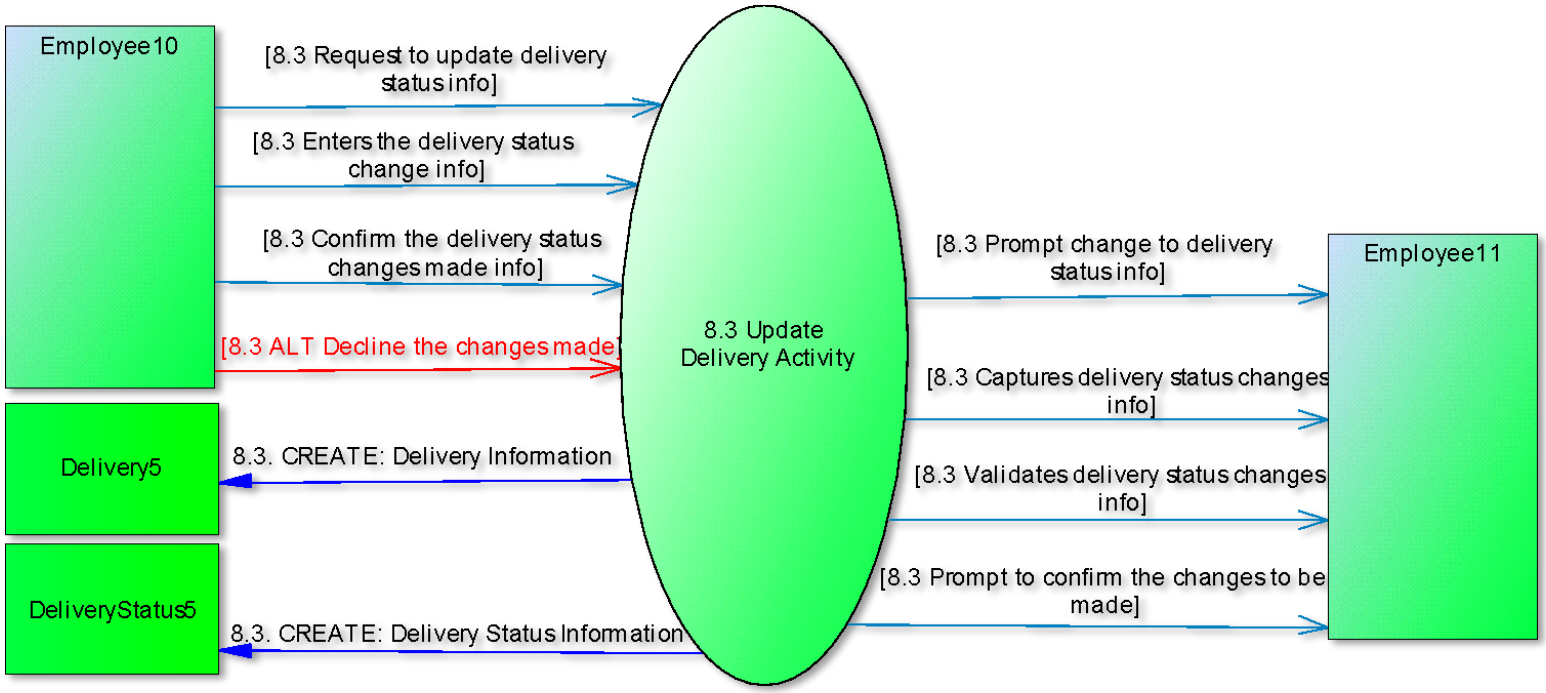


Figure 191 8.3. Update Delivery Middle Level Data Flow Diagram

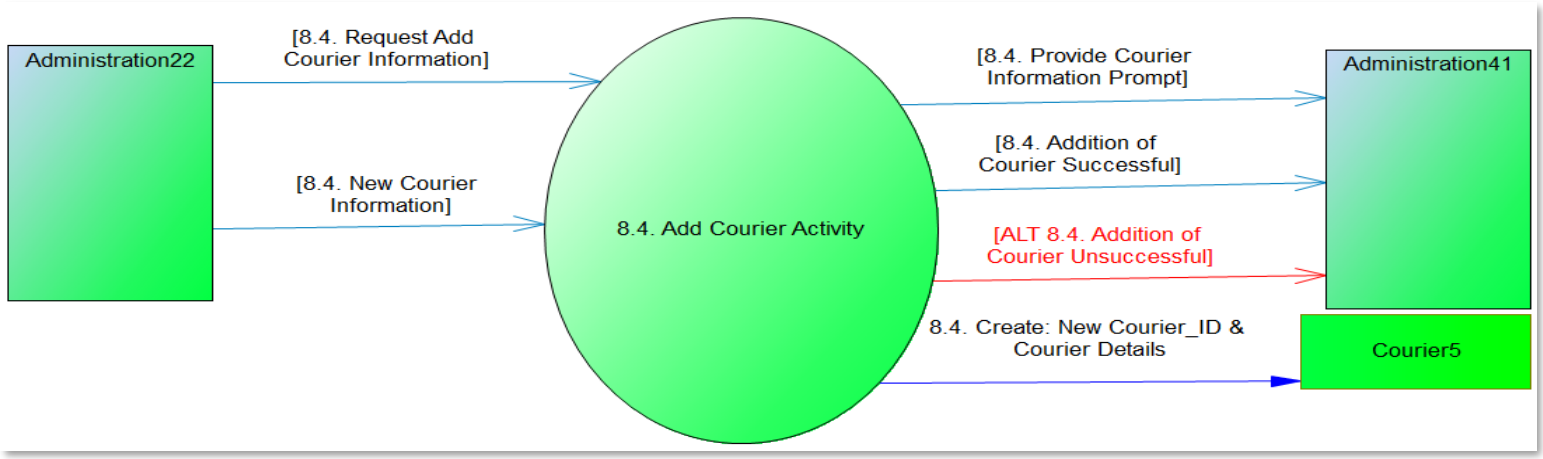


Figure 192 8.4. Add Courier Middle Level Data Flow Diagram

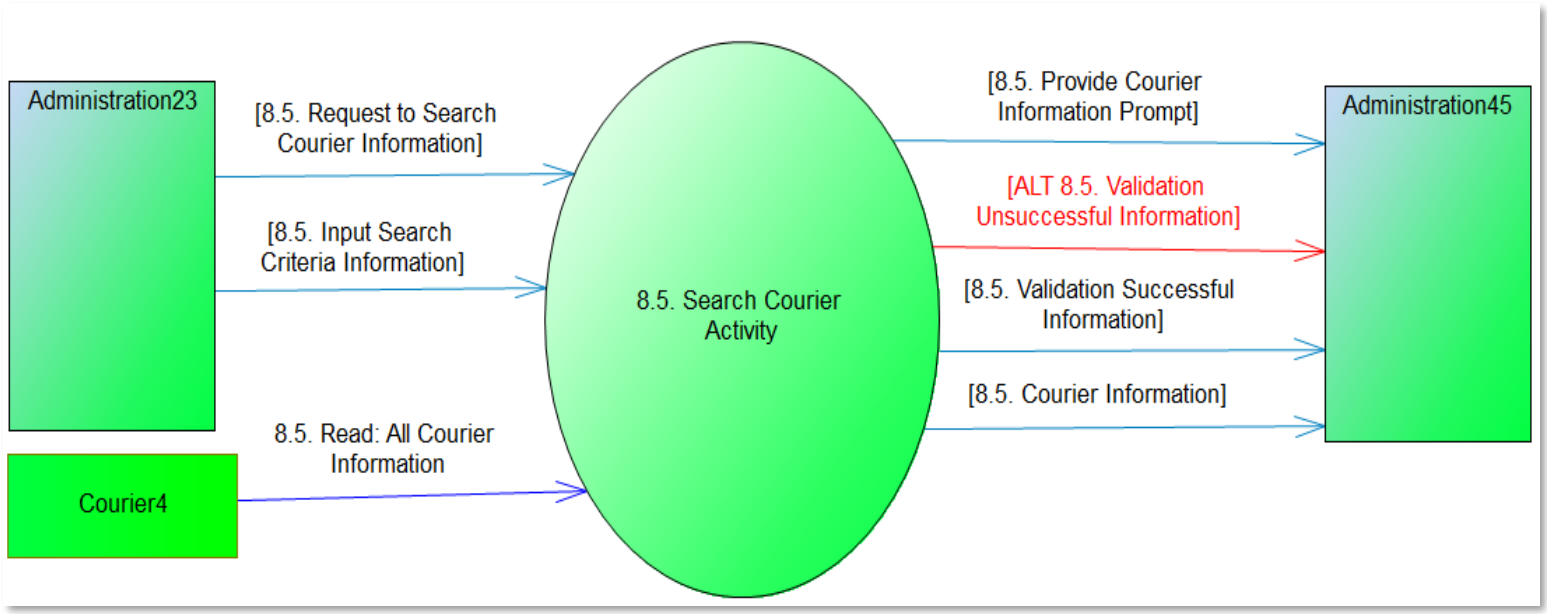


Figure 194 8.5. Search Courier Middle Level Data Flow Diagram

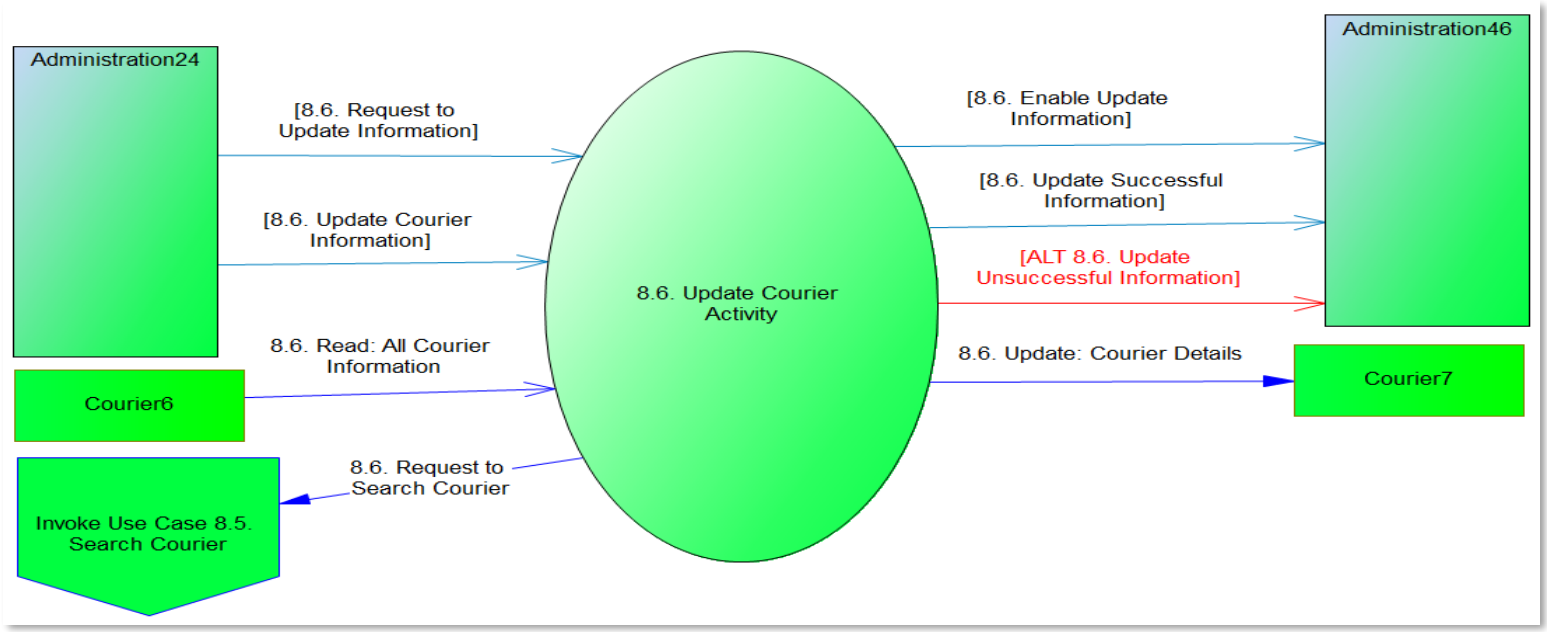


Figure 193 8.6. Update Courier Middle Level Data Flow Diagram

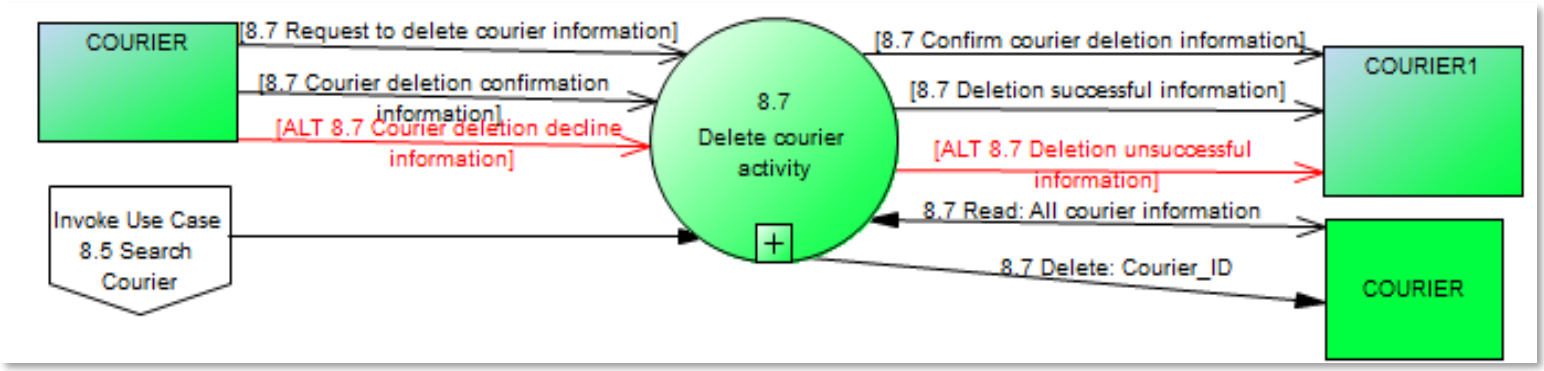


Figure 195 8.7. Delete Courier Middle Level Data Flow Diagram

3.3.2.9 Product Activity

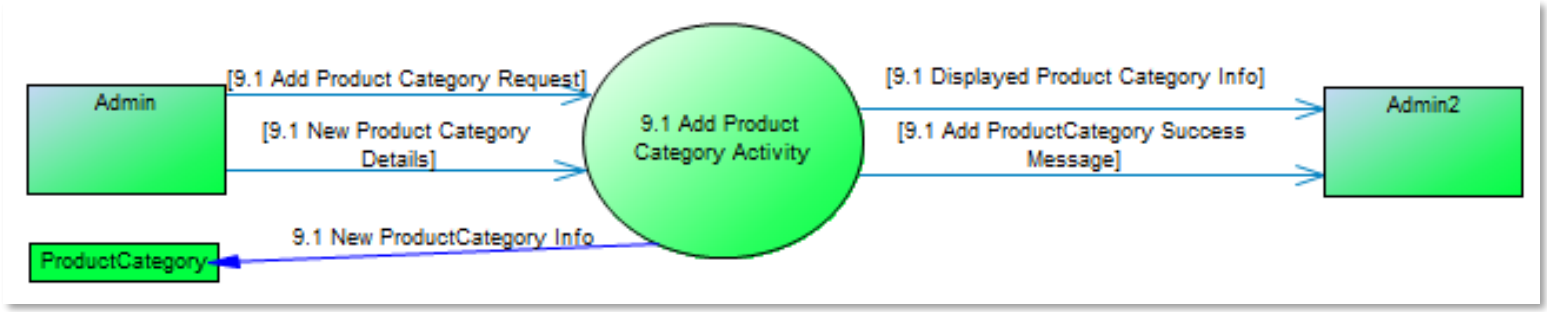


Figure 198 9.1. Add Product Category Middle Level Data Flow Diagram

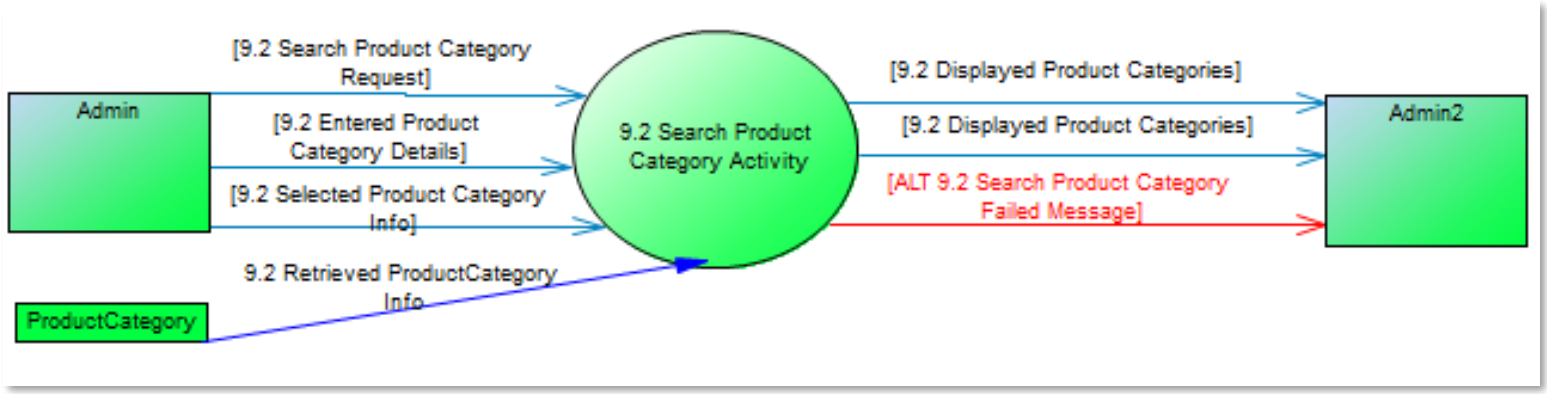


Figure 197 9.2. Search Product Category Middle Level Data Flow Diagram

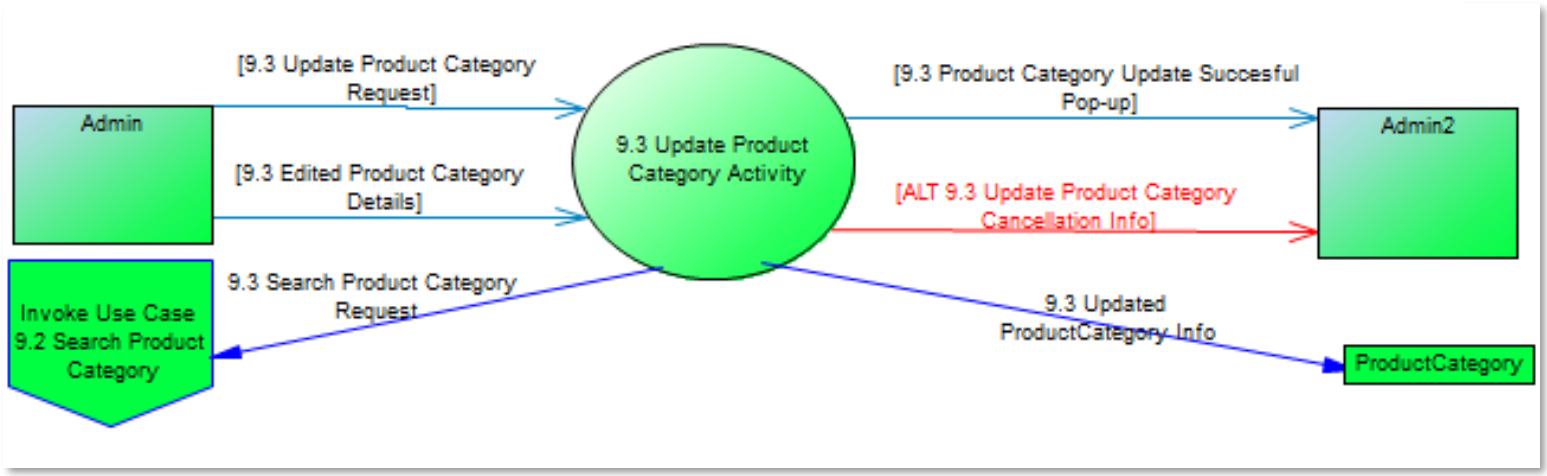


Figure 196 9.3. Update Product Category Middle Level Data Flow Diagram

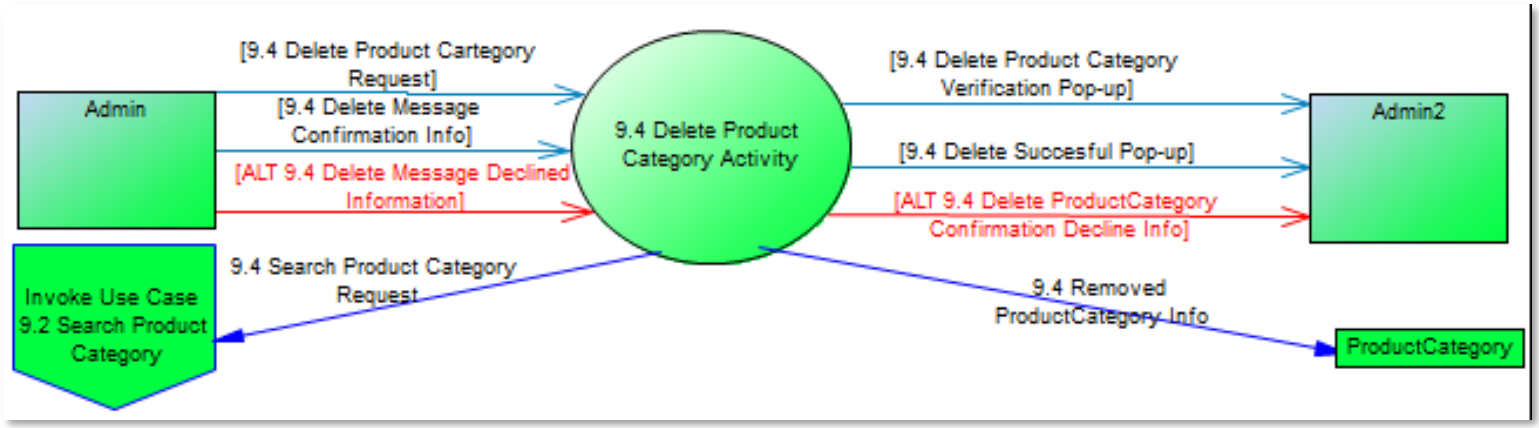


Figure 201 9.4. Delete Product Category Middle Level Data Flow Diagram

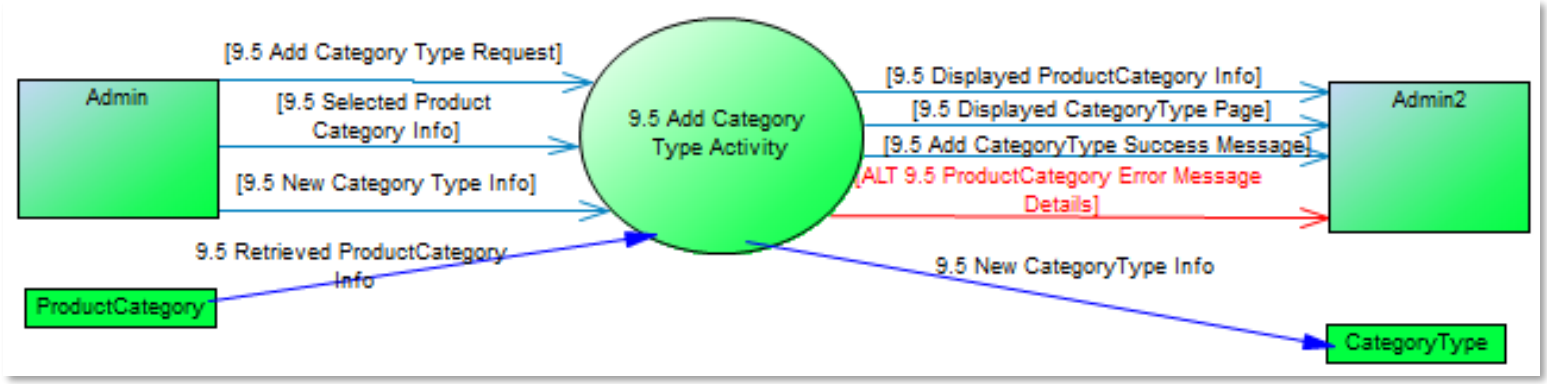


Figure 200 9.5. Add Category Type Middle Level Data Flow Diagram

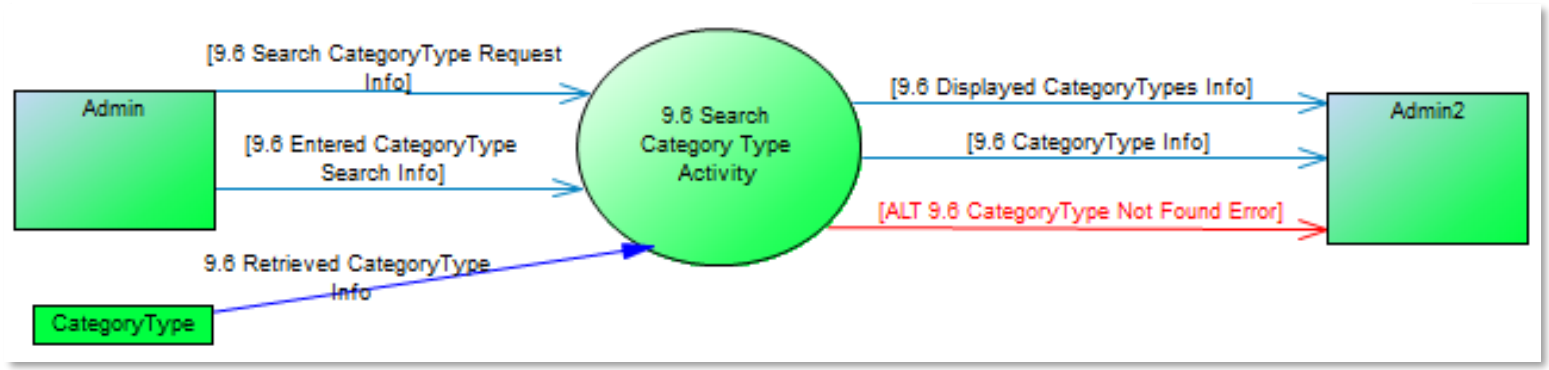


Figure 199 9.6. Search Category Type Middle Level Data Flow Diagram

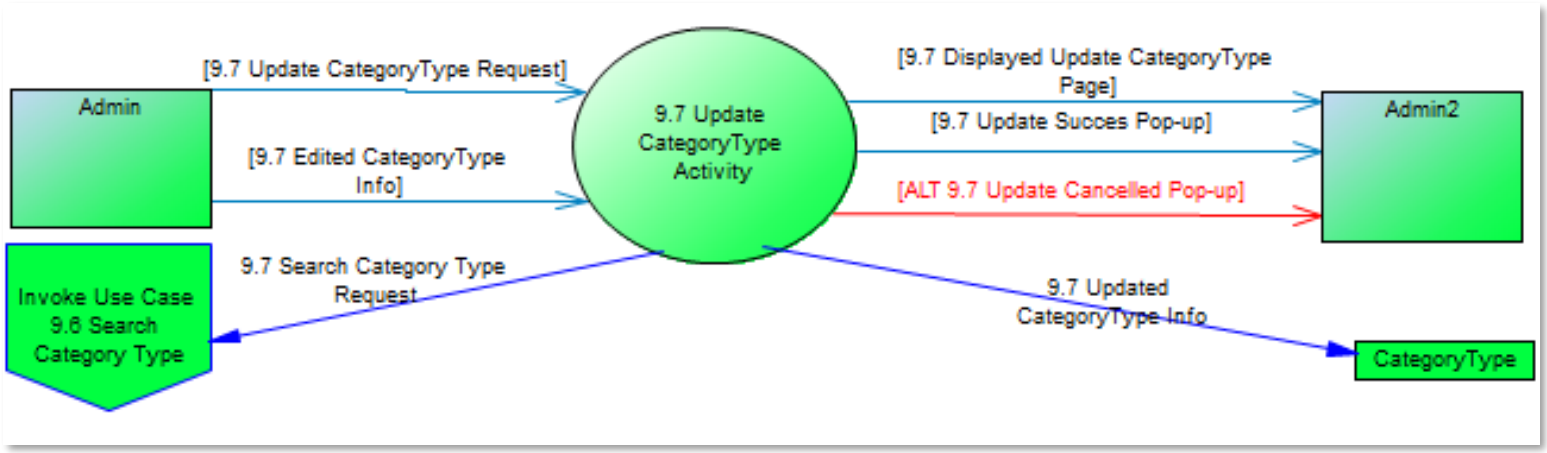


Figure 201 9.7. Update Category Type Middle Level Data Flow Diagram

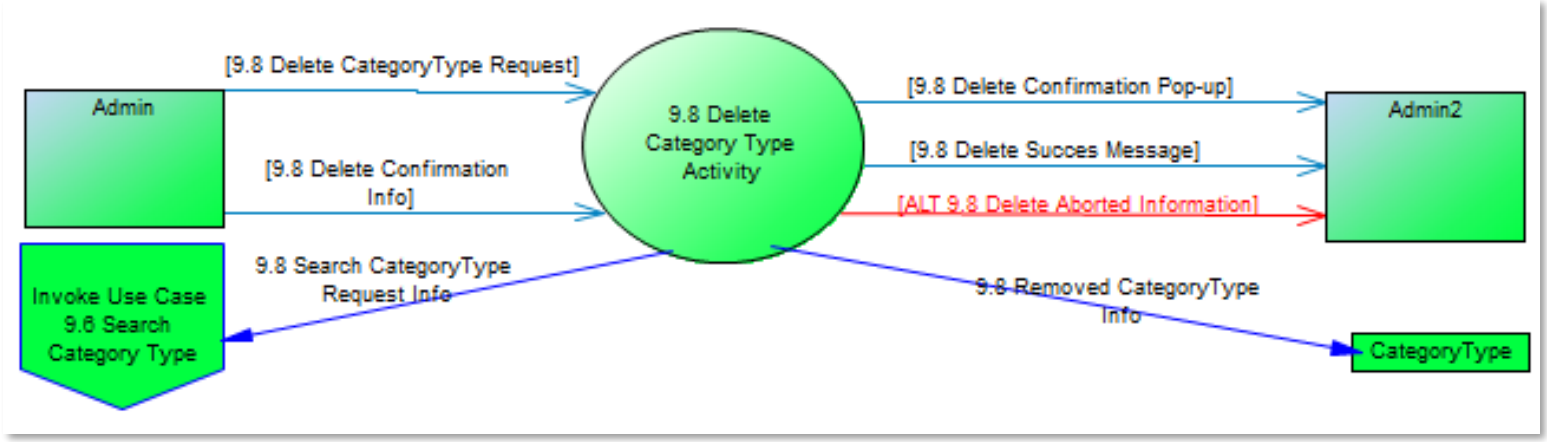


Figure 202 9.8. Delete Category Type Middle Level Data Flow Diagram

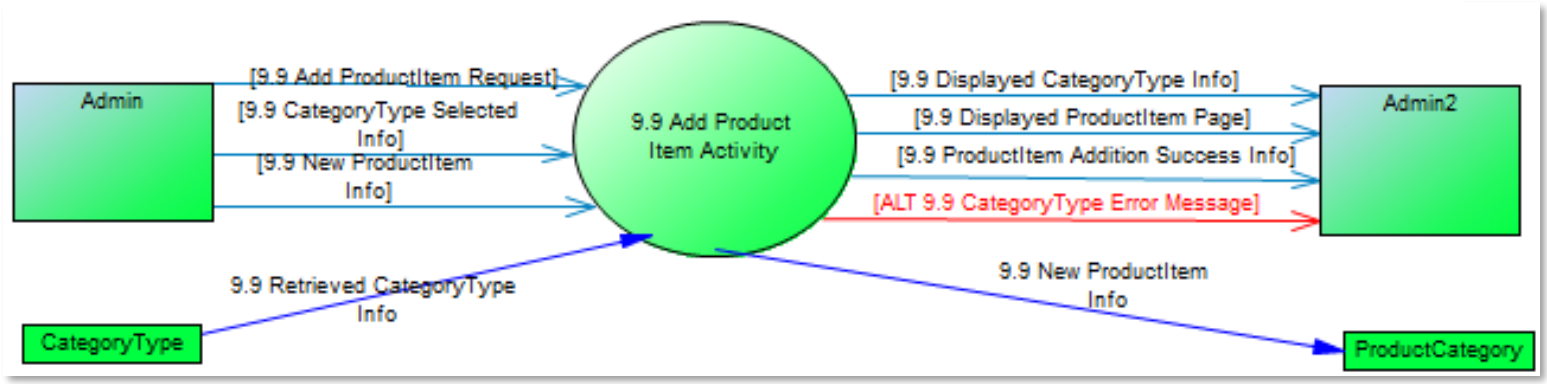


Figure 20203 9.9. Add Product Item Middle Level Data Flow Diagram

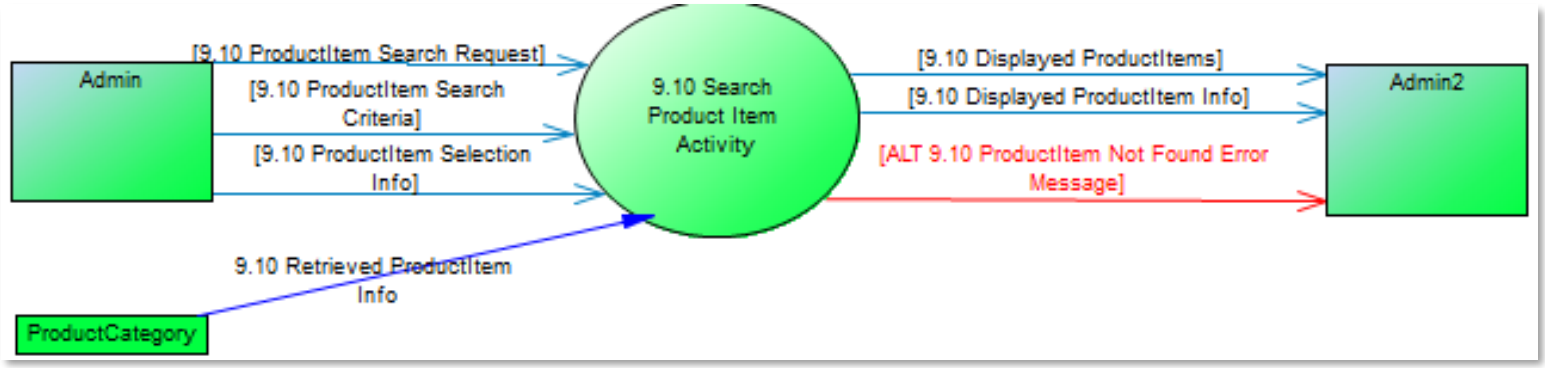


Figure 2054 9.10. Search Product Item Middle Level Data Flow Diagram

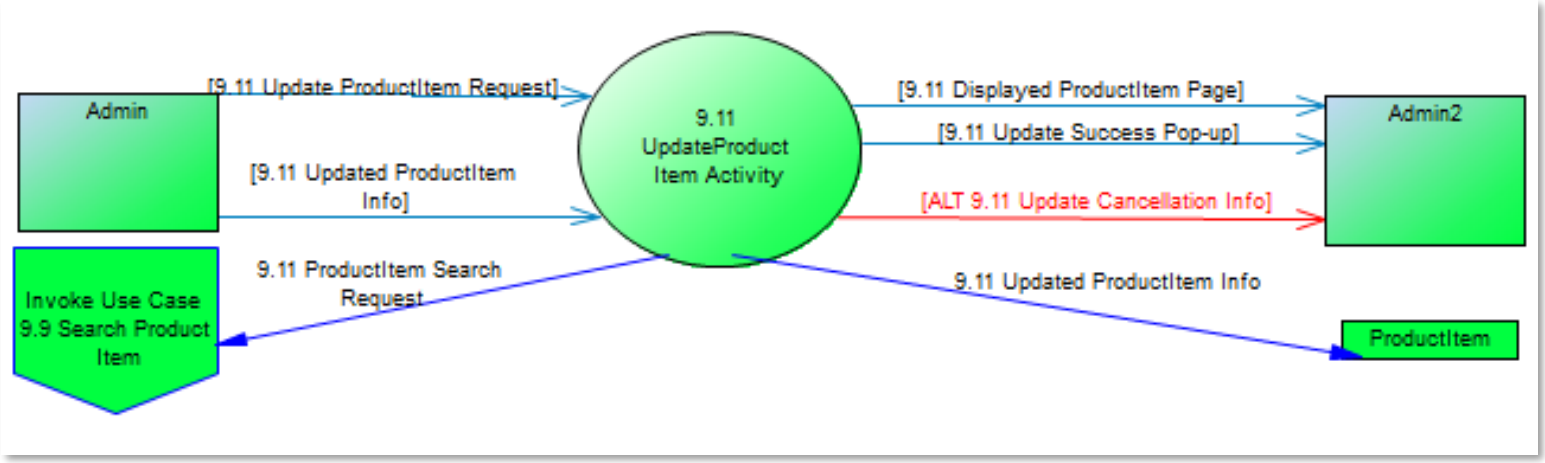


Figure 204 9.11. Update Product Item Middle Level Data Flow Diagram

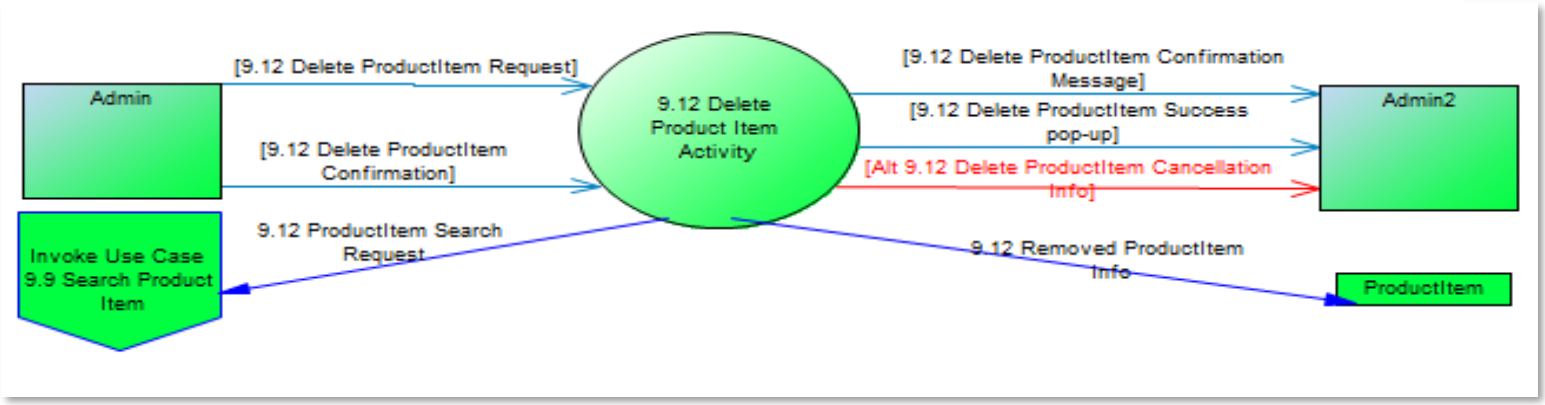


Figure 2036 9.12. Delete Product Item Middle Level Data Flow Diagram

3.3.2.10 Specials Activity

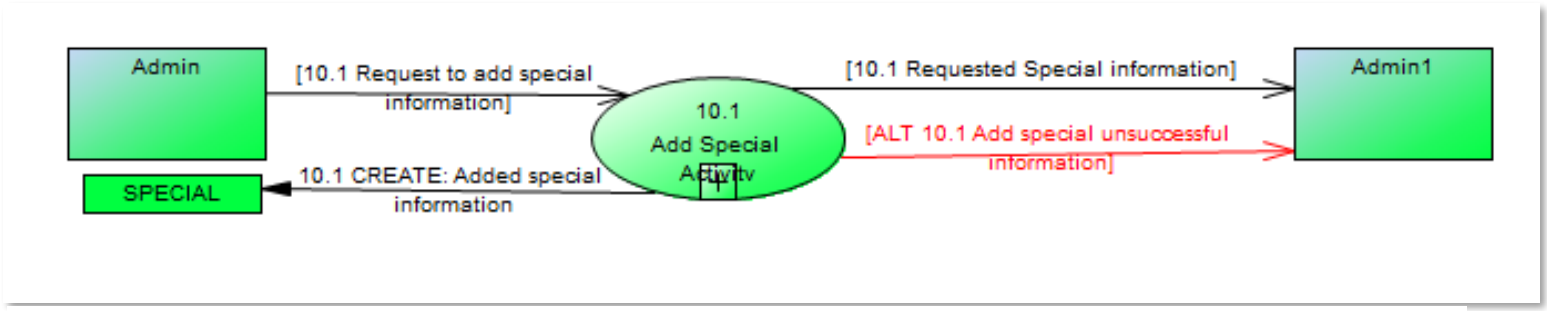


Figure 20807 10.1. Add Special Middle Level Data Flow Diagram

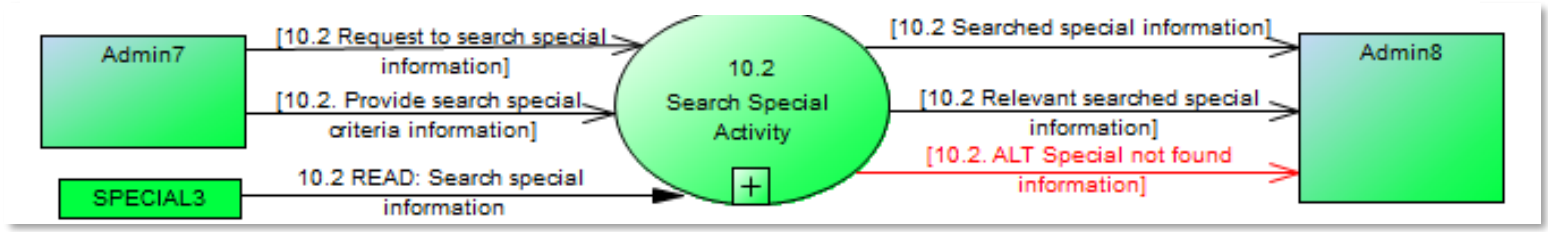


Figure 2078 10.2. Search Special Middle Level Data Flow Diagram

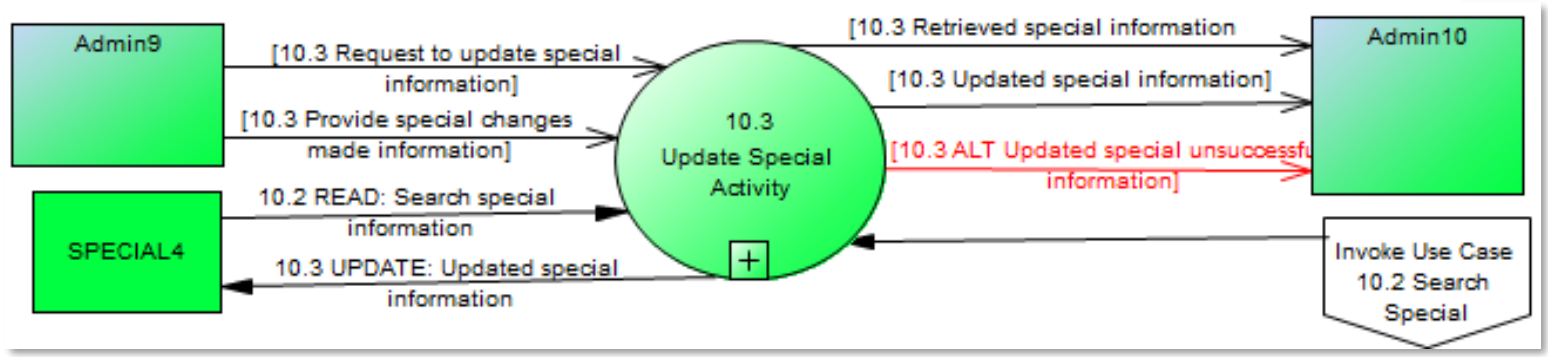


Figure 209 10.3. Update Special Middle Level Data Flow Diagram

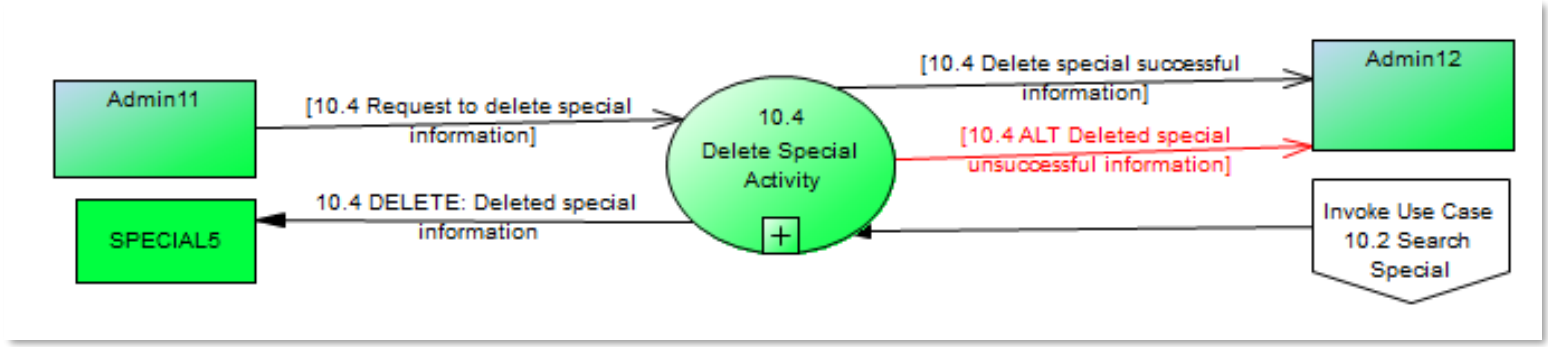


Figure 206 10.4. Delete Special Middle Level Data Flow Diagram

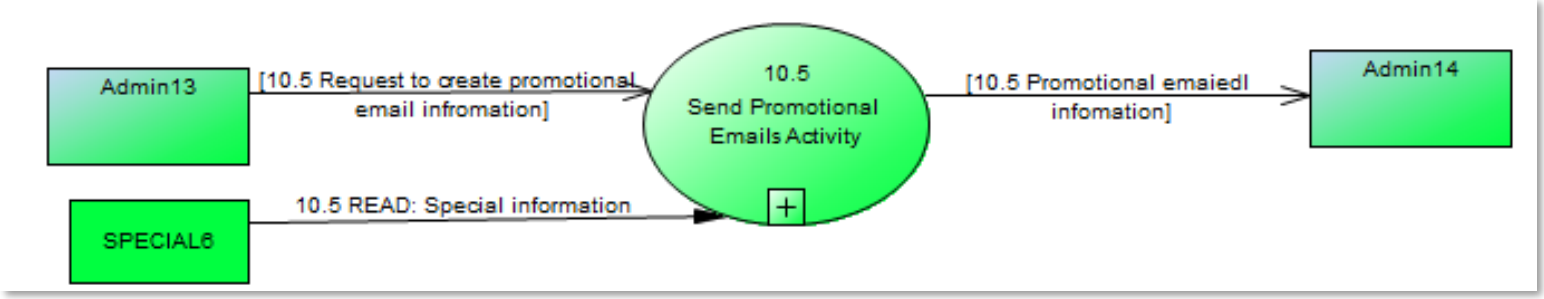


Figure 20911 10.5. Send Promotional Emails Middle Level Data Flow Diagram

3.3.3. PRIMITIVE LEVEL DATA FLOW DIAGRAM

3.3.3.1 Log-in Sub-System

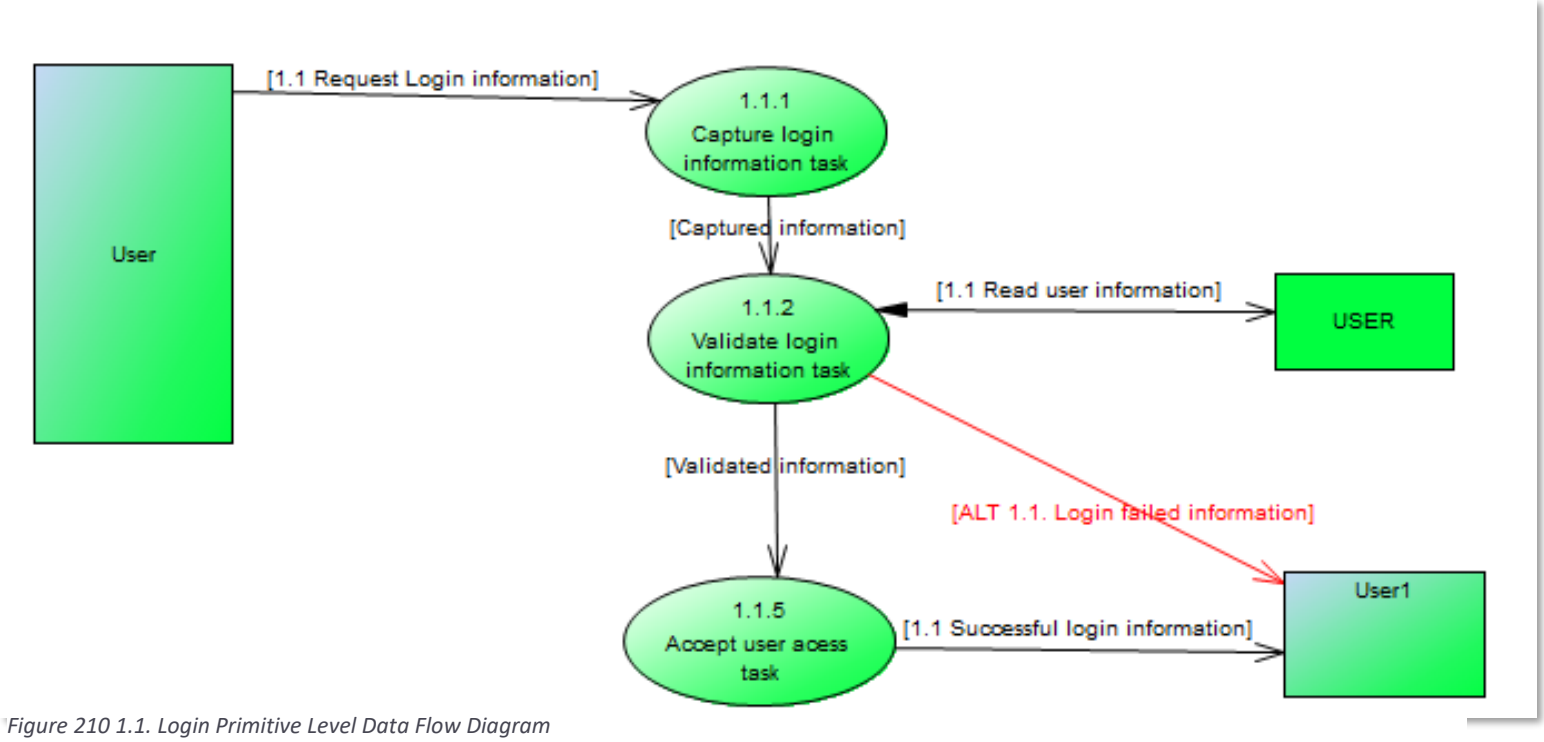


Figure 210 1.1. Login Primitive Level Data Flow Diagram

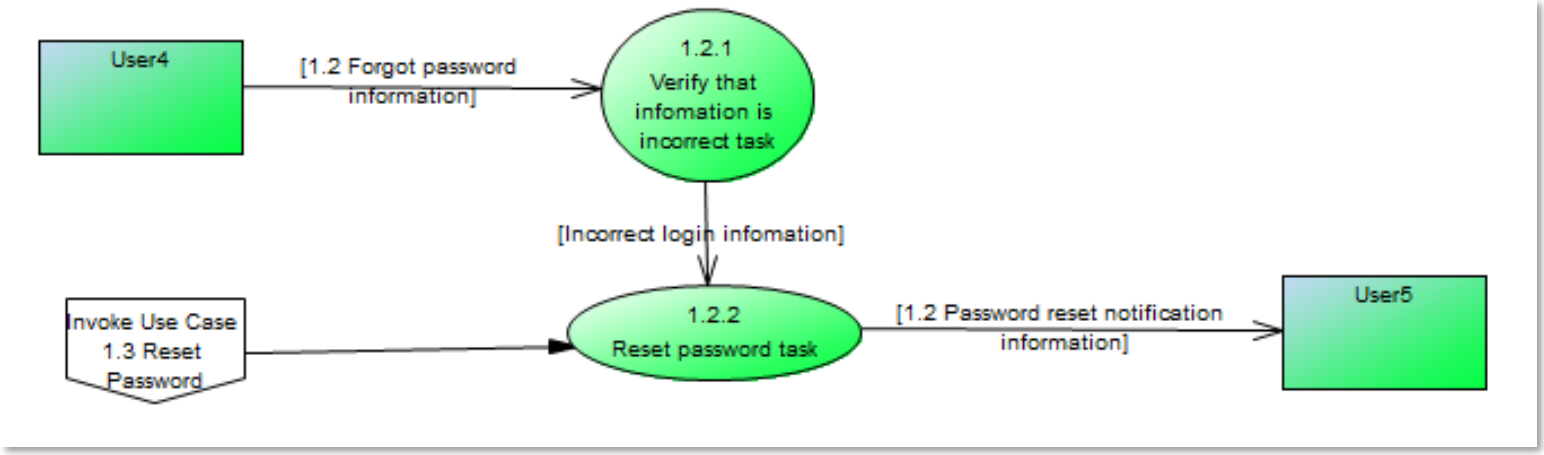


Figure 211 1.2. Forgot Password Primitive Level Data Flow Diagram

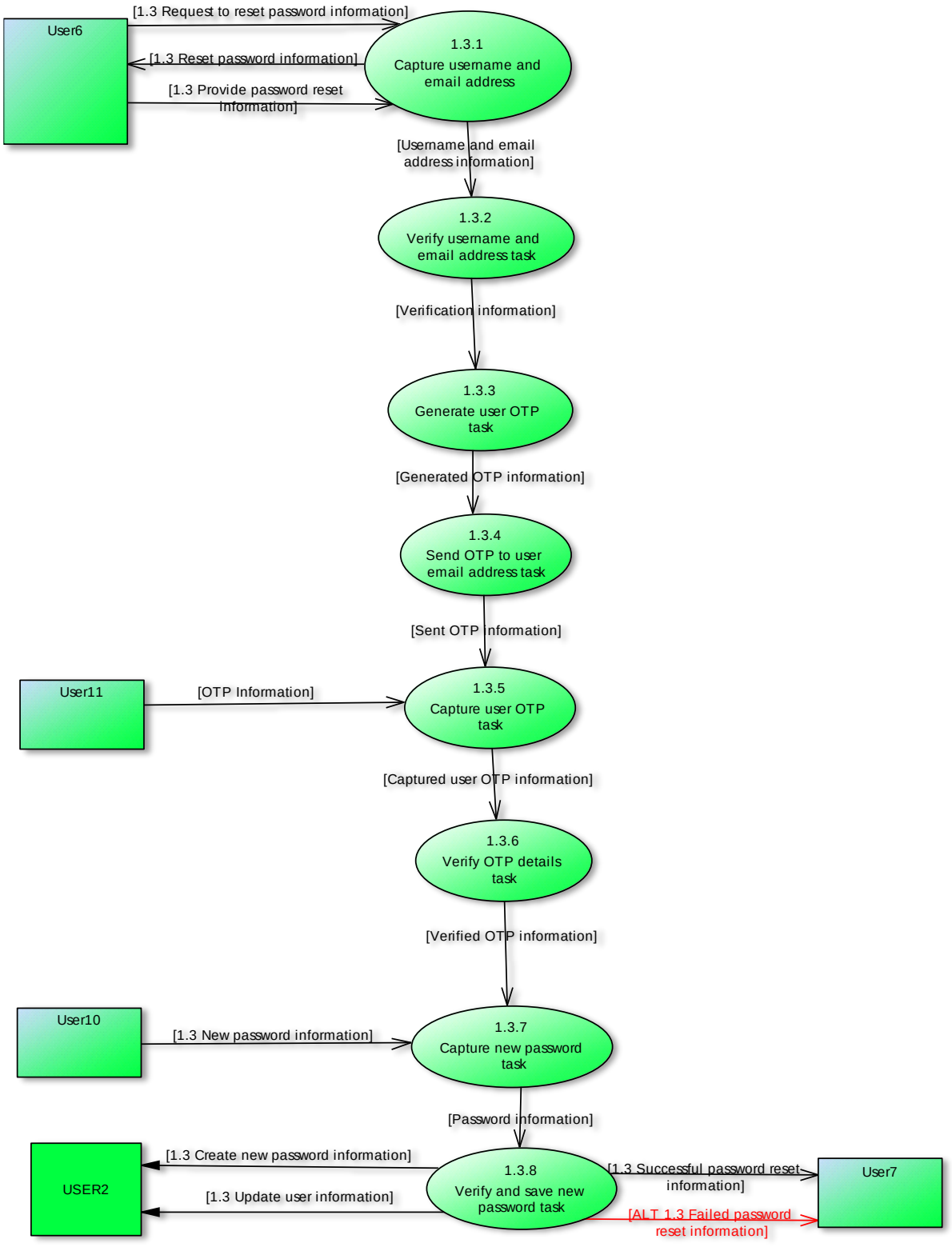


Figure 212 1.3 Reset Password Primitive Level Data Flow Diagram

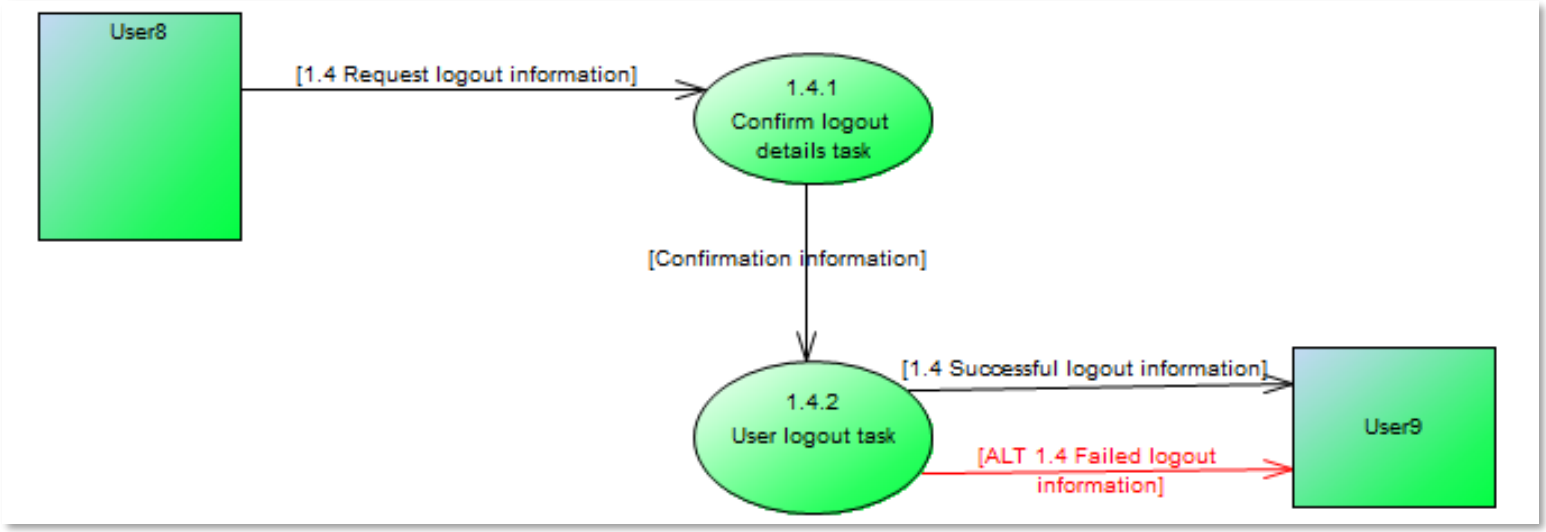


Figure 213 1.4 Logout Primitive Level Data Flow Diagram

3.3.3.2 Supplier Sub-System

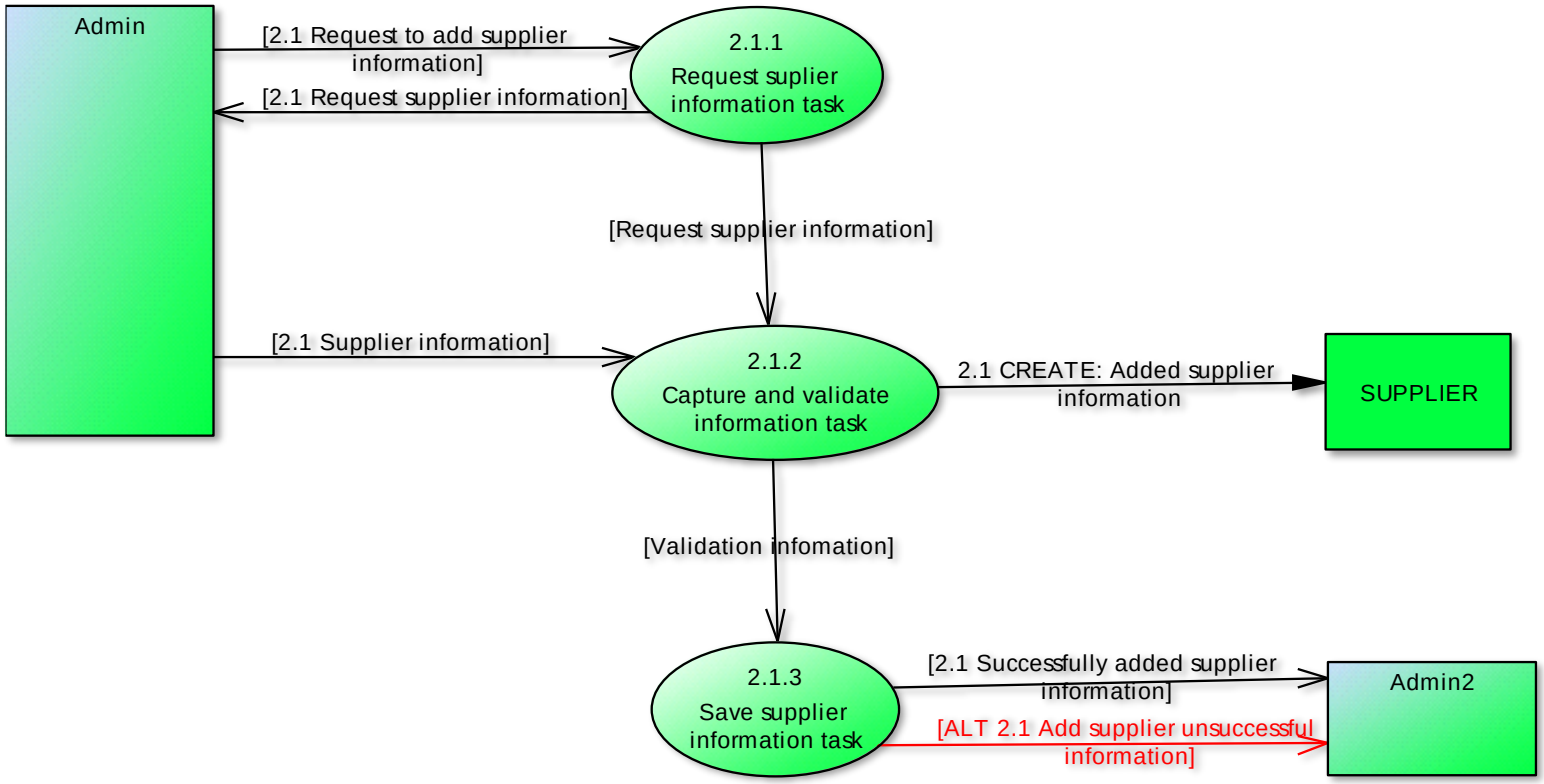


Figure 214 2.1. Add Supplier Primitive Level Data Flow Diagram

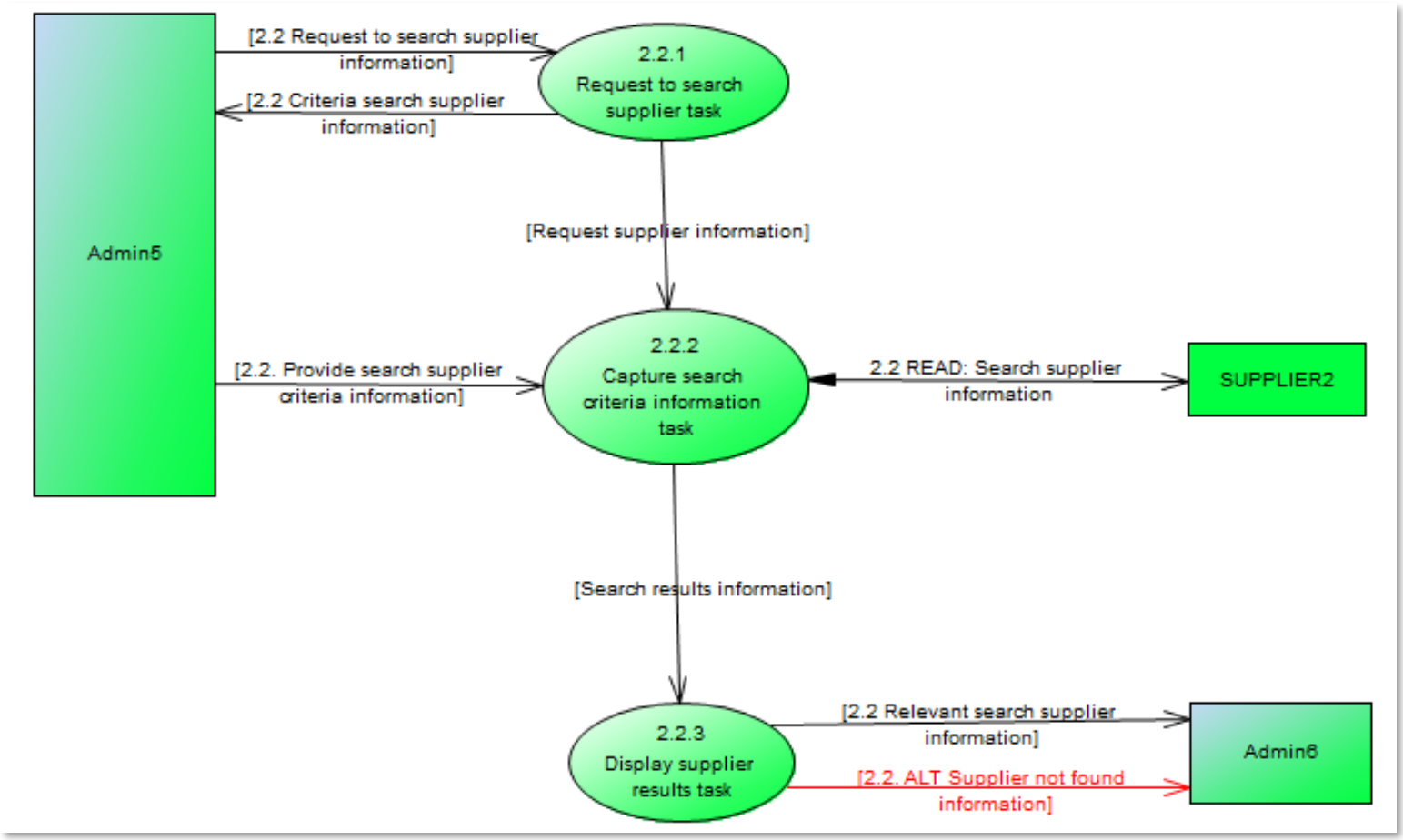


Figure 215 2.2. Search Supplier Primitive Level Data Flow Diagram

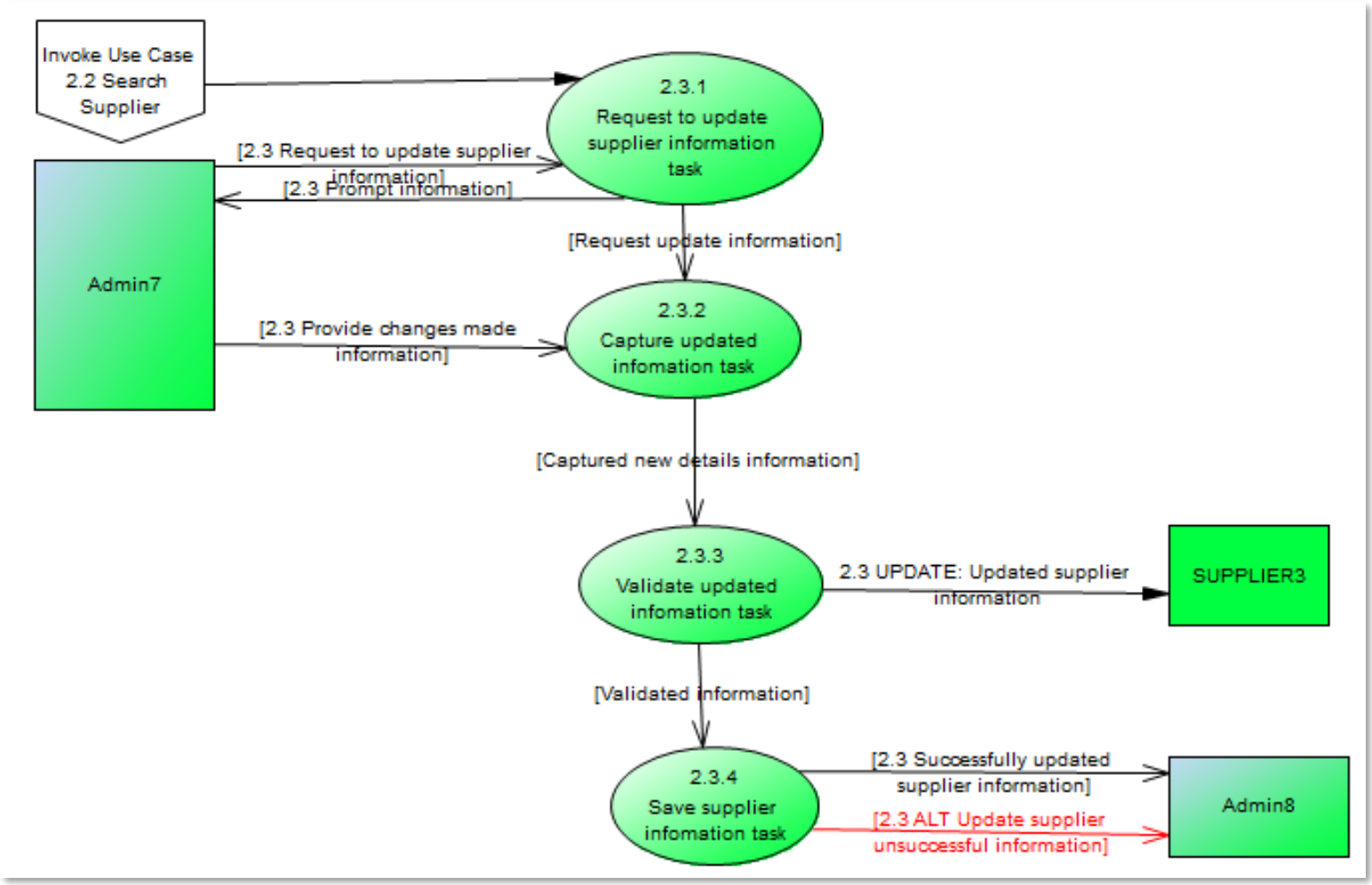


Figure 216 2.3. Update Supplier Primitive Level Data Flow Diagram

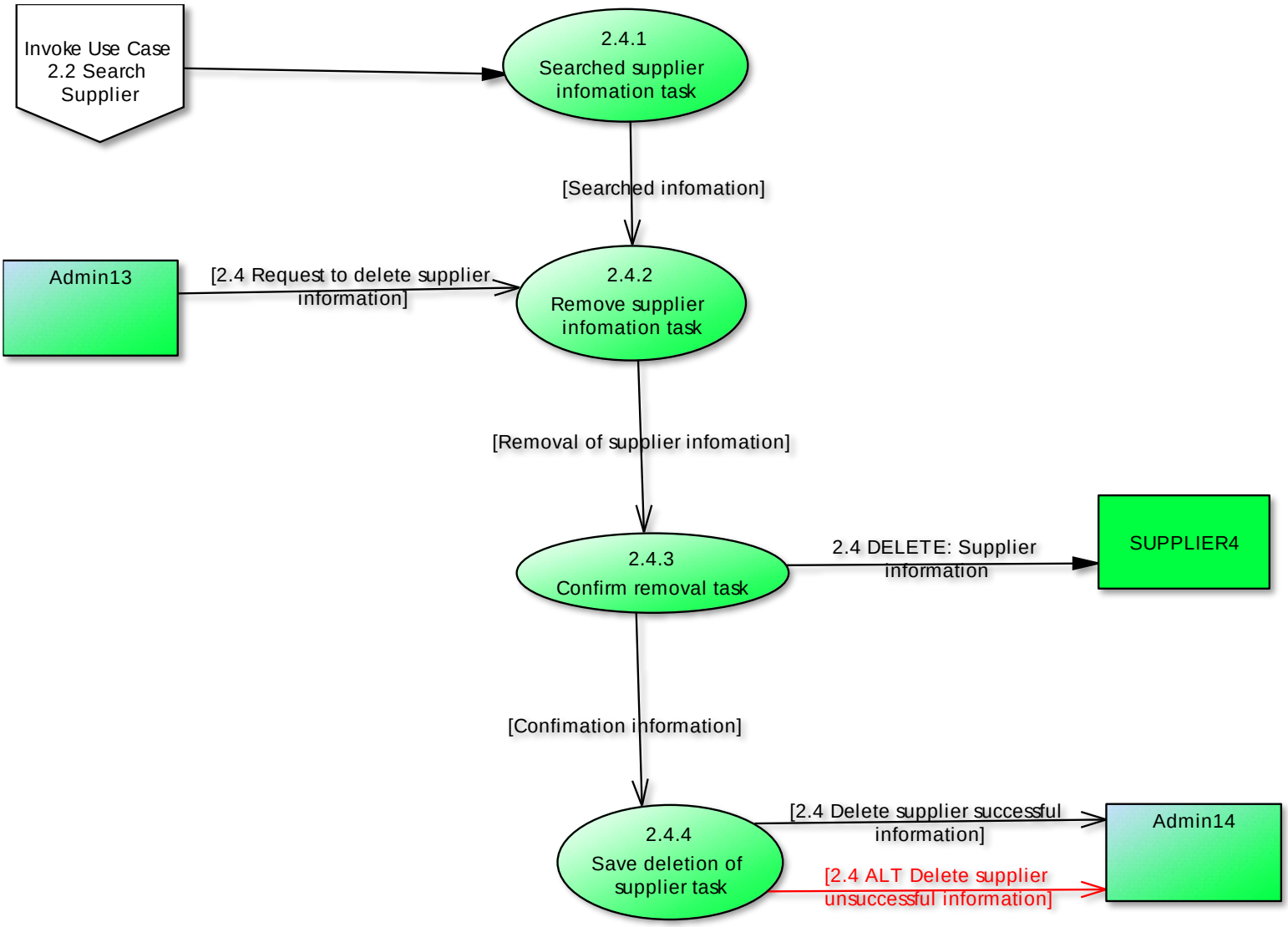


Figure 217 2.4. Delete Supplier Primitive Level Data Flow Diagram

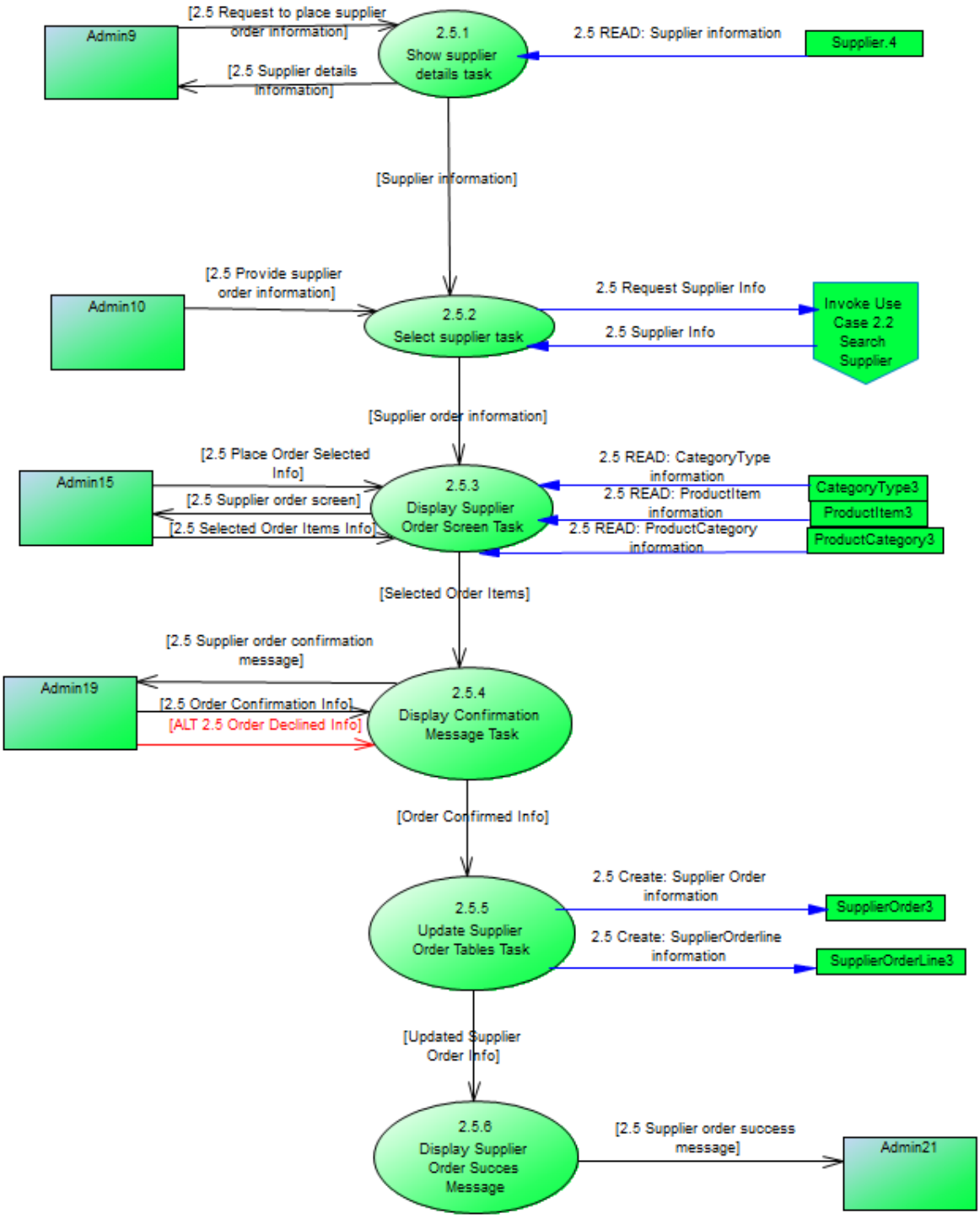


Figure 218 2.5. Place Supplier Order Primitive Level Data Flow Diagram

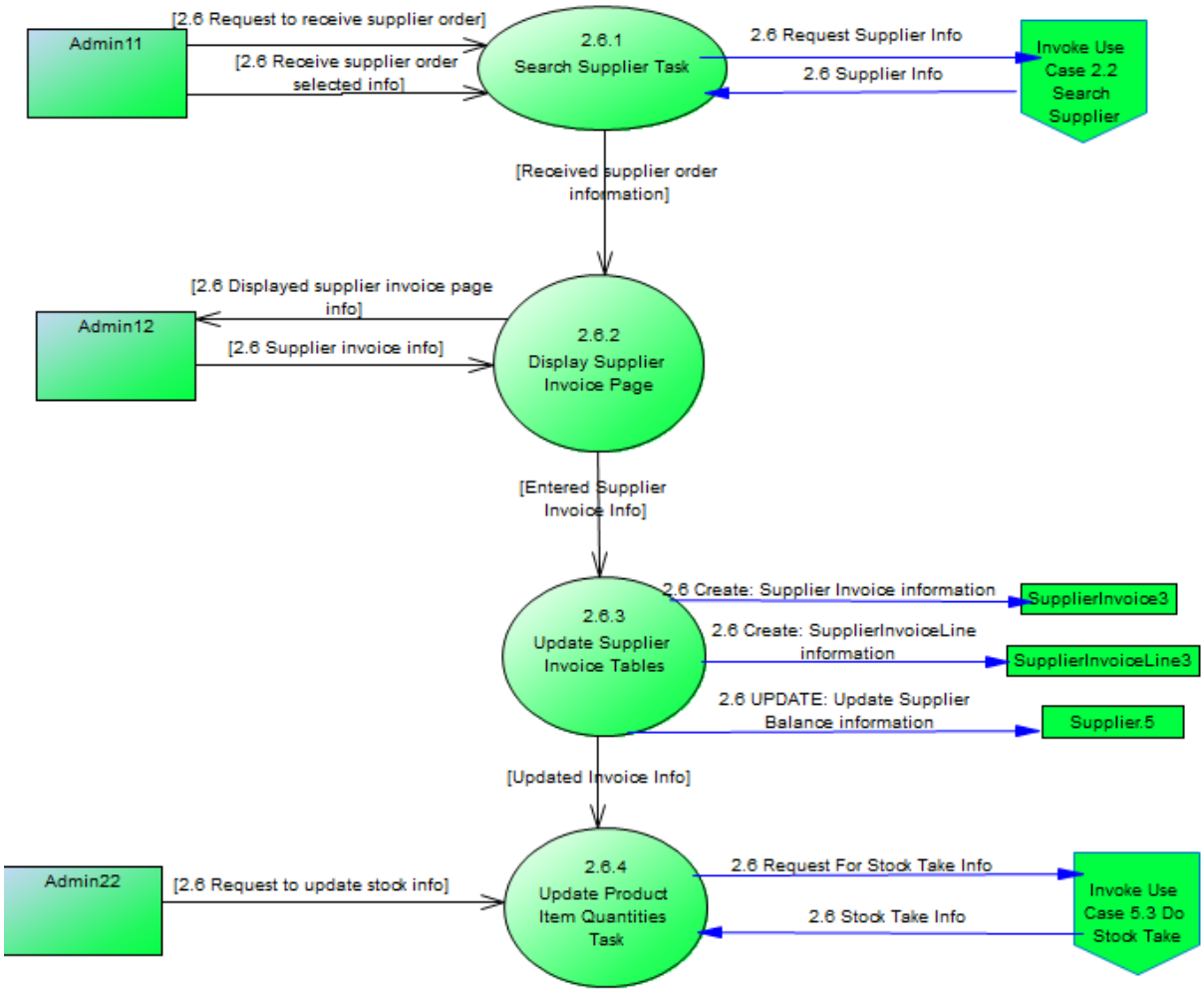


Figure 219 2.6. Receive Supplier Order Primitive Level Data Flow Diagram

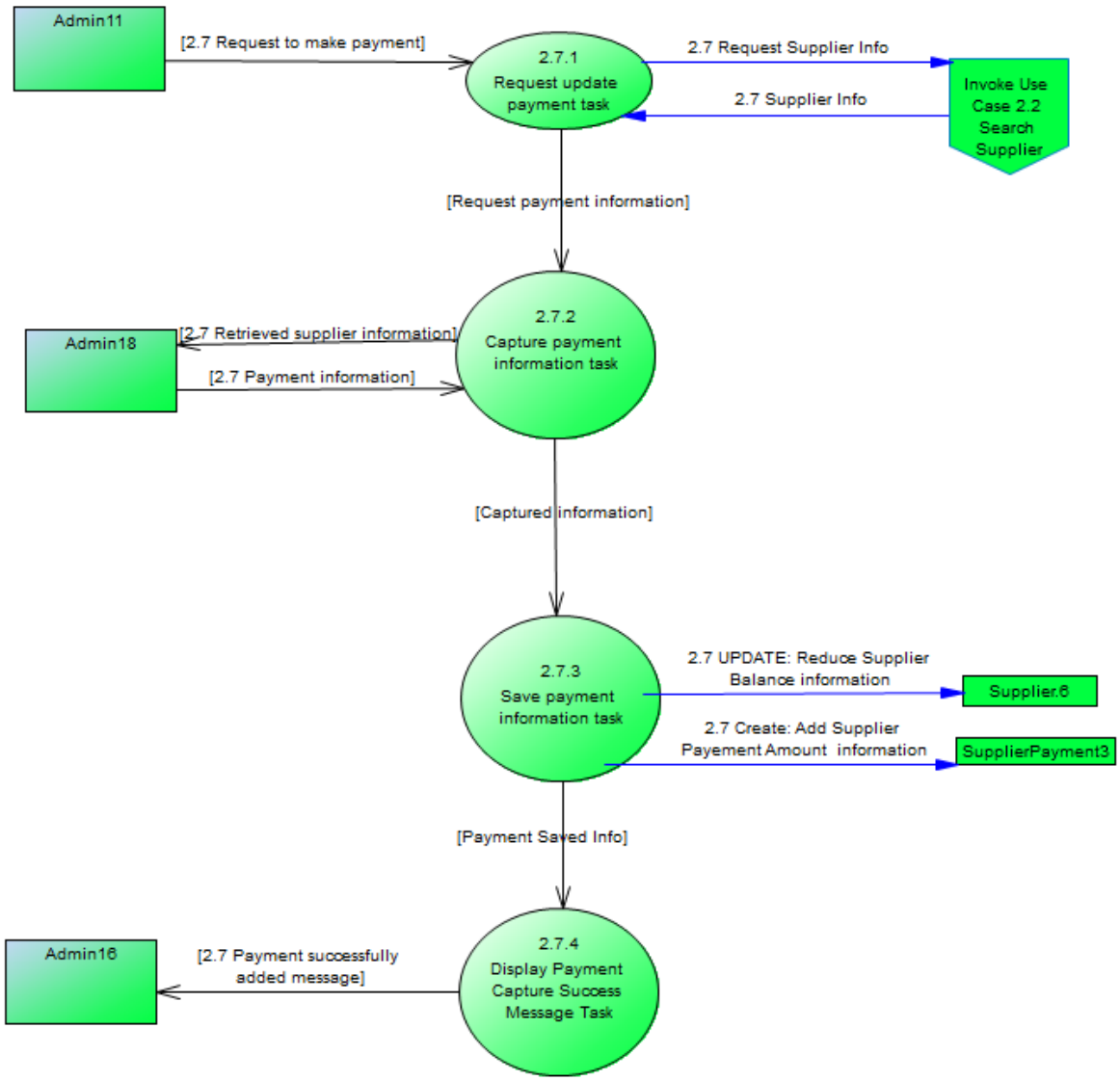


Figure 220 2.7. Make a Payment to Supplier Primitive Level Data Flow Diagram

3.3.3.3. User Sub-System

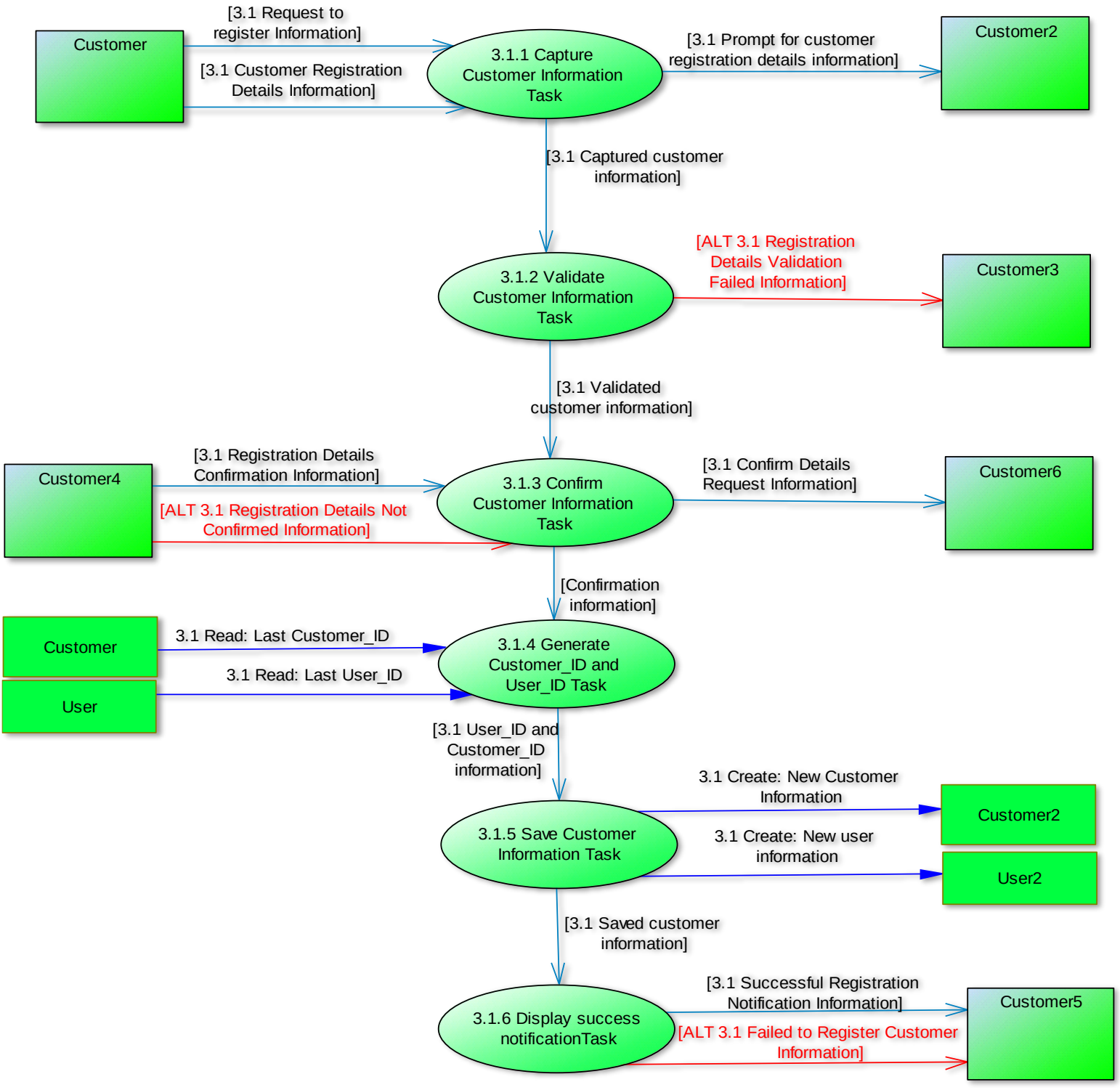


Figure 221 3.1. Register New Customer Primitive Level Data Flow Diagram

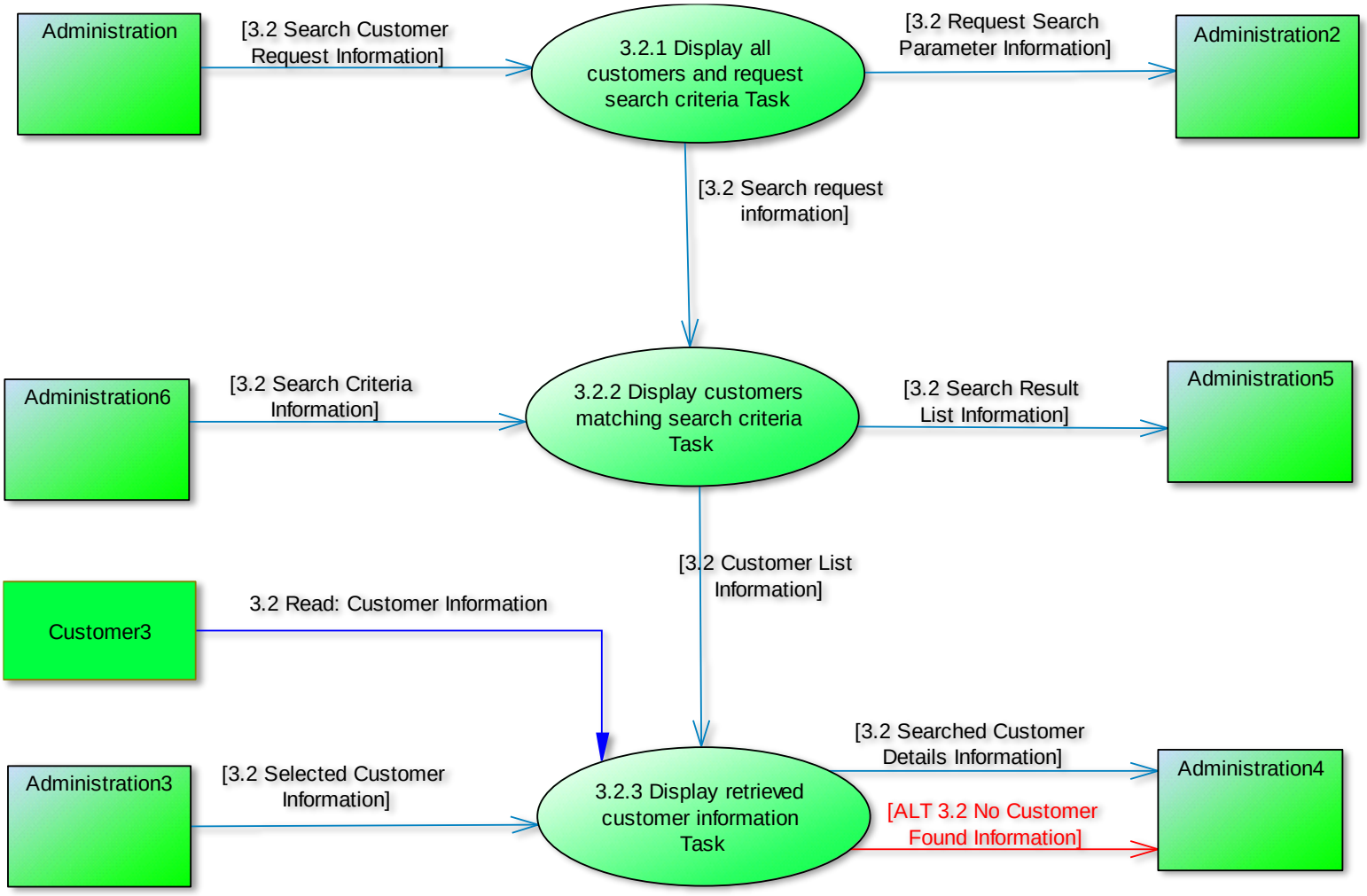


Figure 222 3.2. Search Customer Primitive Level Data Flow Diagram

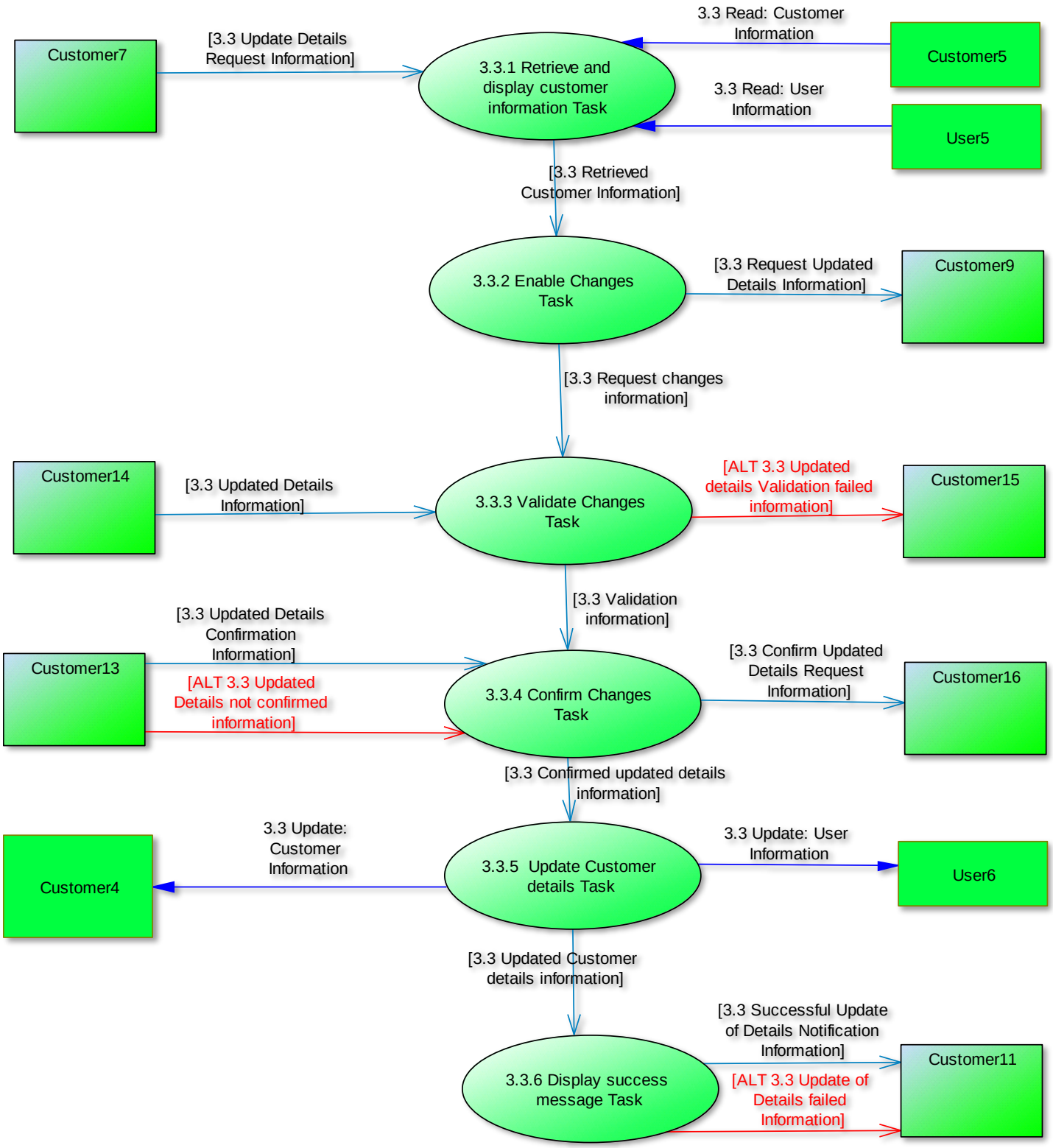


Figure 223 3.3.Update Customer Primitive Level Data Flow Diagram

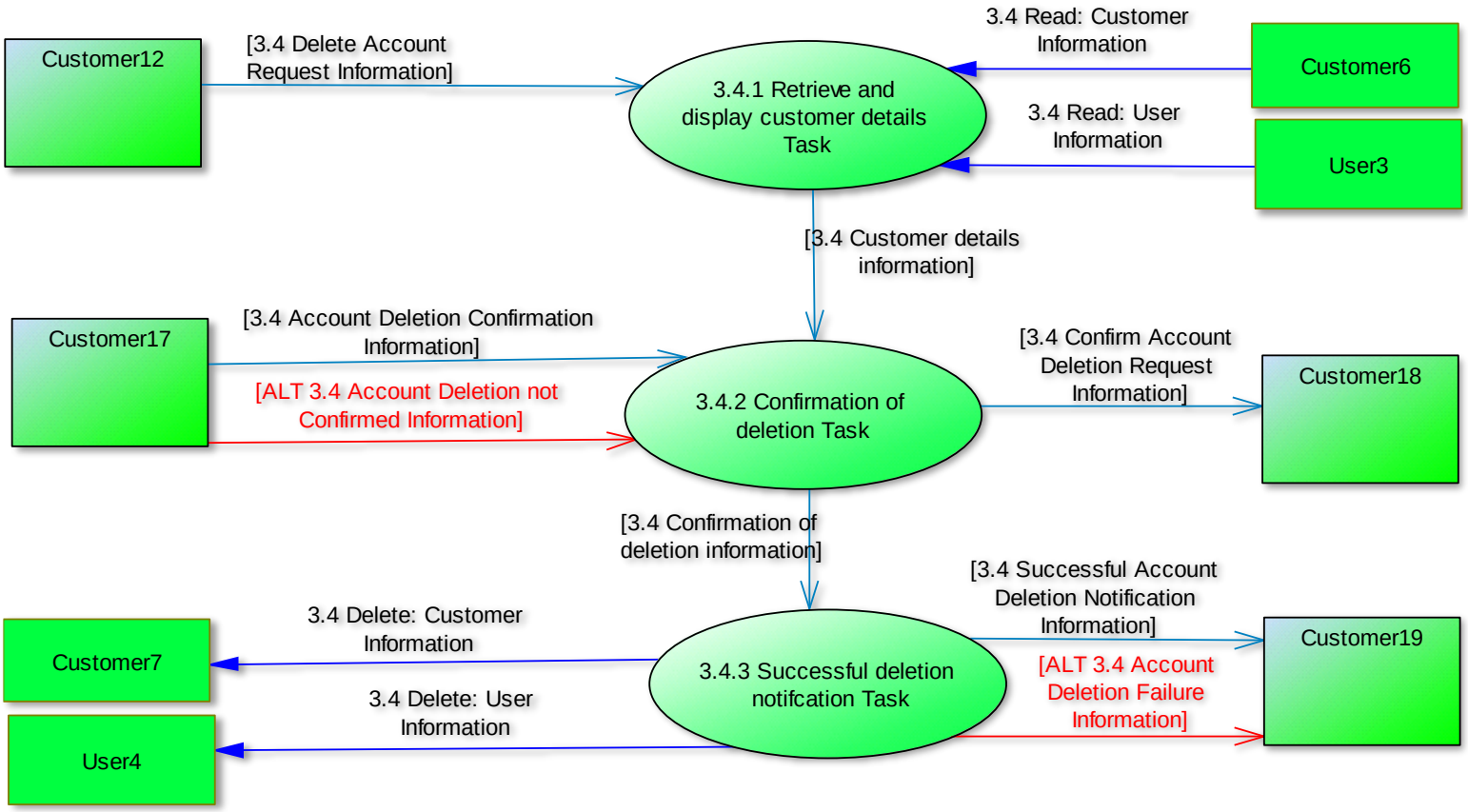


Figure 224 3.4. Delete Customer Primitive Level Data Flow Diagram

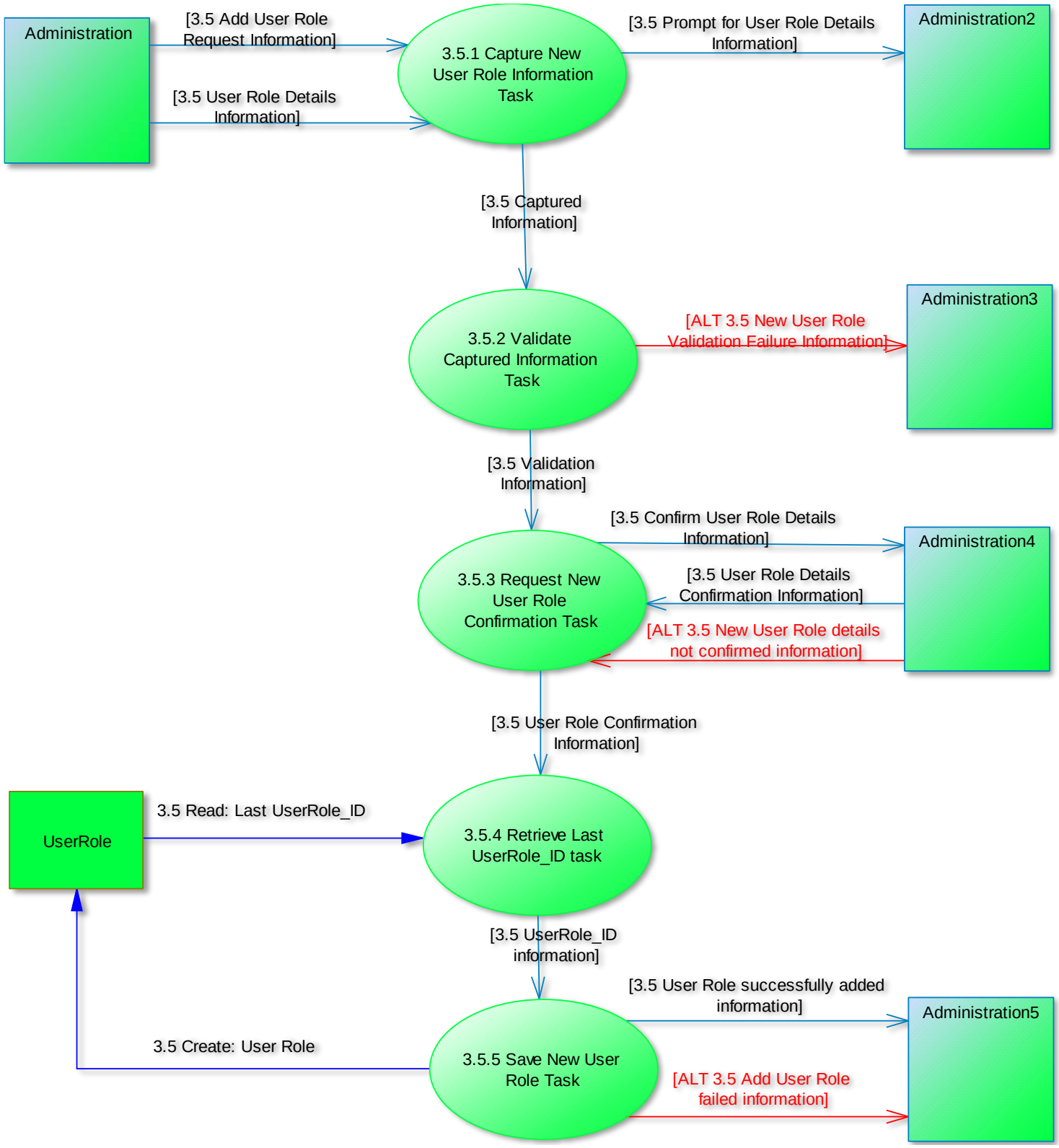


Figure 225 3.5. Add User Role Primitive Level Data Flow Diagram

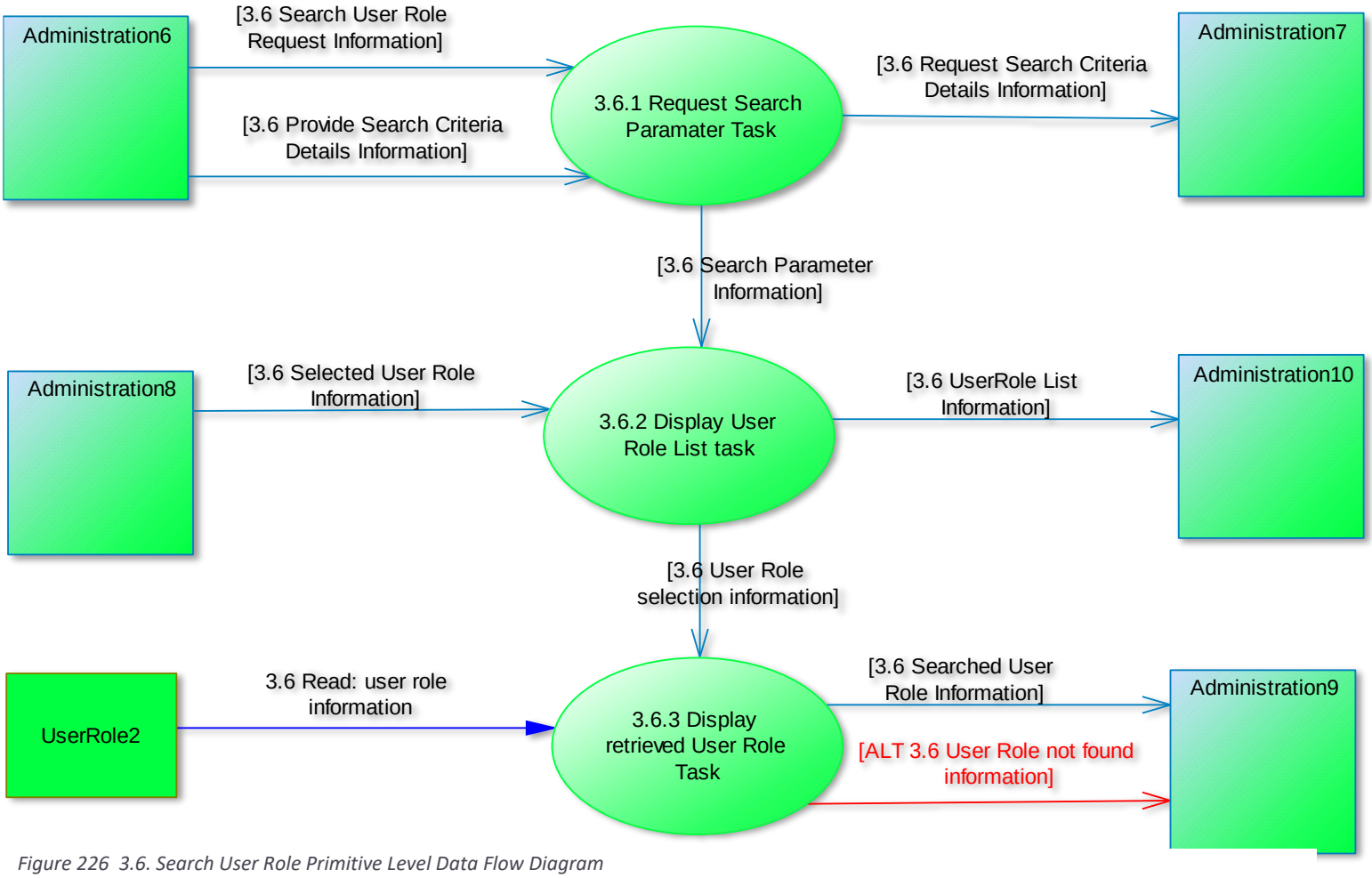


Figure 226 3.6. Search User Role Primitive Level Data Flow Diagram

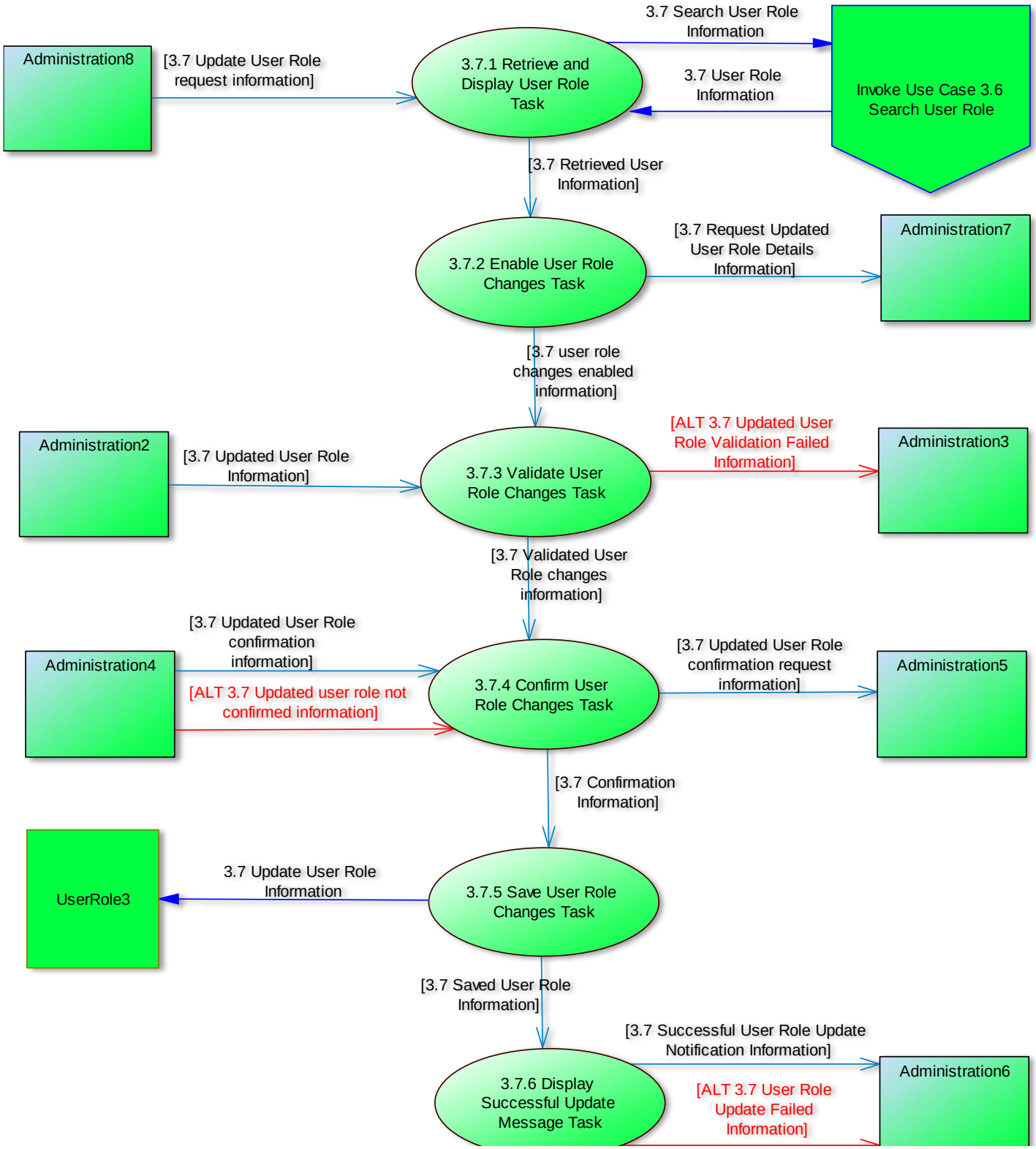


Figure 227 3.7. Update User Primitive Level Data Flow Diagram

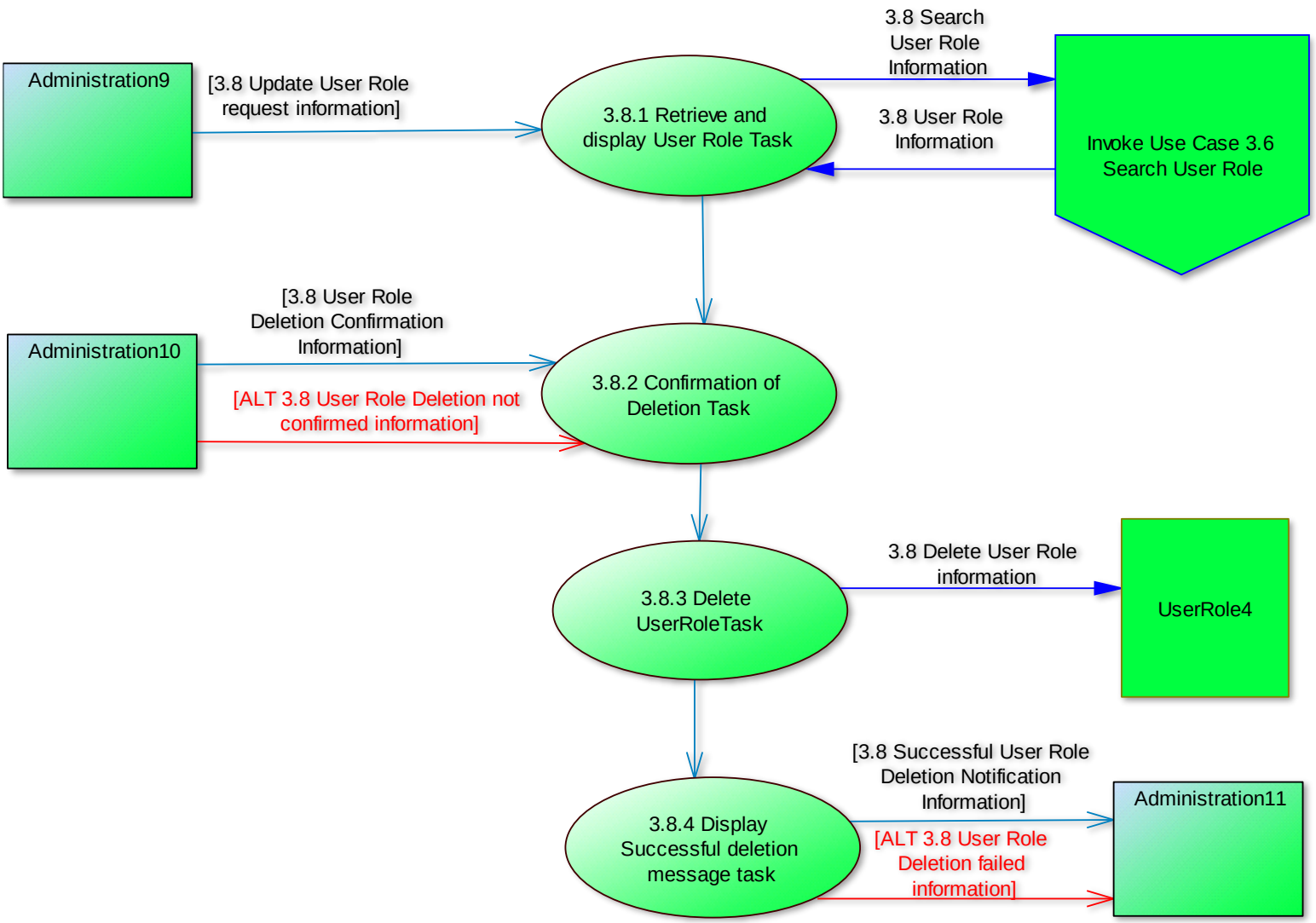


Figure 228 3.8. Delete User Primitive Level Data Flow Diagram

3.3.3.4 Employee Delivery Shifts Sub-System

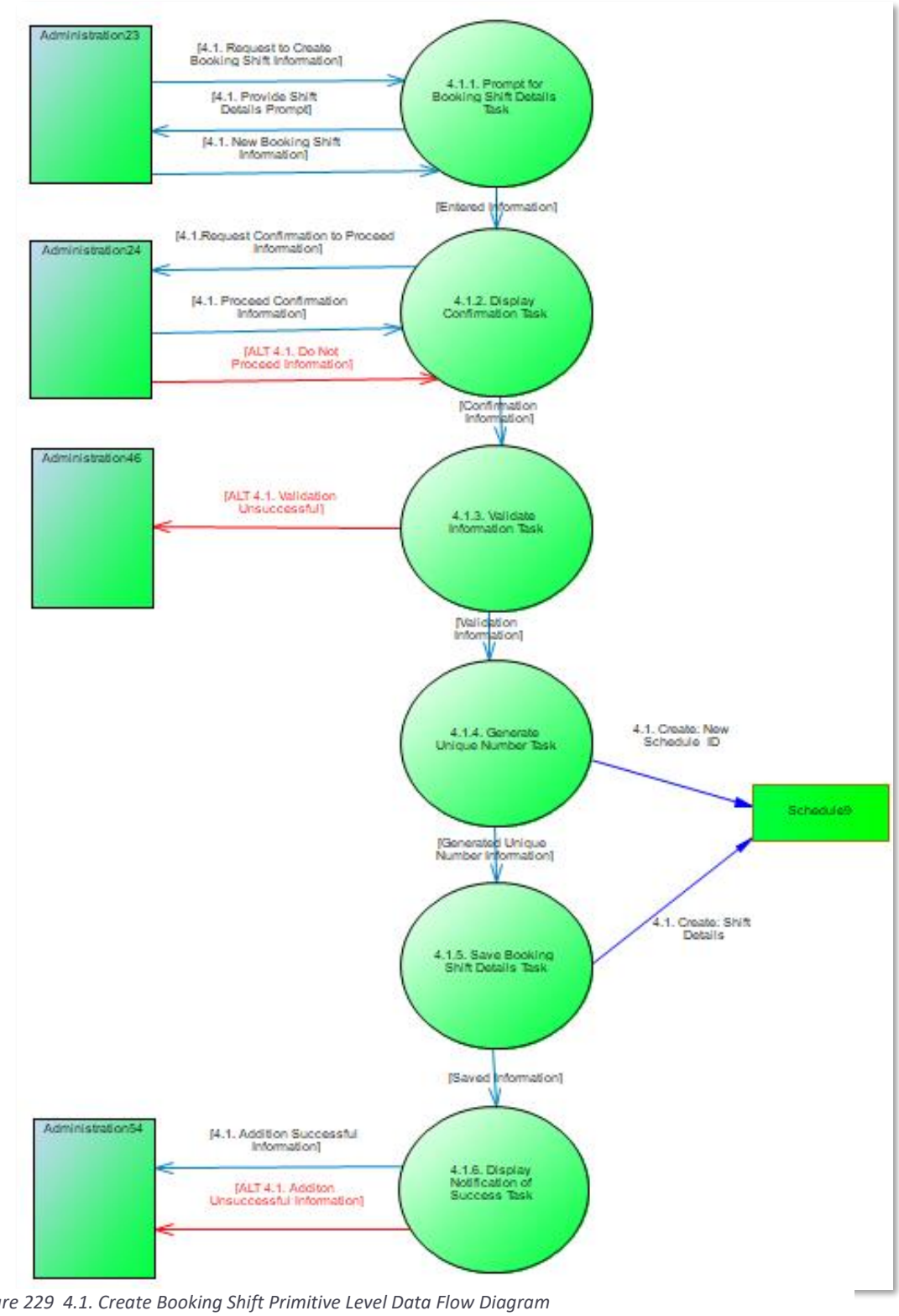


Figure 229 4.1. Create Booking Shift Primitive Level Data Flow Diagram

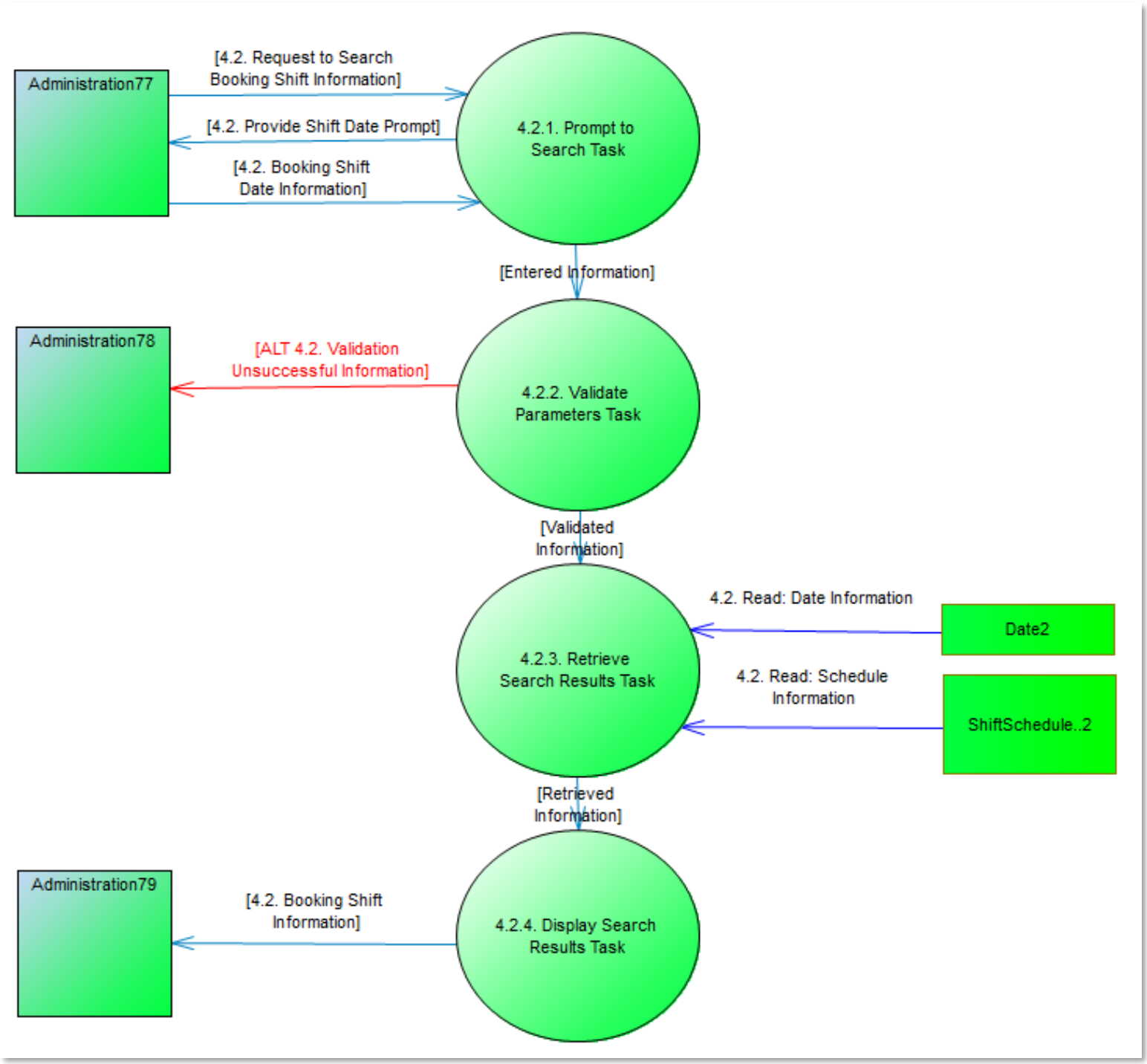


Figure 230 4.2. Search Booking Shift Primitive Level Data Flow Diagram

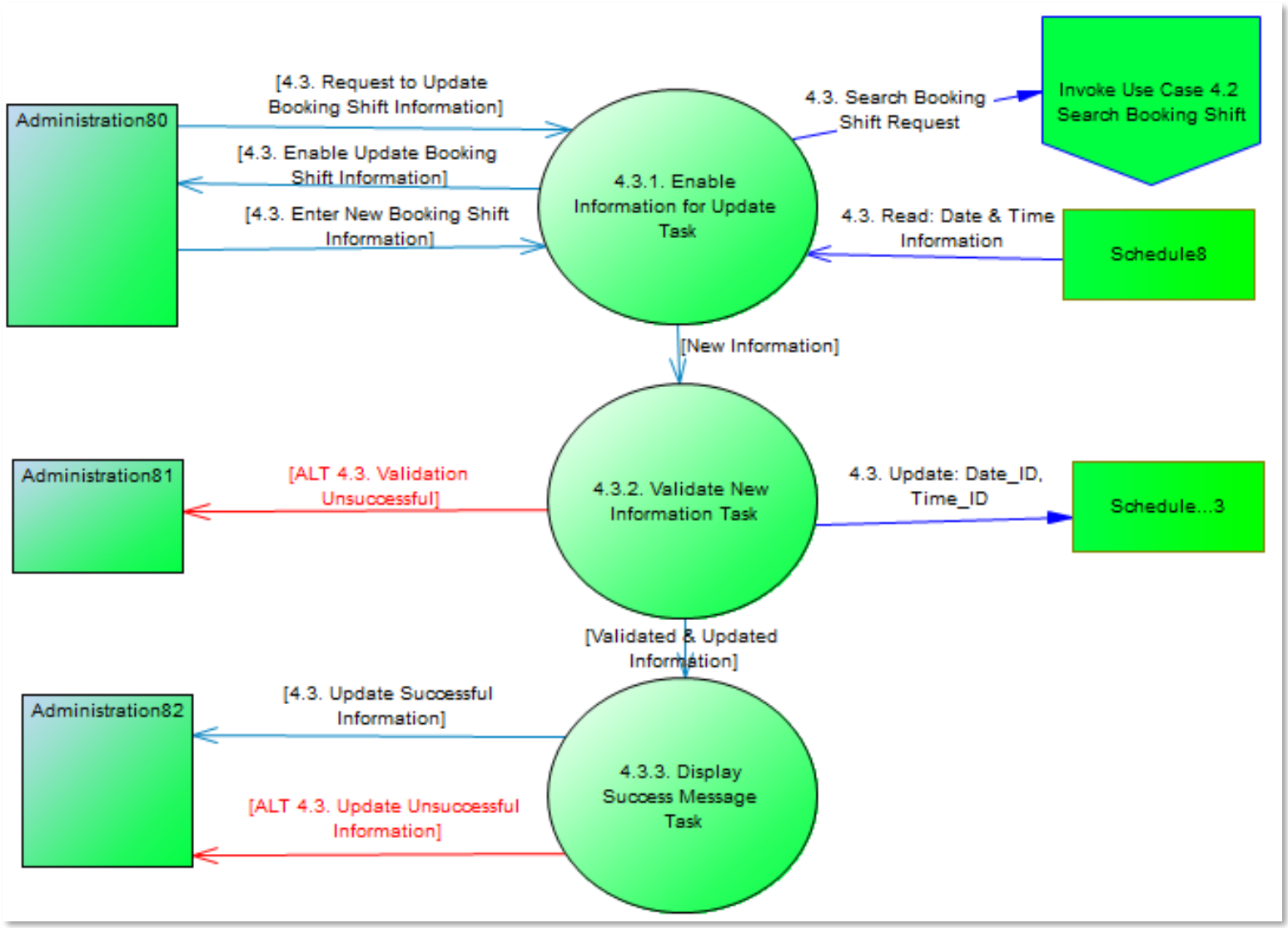


Figure 231 4.3. Update Booking Shift Primitive Level Data Flow Diagram

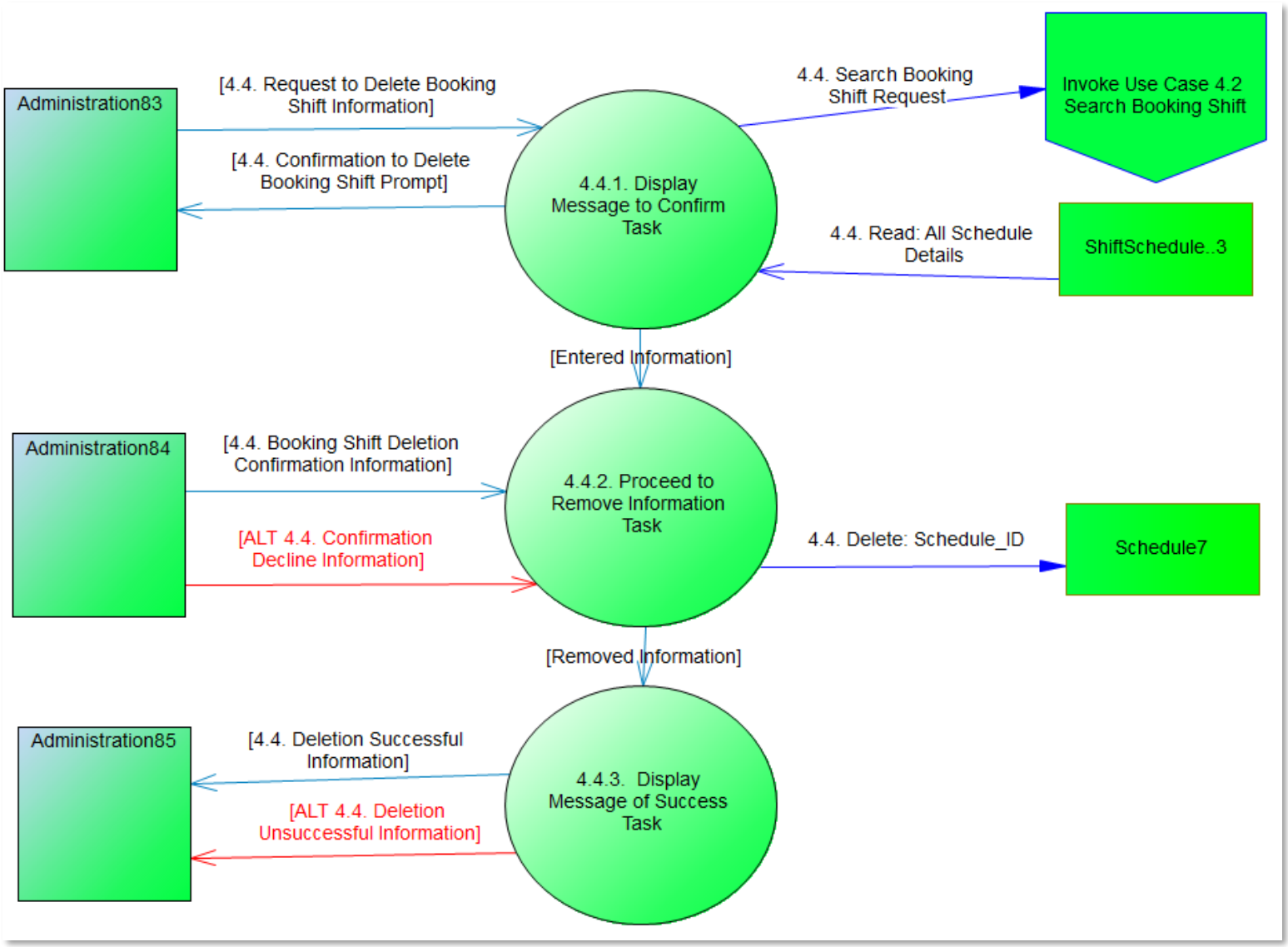


Figure 232 4.4. Delete Booking Shift Primitive Level Data Flow Diagram

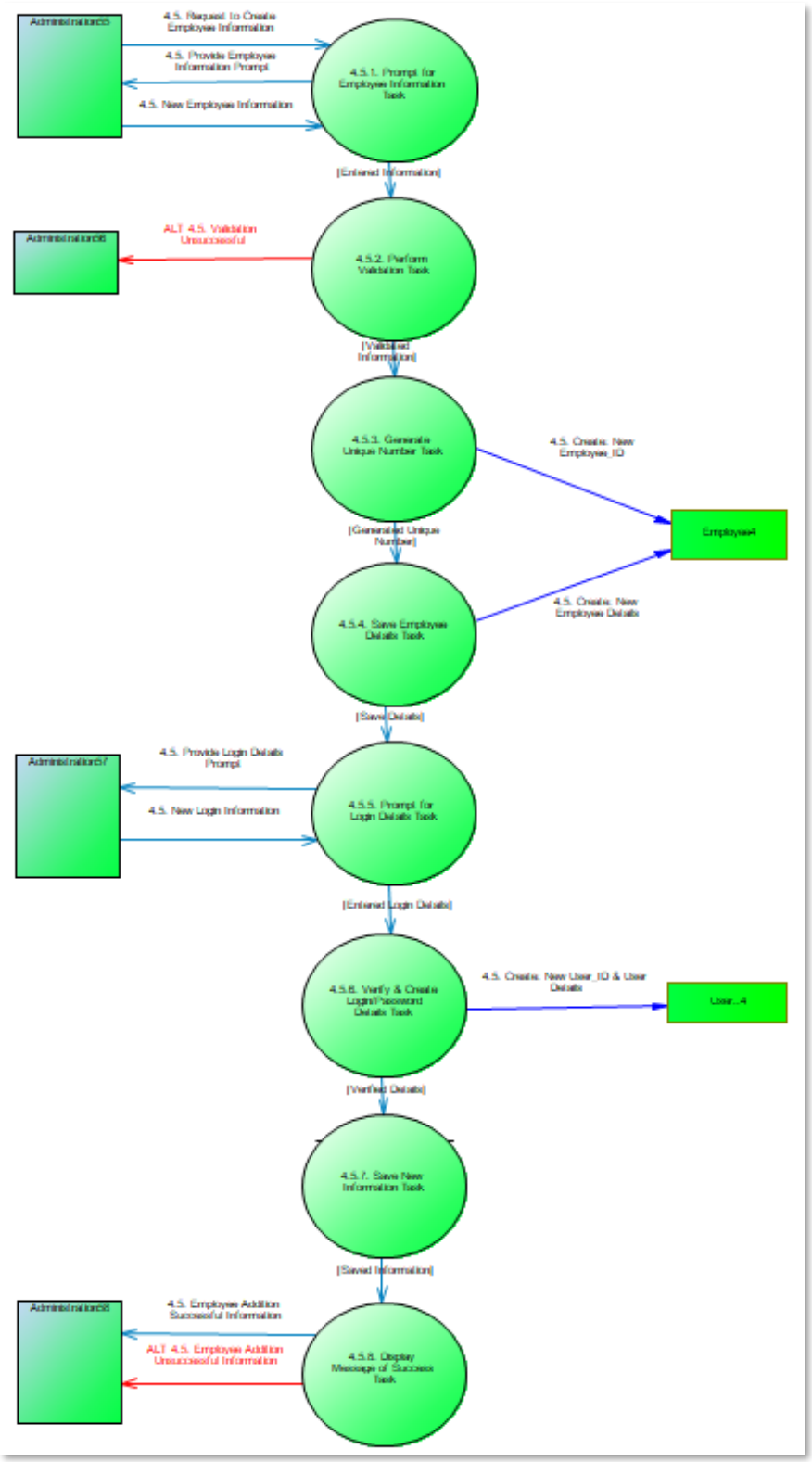


Figure 233 4.5. Add Employee Primitive Level Data Flow Diagram

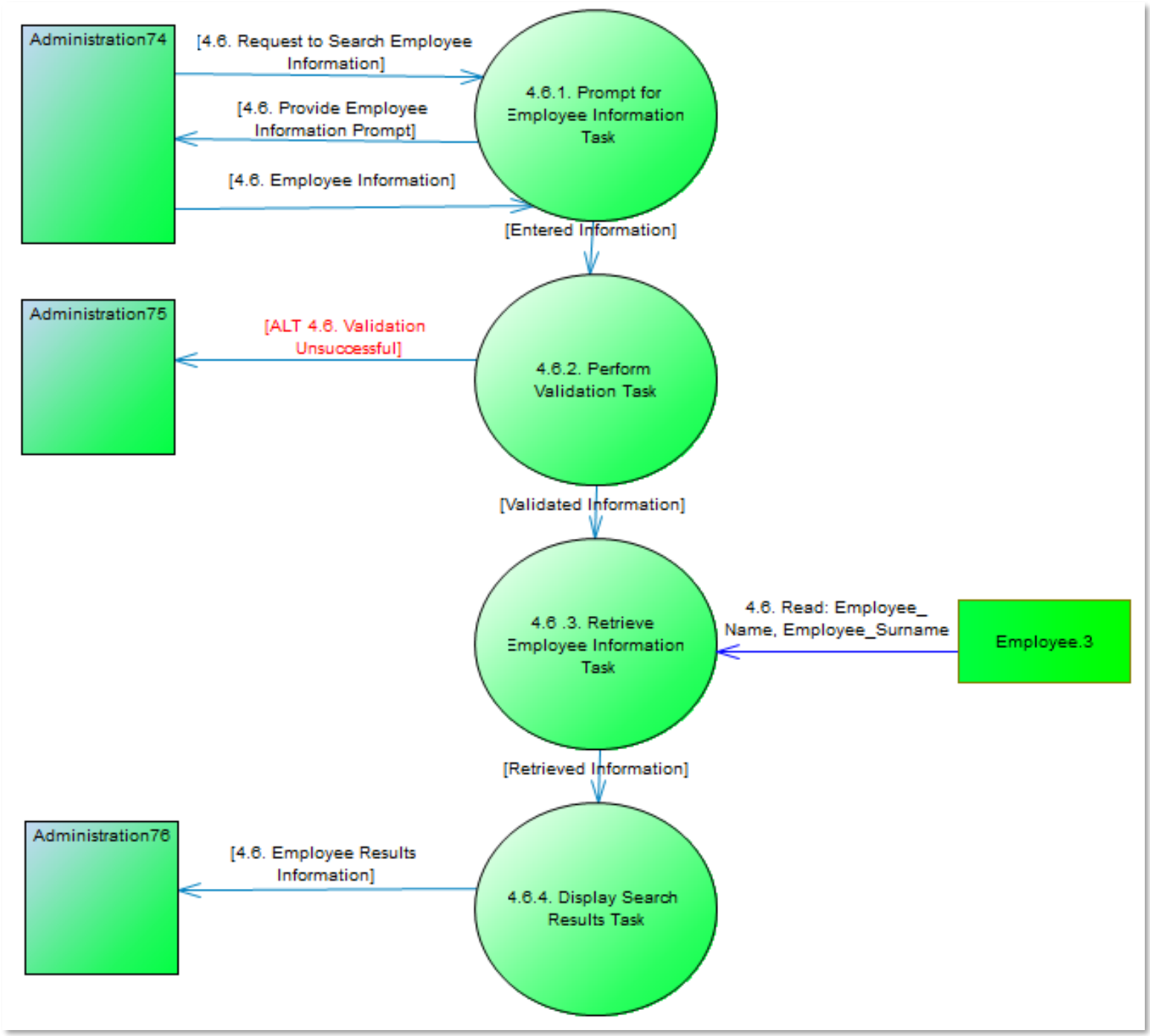


Figure 234 4.6. Search Employee Primitive Level Data Flow Diagram

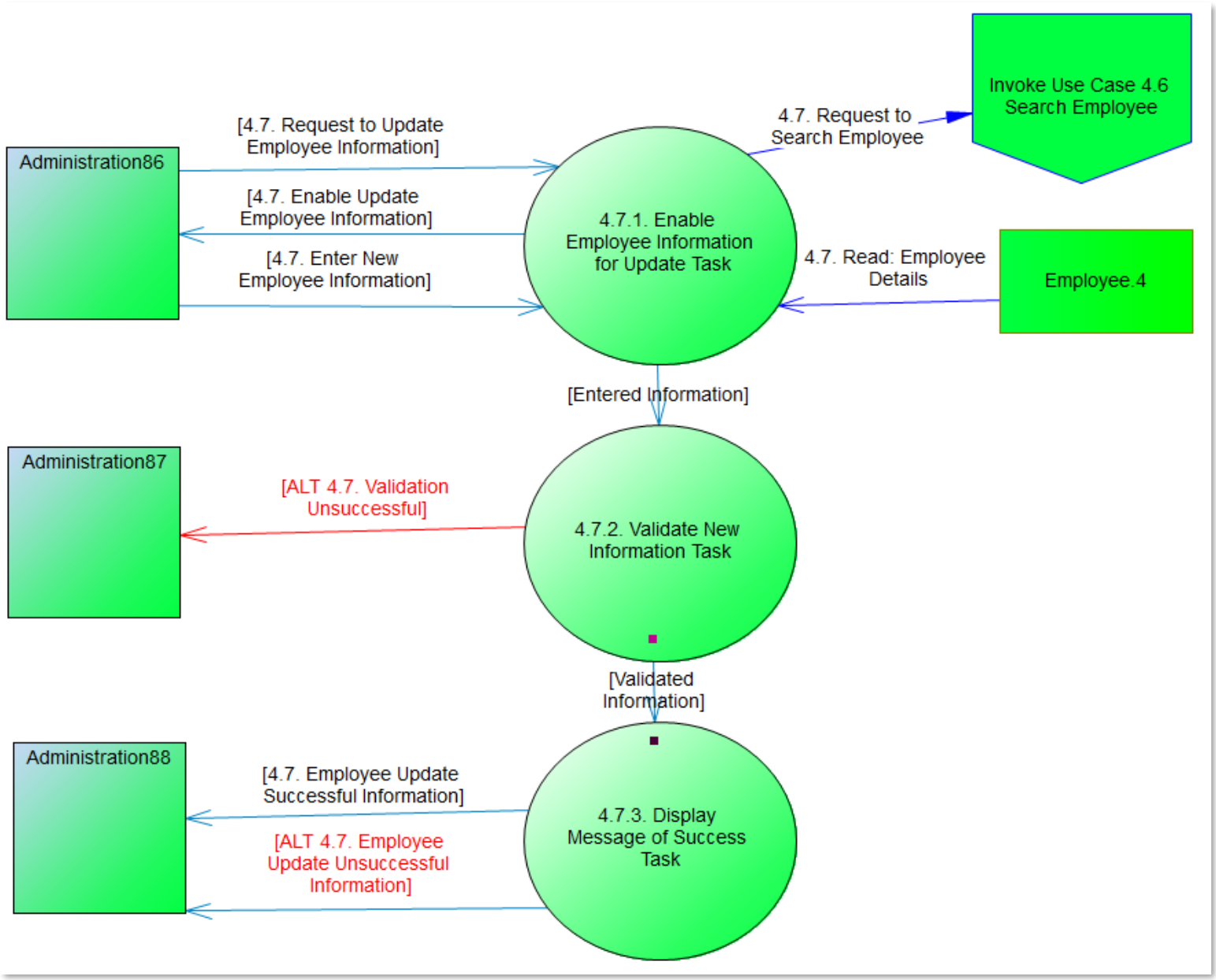


Figure 235 4.7. Update Employee Primitive Level Data Flow Diagram

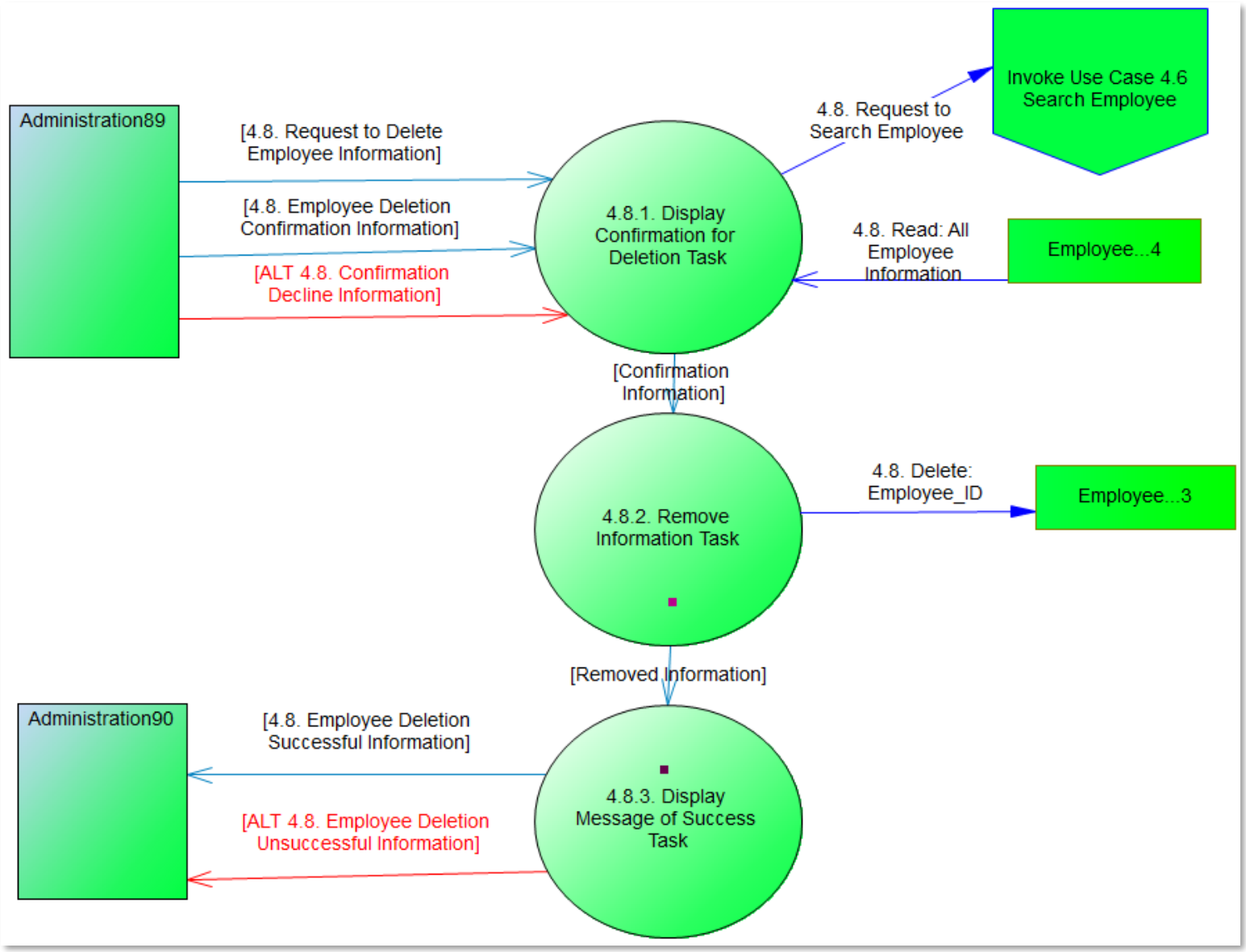


Figure 236 4.8. Delete Employee Primitive Level Data Flow Diagram

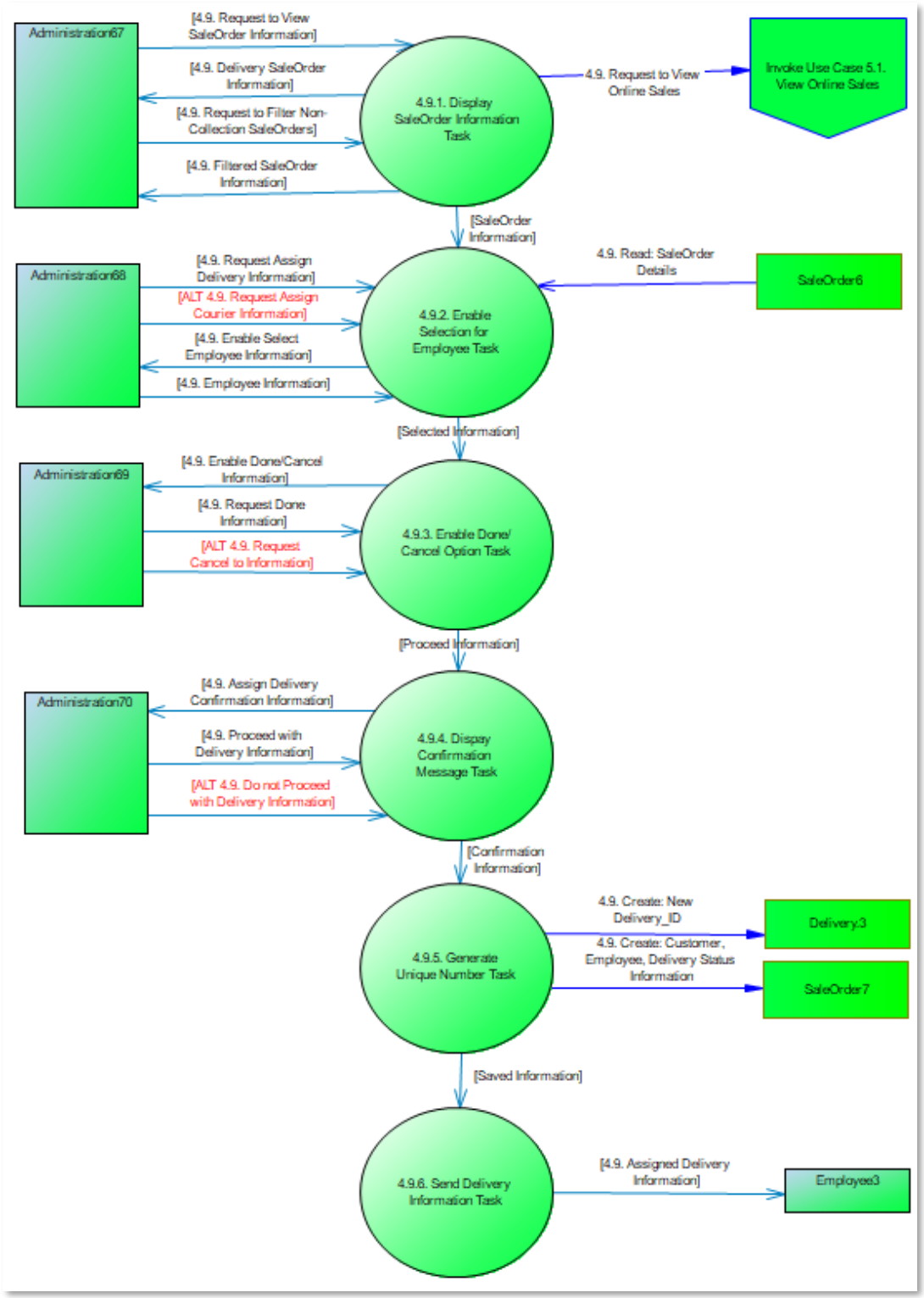


Figure 237 4.9. Assign Order for Delivery Primitive Level Data Flow Diagram

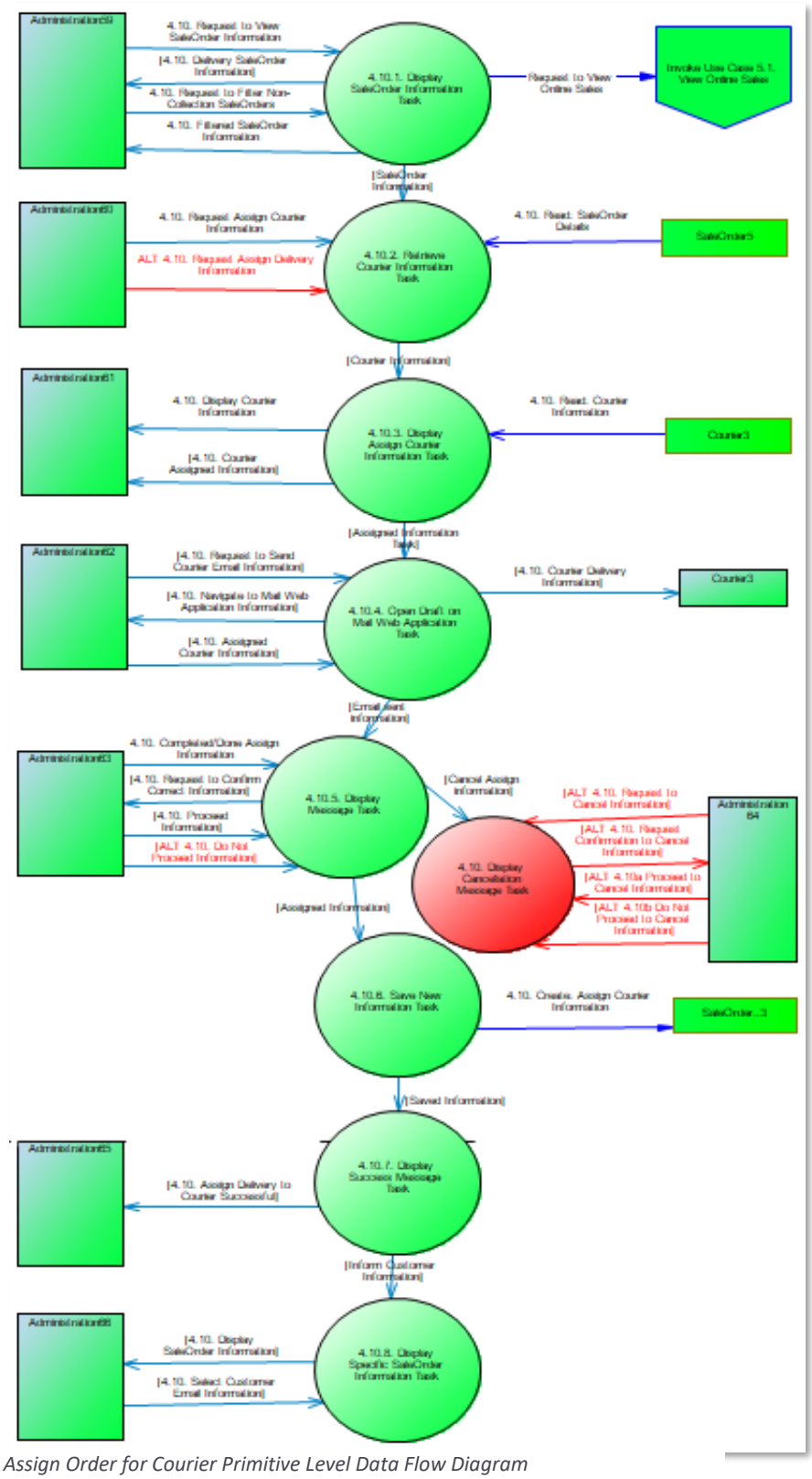


Figure 238 4.10. Assign Order for Courier Primitive Level Data Flow Diagram

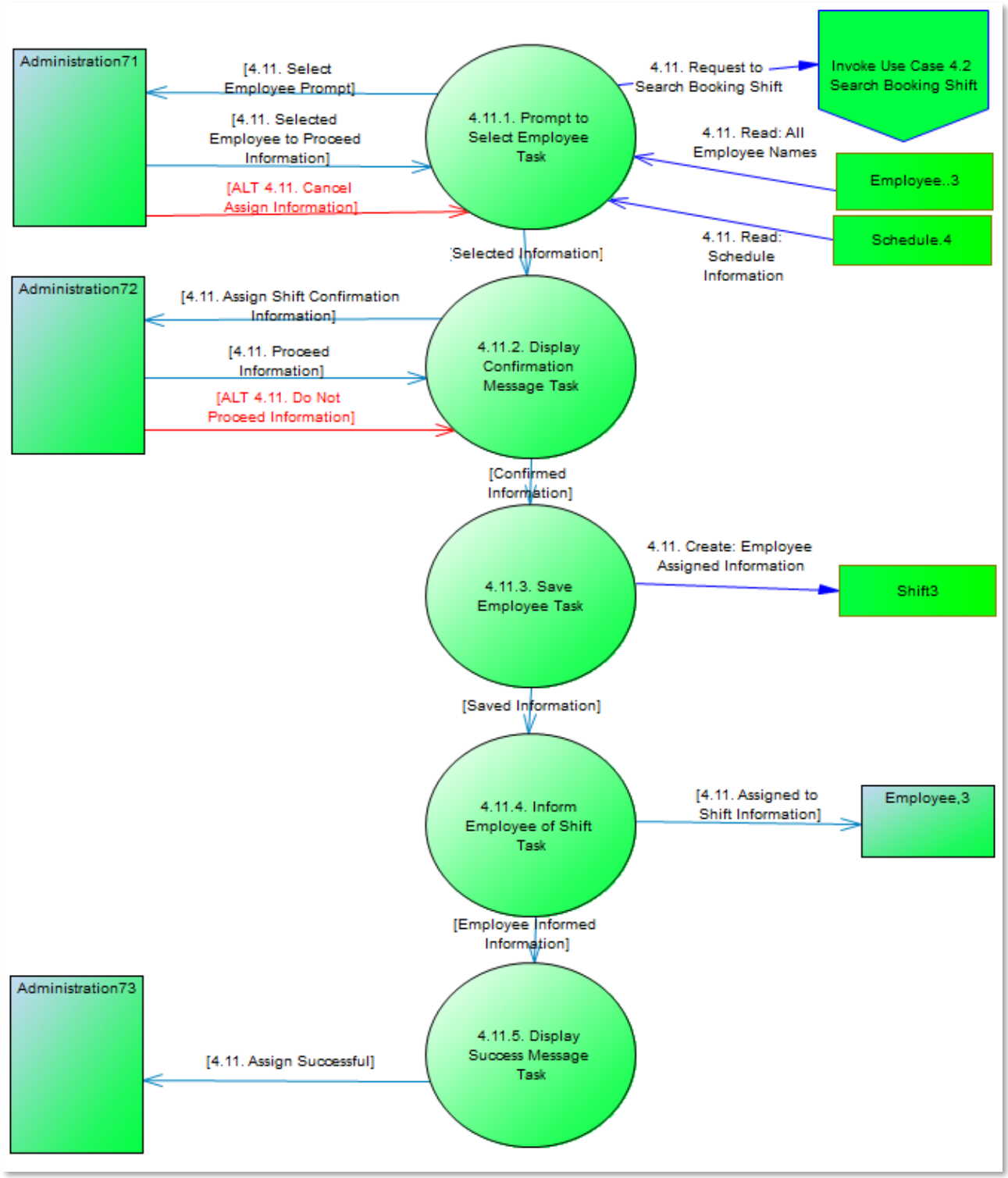


Figure 239 4.11 Assign Shift Primitive Level Data Flow Diagram

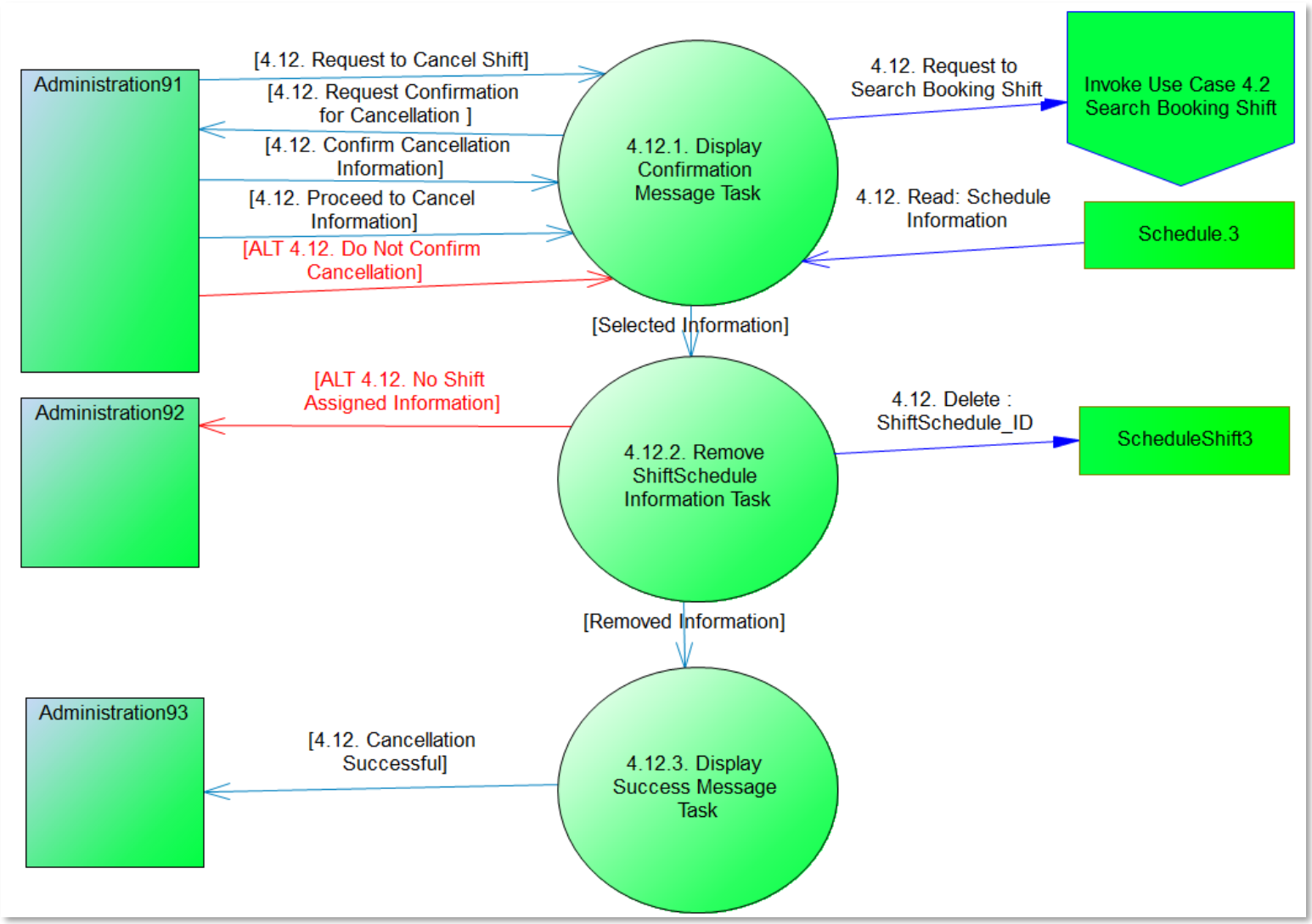


Figure 240 4.12. Cancel Shift Primitive Level Data Flow Diagram

3.3.3.5. Back Office Administration Sub-System

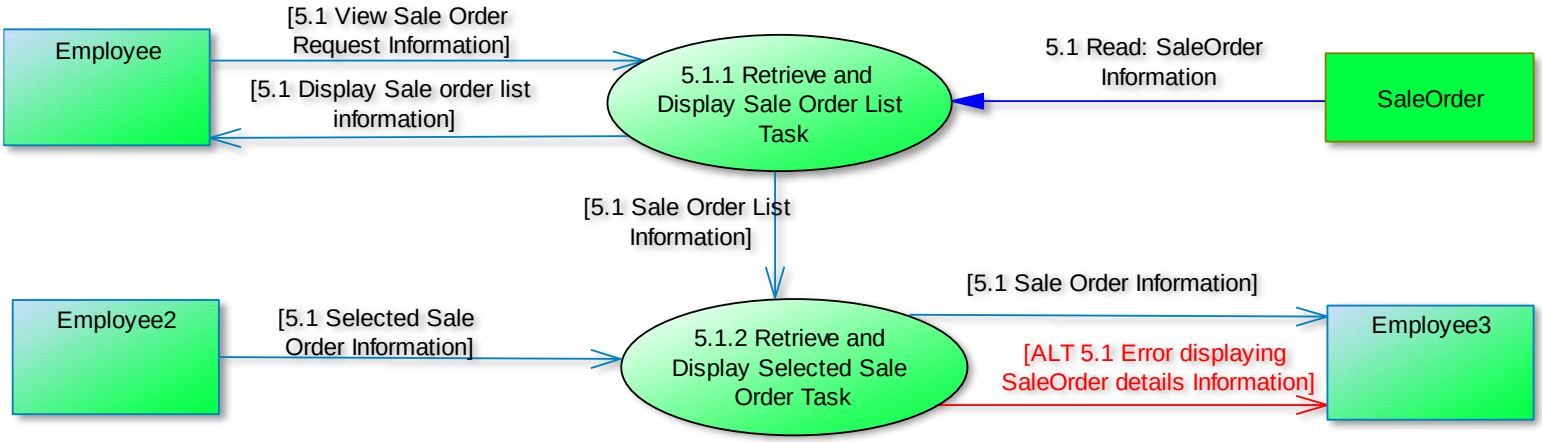


Figure 241 5.1. View Online Sales Primitive Level Data Flow Diagram

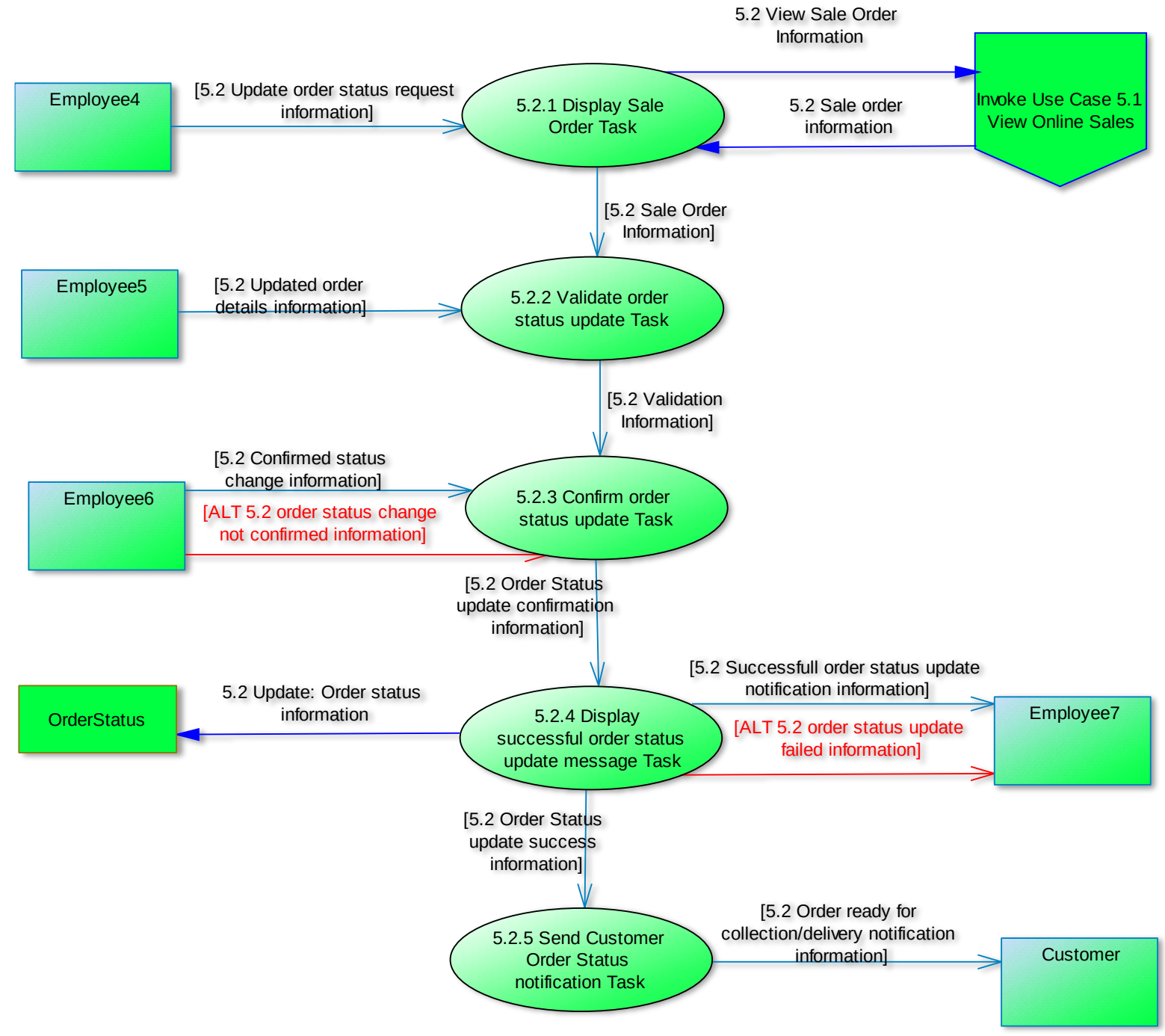


Figure 242 5.2. Update Sale Status Primitive Level Data Flow Diagram

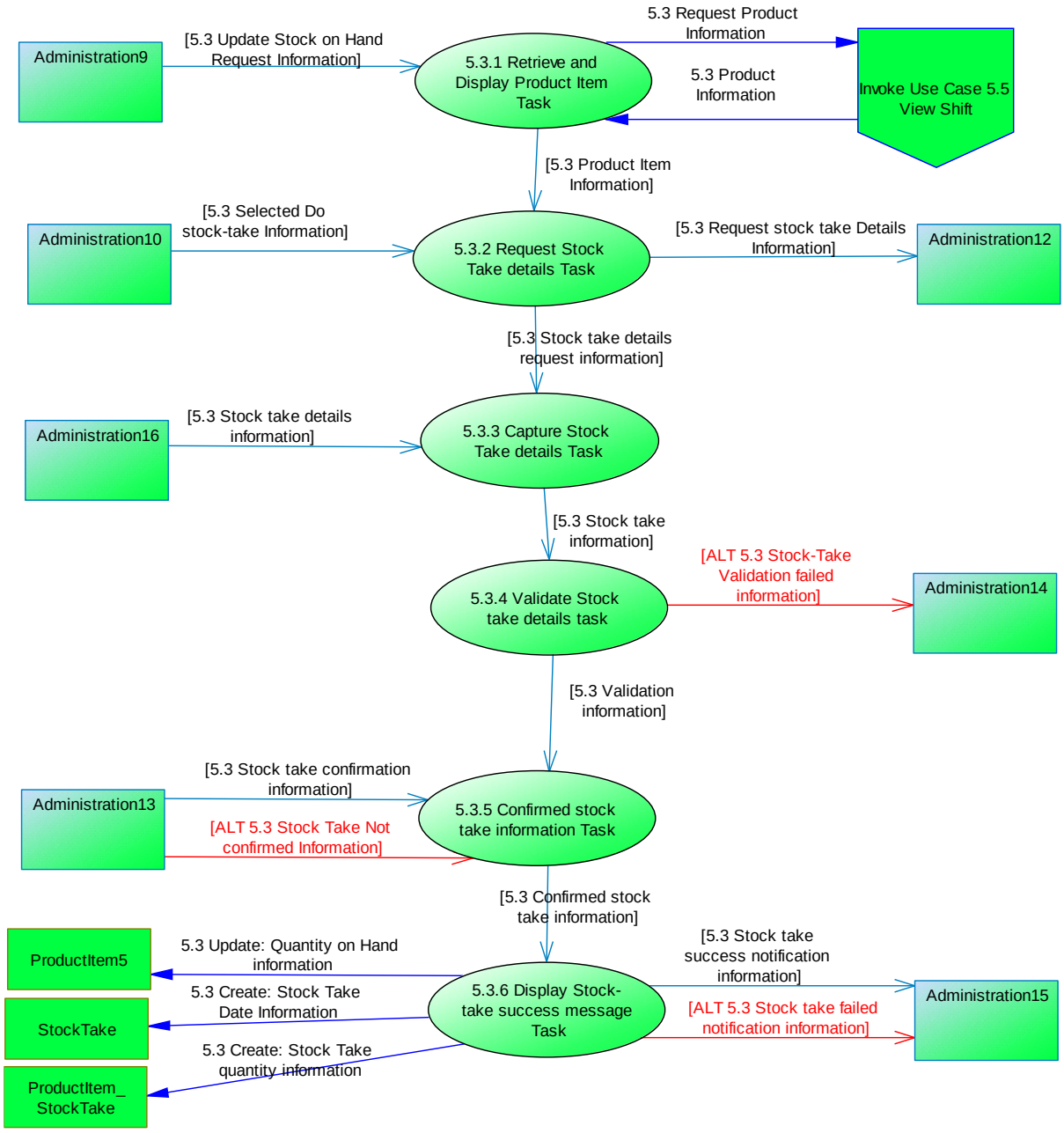


Figure 243 5.3. Do Stock Take Primitive Level Data Flow Diagram

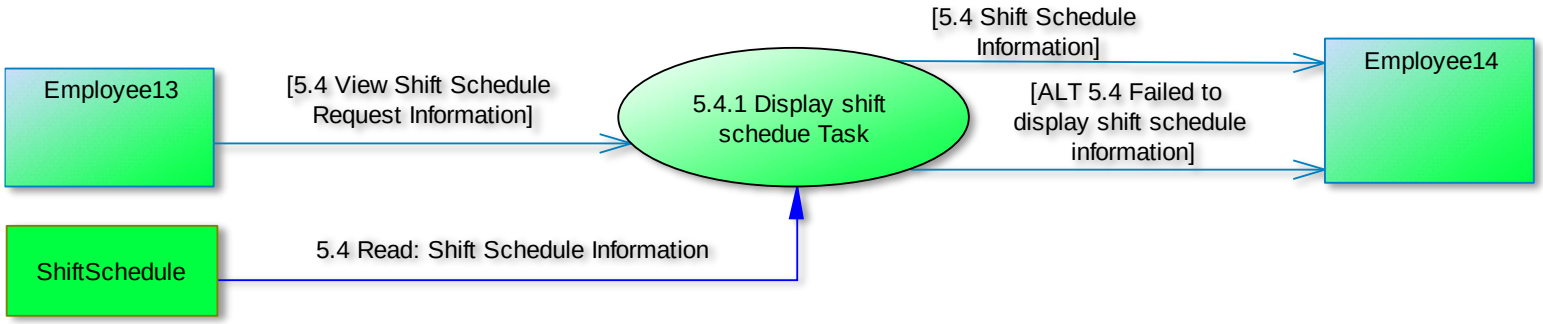


Figure 246 5.4. View Shift Schedule Primitive Level Data Flow Diagram

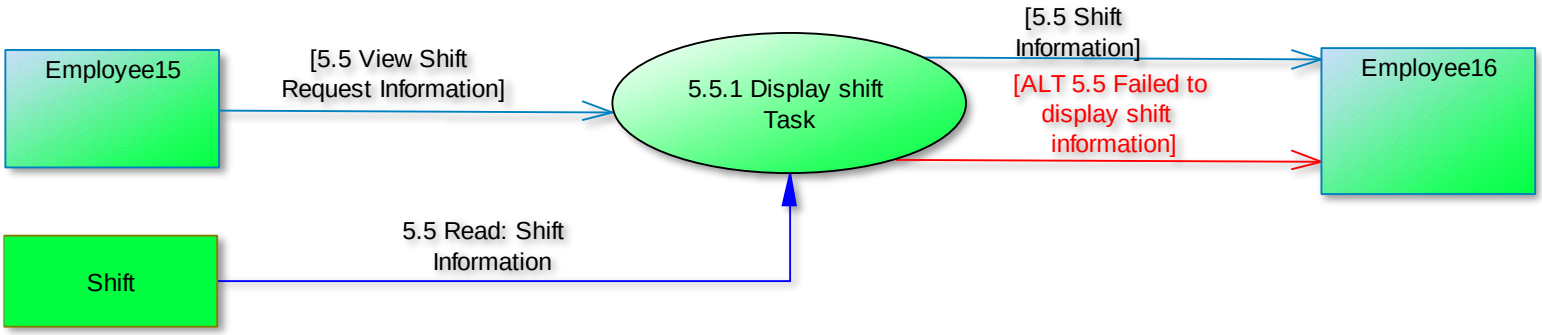


Figure 245 5.5.View Shift Primitive Level Data Flow Diagram

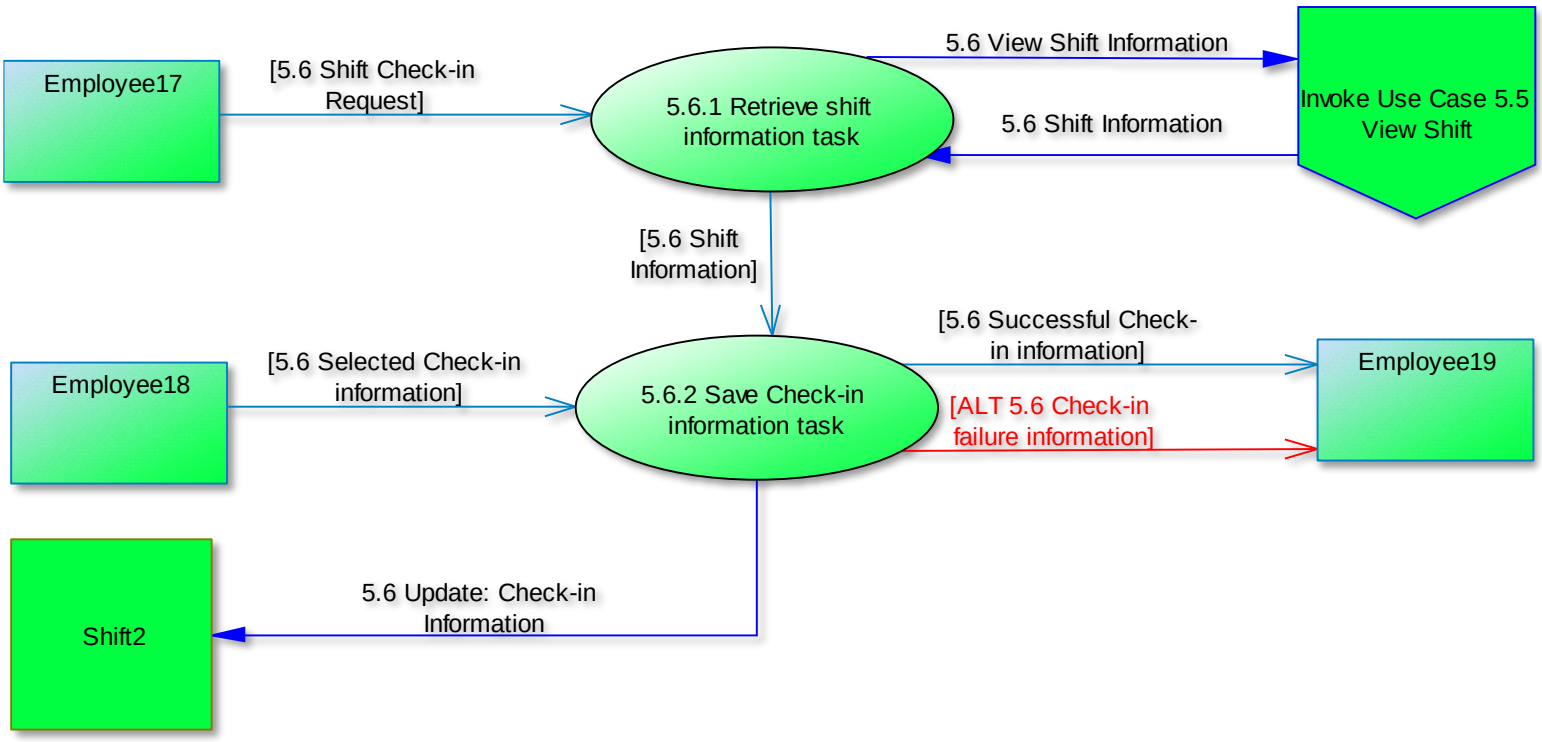


Figure 244 5.6. Check-in Primitive Level Data Flow Diagram

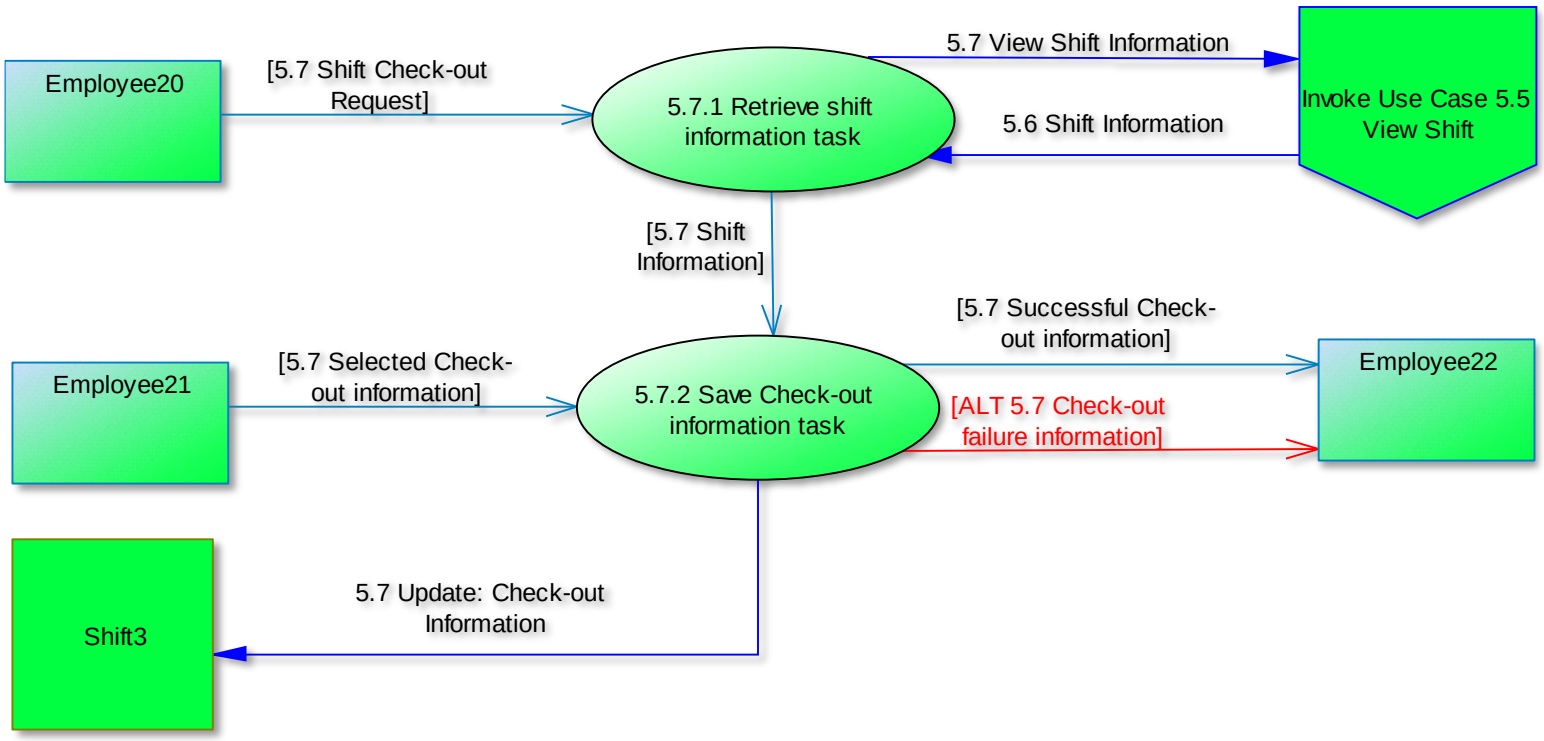


Figure 247 5.7. Check-Out Primitive Level Data Flow Diagram

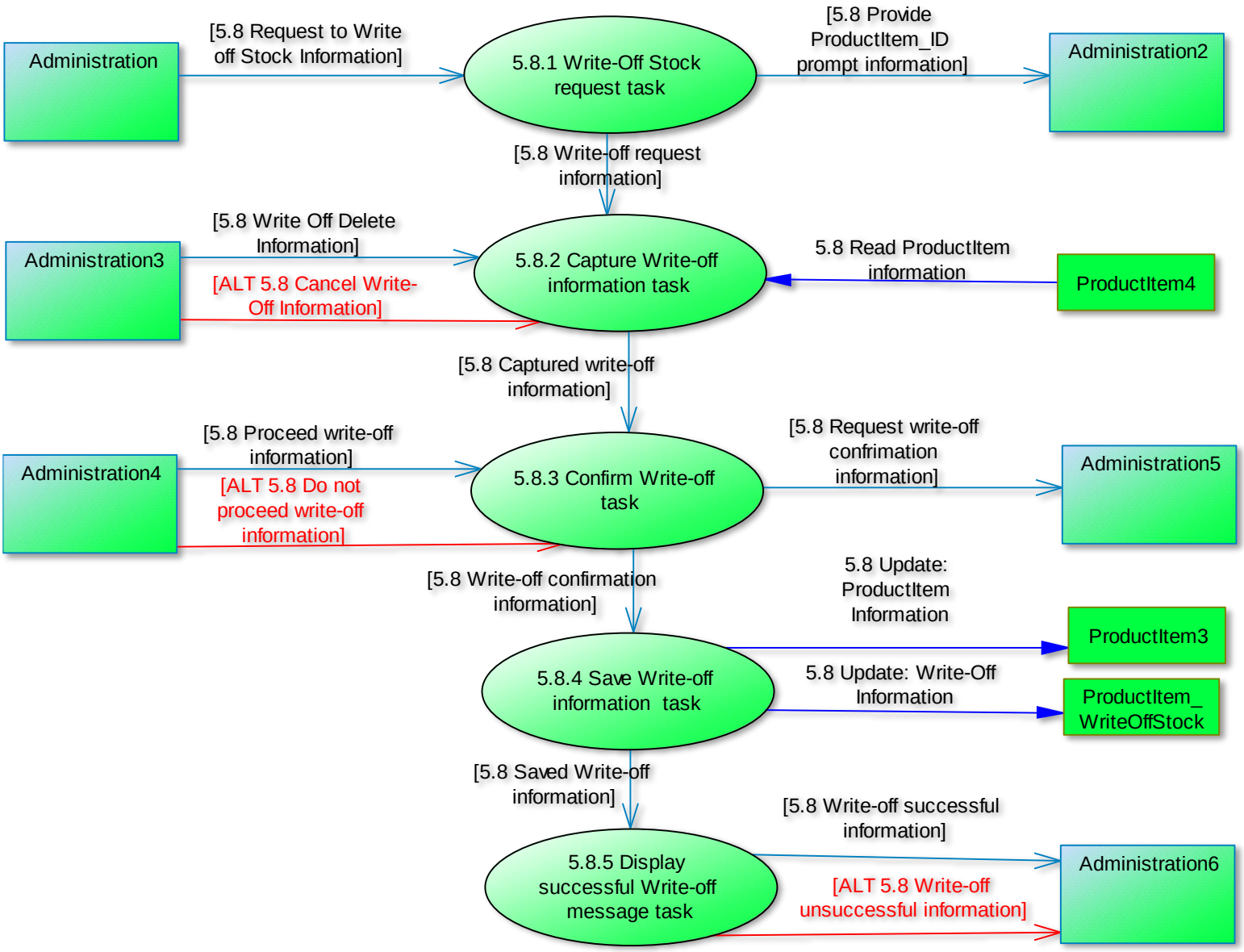


Figure 248 5.8. Write-off Stock Primitive Level Data Flow Diagram

3.3.3.6 Customer Sub-System

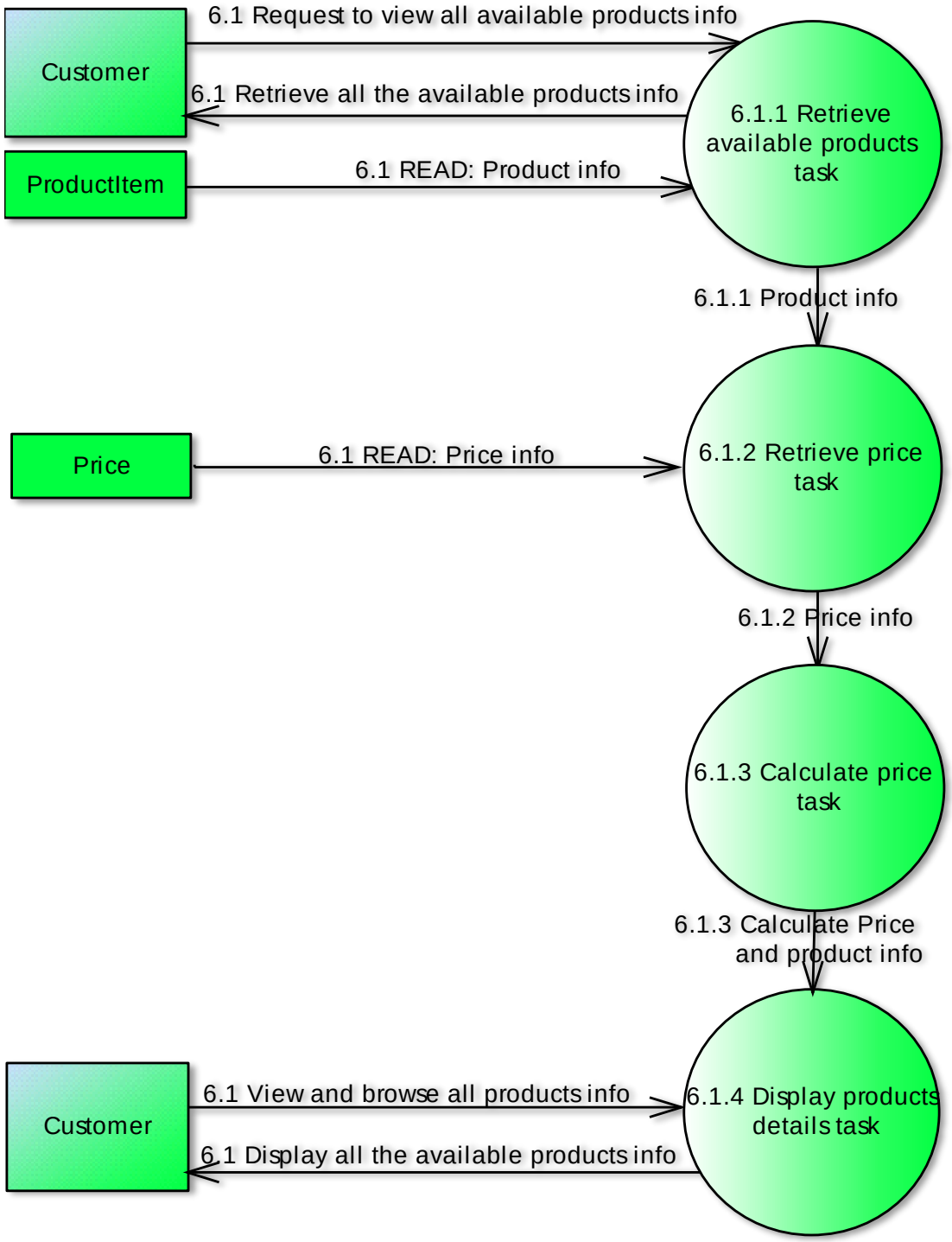


Figure 249 6.1. Browse Product Primitive Level Data Flow Diagram

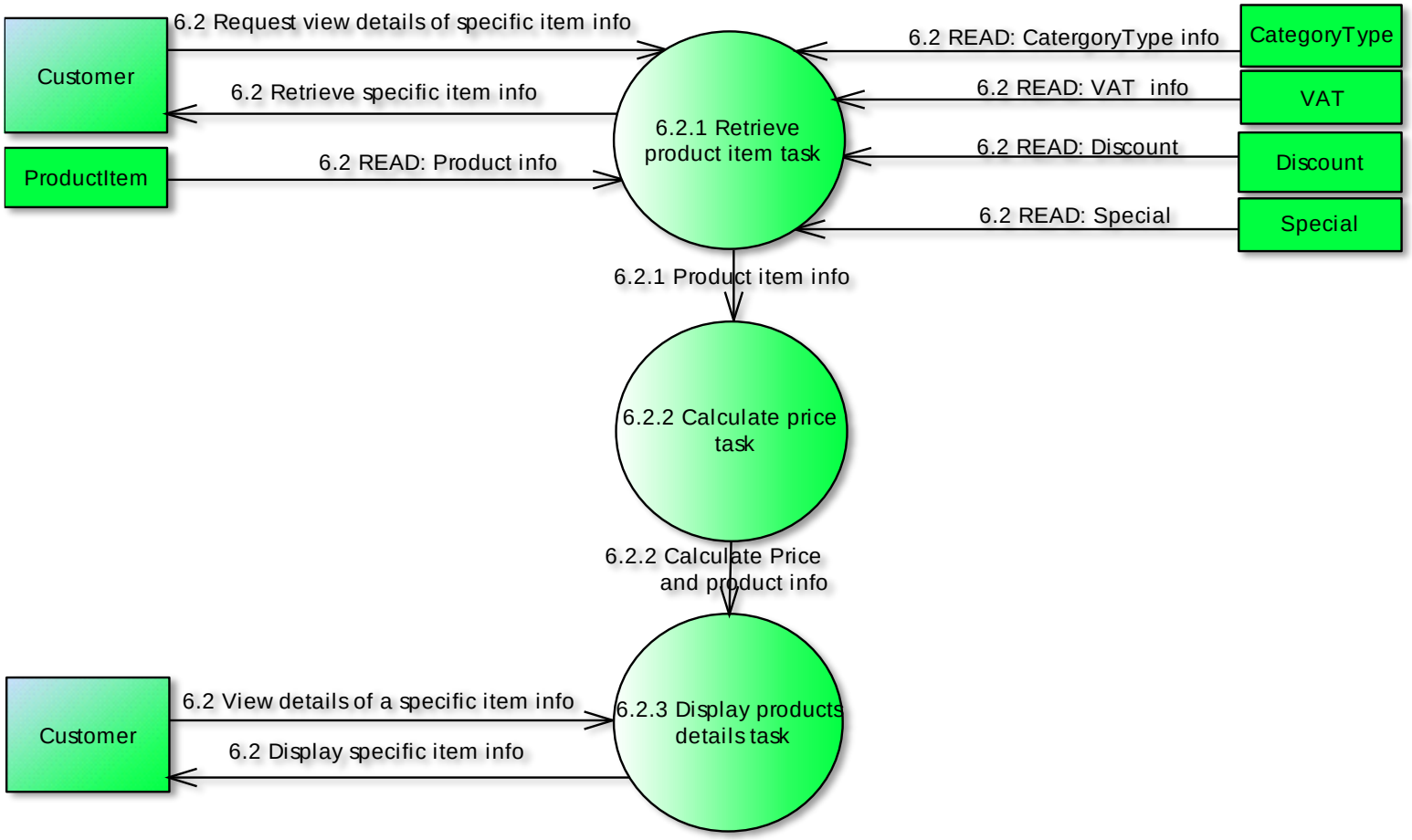


Figure 250 6.2. View Product Details Primitive Level Data Flow Diagram

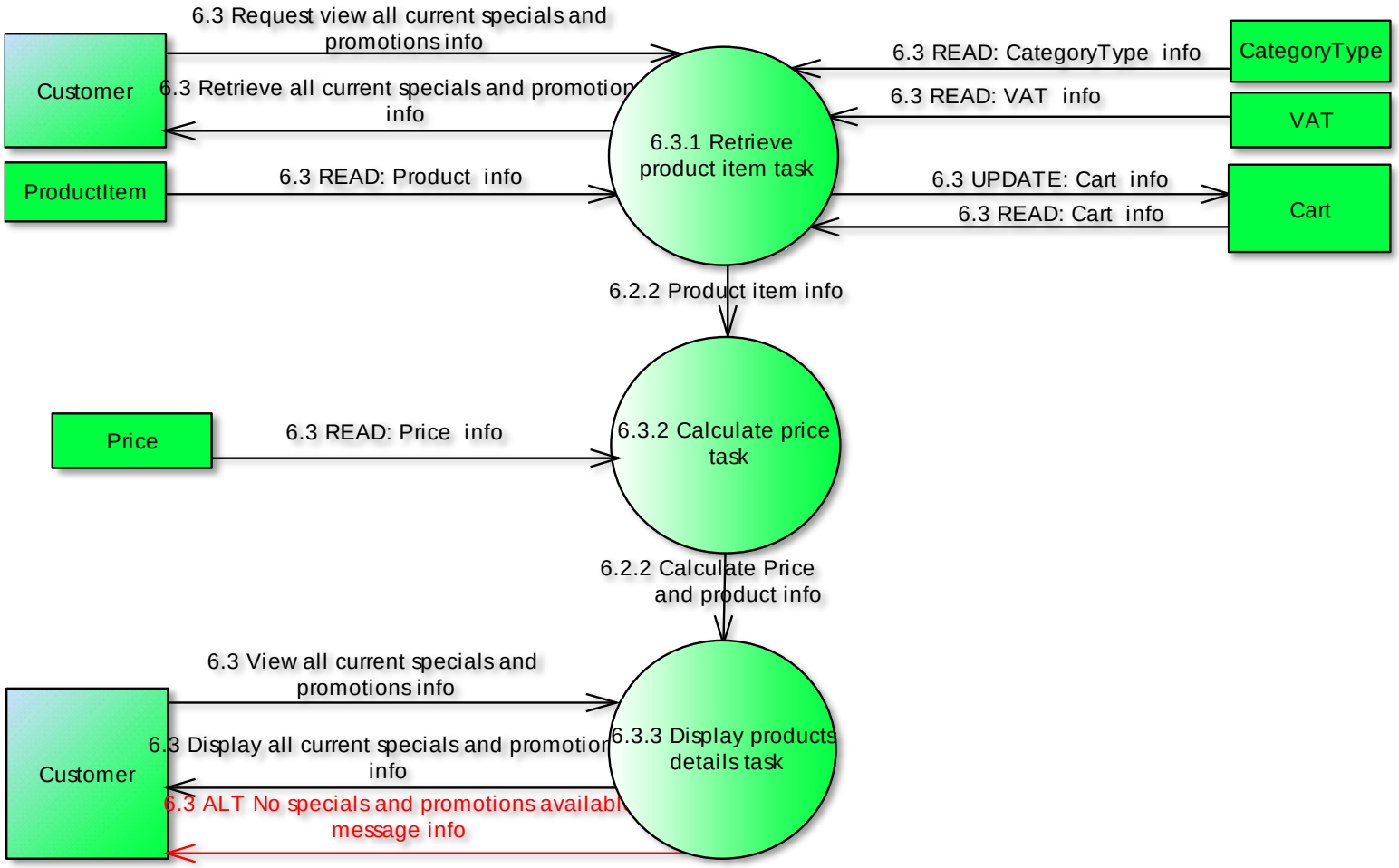


Figure 251 6.3. View Specials Primitive Level Data Flow Diagram

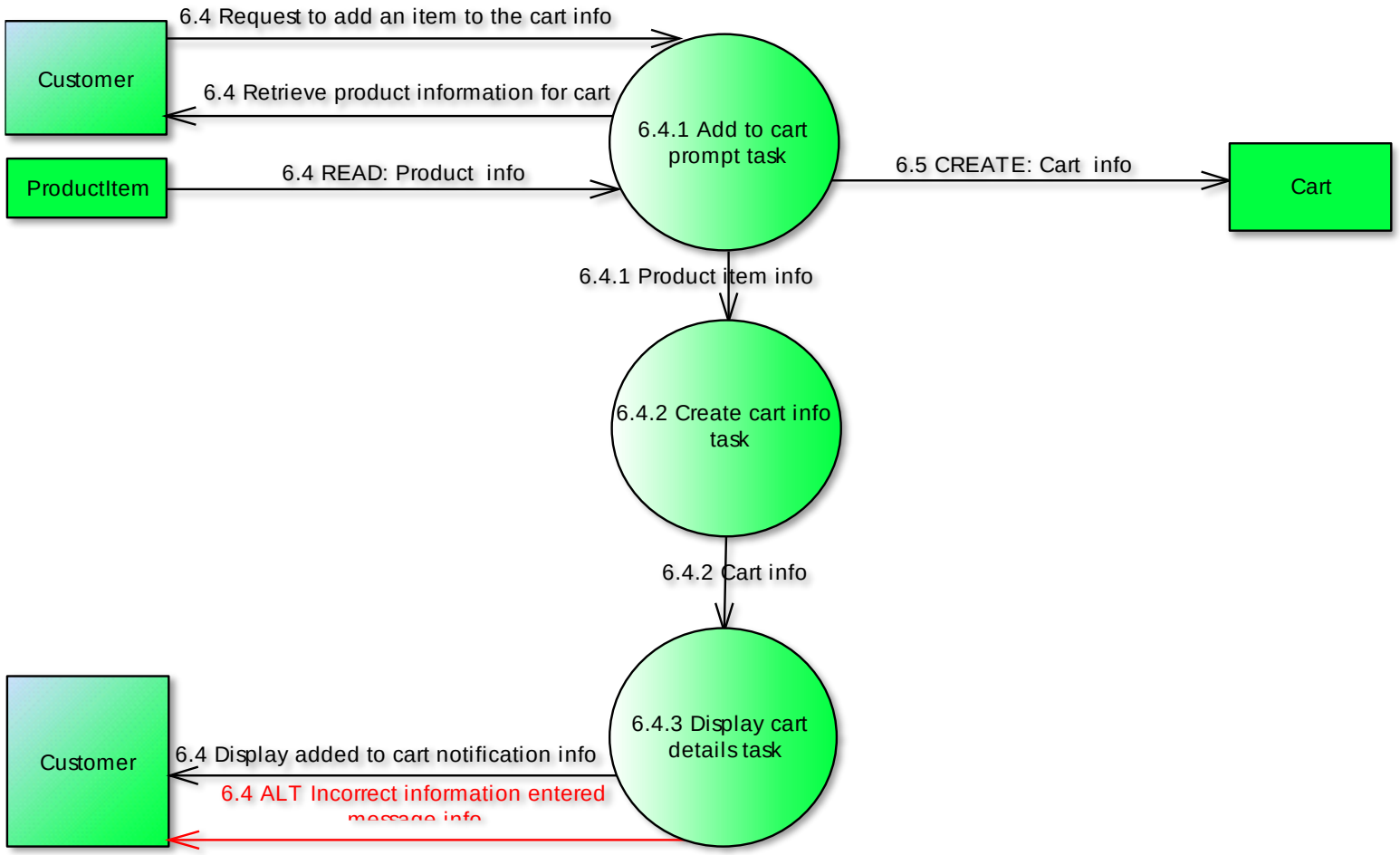


Figure 252 6.4. Add Item to Cart Primitive Level Data Flow Diagram

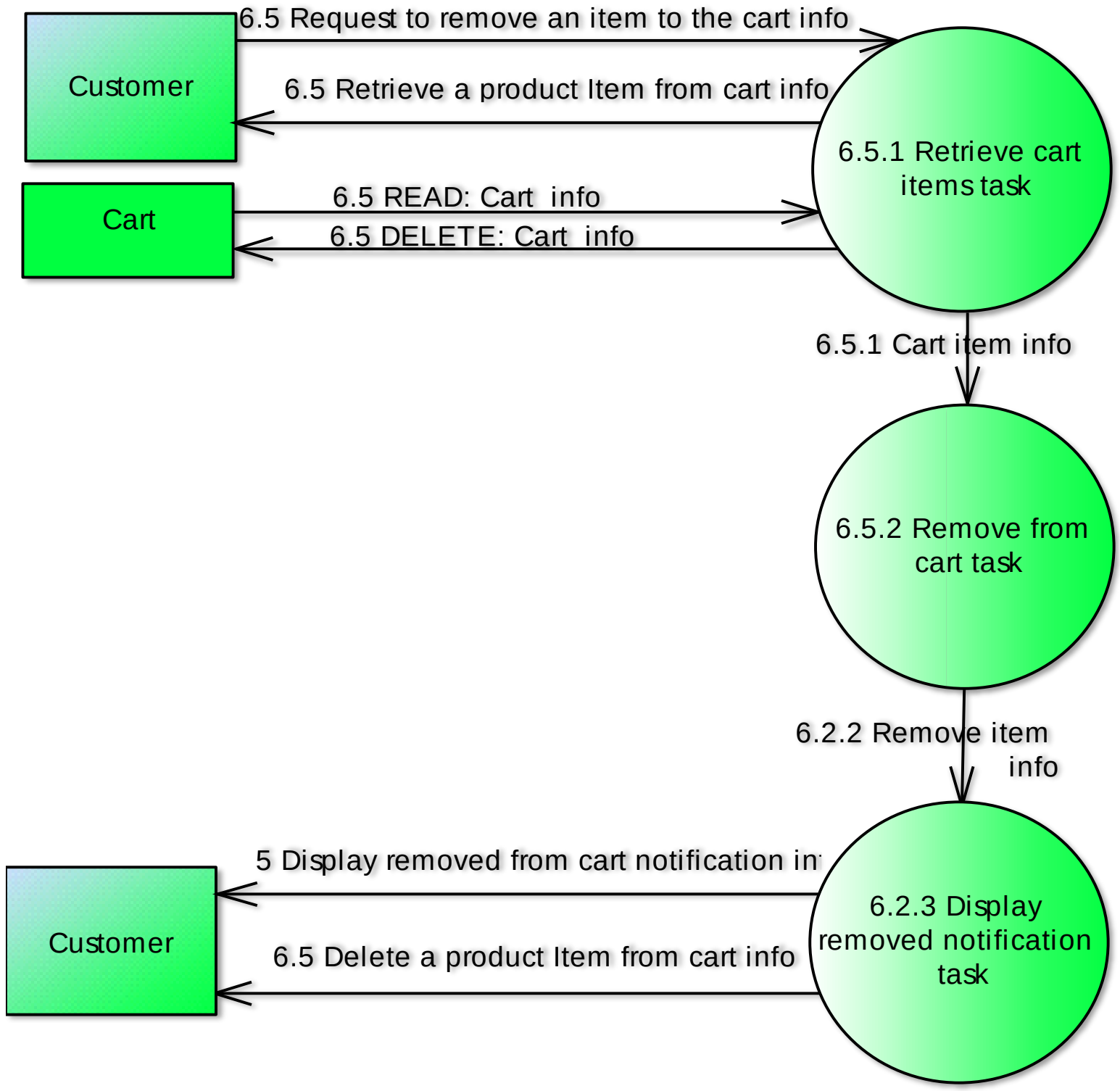


Figure 253 6.5. Remove Cart Item Primitive Level Data Flow Diagram

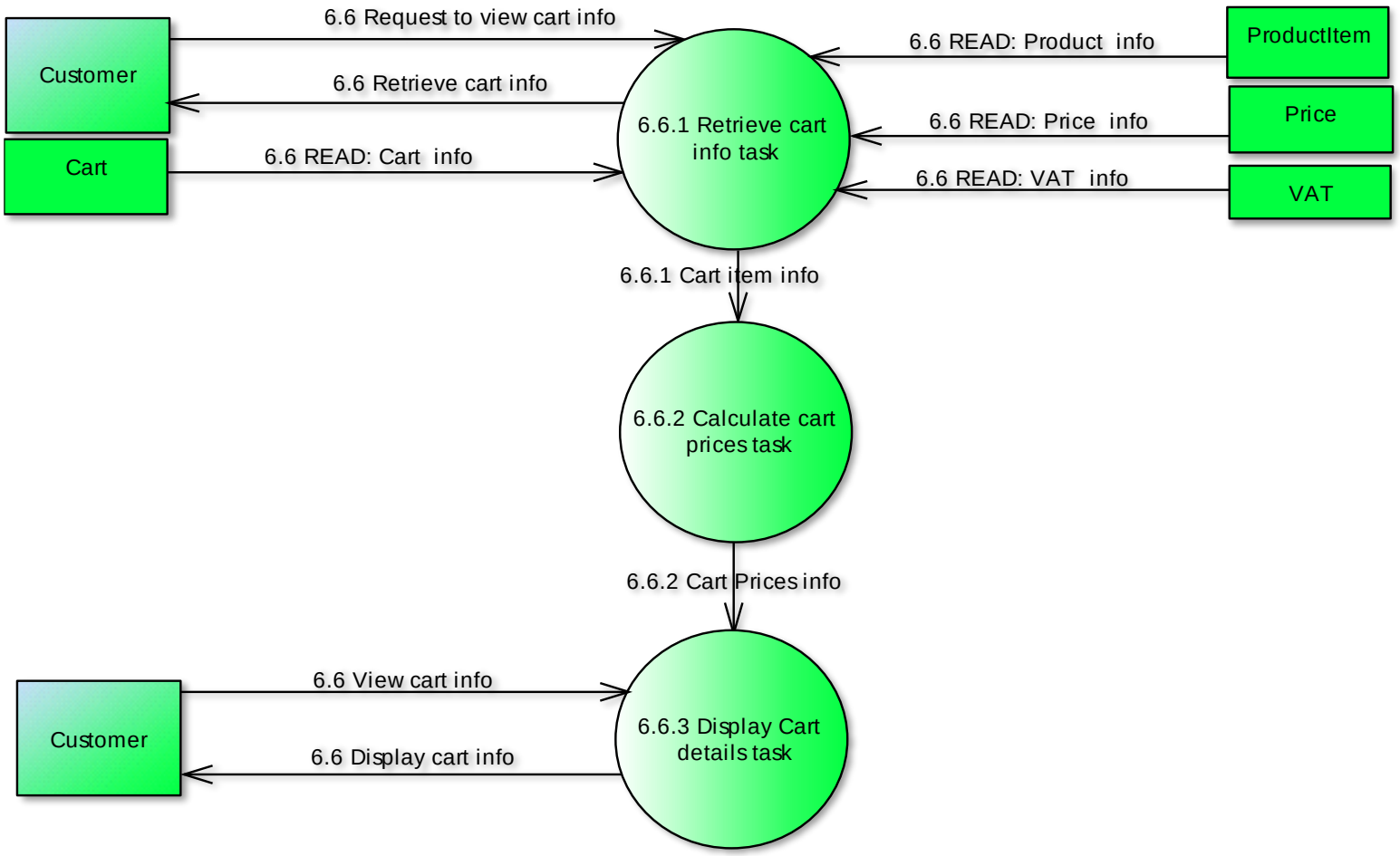


Figure 254 6.6. View Cart Primitive Level Data Flow Diagram

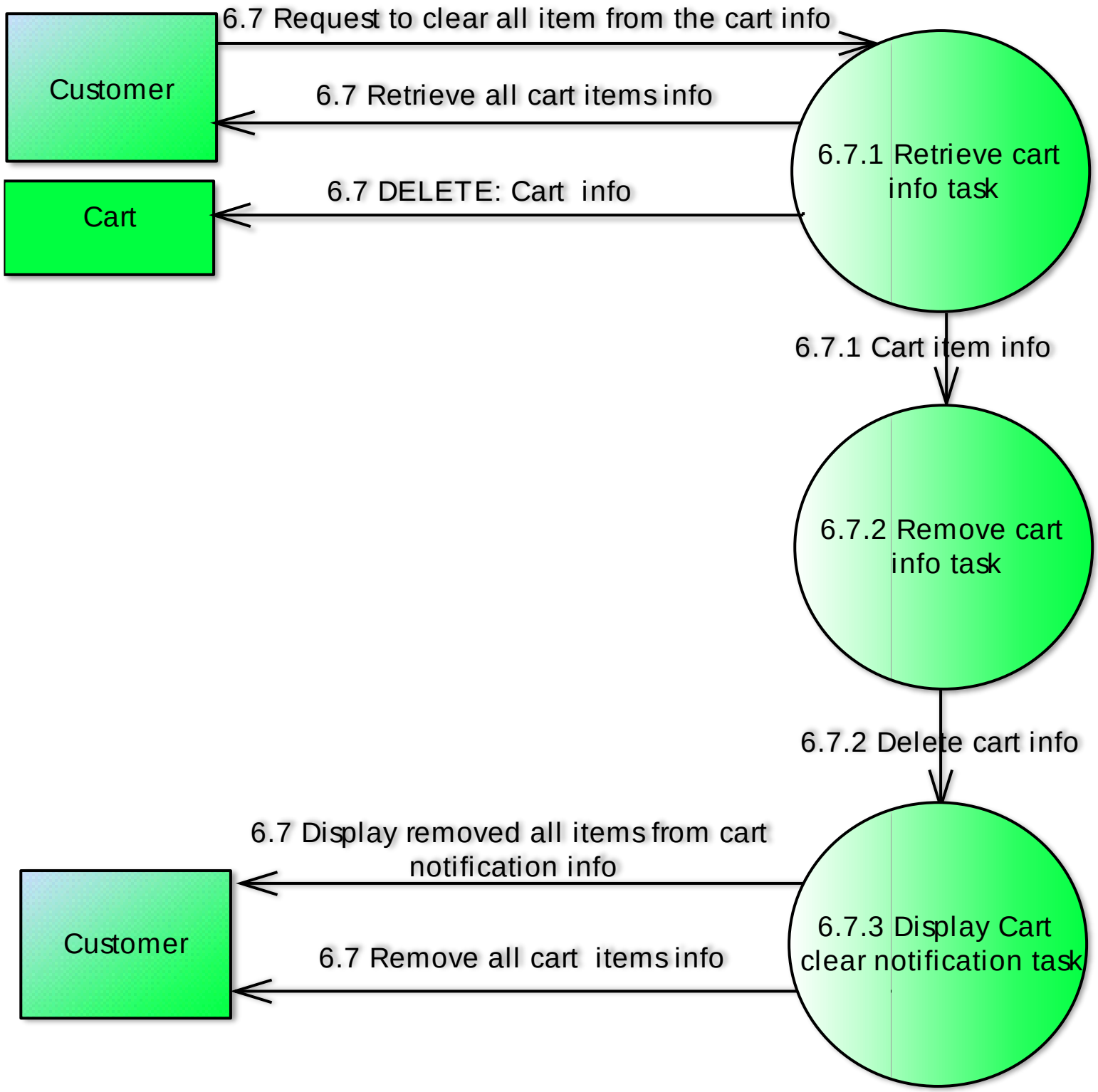


Figure 255 6.7. Empty Cart Primitive Level Data Flow Diagram

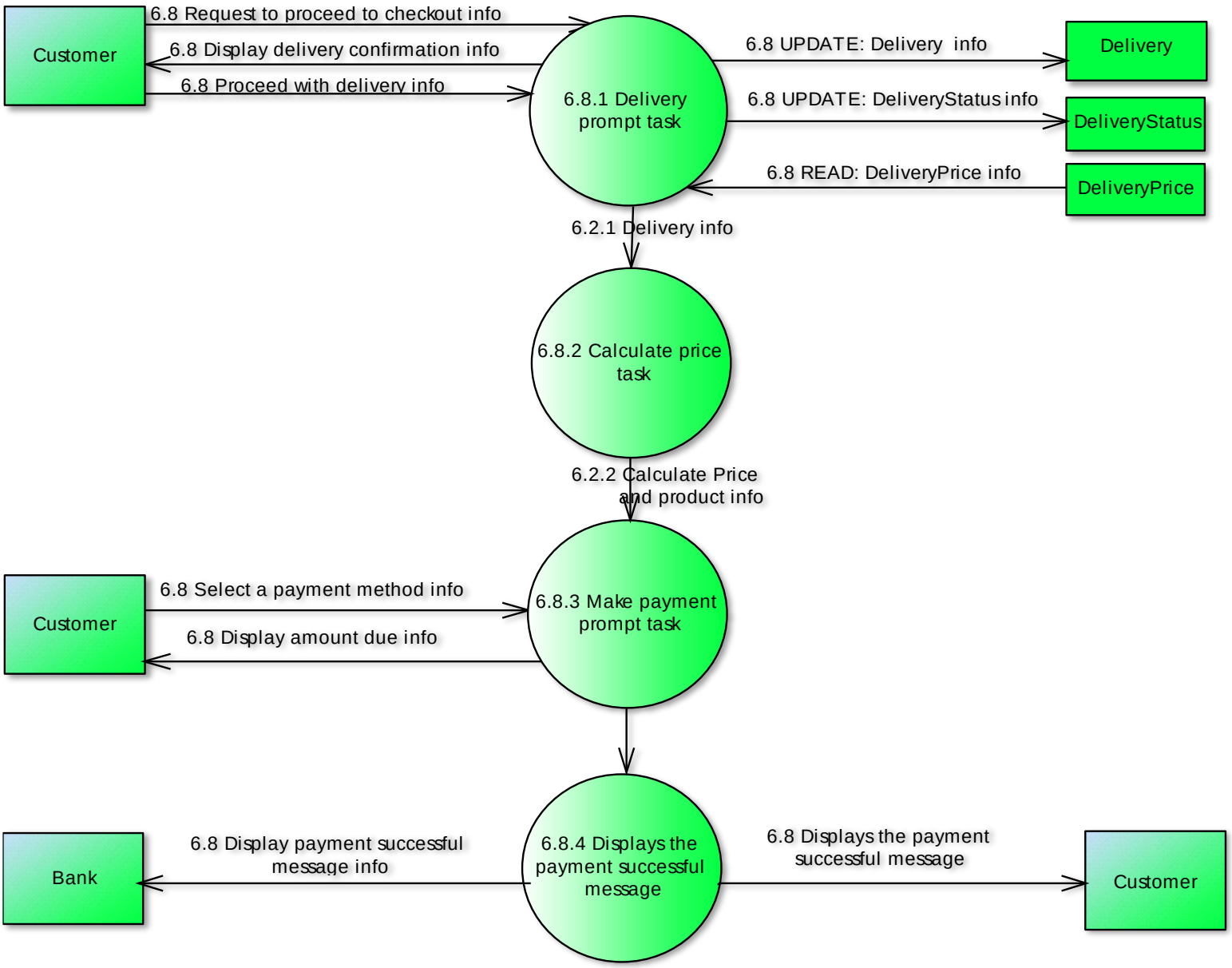


Figure 256 6.8. Checkout Order Primitive Level Data Flow Diagram

3.3.3.7 Reports Sub-System

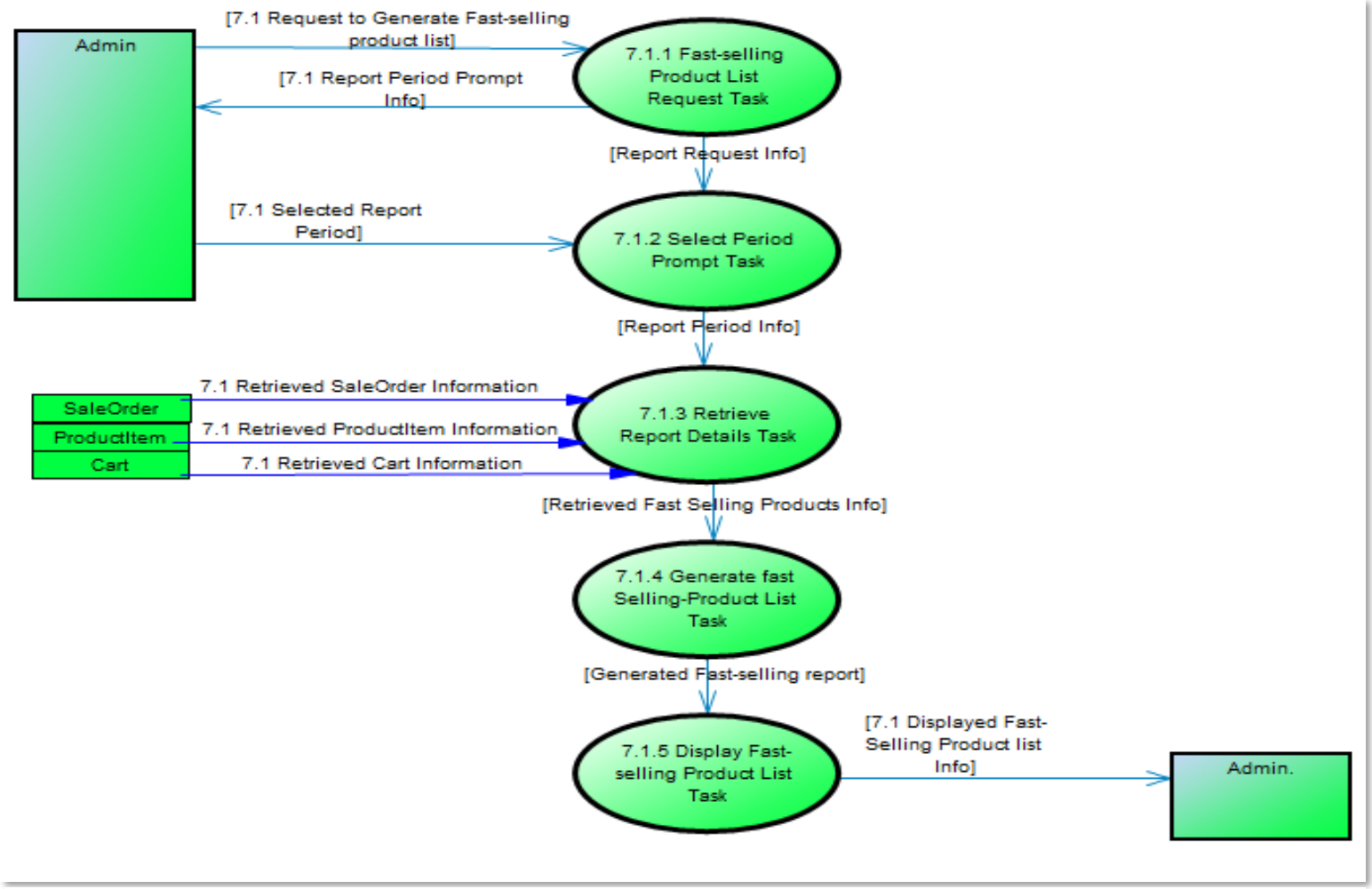


Figure 257 7.1. Generate Fast Selling Product List Primitive Level Data Flow Diagram

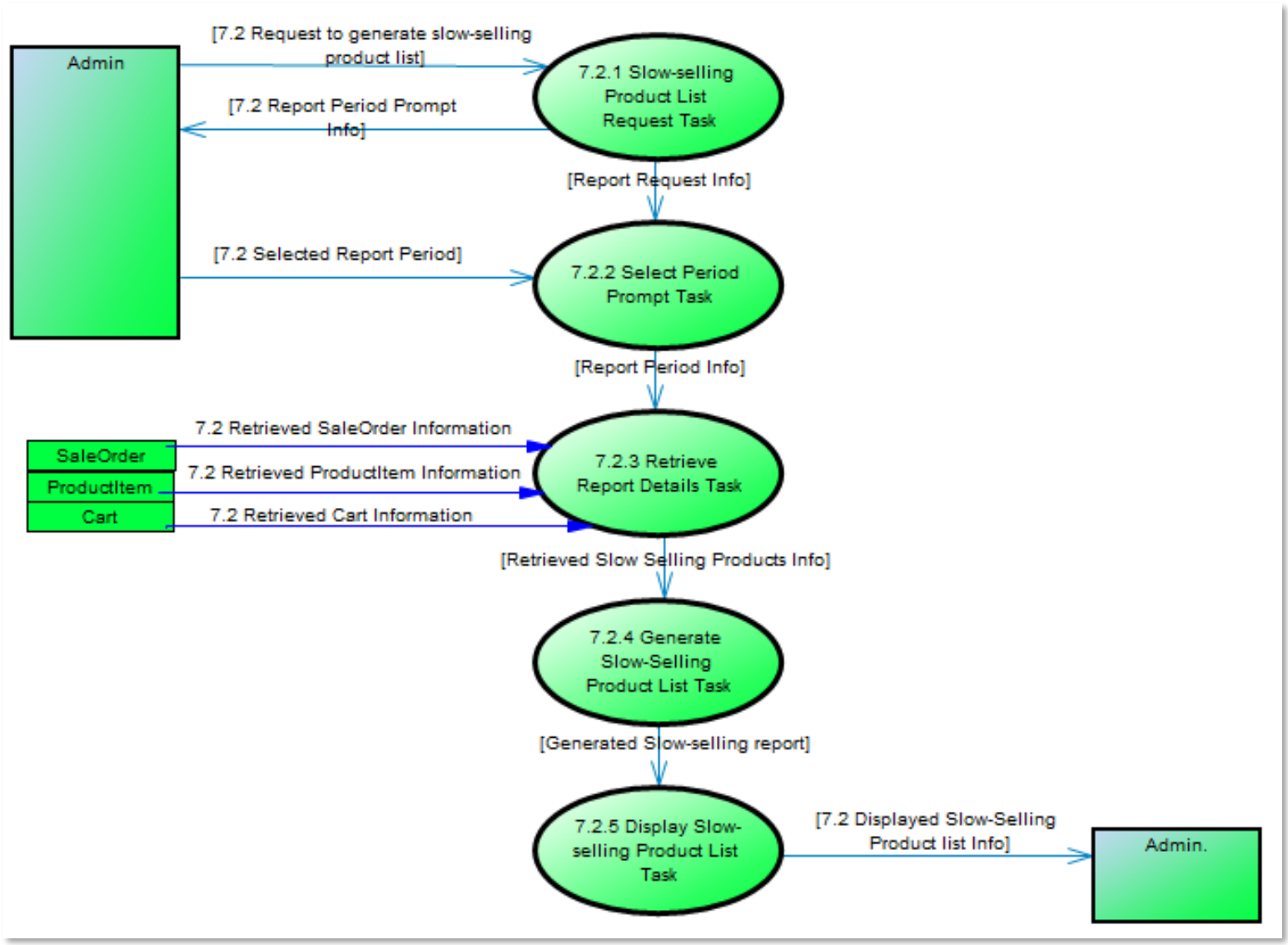


Figure 258 7.2. Generate Slow Selling Product List Primitive Level Data Flow Diagram

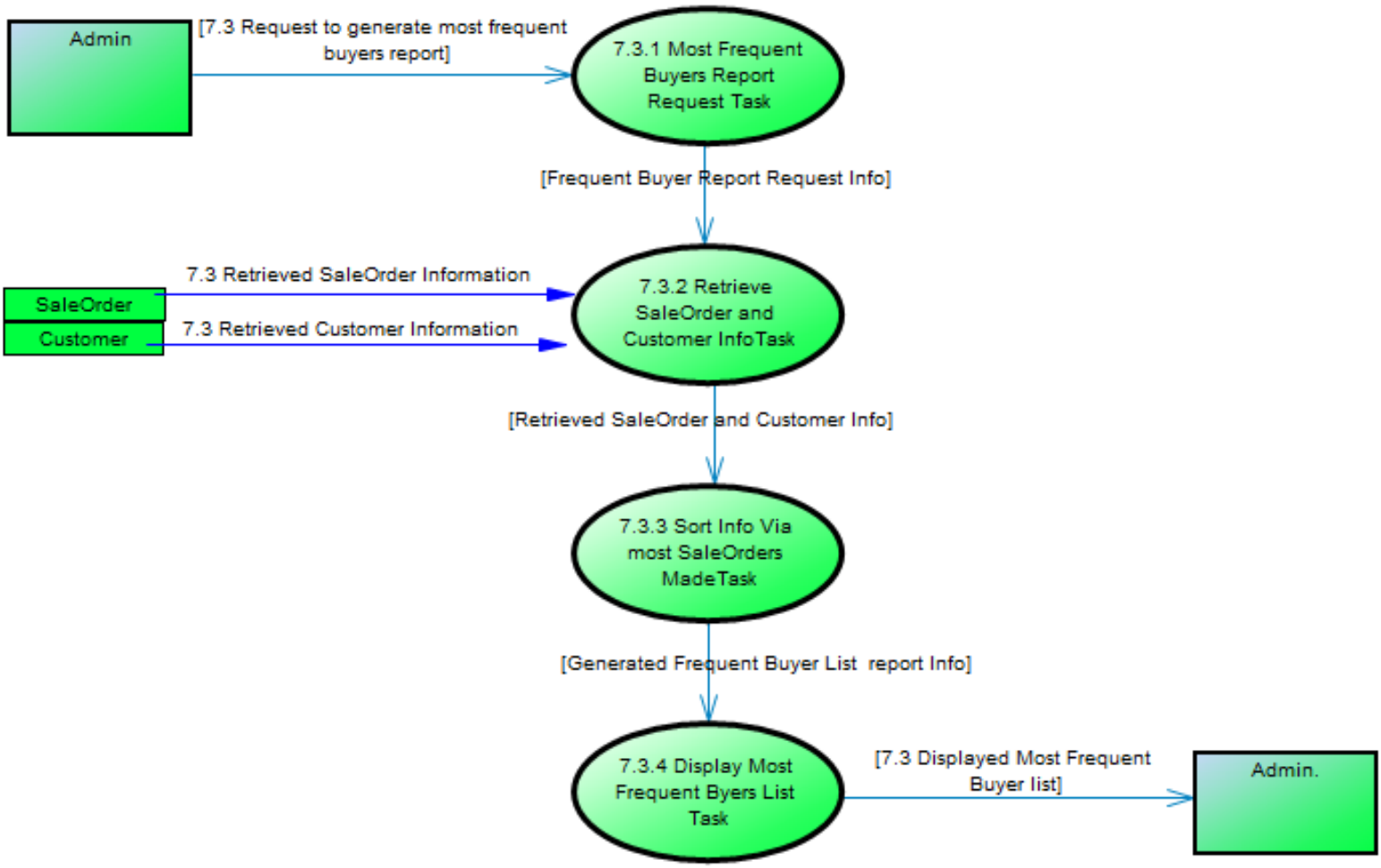


Figure 259 7.3. Generate Most Frequent Buyers Report Primitive Level Data Flow Diagram

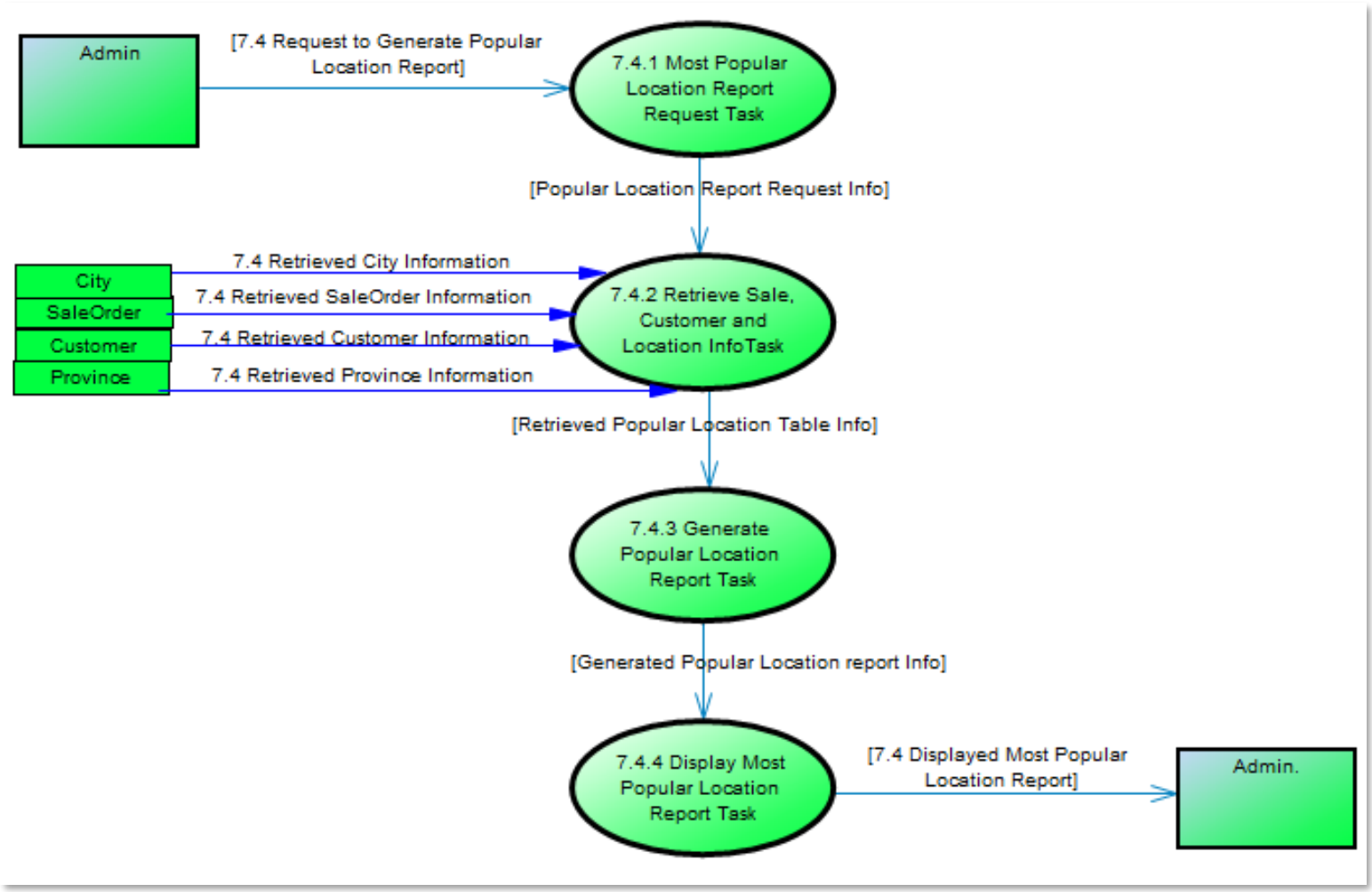


Figure 260 7.4. Generate Most Popular Location Report Primitive Level Data Flow Diagram

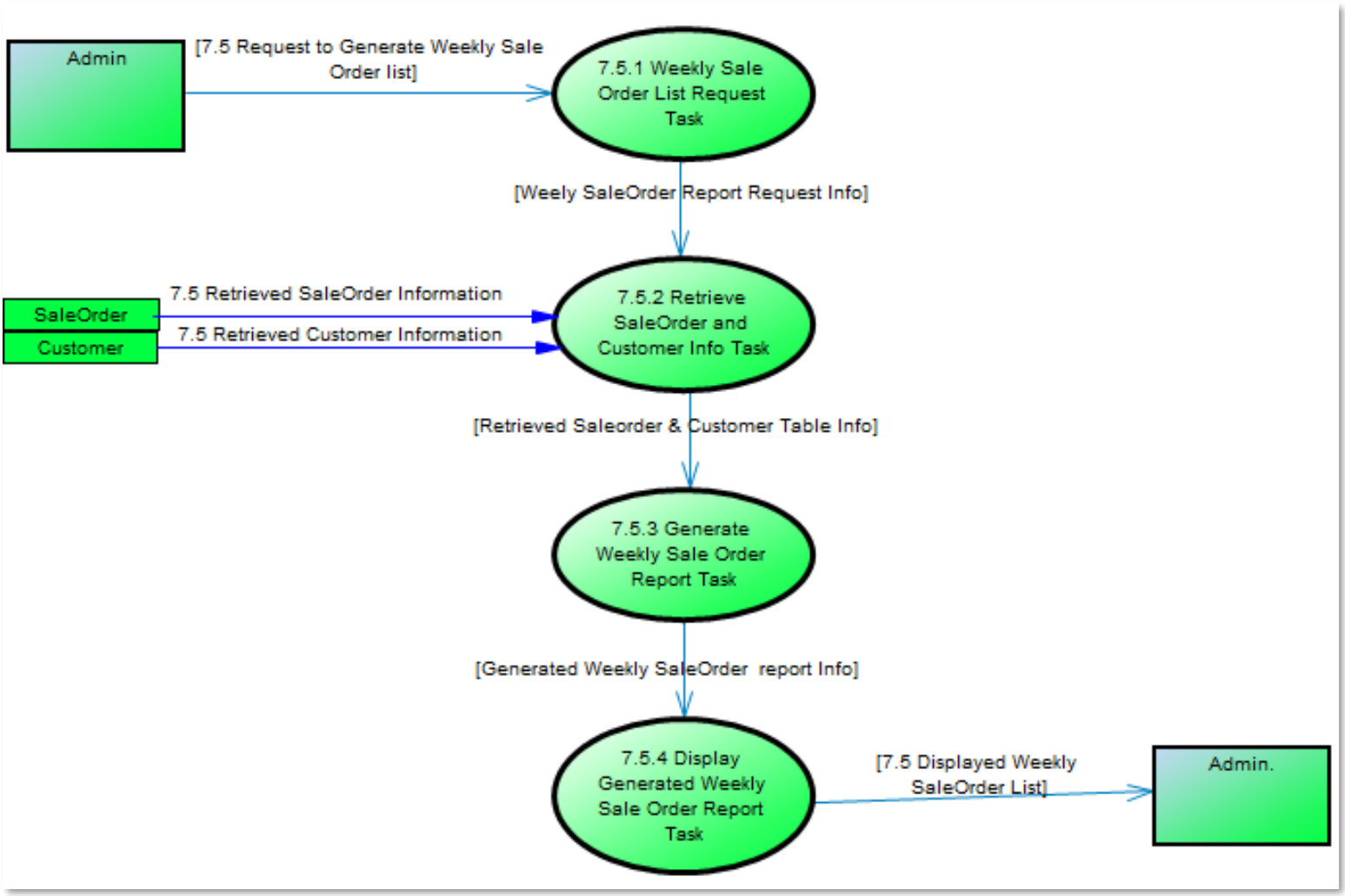


Figure 261 7.5. Generate Weekly Sale Order List Primitive Level Data Flow Diagram



Figure 262 7.6. Generate Monthly Sale Order List

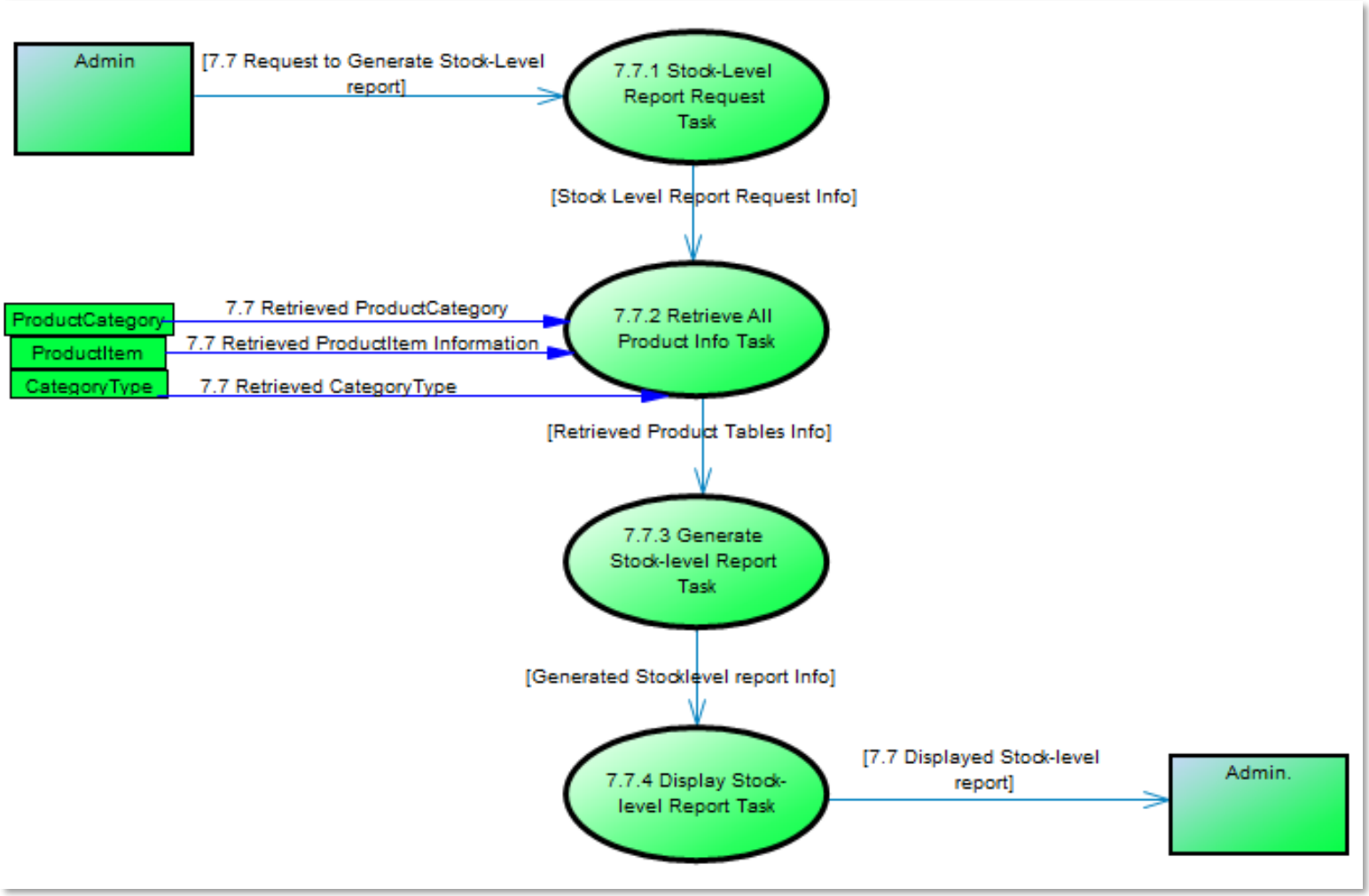


Figure 263 7.7. Generate Stock-Level Report



Figure 264 7.8. Packing Report Primitive Level Data Flow Diagram

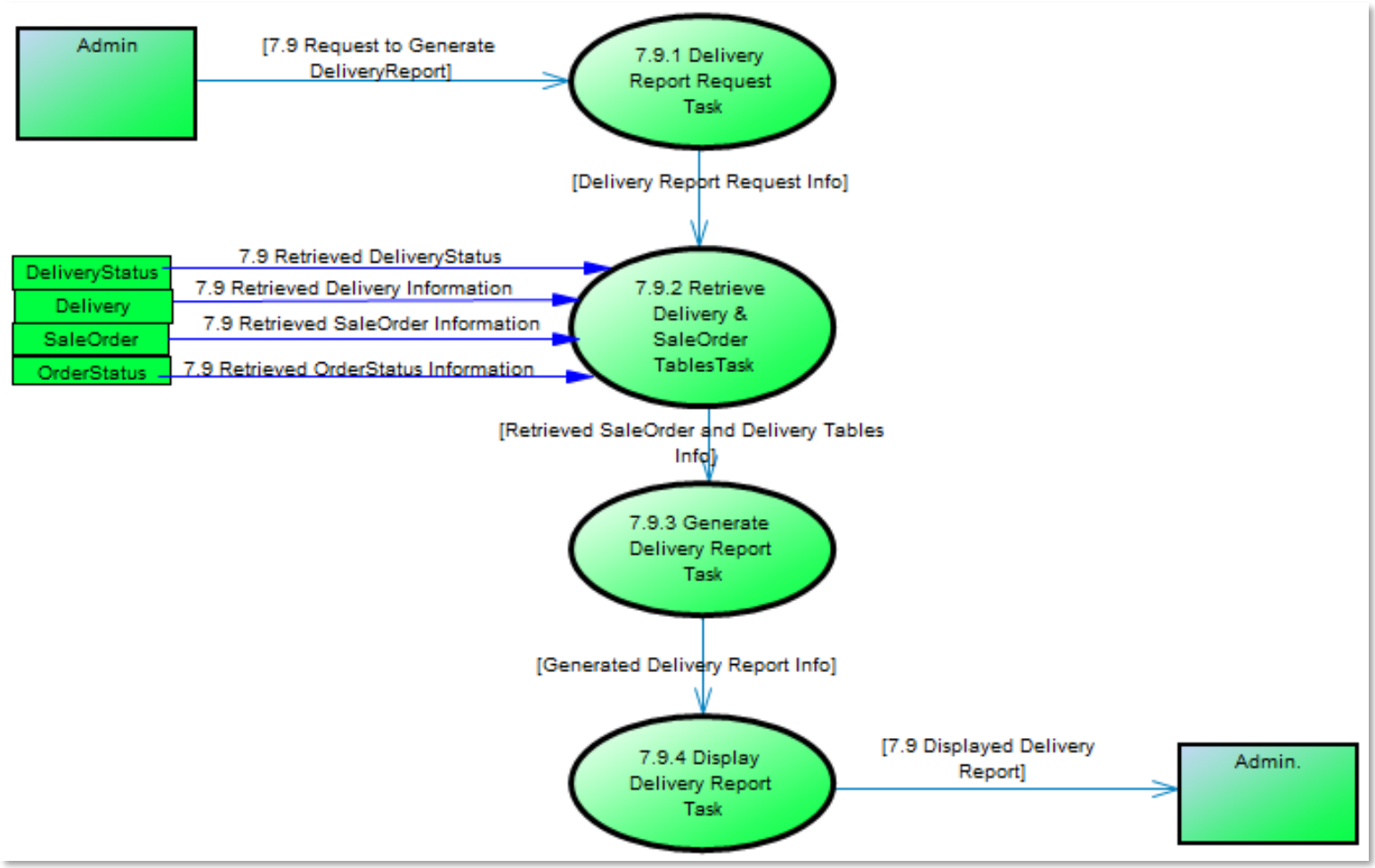


Figure 265 7.9. Delivery Report Primitive Level Data Flow Diagram

3.3.3.8 Delivery Sub-System

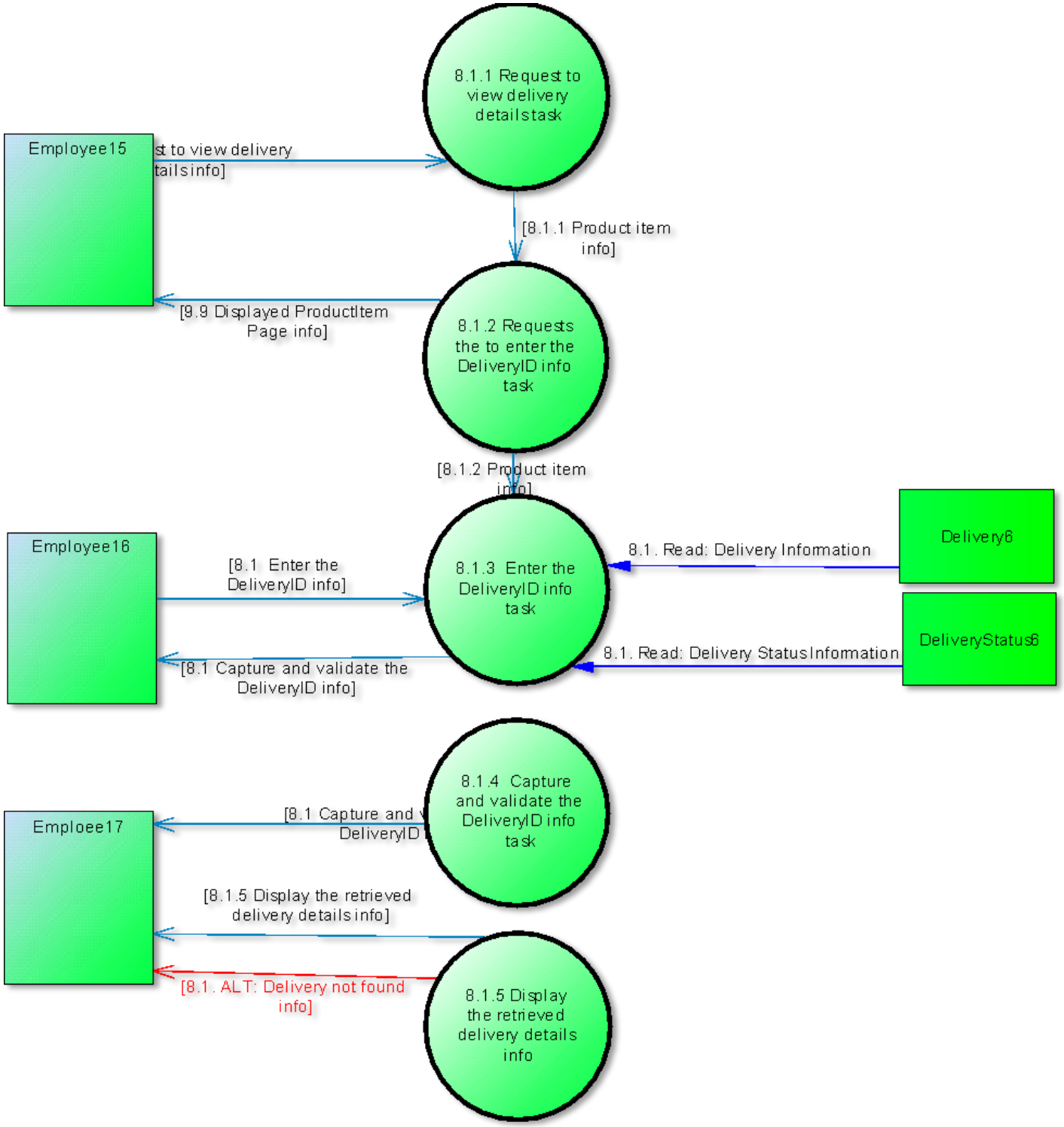


Figure 266 8.1. View Delivery Details Primitive Level Data Flow Diagram

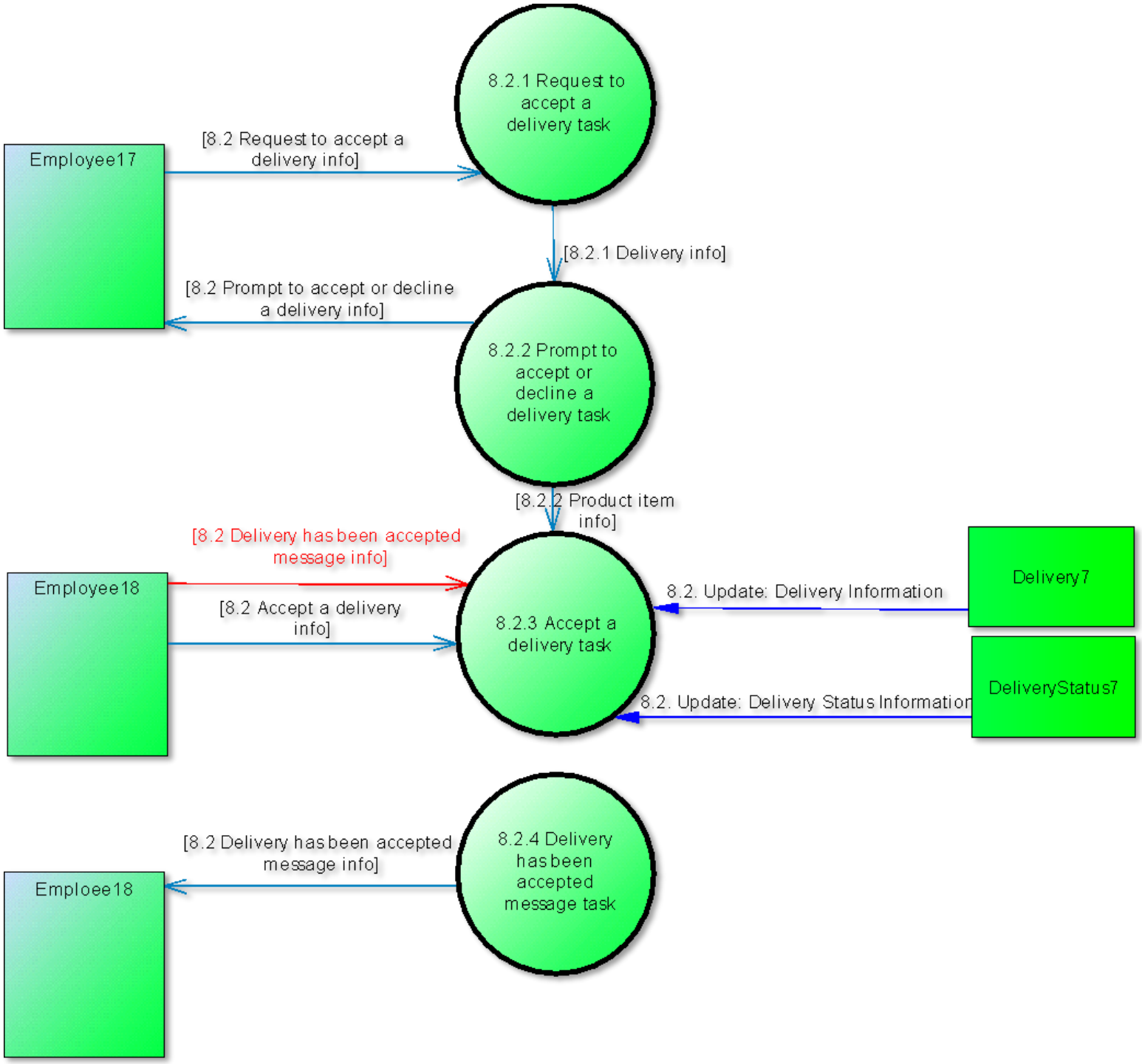


Figure 267 8.2. Accept Delivery Primitive Level Data Flow Diagram

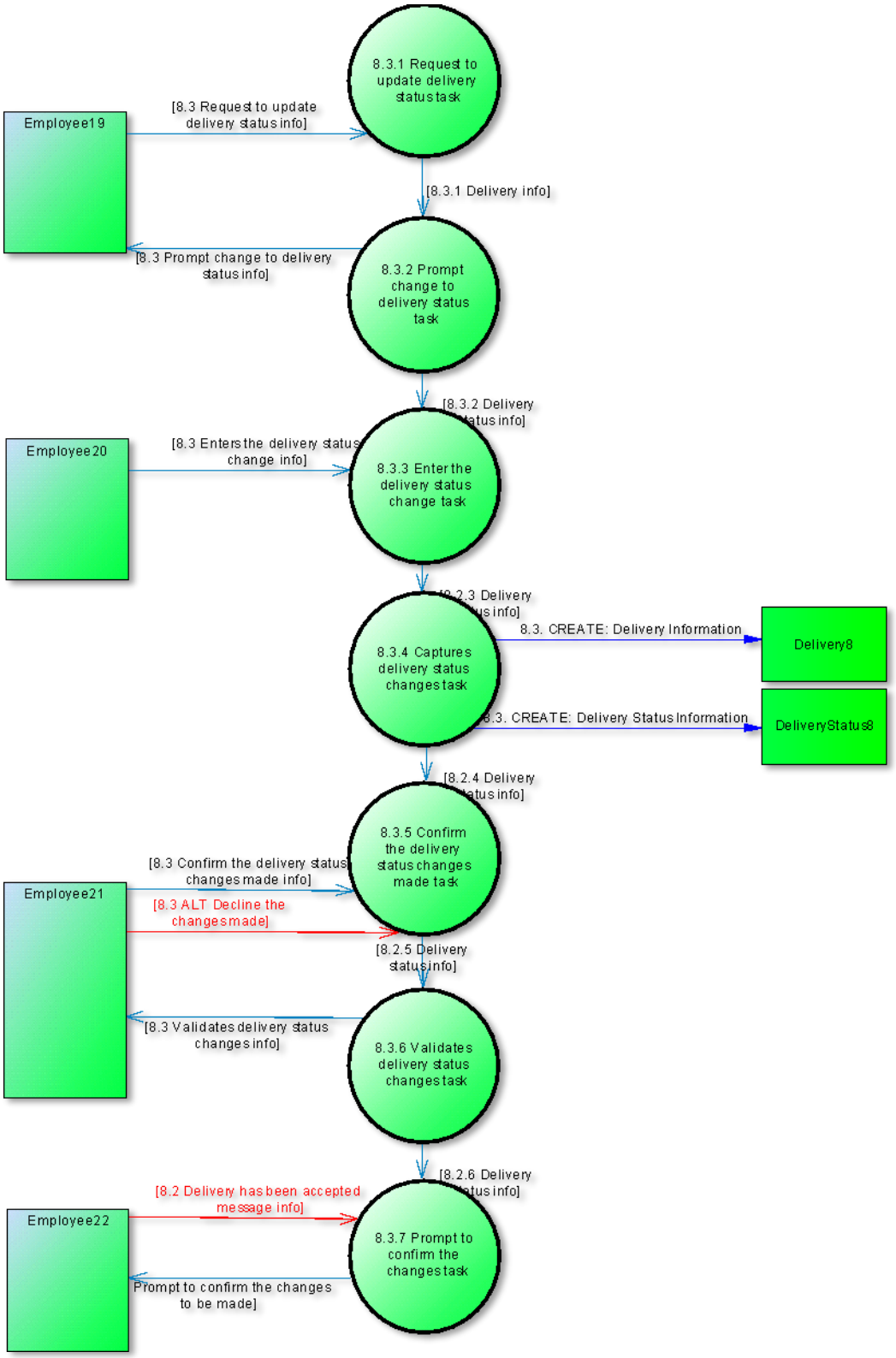


Figure 268 8.3. Update Delivery Primitive Level Data Flow Diagram

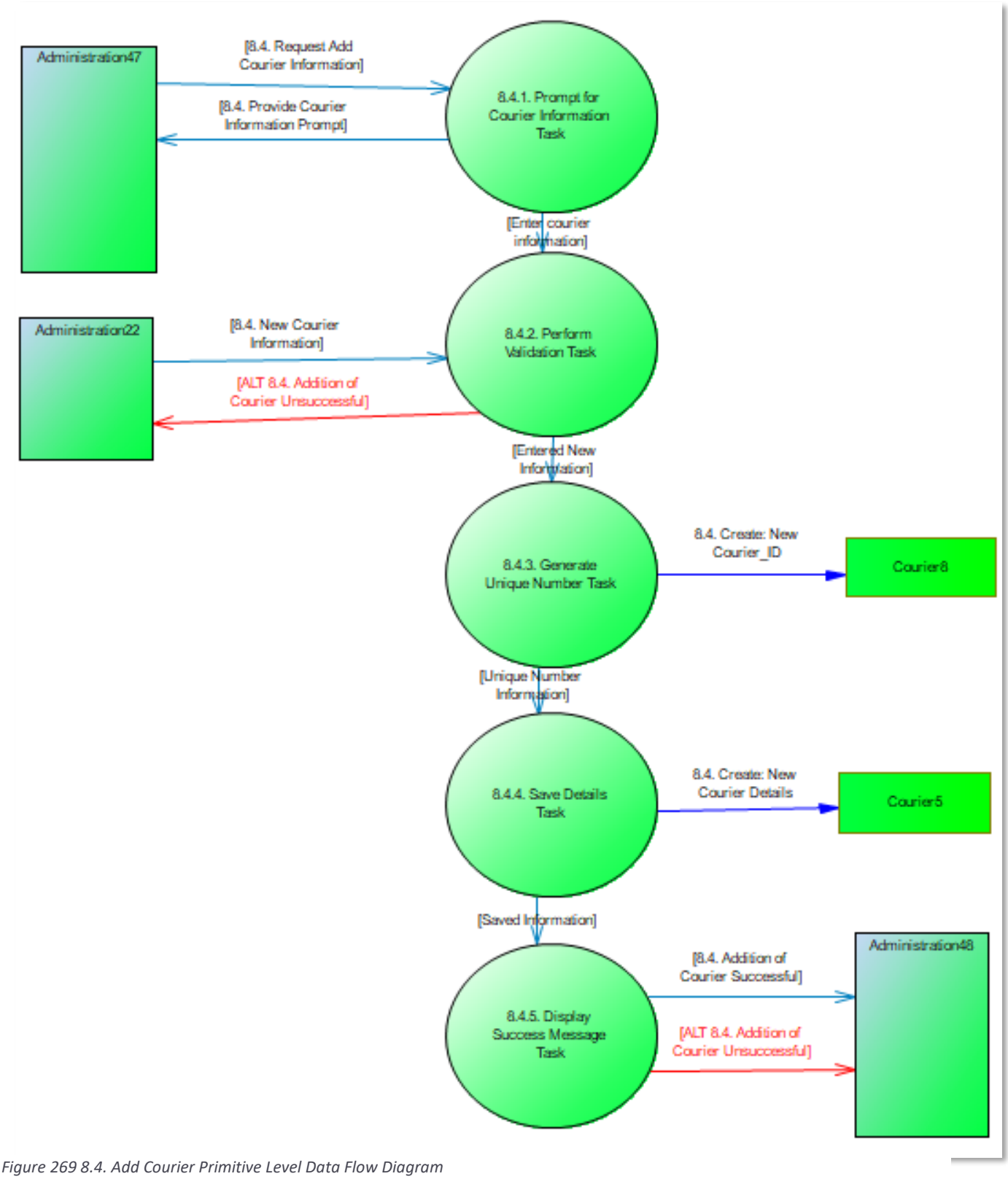


Figure 269 8.4. Add Courier Primitive Level Data Flow Diagram

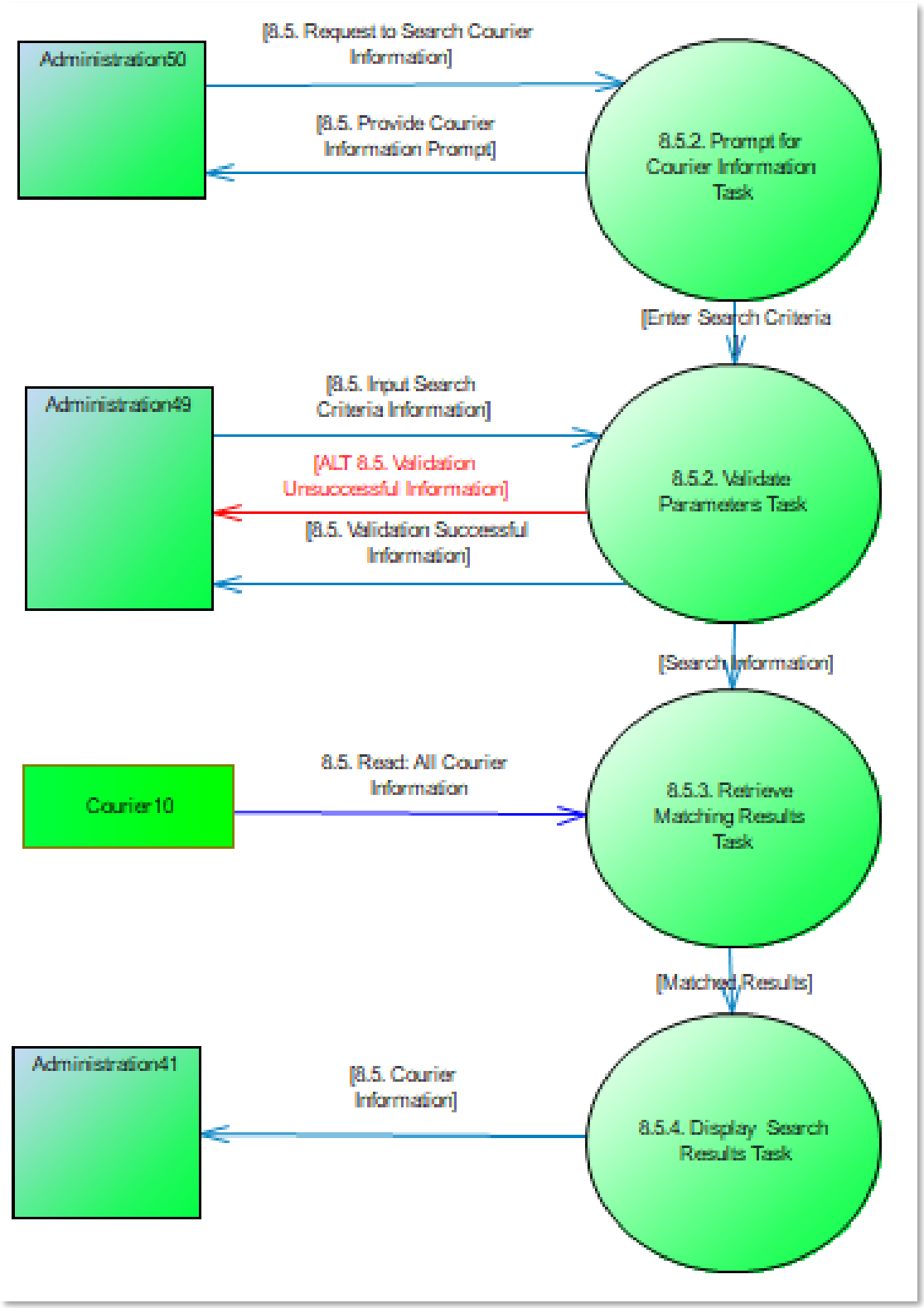


Figure 270 8.5. Search Courier Primitive Level Data Flow Diagram

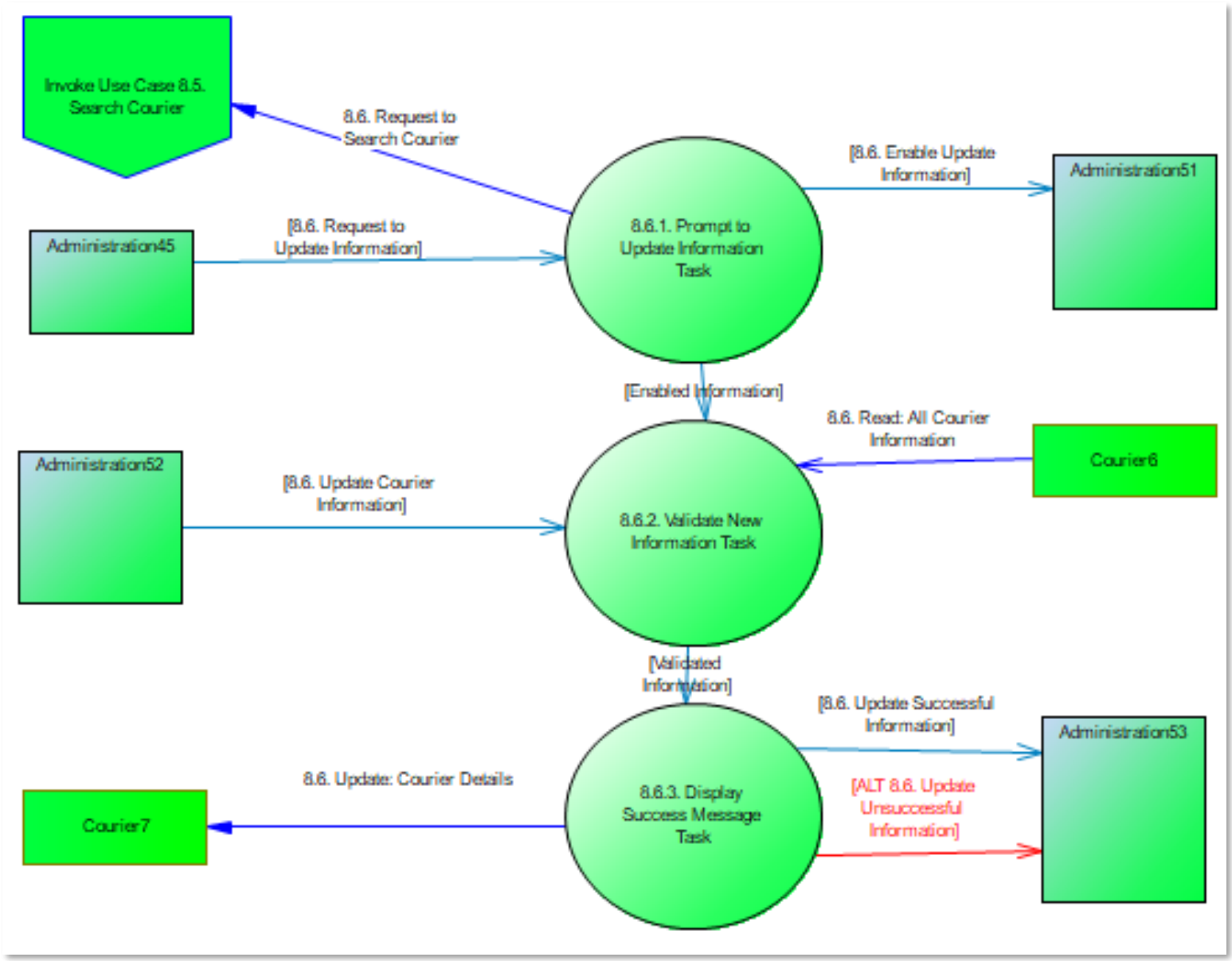


Figure 271 8.6. Update Courier Primitive Level Data Flow Diagram

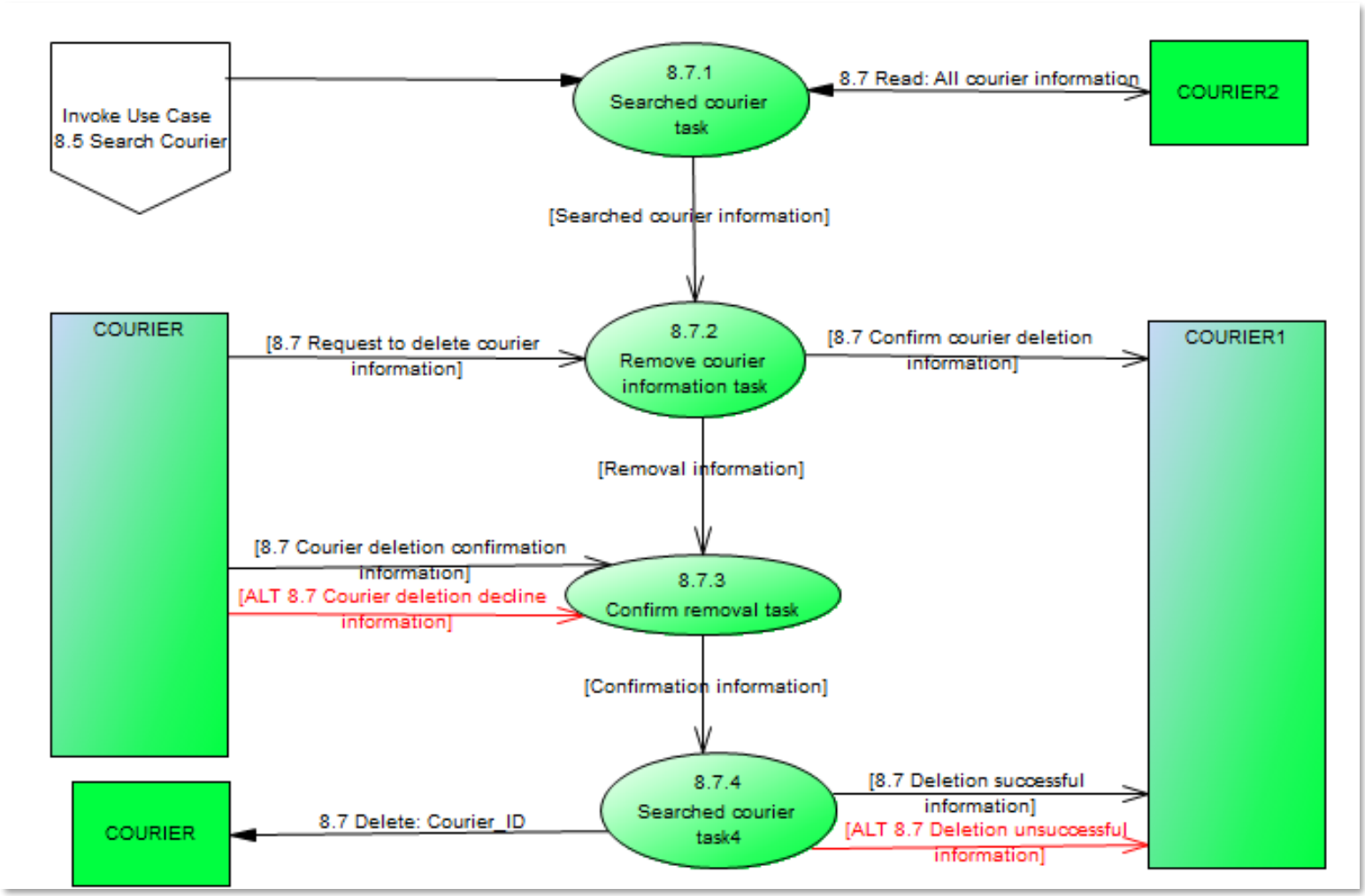


Figure 272 8.7. Delete Courier Primitive Level Data Flow Diagram

3.3.3.9 Product Sub-System

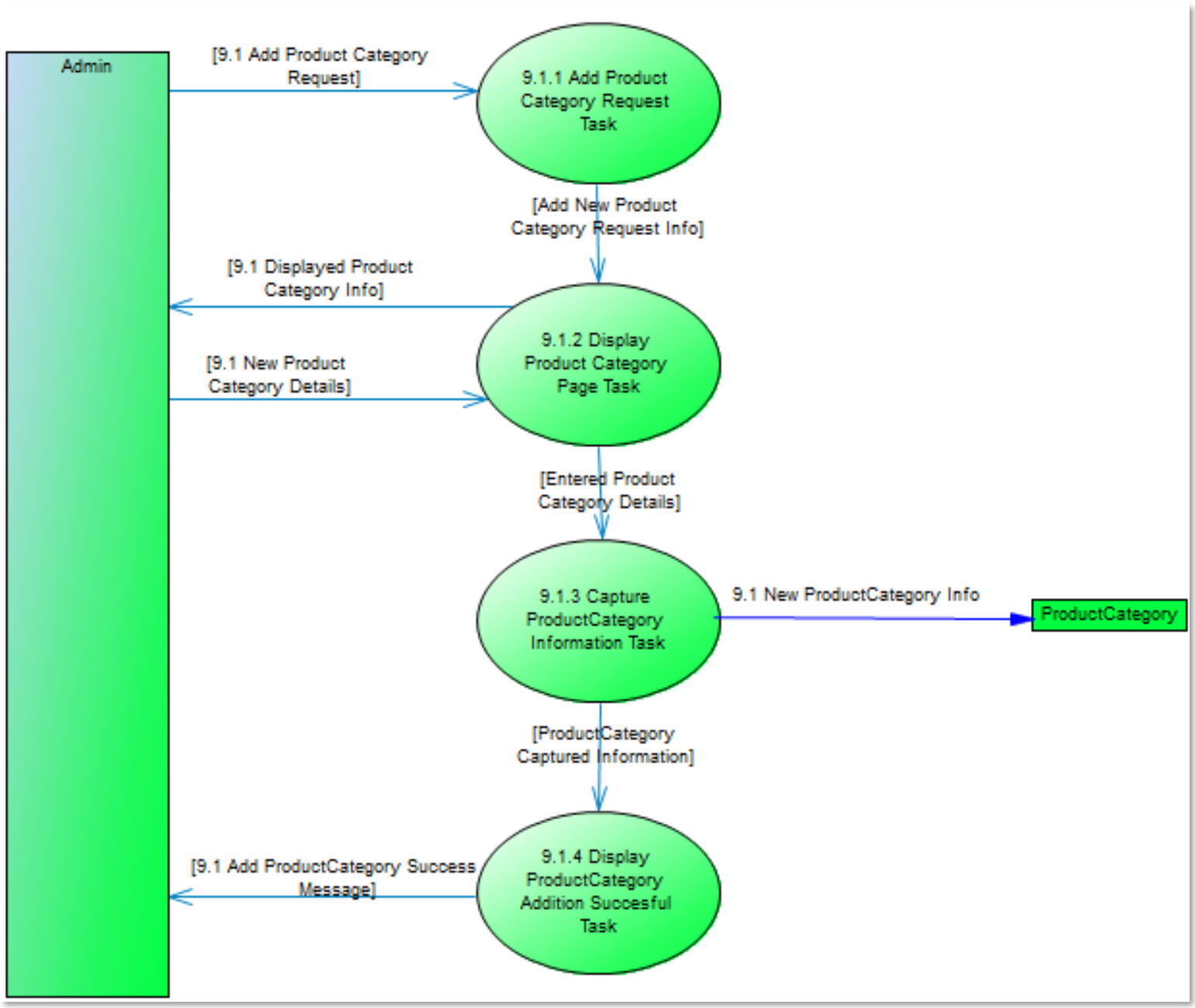


Figure 273 9.1. Add Product Category Primitive Level Data Flow Diagram

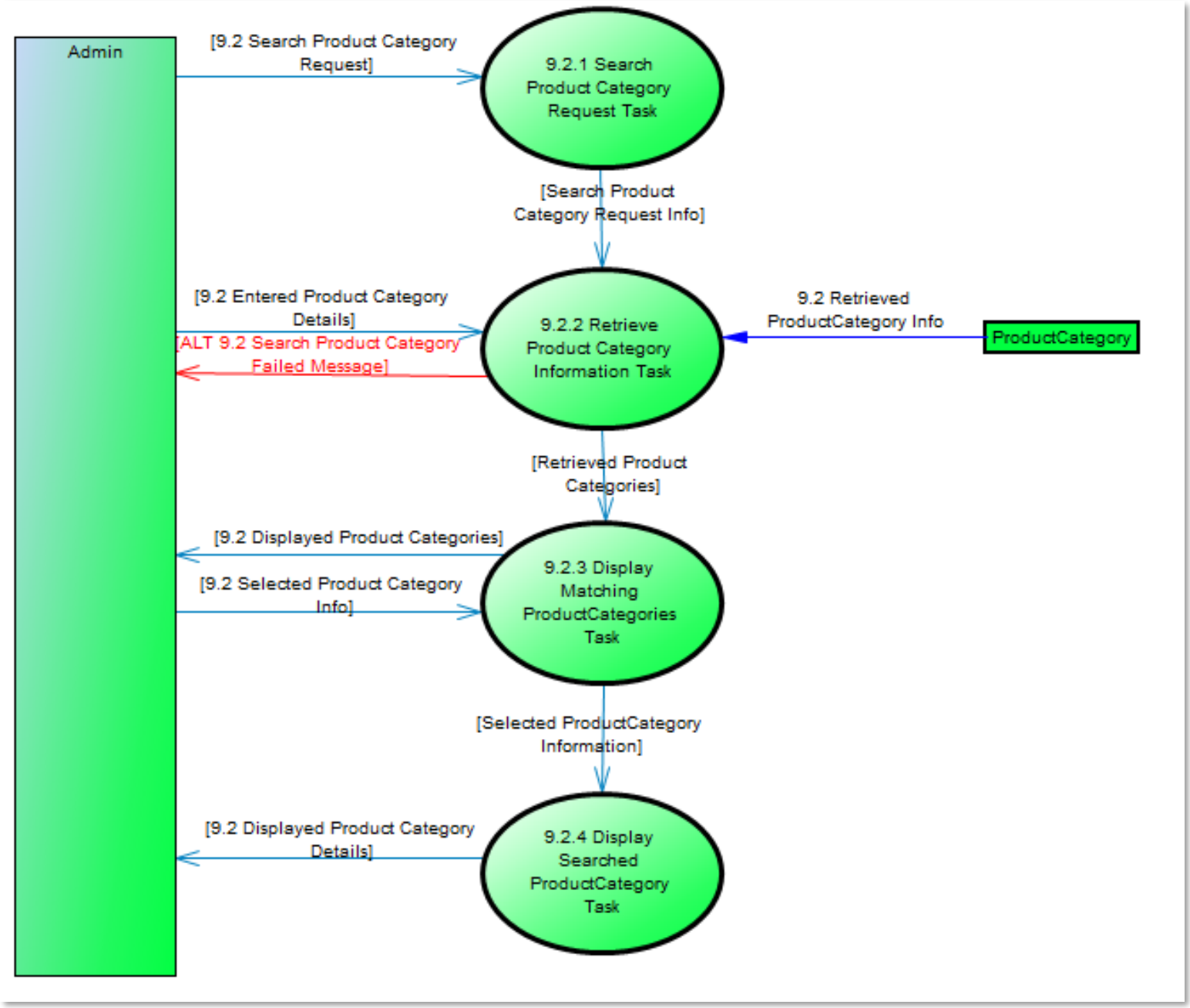


Figure 274 9.2. Search Product Category Primitive Level Data Flow Diagram

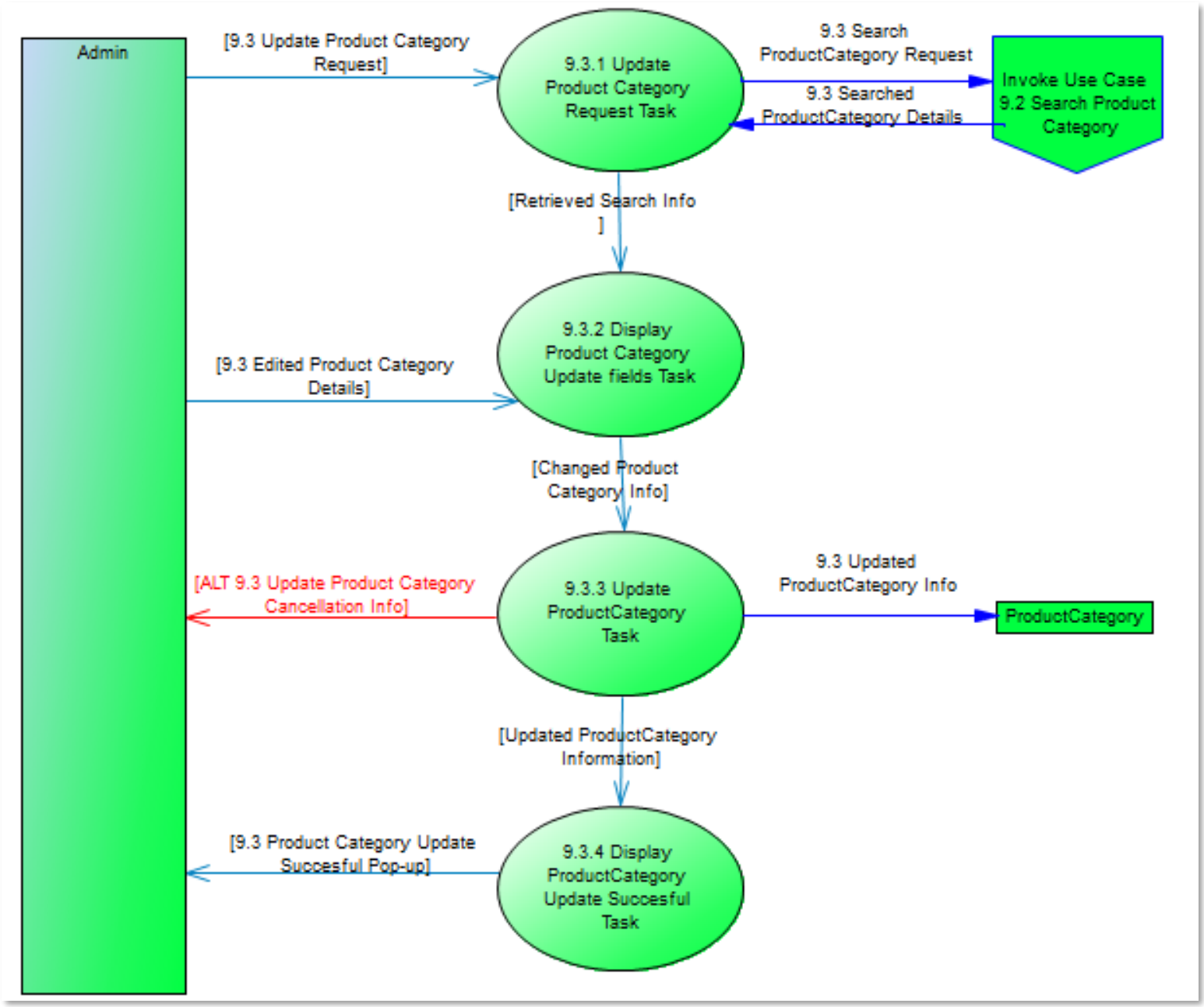


Figure 275 9.3. Update Product Category Primitive Level Data Flow Diagram

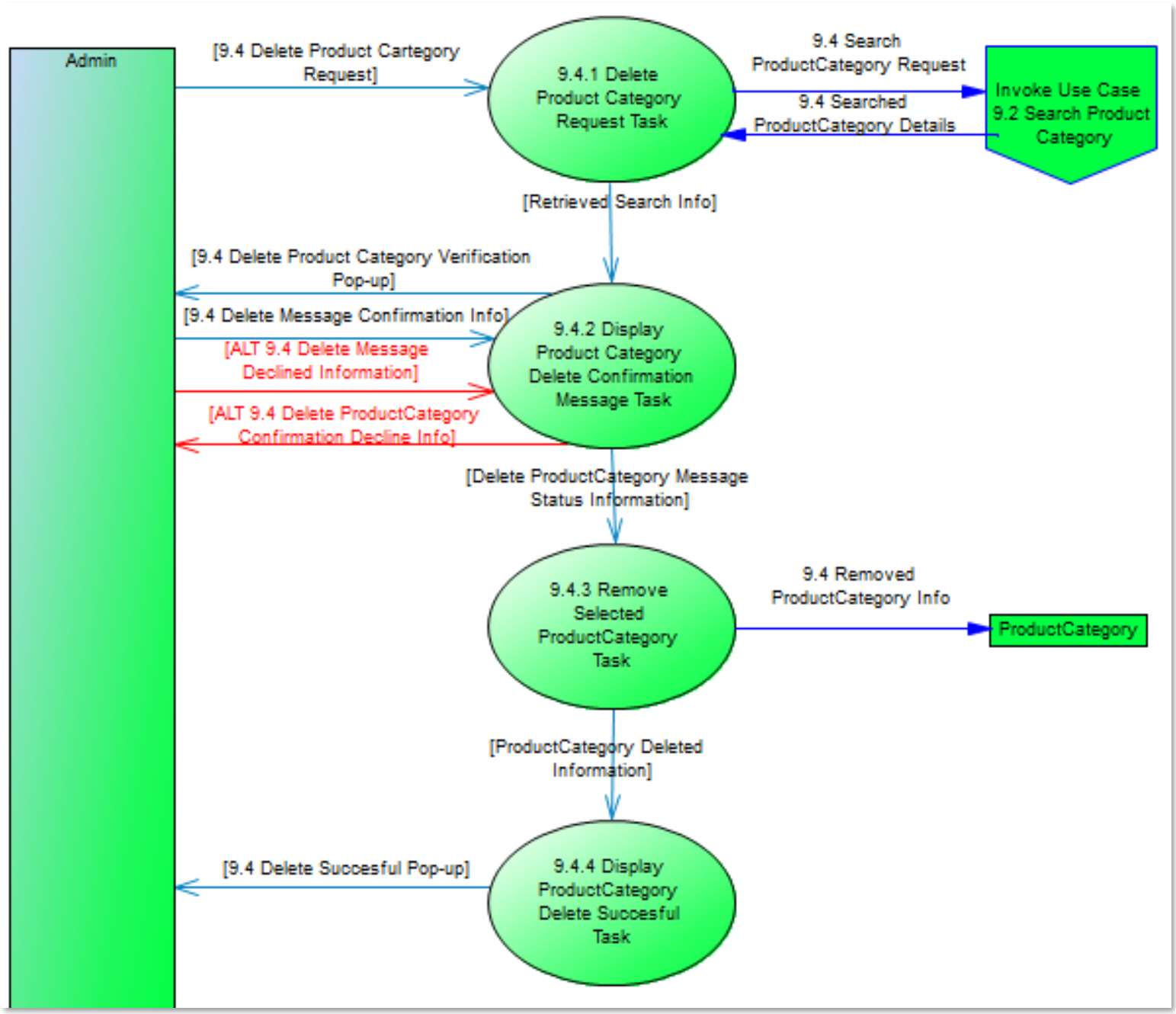


Figure 276 9.4. Delete Product Category Primitive Level Data Flow Diagram

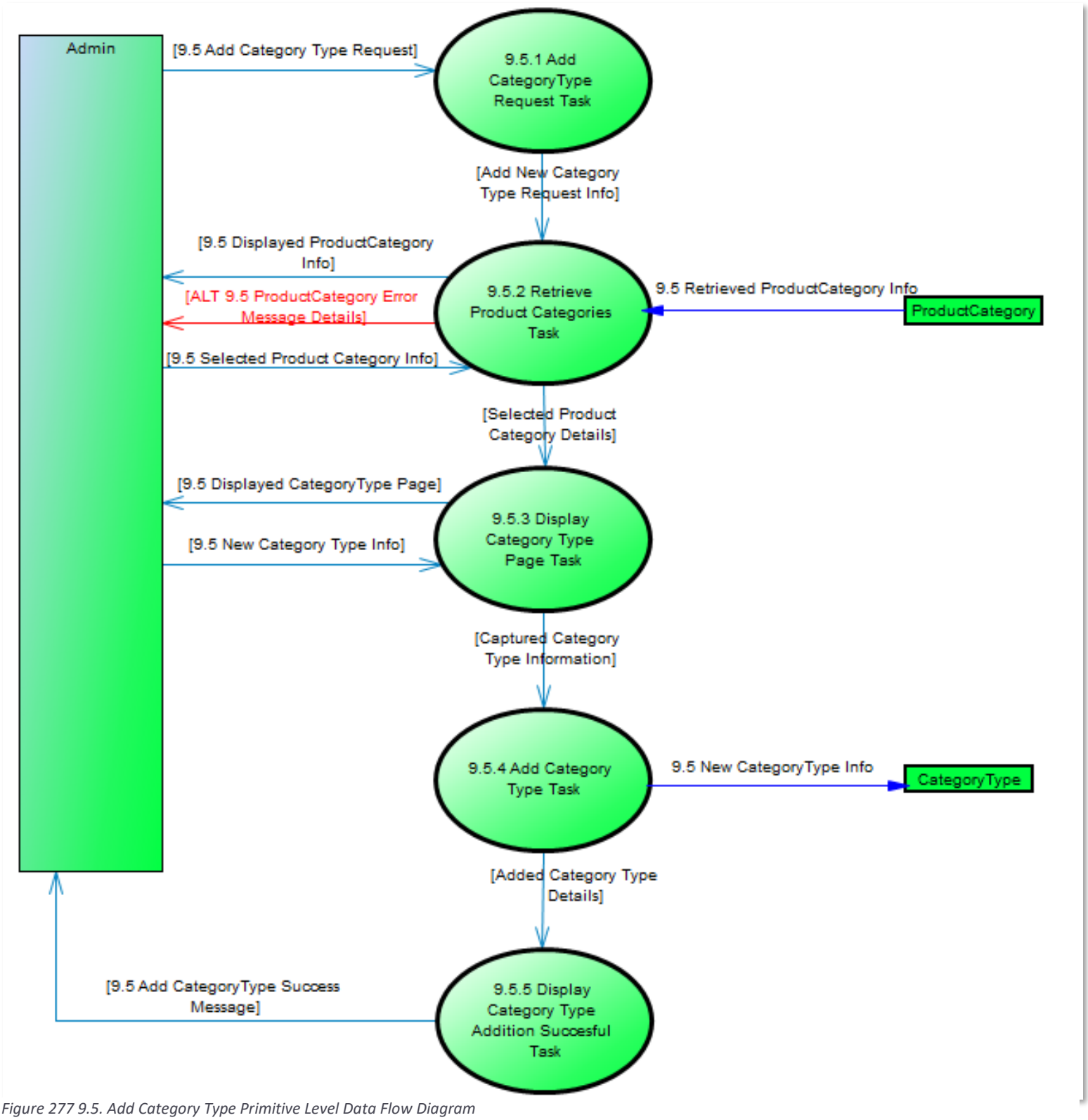


Figure 277 9.5. Add Category Type Primitive Level Data Flow Diagram

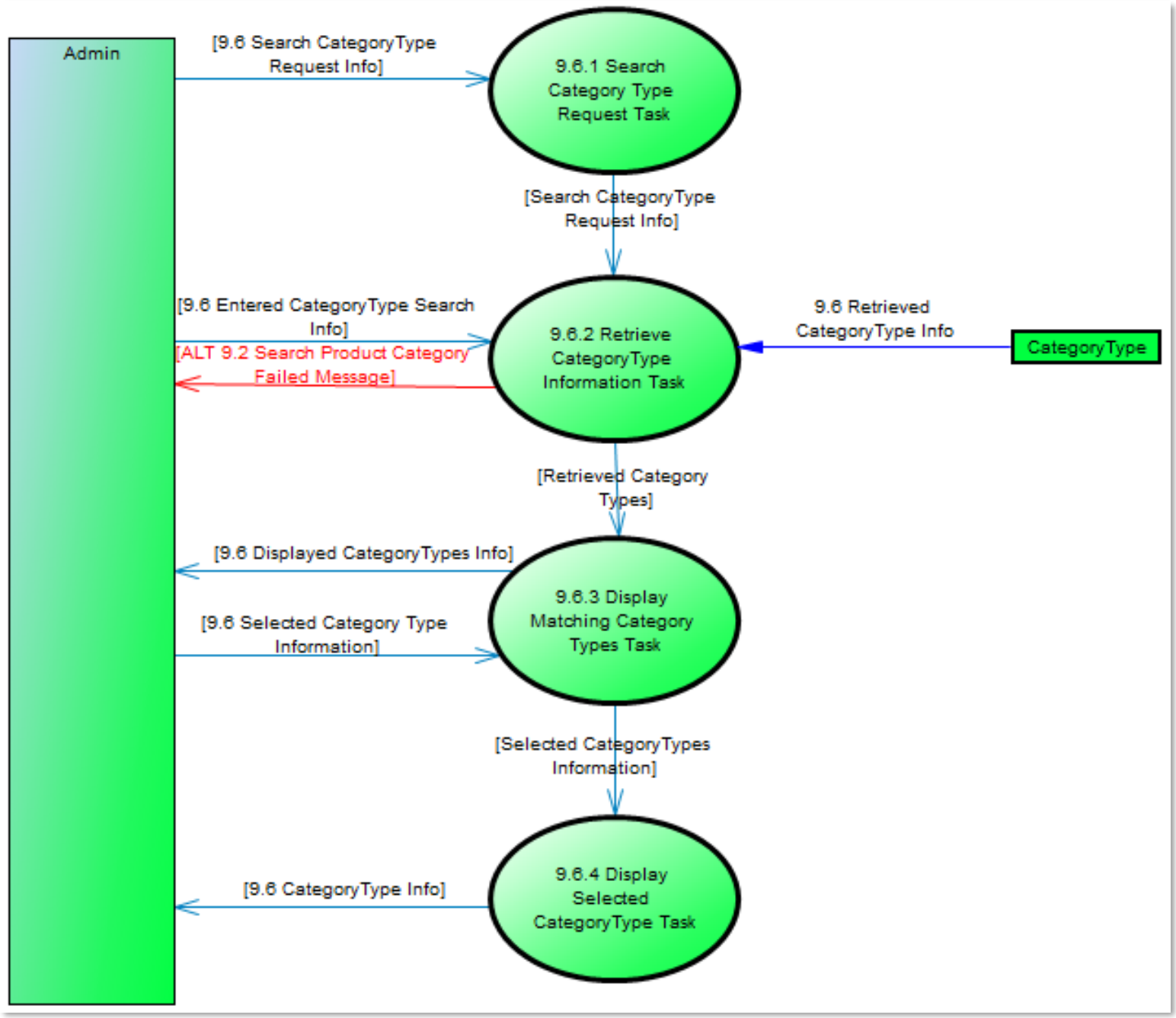


Figure 278 9.6. Search Category Type Primitive Level Data Flow Diagram

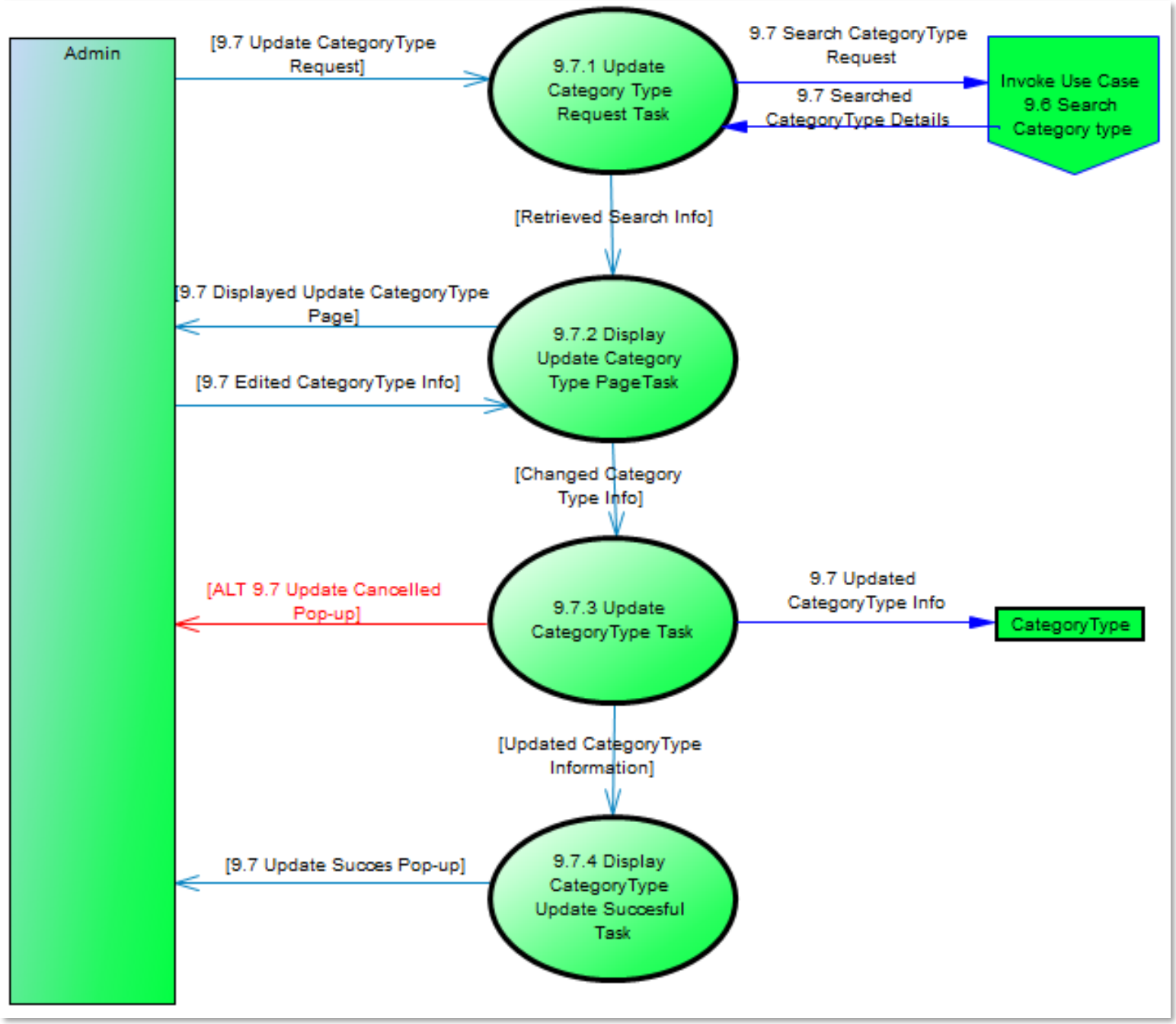


Figure 279 9.7. Update Category Type Primitive Level Data Flow Diagram

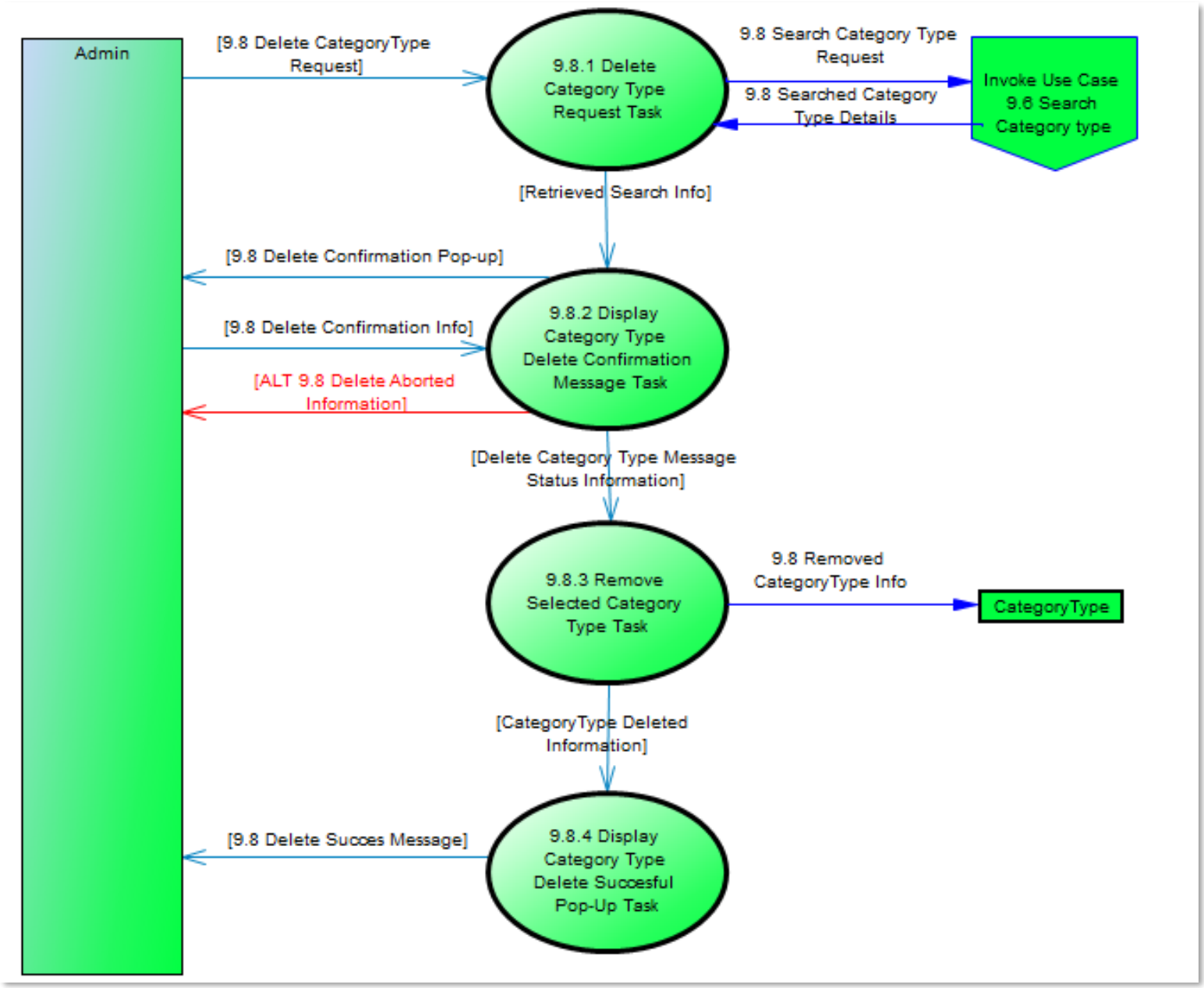


Figure 280 9.8. Delete Category Type Primitive Level Data Flow Diagram

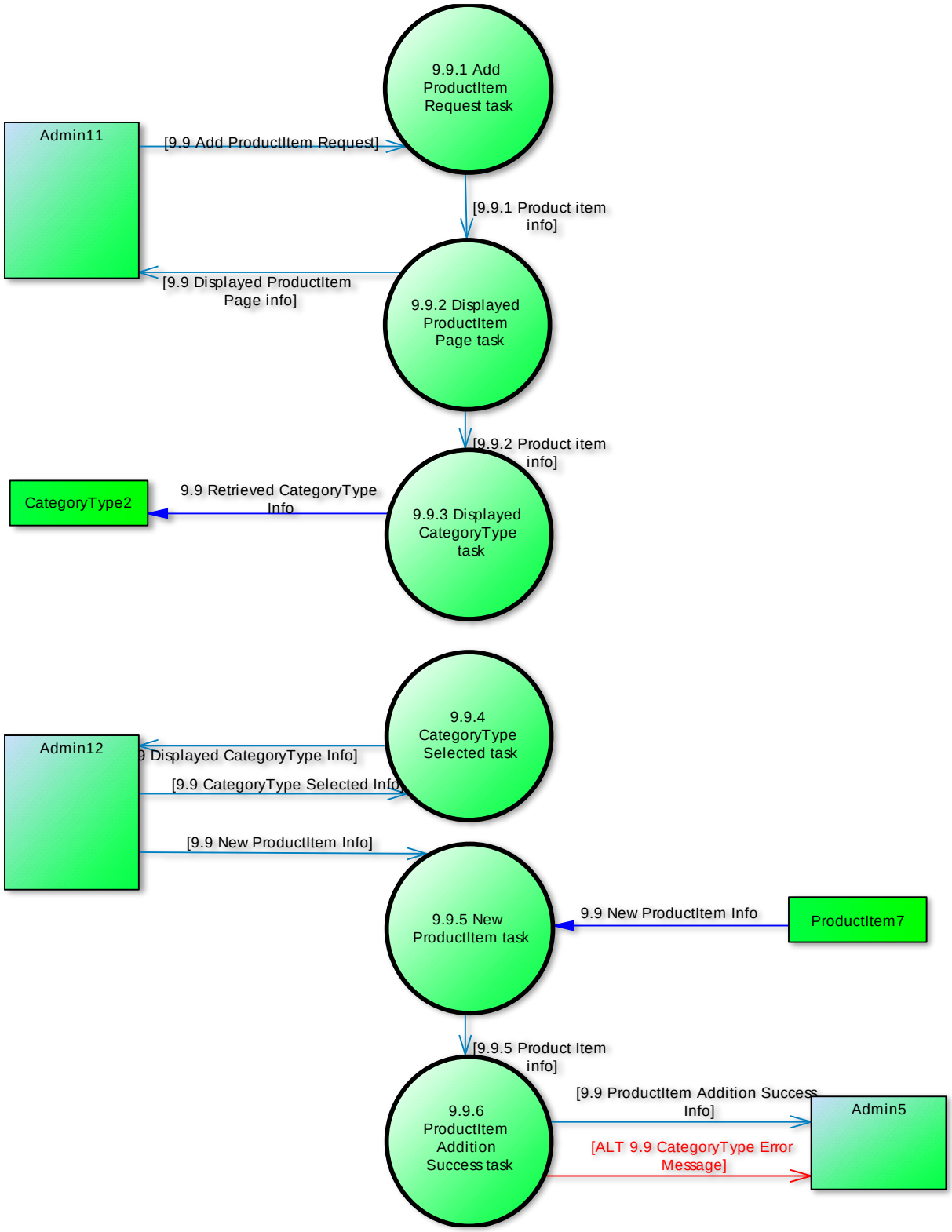


Figure 281 9.9. Add Product Item Primitive Level Data Flow Diagram

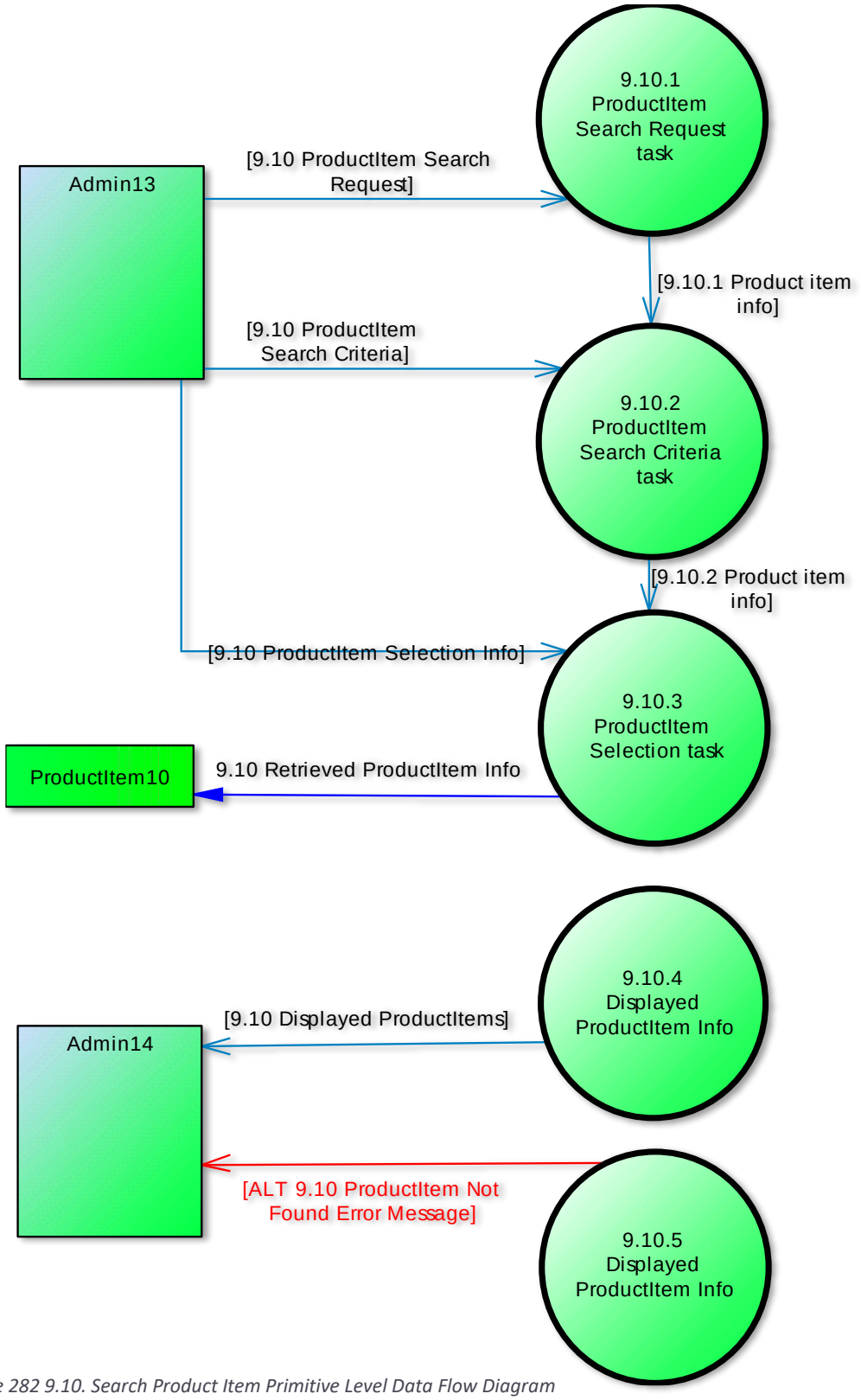


Figure 282 9.10. Search Product Item Primitive Level Data Flow Diagram

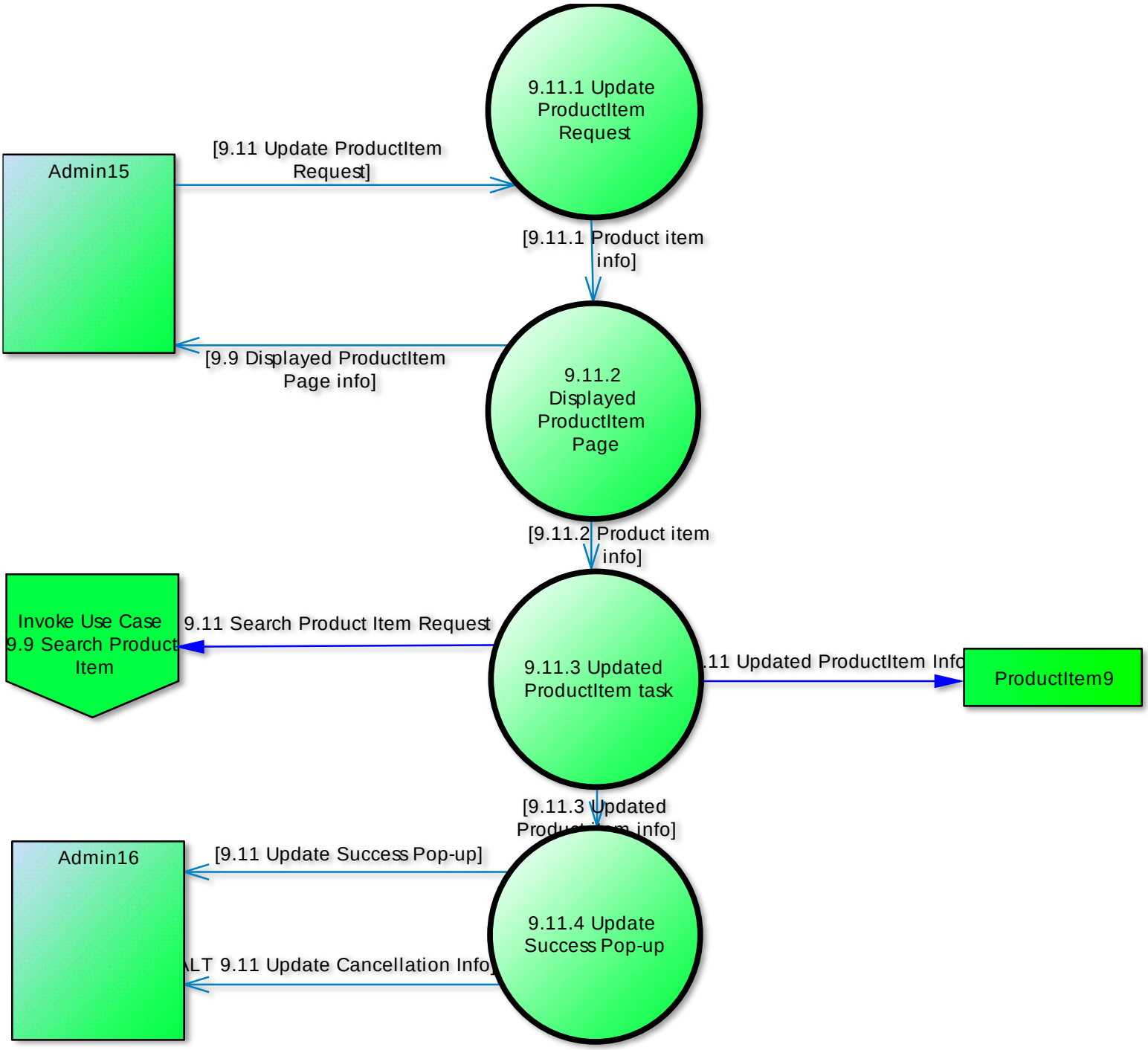


Figure 283 9.11. Update Product Item Primitive Level Data Flow Diagram

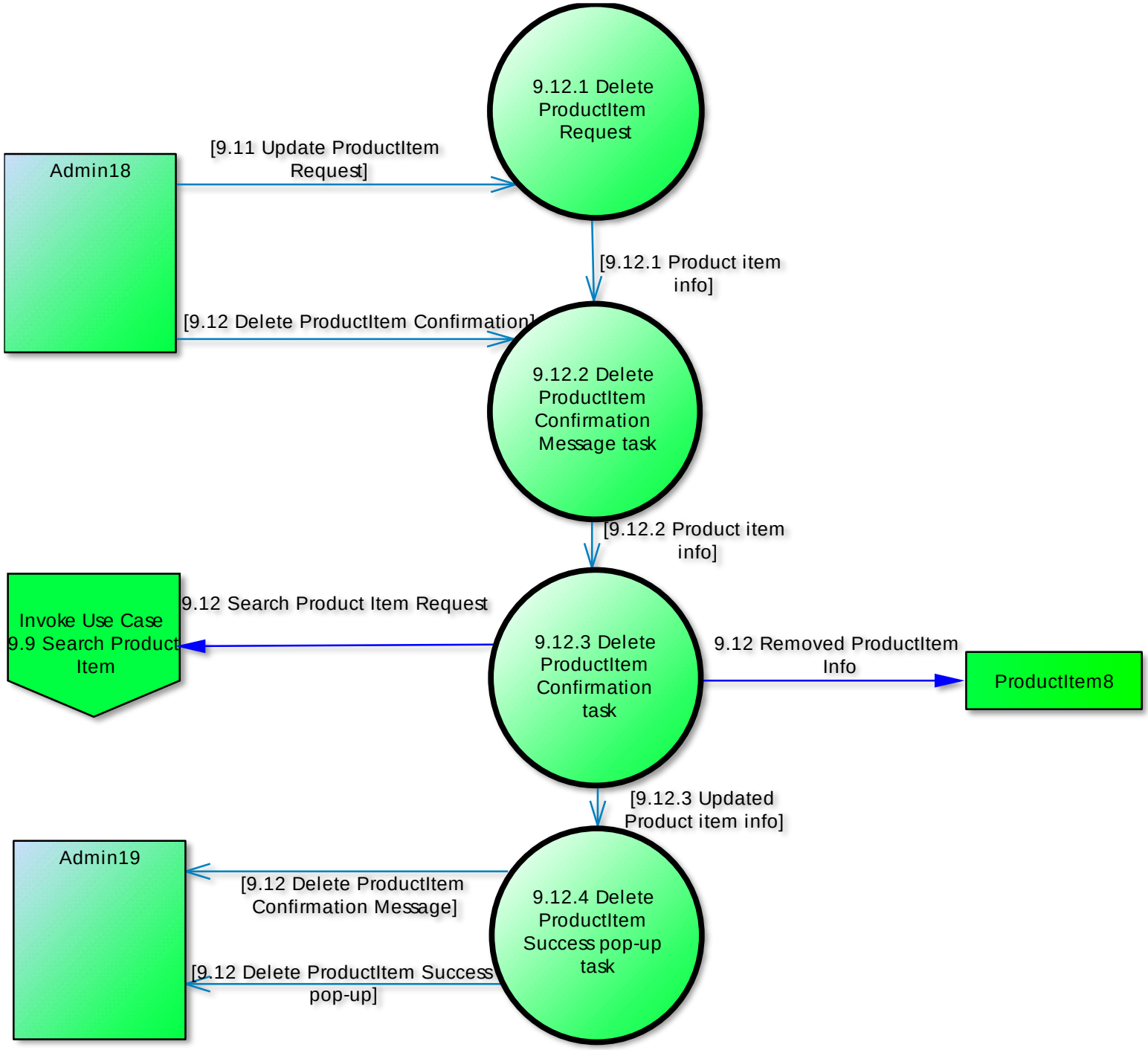


Figure 284 9.12. Delete Product Item Primitive Level Data Flow Diagram

3.3.3.10 Specials Sub-System

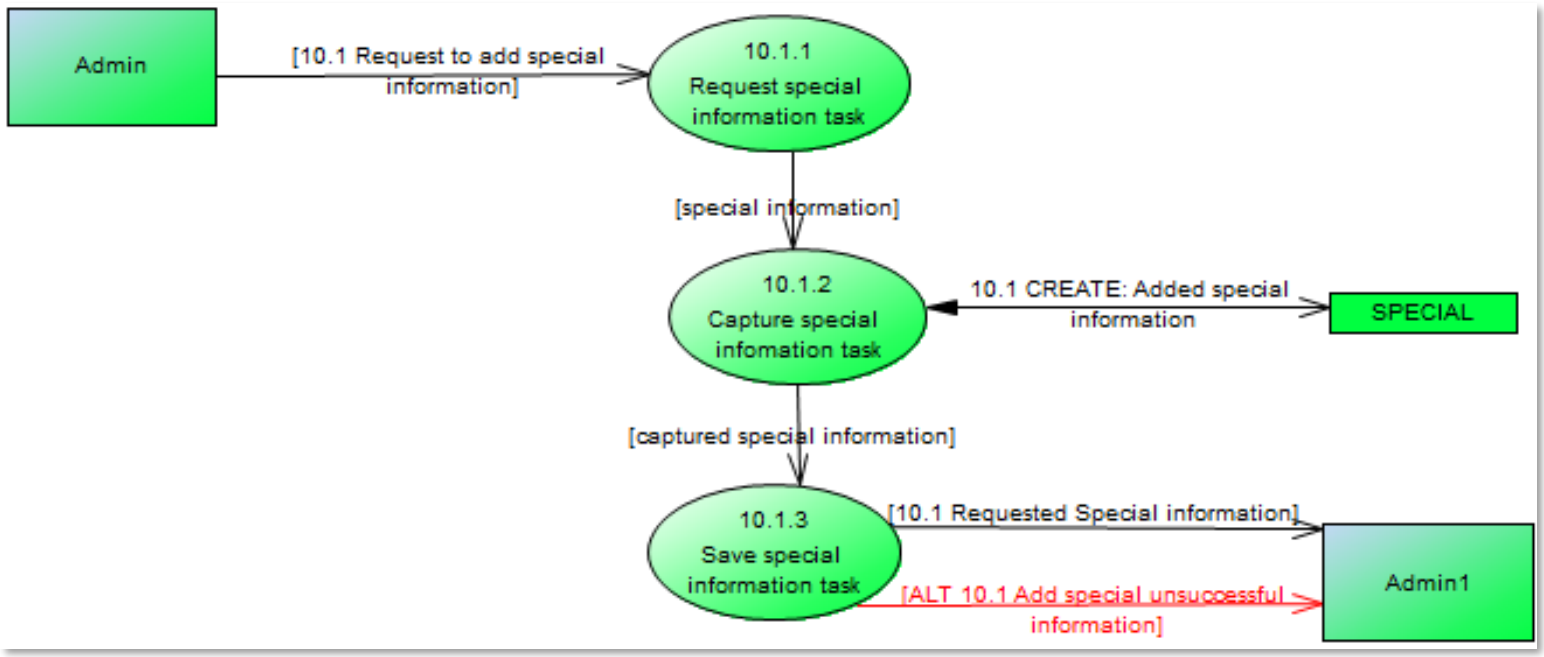


Figure 286 10.1. Add Special Primitive Level Data Flow Diagram

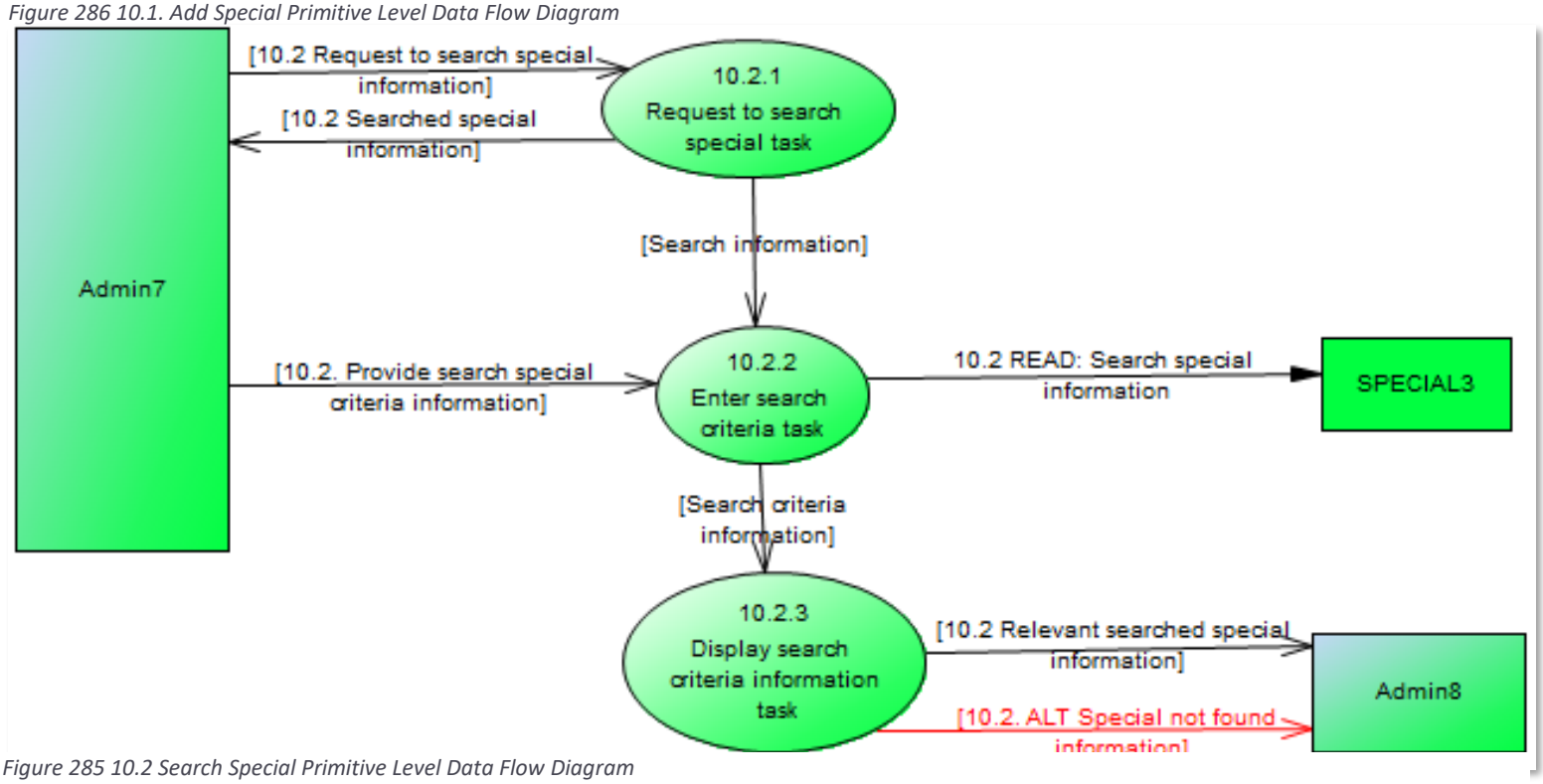


Figure 285 10.2 Search Special Primitive Level Data Flow Diagram

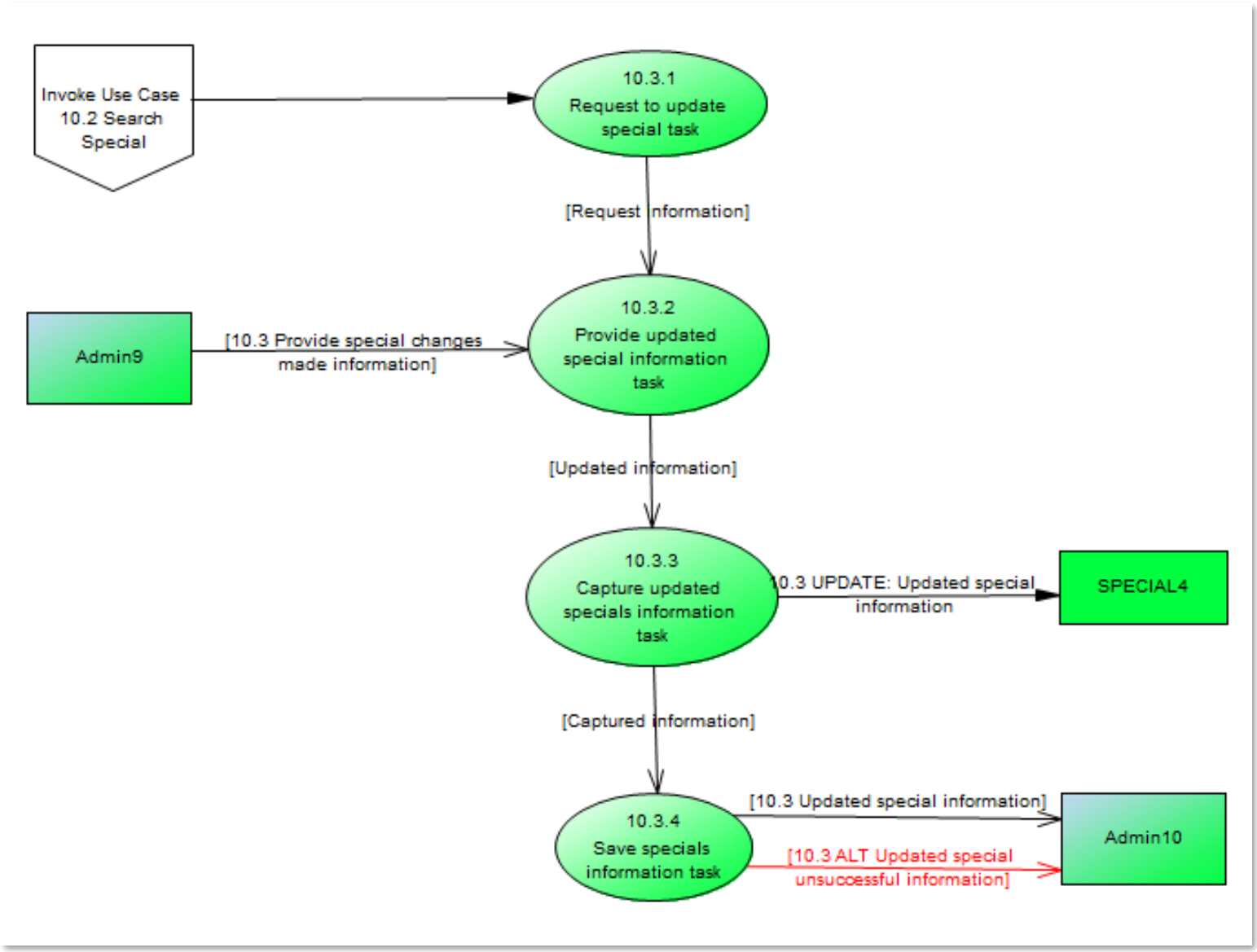


Figure 287 10.3. Update Special Primitive Level Data Flow Diagram

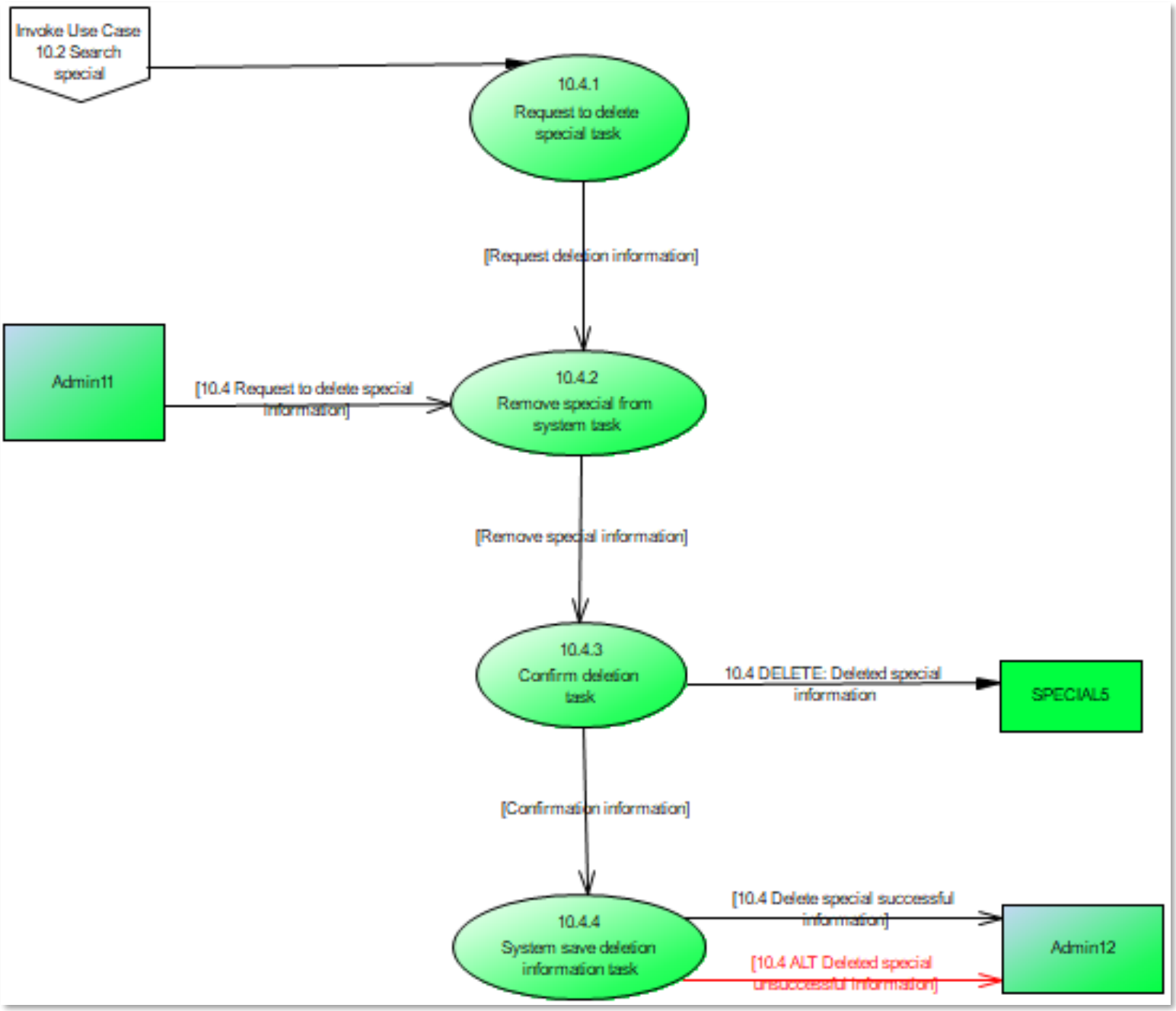


Figure 288 10.4. Delete Special Primitive Level Data Flow Diagram

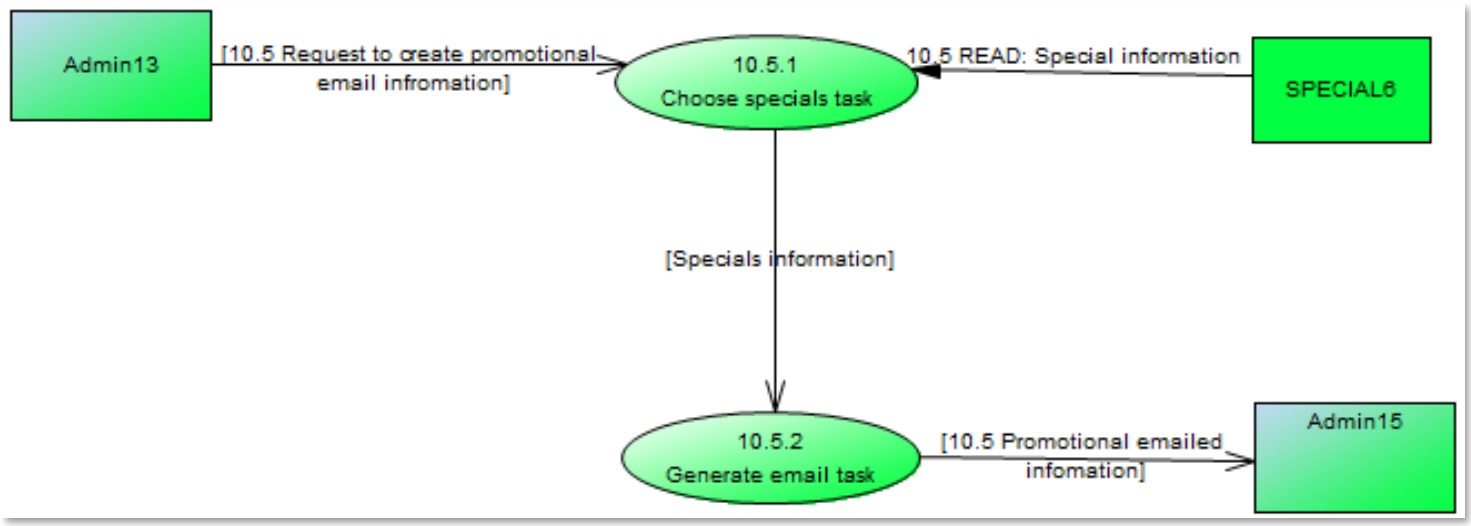


Figure 289 10.5. Send Promotional Emails Primitive Level Data Flow Diagram

CONCLUSION

The section concludes. It contained the process models for the system, which included the context diagram, a complete functional decomposition diagram, a complete set of data flow diagram (High level, middle level and primitive level) for the proposed system.

3.4. DATA DICTIONARY

4. UML Modelling

INTRODUCTION

In this section we will be showing our activity diagrams. These diagrams will be used to show the steps on the users' side and the systems side. This will show the flow of each activity in a requirement.

4.1. ACTIVITY DIAGRAMS (WITH SWIM LANES)

Activity Diagram Key		
Element	**Description**	**Example**
Start Node	Start Node element represented by circle, filled with green and outlined black.	
Activity	Activity element represented by rectangle with rounded edges, filled with green and outline black.	
Decision Node	Decision Node represented by diamond with black outline.	
Flow	Flow element represented by black arrow.	
End Node	End Node element represent by circle with black cross and outlined black.	

Figure 290 Activity Diagram Key

4.1.1 Log-in Sub-System

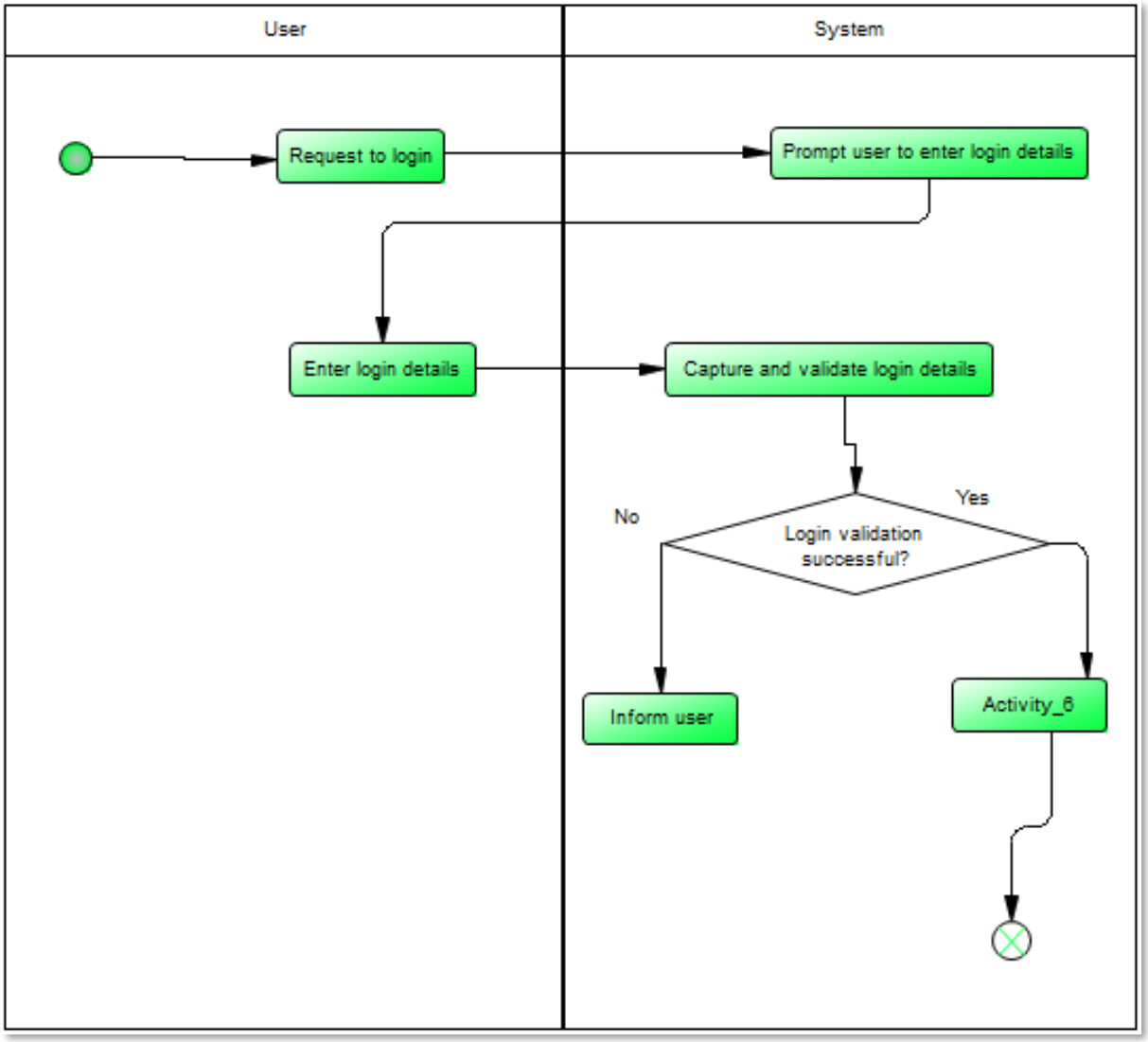


Figure 291 1.1. Login Activity Diagram

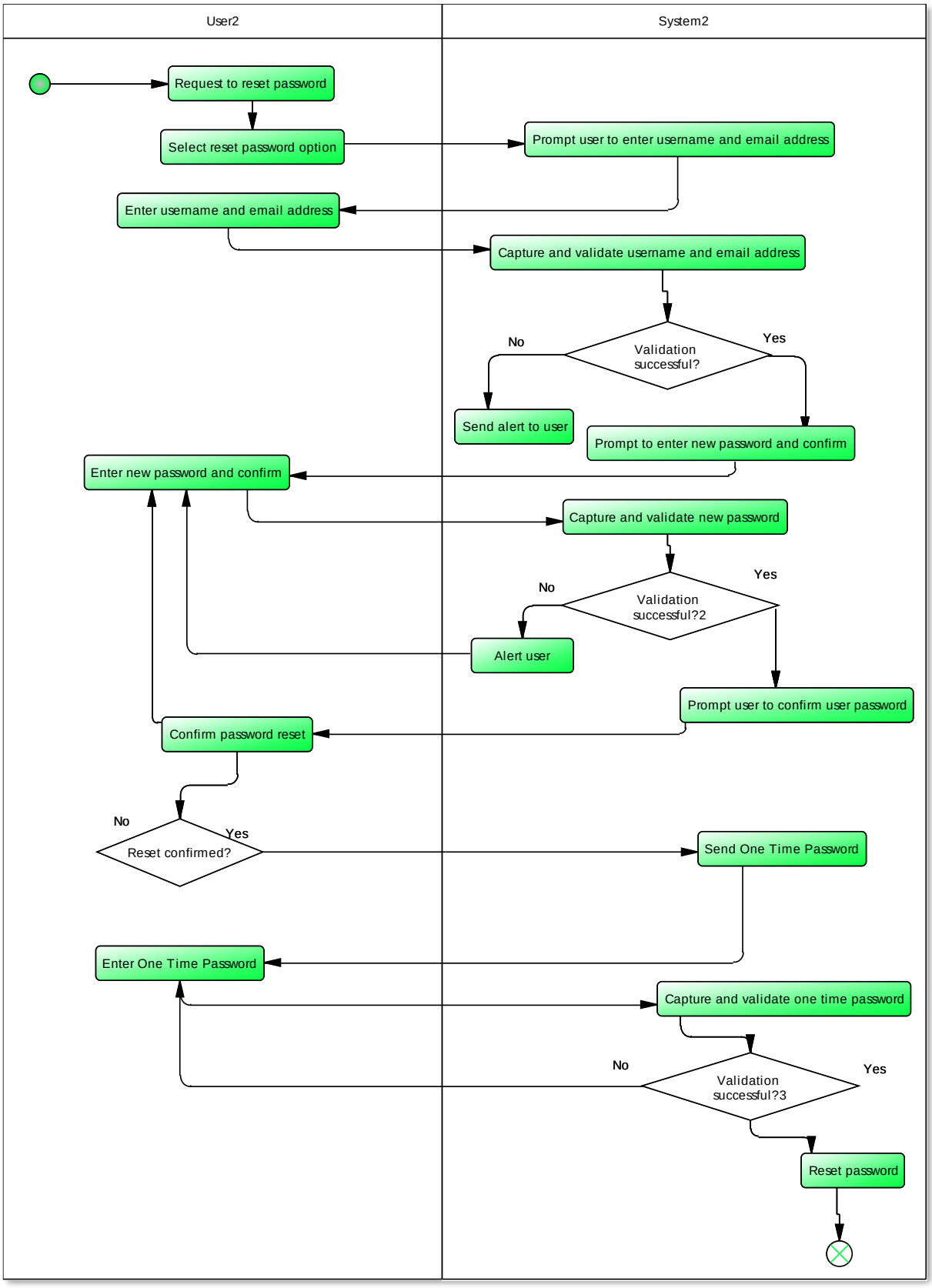


Figure 292 1.2. Forgot Password Activity Diagram

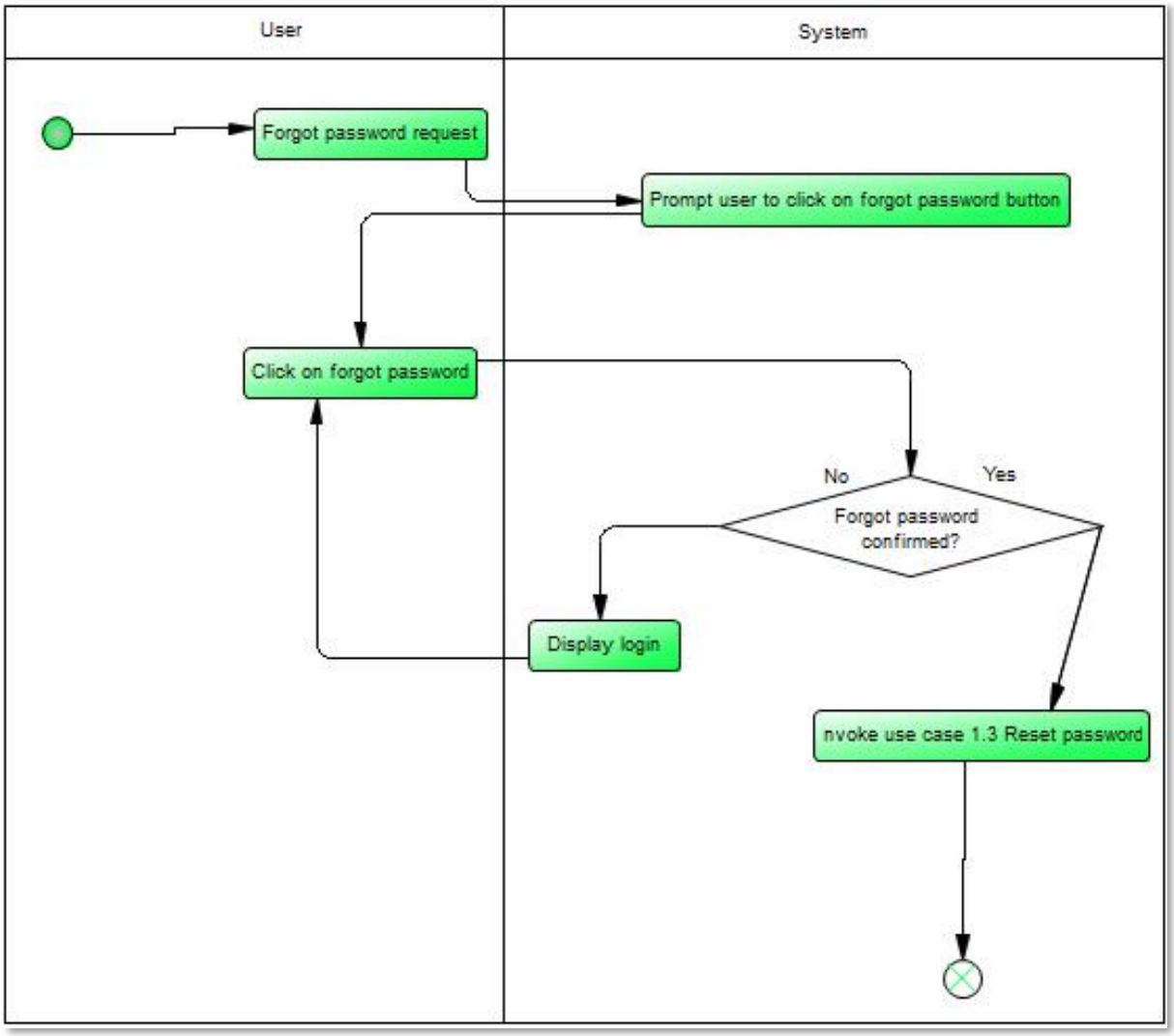


Figure 293 1.3. Reset Password Activity Diagram

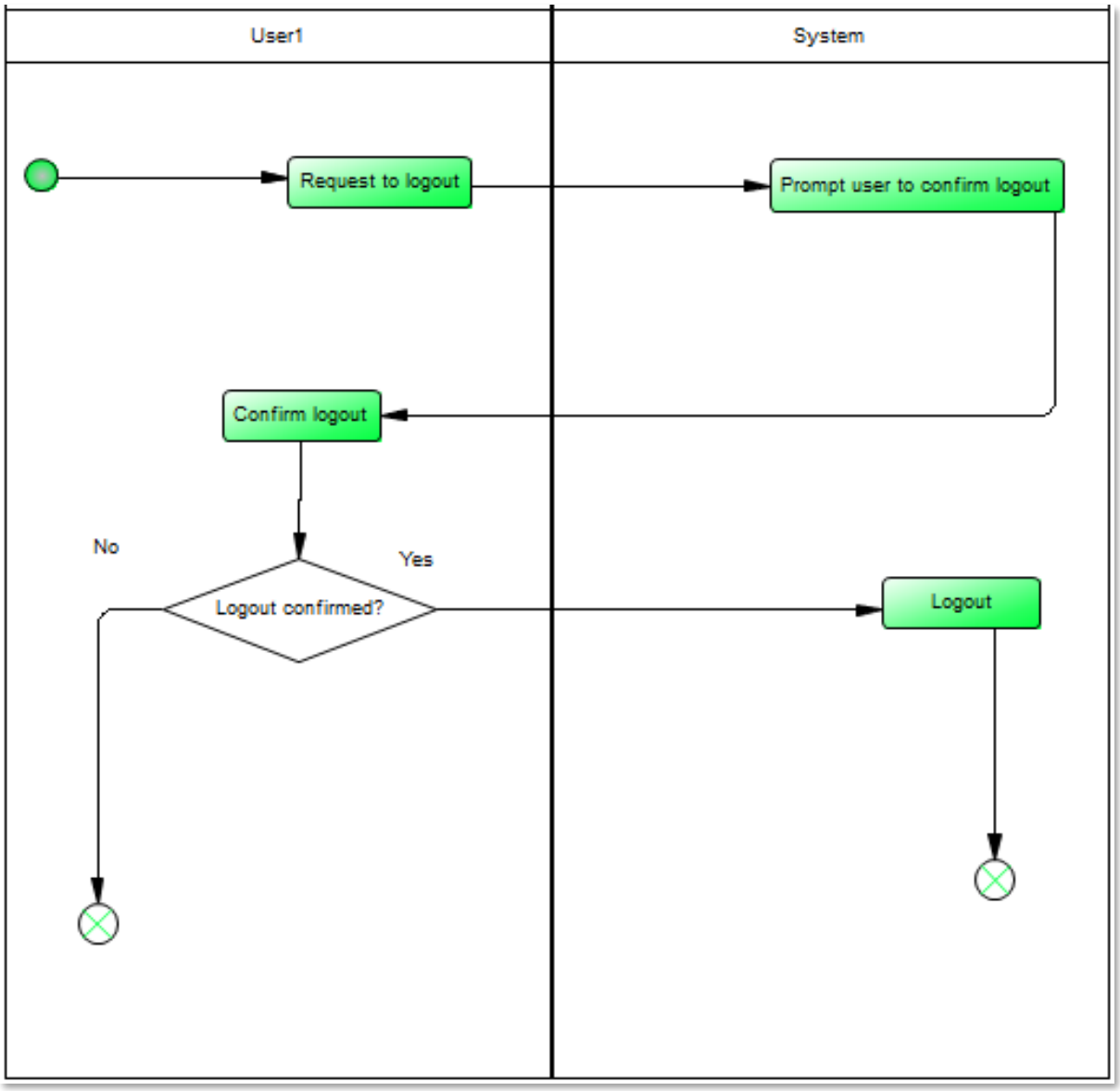


Figure 294 1.4. Logout Activity Diagram

4.1.2 Supplier Sub-System

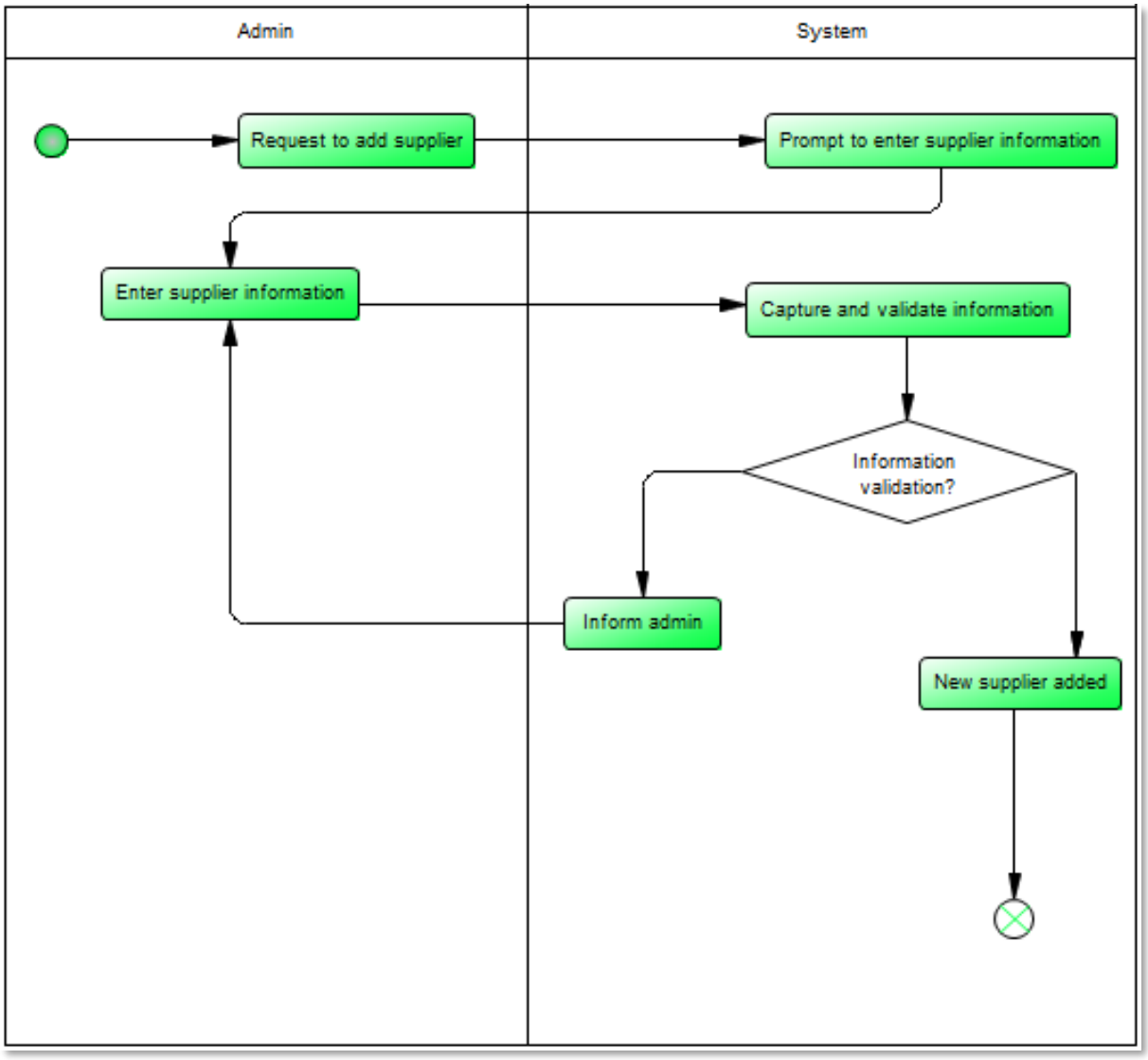


Figure 295 2.1. Add Supplier Activity Diagram

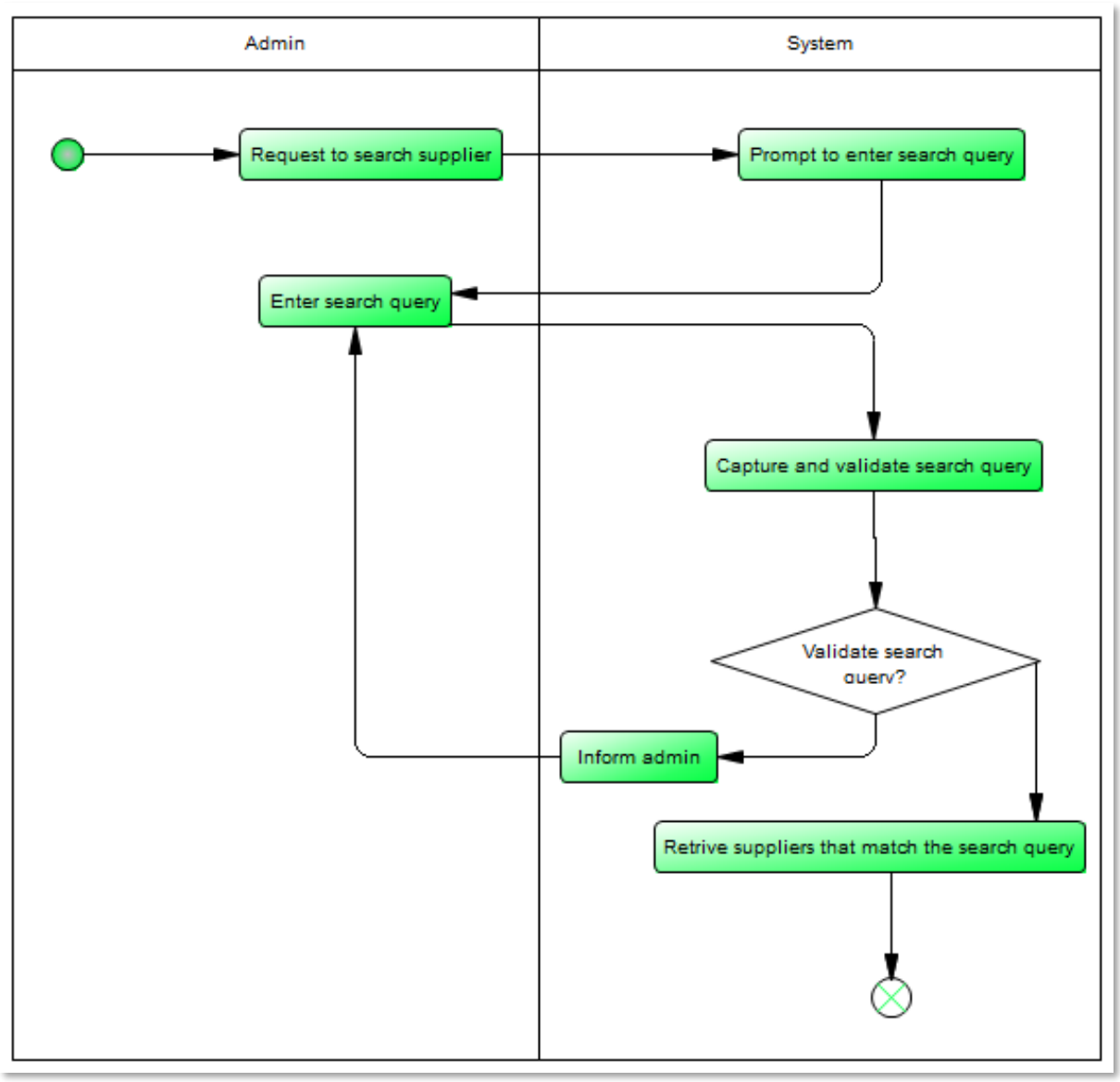


Figure 296 2.1. Search Supplier Activity Diagram

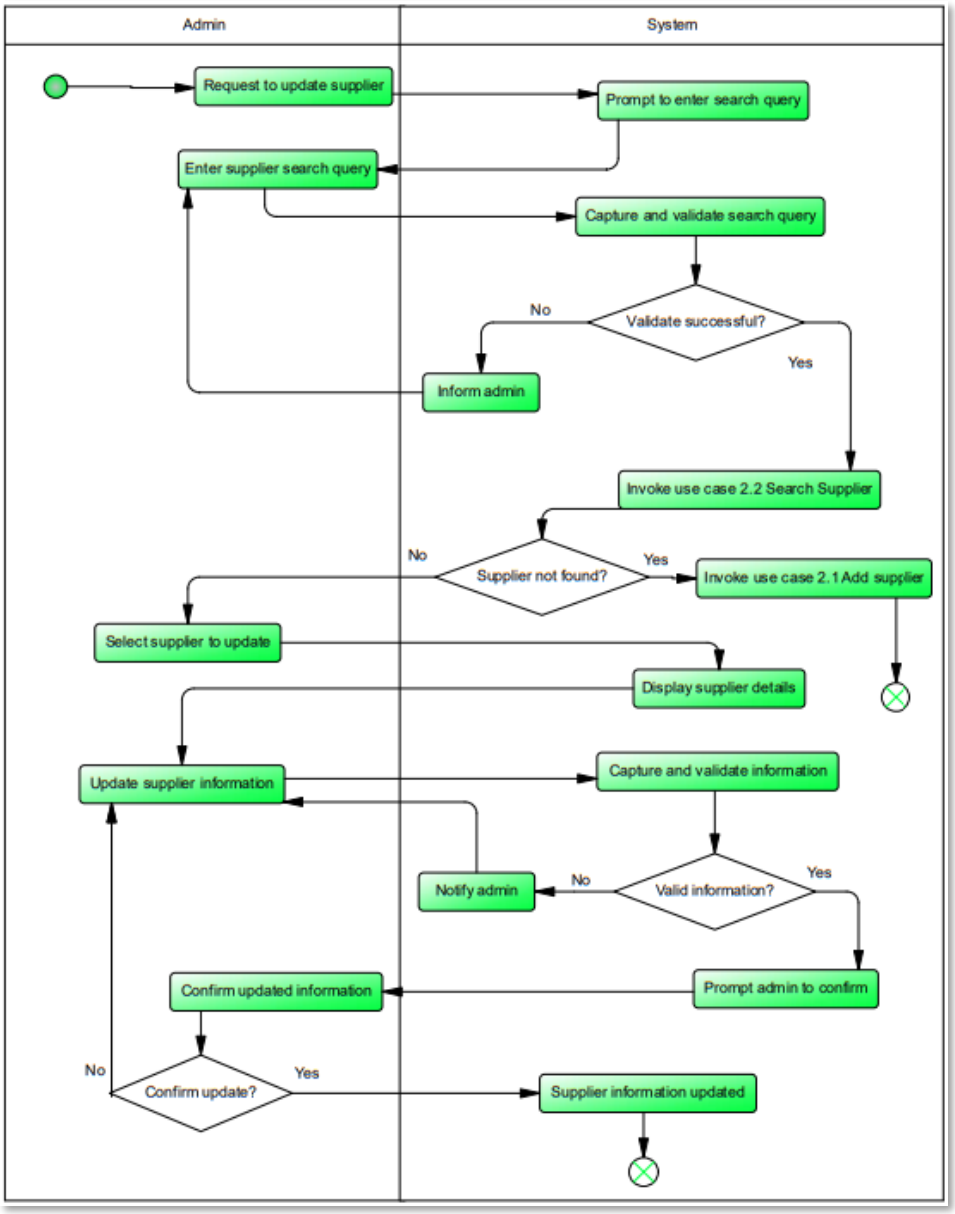


Figure 297 2.3. Update Supplier Activity Diagram

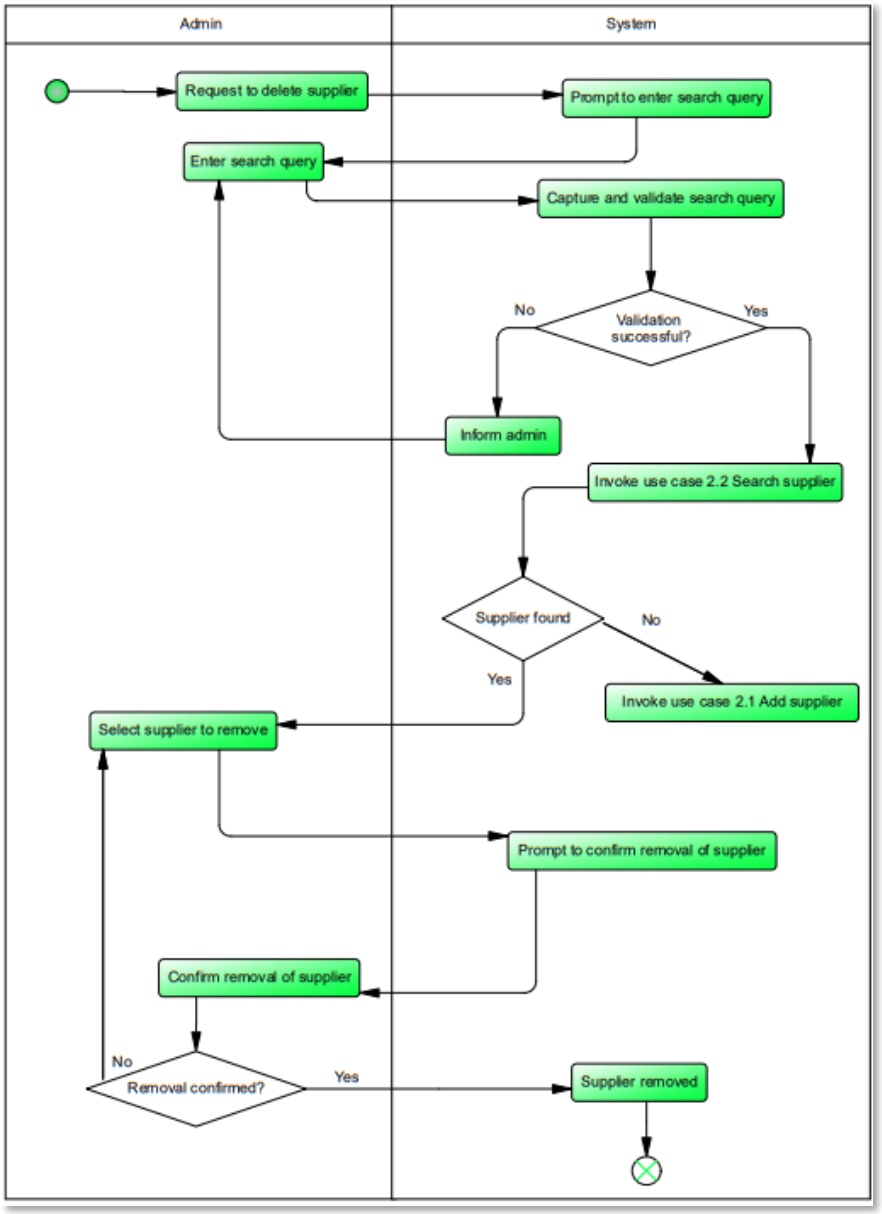


Figure 298 2.4. Delete Supplier Activity Diagram

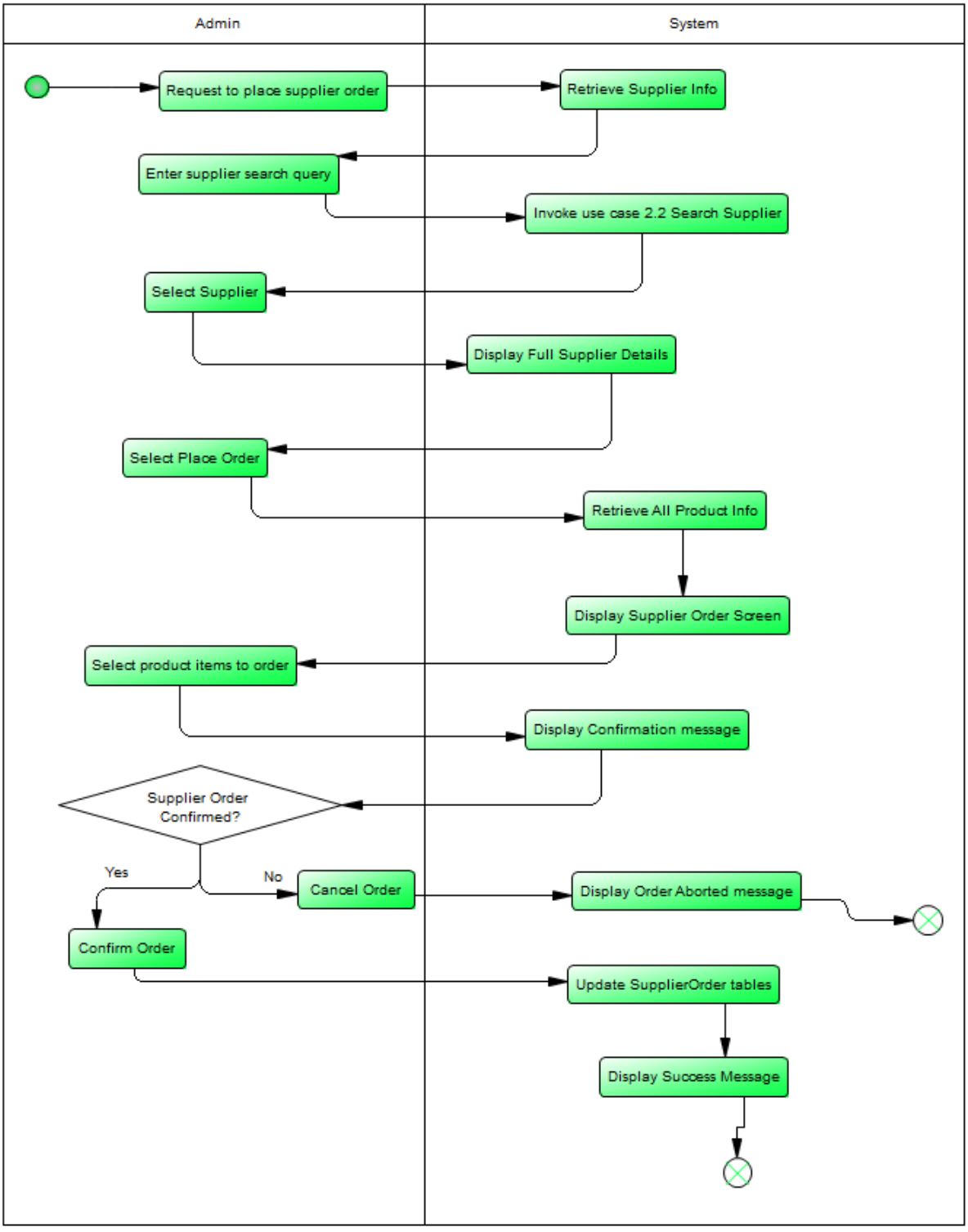
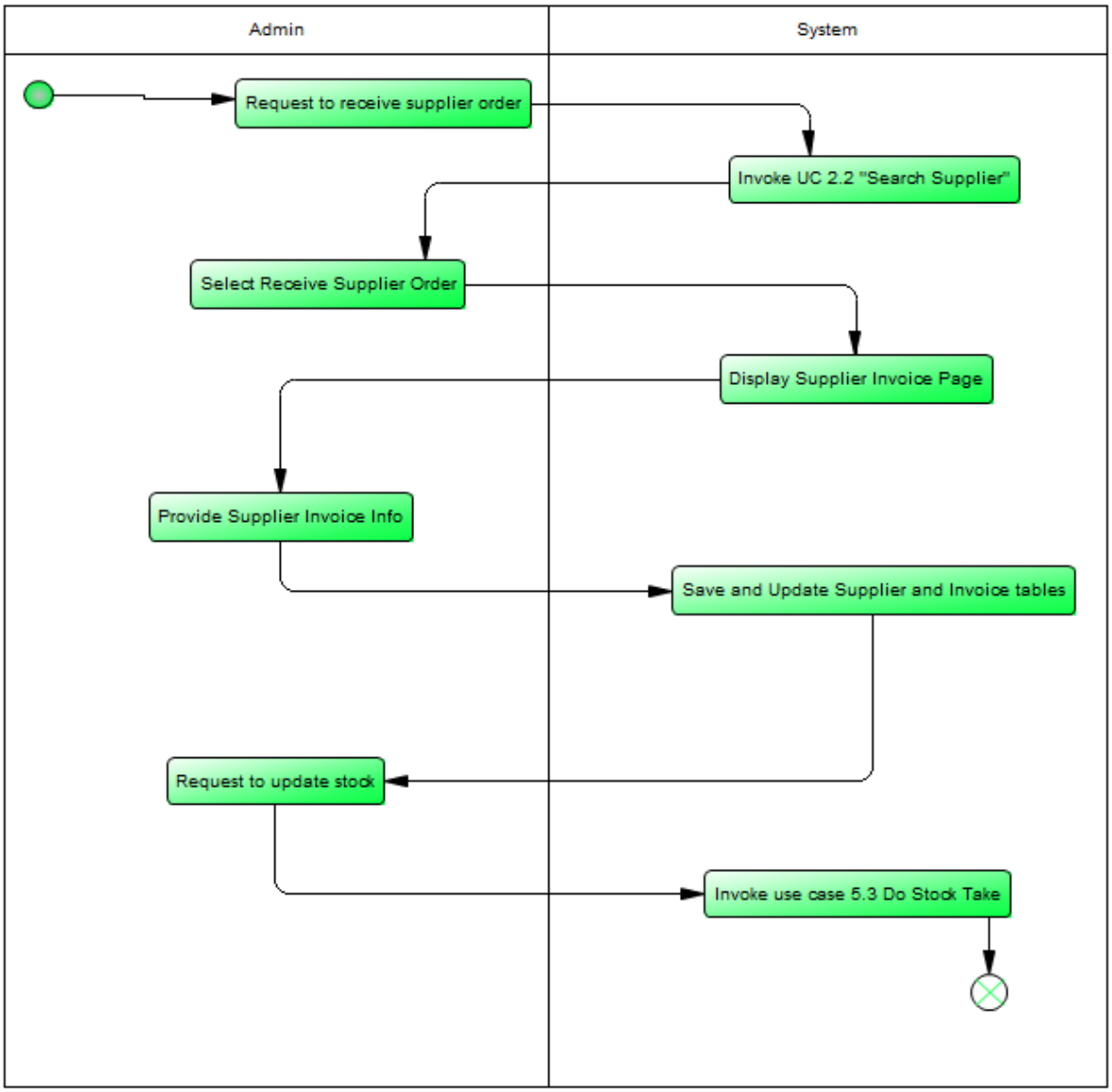


Figure 299 2.5. Place Supplier Order Activity Diagram

Figure 300 2.6. Receive Supplier Order Activity Diagram



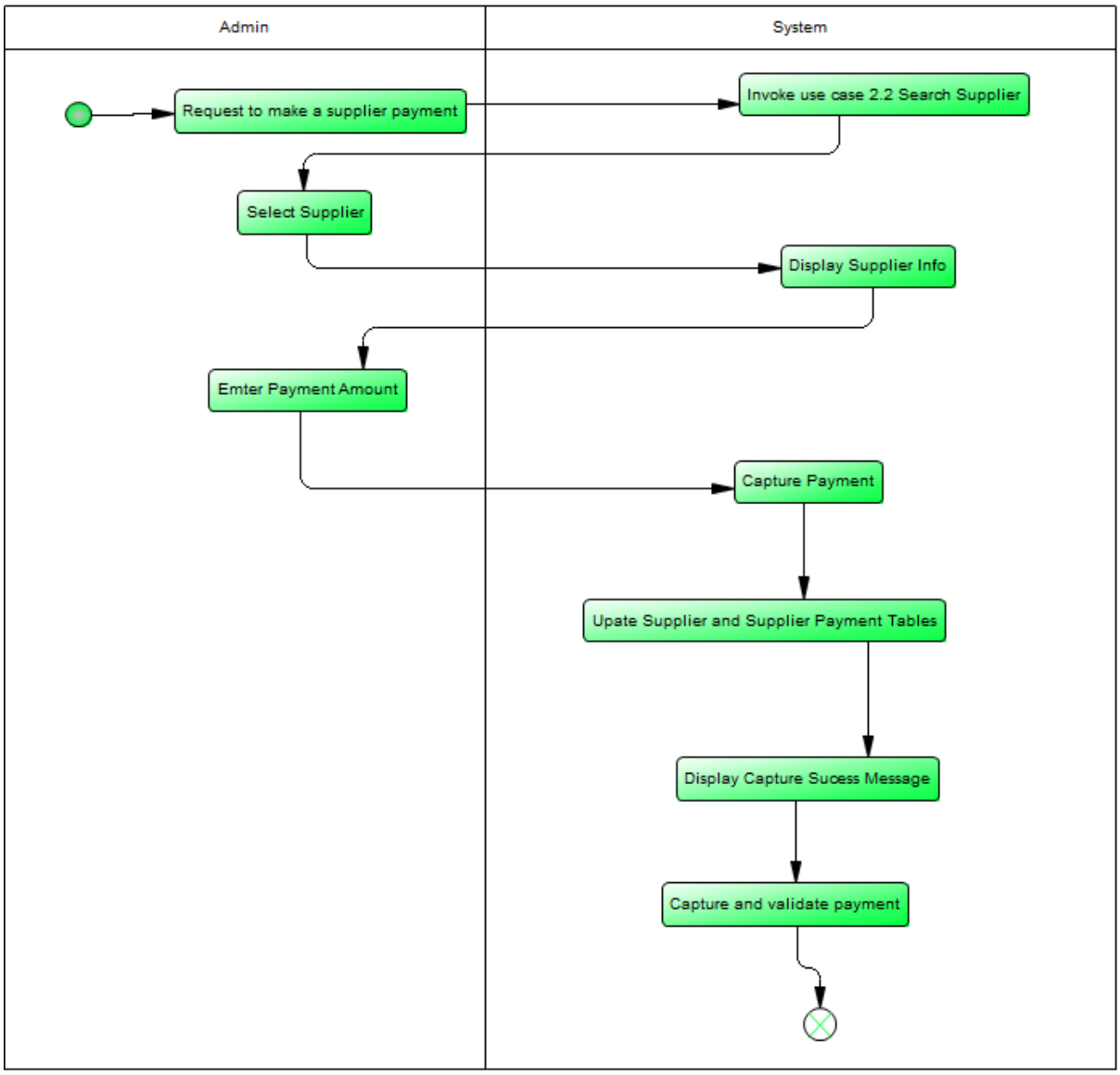
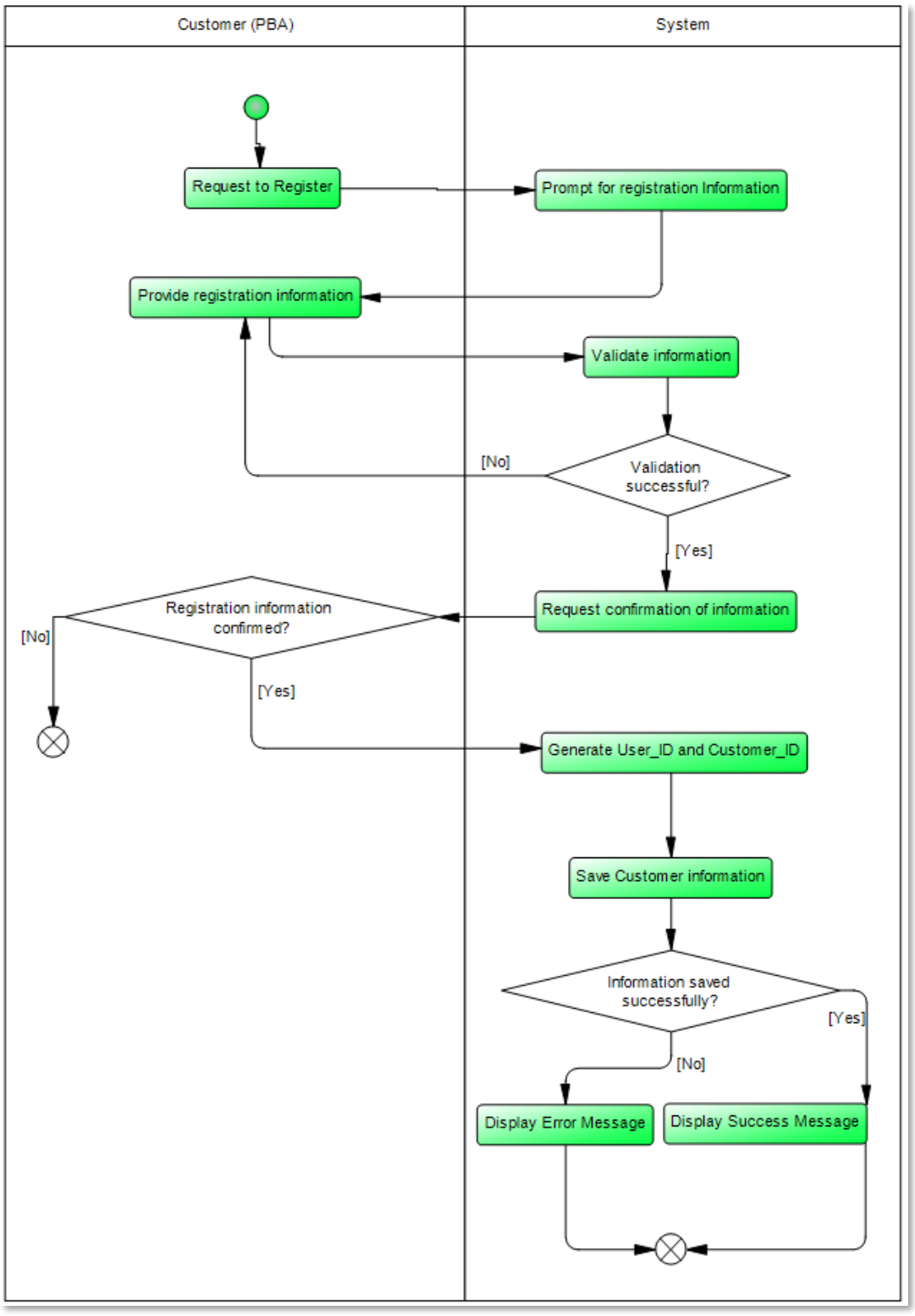


Figure 301 27. Make A Payment to Supplier Activity Diagram

4.1.3 User Sub-System



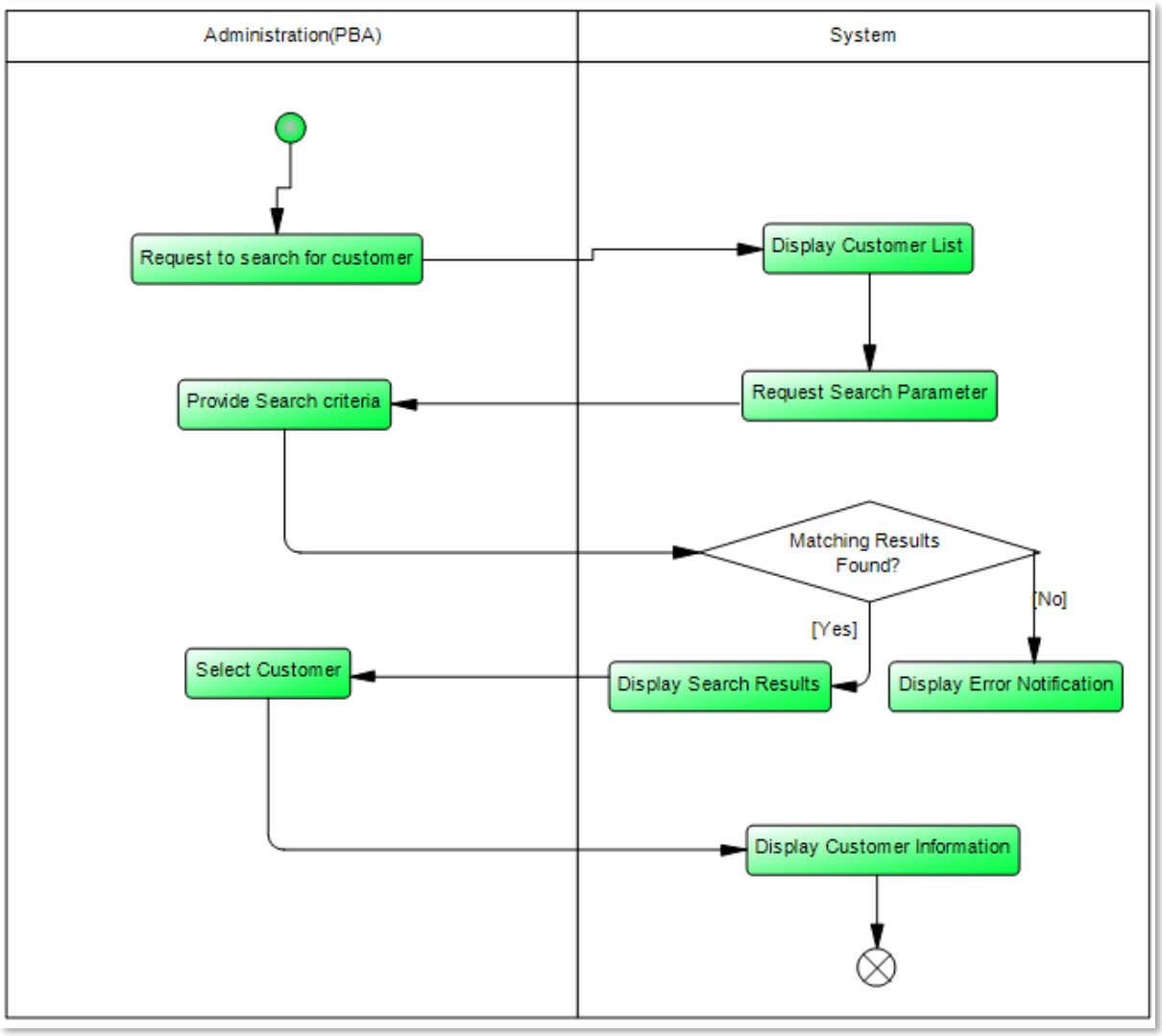


Figure 303 3.2. Search Customer Activity Diagram

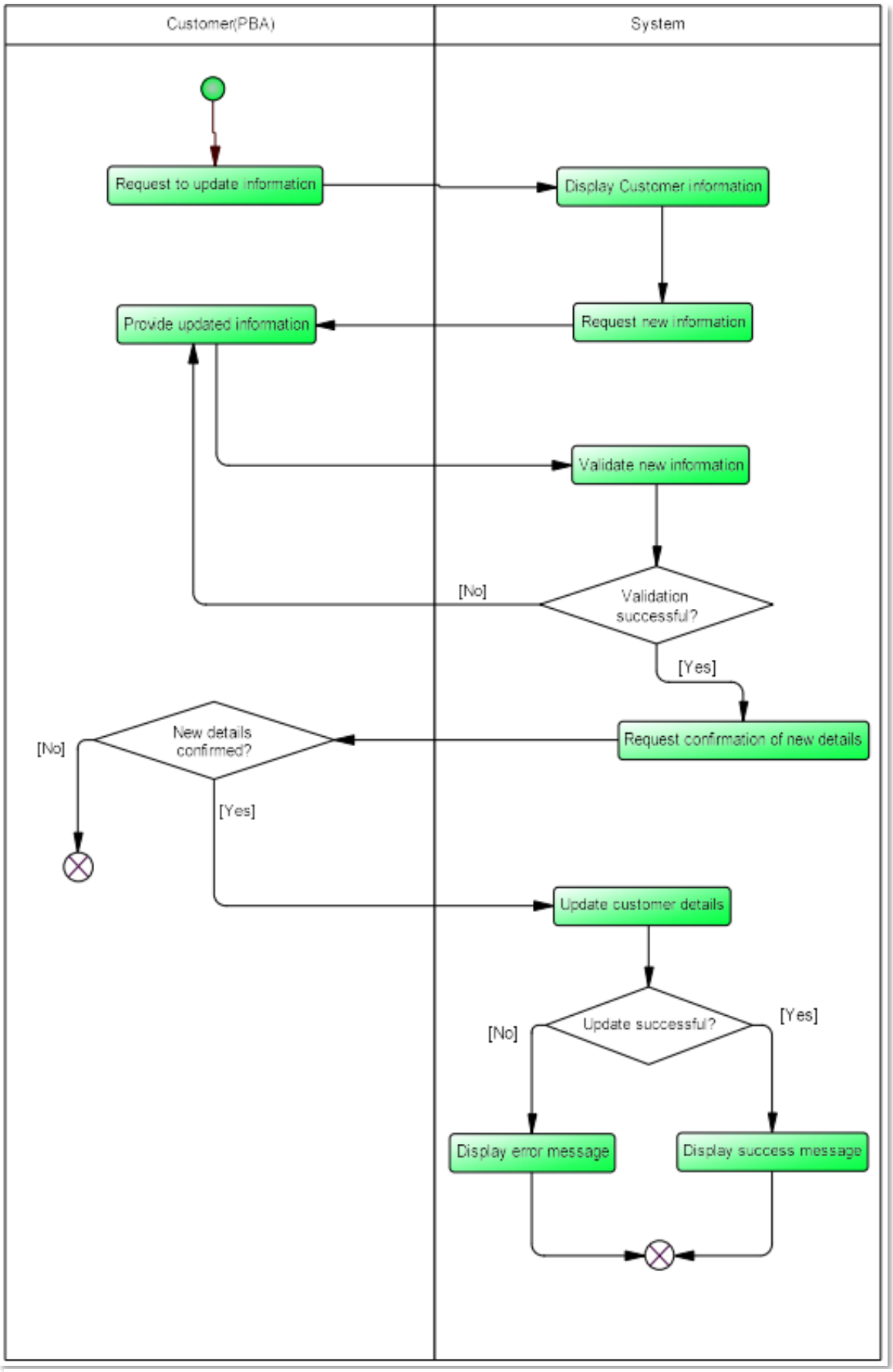


Figure 304 3.3. Update Customer Activity Diagram

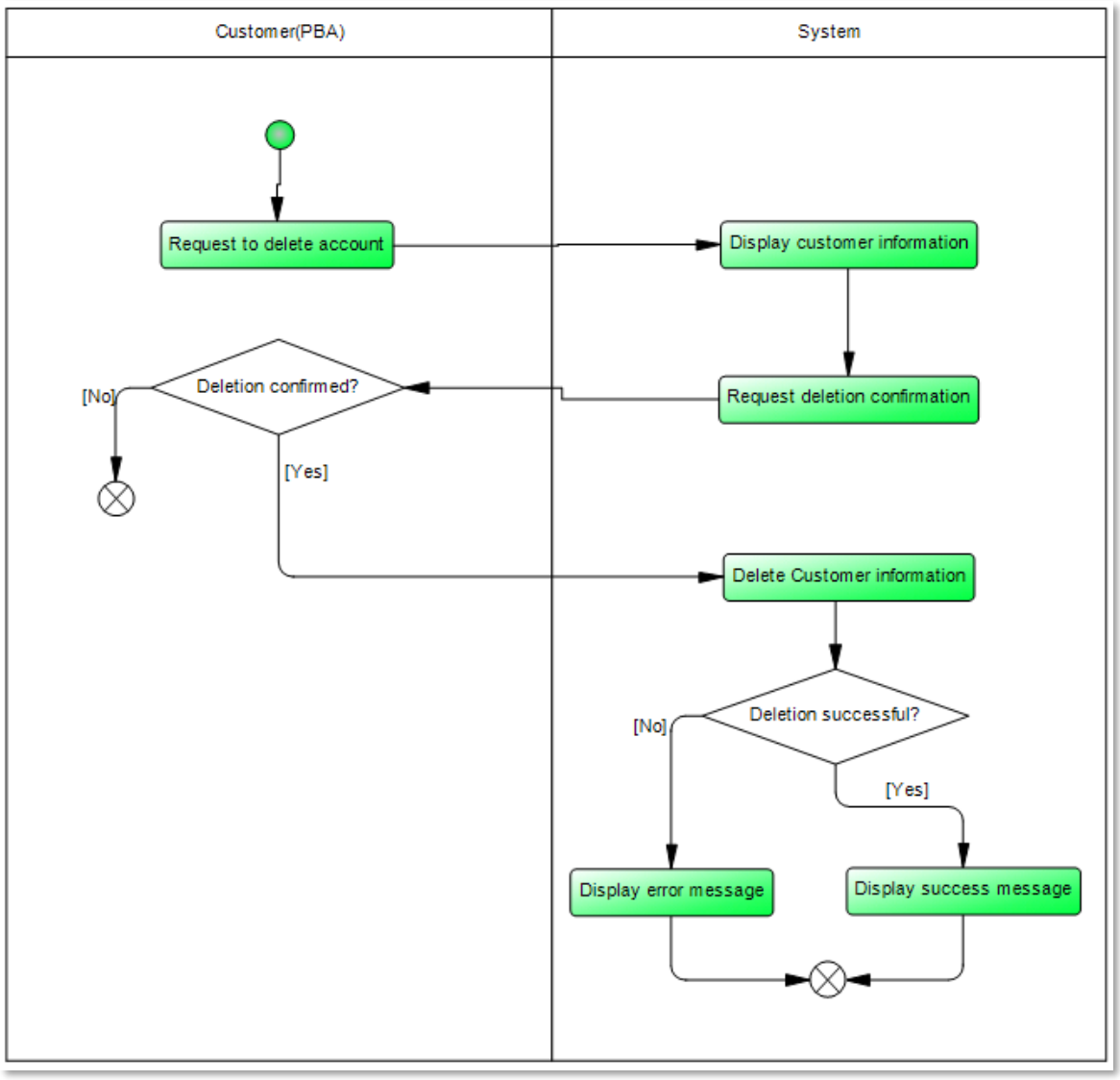


Figure 305 3.4. Delete Customer Activity Diagram

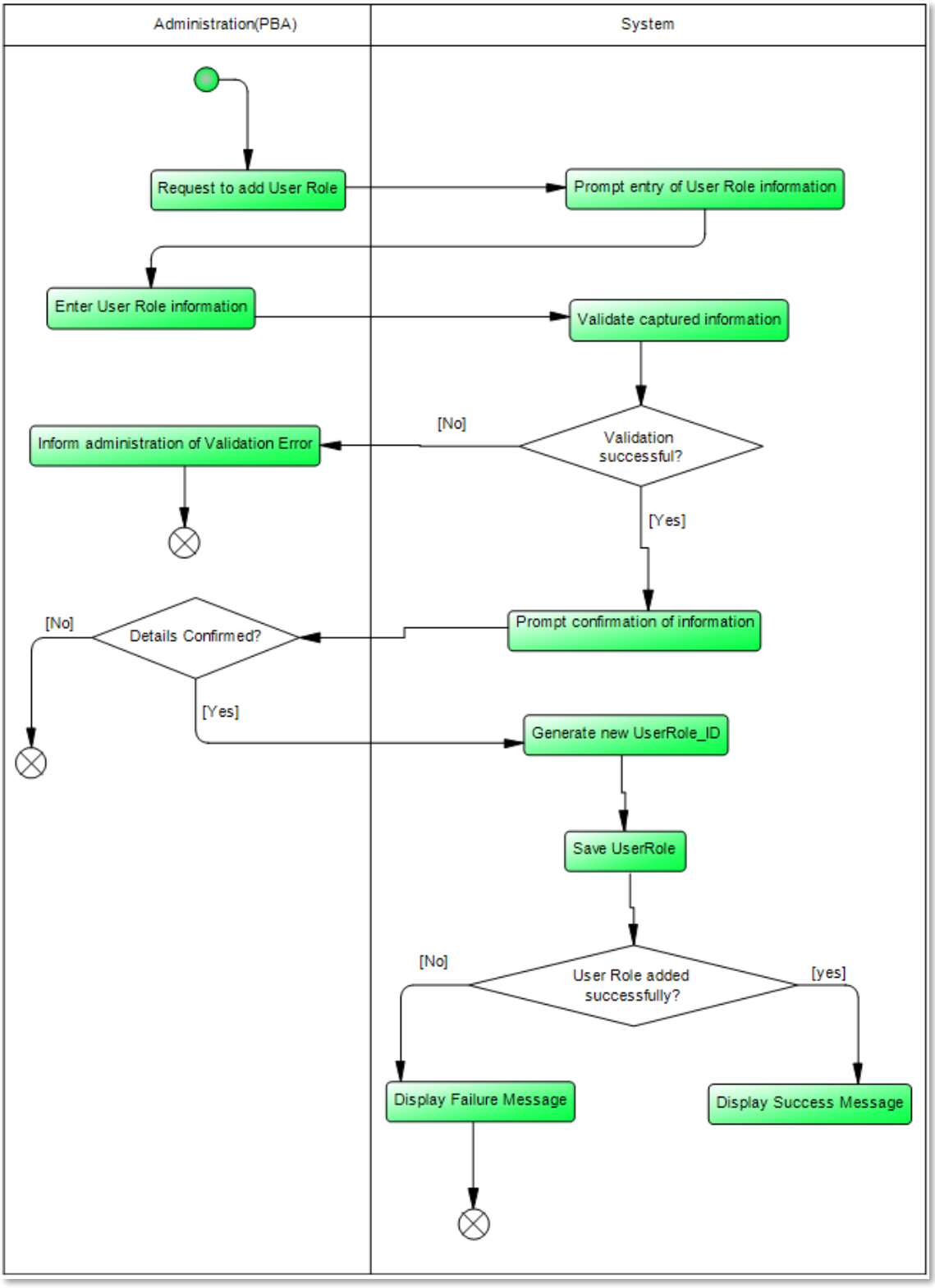


Figure 306 3.5. Add User Role Activity Diagram

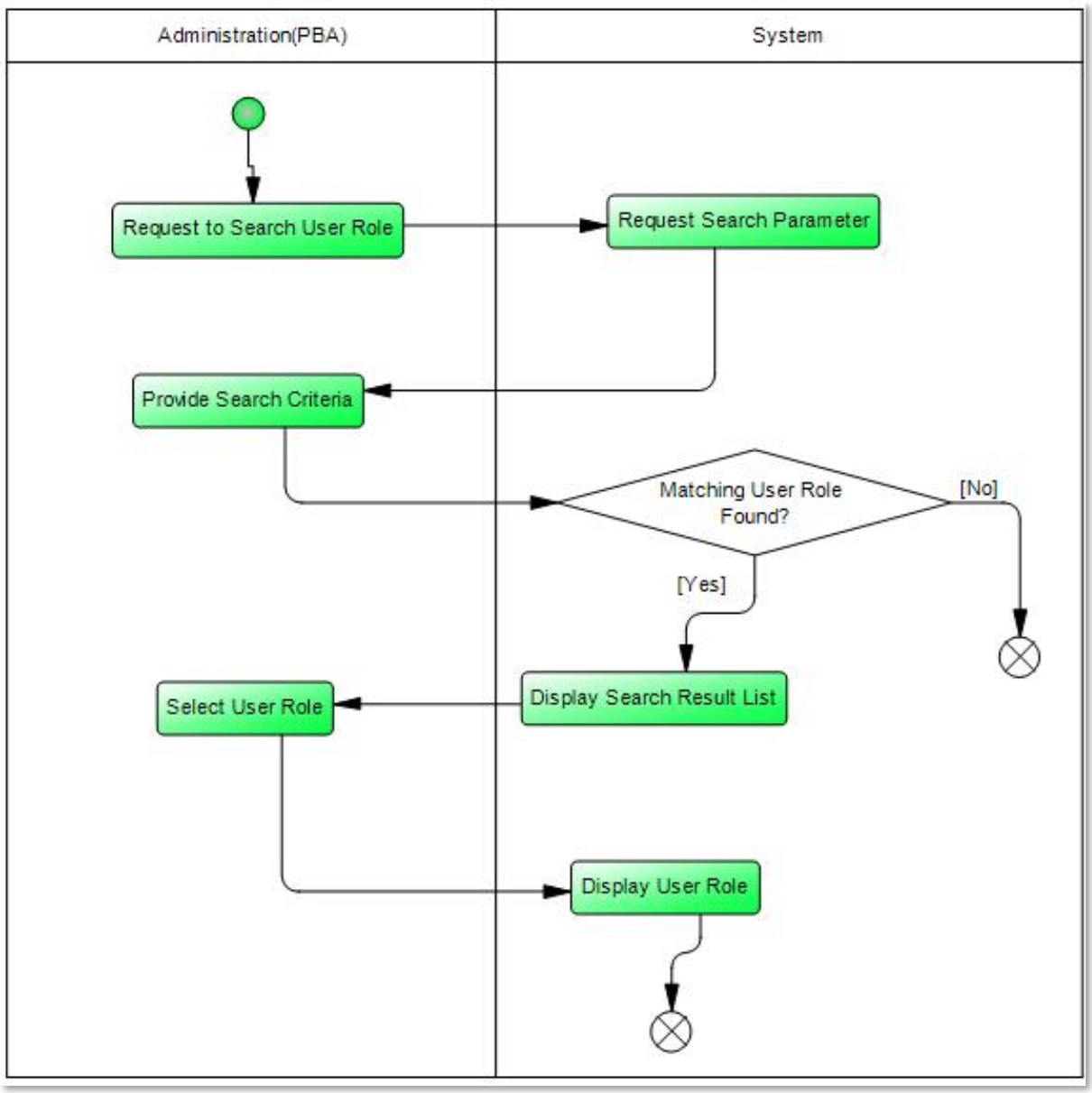


Figure 307 3.6. Search User Role Activity Diagram

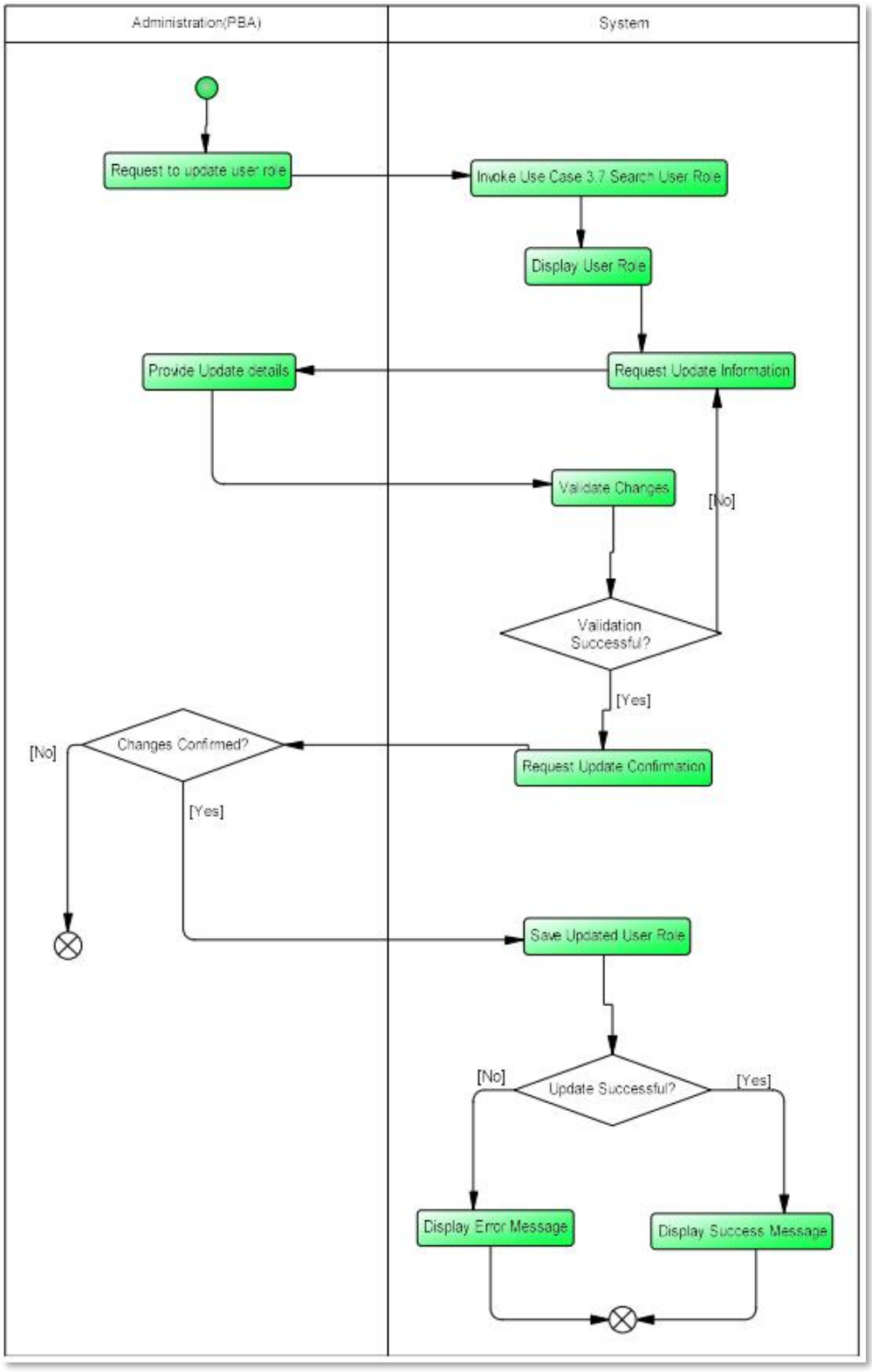


Figure 308 3.7. Update User Role Activity Diagram

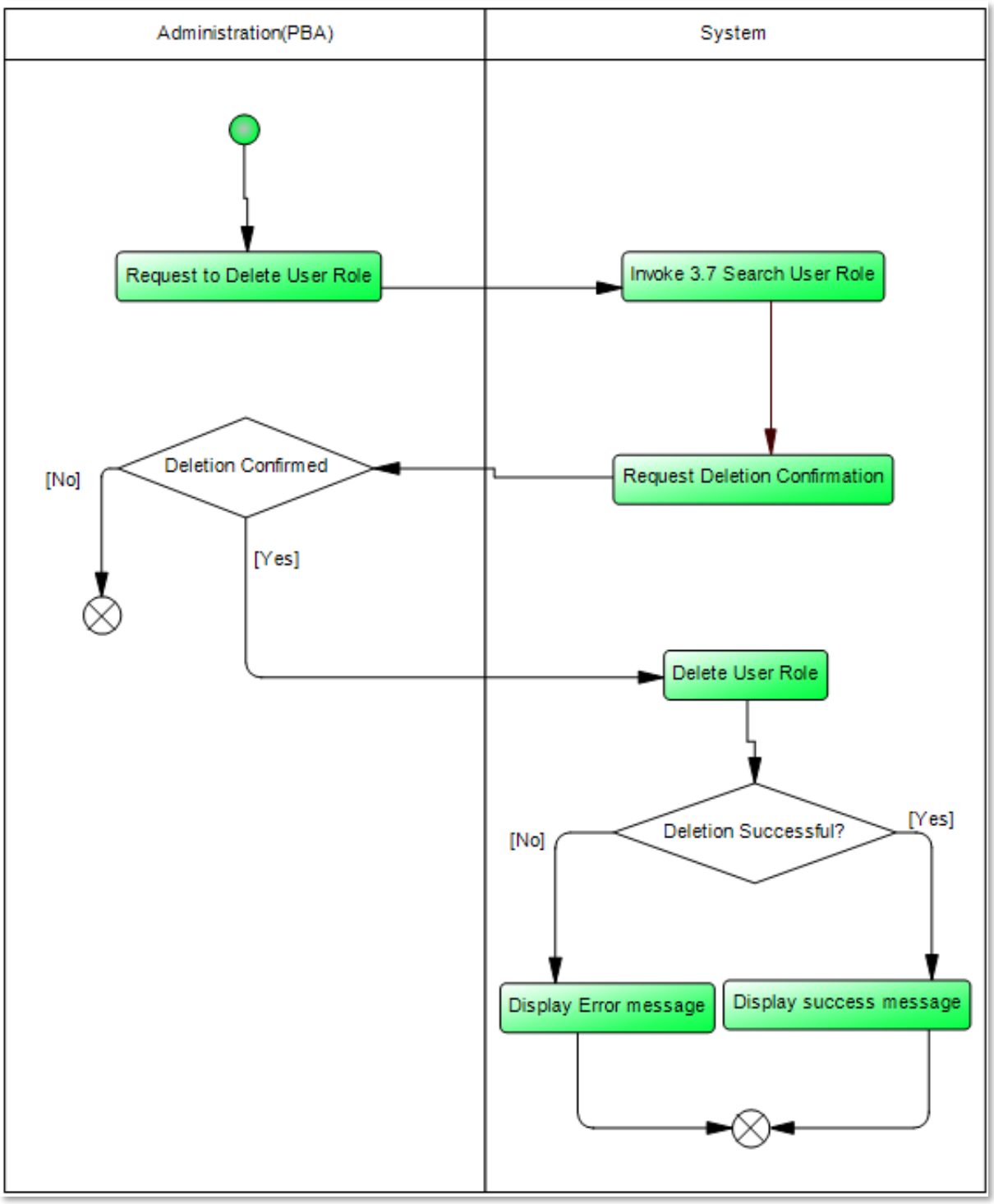


Figure 309 3.8. Delete User Role Activity Diagram

4.1.4 Employee Delivery Shifts Sub-System

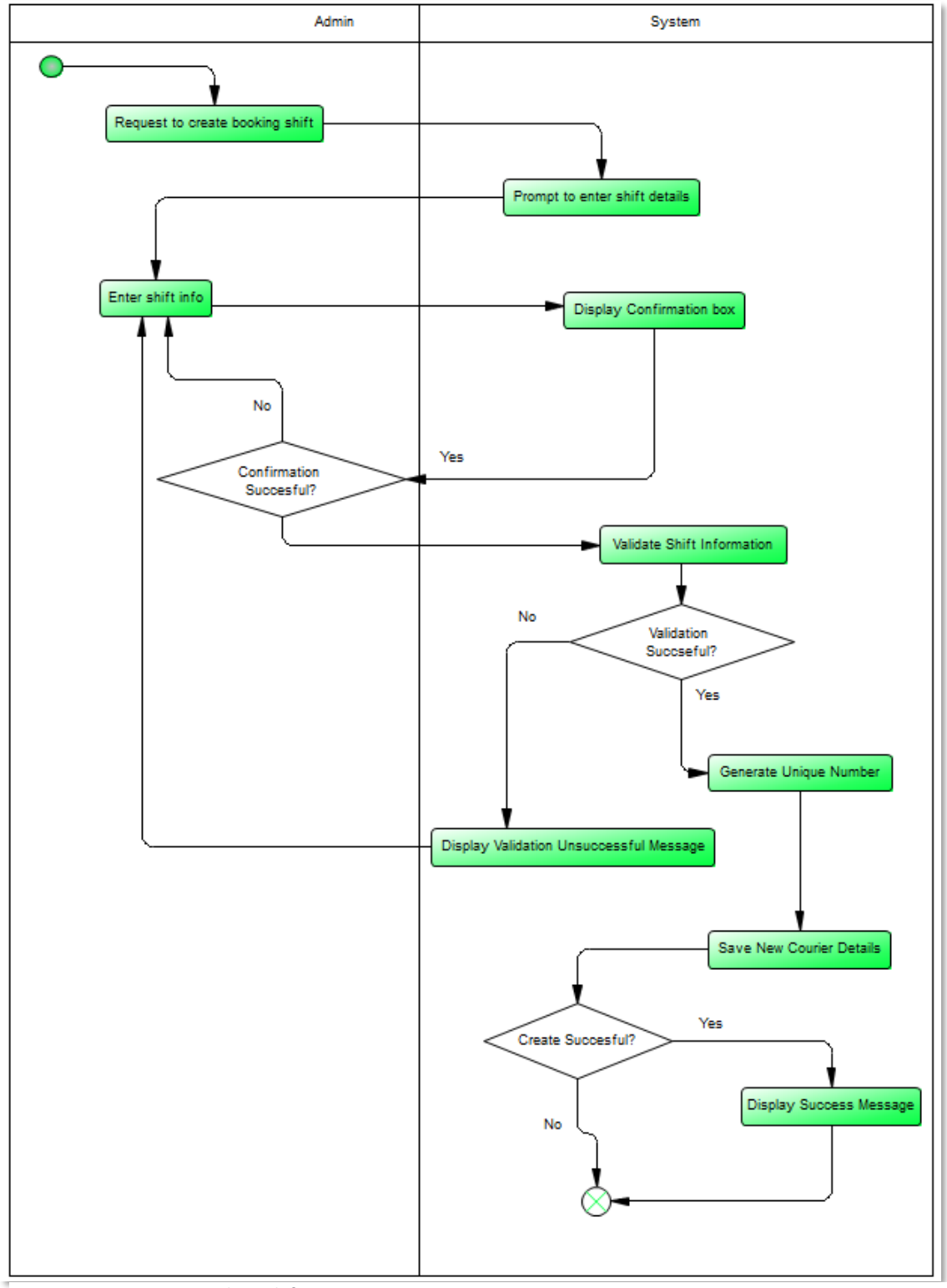


Figure 310 4.1. Create Booking Shift Activity Diagram

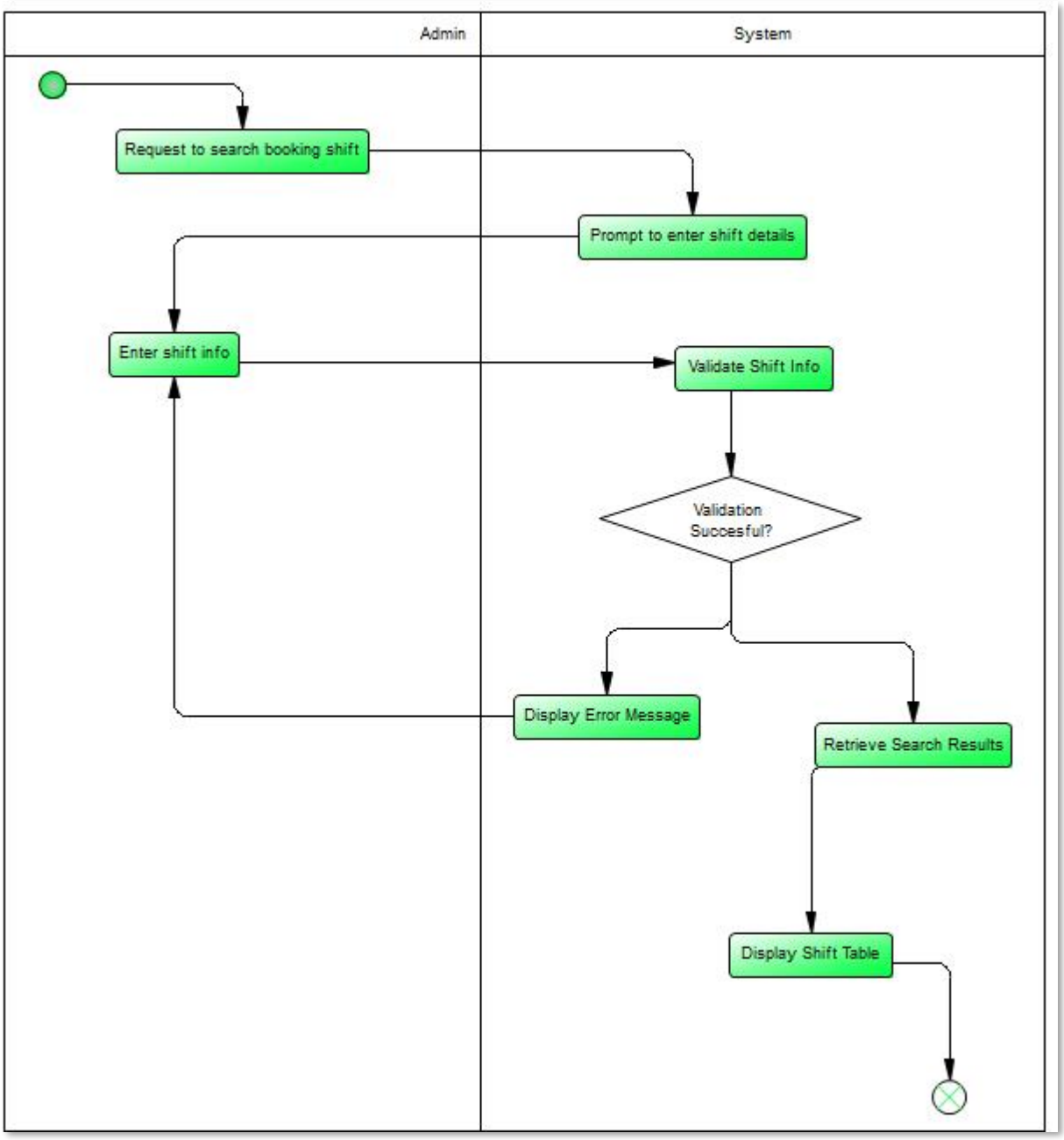


Figure 311 4.2. Search Booking Shift Activity Diagram

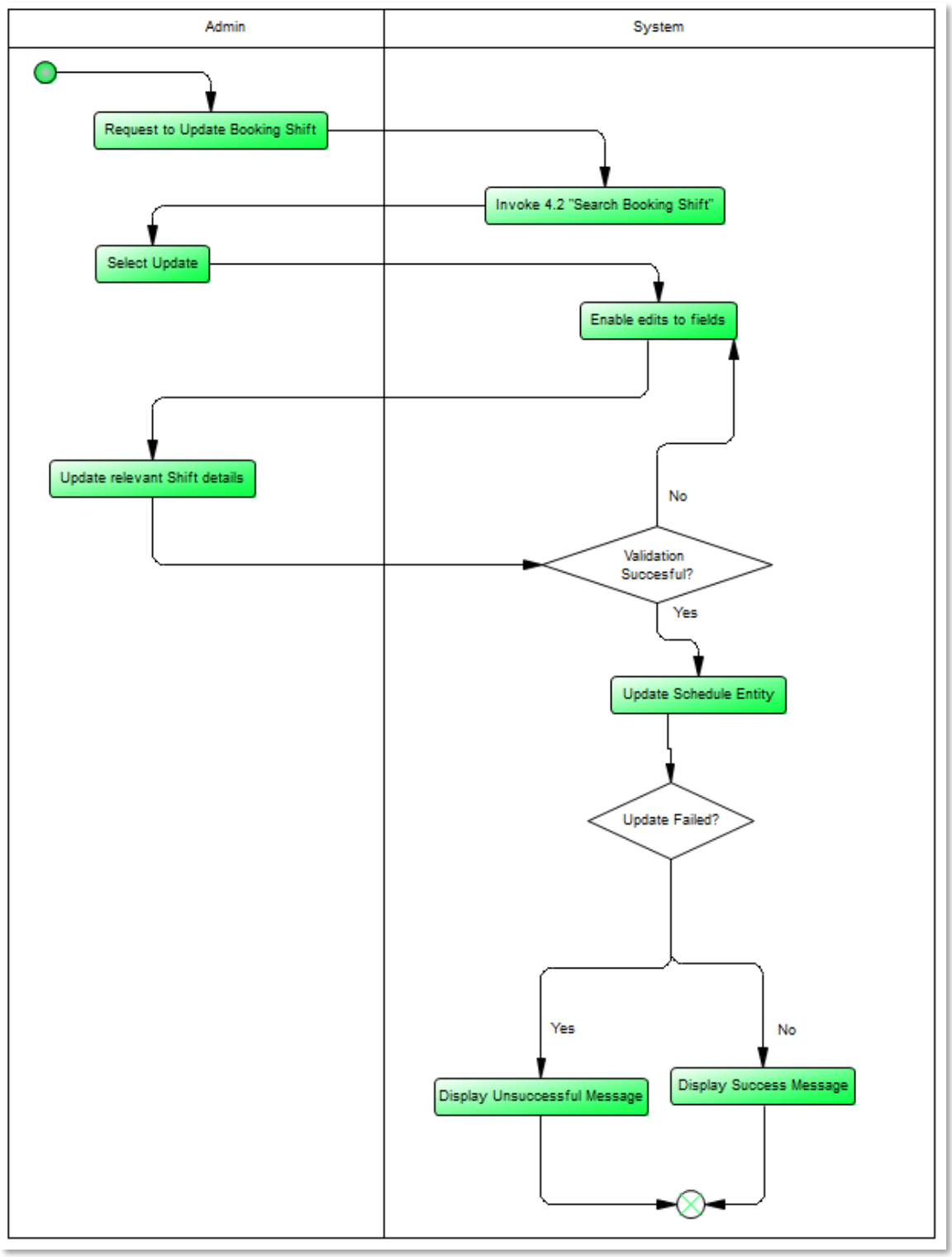


Figure 312 4.3. Update Booking Shift Activity Diagram

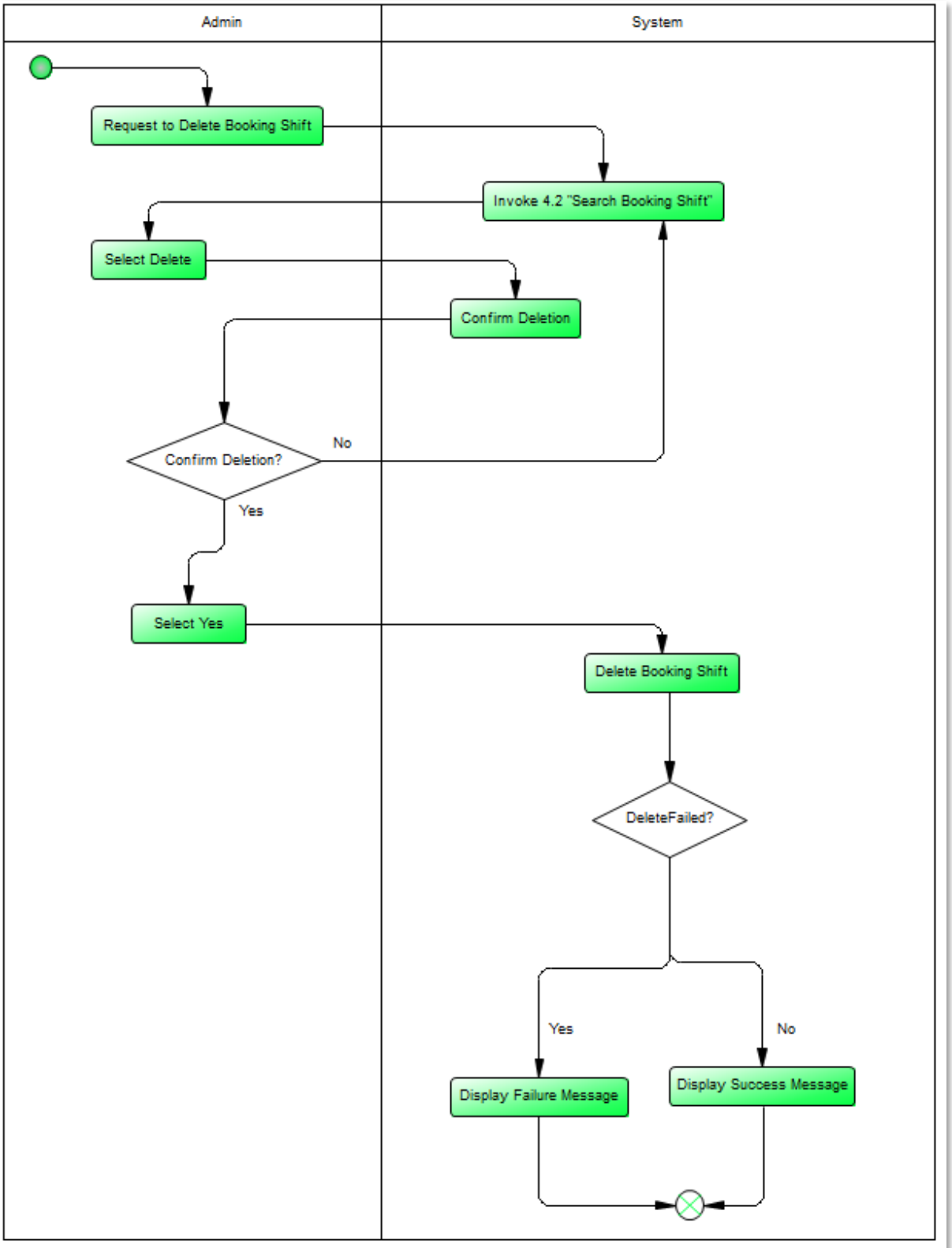


Figure 313 4.4. Delete Booking Shift Activity Diagram

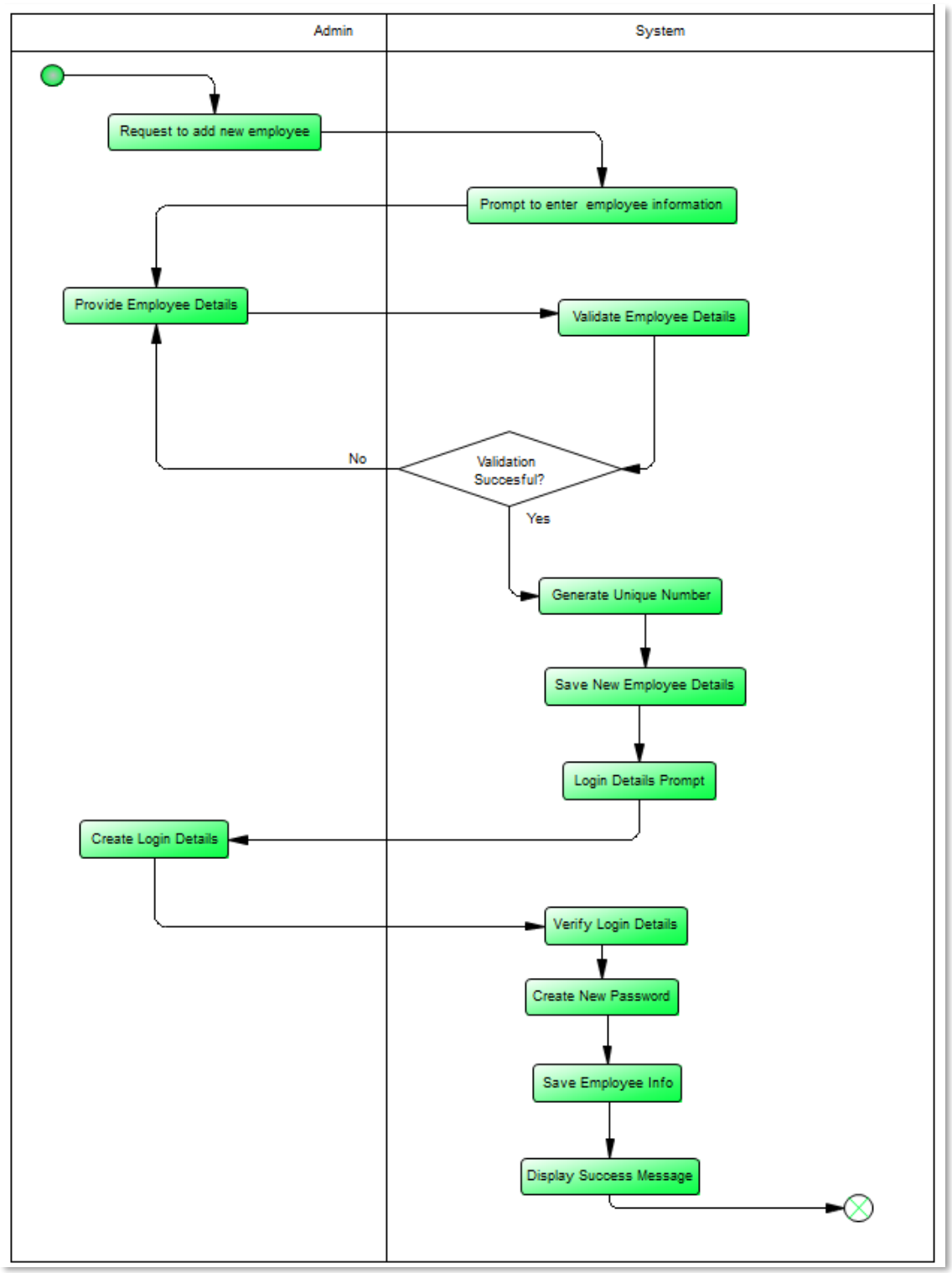


Figure 314 4.5. Add Employee Activity Diagram

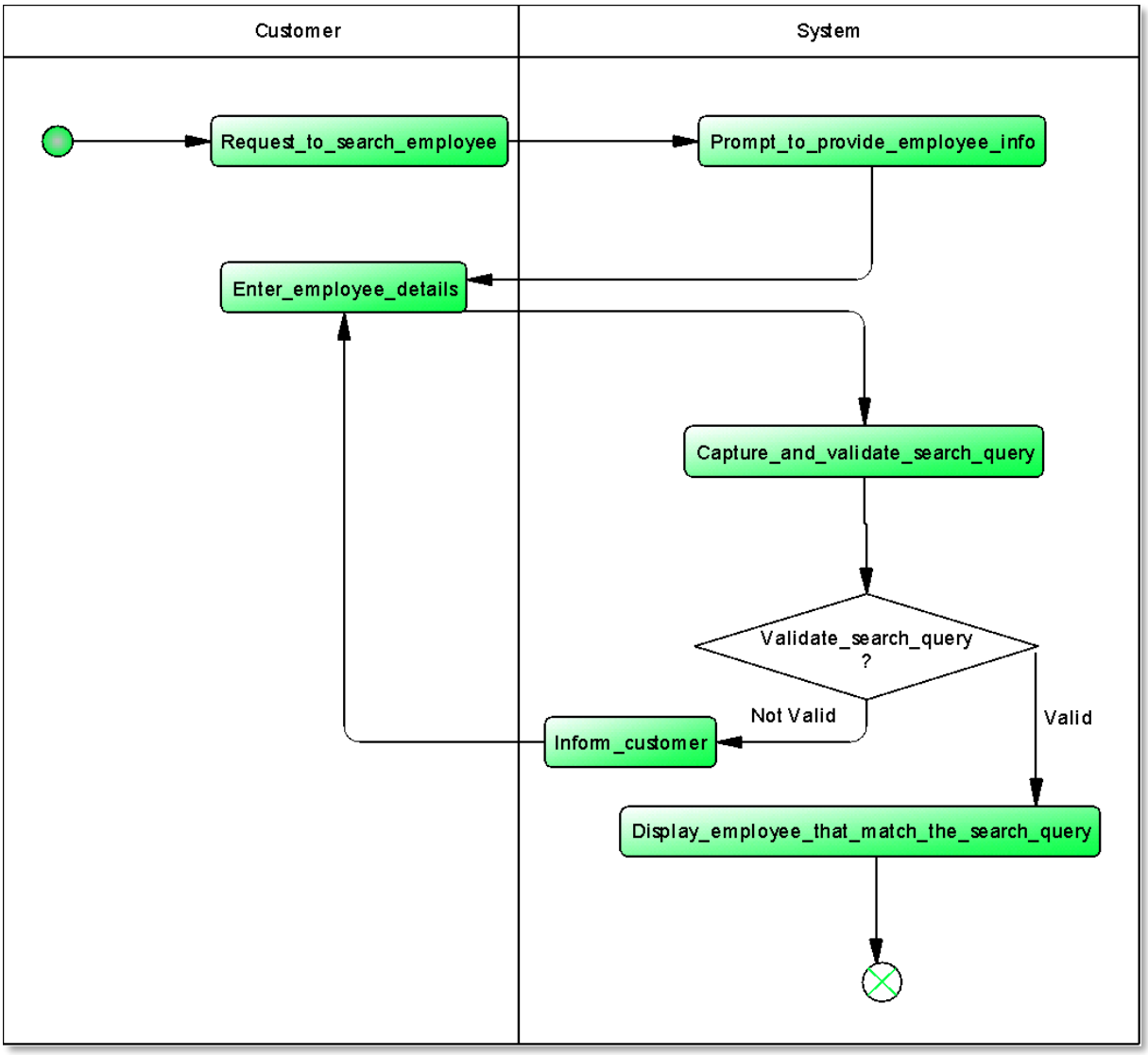


Figure 315 4.6. Search Employee Activity Diagram

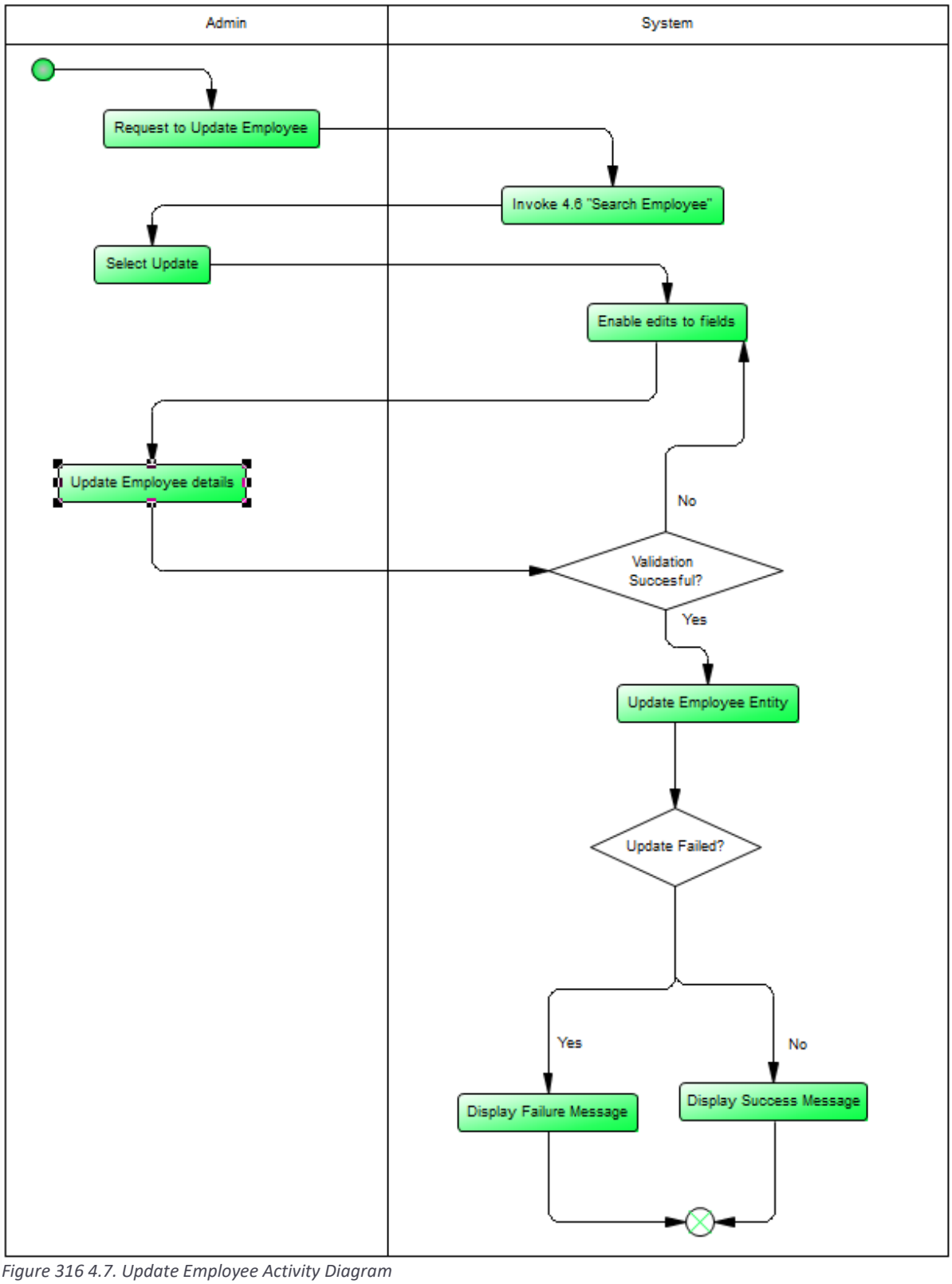


Figure 316 4.7. Update Employee Activity Diagram

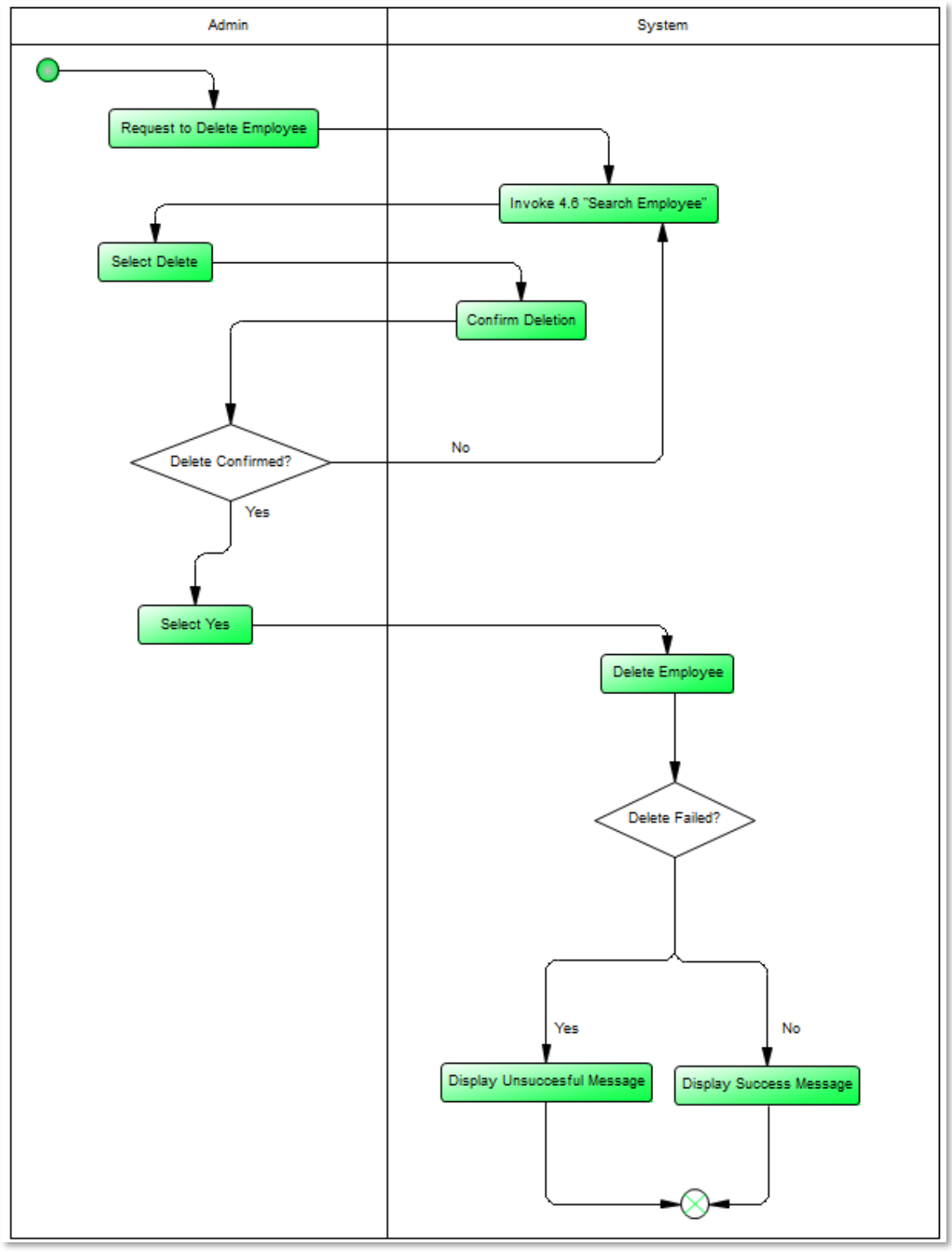


Figure 317 4.8. Delete Employee Activity Diagram

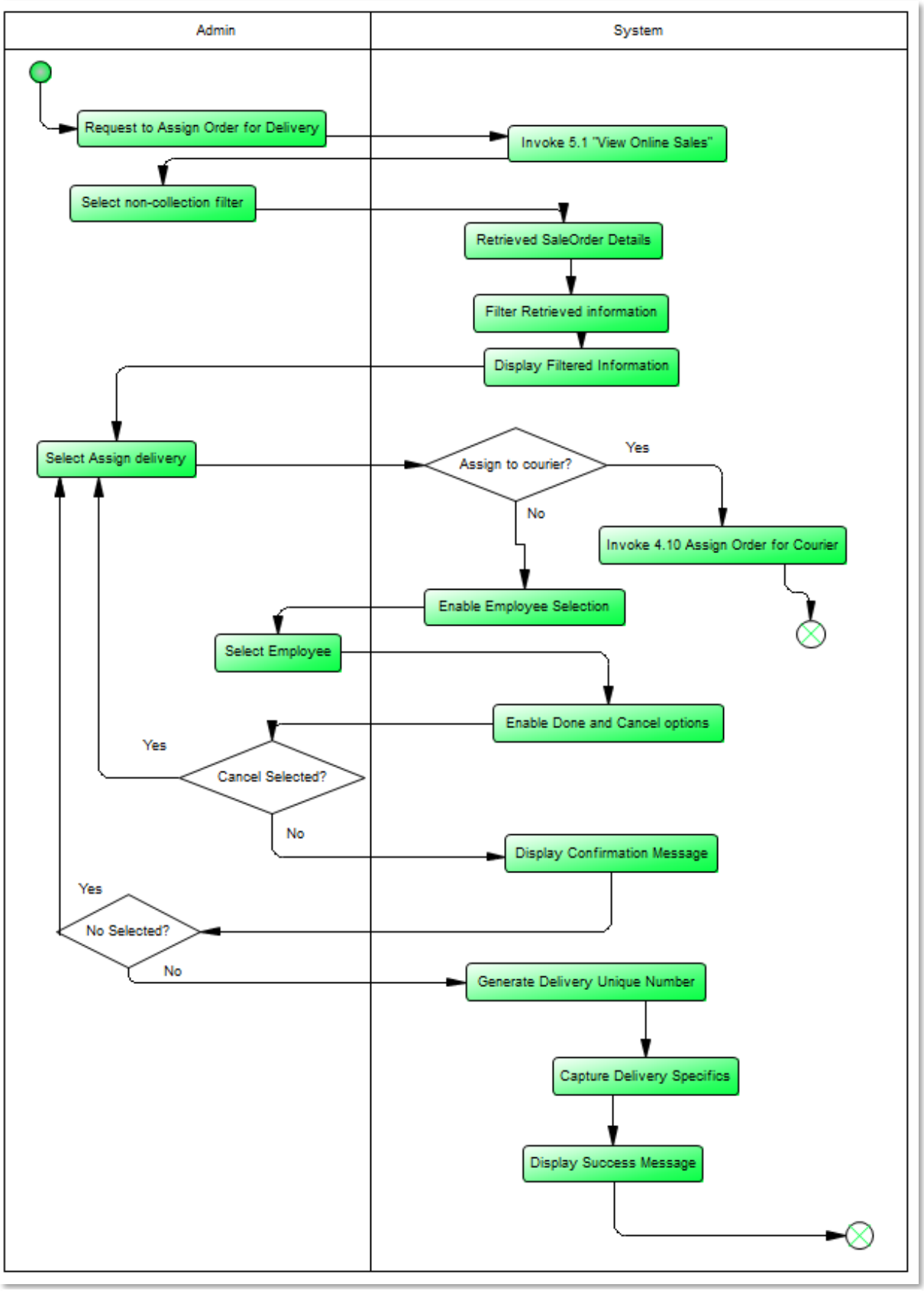


Figure 318 4.9. Assign Order for Delivery Activity Diagram

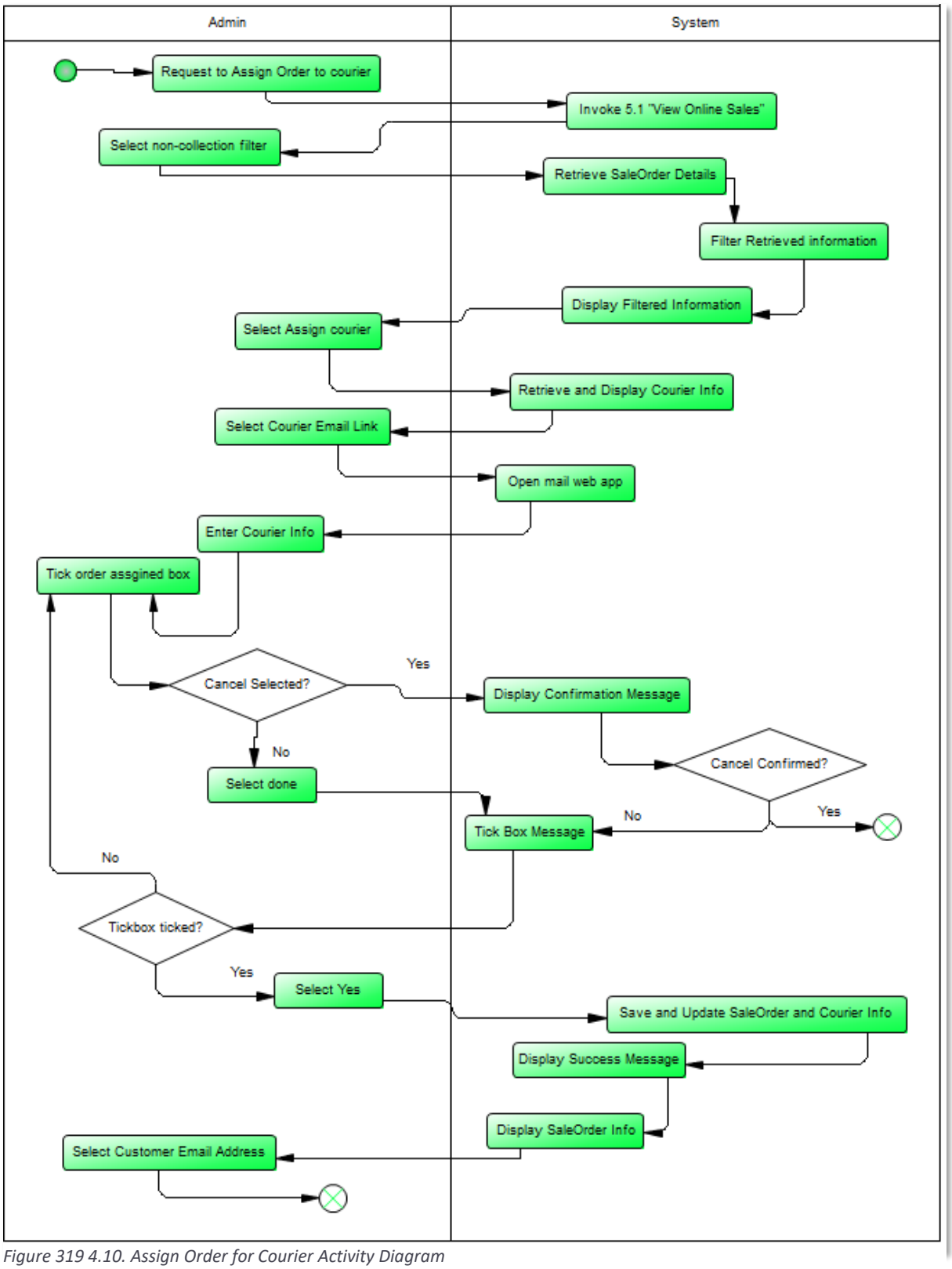


Figure 319 4.10. Assign Order for Courier Activity Diagram

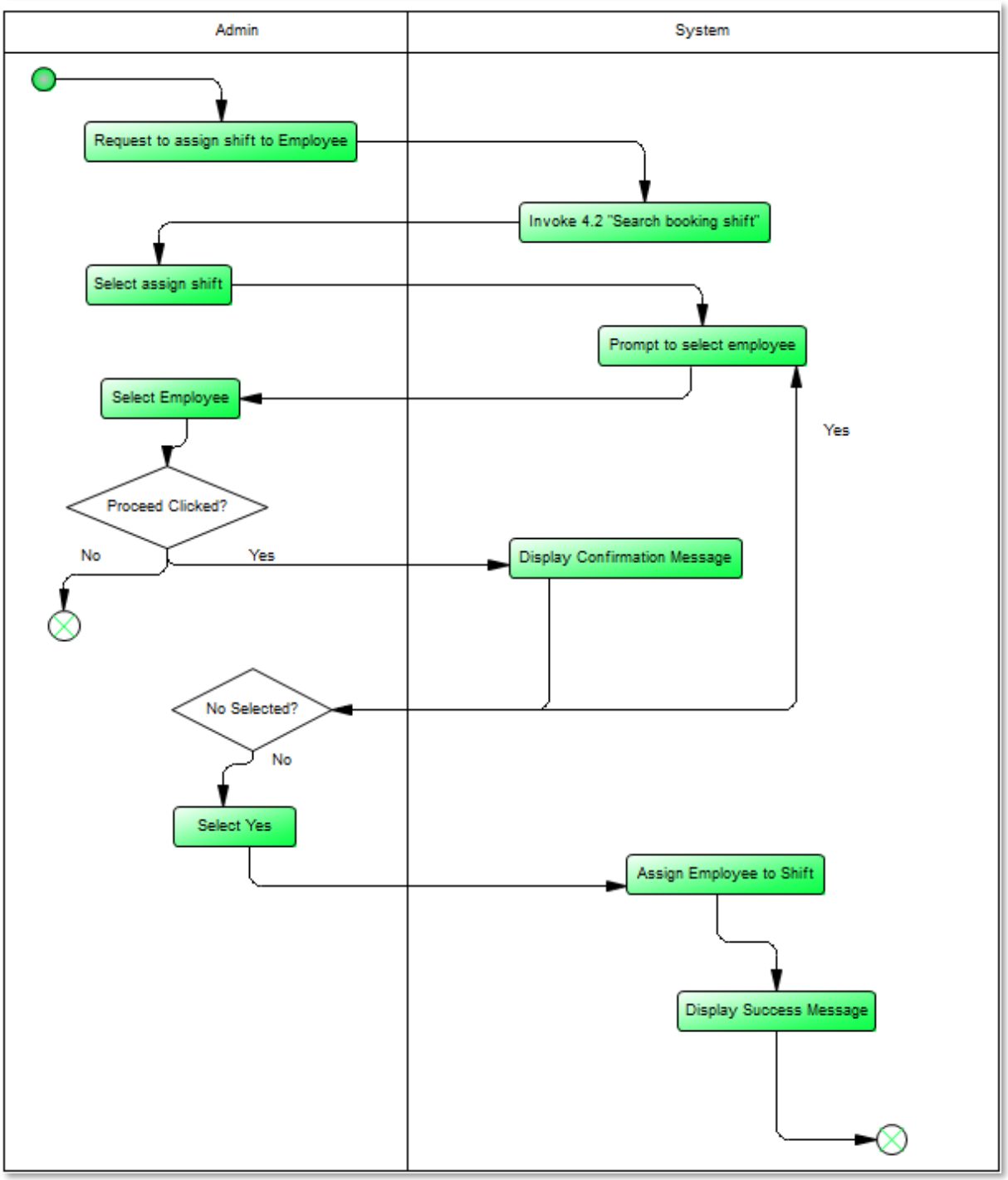


Figure 320 4.11. Assign Shift Activity Diagram

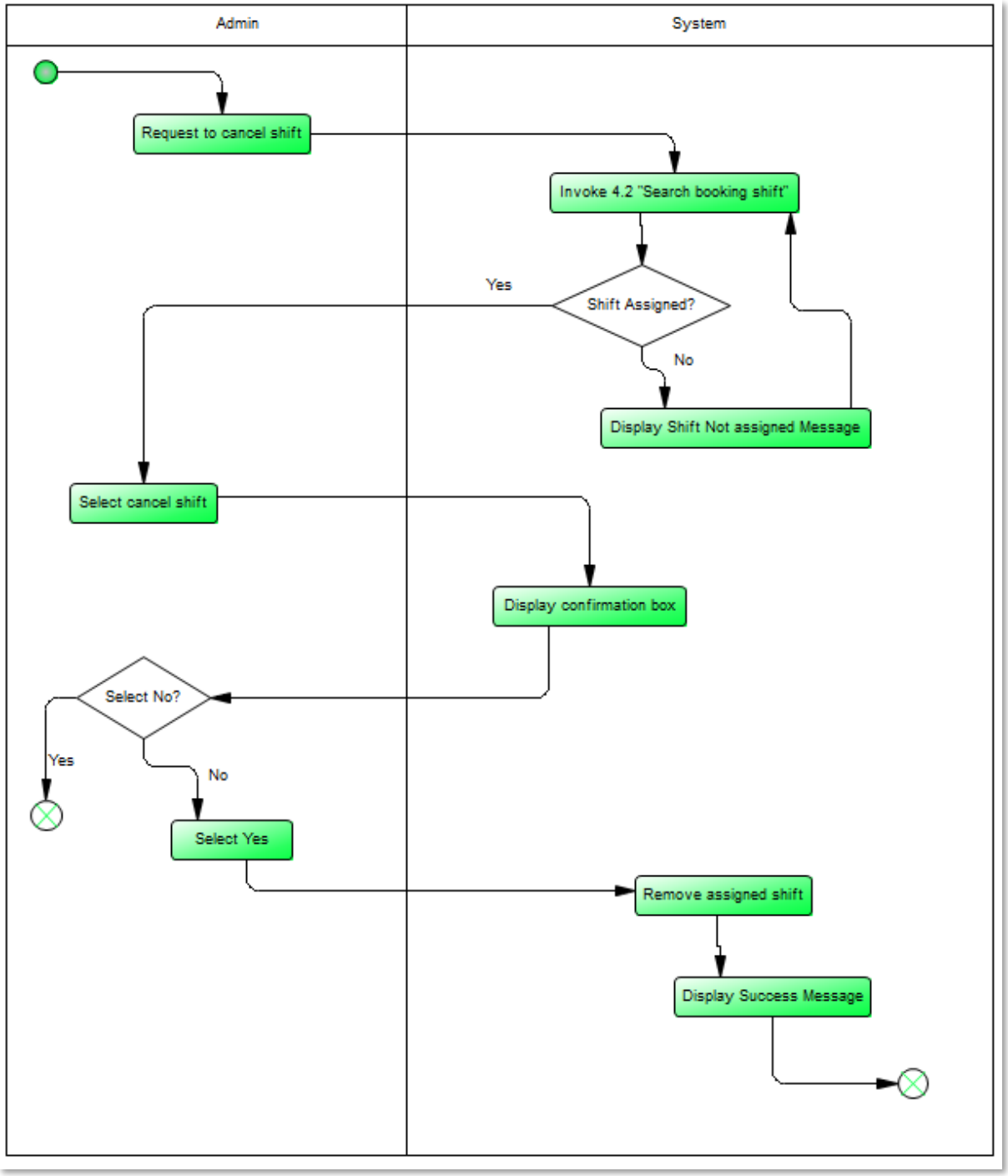


Figure 321 4.12. Cancel Shift Activity Diagram

4.1.5 Administration Back-Office Sub-System

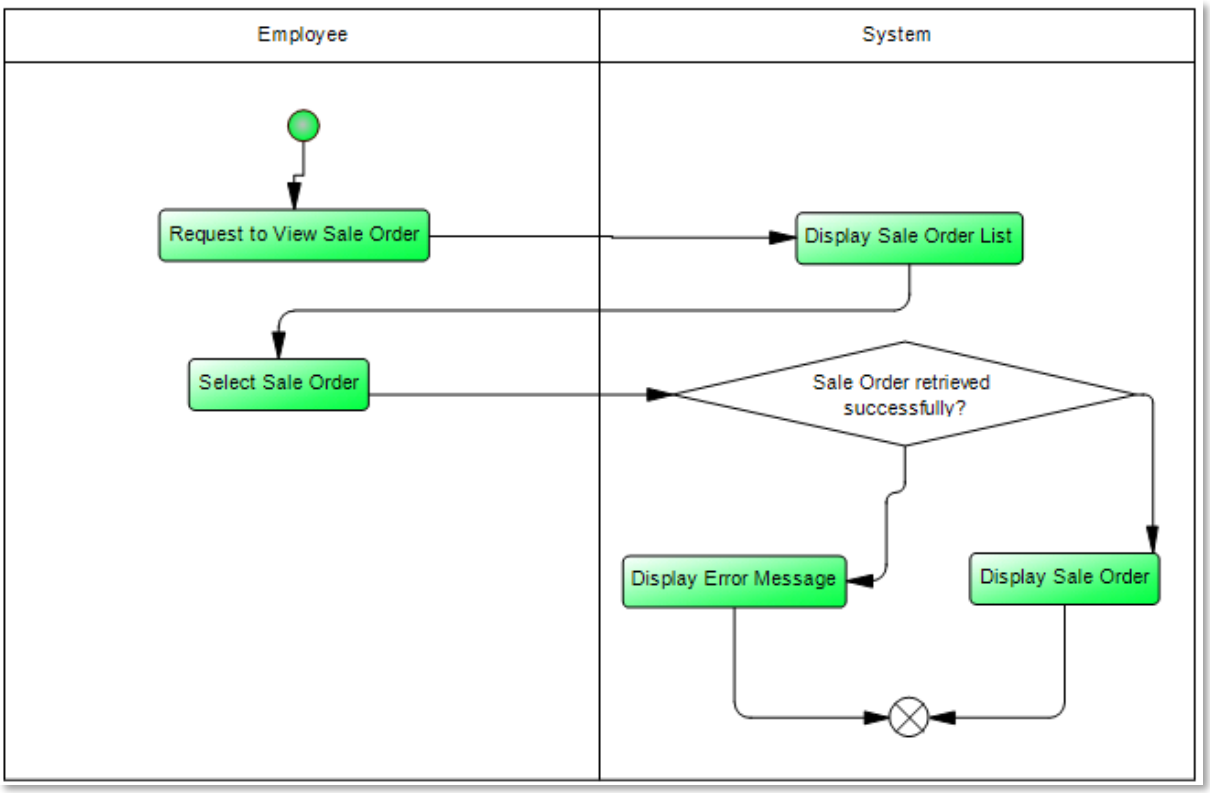


Figure 322 5.1. View Online Sales Activity Diagram

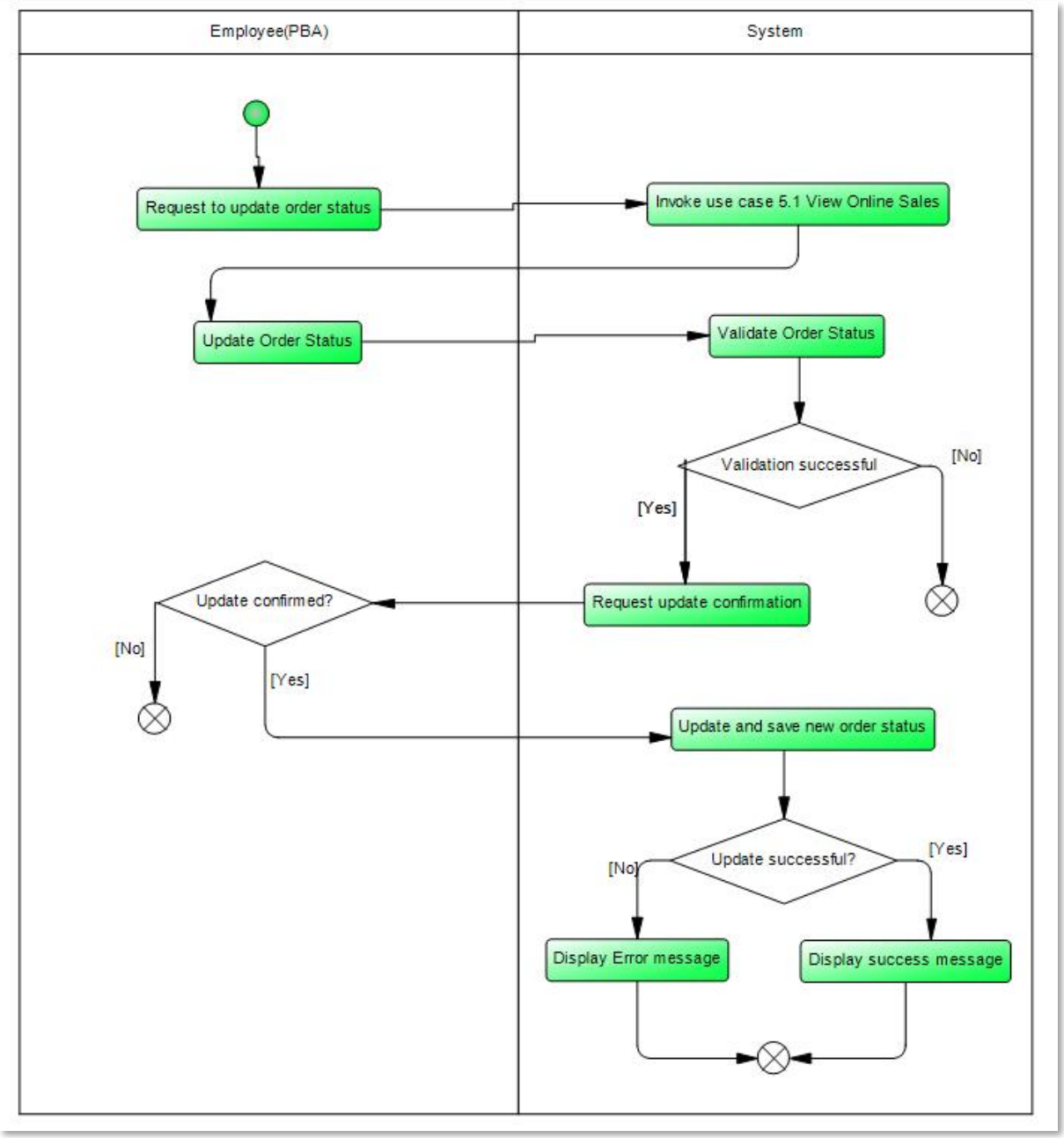


Figure 323 5.2. Update Sales Status Activity Diagram

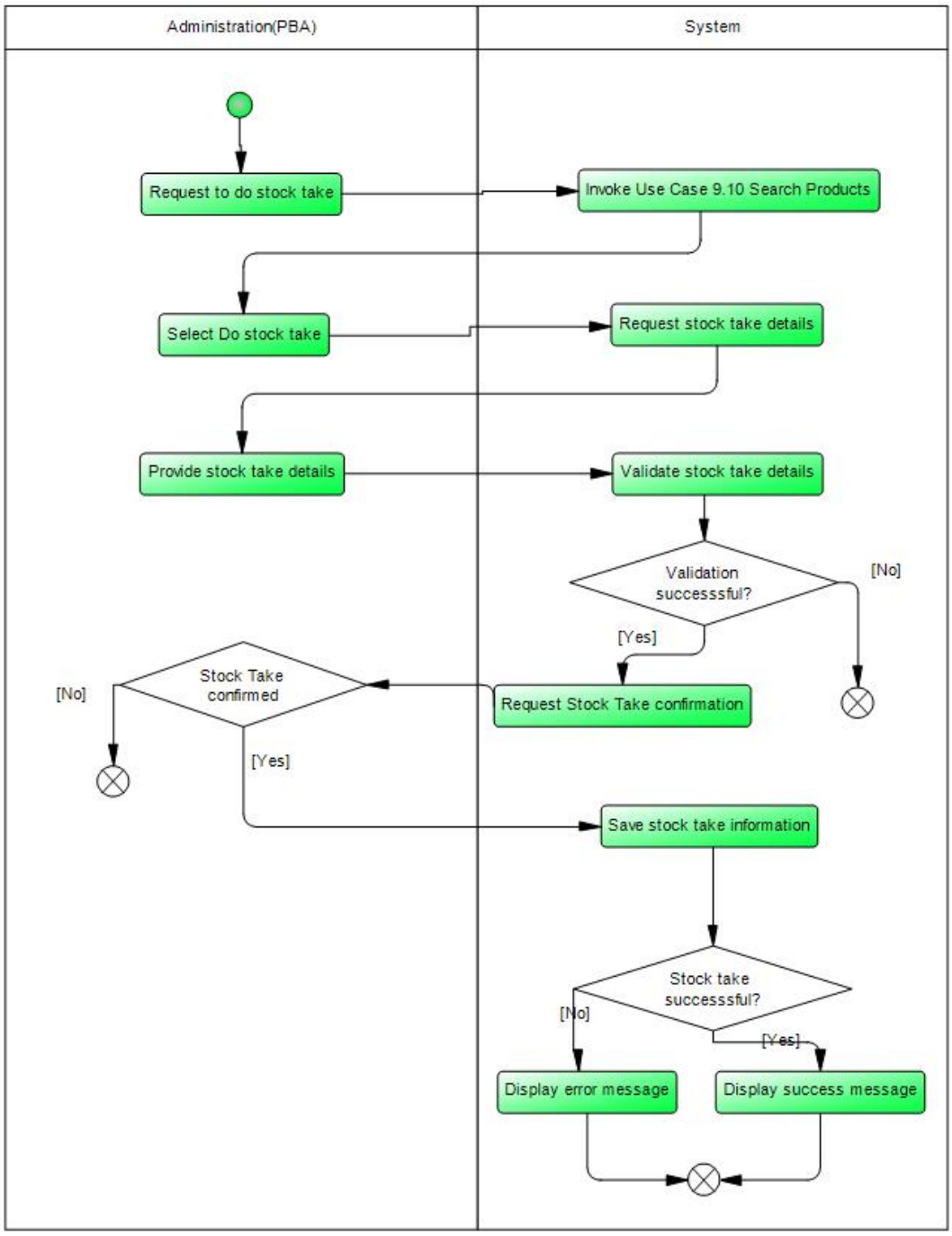


Figure 324 5.3. Do Stock Take Activity Diagram

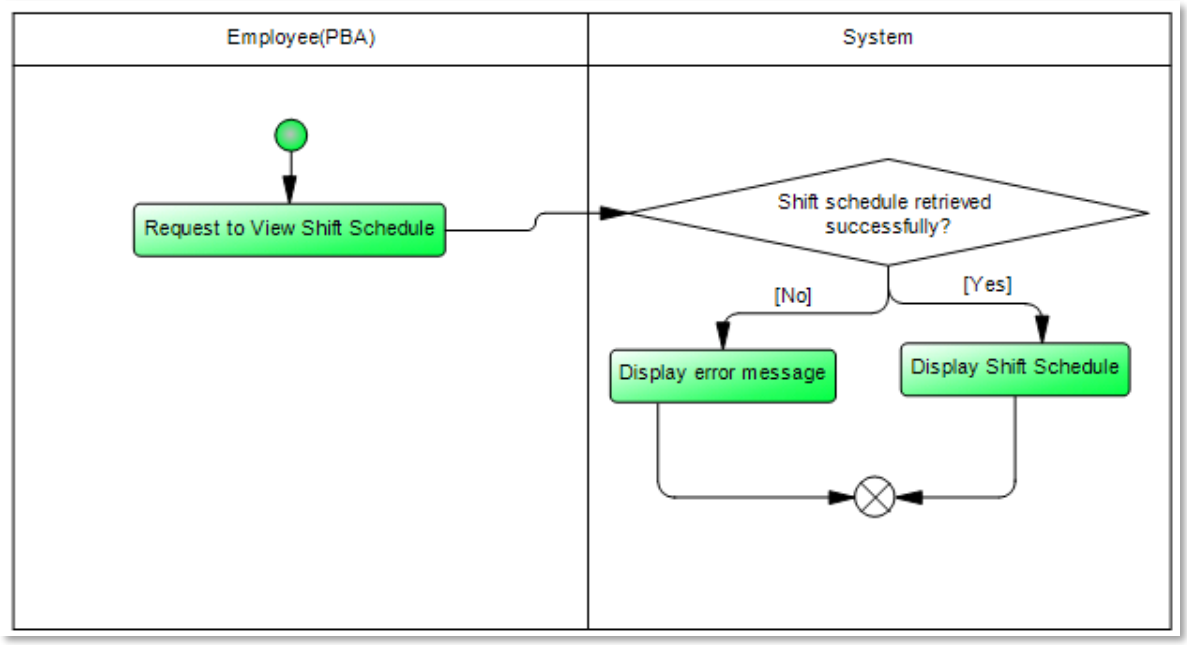


Figure 326 5.4. View Shift Schedule Activity Diagram

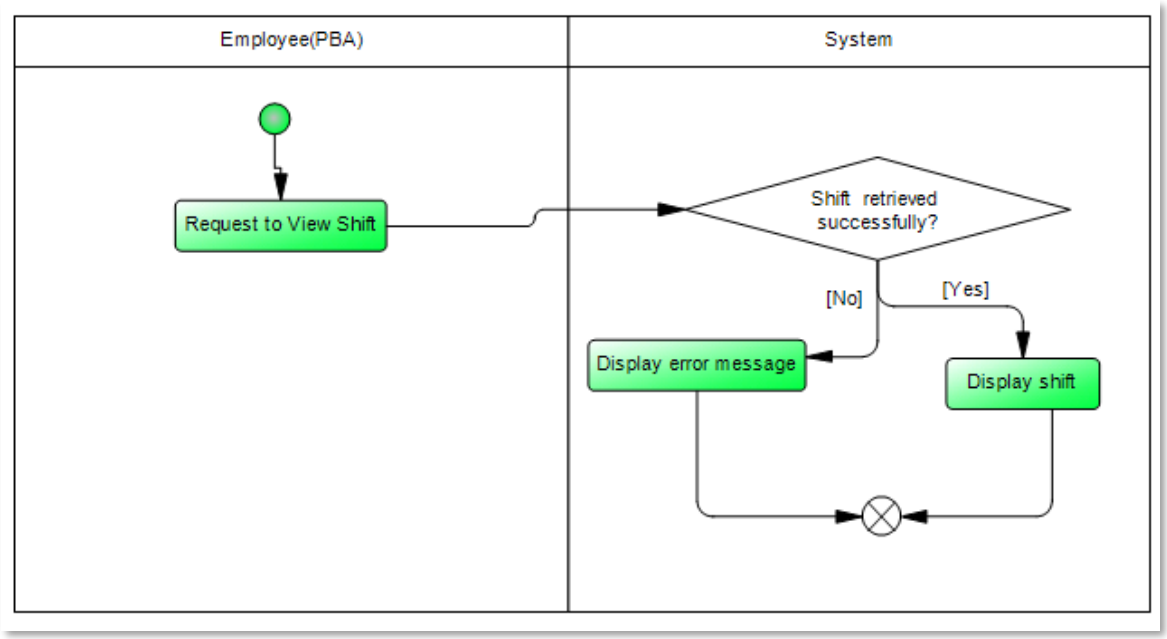


Figure 325 5.5. View Shift Activity Diagram

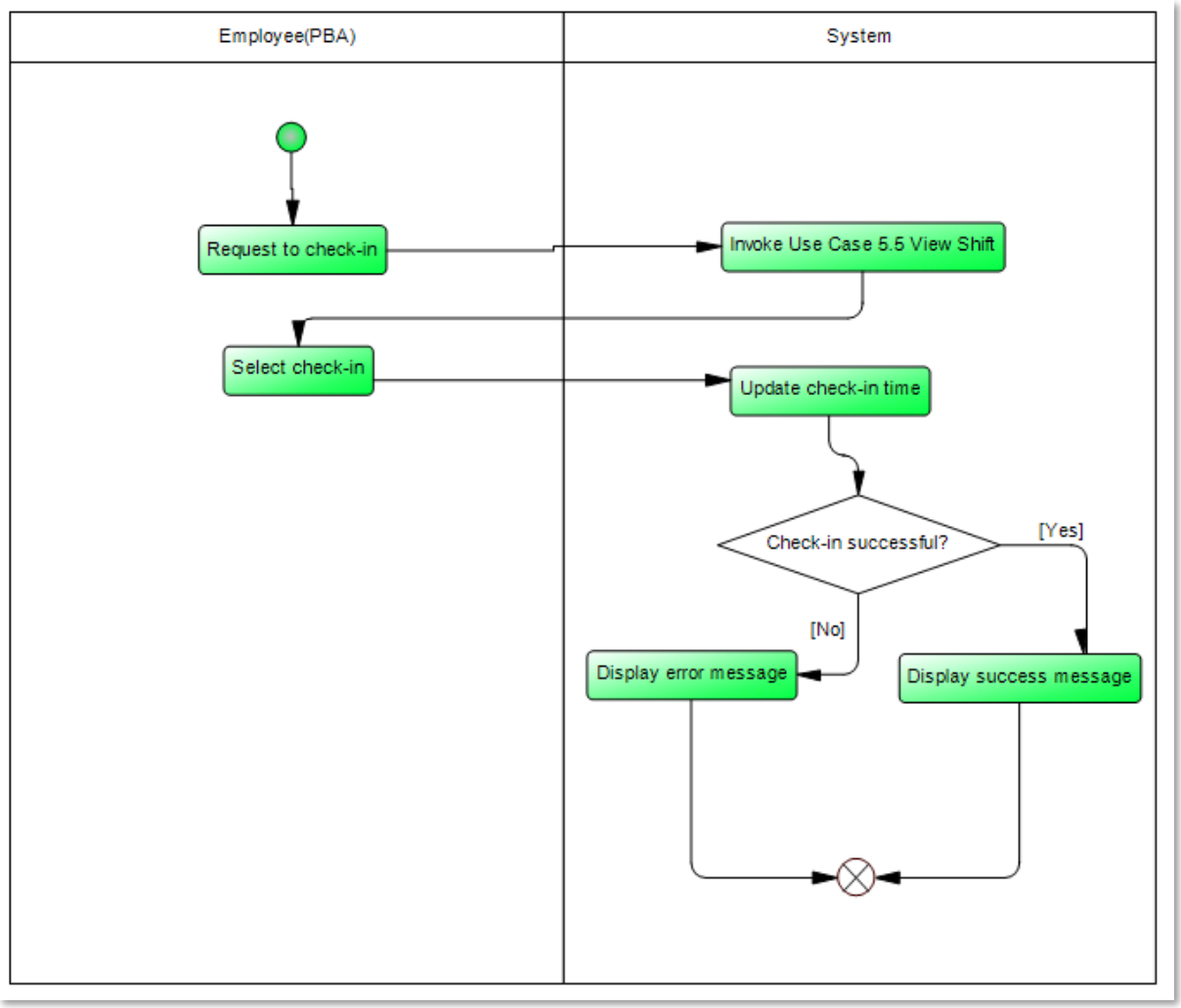


Figure 327 5.6. Check-in Activity Diagram

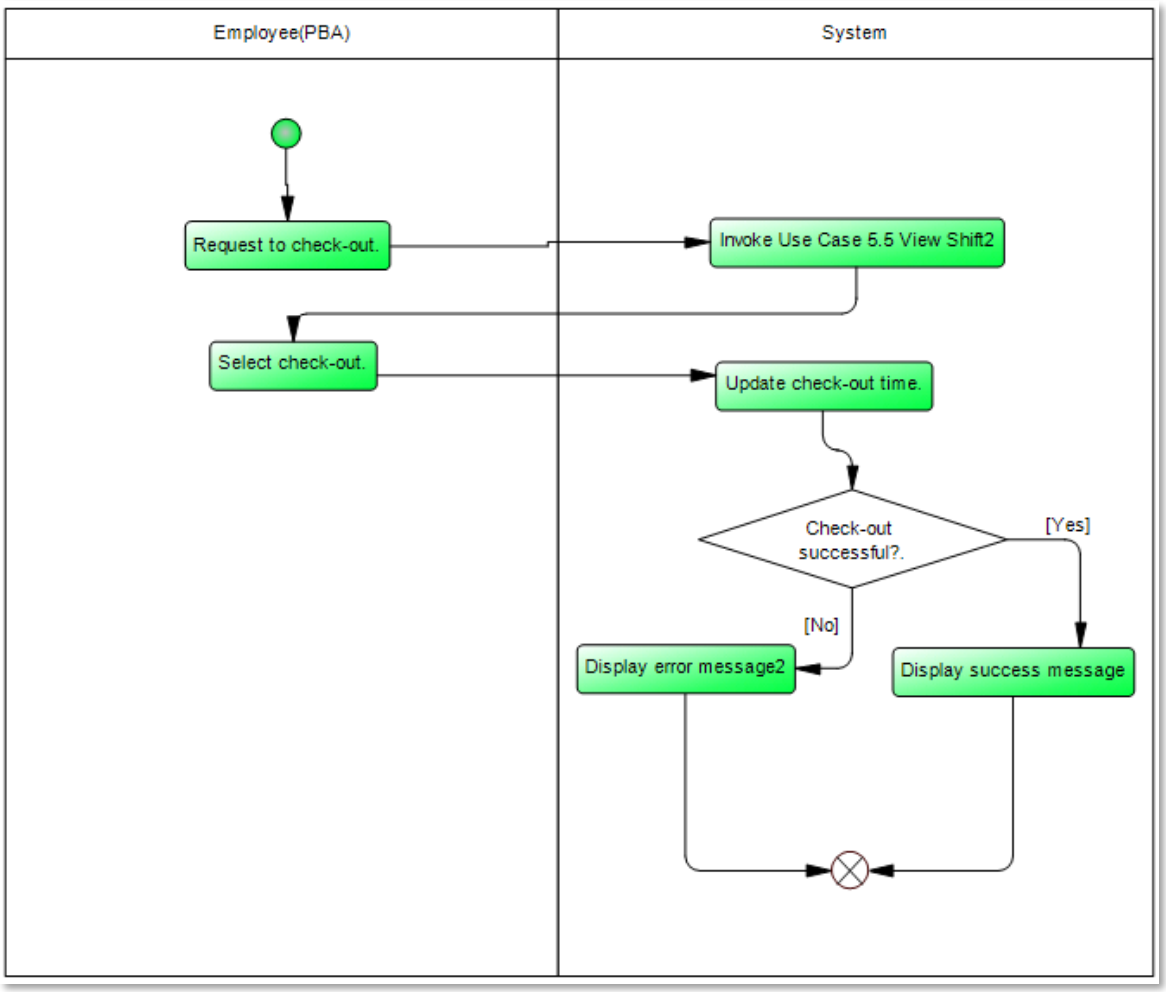


Figure 328 5.7. Check Out Activity Diagram

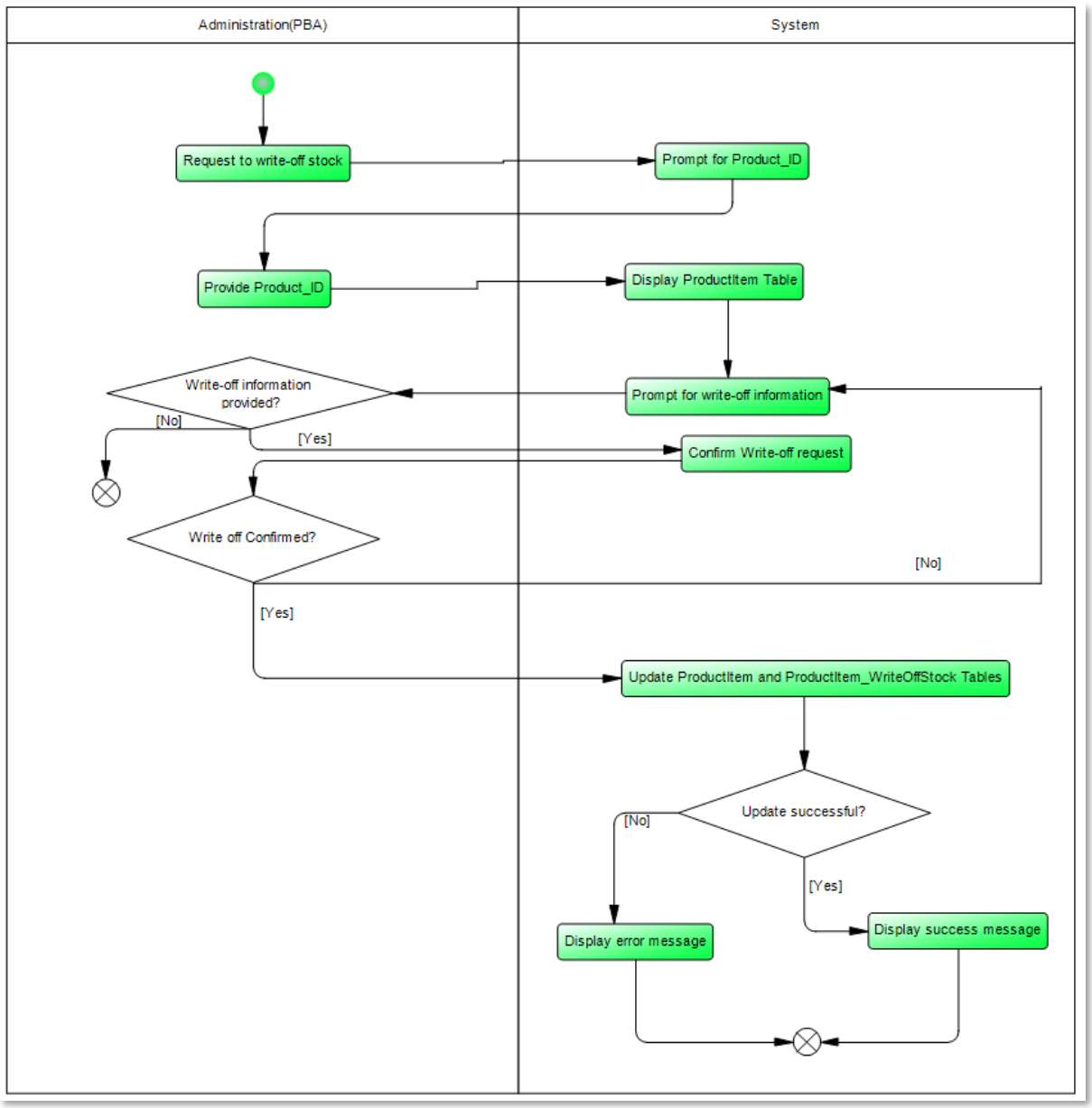


Figure 329 5.8. Write Off Stock Activity Diagram

4.1.5 Customer Sub-System

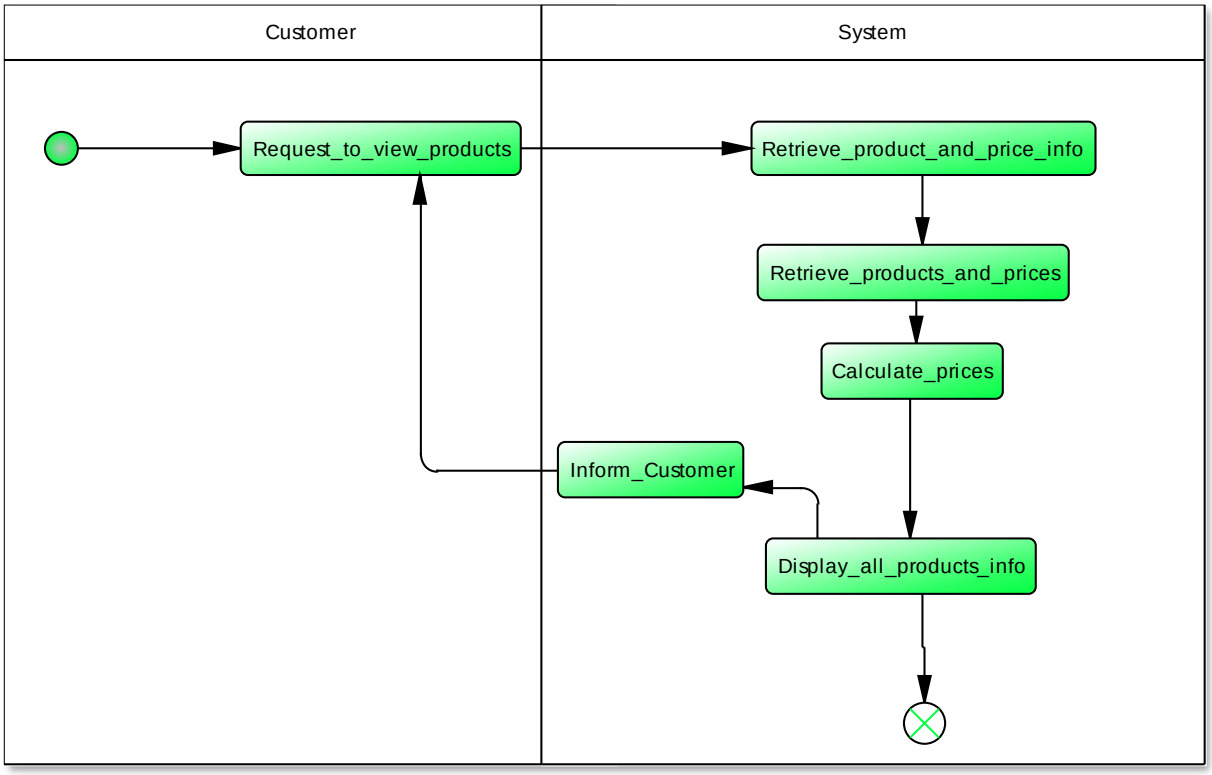


Figure 330 6.1. Browse Products Activity Diagram

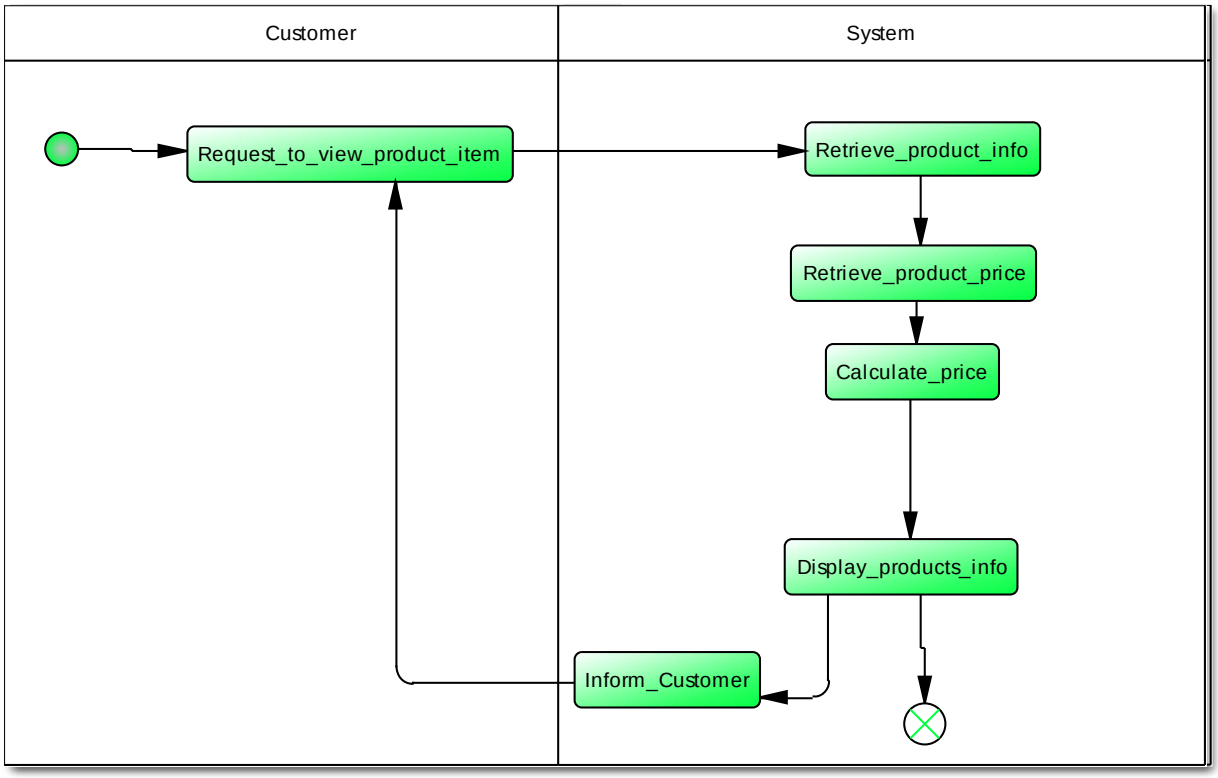


Figure 331 6.2. View Product Details Activity Diagram

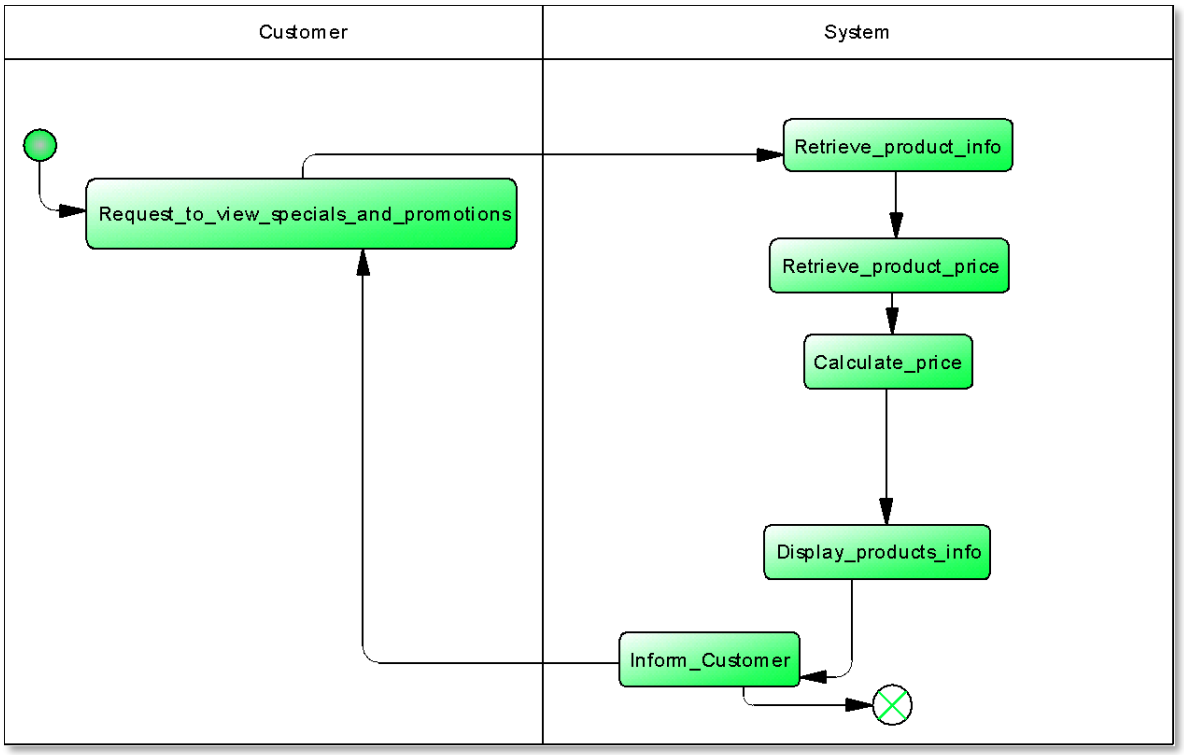


Figure 332 6.3. View Specials Activity Diagram

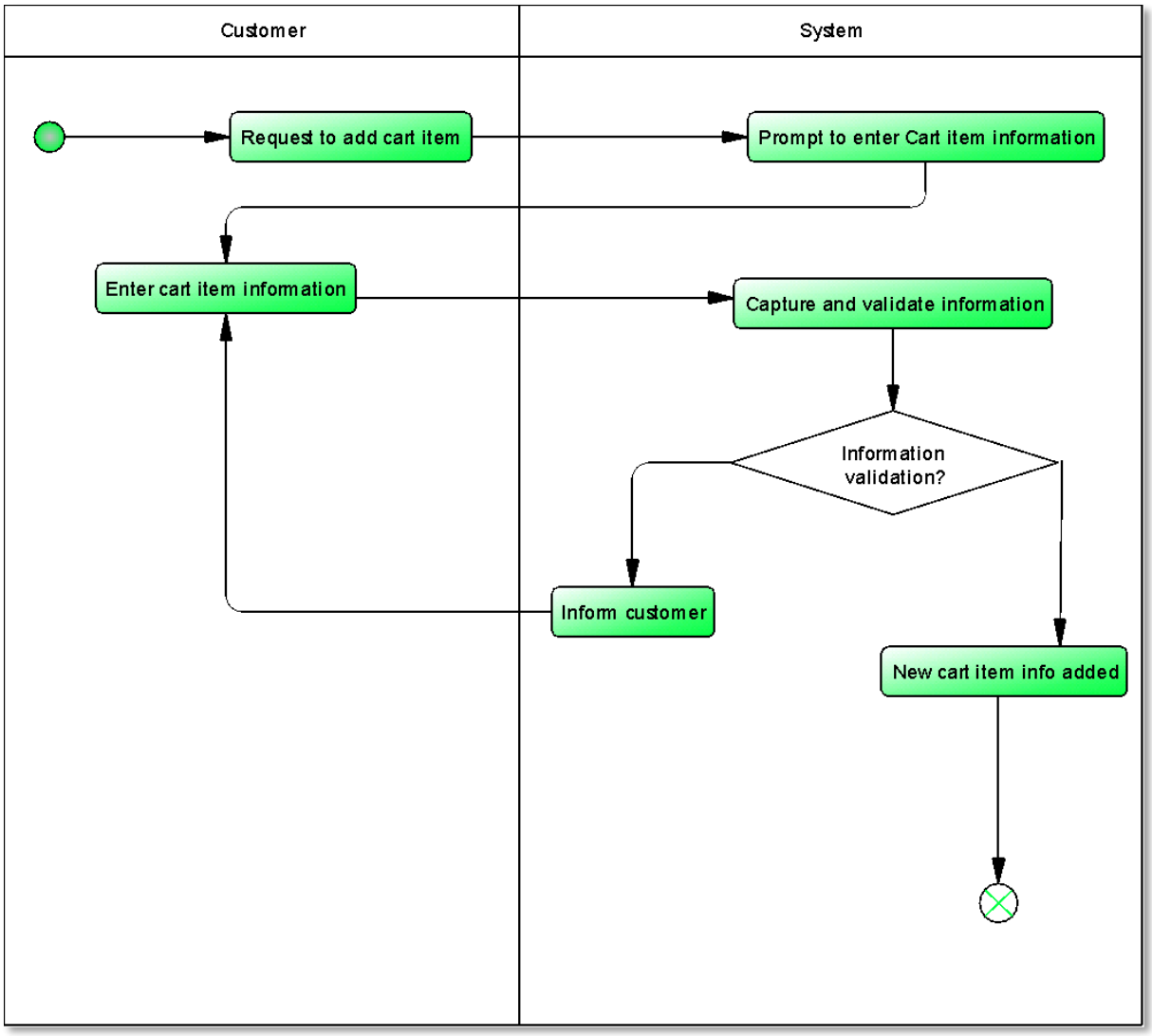


Figure 333 6.4. Add Item to Cart Activity Diagram

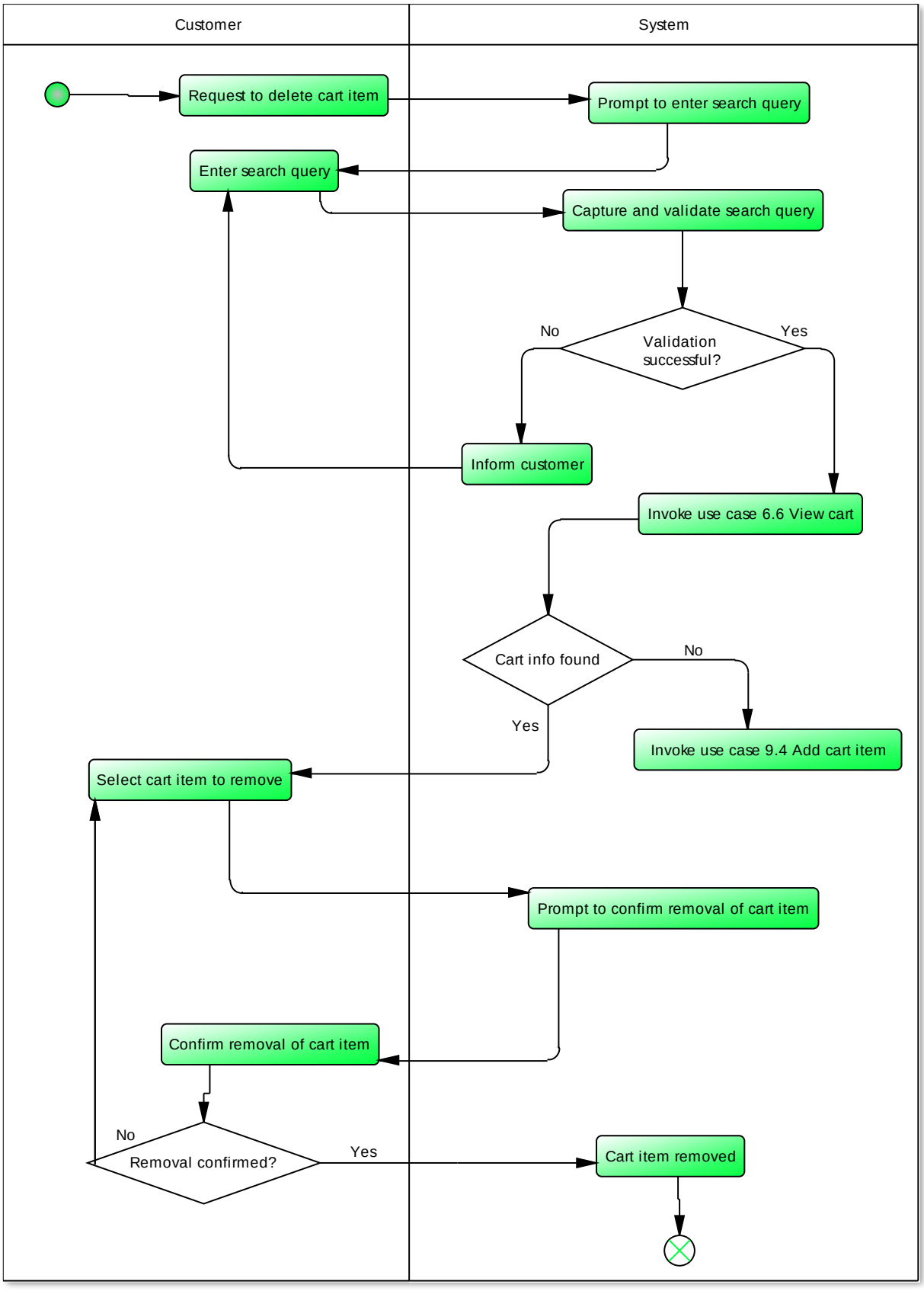


Figure 334 6.5. Remove Item from Cart Activity Diagrams

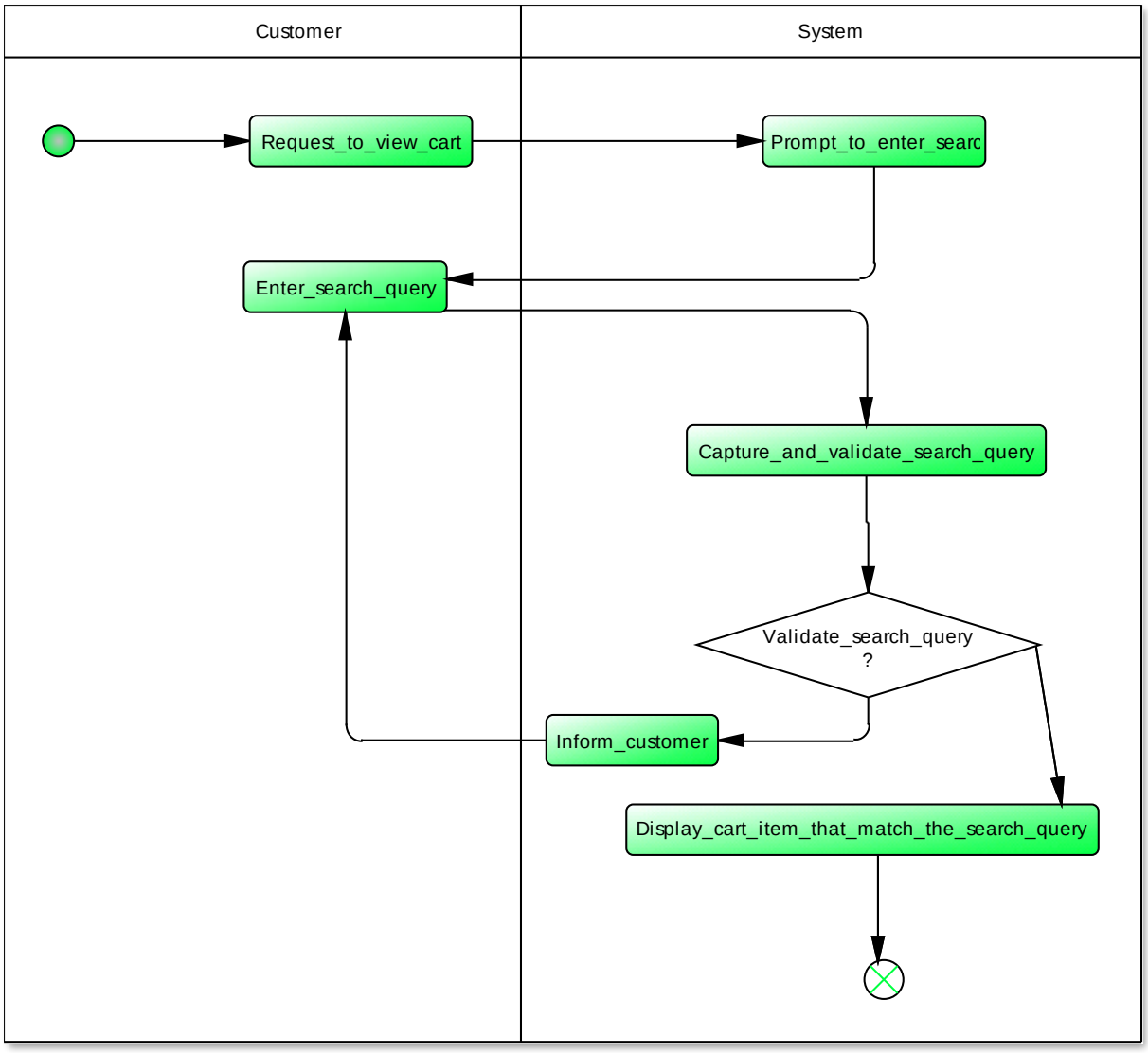


Figure 335 6.6. View Cart Activity Diagram

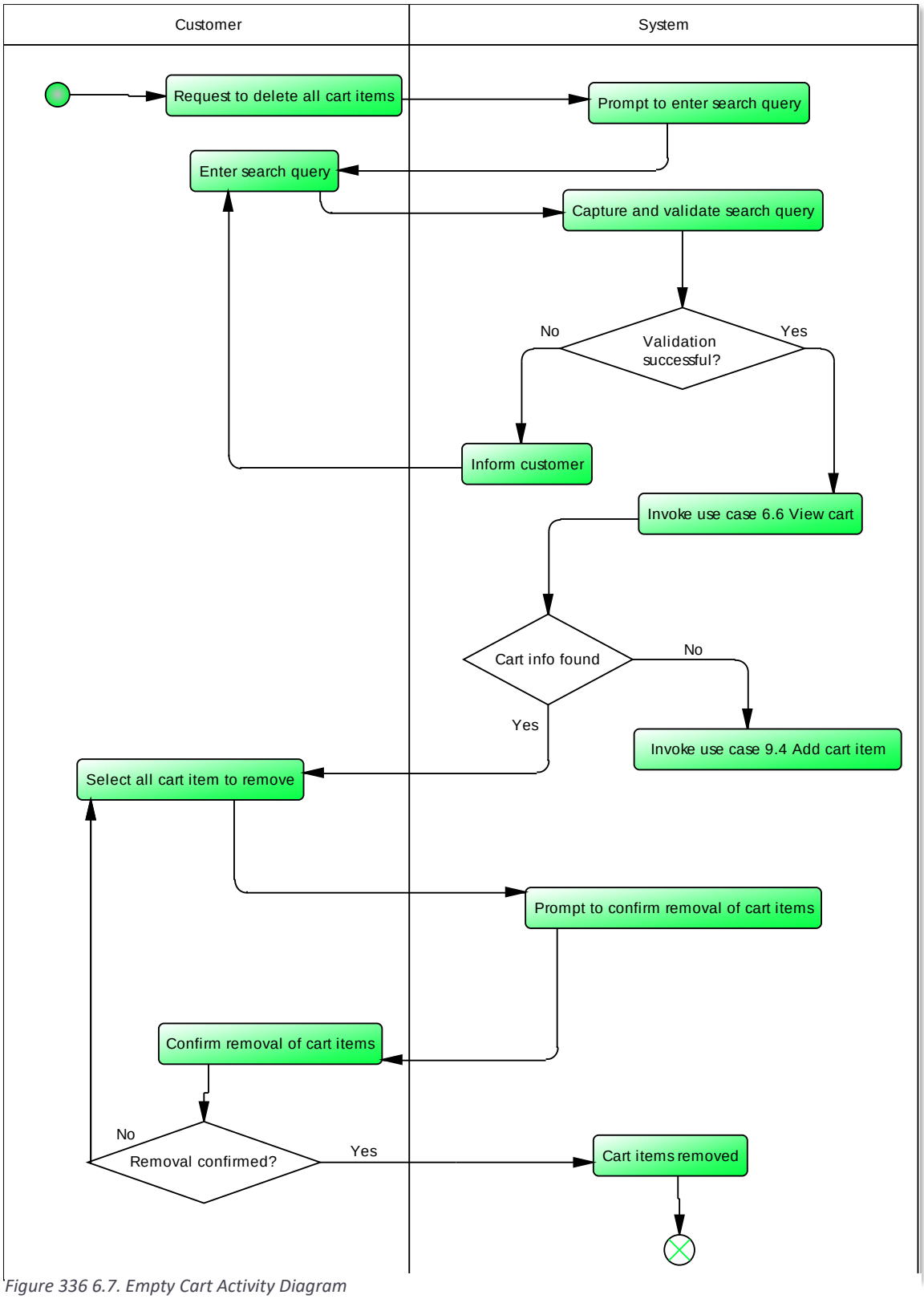


Figure 336 6.7. Empty Cart Activity Diagram

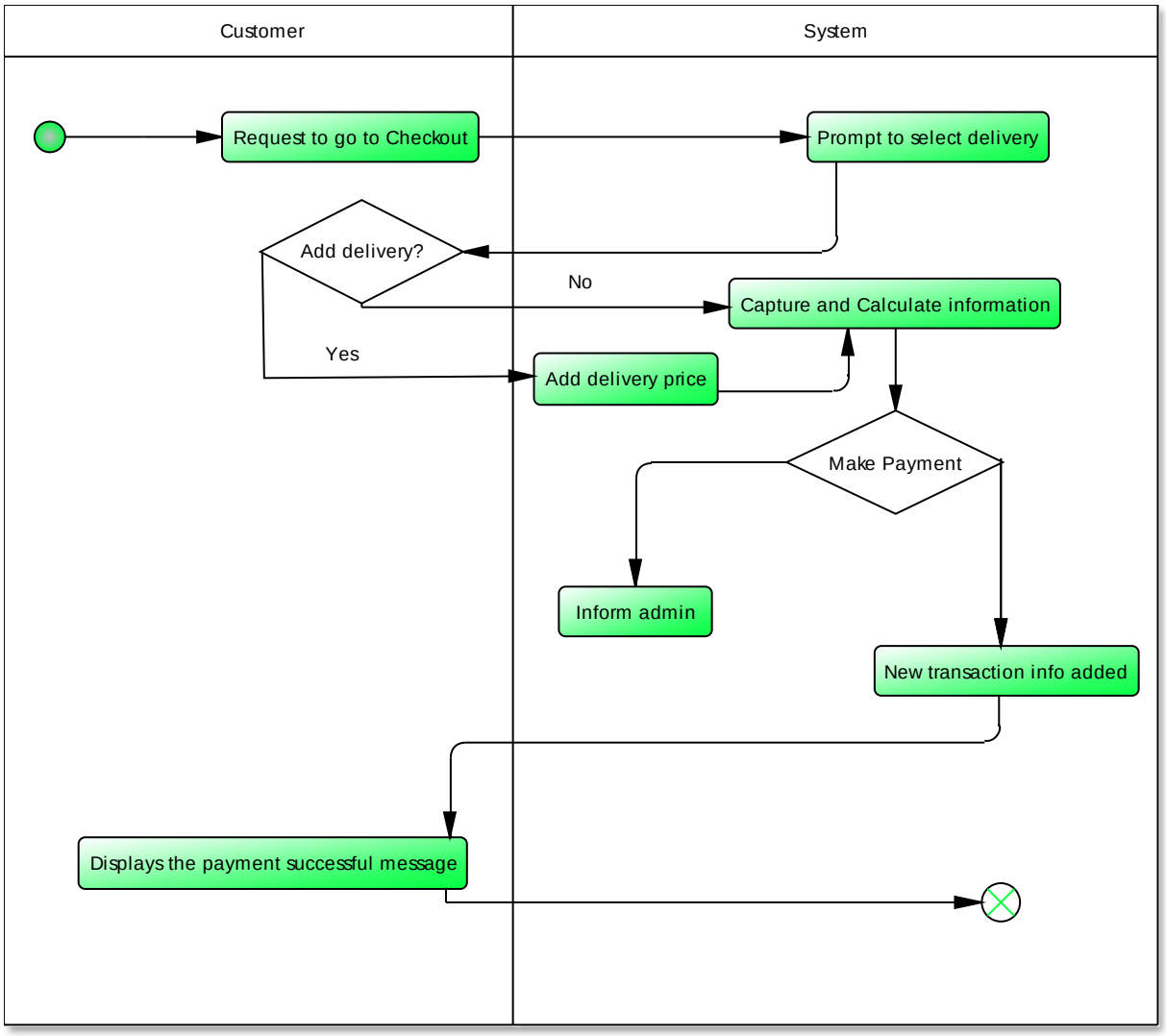


Figure 337 6.8. Checkout Order Activity Diagram

4.1.7 Reports Sub-System

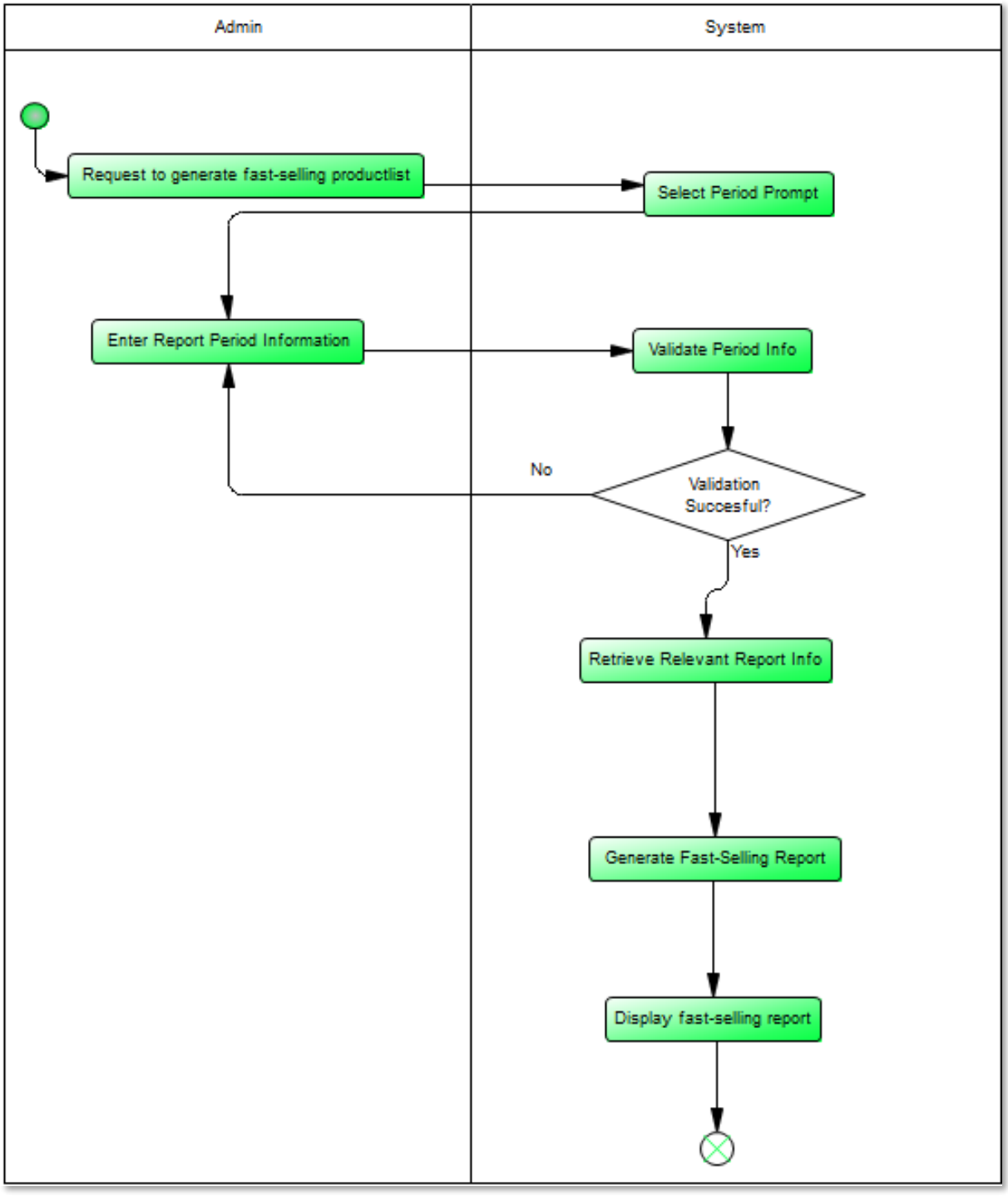


Figure 338 7.1. Generate Fast-Selling Product List Activity Diagram

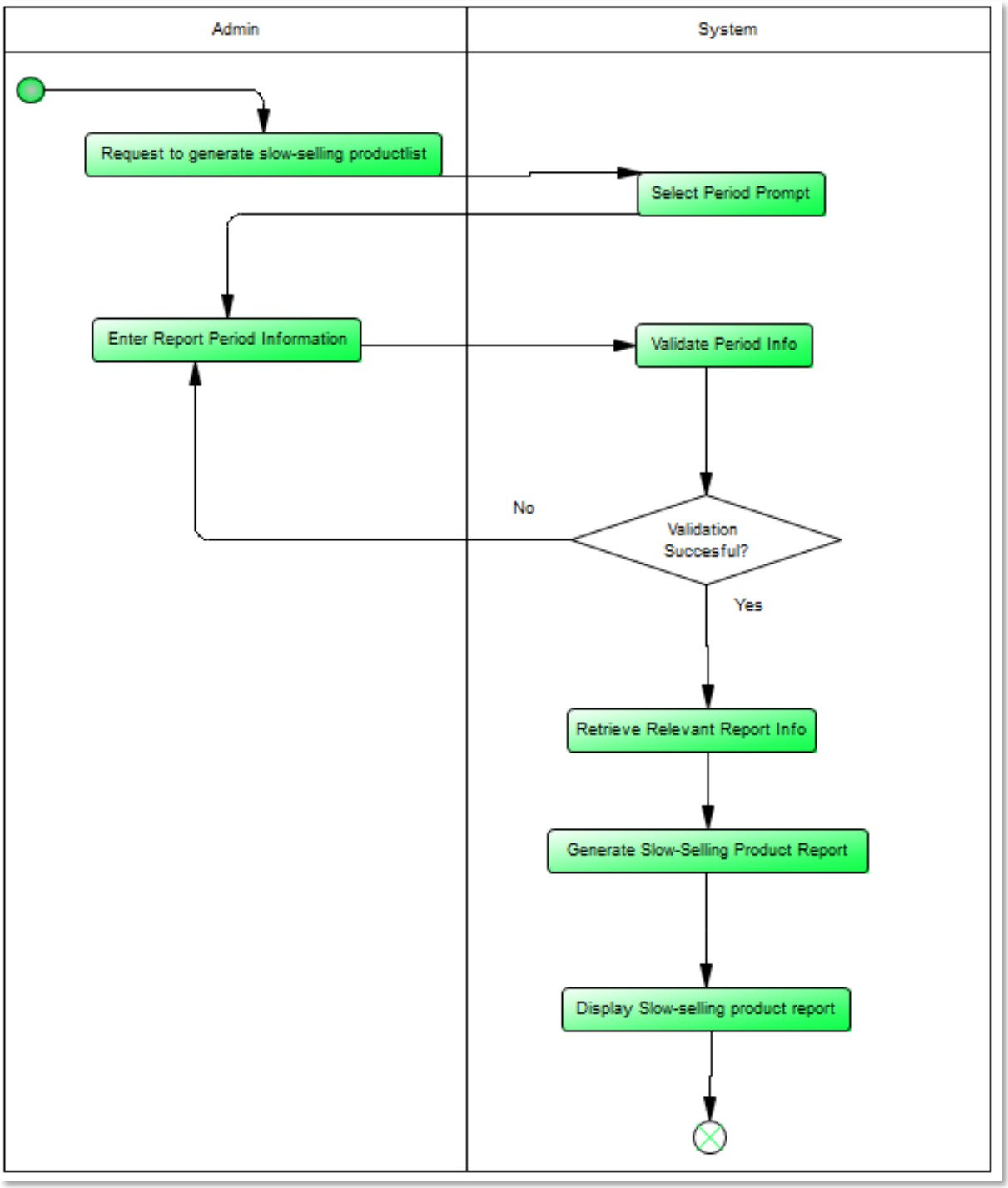


Figure 339 7.2. Generate Slow-Selling Product List Activity Diagram

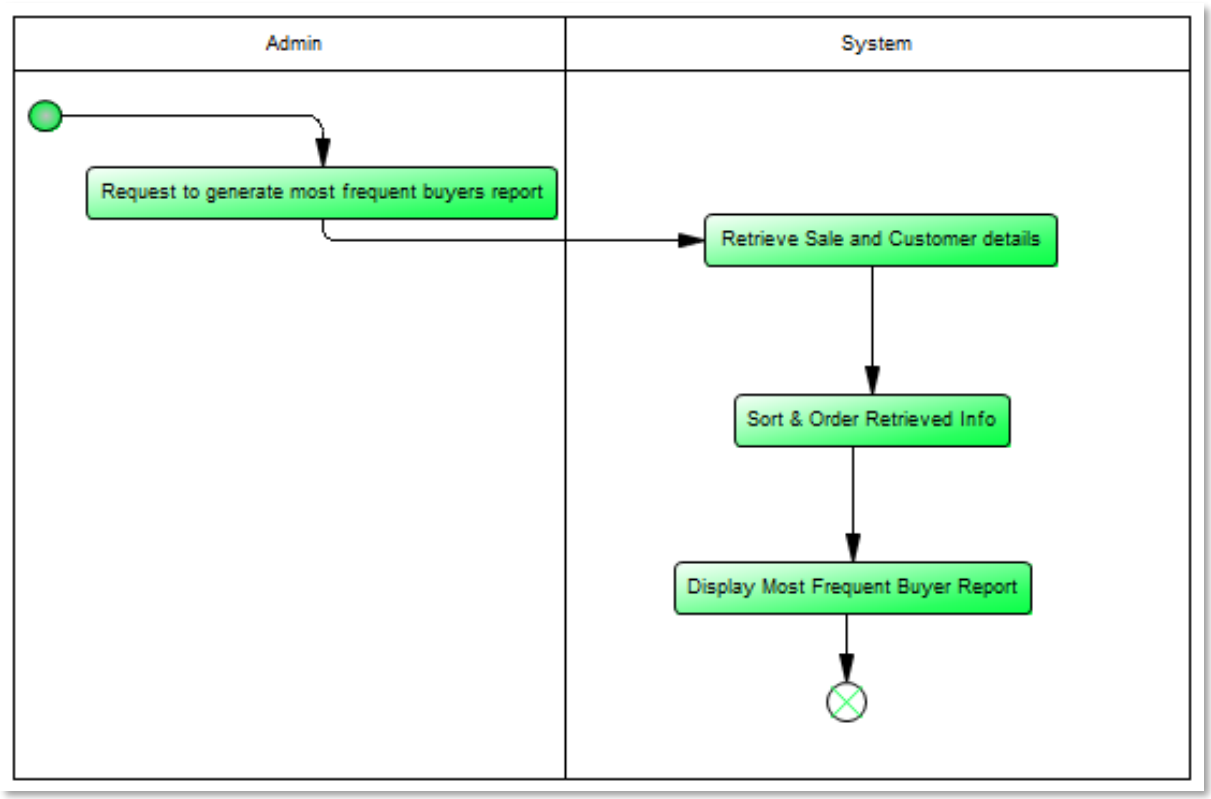


Figure 341 7.3. Generate Most Frequent Buyers Report Activity Diagram

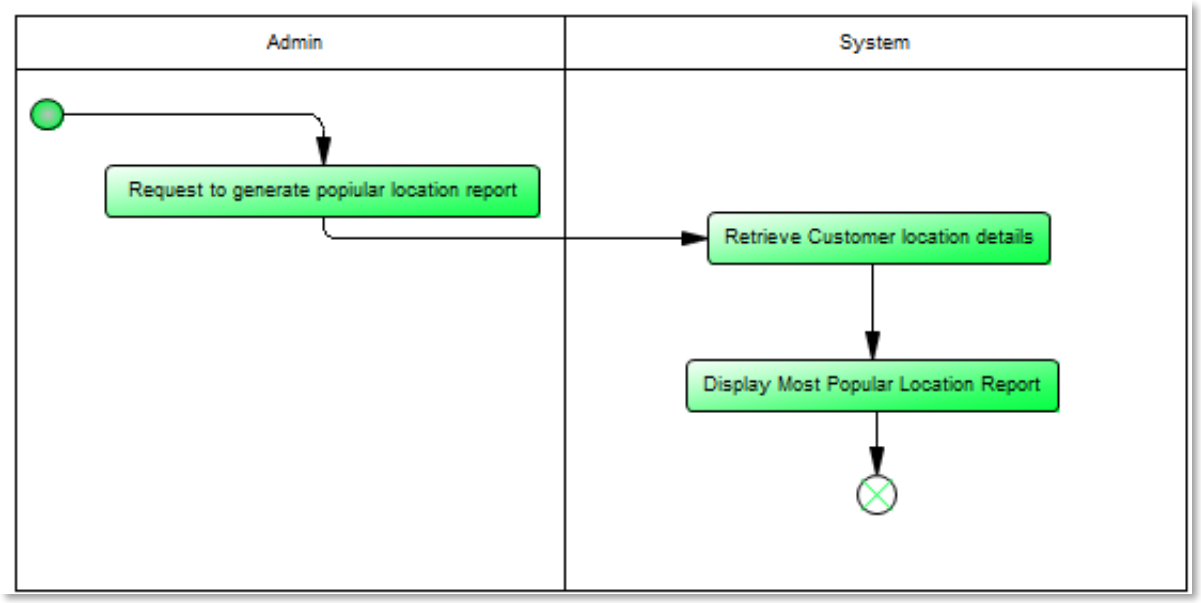


Figure 340 7.4. Generate Most Popular Location Report Activity Diagram

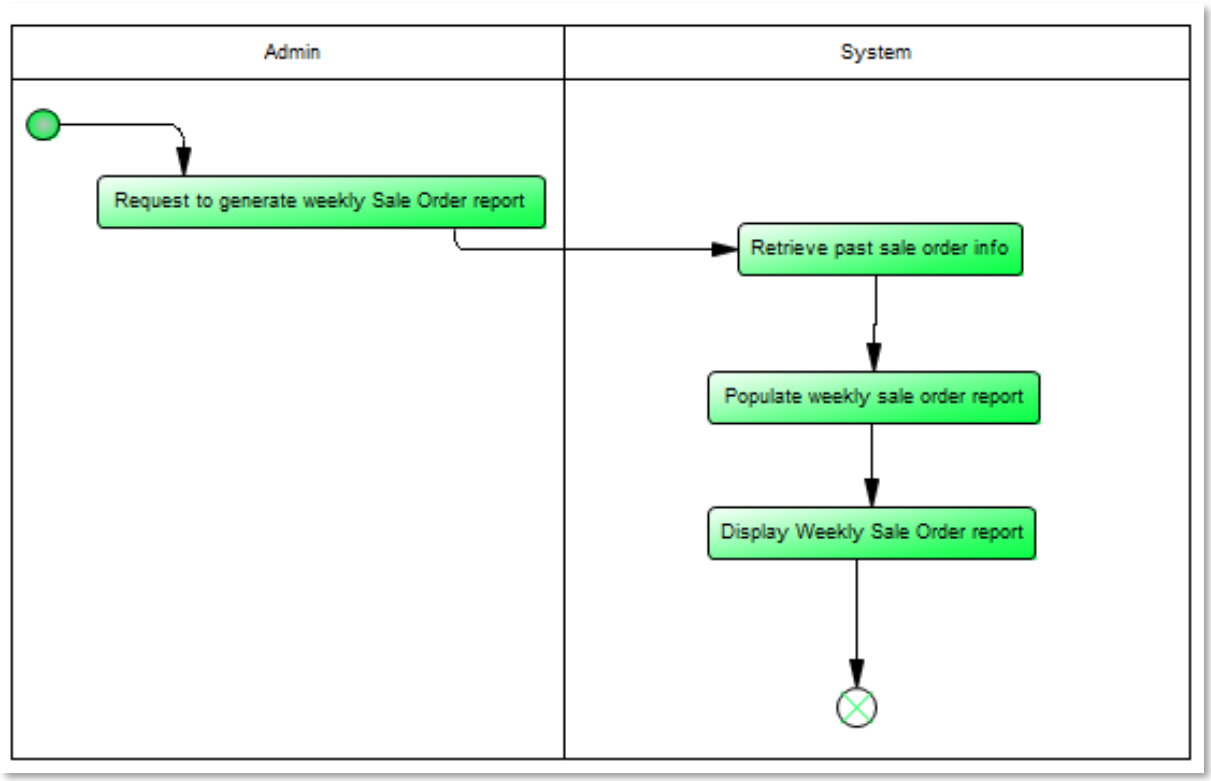


Figure 343 7.5. Generate Weekly Sale Order List Activity Diagram

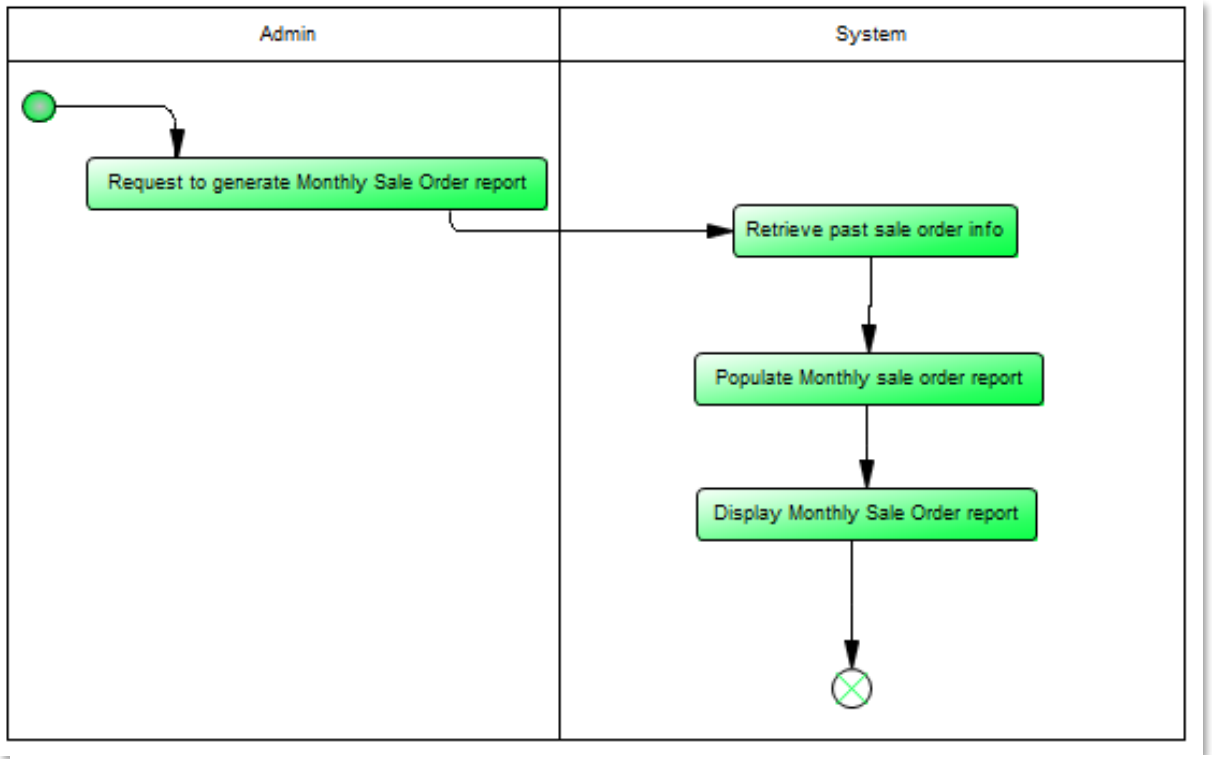


Figure 342 7.6. Generate Monthly Sale Order List Activity Diagram

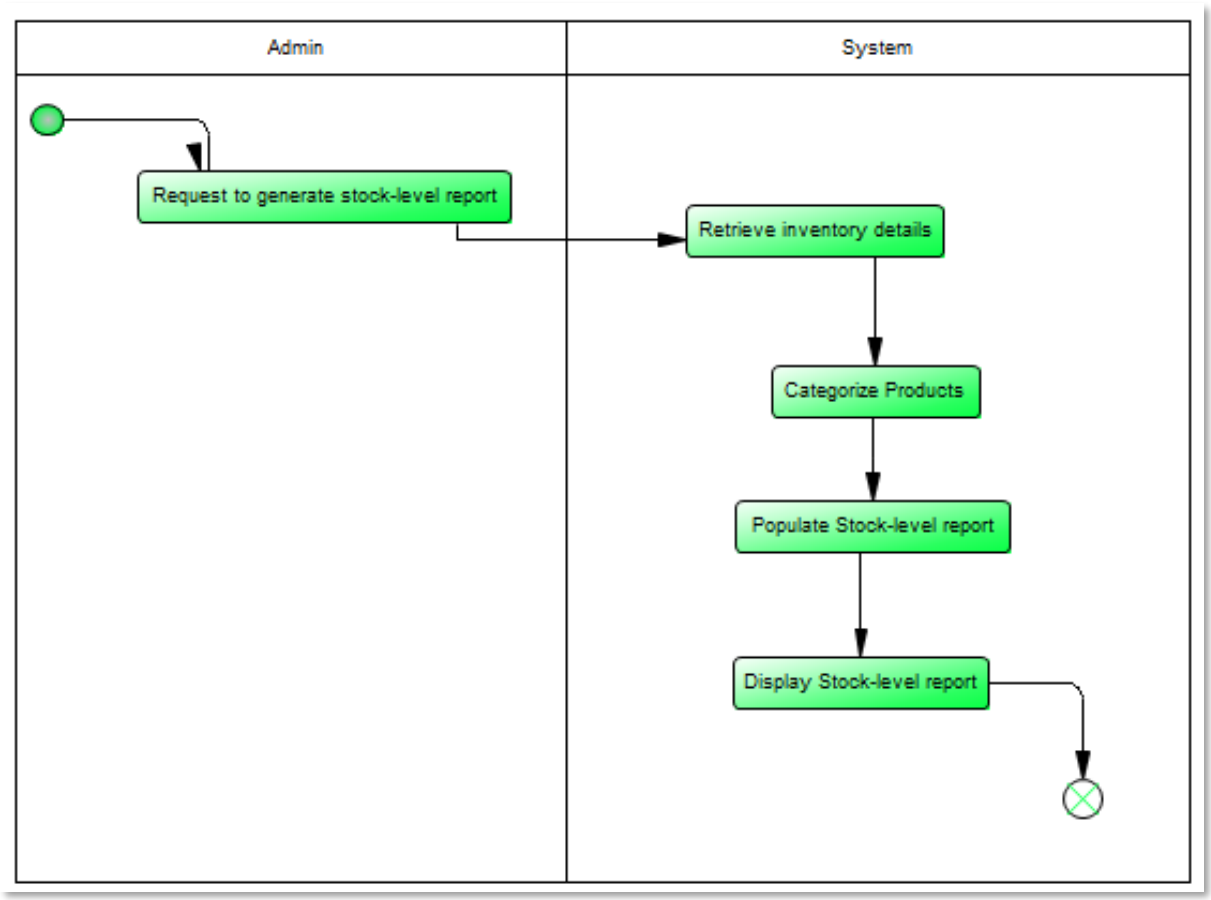


Figure 344 7.7. Generate Stock-Level Report Activity Diagram

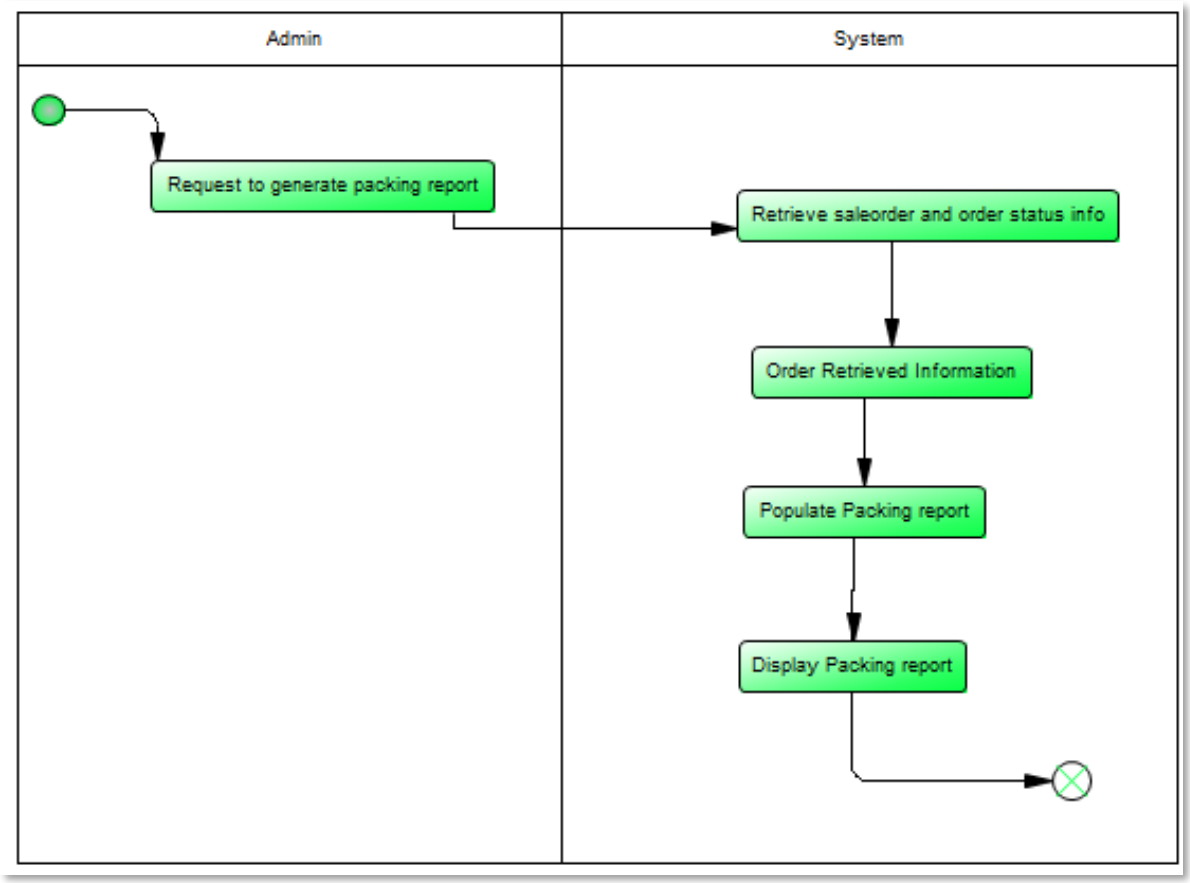


Figure 345 7.8. Packing Report Activity Diagram

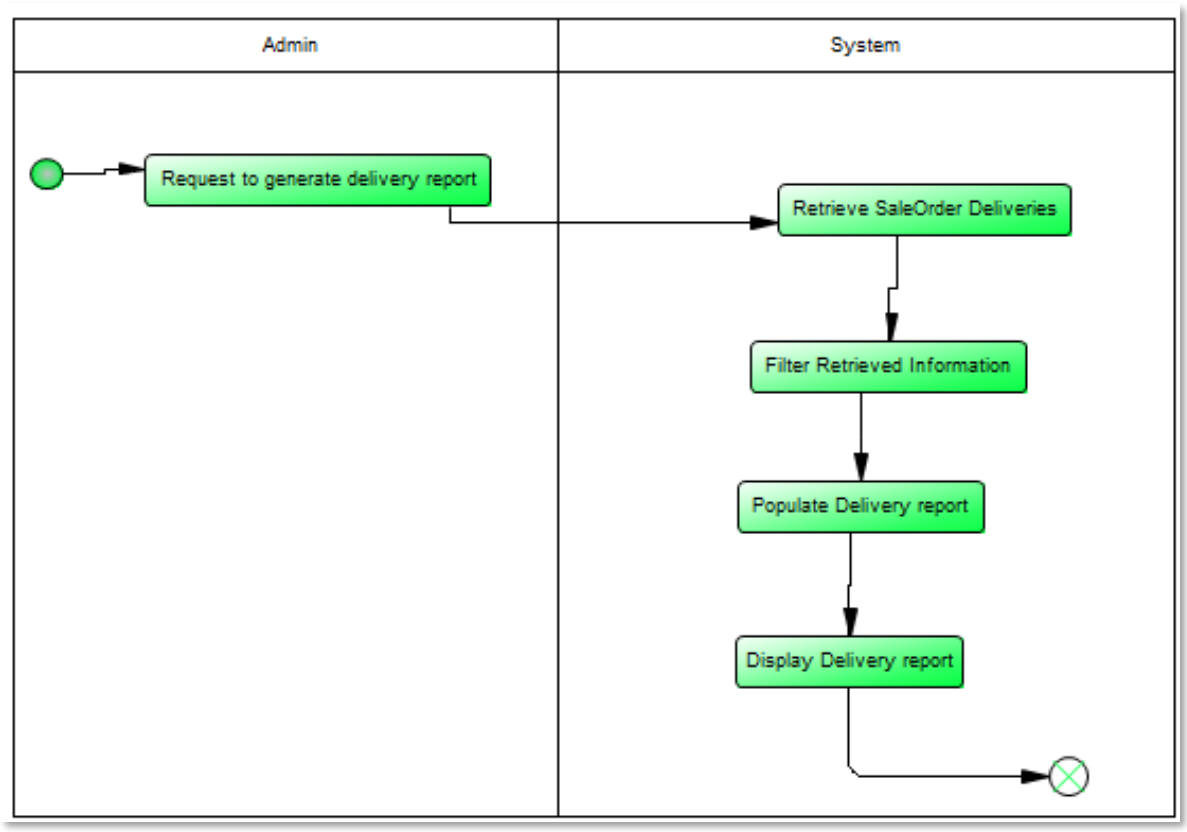


Figure 346 7.9. Delivery Report Activity Diagram

4.1.8 Delivery Sub-System

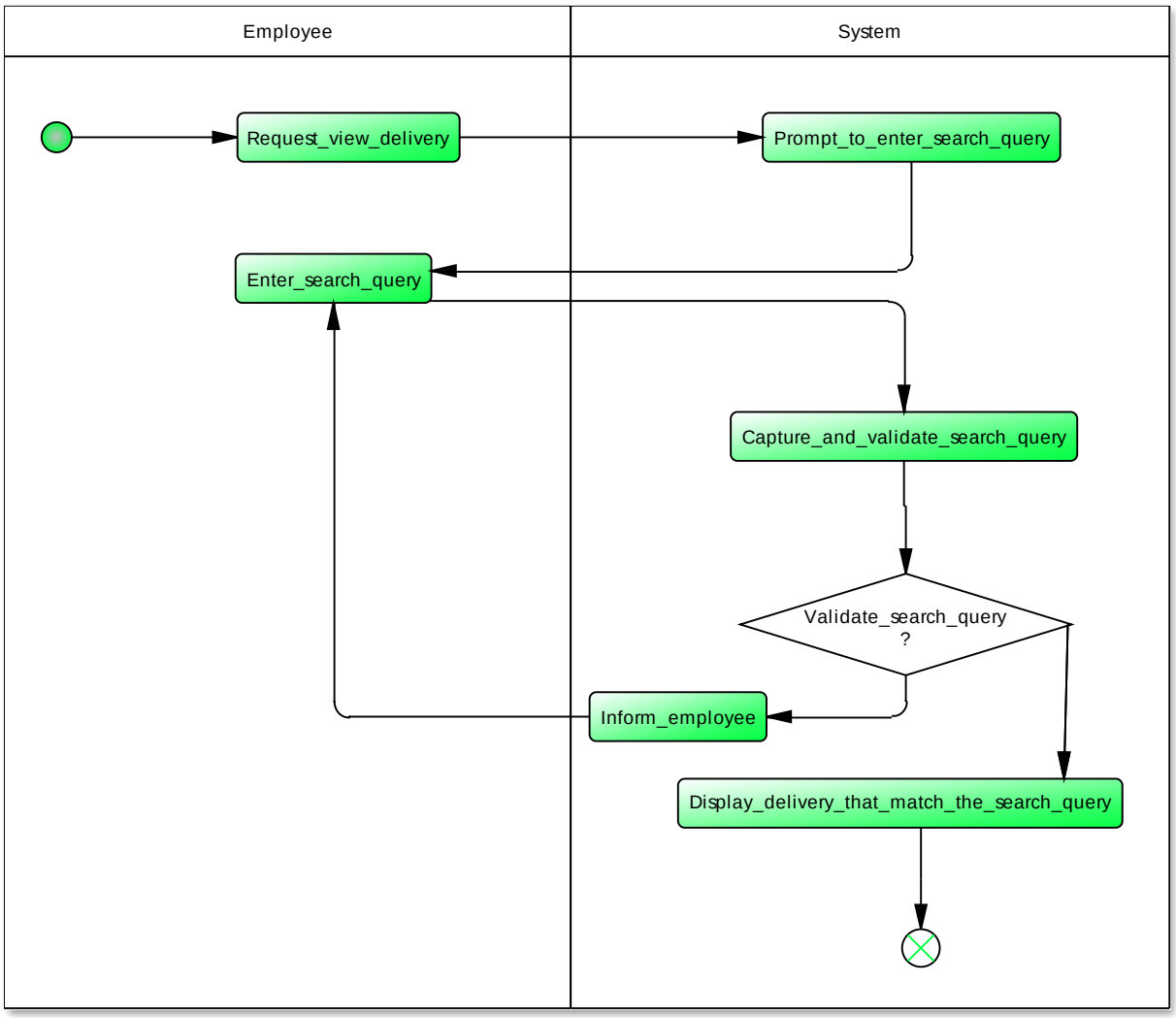


Figure 347 8.1. View Delivery Activity Diagram

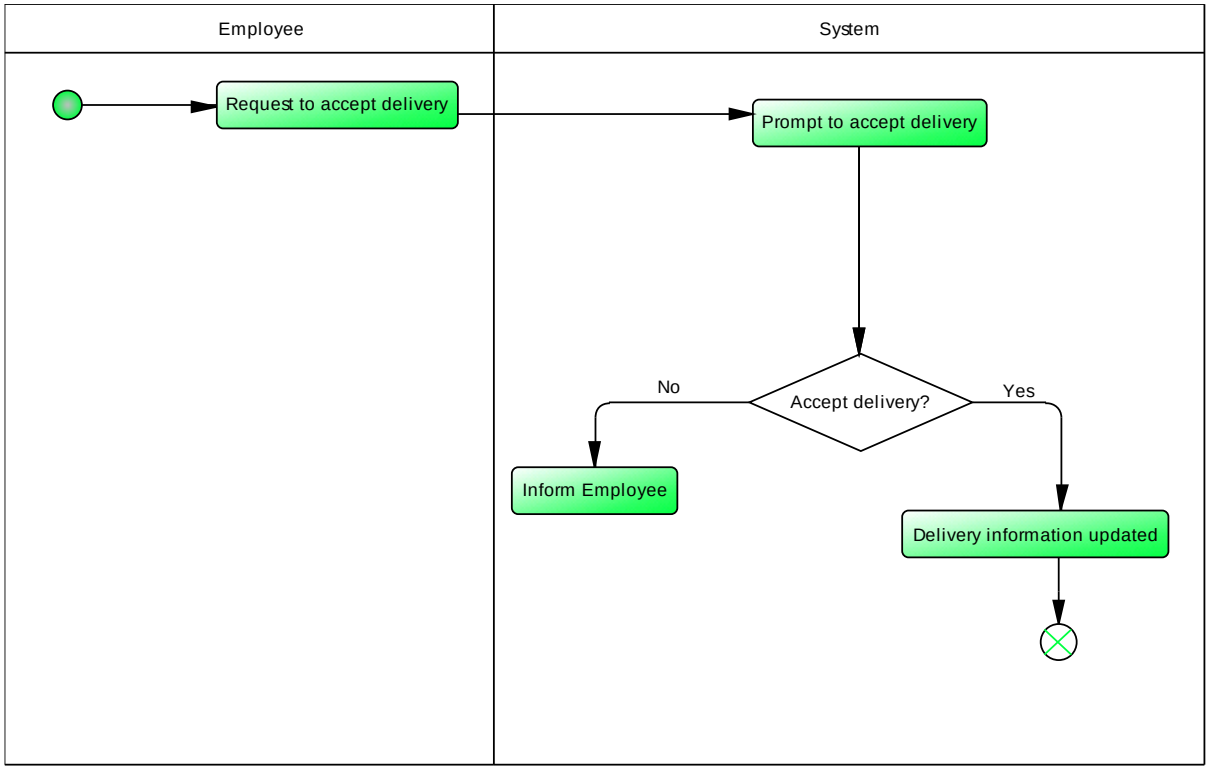


Figure 348 8.2. Accept Delivery Activity Diagram

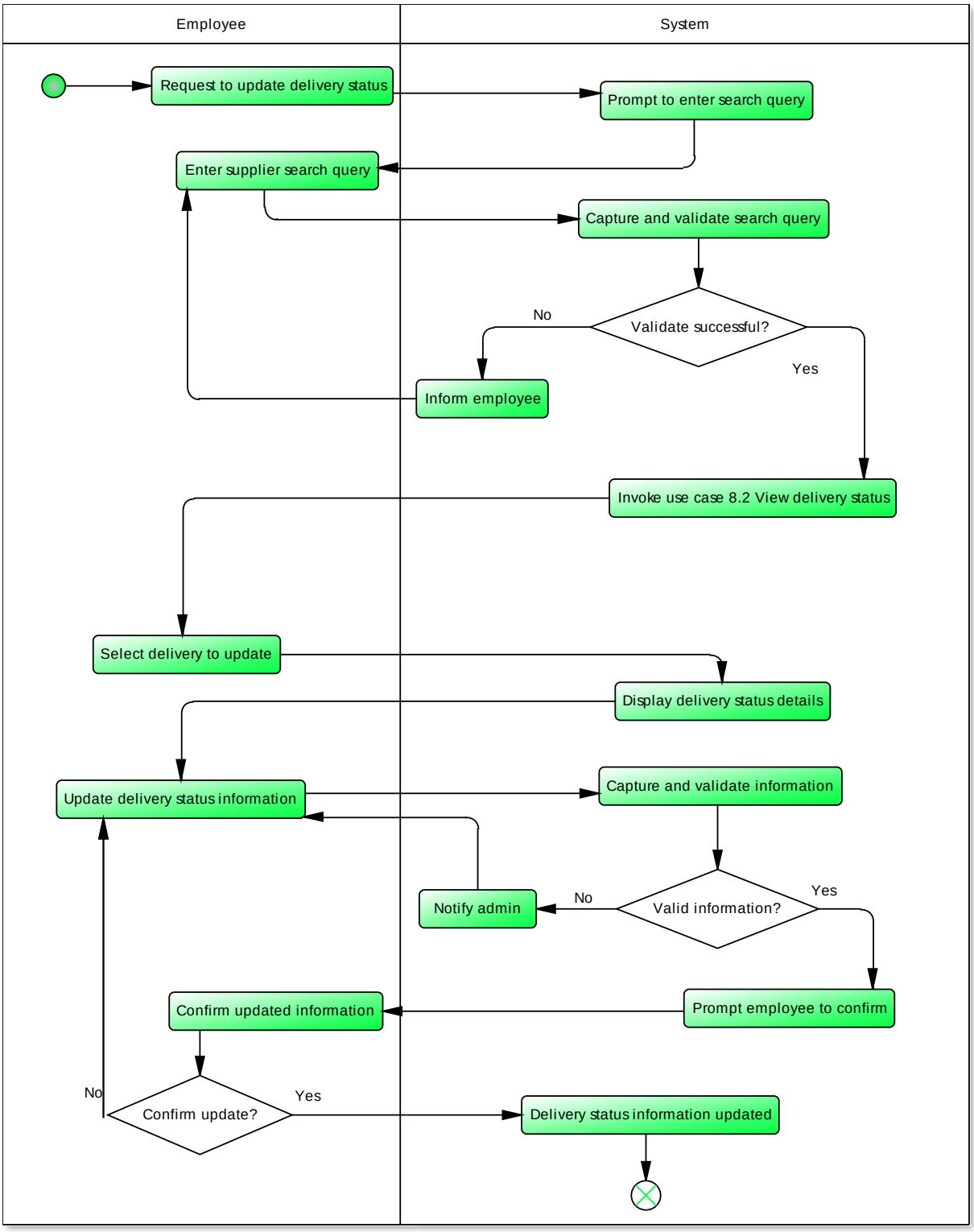


Figure 349 8.3. Update Delivery Activity Diagram

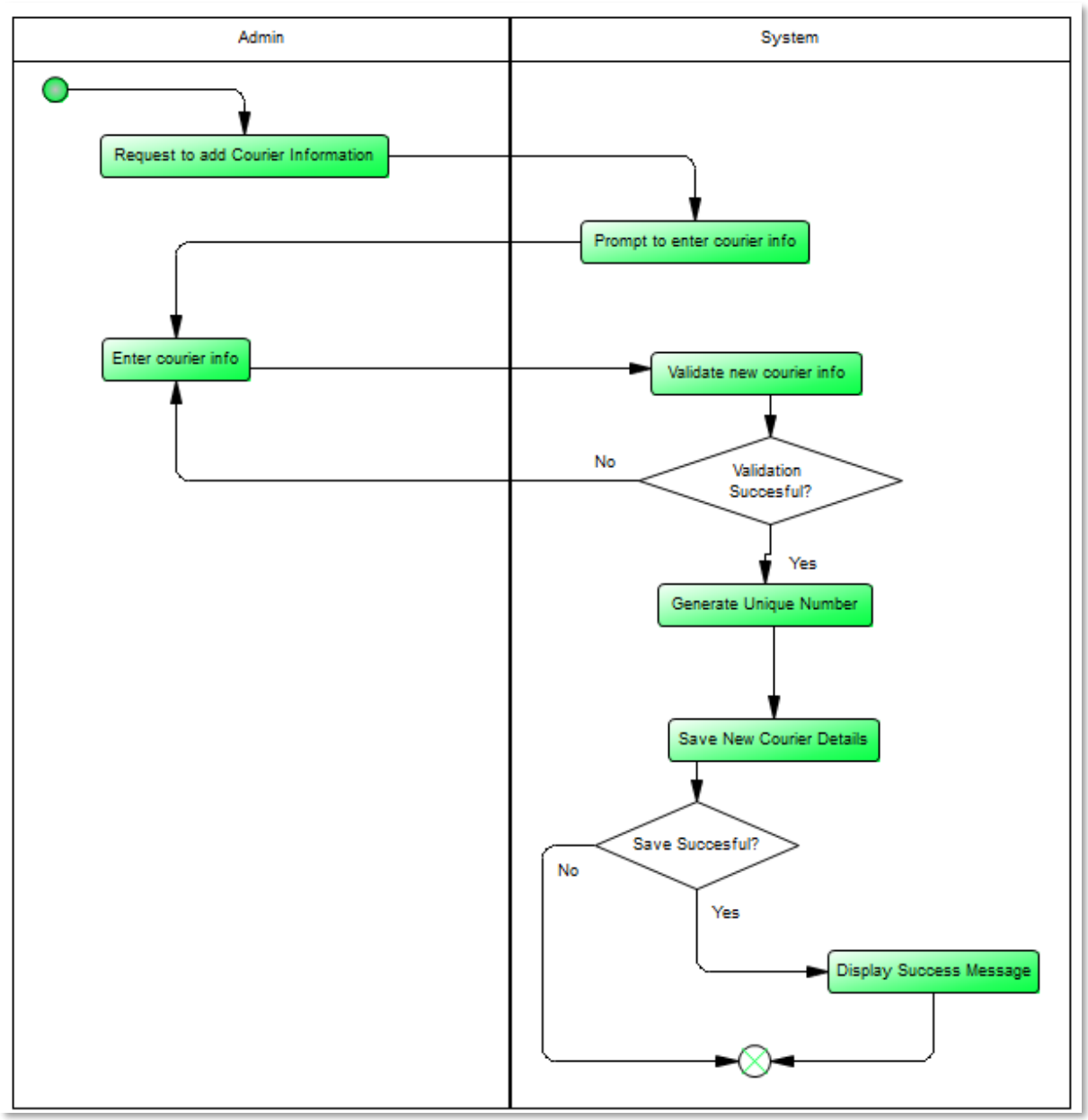


Figure 350 8.4. Add Courier Activity Diagram

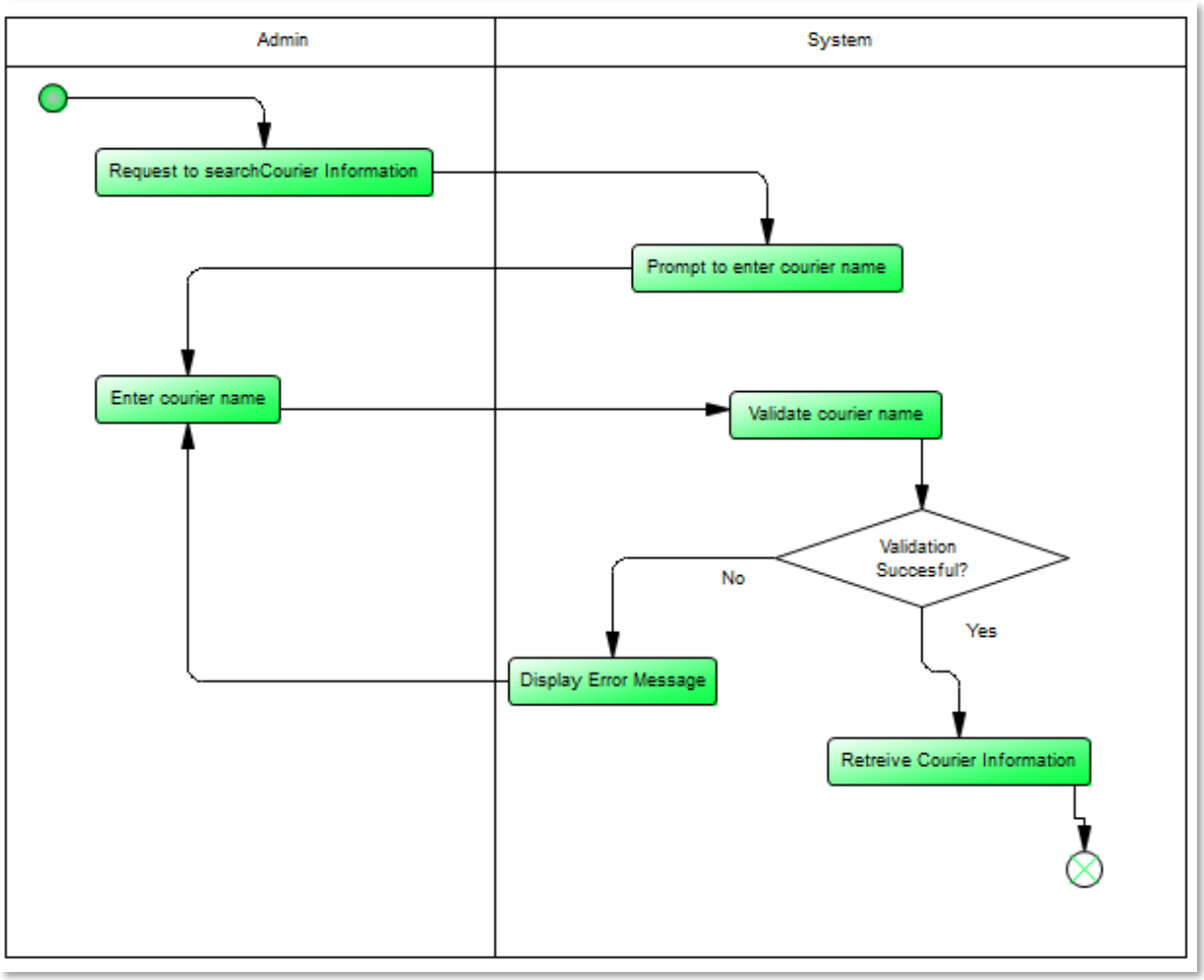


Figure 351 8.5. Search Courier Activity Diagram

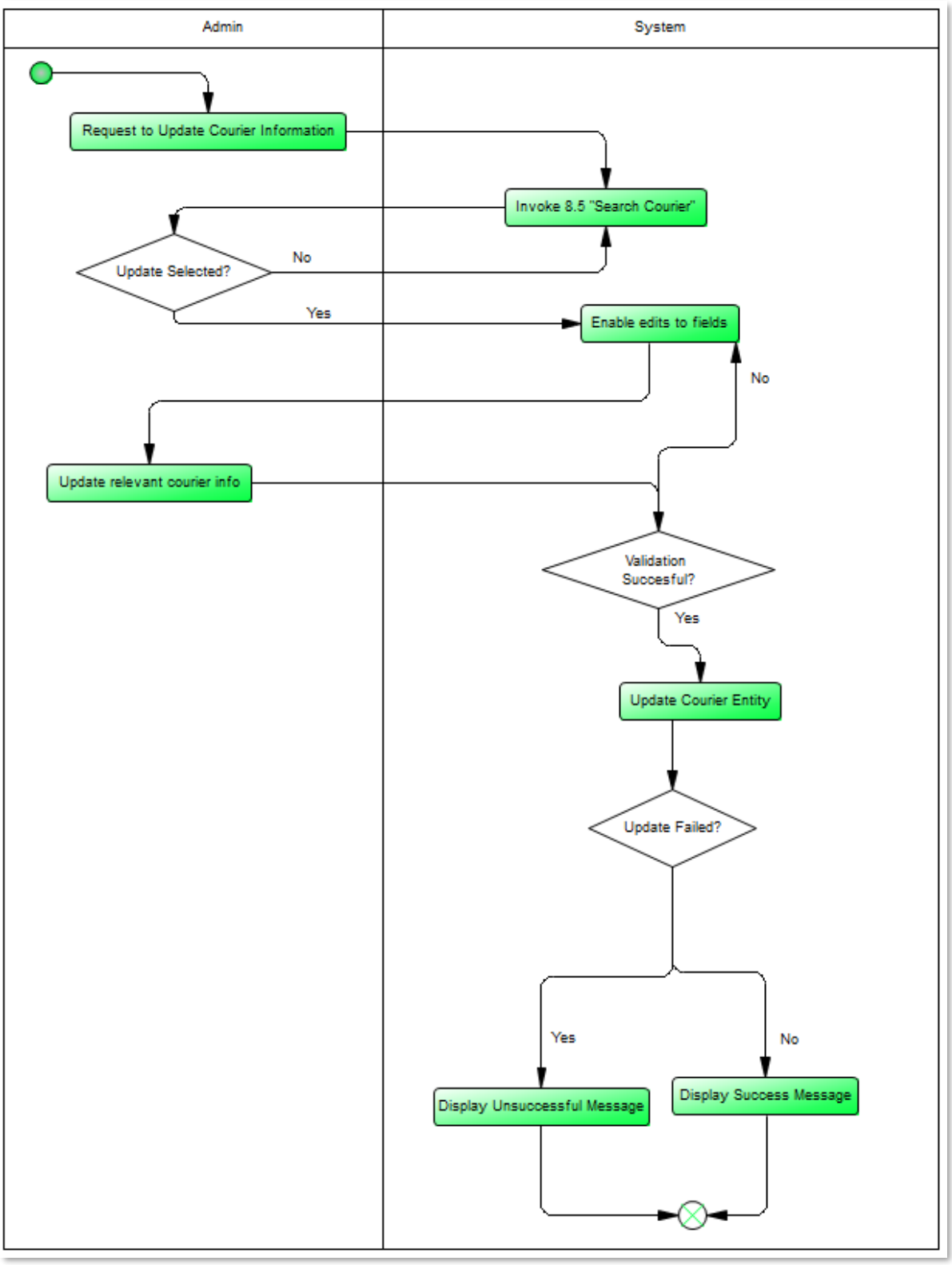


Figure 352 8.6. Update Courier Activity Diagram

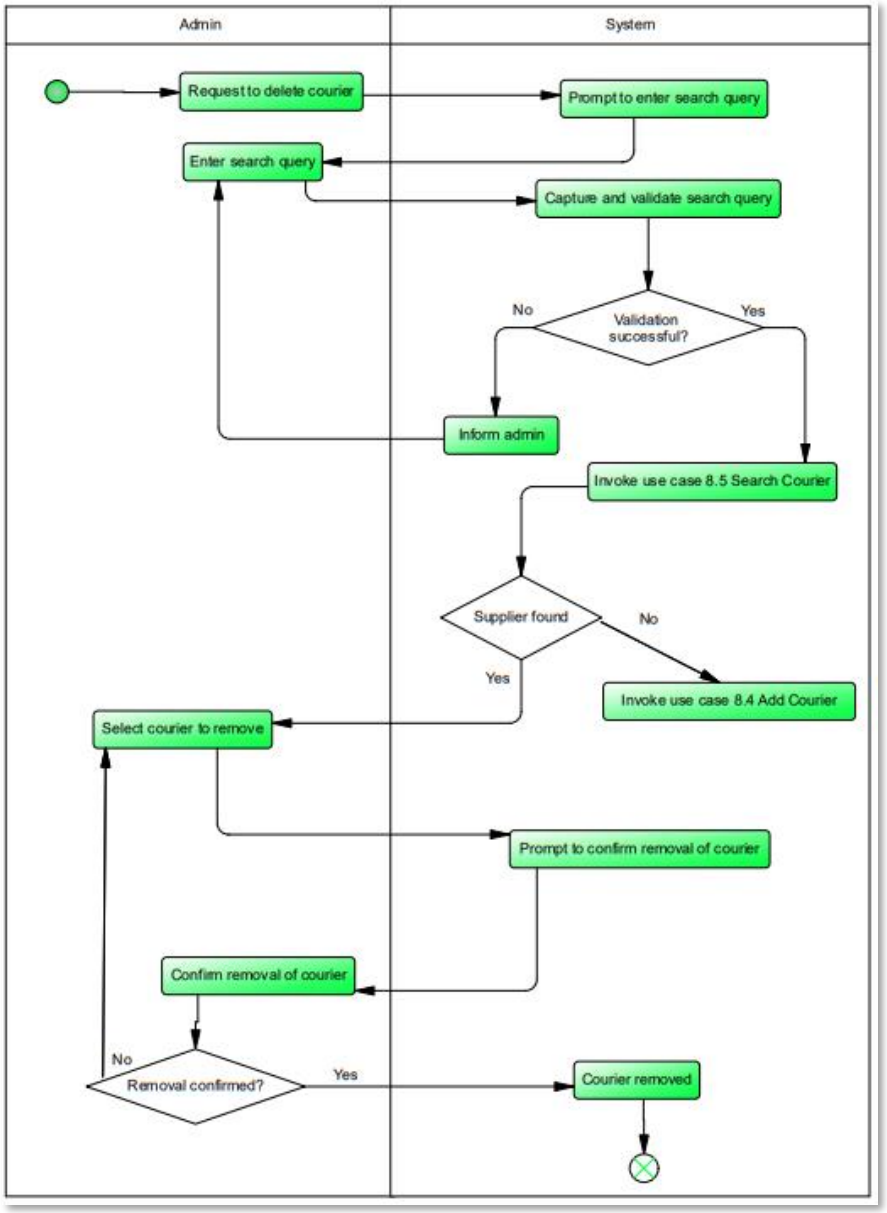


Figure 353 8.7. Delete Courier Activity Diagram

4.1.9 Products Sub-System

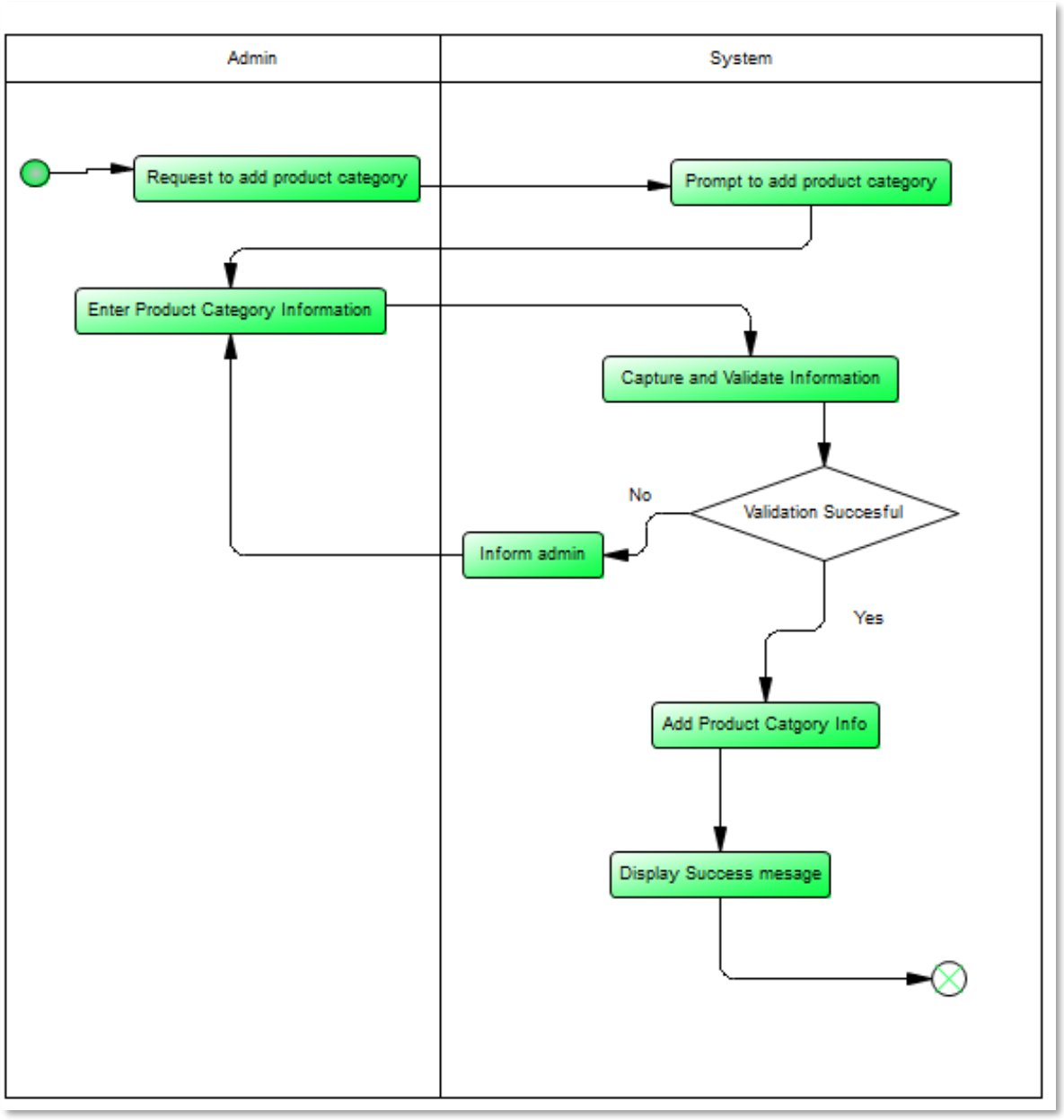


Figure 354 9.1. Add Product Category Activity Diagram

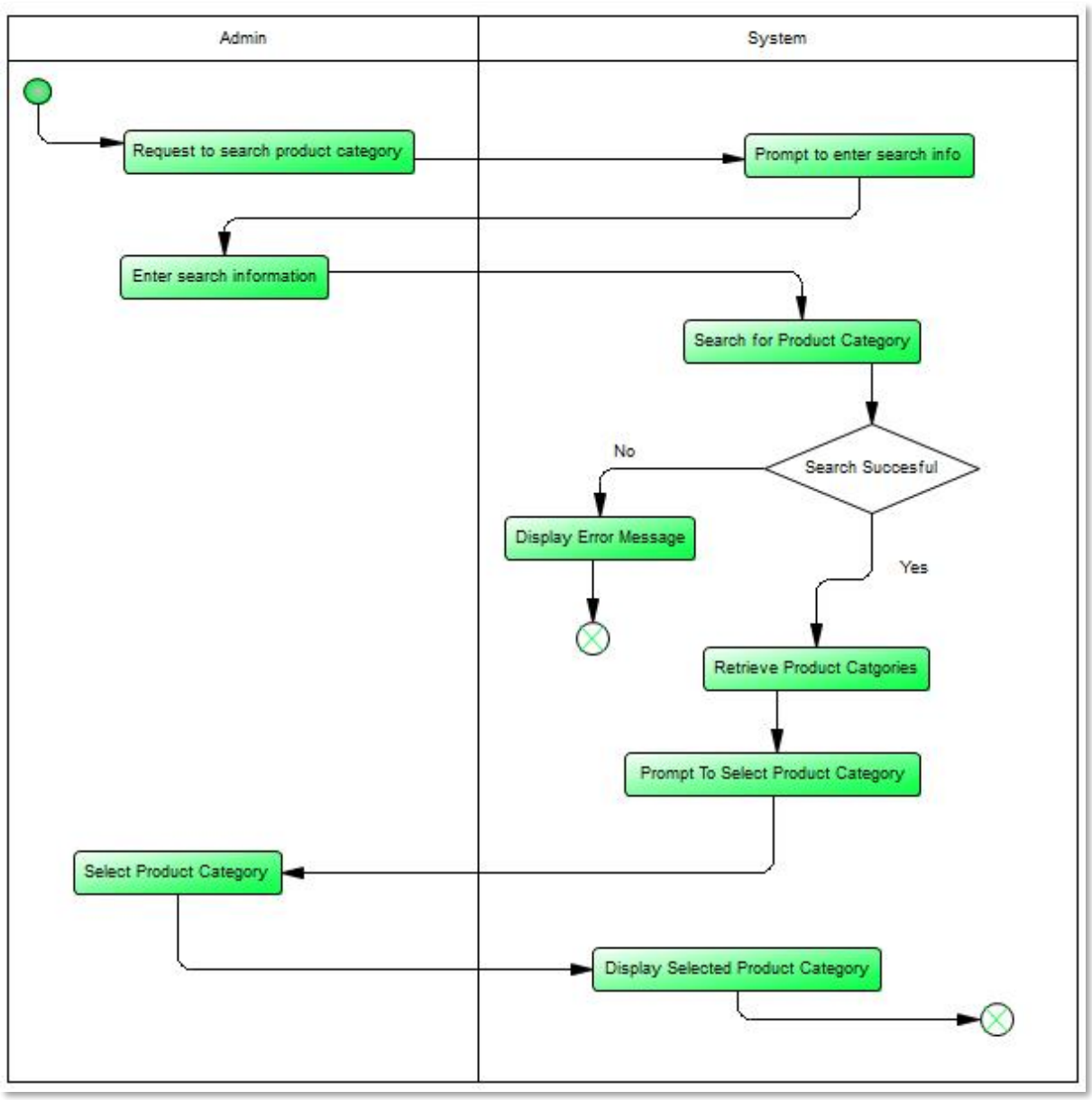


Figure 355 9.2. Search Product Category Activity Diagram

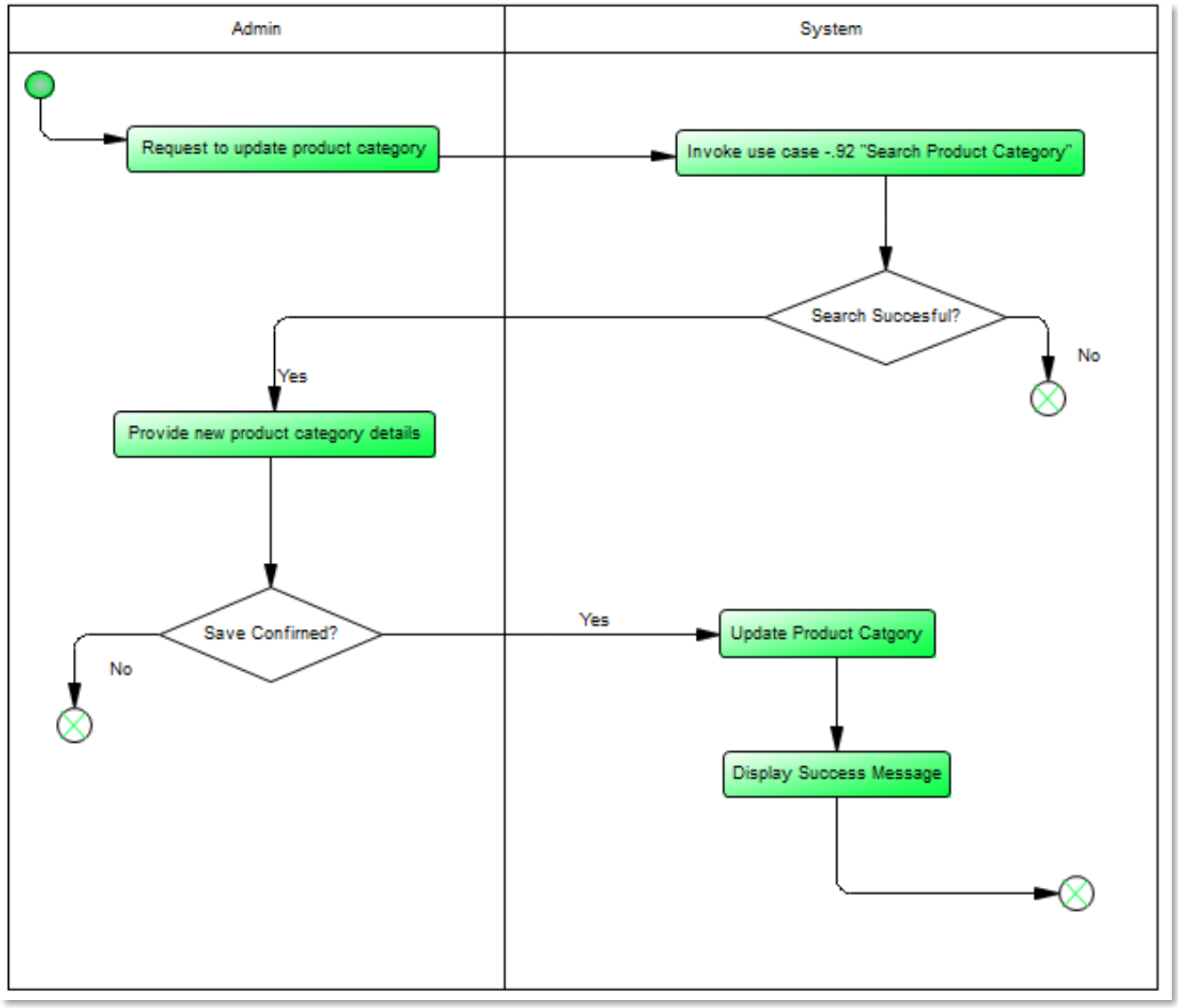


Figure 356 8.3. Update Product Category Activity Diagram

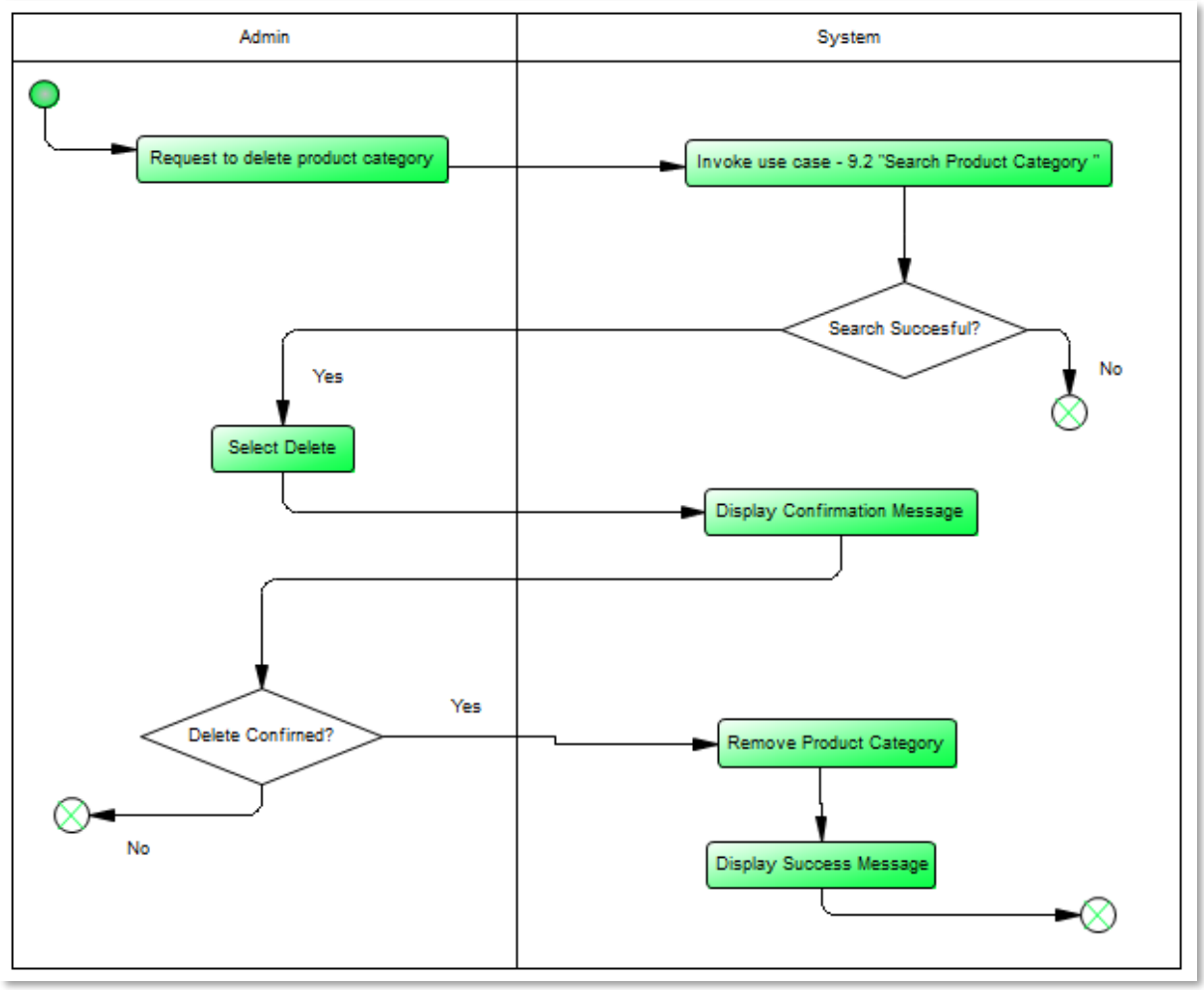


Figure 357 9.4. Delete Product Category Activity Diagram

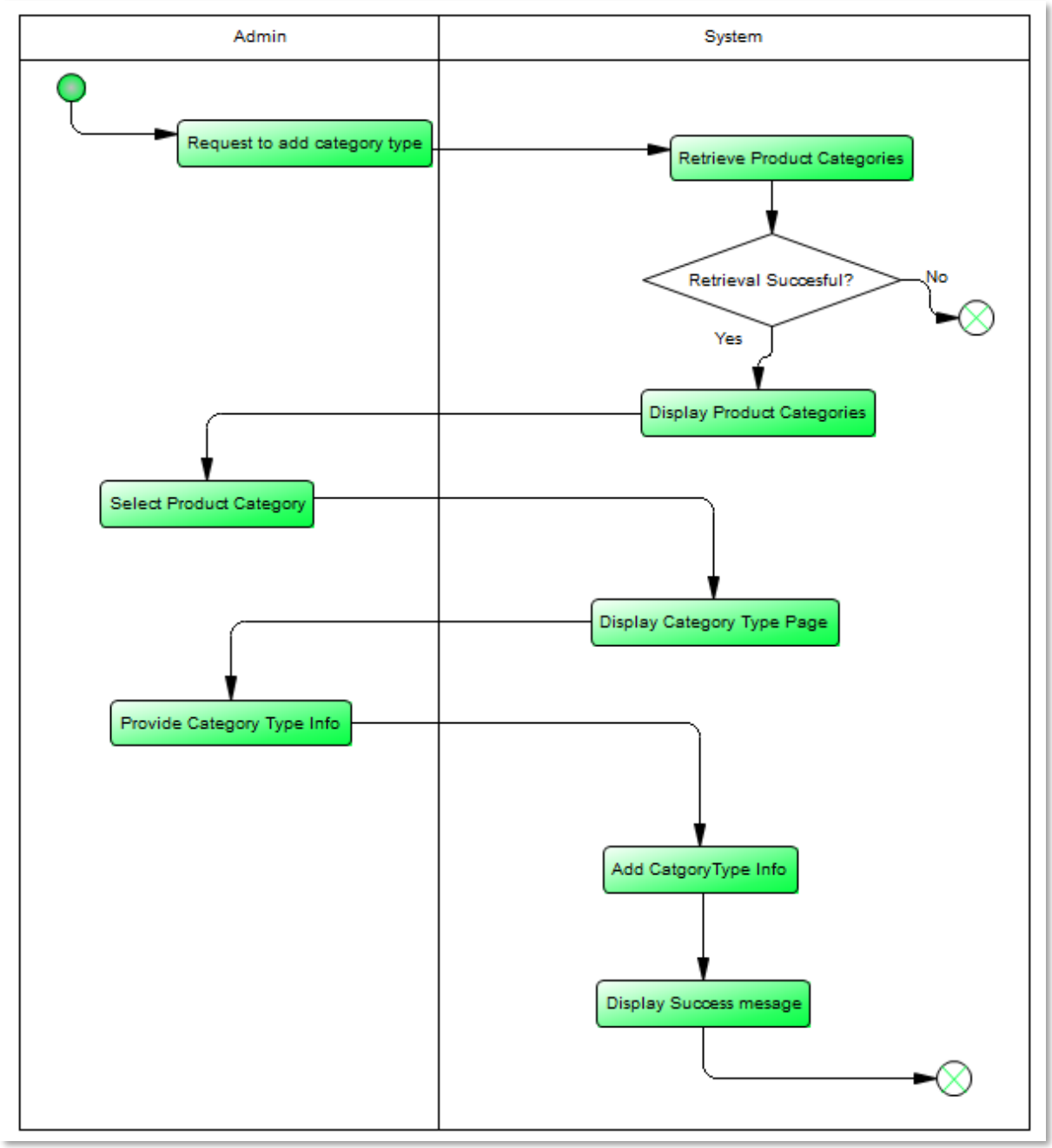


Figure 358 9.5. Add Category Type Activity Diagram

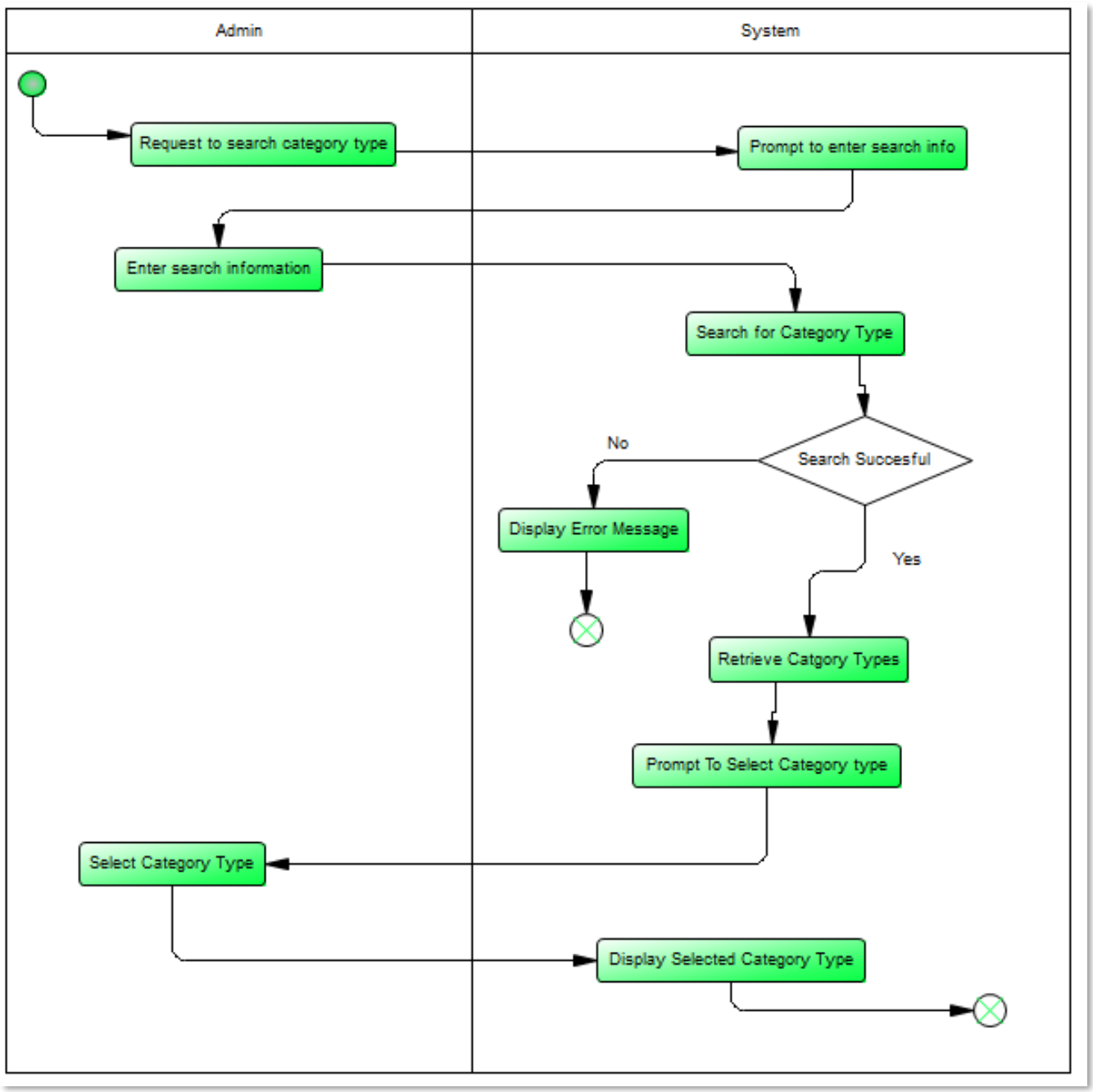


Figure 359 9.6. Search Category Type Activity Diagram

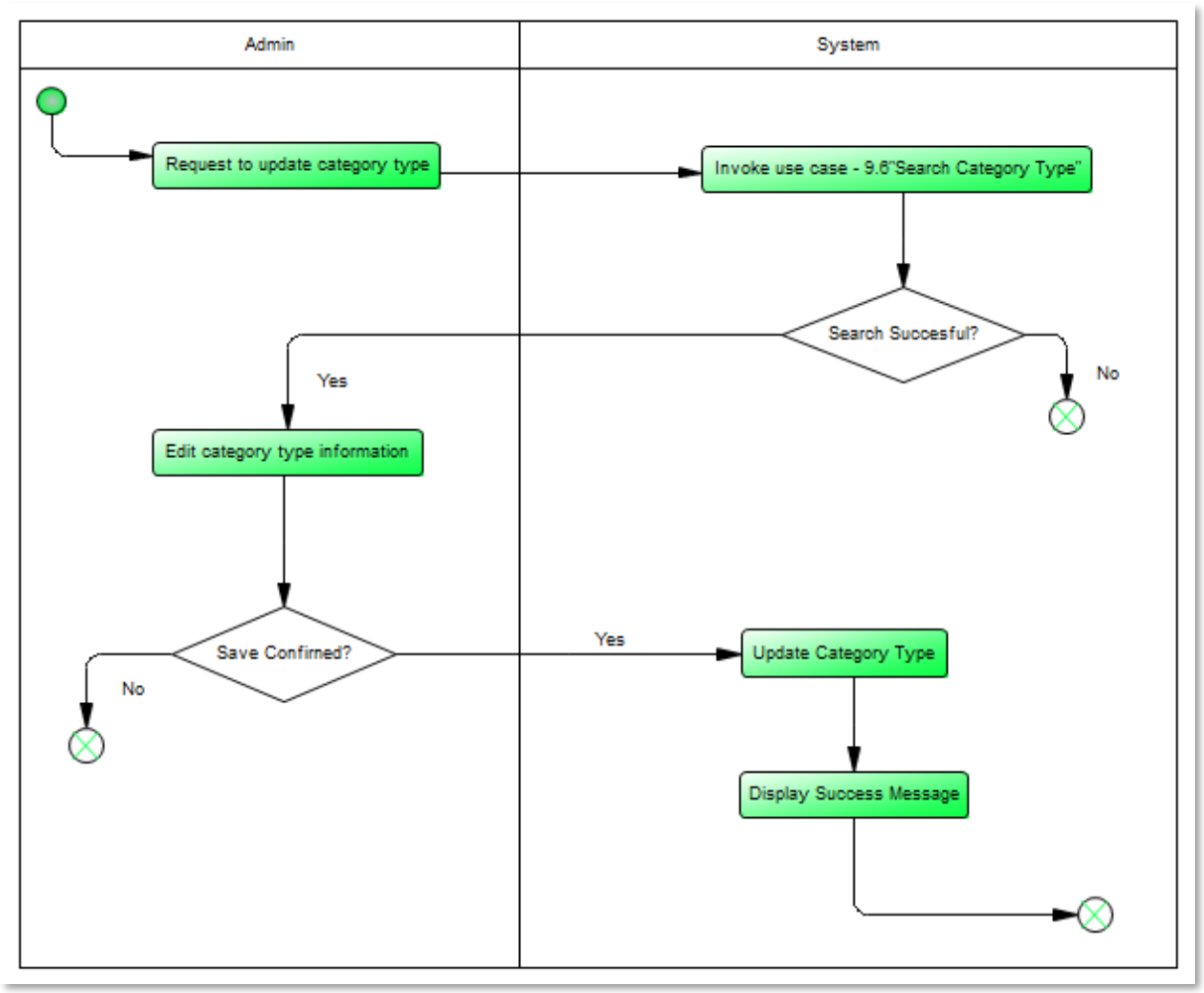


Figure 360 9.7. Update Category Type Activity Diagram

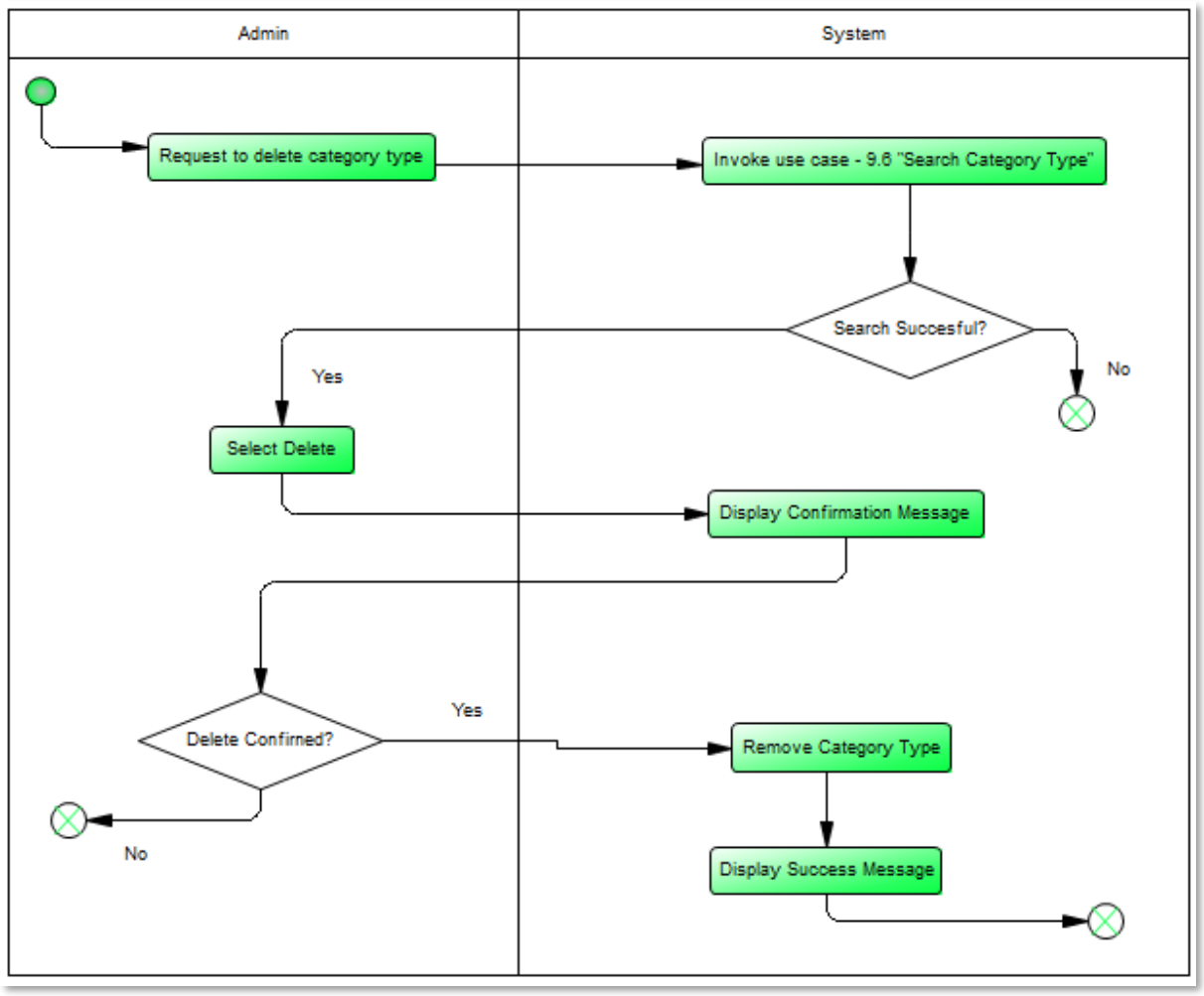


Figure 361 9.8. Delete Category Type Activity Diagram

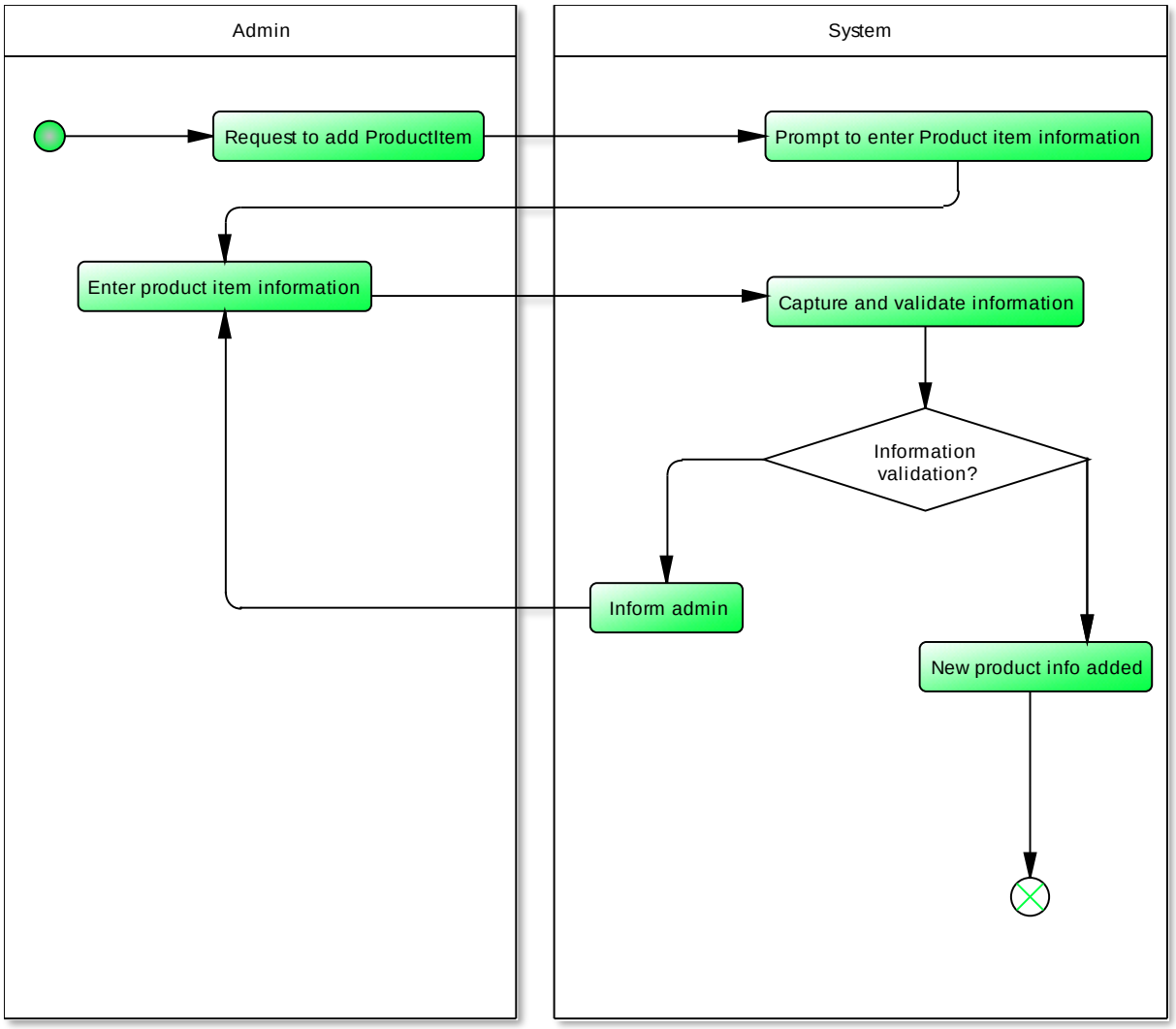


Figure 362 9.9. Add Product Item Activity Diagram

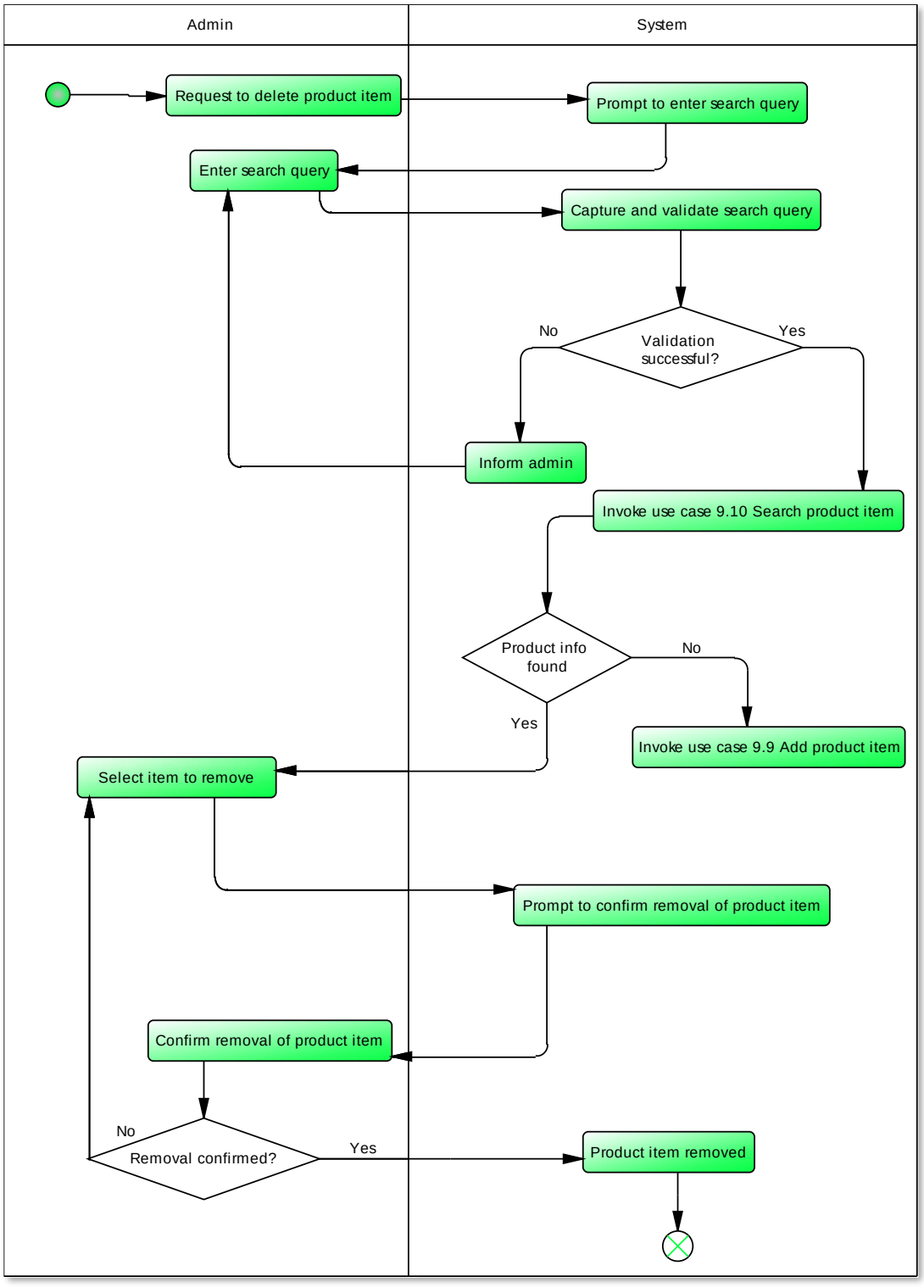


Figure 363 9.10. Search Product Item Activity Diagram

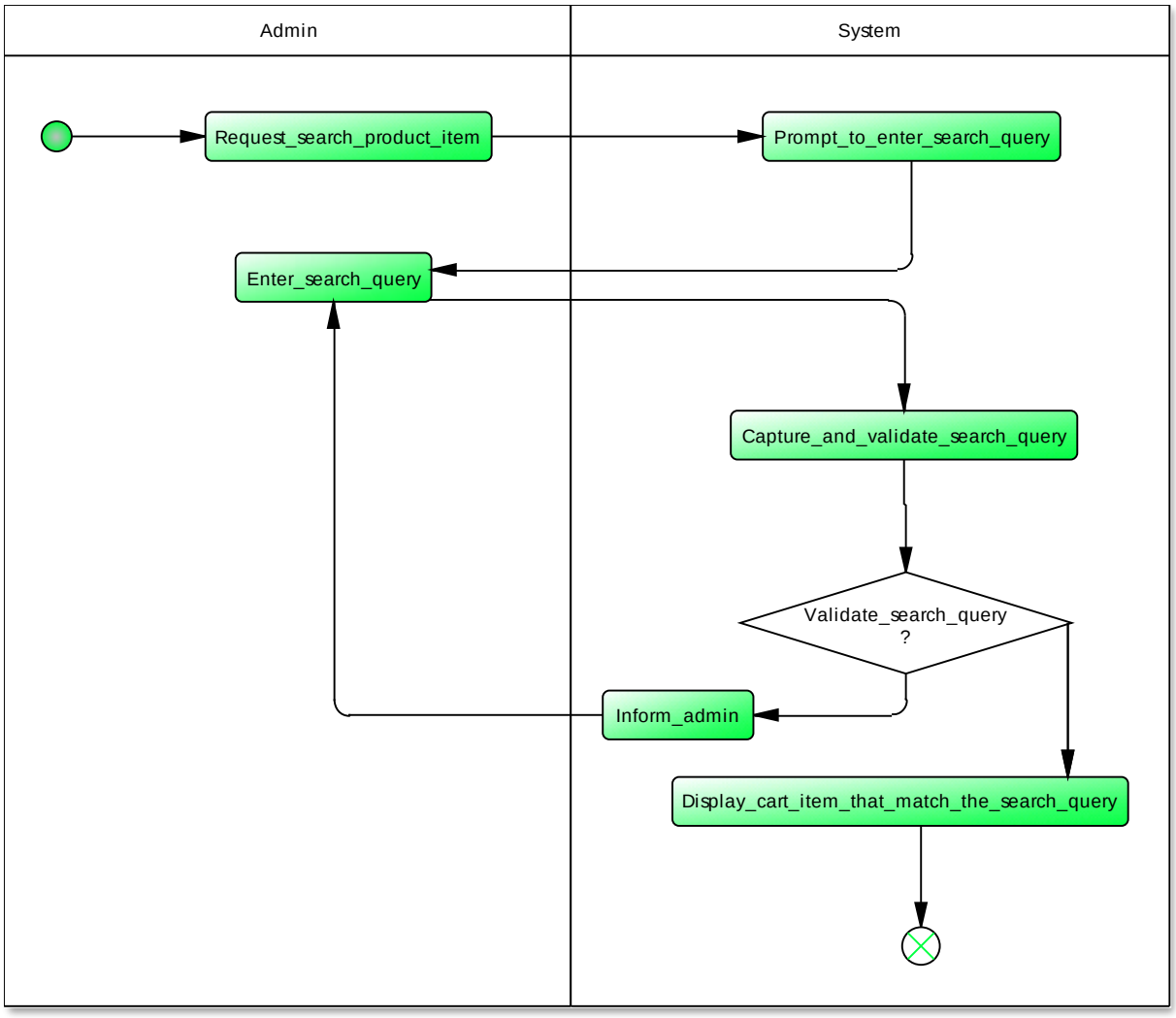


Figure 364 9.11. Update Product Item Activity Diagram

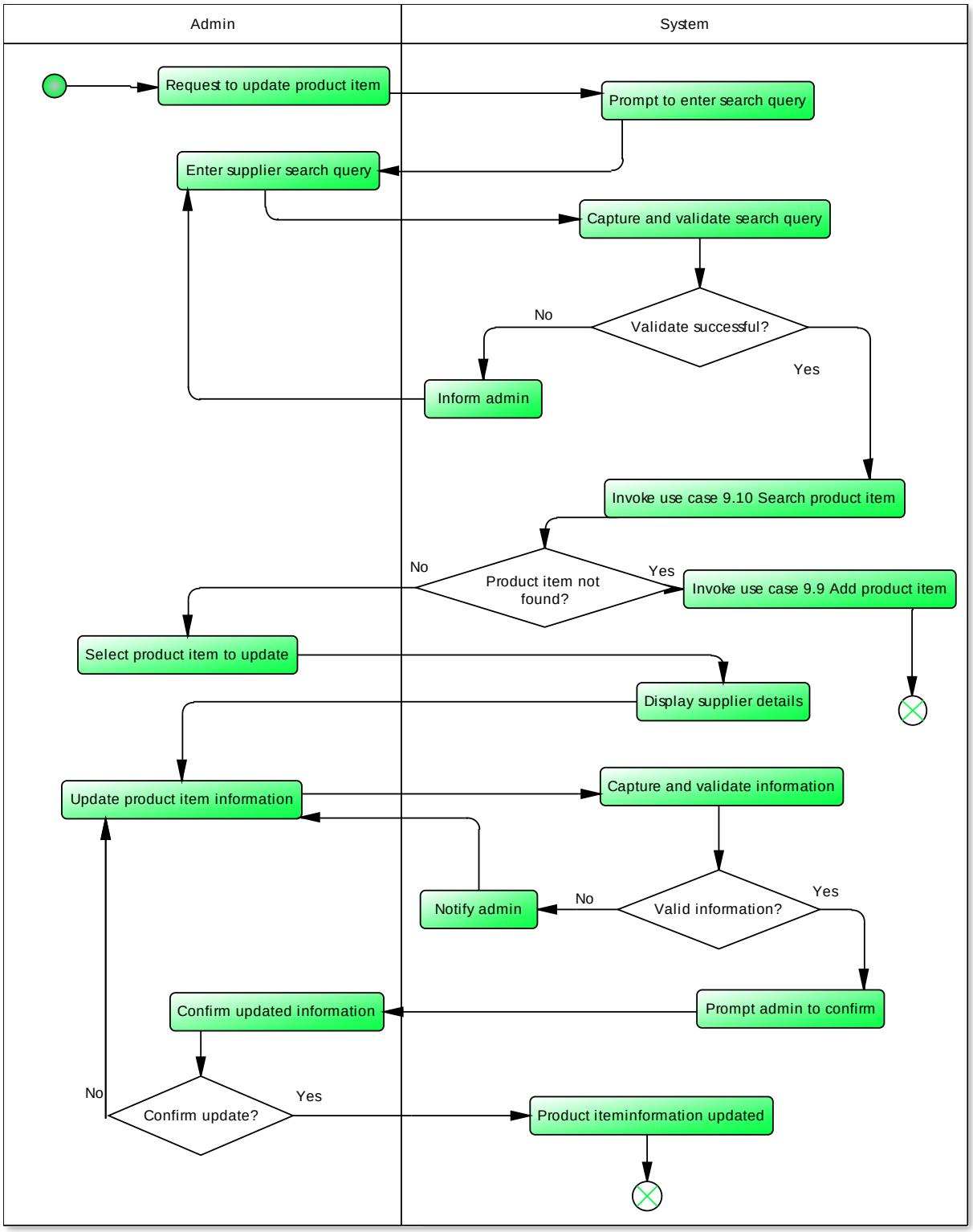


Figure 365 9.12. Delete Product Item Activity Diagram

4.1.10 Specials Sub-System

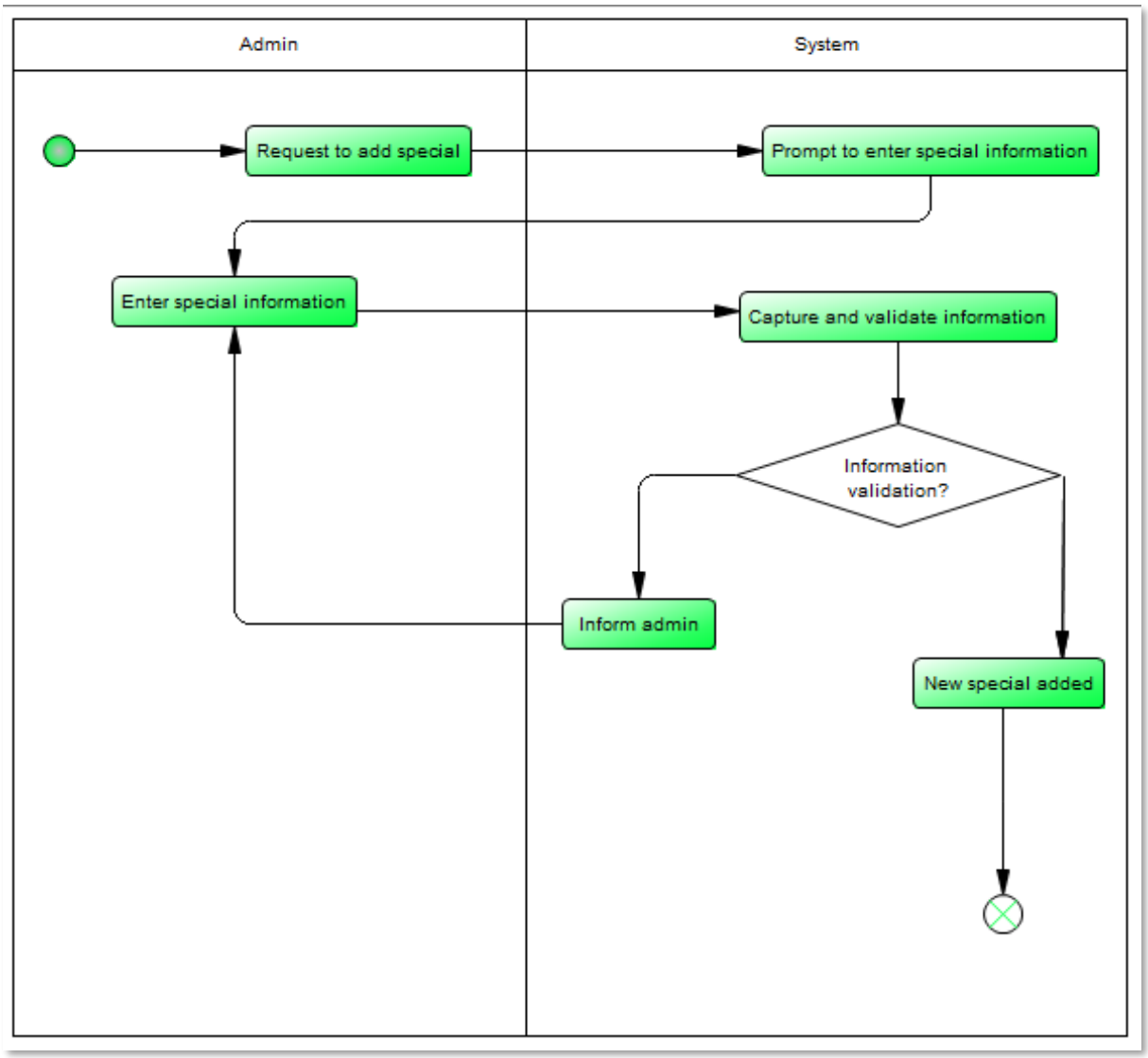


Figure 366 10.1. Add Special Activity Diagram

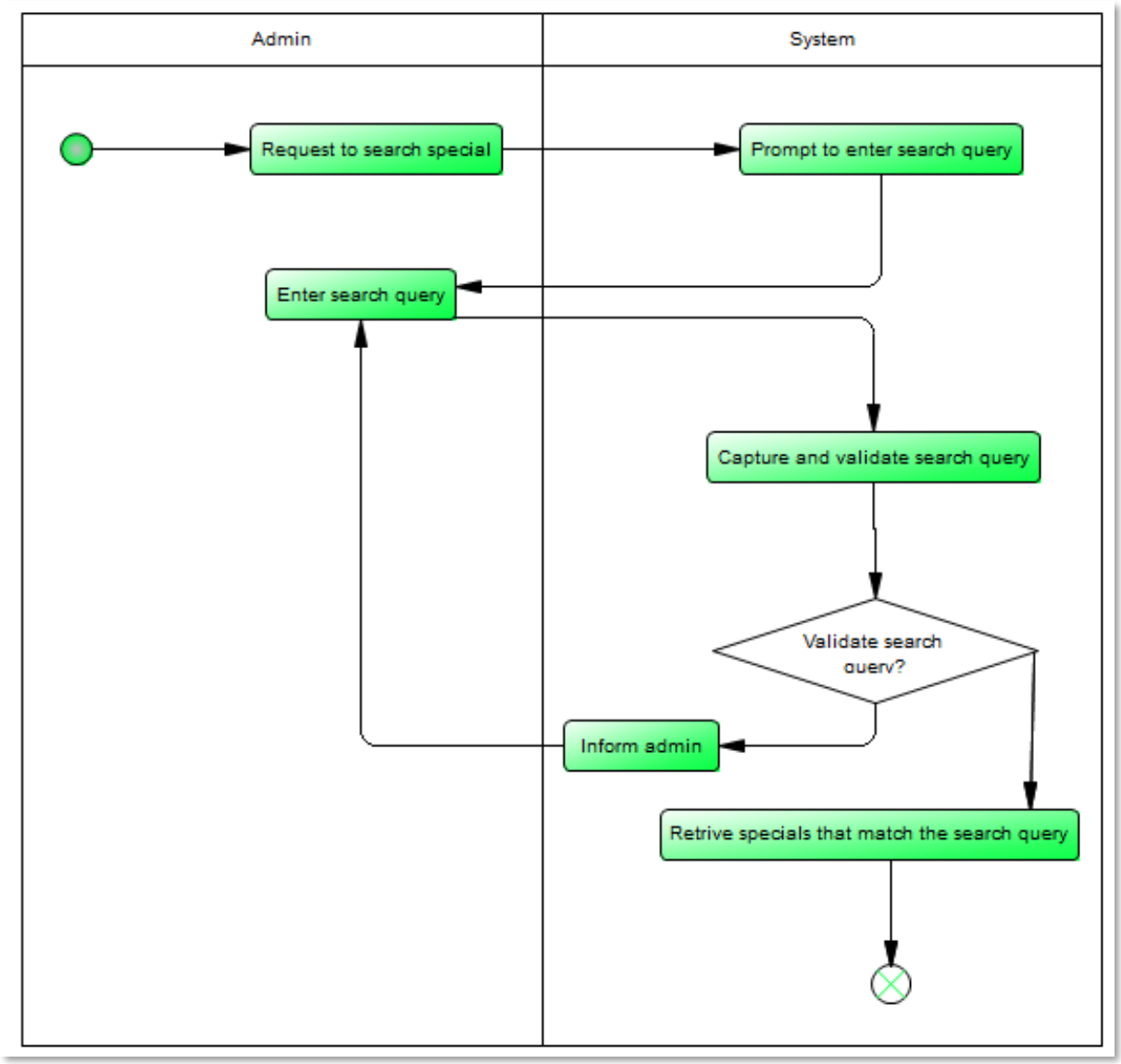


Figure 367 10.2. Search Special Activity Diagram

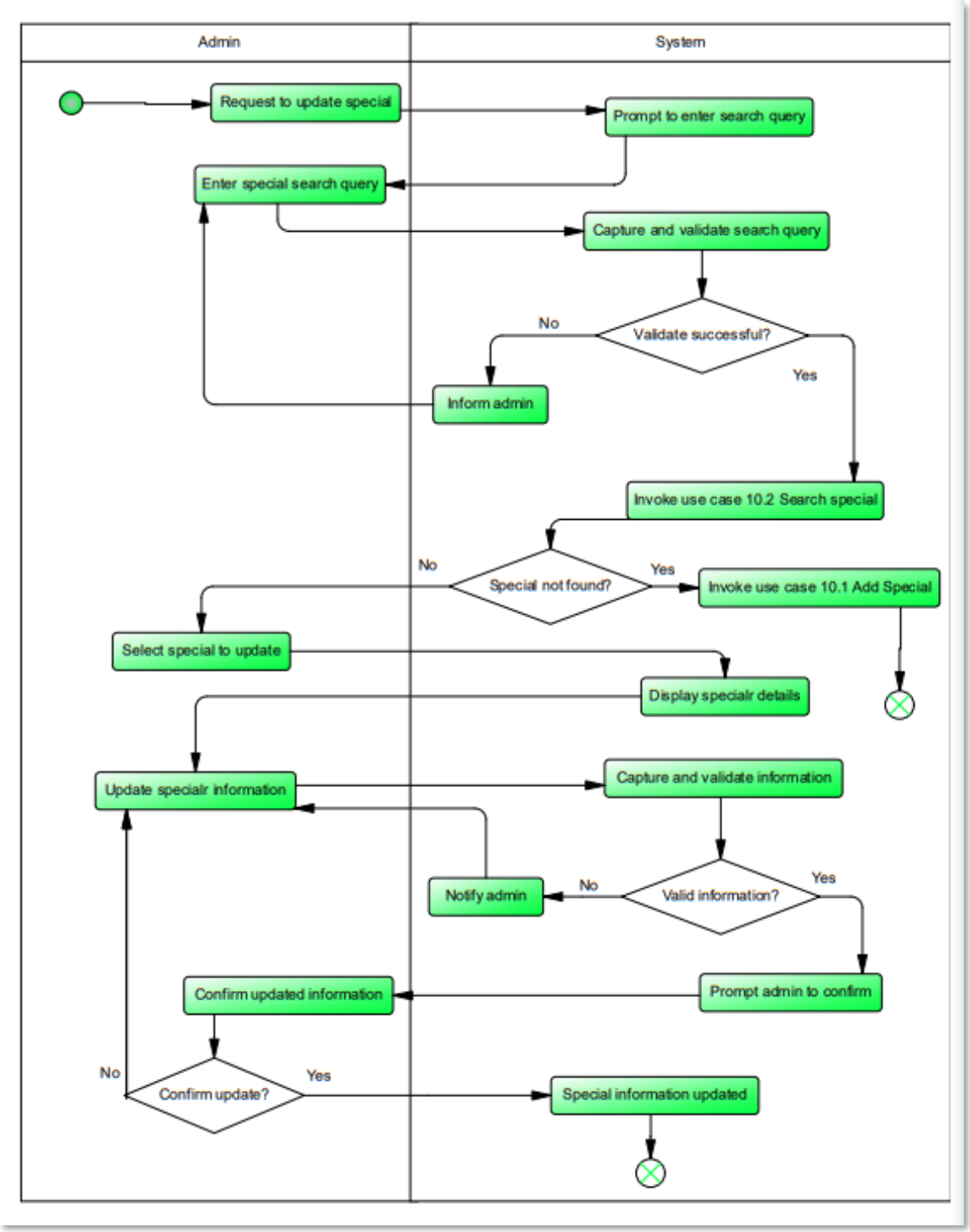


Figure 368 10.3. Update Special Activity Diagram

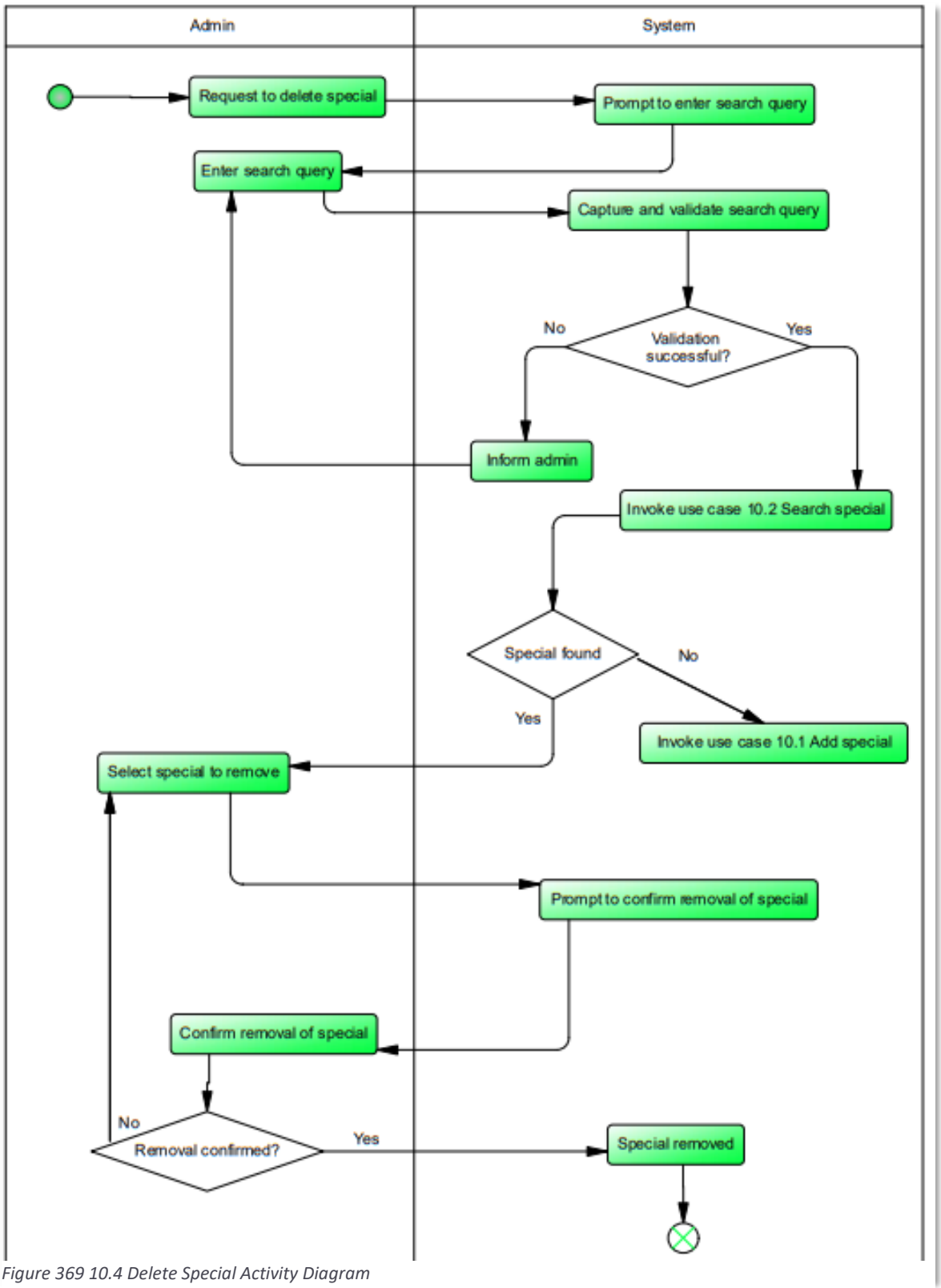


Figure 369 10.4 Delete Special Activity Diagram

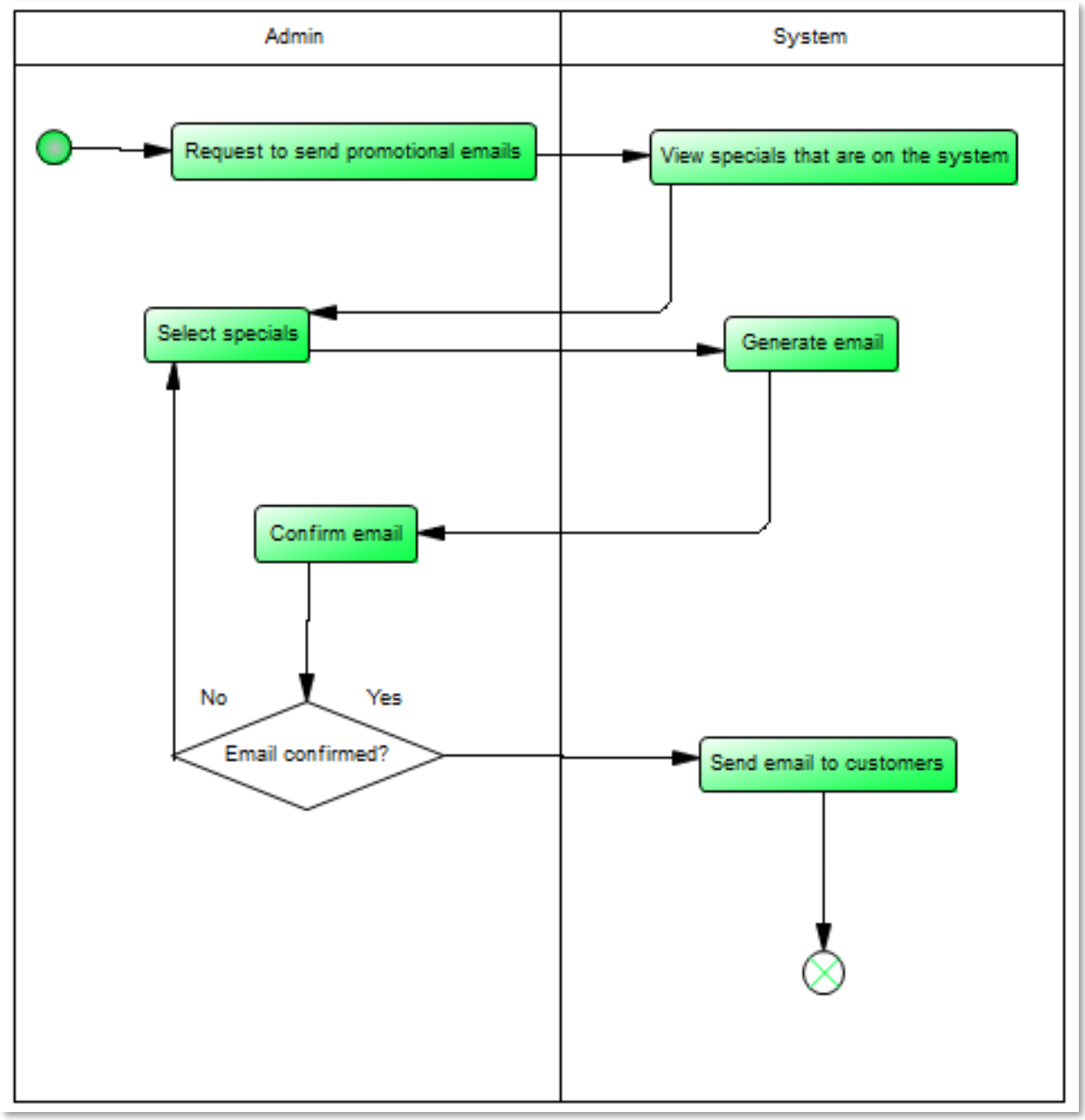


Figure 370 10.5. Send Promotional Emails

CONCLUSION

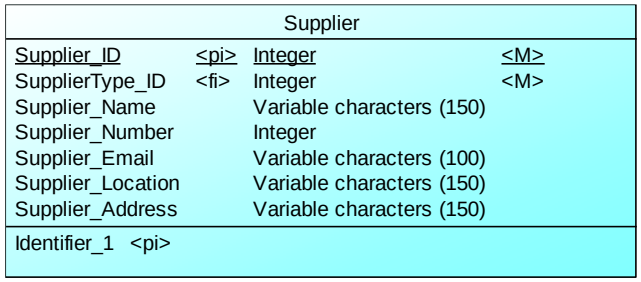
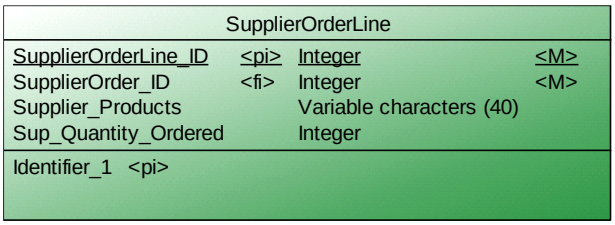
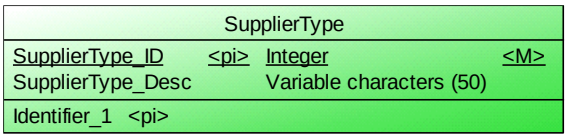
In this section we looked at the UML Activity diagram and how the activities flowed in each requirement. Now we are going to look at the data model.

5. Data Model

INTRODUCTION

This section analyses the interface and other inputs of the system. It shows the inflows of information that will be entered into the system. We will elaborate on the inflows by describing the purpose, when its used etc.

5.1. LOGICAL DATA MODEL (ENTITY RELATIONSHIP DIAGRAM)

Data Model Key		
Element	**Description**	**Example**
Entity	Entity element represented by rectangle with light blue fill.	
Associative Entity	Associative entity element represented by rectangle with dark green fill.	
Look-up Entity	Look-up entity element represented by rectangle with light green fill.	

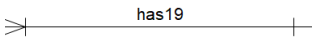
Relationship	Relationship element represented by black line with appropriate relationship types.	

Figure 371 Data Model Key

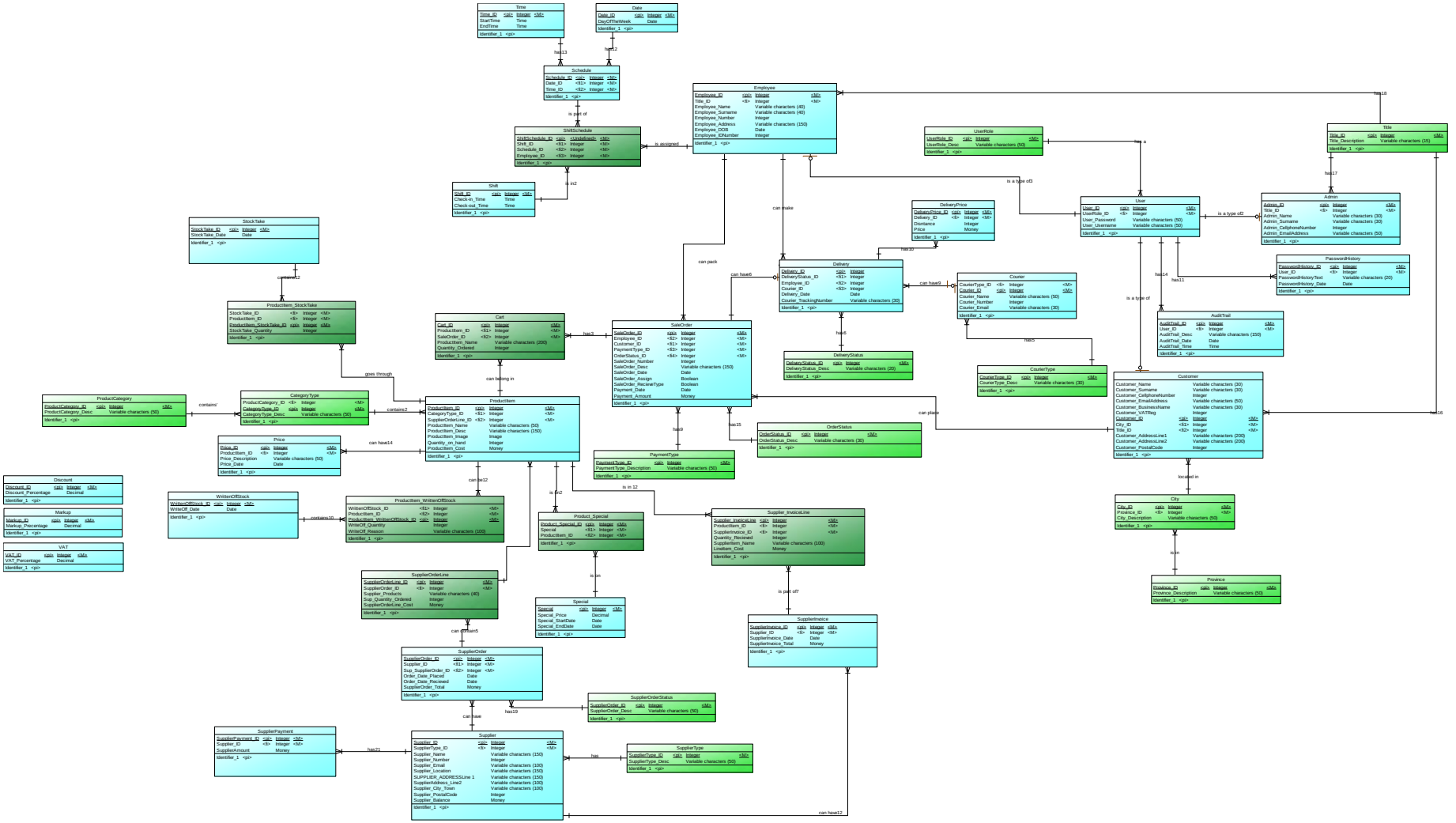


Figure 372 Entity Relationship Diagram.

CONCLUSION

This section we elaborated on the interface and other inputs of the system. Next, we will be looking at the reports and other inputs.

6. Interfaces and Other Inputs

INTRODUCTION

This section analyses the reports and other outputs in the system. It shows the outflows of information that will be shown to the external users of the system. We will elaborate on the outflows by describing the purpose, when its used etc.

6.1. INPUT INTERFACE DESCRIPTION

6.1.1 Log-in Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
1.1 Login	1.1 Request login information	The system will record the login information of the user.	When the user wants to use the system.	User • User_username • User_Password	Provided by user.

Figure 373 1.1. Login Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
1.2 Forgot Password	1.2 Forgot password information	The purpose is to get the user to reset their password	It is used when the user has forgotten their password.	• None	Provided by user.

Figure 374 1.2. Forgot Password Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
1.3 Reset password	1.3 Request to reset password information	Purpose is to reset the password.	This is used to reset the password.	• None	Selected by user
	1.3 Provide password reset information	It is for the system to capture the information.	When button reset password is clicked.	User • User_user name Customer • Email Address Admin • Email Address	Provided by user
	1.3 New password verification information	To change the user password	When the user has forgotten their password.	User • User_Password	Provided by user

Figure 375 1.3. Reset Password Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
1.4 Logout	1.4 Request logout information	Is to logout of the system.	When the user wants to leave the system	• None	Provided by user.

Figure 376 1.4. Logout Input Table

6.1.2 Supplier Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.1 Add Supplier	2.1 Request to add supplier information	This contains the information to capture the details about the supplier.	This is used when the administration wishes to add a supplier.	None	Selected by the administrator.
	2.1 Supplier information	The purpose is to gather the information that the admin has entered on to the system.	Used when the admin has entered the information pertaining to the supplier.	Supplier • Supplier_ID (PK) • Supplier_Name • Supplier_CellphoneNumber • Supplier_EmailAddress • Supplier_Location • Supplier_PhysicalAddress • SupplierType_ID (FK)	Provided by administration

Figure 377 2.1. Add Supplier Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.2 Search Supplier	2.2 Request to search supplier information.	This contains the information that will be used for the search query.	When an admin wants to search for a supplier	None	Selected by the administration.
	2.2 Provide search supplier criteria information.	The purpose is to gather the information that the admin has entered on to the system.	Used when the admin has entered the information pertaining to the supplier.	None	Provided by administration

Figure 378 2.2. Search Supplier Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.3 Update Supplier	2.3 Request to update supplier information	This contains the information that will be used to update the supplier details.	When an admin wants to update a supplier	None	Selected by the administration.
	2.3 Provide changes made information.	The purpose is for the system to get the information for it to be saved on it.	When the admin has updated all the new information on the supplier.	Supplier • Supplier_ID (PK) • Supplier_Name • Supplier_Cellphone Number • Supplier_EmailAddress • Supplier_Location • Supplier_PhysicalAddress • SupplierType_ID (FK)	Validated by system.

Figure 379 2.3. Update Supplier Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.4 Delete Supplier	2.4 Request to delete supplier information	It is to delete the information of the supplier.	Used when you want to remove a supplier from the system.	None	Selected by the admin.

Figure 380 2.4. Delete Supplier Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.5 Place Supplier Order	2.5 Request to place supplier order information.	It is to look at all the information of the supplier.	It is used when the supplier wants to place an order and they need their email or website.	Supplier • Supplier_ID (PK) • Supplier_Name • Supplier_CellphoneNumber • Supplier_EmailAddress • Supplier_Location • Supplier_PhysicalAddress • SupplierType_ID (FK)	Selected by the admin.
	2.5 Provide supplier order information.	The purpose is for the system to get the information for it to be saved on it.	When the admin has created a list of what they want to order.	None	Created by the admin
	2.5 Place Order Selected Info	The selection of place order function by the admin	When the admin wants to place an order on the system	None	Selected by the admin
	2.5 Selected Order Items Info	The selection of the specific product items the admin wants place an order for	When the admin selects specific product items to order	ProductItem • ProductItemID • ProductItem_Name • ProductItem_Desc • ProductItem_Image • Quantity_On_Hand • ProductItem_Cost • CategoryType_ID	Selected by the admin
	2.5 Order Confirmation Info	The confirmation that the admin wants to order the	When the admin wants to proceed with the	SupplierOrder • SupplierOrder_ID • Supplier_ID • Order_Date_Placed • SupplierOrder_Total	Selected by the admin

		selected products	ordering of products	SupplierOrderLine • SupplierOrderLine_ID • SupplierOrder_ID • Supplier_Products • Sup_Quantity_Ordered • SupplierOrderLine_Cost	
	ALT 2.5 Order Declined Info	The cancellation of the placing of a supplier order	When the admin wants to cancel the placement of a supplier order	None	Selected by the admin

Figure 381 2.5. Place Supplier Order Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.6 Receive Supplier Order	2.6 Request to receive supplier order	The request required to initiate the process of receiving a supplier order	When an admin wants to record a supplier invoice on to the system	None	Selected by the admin.
	2.6 Receive supplier order selected info	The selection of the receive supplier order option	Used when the admin is ready to use the supplier invoice to receive the order	None	Selected by the admin
	2.6 Supplier invoice info	The invoice information which needs to be added to the system	Used when the admin enters in the information present on the supplier invoice	Supplier • Supplier_Balance SupplierInvoice • SupplierInvoice_ID • SupplierInvoice_Date • SupplierInvoice_Total • Supplier_ID SupplierInvoiceLine • Supplier_InvoiceLine • Quantity_Received • SupplierItem_Name • LineItem_Cost • SupplierInvoice_ID	Entered in by the admin
	2.6 Request to update stock info	The request required to initiate the process performing a stock take on the system	Used once the supplier invoice has been recorded on the system and the admin wants to update the quantity of	none	Selected by the admin

			hand of the products in the system		

Figure 382 2.6. Receive Supplier Order Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.7 Make a Supplier Payment	2.7.1 Request to make payment information	This contains the information to capture the details about the supplier payment.	This is used when the administration wishes to add a payment made to the supplier.	None	Selected by the administrator.
	2.7.2 Payment information	The purpose is for the admin the provide the payment information and enter it on the system.	When the admin has provided all the new payment information based on the payment to the supplier.	SupplierPayment • SupplierPayment_ID (PK) • SupplierPayment_Amount Supplier • Supplier_Balance	Entered in by the admin

Figure 383 2.7. Make a Supplier Payment Input Table

6.1.3 User Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.1 Register New Customer	3.1 Request to register information	This is the information required to initiate the registration of a new customer	Used when a customer wishes to register on the system.	None	Selected by customer
	3.1 Customer Registration details information	This is the information which is required to register a customer.	Used when a customer enters their registration information.	**User Entity:** • User_UserName • User_Password **Customer Entity:** • Customer_Name • Customer_Surname • Customer_CellPhoneNumber • Customer_EmailAddress • Customer_BusinessName • Customer_VATReg • Customer_Address **City Entity:** • City_Description **TitleEntity:** • Title_Description	Entered by Customer
	3.1 Registration details confirmation information	This is an option which the customer selects to confirm their information	Used when a customer confirms that their captured information is correct.	None	Selected by customer
	ALT 3.1 Registration	This is an option	Used when a customer	None	Selected by customer

	details not confirmed information	which the customer selects which indicates they do not confirm their information.	indicates that their captured information is incorrect.		

Figure 384 3.1. Register New Customer Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.2 Search Customer	3.2 Search customer request information	This is the information required to initiate the search of a customer	Used when an administrator wants to search for a customer on the system.	None	Selected by administrator
	3.2 Search criteria information	This is the information which is required to search for a customer.	Used when an administrator enters the search criteria to find a customer.	**Customer Entity:** • Customer_Name • Customer_Surname	Entered by administrator
	3.2 Selected customer information	This is an option which the administrator selects to view a specific customer's details.	Used when an administrator selects the customer they want to view.	None	Selected by administrator.

Figure 385 3.2. Search Customer Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.3 Update Customer	3.3 Update details request information	This is the information required to initiate the update of a customer's information.	Used when a customer wants to update their information on the system.	None	Selected by customer
	3.3 Updated details information	This is the information which is required to update a customer's information.	Used when a customer enters their updated information.	**User Entity:** • User_UserName • User_Password **Customer Entity:** • Customer_Name • Customer_Surname • Customer_CellPhoneNumber • Customer_EmailAddress • Customer_BusinessName • Customer_VATReg • Customer_Address **City Entity:** • City_Description **TitleEntity:** • Title_Description	Entered by customer
	3.3 Updated details information confirmation	This is an option which the customer selects to confirm their updated details.	Used when a customer confirms their captured information is correct.	None	Selected by customer.
	ALT 3.3 Updated	This is an option which	Used when a customer	None	Selected by customer.

	details not confirmed information	the customer selects which indicates they do not confirm their updated information.	indicates that their captured information is incorrect		

Figure 386 3.3. Update Customer Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.4 Delete Customer	3.4 Delete Account Information	This is the information required to initiate the deletion of a customer's account.	Used when a customer wants to update their information on the system.	None	Selected by customer
	3.4 Account Deletion Confirmation information	This is an option which the customer selects to confirm their account deletion.	Used when a customer enters their updated information.	None	Entered by customer
	3.4 Account Deletion not confirmed information	This is an option which the customer selects which indicates they do not confirm their account deletion.	Used when a customer confirms their captured information is correct.	None	Selected by customer.

Figure 387 3.4. Delete Customer Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.5 Add User Role	3.5 Add User Role request information	This is the information required to initiate the addition of a user role.	Used when an administrator wishes to add a user role on the system.	None	Selected by administration
	3.5 User Role Details information	This is the information which is required to add a user role.	Used when an administrator enters the user role information.	**UserRole Entity:** • UserRole_Desc	Entered by Administration
	3.5 User Role details confirmation information	This is an option which the administration selects to confirm the information	Used when an administration confirms that the captured information is correct.	None	Selected by Administration
	ALT 3.5 New User Role Details not confirmed information	This is an option which the administration selects which indicates they do not confirm the information.	Used when an administration indicates that the captured information is incorrect.	None	Selected by Administration

Figure 388 3.5. Add User Role Input Table

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Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.6 Search User Role	3.6 Search User Role request information	This is the information required to initiate the search of a user role.	Used when an administrator wishes to search for a user role on the system.	None	Selected by administration
	3.6 Provide Search criteria details information	This is the information which is required to search for a user role.	Used when an administrator enters the search criteria to find a user role.	**UserRole Entity:** • UserRole_ID	Entered by Administration
	3.6 Selected User Role Information	This is an option which the administration selects to view a specific user role.	Used when an administration selects the user role they want to view.	None	Selected by Administration

Figure 389 3.6. Search User Role Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.7 Update User Role	3.7 Update User Role request information	This is the information required to initiate the update of a user role.	Used when an administrator wishes to update a user role on the system.	None	Selected by administration
	3.7 Updated User role information	This is the information which is required to update for a user role.	Used when an administrator enters the updated user role details.	**UserRole Entity:** • UserRole_Desc	Entered by Administration
	3.7 Updated user role confirmation information	This is an option which the administration selects to confirm the updated user role details.	Used when an administration confirms that the captured information is correct.	None	Selected by Administration
	ALT 3.7 Updated user role not confirmed information	This is an option which the administration selects which indicates they do not confirm the updated user role information.	Used when an administration indicates that the captured information is incorrect.	None	Selected by Administration

Figure 390 3.7. Update User Role Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.8 Delete User Role	3.8 Delete User Role request information	This is the information required to initiate the deletion of a user role.	Used when an administrator wishes to delete a user role from the system.	None	Selected by administration
	3.8 User role deletion confirmation information	This is an option which the administration selects to confirm the deletion of a user role.	Used when an administration confirms the deletion of a user role.	None	Selected by Administration
	ALT 3.8 User role deletion not confirmed information	This is an option which the administration selects which indicates they do not confirm the deletion of a user role.	Used when an administration does not confirm the deletion of a user role.	None	Selected by Administration

Figure 391 3.8. Delete User Role Input Table

6.1.4 Employee Delivery Shifts Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities &Attributes:	Logical Layout:
4.1. Create Booking Shift	4.1. Request to Create Booking Shift Information	This is the information required to initiate the creation of a booking shift.	Used when an admin wants to create a new booking shift.	None	Requested by the admin
	4.1. New Booking Shift Information	This is the information entered in order to fill all the required information that needs to be stored.	Used when an admin enters the new booking shift information.	**Date Entity:** • DayOfTheWeek **Time Entity:** • StartTime • EndTime	Entered by the admin
	4.1. Proceed Confirmation Information	This is the information required to selected to confirm and continue the creation process.	Used when an admin is satisfied with the new information entered and wants to continue the creation process.	None	Selected by the admin
	ALT 4.1. Do Not Proceed Information	This is the information selected to stop the continuation of the creation process.	Used when an admin is not satisfied with the new information entered and wants to stop the	None	Selected by the admin

			creation process.		

Figure 392 4.1. Create New Booking Shift Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.2. Search Booking Shift	4.2. Request to Search Booking Shift Information	This is the information required to request a search for a booking shift.	Used when an admin wants to search for a specific booking shift.	None	Requested by the admin
	4.2. Booking Shift Date Information	This is the information required to search for the booking shift.	Used when an admin specifies the date at which the shift took place.	**Date Entity:** • DayOfTheWeek	Provided by the admin

Figure 393 4.2. Search Booking Shift Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.3. Update Booking Shift	4.3. Request to Update Booking Shift Information	This is the information required to perform an update on a booking shift's information.	Used when an admin wants to update a booking shift information.	None	Requested by the admin
	4.3. Enter New Booking Shift Information	This is the information for the new booking shift.	Used when an admin makes changes to the information accordingly.	**Schedule Entity:** • Date • Time	Entered by the admin

Figure 394 4.3. Update Booking Shift Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.4. Delete Booking Shift	4.4. Request to Delete Booking Shift Information	This is the information required to initiate the deleting of a booking shift.	Used when an admin wants to delete a booking shift.	None	Requested by the admin
	4.4. Booking Shift Deletion Confirmation Information	This is the information required to confirm the deletion of the selected booking shift.	Used when an admin is satisfied with their selection for deletion and wants to continue the deletion process.	**Schedule:** • Schedule_ID	Confirmed by the admin
	ALT 4.4. Confirmation Decline Information	This is the information to decline the deletion.	Used when an admin is not satisfied with the selected information and wants to stop the deletion.	None	Declined by the admin

Figure 395 4.4. Delete Booking Shift Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.5. Add Employee	4.5. Request to Create	This is the informatio	Used when an admin	None	Requested by the admin

	Employee Information	n required to initiate the addition of an employee .	wants to add an employee' s informatio n to the system.		
	4.5. New Employee Information	This is the informatio n of the new employee .	Used when an admin enters the new employee' s informatio n.	**Employee Entity:** • Employee_Name • Employee_Surna me • Employee_Numbe r • Employee_Addres s • Employee_DOB • Employee_IDNum ber	Entered by the admin
	4.5. New Login Information	This is the informatio n of the login details of the new employee .	Used when an admin enters the new login details for the employee.	**User Entity:** • User_Password • User_Username	Provided by the admin

Figure 396 4.5. Add Employee Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.6. Search Employee	4.6. Request to Search Employee	This is the informatio n entered	Used when an admin wants to	None	Requeste d by the admin

		in order to fill all the required information that needs to be stored.	search for a specific employee.		
	4.6. Employee Information	This is the information required to initiate a search for the specific employee.	Used when an admin specifies the name and surname of the employee.	**Employee Entity:** • Employee_Name • Employee_Surname	Entered by the admin

Figure 397 4.6. Search Employee Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.7. Update Employee	4.7. Request to Update Employee Information	This is the information required to perform an update on an employee's	This is the information required to perform an update on an employee's	None	Requested by the admin

		information.	information.		
	4.7. Enter New Employee Information	This is the information required to add a new employee.	Used when an admin makes changes to the information accordingly.	**Employee Entity:** • Employee_Name • Employee_Surname • Employee_Number • Employee_Address • Employee_DOB • Employee_IDNumber	Entered by the admin

Figure 398 4.7. Update Employee Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.8. Delete Employee	4.8. Request to Delete Employee Information	This is the information required to initiate the deleting of an employee.	Used when an admin wants to delete an employee.	None	Requested by the admin
	4.8. Employee Deletion	This is the information required to confirm	Used when an admin is satisfied	**Employee Entity:** • Employee_ID	Confirmed by the admin

	Confirmation Information	the deletion of the selected employee.	with their selection for deletion and wants to continue the deletion process.		
	ALT 4.8. Confirmation Decline Information	This is the information to decline the deletion.	Used when an admin is not satisfied with the selected information and wants to stop the deletion.	None	Decline by the admin

Figure 399 4.8. Delete Employee Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.9. Assign Order for Delivery	4.9. Request to View SaleOrder Information	This is the information required to view the saleorders.	Used when an admin wants to view the saleorders on the system.	None	Requested by the admin
	4.9. Request to Filter Non-Collection Salorders	This is the information required to view the saleorders that fit the	Used when an admin wants view saleorders that require deliveries,	None	Requested by the admin

		criteria to be readily available for delivery.	available for distribution and unassigned for delivery.		
	4.9. Request Assign Delivery Information	This is the information required to initiate the assigning of the order for a delivery.	Used when an admin wants to assign a saleorder for a delivery done by the business employee.	None	Requested by the admin
	4.9. Employee Information	This is the information required to specify the employee that will perform the delivery.	Used when an admin selects the employee to do the delivery.	**Employee Entity:** • Employee Name	Selected by the admin
	ALT 4.9. Request Assign Courier Information	This is the information required to initiate the assigning of a saleorder to a courier.	Used when an admin chooses to assign a saleorder delivery to a courier.	None	Requested by the admin
	4.9. Request Done Information	This is the information required to inform the system that the admin is done assigning the delivery.	Used when an admin assigned an employee for the delivery and wants to continue with the assigning process.	None	Requested by the admin
	ALT 4.9. Request Cancel to Information	This is the information required to cancel the assigning process.	Used when an admin wants to stop and cancel the	None	Requested by admin

			assigning process.		
	4.9. Proceed with Delivery Information	This is the information required to finalize the assigning of the delivery.	Used when an admin wants to finalize the delivery and allow the system to save the information.	None	Selected by admin
	ALT 4.9. Do Not Proceed with Delivery Information	This is the information required to stop the finalization of the assigning if the admin is not satisfied with the selected employee.	Used when an admin is not satisfied with the selected employee information.	None	Selected by admin

Figure 400 4.9. Assign Order for Delivery Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.10. Assign Order for Courier	4.10. Request to View Sale Order Information	This is the information required to view the saleorders.	Used when an admin wants to view the saleorders on the system.	None	Requested by admin
	4.10. Request to Filter Non-Collection SaleOrders	This is the information required to view the saleorders that fit the criteria to be readily available for delivery.	Used when an admin wants view saleorders that require deliveries, available for distribution and unassigned for delivery..	None	Requested by admin
	4.10. Request Assign	This is the information required	Used when an admin wants	None	Requested by admin

	Courier Information	to initiate the assigning of the order for courier.	admin acknowledges the distance for the order to be delivered and wants to assign it for a courier.		
	ALT 4.10. Request Assign Delivery Information	This is the information required to initiate the assigning of the order for a delivery.	Used when an admin wants to assign a saleorder for a delivery done by the business employee.	None	Requested by admin
	4.10. Request to Send Courier Email Information	This is the information required to initiate which courier the saleorde r will be assigned to and to email the courier the delivery details. T his will open a web application for e-mailing.	Used when an admin wants to send an email to a courier to perform a delivery.	**Courier Entity:** • Courier_Email **SaleOrder Entity:** • Courier_ID	Requested by admin
	4.10. Assigned Courier Information	This is the information required to initiate the new informatio	Used when an admin navigates back to the system to tick the box	**SaleOrder Entity:** • SaleOrder_Assign	Entered by admin

		n entered by the admin regarding the saleorder.	that is linked to the assigned information of a delivery.		
	4.10. Completed/Done Assign Information	This is the information required to inform the system that the user wants to continue.	Used when an admin is done entering the assign information and wants to continue the assigning process.	None	Selected by admin
	ALT 4.10.. Request to Cancel Information	This is the information required to initiate inform the system that the user does not want to continue assigning the assigning process.	Used when an admin wants to stop the assigning process.	None	Requested by admin
	ALT 4.10a. Proceed to Cancel Information	This is the information required to inform the system that the user is sure to cancel the process.	Used when an admin verifies that they are sure to cancel the process.	None	Selected by admin
	ALT 4.10b. Do Not	This is the information required to inform	Used when an admin mistakenly selected the	None	Selected by admin

	Proceed Information	the system that the user does not want to cancel the process.	option to Cancel and wants to continue the assigning process.		
	4.10. Proceed Information	This is the information that allows the admin the inform the system that they have ticked the assigned box.	Used when an admin remembered to tick the assigned box and wants to continue with the assigning process.	None	Selected by admin
	ALT 4.10. Do Not Proceed Information	This is the information required to initiate that an admin has forgotten to tick the assigned box.	Used when an admin did not remember to tick the assigned tick bo and wants to go back and do it.	None	Selected by admin
	4.10. Select Customer Email Information	This is the information required to initiate the selection of the customer's email to inform them of the delivery being assigned to a courier	Used when an admin wants to inform the customer of their order being assigned for courier.	**Customer Entity:** • Customer_Email	Selected by admin

		and the courier delivery informatio n is pending.			

Figure 401 4.10. Assign Order for Courier Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.11. Assign Shift	4.11. Selected Employee to Proceed Information	This is the information required to initiate the assigning of an employee to a shift.	Used when an admin wants to select the employee of which they want to assign to a shift.	**Employee Entity:** • Employee Name	Selected by admin
	ALT 4.11. Cancel Assign Information	This is the information required to initiate cancellation of assigning a shift to that specific employee.	Used when an admin wants to cancel the assigning of the shift to that specific employee and wants to select a different employee for the shift.	None	Selected by admin
	4.11. Proceed Information	This is the information that the admin is	Used when an admin is satisfied with the	None	Selected by admin

		satisfied with the assigning of the shift and wants for the system to save the information.	assigning of the shift and wants to continue the assigning process.		
	ALT 4.11. Do Not Proceed Information	This is the information that the admin is not satisfied with the assigning of the shift.	Used when an admin is not satisfied with the assigning of the shift and wants to discontinue the assigning process.	None	Selected by admin

Figure 402 4.11. Assign Shift Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.12. Cancel Shift	4.12. Request to Cancel Shift	This is the information required to initiate the cancelling of a shift.	Used when an admin wants to cancel an existing shift.	None	Requested by admin
	4.12. Proceed to Cancel Information	This is the information required to initiate the confirmation of the shift cancellation.	Used when an admin is satisfied with the shift they selected to cancel.	None	Selected by admin
	4.12. Confirm Cancellation Information	This is the information required to initiate the continuation of the cancellation process.	Used when an admin wants to continue with the cancellation process.	**ShiftSchedule:** • ShiftSchedule_ID	Confirmed by admin

	ALT 4.12. Do Not Confirm Cancellation	This is the information required to initiate the discontinuation of the cancellation process.	Used when an admin wants to stop the cancellation process.	None	Selected by admin

Figure 403 4.12. Cancel Shift Input Table

6.1.5 Administration Back-Office Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.1 View Online Sales	5.1 View Sale Order Request Information	This is the information required to initiate the viewing of a sale order.	Used when an employee wishes to view a SaleOrder on the system.	None	Selected by Employee
	5.1 Selected sale order information	This is the information required to view a specific sale order.	Used when an employee selects the specific sale order they want to view.	None	Selected by Employee

Figure 404 5.1. View Online Sales Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.2 Update Sale Status	5.2 Update order status request information	This is the information required to initiate the updating of an order status.	Used when an employee wishes to update an order status on the system.	None	Selected by Employee
	5.2 Updated order status details information	This is the information required to update an order status.	Used when an employee selects the new order status.	**OrderStatus Entity** • OrderStatus_Description	Selected by Employee
	5.2 Confirmed status change information	This is an option that is selected by the employee to confirm the order status update.	Used when an employee confirms that the captured information is correct.	None	Selected by Employee

	ALT 5.2 Order status change not confirmed information.	This is an option that is selected by the employee to indicate they do not confirm the order status update.	Used when an employee does not confirm that the captured information is correct.	None	Selected by Employee

Figure 405 5.2. Update Sale Status Input Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
5.3 Do Stock-Take	5.3 Update stock on hand request information	This is the information required to initiate a stock take.	Used when an employee wishes to update the quantity on hand of an item.	None	Selected by Employee
	5.3 Selected stock item update information	This is the information required to update the quantity on hand of a product.	Used when an employee selects the specific product to update the quantity on hand for.	**ProductItem Entity** • Quantity_on_Hand	Provided by Employee
	5.3 Stock take confirmation information	This is an option that is selected by the employee to confirm	Used when an employee confirms that the captured	None	Selected by Employee

		the stock take.	information is correct.		
	ALT 5.3 Stock Take not confirmed information.	This is an option that is selected by the employee to indicate they do not confirm the stock take.	Used when an employee does not confirm that the captured information is correct.	None	Selected by Employee

Figure 406 5.3. Do Stock-Take Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.4 View Shift Schedule	5.4 View Shift schedule request information.	This is the information required to initiate the viewing of the shift schedule.	Used when an employee wishes to view the shift schedule.	None	Selected by Employee

Figure 407 5.4. View Shift Schedule Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.5 View Shift	5.5 View Shift request information.	This is the information required to initiate the viewing of a shift.	Used when an employee wishes to view their shift.	None	Selected by Employee

Figure 408 5.5 View Shift Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:

5.6 Check-in	5.6 Shift check-in request	This is the information required to initiate the check-in to a shift.	Used when an employee wishes to view their shift to be able to check-in.	None	Selected by Employee
	5.6 Selected check-in information	This is the information required to check-in to a specific shift at a specific time.	Used when an employee wishes to check in for their current shift.	None	Selected by employee

Figure 409 5.6. Check-in Input Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
5.7 Check-out	5.6 Shift check-out request	This is the information required to initiate the check-out of a shift.	Used when an employee wishes to view their shift to be able to check-out.	None	Selected by Employee
	5.6 Selected check-out information	This is the information required to check-out of a specific shift at a specific time.	Used when an employee wishes to check out of their current shift.	None	Selected by employee

Figure 410 5.7. Check Out Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.8 Write-off stock	5.8 Request to write-off stock information	This is the information required to initiate a write-off of stock.	Used when an administration wishes to write-off stock.	None	Selected by Administration
	5.8 Write-off delete information	This is the information required to write-off stock.	Used when an administration enters the write-off details.	**ProductItem_WriteOffStock** WriteOff_Reason WriteOff_Quantity **Write-Off Entity** WriteOff_Date.	Provided by Administration
	ALT 5.8 Cancel write-off information	This is an option that is selected by the employee to cancel the stock write-off take.	Used when an administration wants to cancel the write-off of stock.	None	Selected by Administration

	5.8 Proceed write-off information	This is an option that is selected by the employee to indicate they want to proceed with the write-off and the information is correct.	Used when an administration confirm that the captured information is correct and wants to proceed .	None	Selected by Administration
	ALT 5.8 Do not proceed write-off information	This is an option that is selected by the employee to indicate they do not want to proceed with the write-off and the information is not correct.	Used when an employee does not confirm that the captured information is correct and does not want to proceed.	None	Selected by Administration

Figure 411 5.8 Write Off Stock Input Table

6.1.6 Customer Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.1 Browse Products	6.1 Request to view all available products	This contains the information necessary for initiating the process of viewing available products	This is used when the customer wishes to view.	**ProductItem** • Product_ID (PK) • Product_Name • Product_Description • Product_Image • CateogryType_ID (FK) • Quantity_on_hand	Selected by the customer
	6.1 View and browse all products info	This enables the information necessary to process of viewing available products	This is used when the customer views.	None	Selected by the customer

Figure 412 6.1. Browse Products Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.2 View Product details	6.2 Request to view specific product	This contains the information necessary for initiating the process of a viewing product.	This is used when the customer wishes to view.	**ProductItem** • Product_ID (PK) • Product_Name • Product_Description • Product_Image • CateogryType_ID (FK) Quantity_on_hand	Selected by the customer
	6.2 View specific product info	This enables the information necessary to process of viewing a product.	This is used when the customer views.	None	Selected by the customer

Figure 413 6.2. View Product Details Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.3 View Specials/Promotions	6.3. Request to view all current specials and promotions info	This contains the information necessary for initiating the process of viewing current specials and promotions info	This is used when the customer wishes to retrieve current specials and promotions info	**ProductItem** • Product_ID (PK) • Product_Name • Product_Description • Product_Image • CateogryType_ID (FK) • Quantity_on_hand • CategoryType **VAT** • VAT_ID (PK) • VAT_Percentage • Date **Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Requested by the customer

	6.3 View all current specials and promotions info	This contains the information necessary for viewing current specials and promotions info	This is used when the customer views current specials and promotions info	None	Requested by the customer

Figure 414 6.3. View Specials/Promotions Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.4 Add item to cart	6.4. Request to add an item from cart.	This contains the information necessary for initiating the process of adding cart items.	This is used when the user wishes to add.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Requested by the customer

Figure 415 6.4. Add Item to Cart Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.5 Remove item from cart	6.5. Request to remove an item from cart.	This contains the information necessary for initiating the	This is used when the user wishes to remove.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Requested by the customer

		process of removing cart items.			
	6.5. Request to remove an item from cart.	This contains the information necessary for the process of removing cart items.	This is used when the customer to removes.	None	Requested by the customer

Figure 416 6.5. Remove Item from Cart Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.6 View Cart	6.6 Request to view cart info	This contains the information necessary for initiating the process of viewing cart items.	This is used when the user wishes to view.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK) **Price** • Price_ID (PK) • Price_Description • Price_Date • Product_ID (FK) **ProductItem** • Product_ID (PK) • Product_Name • Product_Description • Product_Image • CateogryType_ID (FK) • Quantity_on_hand	Requested by the customer

				VAT • VAT_ID (PK) • VAT_Percentage • Date	
	6.6 View cart info	This enables the information necessary to process of viewing cart	This is used when the customer views cart.	None	Requested by the customer

Figure 417 6.6. View Cart Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:

6.7 Customer Activity	6.7 Request to clear cart info	This contains the information necessary for initiating the process of clearing cart items.	This is used when the user wishes to clear cart.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK) **Price** • Price_ID (PK) • Price_Description • Price_Date • Product_ID (FK) **ProductItem** • Product_ID (PK) • Product_Name • Product_Description • Product_Image • CateogryType_ID (FK) • Quantity_on_hand **VAT** • VAT_ID (PK) • VAT_Percentage • Date	Requested by the customer

Figure 418 6.7. Empty Cart Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:

6.8 Checkout order	6.8 Request to proceed to checkout	This contains the information necessary for initiating the process of viewing cart items.	This is used when the user wishes to view.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK) **Price** • Price_ID (PK) • Price_Description • Price_Date • Product_ID (FK) **ProductItem** • Product_ID (PK) • Product_Name • Product_Description • Product_Image • CateogryType_ID (FK) • Quantity_on_hand **VAT** • VAT_ID (PK) • VAT_Percentage • Date	Requested by the customer
	6.8 Select payment method info	This enables the information necessary to process of selecting payment method	This is used when the customer is selecting payment method	None	Requested by the customer

Figure 419 6.8. Checkout Order Input Table

6.1.7 Reports Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.1	7.1 Request to Generate Fast-selling product list	This is the information required to initiate the generation of the This is the information required to initiate the generation of the Delivery Report	wants to product list	None	Selected by the admin
	7.1 Selected Report Period	This information details the period for which the report will be generated	Used when the admin selects the report period	None	Selected By the admin

Figure 420 7.1. Generate Fast-Selling Product List Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.2	7.2 Request to Generate Slow-selling product list	This is the information required to initiate the generation of the Slow-selling product list	Used when an admin wants to generate a slow-selling product list	None	Selected by the admin
	7.2 Selected Report Period	This information details the period for which the report will be generated	Used when the admin selects the report period	None	Selected By the admin

Figure 421 7.2. Generate Slow-Selling Product List Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.3	7.3 Request to generate most frequent buyers report	This is the information required to initiate the generation of the most frequent buyers Report	Used when an admin wants to generate a slow-selling product list	None	Selected by the admin

Figure 422 7.3. Generate Most Frequent Buyers Report Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.4.	7.4 Request to Generate Popular Location Report	This is the information required to initiate the generation of the Popular	Used when an admin wants to generate a Popular Location Report	None	Selected by the admin

		Location Report			

Figure 423 7.4. Request to Generate Location Report Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.5	7.5 Request to Generate Weekly Sale Order list	This is the information required to initiate the generation of the Weekly Sale Order list	Used when an admin wants to generate a Weekly Sale Order list	None	Selected by the admin

Figure 424 7.5. Generate Weekly Sale Order List Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.6	7.6 Request to Generate Monthly Sale Order list	This is the information required to initiate the generation of the Monthly Sale Order list	Used when an admin wants to generate a Monthly Sale Order list	None	Selected by the admin

Figure 425 7.6. Generate Monthly Sale List Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.7	7.7 Request to Generate Stock-Level report	This is the information required to initiate the generation of the Stock-Level Report	Used when an admin wants to generate a Stock-Level Report	None	Selected by the admin

Figure 426 7.7. Generate Stock-Level Report Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.8	7.8 Request to Generate Packing Report	This is the information required to initiate the generation of the Packing Report	Used when an admin wants to generate a Packing Report	None	Selected by the admin

Figure 427 7.8. Packing Report Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.9	7.9 Request to Generate Delivery Report	This is the information required to initiate the generation of the Delivery Report	Used when an admin wants to generate a Delivery Report	None	Selected by the admin

Figure 428 7.9. Delivery Report Input Table

6.1.8 Delivery Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
8.1 View Delivery	8.1.1 Request to view delivery details	This is the information required to initiate view a delivery.	Used when the employee wishes to view a delivery.	None	Selected by the employee
	8.1.3. Enter the DeliveryID info	This is the information required to enter delivery information.	Used when the employee wishes to enter a delivery.	**Delivery** • Delivery_ID (PK) • Employee_ID • Date **DeliveryStatus** • DeliveryStatus_ID (PK) • Description	Selected by the employee

Figure 429 8.1. View Delivery Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
8.2 Accept delivery	8.2.1 Request to accept a delivery	This is the information required to initiate accept a delivery.	Used when the employee wishes to accept a delivery.	None	Selected by the employee
	8.2.3 Accept a delivery	This is the information required to enter delivery information acceptance.	Used when the employee wishes to select a delivery acceptance.	**Delivery** • Delivery_ID (PK) • Employee_ID • Date **DeliveryStatus** • DeliveryStatus_ID (PK) • Description	Selected by the employee

Figure 430 8.2. Accept Delivery Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
8.3 Update delivery	8.3.1 Request to update delivery status	This contains the information required to initiate updating the delivery status.	Used when the employee wants to update the details of a delivery status.	None	Selected by the employee
	8.3.3 Enter the delivery status change	This contains the information required to updating the delivery status.	When the employee enters the updated details of the delivery status.	None	Selected by the employee
	8.3.5 Confirm the delivery status changes made	An option that is selected by the system employee to confirm the captured information	Used when the employee confirms the updated delivery status information provided.	None	Selected by the employee
	8.3.5 Confirm the delivery status changes made	An option that is selected by the system employee to confirm the captured information	Used when the employee confirms the updated delivery status information provided.	None	Selected by the employee

Figure 431 8.3. Update Delivery Status Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	• Entities & Attributes:	Logical Layout:

8.4. Add Courier	8.4. Request Add Courier Information	This is the information required to initiate the addition of a courier.	Used when an admin wishes to add a courier to the system.	None	Requested by the admin.
	8.4. New Courier Information	This is the information entered and fulfils all details of couriers that need to be stored on the system.	Used when an admin enters the new courier information.	**Courier Entity:** • CourierType_ID • Courier_Name • Courier_Number • Courier_Email	Entered by the admin.

Figure 432 8.4. Add Courier Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	• Entities & Attributes:	Logical Layout:
8.5. Search Courier	8.5. Request to Search	This is the information	Used when an admin wants to	None	Request by the admin.

	Courier Information	required to request a search for a courier.	search for a specific courier's information.		
	8.5. Input Search Criteria Information	This is the information required to initiate a search for a courier.	Used when an admin enters the search criteria to find a courier.	**Courier Entity:** • Courier_Name	Inputted by the admin.

Figure 433 8.5. Search Courier Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	• Entities & Attributes:	Logical Layout:
8.6. Update Courier	8.6. Request to Update Information	This is the information required to perform an update on a courier's information.	Used when an admin wants to update a courier's information on the system.	None	Requested by the admin.
	8.6. Update Courier Information	This is the information entered by the admin of which to update.	Used when an admin enters the informati9on to update.	**Courier Entity:** • CourierType_ID • Courier_Name • Courier_Number Courier_Email	Information is altered by the admin.

Figure 434 8.6. Update Courier Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
8.7 Delete Courier	8.7 Request to delete	This is the information is required to	Used when an admin wants to	None	Request by the

	courier information	initiate the deletion of a courier.	delete a courier from the system.		administration.
	8.7 Courier deletion confirmation information	This is an option the administration selects to confirm the deletion	Used when an administration confirms the deletion of a courier.	None	Selected by the administration.
	ALT 8.7 Courier deletion decline information	This is an option which the administration selects which indicates they do not confirm the deletion.	Used when an administration does not confirm the deletion of a courier.	None	Selected by the administration.

Figure 435 8.7. Delete Courier Input Table

6.1.9 Products Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.1 Add Product Category	9.1 Add Product Category Request	The information required to initiate the process of adding a new product category	When an admin wants to add a new product category to the system	none	Selected by the admin
	9.1 New Product Category Details	The information which the admin provides about the new product category	When the admin enters the product category details	**ProductCategory:** ProductCategory_ID ProductCategory_Desc	Entered in by the admin

Figure 436 9.1. Add Product Category Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.2 Search Product Category	9.2 Search Product Category Request	The information required to initiate the process of searching for a product category	When an admin wants to search for a product category in the system	none	Selected by the admin
	9.2 Entered Product Category Details	The information which the admin provides about the product category	When the admin enters the product category details	**ProductCategory:** ProductCategory_ID ProductCategory_Desc	Entered in by the admin
	9.2 Selected Product Category Info	The selection of a specific product category the admin wants to see	When the admin selects a specific product category	**ProductCategory:** ProductCategory_ID ProductCategory_Desc	Selected By the admin

Figure 437 9.2. Search Product Category Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.3 Update Product Category	9.3 Update Product Category Request	The request required to initiate the process of updating a product category	When an admin wants to update a specific product category's details	none	Selected by the admin
	9.3 Edited Product Category Details	The edited product category details provided by the admin	Used when the admin provides the updates to a product category	**ProductCategory:** ProductCategory_ID ProductCategory_Desc	Entered in by the admin

Figure 438 9.3. Update Product Category Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.4 Delete Product Category	9.4 Delete Product Category Request	The request required to initiate the process of deleting a selected product category	When the admin wants to delete a product category	none	Selected by the admin
	9.4 Delete Message Confirmation Info	The confirmation that the admin wants to delete the product category	When the admin wants to proceed with the deletion of a product category	**ProductCategory:** ProductCategory_ID ProductCategory_Desc	Selected by the admin
	ALT 9.4 Delete Message Declined Information	The cancellation of the deletion of a product category	When the admin wants to cancel the deletion of the product category	none	Selected by the admin

Figure 439 9.4. Delete Product Category Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.5 Add New Category Type	9.5 Add Category Type Request	The request required to initiate the process of adding a category type	When an admin wants to add a new category type to the system	none	Selected by the admin
	9.5 Selected Product Category Info	To selection of the required product category	When the admin selects the specific product category to add the category type to	**ProductCategory:** ProductCategory_ID ProductCategory_Desc	Selected by the admin
	9.5 New Category Type Info	Adding a new category type to the system	To add the new category types' details to the system	**CategoryType:** CategoryType_ID CategoryType_Desc	Entered by the admin

Figure 440 9.5. Add New Category Type Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.6 Search Category Type	9.6 Search CategoryType Request Info	The information required to initiate the process of searching for a category type	When an admin wants to search for a category type in the system		Selected by the admin
	9.6 Entered CategoryType Search Info	The information which the admin provides about a category type	When the admin enters the category type's details	**CategoryType:** CategoryType_ID CategoryType_Desc	Entered in by the admin
	9.6 Selected Category Type Information	The selection of the specific category type the admin wants to view	When the admin selects a specific category type	**CategoryType:** CategoryType_ID CategoryType_Desc	Selected By the admin

Figure 441 9.6. Search Category Type Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.7 Update Category Type	9.7 Update CategoryType Request	The request required to initiate the process of updating a category Type	When an admin wants to update a specific category type's details	none	Selected by the admin
	9.7 Edited CategoryType Info	The edited category type details provided by the admin	Used when the admin provides the updates to a category type	**CategoryType:** CategoryType_ID CategoryType_Desc	Entered in by the admin

Figure 442 9.7. Update Category Type Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.8 Delete Category Type	9.8 Delete CategoryType Request	The request required to initiate the process of deleting a selected category type	When the admin wants to delete a category type	none	Selected by the admin
	9.8 Delete Confirmation Info	The confirmation that the admin wants to delete the category type	When the admin wants to proceed with the deletion of a category type	**CategoryType:** CategoryType_ID CategoryType_Desc	Selected by the admin

Figure 443 9.8. Delete Category Type Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.9 Add Product Item	9.9 Add ProductItem Request	The request required to initiate the process of adding a new Product item	When an admin wants to add a new product item to the system	none	Selected by the admin
	9.9 CategoryType Selected Info	To selection of the required category type	When the admin selects the specific category type to add the category type to	**CategoryType:** CategoryType_ID CategoryType_Desc	Selected by the admin
	9.9 New ProductItem Info	Adding a new product item's info to the system	To add the new product item's details to the system	**ProductItem:** CategoryType_ID ProductItem_ID ProductItem_Name ProductItem_Desc ProductItem_Image Quantity_On_Hand	Entered by the admin

Figure 444 9.9. Add Product Item Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.10 Search Product Item	9.10 ProductItem Search Request	The information required to initiate the process of searching for a product item	When an admin wants to search for a product item in the system		Selected by the admin
	9.10 ProductItem Search Criteria	The information which the admin provides about a product item type	When the admin enters the product item's details	**ProductItem:** ProductItem_ID ProductItem_Name	Entered in by the admin
	9.10 ProductItem Selection Info	The selection of the specific product item the admin wants to view	When the admin selects a specific product item	**ProductItem:** CategoryType_ID ProductItem_ID ProductItem_Name ProductItem_Desc ProductItem_Image Quantity_On_Hand	Selected By the admin

Figure 445 9.10. Search Product Item Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.11 Update Product Item	9.11 Update ProductItem Request	The request required to initiate the process of updating a product item	When an admin wants to update a specific product item's details	none	Selected by the admin
	9.11 Updated ProductItem Info	The edited product item's details provided by the admin	Used when the admin provides the updates to a product item	**ProductItem:** ProductItem_ID ProductItem_Name ProductItem_Desc ProductItem_Image Quantity_On_Hand	Entered in by the admin

Figure 446 9.11. Update Product Item Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.12	9.12 Delete ProductItem Request	The request required to initiate the process of deleting a selected product item	When the admin wants to delete a product item	none	Selected by the admin
	9.12 Delete ProductItem Confirmation	The confirmation that the admin wants to delete the product item	When the admin wants to proceed with the deletion of a product item	**ProductItem:** ProductItem_ID ProductItem_Name ProductItem_Desc ProductItem_Image	Selected by the admin

Figure 447 9.12. Delete Product Item Input Table

6.1.10 Specials Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
10.1 Add Special	10.1 Request to add special information	This contains the information to capture the details about the special.	This is used when the administration wishes to add a special.	None	Selected by the administrator.
	10.1 Special information	To enter the information relating to the special.	When a new special is being added	None	Provided by the admin.

Figure 448 10.1. Add Special Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
10.2 Search Special	10.2 Request to search special information	This contains the information that will be used for the search query.	When an admin wants to search for a special	None	Selected by the administration.
	10.2 Provide search special criteria information.	This is for the admin to provide the details for the search query.	It is used when the admin wants to give keywords to identify the special, they are looking for.	None	Provided by administration

Figure 449 10.2. Search Special Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
10.3 Update Special	10.3 Request to update special information	This contains the information that will be used to update the special details.	When an admin wants to update a special	None	Selected by the administration.
	10.3 Provide special changes made information	It is to provide the system with the new information for the special.	It is used after the special has been retrieved and the previous information has been shown.	None	Provided by the admin.

Figure 450 10.3. Update Special Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
10.4 Delete Special	10.4 Request to delete special	This contains the information that will be used delete the special details.	When an admin wants to delete a special	None	Selected by the administration.

Figure 451 10.4. Delete Special Input Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
10.5 Send Promotional Emails	10.5 Request to create promotional email information	This contains the information that will be used to create an email that has the specials.	It is to help generate an email.	Special • Special_ID(PK) • Special_Price • CategoryItem(FK)	Selected by the admin.

Figure 452 10.5. Send Promotional Emails Input Table

CONCLUSION

This section we elaborated on the interface and other inputs of the system. Next, we will be looking at the reports and other inputs.

7. Reports and Other Outputs

INTRODUCTION

This section analyses the reports and other outputs in the system. It shows the outflows of information that will be shown to the external users of the system. We will elaborate on the outflows by describing the purpose, when its used etc.

7.1. OUTPUT DESCRIPTION

7.1.1 Log-in Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
1.1 Login	1.1 Successful login information	The purpose is to display that the login information was successful.	It is used when after the user has clicked on the login button.	User • User_ID(PK) • User_Username • User_Password	Prompted by the admin.
	ALT 1.1 Login failed information	The purpose is to display that the login was unsuccessful.	It is used when after the user has clicked on the login button.	• None	Prompted by the system.

Figure 453 1.1. Login Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
1.2 Forgot Password	1.2 Password reset notification information	This is to notify the user that they have entered the wrong password.	It is used to reset your password.	None	Prompted by the system.

Figure 454 1.2. Forgot Password Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
1.3 Reset password	1.3 Reset password information	The information on entering a new password.	It is used to capture the new password.	None	Prompted by the system.
	1.3 Verify new password information	To confirm the details of the new password.	When the user clicks on the confirm button.	None	Prompted by the system.
	1.3 Successful password reset information	The purpose is to display that the password reset was successful.	It is used when after the user has clicked on the confirm button.	User • User_ID(PK) • User_Username • User_Password	Prompted by the user.
	ALT 1.3 Failed password reset information	The purpose is to display that the password reset was unsuccessful.	It is used when after the user has clicked on the confirm button.	• None	Prompted by the system.

Figure 455 1.3. Reset Password Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
1.4 Logout	1.4 Successful logout information	The purpose is to log the user out of the system.	It is used when the person wants to leave the system	• None	Prompted by the user.
	ALT 1.4 Failed logout information	The purpose is to display that the logout was unsuccessful.	It is used when after the user didn't logout properly.	• None	Prompted by the system.

Figure 456 1.4. Logout Output Table

7.1.2 Supplier Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.1 Add Supplier	2.1 Requested supplier information	This contains the information that the admin has to fill out on the supplier.	This is used when the administration wishes to add a supplier.	None	Selected by the administrator.
	2.1 Successfully added supplier information	To alert the admin that the supplier has been added.	After admin clicks on save.	Supplier • Supplier_ID (PK) • Supplier_Name • Supplier_CellphoneNumber • Supplier_EmailAddress • Supplier_Location • Supplier_PhysicalAddress • SupplierType_ID (FK)	Prompted by the admin.
	ALT 2.1 Add supplier unsuccessful information	To alert the admin that there has been a error with adding the supplier.	After admin clicks on save.	None	Prompted by the admin.

Figure 457 2.1. Add Supplier Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:

2.2 Search Supplier	2.2 Search supplier information	This contains the information that the admin has to fill out to search the supplier.	This is used when the administration wishes to search a supplier.	None	Selected by the administrator.
	2.2 Relevant search supplier information.	The purpose is to display the information based on the search query.	It is used when after the customer has clicked on the search button.	Supplier • Supplier_ID (PK) • Supplier_Name • Supplier_CellphoneNumber • Supplier_EmailAddress • Supplier_Location • Supplier_PhysicalAddress • SupplierType_ID (FK)	Prompted by the admin.
	ALT 2.2 Supplier not found information.	The purpose is to display the error information that the supplier is not found.	It is used when after the customer has clicked on the search button.	• None	Prompted by the admin.

Figure 458 2.2. Search Supplier Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:

2.3 Update Supplier	2.3 Updated supplier information.	The purpose is to display the updated information.	It is used when after the customer has clicked on the save button.	Supplier • Supplier_ID (PK) • Supplier_Name • Supplier_CellphoneNumber • Supplier_EmailAddress • Supplier_Location • Supplier_Physical Address • SupplierType_ID (FK)	Prompted by the admin.
	ALT 2.3 Update supplier unsuccessful information	The purpose is to show an unsuccessful message if there is an error with the updated information.	It is used when the validation of the information was not a success.	• None	Prompted by the system

Figure 459 2.3. Update Supplier Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.4 Delete Supplier	2.4 Delete supplier successful information	The purpose is to display that the supplier information was deleted successfully.	It is used when after the customer has clicked on the confirm button.	Supplier • Supplier_ID (PK) • Supplier_Name • Supplier_CellphoneNumber • Supplier_EmailAddress • Supplier_Location • Supplier_PhysicalAddress • SupplierType_ID (FK)	Prompted by the admin.
	ALT 2.4 Delete supplier unsuccessful information	The purpose is to display that the supplier information was deleted unsuccessfully.	It is used when after the customer has clicked on the confirm button.	• None	Prompted by the system.

Figure 460 Delete Supplier Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.5 Place Supplier Order	2.5.1 Supplier details information	To show the admin the details of the supplier.	This is used when the admin want to retrieve a suppliers information	Supplier • Supplier_ID (PK) • Supplier_Name • Supplier_CellphoneNumber • Supplier_EmailAddress • Supplier_Location • Supplier_AddressLine1 • Supplier_AddressLine2 • Supplier_City_Town • Supplier_PostalCode • Supplier_Balance • SupplierType_ID (FK)	Prompted by the admin
	2.5.2 Supplier order screen	The purpose is to get a record of the order that the business is placing to the supplier.	It is used when NKAP wants to place an order.	ProductItem • ProductItemID • ProductItem_Name • ProductItem_Desc • ProductItem_Image • Quantity_On_Hand • ProductItem_Cost • CategoryType_ID CategoryType • CategoryType_ID • CategoryType_Desc • ProductCategory_ID ProductCategory • ProductCategory_ID • ProductCategory_Desc	Page displayed by the system
	2.5 Supplier order	This information is the confirmati	Used when the system requires	• None	Confirmation message displayed

	confirmation message	on required to place a supplier order on the system.	confirmation of the placement of a supplier order		by the system
	2.5 Supplier order success message	The purpose is to display that the supplier order has been added successfully	Used when the system successfully places a supplier order on the system.	• None	Success message displayed by the system

Figure 461 2.5. Place Supplier Order Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.6 Receive Supplier Order	[2.6 Displayed supplier invoice page info	It is to show the interface through which an admin can receive a supplier order and enter in the invoice details.	The purpose is to receive a supplier order.	• None	Page displayed by the system

Figure 462 2.6. Receive Supplier Order Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
2.7 Make a Supplier Payment	2.7.1 Retrieved supplier information	The purpose is to show the details of the supplier.	It is used to update the payment of the supplier.	• None	Prompted by the system.
	2.7.2 Payment successfully added message.	The purpose is to show a pop-up to inform the admin.	It is used when the payment has been saved on to the system.	• None	Prompted by the system.

Figure 463 2.7. Make a Supplier Payment Output Table

7.1.3 User Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.1 Register New Customer	3.1 Prompt for customer registration details information	This information notifies the customer to provide the necessary details to register on the system.	Used when the system requires the customer's registration details.	None	Prompt displayed by the system.
	ALT 3.1 Registration details Validation failed information	This information notifies the customer that the validation failed for the inputted information	Used when the registration information does not fulfil the validation requirements of the system.	None	Error Message displayed by the system.
	3.1 Confirm details request information	This information is the confirmation required to register a new customer on the system.	Used when the system requires confirmation of the details to proceed with the registration.	None	Prompt displayed by the system.
	3.1 Successful registration notification information	This information is the system's notification to the customer that they successfully registered on the system.	Used when the system has successfully registered a new customer on the system.	None	Success message displayed by the system.
	ALT 3.1 Failed to register customer information	This information is the system's notification to the customer that they were not successfully	Used when the system has failed to register a new	None	Error Message displayed by the system.

		registered on the system.	customer on the system.		

Figure 464 3.1. Register New Customer Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.2 Search Customer	3.2 Request search parameter information.	This information notifies the administration to provide the search criteria to search for a customer.	Used when the system requires the search criteria.	None	Prompt displayed by the system.
	3.2 Search result list information	This information is displayed to the administration which reflects the results found matching the inputted search criteria.	Used when the system has found matching records in the database.	**Customer Entity** • Customer_Name • Customer_Surname • Customer_BusinessName	Output displayed by the system.
	3.2 Searched Customer Details Information	This information is displayed to the administration after they have selected the customer they want to view.	Used when the system displays the specific customer record required.	**Customer Entity:** • Customer_Name • Customer_Surname • Customer_CellPhoneNumber • Customer_EmailAddress • Customer_BusinessName • Customer_VATReg • Customer_Address • City_ID **Title Entity:** • Title_Description **City Entity:** • City_Description	Output displayed by the system.
	ALT 3.2 No Customer found information	This information is the system's notification to	Used when the system was not	None	Error message displayed

		the administration that it could not find any customer matching the search criteria provided.	able to find matching record in the database.		by the system.

Figure 465 3.2. Search Customer Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.3 Update Customer	3.3 Request updated details information	This information notifies the customer to provide their updated details.	Used when the system requires the customer's updated details.	None	Prompt displayed by the system.
	ALT 3.3 Updated details validation failed information	This information notifies the customer that the validation failed for the inputted information	Used when the updated information does not fulfil the validation requirements of the system.	None	Error Message displayed by the system.
	3.3 Confirm updated details request information	This information is the confirmation required to update a customer's details on the system.	Used when the system requires confirmation of the details to proceed with the update.	None	Prompt displayed by the system.
	3.3 Successful update of details notification information	This information is the system's notification to the customer that they successfully updated their details on the system.	Used when the system has successfully updated a customer's details on the system.	None	Success message displayed by the system.
	ALT 3.3 Update of details failed information	This information is the system's notification to the customer their details were not successfully updated on the system.	Used when the system has failed to update a customer's details on the system.	None	Error Message displayed by the system.

Figure 466 3.3. Update Customer Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.4 Delete Customer	3.4 Confirm account deletion request information	This information is the confirmation required to delete a customer account from the system	Used when the system requires confirmation of the deletion to proceed.	None	Prompt displayed by the system.
	3.4 Successful account deletion notification information	This information notifies the customer that their account has been successfully deleted.	Used when the system has successfully deleted a customer account from the system.	None	Success Message displayed by the system.
	ALT 3.4 Account deletion failure information	This information notifies the customer that their account has not been successfully deleted.	Used when the system has failed to delete a customer account from the system.	None	Error Message displayed by the system.

Figure 467 3.4. Delete Customer Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.5 Add User Role	3.5 Prompt for user role details information	This information notifies the administration to provide the necessary information to add a user role on the system.	Used when the system requires the new user role details.	None	Prompt displayed by the system.
	ALT 3.5 New user role validation failure information	This information notifies the administration that the validation failed for the inputted information	Used when the new user role information does not fulfil the validation requirements of the system.	None	Error Message displayed by the system.
	3.5 Confirm user role details information	This information is the confirmation required to add a user role on the system.	Used when the system requires confirmation of the details to proceed with the adding of a user role.	None	Prompt displayed by the system.
	3.5 User role successfully added information	This information is the system's notification to the administration that they successfully added a user role on the system.	Used when the system has successfully added a user role on the system.	None	Success message displayed by the system.

	ALT 3.5 Add user role failed information	This information is the system's notification to the administration that they did not successfully add a user role on the system.	Used when the system has not successfully added a user role on the system	None	Error Message displayed by the system.

Figure 468 3.5. Add User Role Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.6 Search User Role	3.6 Request search criteria details information	This information notifies the administration to provide the necessary search criteria to search for a user role on the system.	Used when the system requires the search criteria.	None	Prompt displayed by the system.
	3.6 User Role list information	This information is displayed to the administration which reflects the results found matching the inputted search criteria.	Used when the system has found matching records in the database	**UserRole Entity:** • UserRole_ID	Output displayed by the system.
	3.6 Searched user role information	This information is displayed to the administration after they have selected the customer they want to view.	Used when the system displays the specific User role record required	**UserRole Entity:** • UserRole_Desc	Output displayed by the system.
	ALT 3.6 User role not found information	This information is the system's notification to the administration that it could not find any	Used when the system was not able to find matching record in the database	None	Error message displayed by the system.

		customer matching the search criteria provided.			

Figure 469 3.6. Search User Role Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.7 Update User Role	3.7 Request updated user role details information	This information notifies the administration to provide the updated details.	Used when the system requires the User Role's updated details.	None	Prompt displayed by the system.
	3.7 Updated User Role validation failed information.	This information notifies the administration that the validation failed for the inputted information	Used when the updated information does not fulfil the validation requirements of the system.	None	Error message displayed by the system.
	3.6 Updated user role confirmation request information	This information is the confirmation required to update a User Role on the system.	Used when the system requires confirmation of the details to proceed with the update.	None	Prompt displayed by the system.
	3.7 Successful user role update notification information	This information is the system's notification to the administration that they successfully updated a User Role's details on the system.	Used when the system has successfully updated a User Role's details on the system.	None	Success message displayed by the system.
	ALT 3.7 User role update	This information is the system's notification to	Used when the system has failed to	None	Error message displayed by the system.

	failed information	the administration that the User Role details were not successfully updated on the system.	update a User role's details on the system.		

Figure 470 3.7. Update User Role Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
3.8 Delete User Role	3.8 User Role deletion confirmation message	This information is the confirmation required to delete a User role from the system	Used when the system requires confirmation of the deletion to proceed.	None	Prompt displayed by the system.
	3.4 Successful User Role deletion notification information	This information notifies the administration that the User Role has been successfully deleted.	Used when the system has successfully deleted a User Role from the system.	None	Success Message displayed by the system.
	ALT 3.4 User Role deletion failure information	This information notifies the administration that the User Role has not been successfully deleted.	Used when the system has failed to delete a User Role from the system.	None	Error Message displayed by the system.

Figure 471 3.8. Delete User Role Output Table

7.1.4 Employee Delivery Shifts Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.1. Create New Booking Shift	4.1. Provide Shift Details Prompt	This information notifies the administration to provide the necessary information to create a booking shift on the system.	Used when the system requires the new booking shift details	None	Prompt available for the admin.
	4.1. Request Confirmation to Proceed Information	This information is the confirmation required to create a booking shift on the system.	Used when the system requires confirmation of the details to proceed with the creation of a booking shift.	None	Request to the admin.
	ALT 4.1. Validation Unsuccessful	This information notifies the administration that the validation failed for the inputted information	Used when the new booking shift information does not fulfil the validation requirements of the system.	None	Message shown to admin.
	4.1. Addition Successful Information	This information is the system's notification to the	Used when the system has successfully	None	Message shown to admin.

		administration that they successfully created a booking shift on the system.	created a booking shift.		
	ALT 4.1. Addition Unsuccessful Information	This information is the system's notification to the administration that they did not successfully create a booking shift on the system.	Used when the system has not successfully created a booking shift on the system	None	Message shown to admin.

Figure 472 4.1. Create New Booking Shift Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.2. Search Booking Shift	4.2. Provide Shift Date Prompt	This information notifies the administration to provide the necessary search criteria to search for booking shift on the system.	Used when the system requires the search criteria	None	Prompt available for the admin.
	ALT 4.2. Validation Unsuccessful Information	This information notifies the administration that the validation failed for the inputted information	Used when the search criteria does not fulfil the validation requirements of the system.	None	Message shown to admin.
	4.2. Booking Shift Information	This information is the booking shift displayed to the administration.	Used when the system displays the specific booking shift record required	**Shift:** • Check-in time • Check-out time **Schedule:** • Date_ID • Time_ID **Employee:** • Employee_Name • Employee_Surname	Shown to admin.

Figure 473 4.2. Search Booking Shift Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.3. Update Booking Shift	4.3. Enable Update Booking Shift Information	This information allows the administration to provide the updated details.	Used when the system requires the Booking Shift's updated details.	None	Enabled for admin to edit
	ALT 4.3. Validation Unsuccessful	This information notifies the administration that the validation failed for the inputted information	Used when the search criteria does not fulfil the validation requirements of the system.	None	Message shown to admin.
	4.3. Update Successful Information	This information is the system's notification to the administration that they successfully updated booking shift on the system.	Used when the system successfully updates a booking shift's details.	None	Message shown to admin.
	ALT 4.3. Update Unsuccessful Information	This information is the system's notification to the administration that they have not successfully updated booking shift	Used when the system fails to update a booking shift's details	None	Message shown to admin.

		on the system.			

Figure 474 4.3. Update Booking Shift Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.4. Delete Booking Shift	4.4. Confirmation to Delete Booking Shift Prompt	This information is the confirmation required to delete a booking shift from the system	Used when the system requires confirmation of the deletion to proceed.	None	Prompt available for the admin.
	4.4. Deletion Successful Information	This information notifies the administration that the booking shift has been successfully deleted.	Used when the system has successfully deleted a booking shift from the system.	None	Message shown to admin.
	ALT 4.4. Deletion Unsuccessful Information	This information notifies the administration that the booking shift has not been successfully deleted.	Used when the system has failed to delete a booking shift from the system.	None	Message shown to admin.

Figure 475 4.4. Delete Booking Shift Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.5. Add Employee	4.5. Provide Employee Information Prompt	This information notifies the administration to provide the necessary information to add an employee on the system.	Used when the system requires the new employee details	None	Prompt available for the admin.
	ALT 4.5. Validation Unsuccessful	This information notifies the administration that the validation failed for the inputted information	Used when the new employee information does not fulfil the validation requirements of the system.	None	Message shown to admin.
	4.5. Provide Login Details Prompt	This information notifies the administration to provide the login details to add an employee on the system.	Used when the system requires login details.	None	Prompt available for admin.
	4.5. Employee Addition Successful Information	This information is the system's notification to the administration that they successfully added an employee on the system.	Used when the system has successfully added an employee on the system.	None	Message shown to admin.

	ALT 4.5. Employee Addition Unsuccessful Information	This information is the system's notification to the administration that they did not successfully add an employee on the system.	Used when the system has not successfully added an employee on the system	None	Message shown to admin.

Figure 476 4.5. Add Employee Output Table

Requirement	Description:	Purpose:	When Used:	Entities & Attributes:	Logical

Number & Title					Layout:
4.6. Search Employee	4.6. Provide Employee Information Prompt	This information notifies the administration to provide the necessary search criteria to search for an employee on the system.	Used when the system requires the search criteria	**Employee:** • Employee_Name • Employee_Surname	Prompt available for the admin.
	ALT 4.6. Validation Unsuccessful	This information notifies the administration that the validation failed for the inputted information	Used when the search criteria does not fulfil the validation requirements of the system.	None	Message shown to admin.
	4.6. Employee Results Information	This information is the employee's details displayed to the administration.	Used when the system displays the specific employee record required	**Employee:** • Employee_Name • Employee_Surname • Employee_Number • Employee_Address • Employee_DOB • Employee_IDNumber	Shown to admin.

Figure 477 4.6. Search Employee Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:

4.7. Update Employee	4.7. Enable Update Employee Information	This information allows the administration to provide the updated details	Used when the system requires the Employee's updated details.	None	Enabled for admin to edit
	ALT 4.7. Validation Unsuccessful	This information notifies the administration that the validation failed for the inputted information	Used when the updated information does not fulfil the validation requirements of the system.	None	Message shown to admin.
	4.7. Employee Update Successful Information	This information is the system's notification to the administration that they successfully updated an Employee's details on the system.	Used when the system has successfully updated an Employee's details on the system.	None	Message shown to admin.
	ALT 4.7. Employee Update Unsuccessful Information	This information is the system's notification to the administration that the Employee's details were not successfully updated on the system.	Used when the system has failed to update an employee's details on the system.	None	Message shown to admin.

Figure 478 4.7. Update Employee Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.8. Delete Employee	4.8. Employee Deletion Successful Information	This information notifies the administration that the Employee has been successfully deleted.	Used when the system has successfully deleted an Employee from the system.	None	Message shown to admin.
	ALT 4.8. Employee Deletion Unsuccessful Information	This information notifies the administration that the Employee has not been successfully deleted.	Used when the system has failed to delete an Employee from the system.	None	Message shown to admin.

Figure 479 4.8. Delete Employee Output Table

Requirement	Description:	Purpose:	When Used:	Entities & Attributes:	Logical

Number & Title					Layout:
4.9. Assign Order for Delivery	4.9. Delivery SaleOrder Information	This information is the SaleOrder information displayed to the administration.	Used when an administration wants to assign an order for delivery.	**Sale Order:** • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • SaleOrder_RecieveType • SaleOrder_Assign • Payment_Date • Payment_Amount **Employee Entity:** • Employee_Name • Employee_Surname **Customer Entity:** • Customer_Name • Customer_Surname	Shown to admin.
	4.9. Filtered SaleOrder Information	This information is the Sale Orders with a a Collection_Status of 'Available' A, SaleOrder_RecieveType of 'Delivery', a SaleOrder_Assign attribute that is 'False'.	Used when the system displays the SaleOrders which require delivery.	**Sale Order:** • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • SaleOrder_RecieveType • SaleOrder_Assign • Payment_Date • Payment_Amount	Shown to admin.

				Employee Entity: • Employee_Name • Employee_Surname **Customer Entity:** • Customer_Name • Customer_Surname	
	4.9. Enable Select Employee Information	This information allows the administration to assign a delivery.	Used when an administration assigns a delivery to an employee.	None	Enabled for admin to edit
	4.9. Assign Delivery Confirmation Information	This information is the confirmation required to assign a delivery to an employee on the system.	Used when the system requires confirmation of the details to proceed with assigning the delivery.	None	Message shown to admin.
	4.9. Enable Done/Cancel Information	This information allows the administration to proceed with assigning a delivery.	Used when the system requires confirmation to proceed.	None	Shown to admin.
	4.9. Assigne	This information is the notification	Used when the	None	Message

	d Delivery Informati on	to the employee that they have been assigned a delivery.	system has successf ully notified the employee of the delivery.		shown to **emplo yee**.

Figure 480 4.9. Assign Order for Delivery Output Table

Require ment	**Descript ion:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logic al Layo ut:**

Number & Title					
4.10. Assign Order for Courier	4.10. Delivery SaleOrder Information	This information is the SaleOrder information displayed to the administration.	Used when an administration wants to assign an order for delivery.	**Sale Order:** • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • SaleOrder_RecieveType • SaleOrder_Assign • Payment_Date • Payment_Amount **Employee Entity:** • Employee_Name • Employee_Surname **Customer Entity:** • Customer_Name • Customer_Surname	Shown to admin.
	4.10. Filtered SaleOrder Information	This information is the Sale Orders with a a Collection_Status of 'Available' A, SaleOrder_RecieveType of 'Delivery', a SaleOrder_Assign attribute that is 'False'.	Used when the system displays the SaleOrders which require courier.	**Sale Order:** • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • SaleOrder_RecieveType • SaleOrder_Assign • Payment_Date • Payment_Amount	Shown to admin.

				Employee Entity: • Employee_Name • Employee_Surname **PaymentType Entity:** • PaymentType_Description **OrderStatus Entity:** • OrderStatus_Desc **Customer Entity:** • Customer_Name • Customer_Surname	
	4.10. Display Courier Information	This information is the courier details displayed the administration	Used when the system displays the courier information to the administration.	**Courier:** • Courier_Name • Courier_Number • Courier_Type • Courier_Email	Shown to admin.
	4.10. Courier Assigned Information	This information is the notification to the administration that a courier was assigned	Used when the system assigns an order for courier.	None	Shown to admin.
	4.10. Navigate to Mail	This information is the email displayed to the	Used when the system	None	Shown to

	Web Application Information	administration to complete.	redirects the administration to an email service.		admin.
	4.10. Courier Delivery Information	This is the delivery information the administration will email to the courier.	Used when the administration enters the delivery information for the courier.	None	Shown to courier.
	4.10. Request to Confirm Correct Information	This information is a notification displayed to the administration to confirm the information is correct in order to proceed.	Used when the system requires confirmation to proceed.	None	Request to the admin.
	ALT 4.10. Request Confirmation to Cancel Information	This is a notification displayed to the administration to confirm the information is incorrect and that they don't want to proceed.	Used when the system requires confirmation not to proceed	None	Request to the admin.
	4.10. Assign Delivery to Courier Successful	This information is the system's notification to the administration that they successfully assigned a delivery for courier on the system.	Used when the system has successfully assigned a delivery courier.	None	Message shown to admin.

	4.10. Display SaleOrder Information	This information is the Sale Order which has been assigned for courier and is displayed to the administration.	Used when the system displays the sale order with the courier information.	**Sale Order Entity:** • SaleOrder_ID **Courier Entity:** • Courier_Name **Customer Entity:** • Customer_Email	Shown to admin.

Figure 481 4.10. Assign Order for Courier Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.11. Assign Shift	4.11. Select Employee Prompt	This information notifies the	Used when the system requires the	None	Prompt available

		administration to select an employee for the shift.	Employee's details.		for the admin.
	4.11. Assign Shift Confirmation Information	This information is the confirmation required to assign a shift to an employee on the system.	Used when the system requires confirmation of the details to proceed with assigning a shift.	None	Message shown to admin.
	4.11. Assign Successful	This information is the system's notification to the administration that they successfully assigned a shift to an employee on the system.	Used when the system has successfully assigned a shift on the system.	None	Message shown to admin.
	4.11. Assigned to Shift Information	This information is the shift assigned message displayed to the administration.	Used when the system has assigned a shift to an employee.	None	Message shown to admin.

Figure 482 4.11. Assign Shift Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
4.12. Cancel Shift	4.12. Request Confirmation	This information notifies the administration	Used when the system requires confirmation	None	Request to the admin.

	for Cancellation	to confirm the cancellation of assigning the shift.	to proceed with the cancellation.		
	ALT 4.12. No Shift Assigned Information	This information notifies an administration that the shift has not yet been assigned and therefore cannot be cancelled.	Used when the system detects the shift is not assigned and displays an error message.	None	Message shown to admin.
	4.12. Cancellation Successful	This information is the system's notification to the administration that they successfully cancelled the assigning of a shift to an employee on the system.	Used when the system cancels the shift and makes it available for another employee	None	Message shown to admin.

Figure 483 4.12. Cancel Shift Output Table

7.1.5 Administration Back-Office Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:

5.1 View Online Sales	5.1 Display Sale Order List Information	This information contains all SaleOrders on the system in a list.	Used when the system displays all SaleOrder's on the system.	**SaleOrder Entity** • SaleOrder_Number	Displayed by the system
	5.1 Sale Order Information	This information is a specific sale order's information.	Used when the system displays the specific SaleOrder the employee selected	**Sale Order Entity:** • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • SaleOrder_RecieveType • SaleOrder_Assign • Payment_Date • Payment_Amount **Employee Entity:** • Employee_Name • Employee_Surname **PaymentType Entity:** • PaymentType_Description **OrderStatus Entity:** • OrderStatus_Desc **Customer Entity:** • Customer_Name • Customer_Surname	Displayed by the system
	ALT 5.1 Error displaying SaleOrder details information	This information is the notification to the employee of an error displaying the SaleOrder details.	Used when the system encounters an error in displaying a SaleOrder.	None	Error message Displayed by the system

Figure 484 5.1. View Online Sales Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.2 Update Sale Status	5.2 Confirm order status changes request information	This information is the confirmation required to update an order status.	Used when confirmation is required to proceed with the update of the order status.	None	Displayed by the system
	5.2 Successful order status update notification	This information is the notification to the employee that the order status was updated successfully.	Used when the system successfully updates the order status.	None	Success message Displayed by the system
	ALT 5.2 Order status update failed information	This information is the notification to the employee that the order status was not updated successfully	Used when the system fails to update the order status.	None	Error message Displayed by the system
	5.2 Order ready for collection/delivery notification information	This information is the notification sent to the customer to inform them of their order's status.	Used when the system sends an SMS to a customer to notify them of their order's status.	**Customer Entity:** • Customer_Cell phoneNumber	Sent by the system

Figure 485 5.2. Update Sale Status Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.3 Do Stock-Take	5.3 Do stock take request information	This is the information required to initiate a stock take.	Used when an administration wishes to do a stock take for an item.	None	Selected by Administration
	5.3 Selected do stock take information	This is the information required to initiate a stock take for a specific product.	Used when an administration selects the option to do a stock take for an item.	None	Selected by Administration
	5.3 Stock take details information.	This is the information required to do a stock take for a product.	Used when and administration provides the necessary stock take details.	**StockTake Entity** • StockTake_Date **Product Item_StockTake** • StockTake_Quantity	Provided by Administration
	5.3 Stock take confirmation information	This is an option that is selected by the administration to indicate they confirm the stock take.	Used when an administration confirms that the captured information is correct.	None	Selected by Administration
	ALT 5.3 Stock Take not confirmed information.	This is an option that is selected by the administration to indicate they	Used when an administration does not confirm that the captured	None	Selected by Administration

		do not confirm the stock take.	information is correct.		

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.4 View Shift Schedule	5.4 Shift Schedule Information	This information contains the Shift Schedule details in schedule format.	Used when the system displays the Shift Schedule to an employee.	**Shift Entity:** • Check-in_Time • Check-out_Time **Schedule Entity:** • Date_ID • Time_ID **Employee Entity:** • Employee_Name • Employee_Surname	Displayed by the system
	5.4 Failed to Display shift schedule information	This information is the notification to the employee that the system failed to display the shift schedule.	Used when the system fails to display the Shift Schedule to an employee.	None	Error message Displayed by the system

Figure 486 5.4. View Shift Schedule Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.5 View Shift	5.4 Shift Information	This information contains an employee's Shift details.	Used when the system displays a Shift to an employee.	**Shift Entity:** • Check-in_Time • Check-out_Time	Displayed by the system
	5.4 Failed to Display shift information	This information is the notification to the employee that the system failed to display the shift.	Used when the system fails to display the Shift to an employee.	None	Error message Displayed by the system

Figure 487 5.5. View Shift Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.5 View Shift		This information contains an employee's Shift details.	Used when the system displays a Shift to an employee.	**Shift Entity:** • Check-in_Time • Check-out_Time	Displayed by the system
		This information is the notification to the employee that the system failed to display the shift.	Used when the system fails to display the Shift to an employee.	None	Error message Displayed by the system

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.6 Check-in	5.6 Successful check-in information	This information is the notification to the employee that they have checked in for their shift successfully.	Used when the system successfully checks-in an employee for their shift.	**Shift Entity:** • Check-in_Time	Displayed by the system
	ALT 5.6 Check-in failure information	This information is the notification to the employee that they have failed to check-in for their shift.	Used when the system fails to checks-in an employee for their shift.	None	Error message Displayed by the system

Figure 488 5.6. Check-in Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.7 Check-out	5.7 Successful check-out information	This information is the notification to the employee that they have checked out of their shift successfully.	Used when the system successfully checks-out an employee from their shift.	**Shift Entity:** • Check-out_Time	Displayed by the system
	ALT 5.7 Check-out failure information	This information is the notification to the employee that they have failed to check-out of their shift.	Used when the system fails to checks-out an employee from their shift.	None	Error message Displayed by the system

Figure 489 5.7. Check out Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
5.8 Write-off stock	5.8 Provide ProductItem_ID prompt information	This information is required from the administration in order to initiate the write-off of stock.	Used when the system required the product details to be able to do a write-off.	None	Prompt Displayed by the system
	5.8 Request write-off confirmation information	This information is the confirmation required to write-off stock	Used when confirmation is required to proceed with the write-off of stock.	None	Prompt Displayed by the system
	5.8 Write-off successful information	This information is the notification to the administration that they have written off stock successfully.	Used when the system successfully writes-off stock.	None	Success message Displayed by the system
	ALT 5.8 Write-off unsuccessful information	This information is the notification to the administration that they have failed to write off stock.	Used when the system fails to write-off stock.	None	Error message Displayed by the system

7.1.6 Customer Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.1. Browse Products	6.1 Retrieve a product item info	This information contains all Product item on the system.	Used when the system retrieves product in the system.	None	Displayed by the system
	6.1 Displayed products info	This information is the notification to the customer displaying products	Used when the system is displaying products.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Displayed by the system

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.2 View Product details	6.2 Retrieve a product item	This information contains Product item on the system.	Used when the system retrieves product in the system.	None	Displayed by the system
	6.2 Displayed product item.	This information is the notification to the customer displaying product	Used when the system is displaying product.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Displayed by the system

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.3 View Specials	6.3 Retrieve a current specials and promotions info	This information contains all current specials and promotions info	Used when the system retrieves current specials and promotions info	None	Displayed by the system
	6.3 Displayed current specials and promotions info	This information is the successful current specials and promotions info displayed.	Used when the system successful displays current specials and promotions info.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Displayed by the system
	ALT 6.3 No current specials and promotions message	This information is the notification to the customer of an error displaying the current specials and promotions message	Used when the system encounters an error in displaying the current specials and promotions message	None	Error message Displayed by the system

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:

6.4 Add item to cart	6.4 Retrieve a product item from cart info	This information contains all Product item on the system.	Used when the system retrieves product items from cart on the system.	None	Displayed by the system
	6.4 Displayed added to cart info	This information is the notification to the customer successful addition of Product Item.	Used when the system displays successful addition of cart info.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Displayed by the system
	ALT 6.4 Inccorect information entered message	This information is the notification to the customer of an error displaying the added to cart info	Used when the system encounters an error in displaying the added to cart info	None	Error message Displayed by the system

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
6.5 Remove item from cart	6.5Retrieve a product item from cart info	This information contains all Product item on	Used when the system retrieves product items from cart	None	Displayed by the system

		the system.	on the system.		
	6.5 Displayed added to cart info	This information is the notification to the customer successful addition of Product Item.	Used when the system displays successful addition of cart info.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Displayed by the system
	ALT 6.5 Inccorect information entered message	This information is the notification to the customer of an error displaying the added to cart info	Used when the system encounters an error in displaying the added to cart info	None	Error message Displayed by the system

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.6 View cart	6.6 Retrieve cart info	This information contains all Product item on the system.	Used when the system retrieves cart on the system.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Displayed by the system
	6.6 Display cart info	This information is the notificatio	Used when the system encounte	None	Error messag e Displaye

		n to the customer displaying the cart	rs in displaying cart.		d by the system

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
6.7 Clear cart	6.7 Retrieve cart info	This information contains all Product item on the system.	Used when the system retrieves cart on the system.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Displayed by the system
	6.7 Remove cart info	This information removes all cart items	Used when the system removes cart from the system.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Displayed by the system
	6.7 Display removed all items notification	This information is the notification to the customer of cart removal	Used when the system informs of cart clearance	None	Error message Displayed by the system

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:

6.8 Checkout cart	6.8 Retrieve cart info	This contains the information necessary for initiating the process of delivery.	Used when the user wishes to checkout.	**Cart** • SaleOrder_Line_ID (PK) • Line_Item_Name • Quantity_SaleOrdered • SaleOrder_ID (FK) • Product_ID (FK)	Displayed by the system
	6.7 Display payment successful items notification	This information is the notification to the customer	Used when the system informs user successful payment	None	Displayed by the system.

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.1 Add Product Category	9.1 Displayed Product Category Info	This outflow displays the product category page information.	Used when the system displays the product category page.	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Page displayed by the system
	9.1 Add Product Category Success Message	The purpose is to display that the	Used when the system successfully adds a	None	Success message display

		product category was added successfully	new product category on the system.		ed by the system

Figure 491 9.1. Add Product Category Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
9.2 Search Product Category	9.2 Displayed Product Categories	This outflow displays the retrieved product category information.	Used when the system successfully retrieves product categories from the system.	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Page displayed by the system
	9.2 Displayed Product Category Details	This outflow displays the selected product	Used when the system successfully displays	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Page displayed by the system

		category's information.	product category on the system.		
	ALT 9.2 Search Product Category Failed Message	This information is the system's notification to the admin that the product category search has failed	Used when the system has failed to find product categories on the system.	None	Page displayed by the system

Figure 492 9.2. Search Product Category Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.3 Update Product Category	9.3 Product Category Update Succesful Pop-up	The purpose is to display that the product category was updated successfully	Used when the system successfully updates a product category on the system.	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Success message displayed by the system
	ALT 9.3 Update Product Category Cancellation Info	This information is the system's notification to the	Used when the system has failed to update the	None	Error message displayed by

		admin that the product category update has failed	product category on the system.		the system

Figure 493 9.3. Update Product Category Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.4 Delete Product Category	9.4 Delete Product Category Verification Pop up	This information is the confirmation required to delete a Product Category on the system.	Used when the system requires confirmation of the deletion of a product category	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Confirmation message displayed by the system
	9.4 Delete Succesful Popup	The purpose is to display that the	Used when the system successfully	None	Success message displayed by the system

		product category was deleted successfully	deletes a product category on the system.		
	ALT 9.4 Delete Product Category Confirmation Decline Info	This information is the system's notification to the admin that the product category delete has failed	Used when the system has failed to delete the product category on the system.	None	Error message displayed by the system

Figure 494 9.4. Delete Product Category Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
9.5 Add Category Type	9.5 Displayed ProductCategory Info	This outflow retrieves the product category information.	Used when the system retrieves the product category details.	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Page displayed by the system
	9.5 Displayed CategoryType Page	This outflow displays the category page	Used when the system displays the category Type page.	None	Page displayed by the system

	9.5 Add CategoryType Success Message	The purpose is to display that the category type was added successfully	Used when the system successfully adds a new category type on the system.	CategoryType • CategoryType_ID • CategoryType_Desc	Success message displayed by the system
	ALT 9.5 ProductCategory Error Message Details	This information is the system's notification to the admin that the no product categories were retrieved	Used when the system has failed to find product categories on the system.	None	Error message displayed by the system

Figure 495 9.5. Add Category Type Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.6 Search Category Type	9.6 Displayed CategoryTypes Info	This outflow displays the retrieved category type's information.	Used when the system successfully retrieves category types from the system.	CategoryType • CategoryType_ID • CategoryType_Desc	Page displayed by the system
	9.6 CategoryType Info	This outflow displays the selected category type's	Used when the system successfully displays the	CategoryType • CategoryType_ID • CategoryType_Desc	Page displayed by the system

		information.	category type on the system.		
	ALT 9.6 CategoryType Not Found Error	This information is the system's notification to the admin that the category type search has failed	Used when the system has failed to find category types on the system.	None	Page displayed by the system

Figure 496 9.6. Search Category Type Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
9.7 Update Category Type	9.7 Displayed Update CategoryType Page	This outflow displays the update category type page	Used when the system displays the update category Type page.	None	Page displayed by the system
	9.7 Update Succes Pop-up	The purpose is to display that the category type was updated	Used when the system successfully updates a category type on	CategoryType • CategoryType_ID • CategoryType_Desc	Success message displayed by the system

		successfully	the system.		
	ALT 9.7 Update Cancelled Pop-up	This outflow is the system's notification to the admin that the category type update has failed	Used when the system has failed to update the category type on the system.	None	Error message displayed by the system

Figure 497 9.7. Update Category Type Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
9.8 Delete Category Type	9.8 Delete Confirmation Pop-up	This information is the confirmation required to delete a Category type on the system.	Used when the system requires confirmation of the deletion of a category type	CategoryType • CategoryType_ID • CategoryType_Desc	Confirmation message displayed by the system
	9.8 Delete Succes Message	The purpose is to display	Used when the system successfu	None	Success message displayed

		that the category type was deleted successfully	lly deletes a category type on the system.		by the system
	ALT 9.8 Delete Aborted Information	This information is the system's notification to the admin that the category type delete has failed	Used when the system has failed to delete the category type on the system.	None	Error message displayed by the system

Figure 498 9.8. Delete Category Type Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
9.9 Add Product Item	9.9 Displayed CategoryType Info	This outflow retrieves the category type information.	Used when the system retrieves the category type details.	CategoryType • CategoryType_ID • CategoryType_Desc	Page displayed by the system
	9.9 Displayed ProductItem Page	This outflow displays the product Item page	Used when the system displays the product item page.	None	Page displayed by the system

	9.9 ProductItem Addition Success Info	The purpose is to display that the product item was added successfully	Used when the system successfully adds a new product item on the system.	ProductItem • ProductItem_ID • ProductItem_Name • ProductItem_Desc • ProductItem_Image • Quantity_On_Hand	Success message displayed by the system
	ALT 9.9 CategoryType Error Message	This information is the system's notification to the admin that the no category items were retrieved	Used when the system has failed to find category types on the system.	None	Error message displayed by the system

Figure 499 9.9. Add Product Item Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.10 Search Product Item	9.10 Displayed ProductItems	This outflow displays the retrieved product items' information.	Used when the system successfully retrieves product items from the system.	ProductItem • ProductItem_ID • ProductItem_Name	Page displayed by the system
	9.10 Displayed ProductItem Info	This outflow displays the selected	Used when the system successfully	ProductItem • ProductItem_ID • CategoryType_ID	Page displayed by the system

		product items details.	displays the product item on the system.	• ProductItem _Desc • ProductItem _Name • ProductItem_Image • Quantity_On_Hand • SupplierOrderLine_ID	
	ALT 9.10 ProductItem Not Found Error Message	This information is the system's notification to the admin that the product item search has failed	Used when the system has failed to find product item on the system.	None	Page displayed by the system

Figure 500 9.10 Search Product Item Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.11 Update Product Item	9.11 Displayed ProductItem Page	This outflow displays the update product item page	Used when the system displays the update product item page.	None	Page displayed by the system
	9.11 Update Success Pop-up	The purpose is to display that the product item was	Used when the system successfully updates a	ProductItem • ProductItem_ID • CategoryType_ID • ProductItem _Desc	Success message displayed by

		updated successfully	product item on the system.	• ProductItem_Name • ProductItem_Image • Quantity_On_Hand	the system
	ALT 9.11 Update Cancellation Info	This outflow is the system's notification to the admin that the product item update has failed	Used when the system has failed to update the category type on the system.	None	Error message displayed by the system

Figure 501 9.11. Update Product Item Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.12 Delete Product Item	9.12 Delete ProductItem Confirmation Message	This information is the confirmation required to delete a product item on the system.	Used when the system requires confirmation of the deletion of a product item	ProductItem • ProductItem_ID • CategoryType_ID • ProductItem_Desc • ProductItem_Name • ProductItem_Image • Quantity_On_Hand • SupplierOrderLine_ID	Confirmation message displayed by the system
	9.12 Delete	The purpose	Used when the	None	Success message

	ProductItem Success pop-up	is to display that the product item was deleted successfully	system successfully deletes a product item on the system.		displayed by the system
	Alt 9.12 Delete ProductItem Cancellation Info	This information is the system's notification to the admin that the product item delete has failed	Used when the system has failed to delete the product item on the system.	None	Error message displayed by the system

Figure 502 9.12. Delete Product Item Output Table

7.1.7 Reports Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.1 Generate Fast-selling report	7.1 Report Period Prompt Info	This prompt notifies the admin to provide the period for which the report can be generated to the system.	Used when the system requires the period to generate the report.	None	Prompt displayed by the system.

	7.1 Displayed Fast-Selling Product list Info	This information is the Fast-selling product list being displayed to the admin.	Used once the system has finished generating the Fast-selling Product List	ProductItem • ProductItem_ID • ProductItem_Name • ProductItem_Desc • ProductItem_Image • CategoryType_ID SaleOrder • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc Cart • SaleOrderLine_ID • ProductItem_ID • SaleOrder_ID • Product_Name • Quantity_Ordered	Report Displayed by the system

Figure 503 7.1. Generate Fast-Selling Report Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.2 Generate Slow-selling report	7.2 Report Period Prompt Info	This prompt notifies the admin to provide the period for which the report can be generated to the system	Used when the system requires the period to generate the report.	None	Prompt displayed by the system.
	7.2 Displayed Slow-Selling	This information is the slow-	Used once the system has	ProductItem • ProductItem_ID • ProductItem_Name	Report Displayed by the system

	Product list Info	selling product list being displayed to the admin.	finished generating the Slow-selling Product List	• ProductItem_Desc • ProductItem_Image • CategoryType_ID SaleOrder • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc Cart • SaleOrderLine_ID • ProductItem_ID • SaleOrder_ID • Product_Name Quantity_Ordered	

Figure 504 7.2. Generate Slow-Selling Report Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.3 Generate Frequent Buyers Report	7.3 Displayed Most Frequent Buyer list	This information is the most Frequent Buyers report being displayed to the admin.	Used once the system has finished generating the most Frequent Buyers report	SaleOrder • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • Delivery_ID Customer • Customer_ID • Customer_Name • Customer_Surname • Customer_Cellphone • Customer_EmailAddress • Customer_Businesname • Customer_VATReg	Report Displayed by the system

				• Customer_Address	

Figure 505 7.3. Generate Frequent Buyer List Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.4 Generate Most Popular Location Report	7.4 Displayed Most Popular Location Report	This information is the most popular location report being displayed to the admin.	Used once the system has finished generating the Most Popular Location Report	Customer • Customer_ID • Customer_Name • Customer_Surname • Customer_Cellphone • Customer_EmailAddress • Customer_Businesname • Customer_Address SaleOrder • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc City • City_ID • City_Description • Province_ID	Report Displayed by the system

				Province • Province_ID • Province_Descripti o	

Figure 506 7.4. Generate Most Popular Location Report Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
7.5 Generate Weekly Sale Order Report	7.5 Displayed Weekly SaleOrder List	This information is the Weekly Sale Order Report t being displayed to the admin.	Used once the system has finished generating the Weekly Sale Order Report	SaleOrder • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • Delivery_ID Customer • Customer_ID • Customer_Name • Customer_Surname • Customer_Cellphone • Customer_EmailAddress • Customer_Busines name • Customer_VATReg • Customer_Address	Report Displayed by the system

Figure 507 7.5. Generate Weekly Sale Order Report Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.6 Generate Monthly Sale Order Report	7.6 Displayed Monthly SaleOrder List	This information is the Monthly Sale Order Report being displayed to the admin.	Used once the system has finished generating the Monthly Sale Order Report	SaleOrder • SaleOrder_ID • SaleOrder_Number • SaleOrder_Date • SaleOrder_Desc • Delivery_ID Customer • Customer_ID • Customer_Name • Customer_Surname • Customer_Cellphone • Customer_EmailAddress • Customer_Busines name • Customer_VATReg • Customer_Address	Report Displayed by the system

Figure 508 7.6. Generate Monthly Sale Order Report Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.7 Generate Stock-Level Report	7.7 Displayed Stock-level report	This information is the Stock-Level Report being displayed to the admin.	Used once the system has finished generating the Stock-Level Report	ProductItem • ProductItem_ID • ProductItem_Name • ProductItem_Desc • ProductItem_Image • CategoryType_ID • Quantity on hand CategoryType • CategoryType_ID • CategoryType_Desc • ProductCategory_ID ProductCategory • ProductCategory_ID • ProductCategory_Desc	Report Displayed by the system

Figure 509 7.7. Generate Stock-Level Report Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.8 Packing Report	7.8 Displayed Packing Report	This information is the Packing Report being displayed to the admin.	Used once the system has finished generating the Packing Report	SaleOrder • SaleOrder_ID • Employee_ID • OrderStatus_ID • SaleOrder_Number • SaleOrder_Desc • SaleOrder_Date • SaleOrder_Assign • SaleOrder_ReceiveType • Payment_Date • Payment_Amount SaleOrderStatus • OrderStatus_ID • OrderStatus_Desc	Report Displayed by the system

Figure 510 7.8 Packing Report Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
7.9 Delivery Report	7.9 Displayed Delivery Report	This information is the Delivery Report being displayed to the admin.	Used once the system has finished generating the Delivery Report	SaleOrder • SaleOrder_ID • Employee_ID • OrderStatus_ID • SaleOrder_Number • SaleOrder_Desc • SaleOrder_Date • SaleOrder_Assign • SaleOrder_ReceiveType • Payment_Date • Payment_Amount SaleOrderStatus • OrderStatus_ID • OrderStatus_Desc Delivery • Delivery_ID • DeliverStatus_ID • Employee_ID • Courier_ID • Delivery_Date DeliveryStatus • DeliverStatus_ID • DeliveryStatus_Desc	Report Displayed by the system

Figure 511 7.9. Delivery Report Output Table

7.1.8 Delivery Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
8.1 View Delivery	8.1 Request to enter the Delivery ID info	This information contains deliveries on the system.	Used when the system displays all Product page on the system.	None	Displayed by the system
	8.1 Capture and validate the Delivery ID info	This contains the delivery information.	Used when the system displays the specific delivery the admin selected	**Delivery** • Delivery_ID (PK) • Employee_ID • Date **DeliveryStatus** • DeliveryStatus_ID (PK) • Description	Displayed by the system
	ALT 8.1 Delivery not found info	This information is the notification to the admin of an error displaying the delivery details.	Used when the system encounters an error in displaying the delivery details.	None	Error message Displayed by the system
	8.1 Display and	This informatio	Used when the	None	Error messag

	retrieve delivery details	n is the notificatio n and display to the employee of the delivery details	system displays delivery info.		e Displaye d by the system

Figure 512 8.1. View Delivery Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
8.2 Accept Delivery	8.1 Prompt to accept delivery info	This information contains a product item details.	Used when the system displays a product item to the admin.	None	Displayed by the system
	8.1 Accepted Delivery info message info	This information is the notification to the admin that the system added the delivery	Used when the system accepts and adds delivery.	**Delivery** • Delivery_ID (PK) • Employee_ID • Date **DeliveryStatus** • DeliveryStatus_ID (PK) • Description	Error message Displayed by the system

Figure 513 8.2. Accept Delivery Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
8.3 Update Delivery	8.3 Prompt to update delivery status	This information is the confirmation required to update a delivery status	Used when confirmation is required to proceed with the update of the delivery status.	None	Displayed by the system
	8.3 Capture and the delivery status info	This information is the system capturing the delivery status.	Used when the system successfully capturing the delivery status.	**Delivery** • Delivery_ID (PK) • Employee_ID • Date **DeliveryStatus** • DeliveryStatus_ID (PK) • Description	Success message Displayed by the system
	8.3 Validate the delivery status info	This information is the validation of the delivery status.	Used when the system successfully validates the delivery status.	None	Error message Displayed by the system

	8.4 Prompt to confirm changes to be made info *Figure 514 8.3. Update Delivery Status Output Table*	This prompt to the employee to confirm the changes made	Used when the employee needs to confirm changes made	None	

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
8.4. Add Courier	8.4. Provide Courier Information Prompt	This information notifies the administration to provide the necessary details to add a courier on the system.	Used when the system required the courier details.	None	Prompt available for the admin.
	8.4. Addition of Courier Successful	This is a notification displayed to the administration to notify them that they have successfully added a courier on the system,	Used when the system has successfully added a courier.	None	Message shown to admin.
	ALT 8.4. Addition of Courier Unsuccessful	This is a notification displayed to the administrati	Used when the system had failed to add a courier.	None	Message shown to admin.

		on to notify them that they have not successfully added a courier on the system.			

Figure 515 8.4. Add Courier Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
8.5. Search Courier	8.5. Provide Courier Information Prompt	This information notifies the administration to provide the necessary search criteria to search a courier on the system.	Used when the system requires the search criteria.	None	Prompt available for the admin.
	ALT 8.5. Validation Unsuccessful Information	This information notifies the administration that the validation failed for the inputted information	Used when the search criteria does not fulfil the validation requirements of the system.	None	Message shown to admin.
	8.5. Validation Successful Information	This information notifies the administration that the validation	Used when the search criteria does fulfil the validation	None	Message shown to admin.

		was successful for the inputted information	requirements of the system.		
	8.5. Courier Information	This information is displayed to the administration after the system has retrieved the record from the database.	Used when the system displays the specific courier record required	**Courier Entity:** • Courier_Name • Courier_Number • Courier_Email	Shown to admin.

Figure 516 8.5. Search Courier Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
8.6. Update Courier	8.6. Enable Update Information	This information allows the administration to provide the updated details.	Used when the system requires the Courier's updated details.	None	Enabled for admin to edit
	8.6. Update Successful Information	This information is the system's notification to the administration that they successfully updated a Courier's details on	Used when the system has successfully updated a Courier's details on the system	None	Message shown to admin.

		the system.			
	ALT 8.6. Update Unsuccessful Information	This information is the system's notification to the administration that the Courier details were not successfully updated on the system.	Used when the system has failed to update a Courier's details on the system.	None	Message shown to admin.

Figure 517 8.6. Update Courier Output Table

7.1.9 Products Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.1 Add Product Category	9.1 Displayed Product Category Info	This outflow displays the product category page information.	Used when the system displays the product category page.	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Page displayed by the system
	9.1 Add Product Category Success Message	The purpose is to display that the product category was added successfully	Used when the system successfully adds a new product category on the system.	None	Success message displayed by the system

Figure 518 9.1. Add Product Category Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.2 Search Product Category	9.2 Displayed Product Categories	This outflow displays the retrieved product category information.	Used when the system successfully retrieves product categories from the system.	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Page displayed by the system
	9.2 Displayed Product Category Details	This outflow displays the selected product category's information.	Used when the system successfully displays product category on the system.	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Page displayed by the system
	ALT 9.2 Search Product Category	This information is the system's	Used when the system has failed	None	Page displayed by

	Failed Message	notification to the admin that the product category search has failed	to find product categories on the system.		the system

Figure 519 9.2. Search Product Category Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.3 Update Product Category	9.3 Product Category Update Succesful Pop-up	The purpose is to display that the product category was updated successfully	Used when the system successfully updates a product category on the system.	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Success message displayed by the system
	ALT 9.3 Update Product Category Cancellation Info	This information is the system's notification to the admin that the product category update has failed	Used when the system has failed to update the product category on the system.	None	Error message displayed by the system

Figure 520 9.3. Update Product Category Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.4 Delete Product Category	9.4 Delete Product Category Verification Pop up	This information is the confirmation required to delete a Product Category on the system.	Used when the system requires confirmation of the deletion of a product category	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Confirmation message displayed by the system
	9.4 Delete Succesful Popup	The purpose is to display that the product category was deleted	Used when the system successfully deletes a product category	None	Success message displayed by the system

		successfully	on the system.		
	ALT 9.4 Delete Product Category Confirmation Decline Info	This information is the system's notification to the admin that the product category delete has failed	Used when the system has failed to delete the product category on the system.	None	Error message displayed by the system

Figure 521 9.4. Delete Product Category Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.5 Add Category Type	9.5 Displayed ProductCategory Info	This outflow retrieves the product category information.	Used when the system retrieves the product category details.	ProductCategory • ProductCategory_ID • ProductCategory_Desc	Page displayed by the system
	9.5 Displayed CategoryType Page	This outflow displays the category page	Used when the system displays the category Type page.	None	Page displayed by the system
	9.5 Add CategoryType Success Message	The purpose is to display	Used when the system successf	CategoryType • CategoryType_ID	Success message

		that the category type was added successfully	ully adds a new category type on the system.	• CategoryType_Desc	displayed by the system
	ALT 9.5 ProductCategory Error Message Details	This information is the system's notification to the admin that the no product categories were retrieved	Used when the system has failed to find product categories on the system.	None	Error message displayed by the system

Figure 522 9.5. Add Category Type Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.6 Search Category Type	9.6 Displayed CategoryTypes Info	This outflow displays the retrieved category type's information.	Used when the system successfully retrieves category types from the system.	CategoryType • CategoryType_ID • CategoryType_Desc	Page displayed by the system
	9.6 CategoryType Info	This outflow displays the selected category type's	Used when the system successfully displays the	CategoryType • CategoryType_ID • CategoryType_Desc	Page displayed by the system

		information.	category type on the system.		
	ALT 9.6 CategoryType Not Found Error	This information is the system's notification to the admin that the category type search has failed	Used when the system has failed to find category types on the system.	None	Page displayed by the system

Figure 523 9.6. Search Category Type Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.7 Update Category Type	9.7 Displayed Update CategoryType Page	This outflow displays the update category type page	Used when the system displays the update category Type page.	None	Page displayed by the system
	9.7 Update Succes Pop-up	The purpose is to display that the category type was updated successfully	Used when the system successfully updates a category type on the system.	CategoryType • CategoryType_ID • CategoryType_Desc	Success message displayed by the system

	ALT 9.7 Update Cancelled Pop-up	This outflow is the system's notification to the admin that the category type update has failed	Used when the system has failed to update the category type on the system.	None	Error message displayed by the system

Figure 524 9.7. Update Category Type Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
9.8 Delete Category Type	9.8 Delete Confirmation Pop-up	This information is the confirmation required to delete a Category type on the system.	Used when the system requires confirmation of the deletion of a category type	CategoryType • CategoryType_ID • CategoryType_Desc	Confirmation message displayed by the system
	9.8 Delete Succes Message	The purpose is to display that the category type was	Used when the system successfully deletes a category	None	Success message displayed by the system

		deleted successfully	type on the system.		
	ALT 9.8 Delete Aborted Information	This information is the system's notification to the admin that the category type delete has failed	Used when the system has failed to delete the category type on the system.	None	Error message displayed by the system

Figure 525 9.8. Delete Category Type Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
9.9 Add Product Item	9.9 Displayed CategoryType Info	This outflow retrieves the category type information.	Used when the system retrieves the category type details.	CategoryType • CategoryType_ID • CategoryType_Desc	Page displayed by the system
	9.9 Displayed ProductItem Page	This outflow displays the product Item page	Used when the system displays the product item page.	None	Page displayed by the system

	9.9 ProductIte m Addition Success Info	The purpose is to display that the product item was added successfu lly	Used when the system successfu lly adds a new product item on the system.	ProductItem • ProductItem_ID • ProductItem_Na me • ProductItem_De sc • ProductItem_Im age • Quantity_On_H and	Succes s messag e displa yed by the system
	ALT 9.9 CategoryTy pe Error Message	This informatio n is the system's notificatio n to the admin that the no category items were retrieved	Used when the system has failed to find category types on the system.	None	Error messag e displa yed by the system

Figure 526 9.9. Add Product Item Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
9.10 Search Product Item	9.10 Displayed ProductIte ms	This outflow displays the retrieved product items' informatio n.	Used when the system successfu lly retrieves product items from the system.	ProductItem • ProductItem_ID • ProductItem_Na me	Page displa yed by the system
	9.10 Displayed	This outflow	Used when the	ProductItem • ProductItem_ID	Page displa

	ProductItem Info	displays the selected product items details.	system successfully displays the product item on the system.	• CategoryType_ID • ProductItem_Desc • ProductItem_Name • ProductItem_Image • Quantity_On_Hand • SupplierOrderLine_ID	ed by the system
	ALT 9.10 ProductItem Not Found Error Message	This information is the system's notification to the admin that the product item search has failed	Used when the system has failed to find product item on the system.	None	Page displayed by the system

Figure 527 9.10. Search Product Item Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
9.11 Update Product Item	9.11 Displayed ProductItem Page	This outflow displays the update product item page	Used when the system displays the update product item page.	None	Page displayed by the system
	9.11 Update Success Pop-up	The purpose is to display that the	Used when the system successfu	ProductItem • ProductItem_ID • CategoryType_ID	Success message

		product item was updated successfully	lly updates a product item on the system.	• ProductItem _Desc • ProductItem _Name • ProductItem_Image • Quantity_On_Hand	displayed by the system
	ALT 9.11 Update Cancellation Info	This outflow is the system's notification to the admin that the product item update has failed	Used when the system has failed to update the category type on the system.	None	Error message displayed by the system

Figure 528 9.11. Update Product Item Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
9.12 Delete Product Item	9.12 Delete ProductItem Confirmation Message	This information is the confirmation required to delete a product item on the system.	Used when the system requires confirmation of the deletion of a product item	ProductItem • ProductItem_ID • CategoryType_ID • ProductItem _Desc • ProductItem _Name • ProductItem_Image • Quantity_On_Hand	Confirmation message displayed by the system

				• SupplierOrderLine_ID	
	9.12 Delete ProductItem Success pop-up	The purpose is to display that the product item was deleted successfully	Used when the system successfully deletes a product item on the system.	None	Success message displayed by the system
	Alt 9.12 Delete ProductItem Cancellation Info	This information is the system's notification to the admin that the product item delete has failed	Used when the system has failed to delete the product item on the system.	None	Error message displayed by the system

Figure 529 9.12. Delete Product Item Output Table

7.1.10 Specials Sub-System

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
10.1 Add Special	10.1 Requested special information	This contains the information that the admin has to fill out on the special.	This is used when the administration wishes to add a special.	None	Selected by the administrator.
	ALT 10.1 Add special unsuccessful information	To alert the admin that there has been a error with adding the special.	After admin clicks on save.	• None	Prompted by the admin.

	10.1 Specials added successfully	To alert the admin that the special has been added.	After admin clicks on save.	Special • Special_ID(PK) • Special_Price • CategoryItem(FK)	Prompted by the admin.

Figure 530 10.1. Add Special Output Table

Requirement Number & Title	**Description:**	**Purpose:**	**When Used:**	**Entities & Attributes:**	**Logical Layout:**
10.2 Search Special	10.2 Searched special information	This contains the information that the admin has to fill out to search the special.	This is used when the administration wishes to search a special.	None	Selected by the administrator.
	10.2 Relevant searched special information	The purpose is to display the information based on the search query.	It is used when after the customer has clicked on the search button.	Special • Special_ID(PK) • Special_Price • CategoryItem(FK)	Prompted by the admin.
	ALT 10.2 Special not	The purpose is	It is used when after	• None	Prompted by the admin.

	found information	to display the error information that the special is not found.	the customer has clicked on the search button.		

Figure 531 10.2. Search Special Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
10.3 Update Special	10.3 Updated special information	The purpose is to display the updated information.	It is used when after the customer has clicked on the save button.	Special • Special_ID(PK) • Special_Price • CategoryItem(FK)	Prompted by the admin.
	ALT 10.3 Updated special unsuccessful information	The purpose is to show an unsuccessful message if there is an error with the updated information.	It is used when the validation of the information was not a success.	• None	Prompted by the system

Figure 532 10.3. Update Special Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
10.4 Delete Special	10.4 Delete special successful information	The purpose is to display that the special information was deleted successfully.	It is used when after the customer has clicked on the confirm button.	Special • Special_ID(PK) • Special_Price • CategoryItem(FK)	Prompted by the admin.
	ALT 10.4 Deleted special unsuccessful information.	The purpose is to display that the special information was deleted unsuccessfully.	It is used when after the customer has clicked on the confirm button.	• None	Prompted by the system.

Figure 533 10.4. Delete Special Output Table

Requirement Number & Title	Description:	Purpose:	When Used:	Entities & Attributes:	Logical Layout:
10.5 Send Promotional Emails	10.5 Promotions emailed information.	It is to get a confirmation that the emails have been sent to the customers.	It is used weekly, monthly.	Special • Special_ID(PK) • Special_Price • CategoryItem(FK) Customer • Customer_EmailAddress	Prompted by admin

Figure 534 10.5. Send Promotional Emails Output Table

CONCLUSION

This section we elaborated on the reports and other outputs of the system. Next, we will be looking at the reports and other inputs.

8. Validation

INTRODUCTION

This section of the deliverable contains the validations of the NKAP Bolting system. The section holds the of the functional specifications against the requirements.

8.1. VALIDATION OF FUNCTIONAL SPECIFICATION DETAILS AGAINST REQUIREMENTS

8.1.1 Log-in Sub-System

Sub-System	Requirement	Use Case	Process (DFD)	Entities (ERD)
1. Login	**1.1 Login**	1.1 Login	1.1.1 Capture login information.	• None
			1.1.2 Validate login information.	• None
			1.1.3. Accept user access.	• None
	1.2 Forgot password	1.2 Forgot password	1.2.1 Verify that information is incorrect.	• None
			1.2.2 Reset password	• None
	1.3 Reset password	1.3 Reset password	1.3.1 Capture username and email address	• None
			1.3.2 Verify username and email address	• None
			1.3.3 Generate user OTP	• None

			1.3.4 Send OTP to users email address	• None
			1.3.5 Capture user OTP	• None
			1.3.6 Verify OTP details	• None
			1.3.7 Capture new password	• None
			1.3.8 verify and save new password	• None
	1.4 Logout	1.4 Logout	1.4.1 Confirm logout details	• None
			1.4.2 User logout	• None

Figure 535 1. Login Validation

8.1.2 Supplier Sub-System

Sub-System	Requirement	Use Case	Process (DFD)	Entities (ERD)
Subsystem 2	2.1 Add Supplier	2.1 Add Supplier	2.1.1 Request supplier information	• None
			2.1.2 Capture and validate	• None
			2.1.3 Save supplier information	• Supplier
	2.2 Search Supplier	2.2 Search Supplier	2.2.1 Request to search supplier	• None
			2.2.2 Capture search criteria information	• None
			2.2.3 Display supplier results	• Supplier
	2.3 Update Supplier	2.3 Update Supplier	2.3.1 Request to update supplier information	• None
			2.3.2 Capture updated information	• None
			2.3.3 Validate updated information	• None
			2.3.4 Save supplier information	• Supplier
	2.4 Delete Supplier	2.4 Delete Supplier	2.4.1 Searched	• None

			supplier information	
			2.4.2 Remove supplier information	• None
			2.4.3 Confirm removal	• None
			2.4.4 Save deletion of supplier	• Supplier
	2.5 Place Supplier Order	2.5 Place Supplier Order	2.5.1 Show supplier details	• Supplier
			2.5.2 Select supplier	• None
			2.5.3 Display Supplier Order Screen	• CategoryType • ProductCategory • ProductItem
			2.5.4 Display Confirmation Message	•
			2.5.5 Update Supplier Order Tables	• SupplierOrder • SupplierOrderLine
			2.5.6 Display Supplier Order Succes Message	• None
	2.6 Receive Supplier Order	2.6 Receive Supplier Order	2.6.1 Search Supplier	• None
			2.6.2 Display Supplier Invoice Page	•
			2.6.3 Update Supplier Invoice Tables	• SupplierInvoice • SupplierInvoiceLine • Supplier

			2.6.4 Update Product Item Quantities	• None
	2.7 Make a Supplier Payment	2.7 Make a Supplier Payment	2.7.1 Request update payment	• None
			2.7.2 Save payment information	• None
			2.7.3 Validate and save payment information	• SupplierPayment • Supplier
			2.7.4 Display Payment Capture Success Message	• None

Figure 536 2. Supplier Validation

8.1.3 User Sub-System

Sub-System	Requirement	Use Case	Process (DFD)	Entities (ERD)
3. User	**3.1 Register New Customer**	3.1 Register New Customer	3.1.1 Capture Customer Information Task	None
			3.1.2 Validate Customer Information Task	None
			3.1.3 Confirm Customer information Task	None

			3.1.4 Generate Customer_ID and User_ID Task	Customer User
			3.1.5 Save Customer Information Task	Customer User
			3.1.6 Display success notification task	None
	3.2 Search Customer	3.2 Search Customer	3.2.1 Display all customers and request search criteria task	None
			3.2.2 Display customers matching search criteria task	None
			3.2.3 Display retrieved customer information task	Customer
	3.3 Update Customer	3.3 Update Customer	3.3.1 Retrieve and display customer information task	Customer User
			3.3.2 Enable changes task	None
			3.3.3 Validate changes task	None
			3.3.4 Confirm changes task	None
			3.3.5 Update Customer Details Task	Customer User

			3.3.6 Display success message task	None
	3.4 Delete Customer	Delete Customer	3.4.1 Retrieve and display customer details task	Customer User
			3.4.2 Confirmation of deletion task	
			3.4.3 Successful deletion notification task	Customer User
	3.5 Add User Role	3.5 Add User Role	3.5.1 Capture New user role information task	
			3.5.2 Validate captured information task	
			3.5.3 Request new user role confirmation task	
			3.5.4 Retrieve last UserRole_ID task	UserRole
			3.5.6 Save new user role task	UserRole
	3.6 Search User Role	3.6 Search Role	3.6.1 Request search parameter task	None
			3.6.2 Display user role list task	None

			3.6.3 Display retrieved user role task	UserRole
	3.7 Update User Role	3.7 Update User Role	3.7.1 Retrieve and display user role task	None
			3.7.2 Enable user role changes task	None
			3.7.3 Validate user role changes task	None
			3.7.4 Confirm user role changes task	None
			3.7.5 Save user role changes task	UserRole
			3.7.6 Display successful update message task	None
	3.8 Delete User Role	3.8 Delete User Role	3.8.1 Retrieve and display user role task	None
			3.8.2 Confirmation of deletion task	None
			3.8.3 Delete User Role task	UserRole
			3.8.4 Display successful deletion message task	None

Figure 537 3. User Validation

8.1.4 Employee Delivery Shifts Sub-System

Sub-System	Requirement	Use Case	Process (DFD)	Entities (ERD)
4. Employee Delivery Shifts Subsystem	**4.1. Create Booking Shift**	4.1. Create Booking Shift	4.1.1. Prompt for Booking Shift Details	None
			4.1.2. Display Confirmation	None
			4.1.3. Validate Information	None
			4.1.4. Generate Unique Number	• Schedule

			4.1.5. Save Booking Shift Details	• Schedule
			4.1.6. Display Notification of Success	None
	4.2. Search Booking Shift	4.2. Search Booking Shift	4.2.1. Prompt to Search	None
			4.2.2. Validate Parameters	None
			4.2.3. Retrieve Search Results	• Date • ShiftSchedule
			4.2.4. Display Search Results	None
	4.3. Update Booking Shift	4.3. Update Booking Shift	4.3.1. Enable Information for Update	Schedule
			4.3.2. Validate New Information	Schedule
			4.3.3. Display Success Message	None
	4.4. Delete Booking Shift	4.4. Delete Booking Shift	4.4.1. Display Message to Confirmation	• ShiftSchedule
			4.4.2. Proceed to Remove Information	• Schedule
			4.4.3. Display Message of Success	None
	4.5. Add Employee	4.5. Add Employee	4.5.1. Prompt for Employee Information	None
			4.5.2. Perform Validation	None
			4.5.3. Generate Unique Number	• Employee
			4.5.4. Save Employee Details	• Employee

			4.5.5. Prompt for Login Details	None
			4.5.6. Verify & Create Login/Password Details	• User
			4.5.7. Save New Information	None
			4.5.8. Display Message of Success	None
	4.6. Search Employee	4.6. Search Employee	4.6.1. Prompt for Employee Information	None
			4.6.2. Perform Validation	None
			4.6.3. Retrieve Employee	• Employee
			4.6.4. Display Search Results	None
	4.7. Update Employee	4.7. Update Employee	4.7.1. Enable Employee Information for Update	• Employee
			4.7.2. Validate New Information	None
			4.7.3. Display Message of Success	None
	4.8. Delete Employee	4.8. Delete Employee	4.8.1. Display Confirmation for Deletion	• Employee
			4.8.2. Remove Information	• Employee
			4.8.3. Display Message of Success	None
	4.9. Assign Order for Delivery	4.9. Assign Order for Delivery	4.9.1. Display SaleOrder Information	None

		4.10. Assign Order for Courier	4.9.2. Enable Selection for Employee	• SaleOrder
			4.9.3. Enable Done/Cancel Option	None
			4.9.4. Display Confirmation Message	None
			4.9.5. Generate Unique Number	• Delivery • SaleOrder
			4.9.6. Send Delivery Information	None
	4.10. Assign Order for Courier		4.10.1. Display SaleOrder Information	None
			4.10.2. Retrieve Courier Information	• SaleOrder
			4.10.3. Display Assign Courier Information	• Courier
			4.10.4. Open Draft on Mail Web Application	None
			4.10.5. Display Message	None
			4.10.6. Save New Information	• SaleOrder
			4.10.7. Display Success Message	None
			4.10.8. Display Specific SaleOrder Information	None
	4.11. Assign Shift	4.11. Assign Shift	4.11.1. Prompt to Select Employee	• Employee • Schedule

			4.11.2. Display Confirmation Message	None
			4.11.3. Save Employee	• Shift
			4.11.4. Inform Employee of Shift	None
			4.11.5. Display Success Message	None
	4.12. Cancel Shift	4.12. Cancel Shift	4.12.1. Display Confirmation Message	• Schedule
			4.12.2. Remove ShiftSchedule Information	• ScheduleShift
			4.12.3. Display Success Message	None

Figure 538 4. Employee Delivery Shifts Validation

8.1.5 Administration Back-Office Sub-System

Sub-System	Requirement	Use Case	Process (DFD)	Entities (ERD)
5. Administration Back Office	**5.1 View Online Sales**	5.1 View Online Sales	5.1.1 Retrieve and display	SaleOrder

			sale order list task	
			5.1.2 Retrieve and display selected sale order task	None
	5.2 Update Sale Status	5.2 Update Sale Status	5.2.1 Display Sale Order Task	None
			5.2.2 Validate Order Status Update Task	None
			5.2.3 Confirm Order Status update task	None
			5.2.4 Display successful order status update message task	OrderStatus
			5.2.5 Send Customer order status notification task	None
	5.3 Do stock-take	5.3 Do stock-take	5.3.1 Retrieve and display product item task	None
			5.3.2 Request stock take details task	None
			5.3.3 Capture stock take details task	None
			5.3.4 Validate stock take details task	None
			5.3.5 Confirmed stock take information task	None

			5.3.6 Display stock take success message task	ProductItem StockTake ProductItem_StockTake
	5.4 View Shift schedule	5.4 View shift schedule	5.4.1 Display shift schedule task	ShiftSchedule
	5.5 View Shift	5.5 View shift	5.4.1 Display shift task	Shift
	5.6 Check-in	5.6 Check-in	5.6.1 Retrieve shift information task	None
			5.6.2 Save check-in information task	Shift
	5.7 Check-out	5.7 Check-out	5.7.1 Retrieve shift information task	None
			5.7.2 Save check-out information task	Shift
	5.8 Write-off stock	5.8 Write-off stock	5.8.1 Write-off stock request task	
			5.8.2 Capture write-off information task	ProductItem
			5.8.3 Confirm write-off task	
			5.8.4 Save write-off information task	ProductItem ProductItem_WriteOffStock
			5.8.5 Display successful write-off message task	

Figure 539 5. Administration Back Office Validation

8.1.6 Customer Sub-System

Sub-System	Requirement	Use Case	Process (DFD)	Entities (ERD)
6. Customer	**6.1 Browse Products**	6.1 Browse Products	6.1.1 Retrieve available products task	• ProductItem
			6.1.2 Retrieve price task	• Price
			6.1.3 Calculate price task	
			6.1.4 Display products details task	
	6.2 View Product details	6.2 View Product details	6.2.1 Retrieve product item task	
			6.2.2 Calculate price task	
			6.2.3 Display products details task	
			6.3.1 Retrieve	• ProductItem • CategoryType • VAT

	6.3 View Specials/Promotions	6.3 View Specials/Promotions	product item task	● Cart
			6.3.2 Calculate price task	● Price
			6.3.3 Display products details task	
	6.4 Add item to cart	6.4 Add item to cart	6.4.1 Add to cart prompt task	● Cart
			6.4.2 Create cart info task	
			6.4.3 Display cart details task	
	6.5 Remove item from cart	6.5 Remove item from cart	6.5.1 Retrieve cart items task	● Cart
			6.5.2 Remove from cart task	
			6.5.3 Display removed notification task	
	6.6 View Cart	6.6 View Cart	6.6.1 Retrieve	● Cart ● ProductItem ● Price

			cart info task	• VAT
			6.6.2 Calculate cart prices task	
			6.6.3 Display Cart details task	
	6.7 Empty cart	6.7 Empty cart	6.7.1 Retrieve cart info task	
			6.7.2 Remove cart info task	
			6.7.3 Display Cart clear notification task	
	6.8 Checkout Order	6.8 Checkout Order	6.8.1 Delivery prompt task	• Delivery • DeliveryStatus • DeliveryPrice
			6.8.2 Calculate price task	
			6.8.3 Make payment prompt task	
			6.8.4 Displays the payment	

			successful message	

Figure 540 6. Customer Validation

8.1.7 Reports Sub-System

Sub-System	Requirement	Use Case	Process (DFD)	Entities (ERD)
7. Reports	**7.1 Generate Fast-Selling Product List**	7.1 Generate Fast-Selling Product List	7.1.1 Fast-selling Product List Request	• None
			7.1.2 Select Period Prompt	• None
			7.1.3 Retrieve Report Details	• SaleOrder • ProductItem • Cart
			7.1.4 Generate fast Selling-Product List	• None
			7.1.5 Display Fast-selling Product List	• None
	7.2 Generate Slow-selling Product List	7.2 Generate Slow-selling Product List	7.2.1 Slow-selling Product List Request	• None
			7.2.2 Select Period Prompt	• None
			7.2.3 Retrieve Report Details	• SaleOrder • ProductItem • Cart
			7.2.4 Generate Slow-Selling Product List	• None

			7.2.5 Display Slow-selling Product List	• None
	7.3 Generate Most Frequent Buyers Report	7.3 Generate Most Frequent Buyers Report	7.3.1 Most Frequent Buyers Report Request	• None
			7.3.2 Retrieve SaleOrder and Customer Info	• SaleOrder • Customer
			7.3.3 Sort Info Via most SaleOrders Made	• None
			7.3.4 Display Most Frequent Byers List	• None
	7.4 Generate Most Popular Location Report	7.4 Generate Most Popular Location Report	7.4.1 Most Popular Location Report Request	• None
			7.4.2 Retrieve Sale, Customer and Location Info	• City • SaleOrder • Customer • Province
			7.4.3 Generate Popular Location Report	• None
			7.4.4 Display Most Popular Location Report	• None

	7.5 Generate Weekly Sale Order List	7.5 Generate Weekly Sale Order List	7.5.1 Weekly Sale Order List Request	• None
			7.5.2 Retrieve SaleOrder and Customer Info	• SaleOrder • Customer
			7.5.3 Generate Weekly Sale Order Report	• None
			7.5.4 Display Generated Weekly Sale Order Report	• None
	7 .6 Generate Monthly Sale Order List	7 .6 Generate Monthly Sale Order List	7.6.1 Monthly Sale Order List Request	• None
			7.6.2 Retrieve SaleOrder and Customer Info	• SaleOrder • Customer
			7.6.3 Generate Monthly Sale Order Report	• None
			7.6.4 Display Monthly Sale Order Report	• None
	7.7 Generate Stock-Level Report	7.7 Generate Stock-Level Report	7.7.1 Stock-Level Report Request	• None
			7.7.2 Retrieve All Product Info	• ProductCategory • ProductItem • CategoryType
			7.7.3 Generate	• None

			Stock-level Report	
			7.7.4 Display Stock-level Report	• None
	7.8 Packing Report	7.8 Packing Report	7.8.1 Packing Report Request	• None
			7.8.2 Retrieve SaleOrder and OrderStatus Info	• SaleOrder • OrderStatus
			7.8.3 Generate Packing Report	• None
			7.8.4 Display Packing Report	• None
	7.9 Delivery Report	7.9 Delivery Report	7.9.1 Delivery Report Request	• None
			7.9.2 Retrieve Delivery & SaleOrder Tables	• SaleOrder • OrderStatus • Delivery • DeliveryStatus
			7.9.3 Generate Delivery Report	• None
			7.9.4 Display Delivery Report	• None

Figure 541 7. Reports Validation

8.1.8 Delivery Sub-System

Sub-System	Requirement	Use Case	Process (DFD)	Entities (ERD)
8. Delivery	**8.1 View Delivery**	8.1 View Delivery	8.1.1 Request to view delivery details task	
			8.1.2 Requests the to enter the DeliveryID info task	
			8.1.3 Enter the DeliveryID info task	• Delivery • DeliveryStatus
			8.1.4 Capture and validate the DeliveryID info task	
			8.1.5 Display the retrieved delivery details info	
			8.2.1 Request to	

	8.2 Accept delivery	8.2 Accept delivery	accept a delivery task	
			8.2.2 Prompt to accept or decline a delivery task	
			8.2.3 Accept a delivery task	• Delivery • DeliveryStatus
			8.2.4 Delivery has been accepted message task	
	8.3 Update Delivery status	8.3 Update Delivery status	8.3.1 Request to update delivery status task	
			8.3.2 Prompt change to delivery status task	
			8.3.3 Enter the delivery status change task	
			8.3.4 Captures delivery status changes task	• Delivery • DeliveryStatus
			8.3.5 Confirm the delivery	

			status changes made task	
			8.3.6 Validates delivery status changes task	
			8.3.7 Prompt to confirm the changes task	
	8.4. Add Courier	8.4. Add Courier	8.4.1. Prompt for Courier Information	
			8.4.2. Perform Validation	
			8.4.3. Generate Unique Number	• Courier
			8.4.4. Save Details	• Courier
			8.4.5. Display Success Message	
	8.5. Search Courier	8.5. Search Courier	8.5.1. Prompt for Courier Information	

			8.5.2. Validate Parameters	
			8.5.3. Retrieve Matching Results	• Courier
			8.5.4. Display Search Results	
	8.6. Update Courier	8.6. Update Courier	8.6.1. Prompt to Update Information	
			8.6.2. Validate New Information	• Courier
			8.6.3. Display Success Message	
	8.7. Delete Courier	8.7. Delete Courier	8.7.1. Searched Courier 8.7.2. Remove Courier Information	• Courier
			8.7.3. Confirm Removal	

			8.7.4. Searched Courier	

Figure 542 8. Delivery Validation

8.1.9 Products Sub-System

Sub-System	Requirement	Use Case	Process (DFD)	Entities (ERD)
Product – Subsystem 9	**9.1 Add Product Category**	9.1 Add Product Category	9.9.1 Add ProductItem Request task	
			9.9.2 Displayed ProductItem Page task	
			9.9.3 Displayed CategoryType task	• CategoryType
			9.9.4 CategoryType Selected task	

			9.9.5 New ProductItem task	• ProductItem
			9.9.6 ProductItem Addition Success task	
	9.2 Search Product Category	9.2 Search Product Category	9.10.1 ProductItem Search Request task	
			9.10.2 ProductItem Search Criteria task	
			9.10.3 ProductItem Selection task	• ProductItem
			9.10.4 Displayed ProductItem Info	
			9.10.5 Displayed ProductItem Info	
	9.2 Update Product Category	9.2 Update Product Category	9.12.1 Delete ProductItem Request	
			9.12.2 Delete ProductItem Confirmation Message task	

			9.12.3 Delete ProductItem Confirmation task	• ProductItem
			9.12.4 Delete ProductItem Success pop-up task	

Figure 543 9. Product Validation

8.1.10 Specials Sub-System

Sub-System	Requirement	Use Case	Process (DFD)	Entities (ERD)
10. Specials	**10.1 Add Special**	10.1 Add Special	10.1.1 Request special information	• None
			10.1.2 Capture special information	• None
			10.1.3 Save special information	• Special
	10.2 Search Special	10.10 Search Special	10.2.1 Request to search special	• None
			10.2.2 Enter search criteria	• None
			10.2.3 Display	• Special

			search criteria information	
	10.3 Update Special	10.3 Update Special	10.3.1 Request to update special information	• None
			10.3.2 Provide updated special information	• None
			10.3.3 Capture updated specials information	• None
			10.3.4 Save specials information	• Special
	10.4 Delete Special	10.4 Delete Special	10.4.1 Request to delete special	• None
			10.4.2 Remove special from system	• None
			10.4.3 Confirm deletion	• None
			10.4.4 System save deletion information	• Special
	10.5 Send Promotional Emails	10.5 5 Send Promotional Emails	10.5.1 Choose specials	• Special
			10.5.2 Generate email	• None

Figure 544 10. Special Validation

CONCLUSION

This section of the deliverable contained the validations of the NKAP Bolting system which detailed the functional specification against the requirements.

9. Sign-Off By The Client

INTRODUCTION

This section contains the formally sign off where the client informs us that they have read, understand, and agree with the document and its contents.

9.1. FORMALLY SIGNED PAGE OF CLIENTS AGREEMENT TO CONTENT

Deliverable Name: Functional Specification

Deliverable Number: 2 of 12

Delivered on Date: 2021/05/16

Client Name: NKAP Bolting CC

Approving Client Representative: Mr Anandh Badrinath

Project Manager: Divya Bagratee

Group Leader: Jerome Amenigy

Deliverable Sign-Off

I Mr Anandh Badrinath, as the approving client representative on behalf of NKAP Bolting, declare that I have read this document in its entirety and hereby state that I understand and fully agree with its content.



Anandh Badrinath

2021/05/16

Signed on This Date

CONCLUSION

This section contained the client sign-off showing that the client has read through and approved of the quality and content of this document and has granted the group consent to submit it as deliverable 2.

10. Complexity

INTRODUCTION

This section of the deliverable contains the complexity matrix of NKAP Bolting and DS[3] Solutions' perceived points calculated according to the content presented in this deliverable

10.1. COMPLEXITY REQUIREMENTS

INF370 Complexity
Matrix 2021

Topic	Level		Marks	MAX
1. Special GUI	For online applications: Responsive web design For desktop applications: Form design according to design principles (Schneiderman's golden rule on navigation applies here)	*	3	42
	Appropriate use of grids/tables	✓	3	
	Appropriate use of tabs/links	✓	3	
	Use of graphs in an appropriate business context	✓	4	
	The storage and display of graphical information, like photos with a good business reason	✓	3	
	Working e-mail automatically generated from the database in an appropriate business context	✓	2	
	SMS messages automatically generated from the system in an appropriate business context	✓	2	
	Extensive user-friendly search facility	✓	3	
	At least one use of a tree to display data from the database	✓	3	
	Able to dynamically modify a data tree structure and in doing so adjusting the data in the database	✓	4	
	At least one use of a calendar view of data (not a date/time picker; not a plug-in such as Google calendar)	✓	3	
	Uploading a file into the system with appropriate business reason		3	
	The use of audio/video in an appropriate business context		3	
	At least one use of an administrator configurable timer in an appropriate business context	✓	3	
	At least 30 tables used (4 member groups) or 40 tables used (5 member groups)	*	6	
	Full referential integrity on all tables	*	6	

2. Database access	At least one use of master-detail table relationships (Schneiderman's golden rule on system status applies here)	*	3	**15**
3. Reports	At least 3 simple list reports in a reporting tool (no control breaks, no graphs, single table)	*	3	**15**
	At least 2 transactional report with 2 or more control breaks (with heading and calculated values/totals, multiple tables)	*	6	
	At least 1 report with adjustable criteria	✓	3	
	At least 1 management report using a graph	✓	3	
4. Flexibility	All data that can change in future should not be hard coded but maintained in a sub-module of the system (e.g. Lookup tables)	✓	6	**12**
	Some business rules are not hard coded but maintained in a sub-module of the system.	✓	6	
5. Error handling	**All** system-generated errors are trapped, and consistent, user-friendly error messages are displayed	✓	6	**12**
	Appropriate data validation on **all** input fields	✓	6	
6. Help	At least one menu item or other control that opens up a complete help document (HTML, PDF, Help-file)	✓	3	**15**
	Extensive context-sensitive help. E.g. calling Help on a specific screen/function will automatically open the specific help for that screen/function.	✓	6	

Figure 545 Complexity Matrix

Topic	Level		Marks	MAX
	Search Facility on Help	✓	3	
	Extensive use of hints	✓	3	
7. Security	Logon screen with user ID and password and fixed user profiles	✓	3	**13**
	Applying two factor authentication with applicable business reason.	✓	3	
	Encrypted passwords in database	*	1	
	Flexible user profiles (i.e. you can dynamically add user profiles that will enable/disable access to certain parts of the system)	✓	6	
8. Audit Trail	An audit trail of all transactions in the system showing at least date, time, user, transaction type, critical data (such as amount and quantity of transaction)	✓	6	**9**
	Able to search the audit trail on any of the following: date, user, transaction type	✓	3	
9. Deployment	For a desktop application: Fully functional installation disks that take care of application installation requirements (install and uninstall)	✓	3	**15**
	For an online application: Deployment of application to a publicly accessible web server	✓	3	
	For a mobile application: Deployment to an App Market place (such as the PlayStore or the AppStore)	✓	6	

	Deployment of the database to a remote database server	✓	3	
10. Backup and Restore	A backup and restore subsystem exists that backup/restore all data (system may exit during restore)		3	**3**
11. Import/Export Data	Able to open Word or Excel and automatically place data in it based on the parameters provided (with a good business reason)		6	
	XML or JSON: At least 1 XMLor JSON file for Importing or Exporting of data (with good business reason)		3	**9**
12. External INPUT device	Simple Link to an external INPUT device using plug-and-play technology, such as a swipe card reader, bar code reader, etc. or a native component such as a QR reader, a GPS component, etc.	✓	3	
	Loose Link to an external INPUT device using device specific software. Data or images must seamlessly be stored in the database, but device specific software is visible to the user. (This could include a digital camera, scanner, voice recording device, thump print reader, etc.)		6	
	Tight Link to an external INPUT device using device specific software. Data or images must seamlessly be stored in the database, but device specific software is **not** visible to the user. (This could include a digital camera, scanner, voice recording device, thump print reader, etc.)		9	**18**
13. External APPLICATION / Services	Integrate an existing web service into your application (with good business reason)	✓	3	
	A fully functional link to an installed external application system exists and the interface must be shown to work on the external system. Note that this excludes Microsoft Office Applications		6	**9**

Topic	Level		Marks	MAX
14. Multiplatform processing for an appropriate business reason	Appropriate business use of static views on an alternative platform.	✓	3	
	Appropriate use of dynamic views on an alternative platform (i.e. data is displayed from the system's database)	✓	3	
	Appropriate use of substantial dynamic views on an alternative platform (i.e. both reading and writing data from the system's database)	✓	9	
	Uploading a file through an alternative platform onto the system's database.		3	
	Substantial processing on a third platform (i.e. both reading and writing data from the system's database)		9	**27**
15. Programming Principles	The use of a data layer to facilitate interaction between your database and your business layer	✓	3	
	The use of an API to facilitate interaction between your business layer and your presentation layer	✓	6	
	Comprehensive use of stored procedures and/or triggers and/or jobs.	✓	3	**12**
16. Innovative addition to the system	Any very advanced innovative addition to the system (e.g. machine learning, AI, block chain, text mining, IOT, etc.)	#	1 - 9	**9**

Maximum Complexity Marks	**222**
Complexity Marks Required (5 members in team)	150
Selected Complexity Marks	**164**

CONCLUSION

This section contained the complexity matrix of the NKAP Bolting system calculated by DS^3 Solutions' according to what was presented in the deliverable.

11. General

INTRODUCTION

11.1. TEAM SIGN-OFF

INTRODUCTION

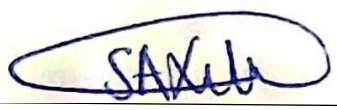
We, Group 1 – DS³ Solutions, hereby declare that this work is our own and we are fully satisfied with the work contained within this document. We declare that all members of this group have contributed equally and fairly to this deliverable and submit this document as our final and complete Functional Specification.



Divya Bagratee – Project Manager



Jerome Amenigy – Team Leader



S'nethemba Xulu



Chardé Vries



Sonali Badrinath

CONCLUSION

This document contains the functional Specification for the NKAP Bolting System. This document includes the Use Case diagrams, Use case narratives and process models for the proposed system. The process models include a complete context diagram, complete decomposition diagram, high level, middle level, and primitive level data flow diagrams. This document also includes Activity diagrams, a logical data model, interfaces and other inputs, reports and other outputs as well as validations for the proposed system.