

Use Case Diagrams for Existing System

The use case diagram for the existing system illustrates the business operations involved in the ordering process at Viviki Rubber Products. Key actors interacting with the system include:

- **Admin/Owner**
- **Inventory Manager**
- **Worker**
- **Customer**

Each actor engages in various stages of the order fulfillment process, providing a clear overview of their roles and interactions within the existing system.

Use Case Descriptions for Existing System

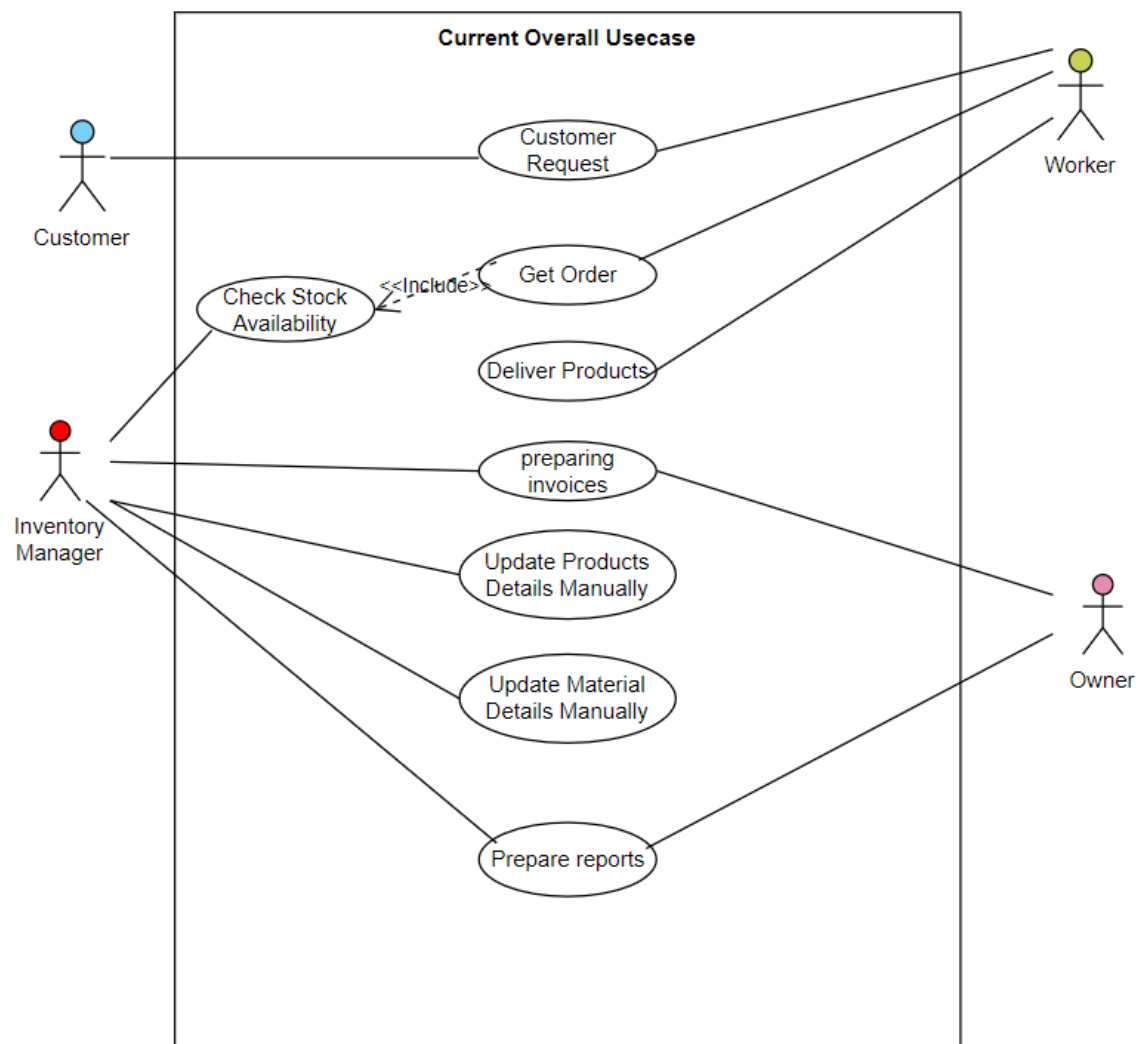


Figure 1-use case diagram for current system

Use case description for the Customer request handling is explained in table that elaborates how the process of handling customer inquiries has functioned in the existing system.

Use Case Name	Customer request handling
Actors	A1-Worker, A2-Customer
Description	This use case describes the process of handling customer inquiries.
Pre-Conditions	The Sales Desk must be read the updated details.

Normal Flow	1. Attend the customer phone call 2. Answer the customer inquiries
Alternate Flow	
Post Conditions	

Table 1-Use Case Descriptions for Customer Request Handling

Use case description for the orders making is explained in the that elaborates how the process of making orders has functioned in the existing system.

Use Case Name	Make Orders
Actors	A1-Worker, A2-Customer
Description	This Use case describes the process of making orders.
Pre-Conditions	Delivery and Stock availability details must be updated.
Normal Flow	1. Discuss with the customer. 2. Get more details about the purchase. 3. Check delivery and stock availability. 4. Make the order.
Alternate Flow	Inform customers unable to make the order.
Post Conditions	Send the order details to the cashier.

Table 2-Use Case Descriptions for Make Orders

Use case description for the View Updated stock details is explained in the that elaborates how the process of view updated stock details has functioned in the existing system.

Use Case Name	View Updated stock details
Actors	A3-Inventory Manager, A4-Owner
Description	This Use case describes the process of viewing stock details.
Pre-Conditions	Details must be updated.

Normal Flow	1. Managers give the updated stock details. 2. Worker refers to the details. 3. Check the feasibility of making the order.
Alternate Flow	
Post Conditions	

Table 3-Use Case Descriptions for View Updated stock details

Use case description for the Generate Delivery overview report is explained in the table that elaborates how the process of generate delivery overview report has functioned in the existing system.

Use Case Name	Generate Delivery overview report
Actors	A3-Inventory Manager, A4-owner
Description	This use case describes the process of generating delivery overview report
Pre-Conditions	Delivered orders payments must be accepted.
Normal Flow	1. Receive the delivered orders details. 2. Group the delivered order details. 3. Update the delivered order details with customer payment. 4. Generate the delivery overview report.
Alternate Flow	
Post Conditions	The report should be generated correctly.

Table 4-Use Case Descriptions for Generate Delivery overview report.

Use case description for the Generate Bills is explained in the that elaborates how the process of generating bills has functioned in the existing system.

Use Case Name	Generate Invoices
Actors	A3-Inventory Manager, A4-owner
Description	This Use case describes the process of generating bills.
Pre-Conditions	An updated packing list must be received.
Normal Flow	1. Receive the updated packing list after the packing. 2. Calculate bills.

	3. Send bills to delivery person.
Alternate Flow	Inform customer about out of stock ordered goods.
Post Conditions	Bills should be calculated correctly.

Table 5-Use Case Descriptions for Generate Invoices

Use case description for the Prepare Inventory overview report is explained in the table that elaborates how the process of preparing inventory overview report has functioned in the existing system.

Use Case Name	Prepare Inventory overview report
Actors	A3-Inventory Manager, A4-owner
Description	This use case describes the process of generating inventory overview report.
Pre-Conditions	An updated packing list must be received.
Normal Flow	1. Receive the updated packing list after the packing. 2. Compare the packing list count with the order count. 3. Prepare sold goods count. 4. Generate the inventory overview report.
Alternate Flow	Inform customer about out of stock ordered goods.
Post Conditions	The stock count should be calculated correctly.

Table 6-Use Case Descriptions for Prepare Inventory overview report.

Activity Diagrams to describe the functionality of the Use-Cases

The functionalities of the use cases which were explained above are further described using the activity diagrams. It shows how actors of the existing business process interact with each other to be completed the business functions and their decision-making points regarding the role they perform in the business.

Activity Diagram for the Handle Customer request

Activity diagram to explain how the Worker and the customer interact when managing the Customer request is displayed in the diagram below.

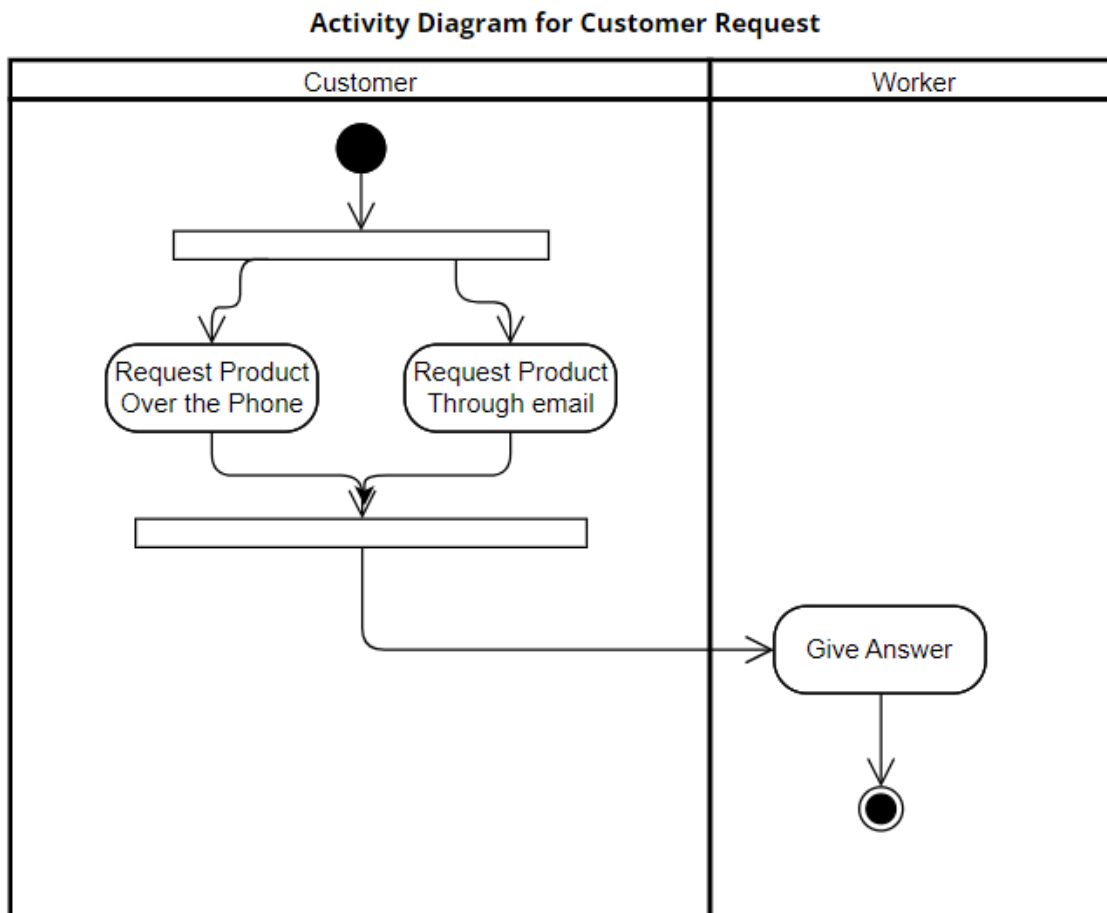


Figure 2-Activity Diagram for the Handle Customer request

Activity Diagram for the Make Orders

Activity diagram to explain how the worker and the customer interact when making orders is displayed in the diagram below.

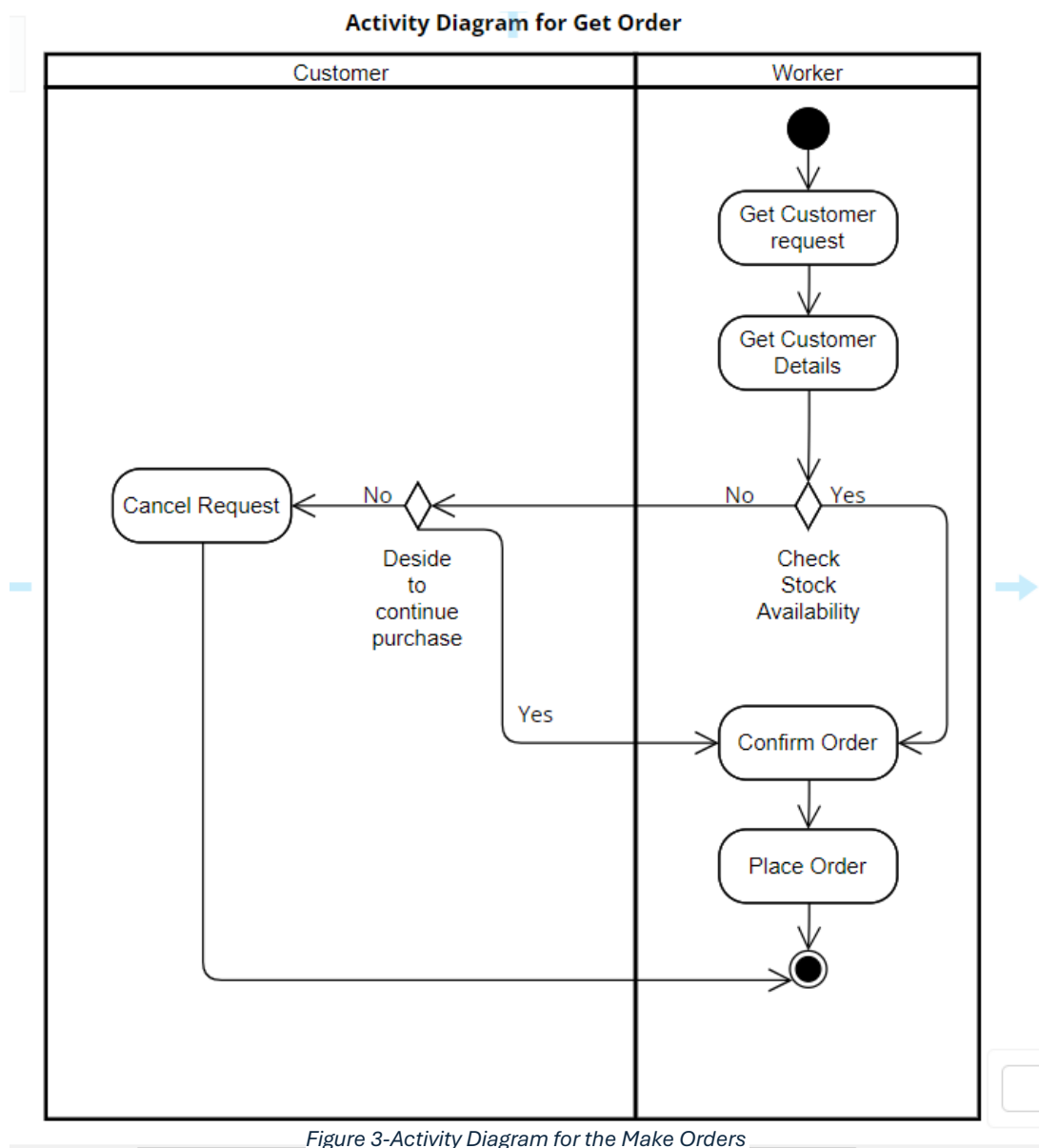


Figure 3-Activity Diagram for the Make Orders

Activity Diagram for Prepare Invoice

The activity diagram below explains how the Sales Desk and the Cashier interact with the customer in the process of preparing an invoice for an order.

Activity Diagram for Prepare Invoice

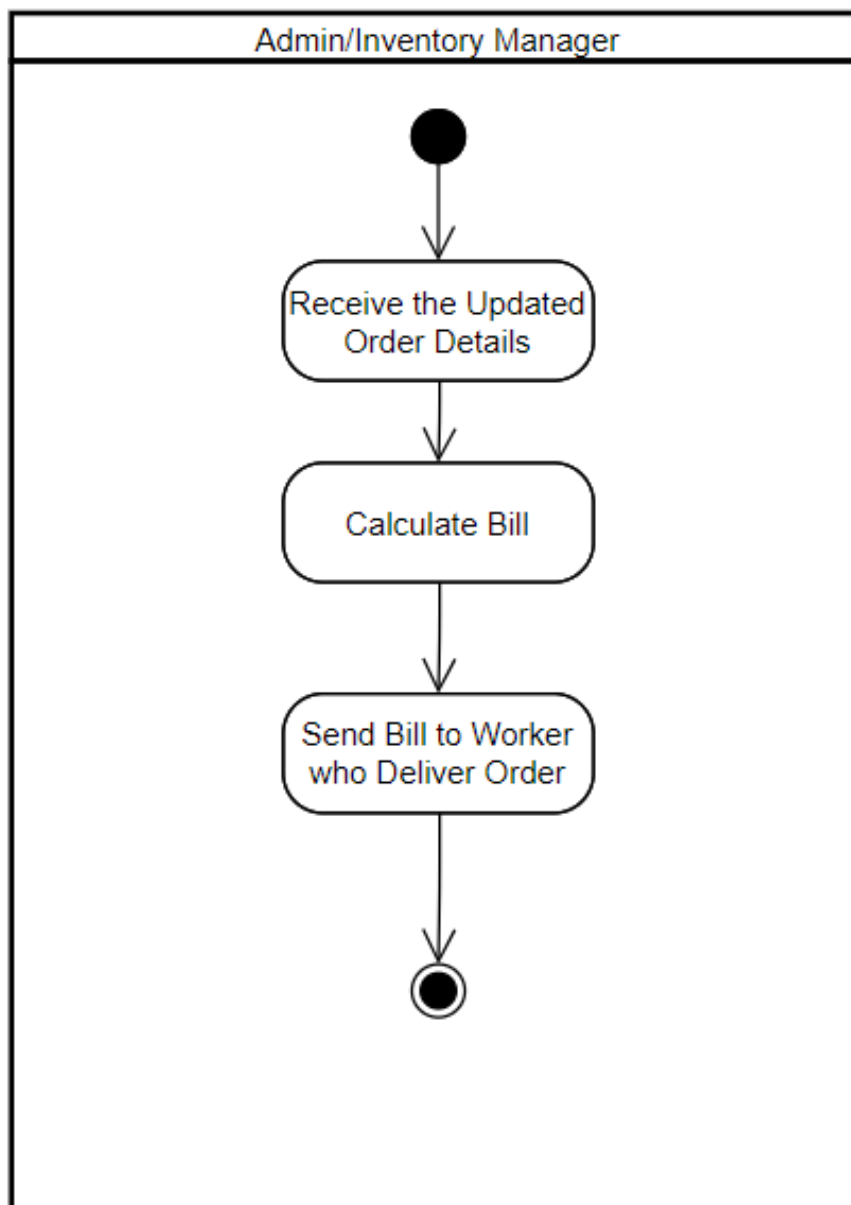


Figure 4-Activity Diagram for Prepare Invoice

Activity Diagram for Deliver Product

The activity diagram below illustrates the interactions between the Delivery Person, the Customer, and the Sales Desk during the product delivery process.

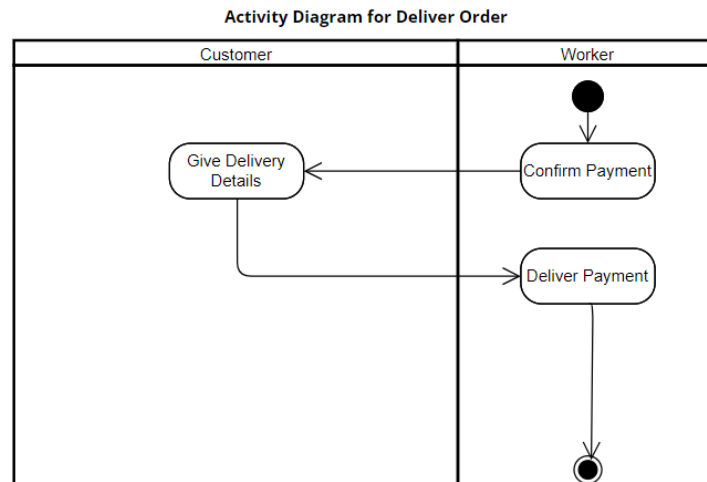


Figure 5-Activity Diagram for Deliver Product

Activity Diagram for Update Products

The activity diagram below shows how the Manager and Sales Desk interact with the system to update product details, including stock levels, pricing, and descriptions.

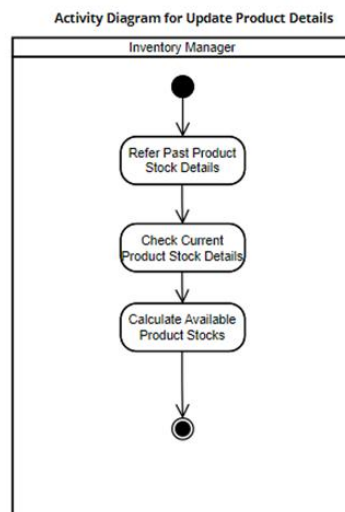


Figure 6- Activity Diagram for Update Products

Activity Diagram for Update Materials

The activity diagram below describes how the Manager and Staff interact with the system to update material inventories, ensuring accurate stock levels and triggering alerts if needed.

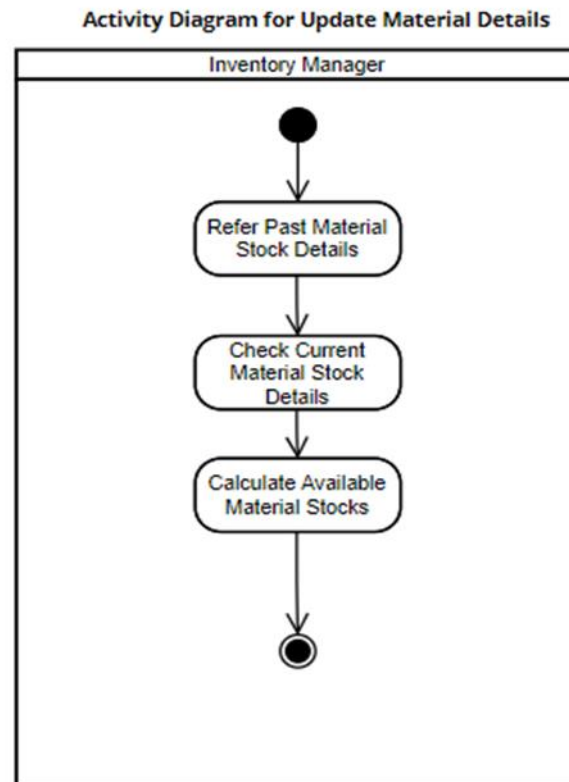


Figure 7-Activity Diagram for Update Materials

Use case Diagrams for Proposed System

Use case Descriptions for Proposed System

Activity Diagrams for Proposed System

Class Diagram

ER Diagram

Normalized Database Design

Use case Diagrams for Proposed System

Overall Use Case Diagrams for the Proposed System

The overall online shopping case diagram for the proposed system is displayed below. Online Customer actors use websites to make online purchases.

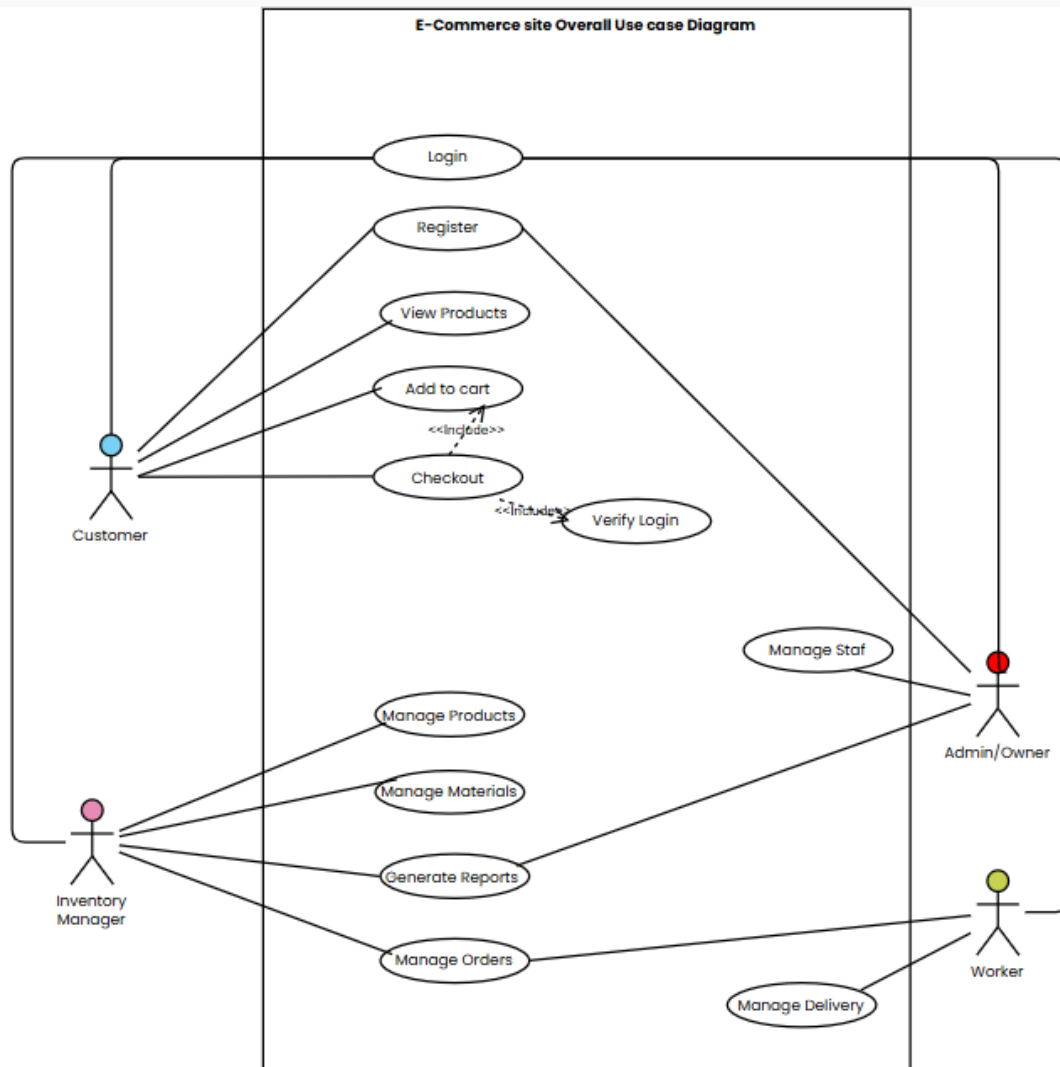


Figure 8-Overall Use Case Diagrams for the Proposed System

Use case Descriptions for Proposed System

Use Case 1 – Login

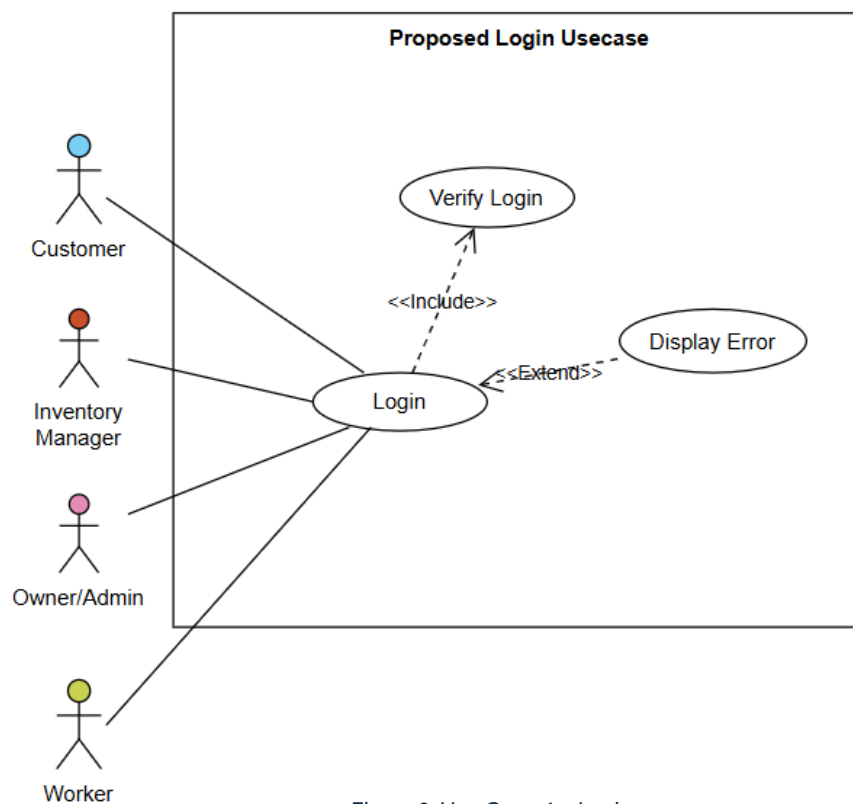


Figure 9-Use Case 1 – Login

The Use case description for the UC1 is explained below and elaborates how the process of login is functioned in the proposed system.

Use Case Name	Login
Actors	Customer, Admin, Inventory Manager, Worker
Description	This case describes the process of login to the system

Pre-Conditions	Users must be an authorized person to use the system by having login email and password.
Normal Flow	<ol style="list-style-type: none"> 1. Users provide login email and password 2. System checks the validity of the login email and password 3. System allows users to login to the system
Alternate Flow	Login email or password or both are incorrect and show an error message Error message direct user to reattempt or cancel.
Post Conditions	User login to the system successfully

Table 7-Use case description for the Login

Use Case 2 – View Items

The case diagram for view items is displayed below. The View Items use case is extended by several optional use cases. All these use cases are extending use cases because they provide some optional functions allowing customers to find items.

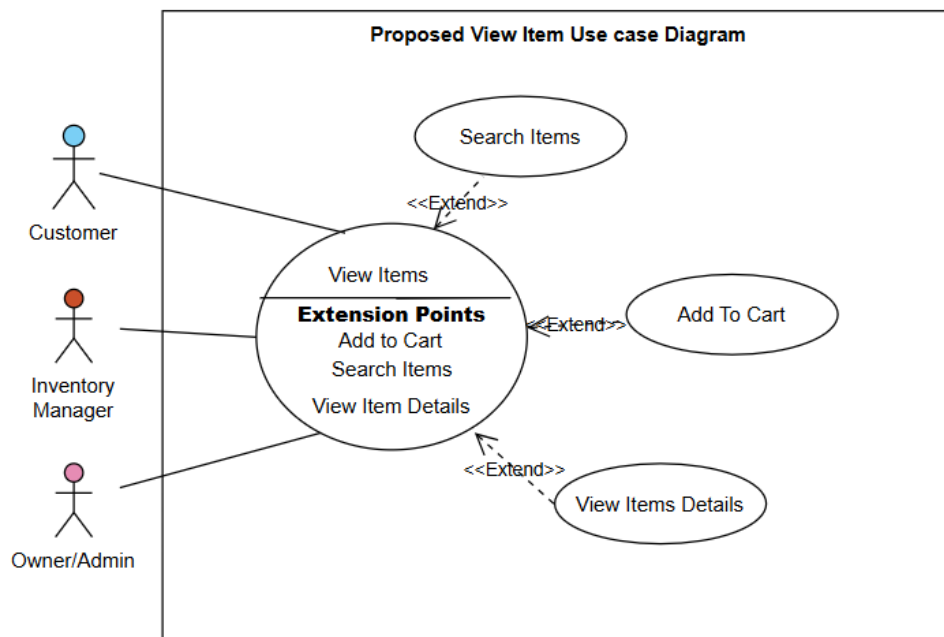


Figure 10-Use Case 2 – View Items

Use case description for the UC2 is explained in below that elaborates how the process of view items is functioned in the customer website of the proposed system.

Use Case Name	View Items
Actors	Customer
Description	This case describes the process of viewing items on the customer website.
Pre-Conditions	Customers must be registered to provide reviews and ratings.
Normal Flow	1. Search and browse items 2. Add items to shopping cart
Alternate Flow	
Post Conditions	Items must be successfully added to the shopping cart.

Table 8-Use case description for the View Items

Use Case 3 – Checkout

The Use case diagram for checkout is displayed in Figure 3.4. Checkout use cases include several required use cases. Checkout use case also includes Payment use case which could be done either by using credit card, offline and external credit payment service or with Stripe.

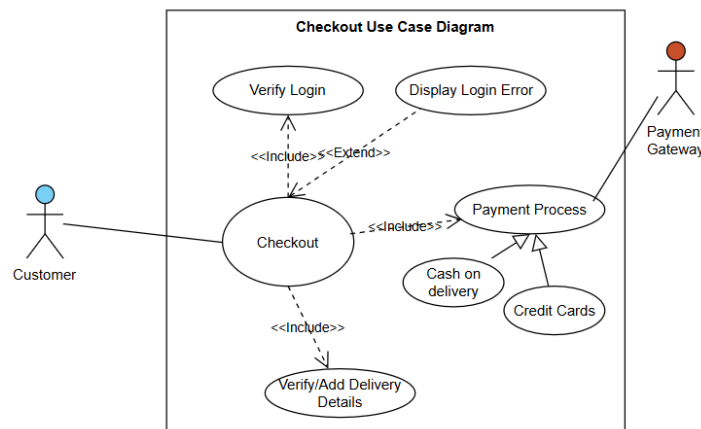


Figure 11-Use Case 3 – Checkout

Use case description for the UC4 is explained below that elaborates how the process of checkout is functioned in the customer website of the proposed system.

Use Case Name	Checkout
Actors	Customer
Description	This Use case describes the process of checking out on the customer website.
Pre-Conditions	Customers must be registered to make purchases.
Normal Flow	1. Login to system 2. View shopping cart 3. Update delivery details 4. Make online payment
Alternate Flow	Update offline payment details
Post Conditions	Order must be successfully added to the system.

Table 9-Use case description for Checkout

Use Case 4 – Manage Products

Use case description for the UC6 is explained in below that elaborates how the process of managing products is functioned in the proposed system.

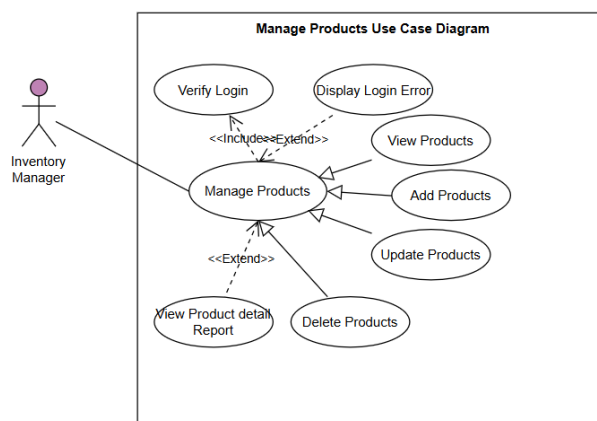


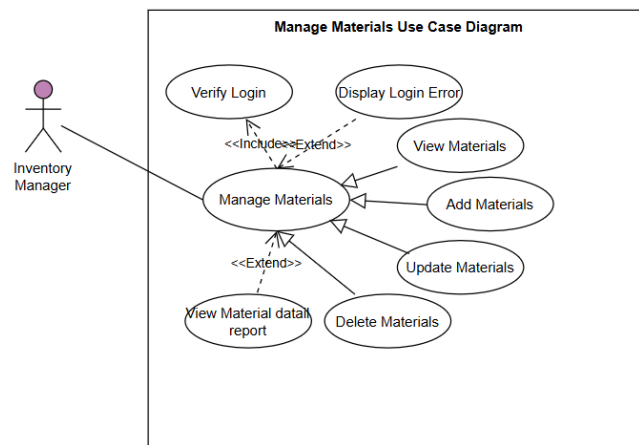
Figure 12-Use Case 4 – Manage Products

Use Case Name	Manage Products
Actors	Inventory manager
Description	This case describes the process of managing products.
Pre-Conditions	User must be logged into the system
Normal Flow	1. Users add product to the system 2. System shows the added products
Sub Flow	1.1. Product will be updated. 1.1.1. Updated products will be viewed.
Alternate Flow	Users fill in the form incorrectly and delete the product.
Post Conditions	Products must be effectively managed in the system.

Table 10-Use case description for Manage Products

Use Case 5 – Manage Materials

Use case description for the UC6 is explained in below that elaborates how the process of managing materials is functioned in the proposed system



Use Case Name	Manage Materials
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Actors	Inventory manager
Description	This Use case describes the process of managing materials.
Pre-Conditions	User must be logged into the system
Normal Flow	1. Users add material to the system 2. System shows the added materials
Sub Flow	1.1. material will be updated. 1.1.1. Updated material will be viewed.
Alternate Flow	Users fill in the form incorrectly and delete the material.
Post Conditions	Material must be effectively managed in the system.

Table 11-Use case description for Manage Materials

Use Case 6 – Manage Orders

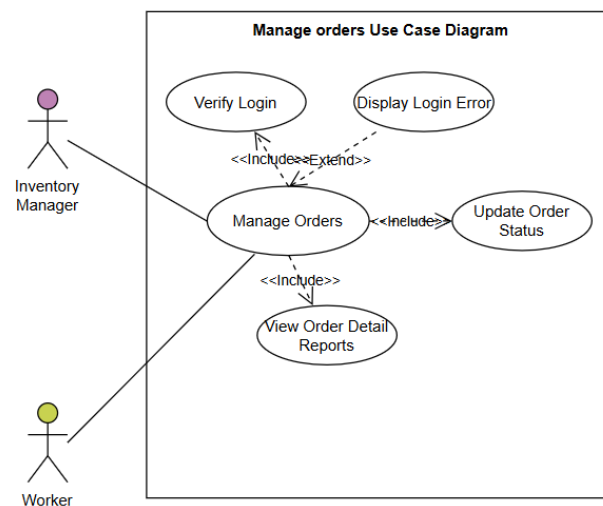


Figure 14-Use Case 6 – Manage Orders

Use case description for the UC8 is explained below that elaborates how the process of managing orders is functioned in the proposed system.

Use Case Name	Manage Orders
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Actors	Inventory Manager, Worker
Description	This Use case describes the process of managing orders.
Pre-Conditions	User must be logged into the system
Normal Flow	<ol style="list-style-type: none"> 1. Login to system 2. View orders 3. Generate packing list 4. Generate cash on delivery payment bills
Alternate Flow	Update order status.
Post Conditions	Orders must be effectively managed in the system

Table 12-Use case description for Manage Orders

Use Case 7 – Manage Delivery

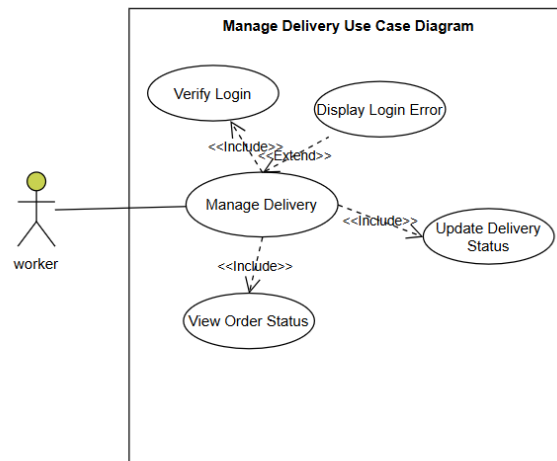


Figure 15-Use Case 7 – Manage Delivery

The Use case description for the UC9 is explained below that elaborates how the process of managing delivery is functioned in the proposed system.

Use Case Name	Manage Delivery
Actors	Worker

Description	This Use case describes the process of managing delivery.
Pre-Conditions	User must be logged into the system
Normal Flow	1. Login to system 2. Generate delivery process information
Alternate Flow	
Post Conditions	Delivery must be effectively managed in the system.

Table 13-Use case description for Manage Delivery

Use Case 8 – Manage Staffs

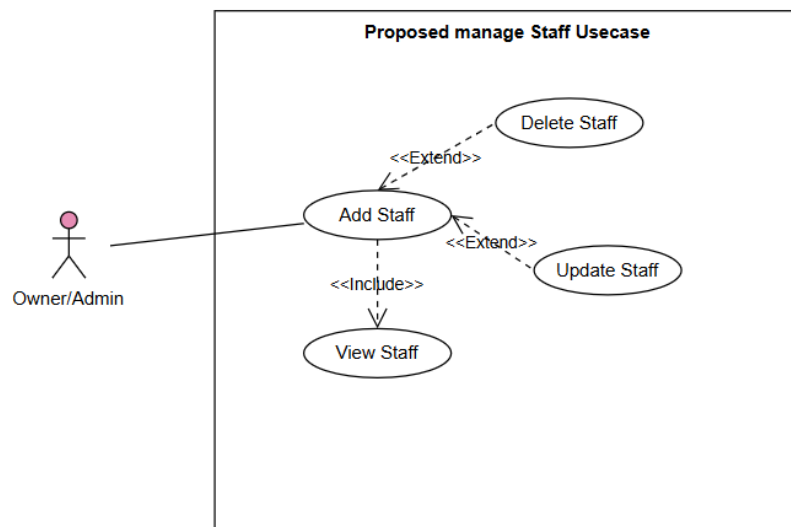


Figure 16-Use Case 8 – Manage Staffs

Use case description for the UC10 is explained below that elaborates how the process of managing staff is functioned in the proposed system.

Use Case Name	Manage Staff
Actors	Admin

Description	This Use case describes the process of managing staff.
Pre-Conditions	User must be logged into the system
Normal Flow	1. Users add staff to the system 2. System shows the added staff
Alternate Flow	1.1. Staff will be updated. 1.1.1. Updated staff will be viewed.
Post Conditions	Staff must be effectively managed in the system

Table 14-Use case description for Manage Staff

Activity Diagrams to describe the functionality of the Use-Cases

Activity Diagram for the UC1-Login

Activity diagram to explain how the customer or the web administrator or the Inventory manager, or the staff interact with the system when login to the system is displayed below. By logging in, unauthorized access to the system is eliminated.

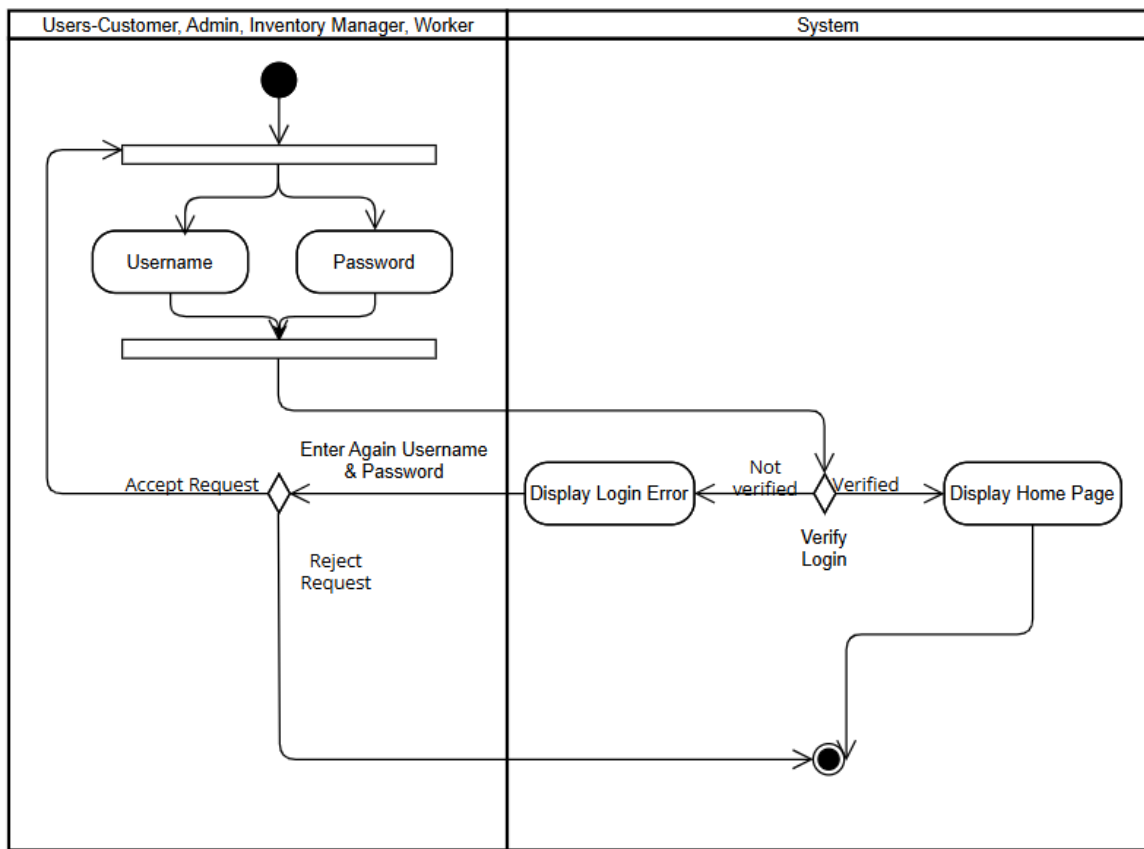


Figure 17-Activity Diagram for the UC1-Login

Activity Diagram for the UC2-View Items

An activity diagram to explain how the customer interacts with the system when viewing items on the customer website is displayed in below.

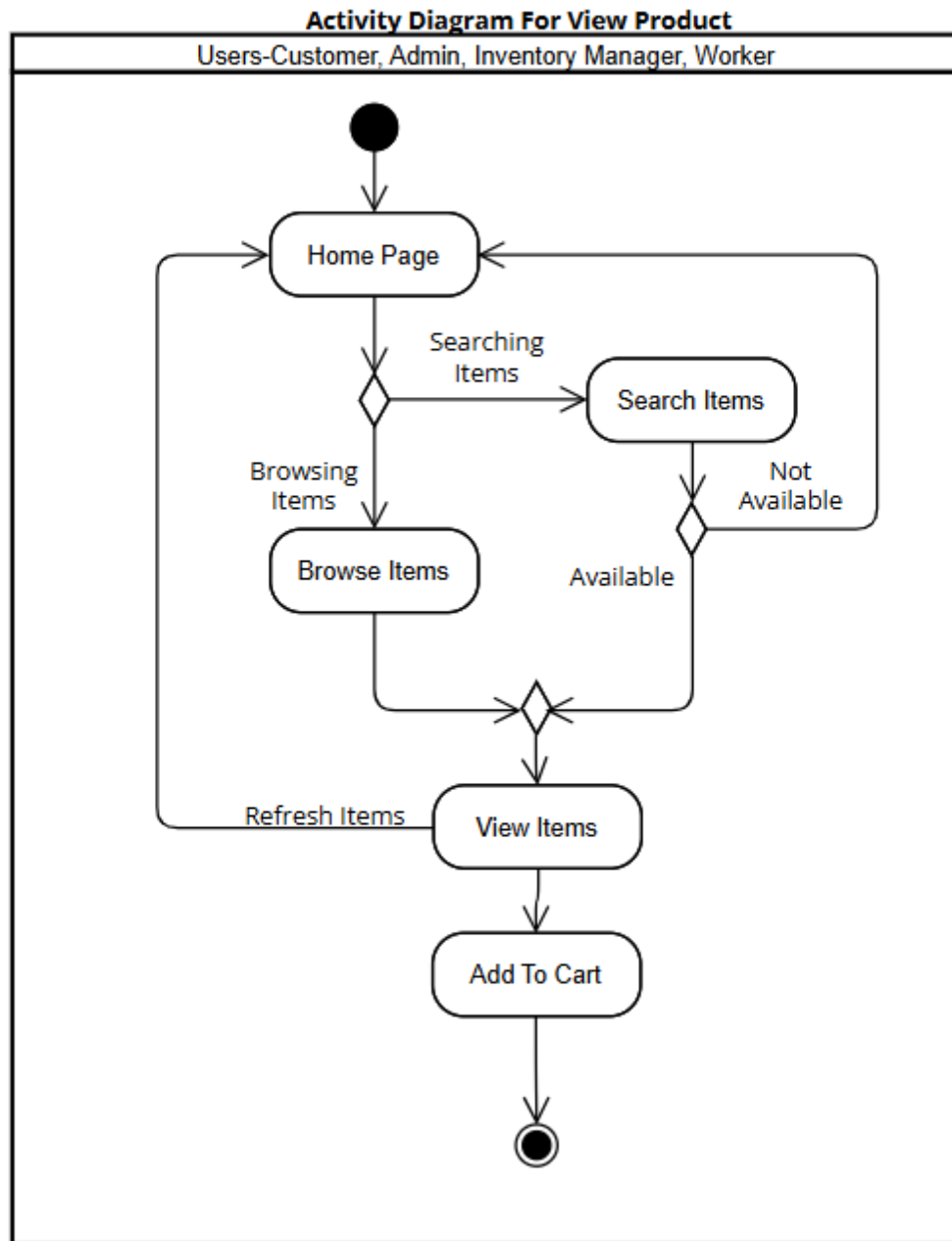


Figure 18-Activity Diagram for the UC2-View Items

Activity Diagram for the UC3-Checkout

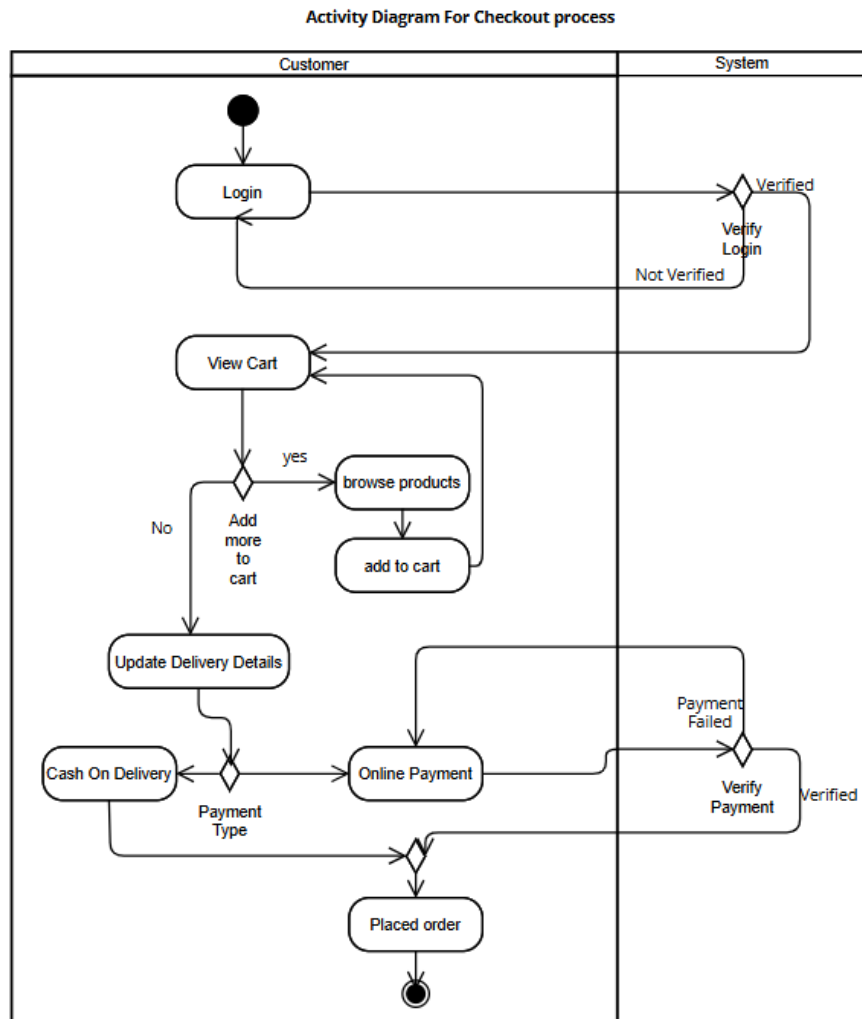


Figure 19-Activity Diagram for the UC3-Checkout

Activity diagram to explain how the customer interacts with the system when checking out in the customer website is displayed below.

Activity Diagram for the UC4-Manage Products

Activity Diagram for the UC4.1-Add Product

An activity diagram to explain how web administrator and the system interact when adding products to the system is displayed in below.

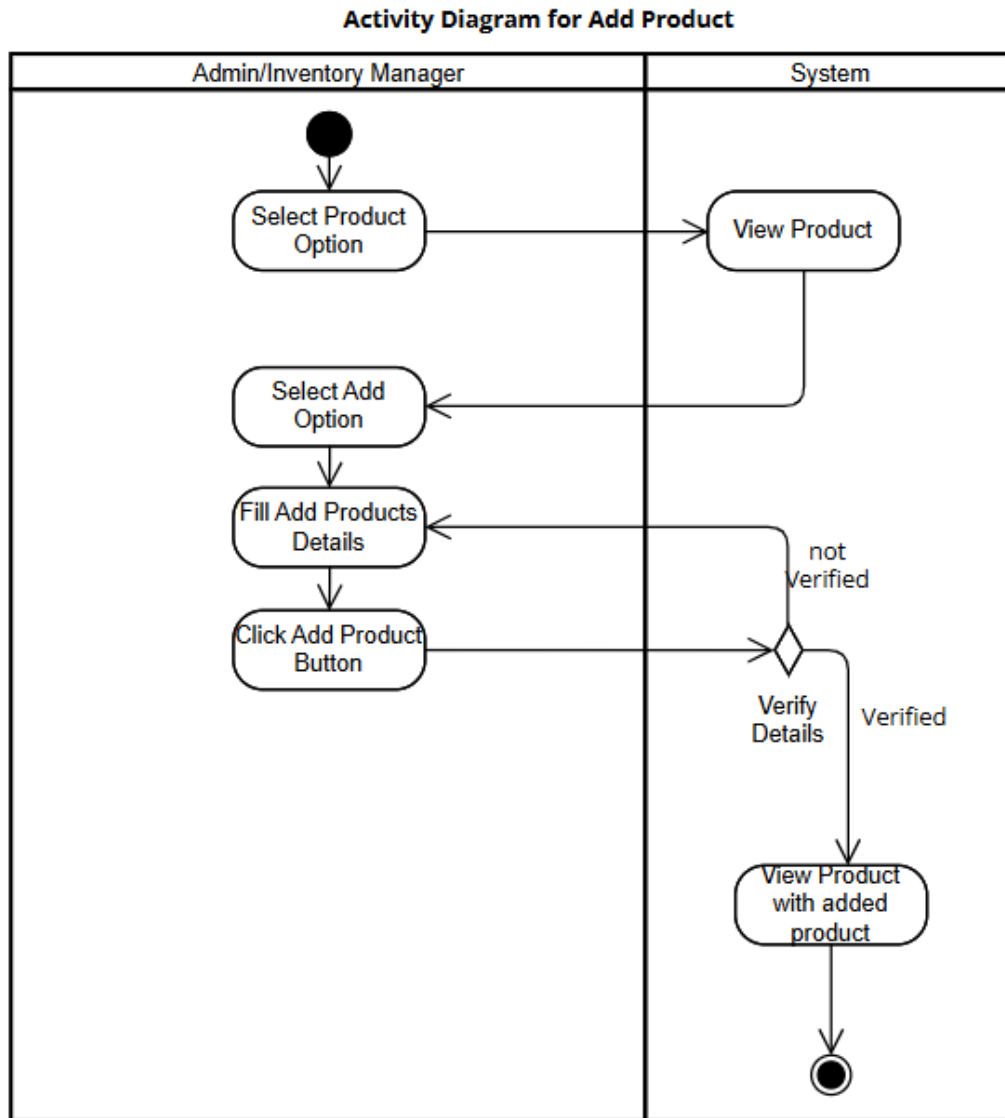


Figure 20- Activity Diagram for the UC4.1-Add Product

Activity Diagram for the UC4.2-Update Product

An activity diagram to explain how web administrator or the manager and the system interact when updating product details is displayed below.

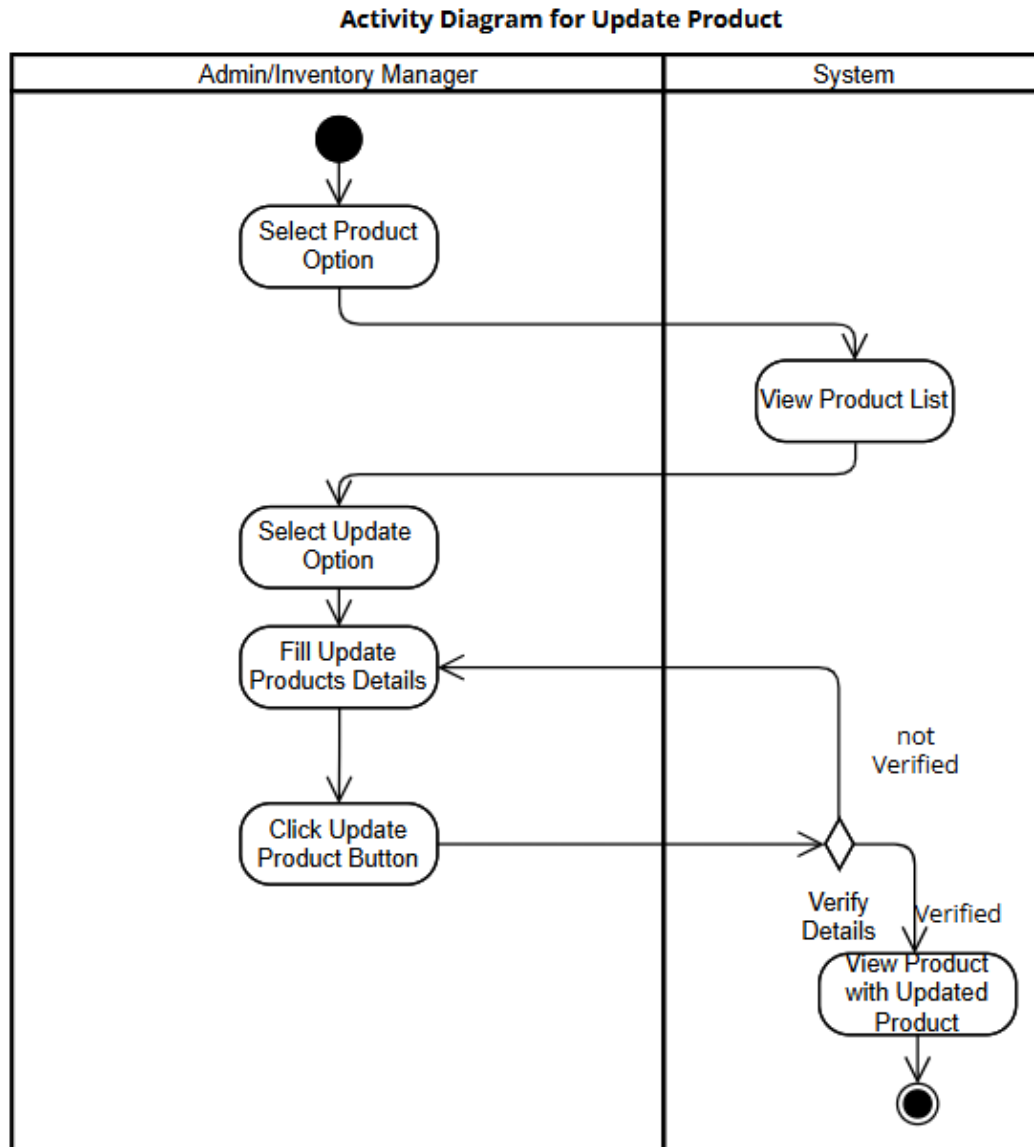


Figure 21-Activity Diagram for the UC4.2-Update Product

Activity Diagram for the UC4.3-Delete Product

An activity diagram to explain how web administrator and the system interact when deleting products is displayed below.

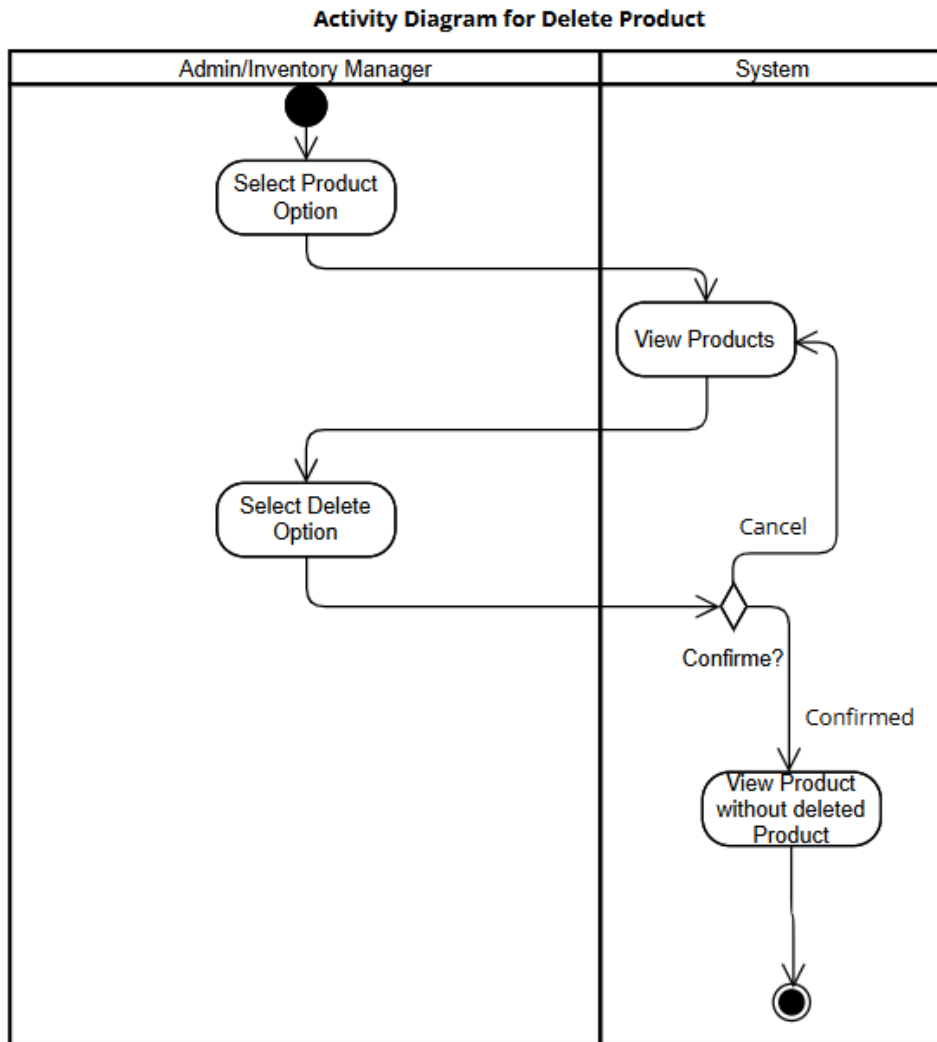


Figure 22-Activity Diagram for the UC4.3-Delete Product

Activity Diagram for the UC5-Manage Materials

Activity Diagram for the UC5.1-Add Material

Activity diagram to explain how web administrator and the system interact when adding materials to the system is displayed below.

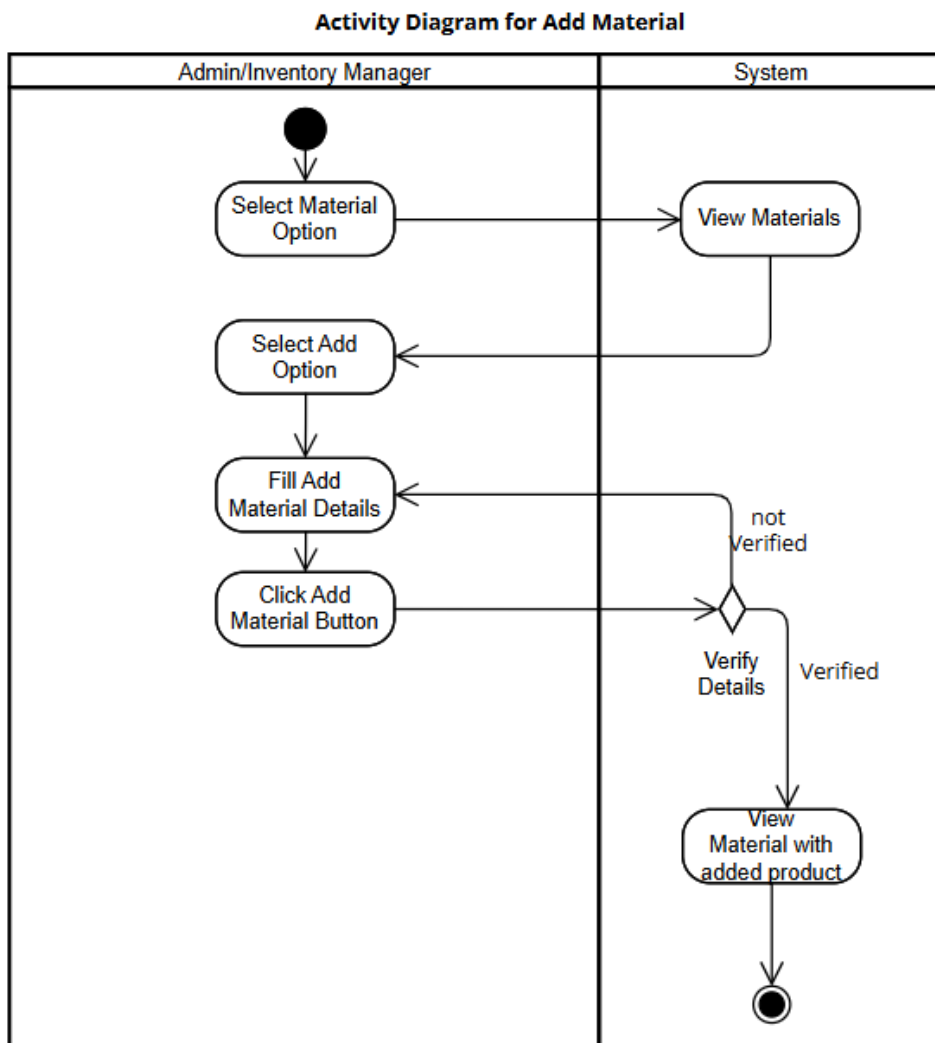


Figure 23-Activity Diagram for the UC5.1-Add Material

Activity Diagram for the UC5.2-Update Material

Activity diagram to explain how web administrator or the manager and the system interact when updating material details is displayed below.

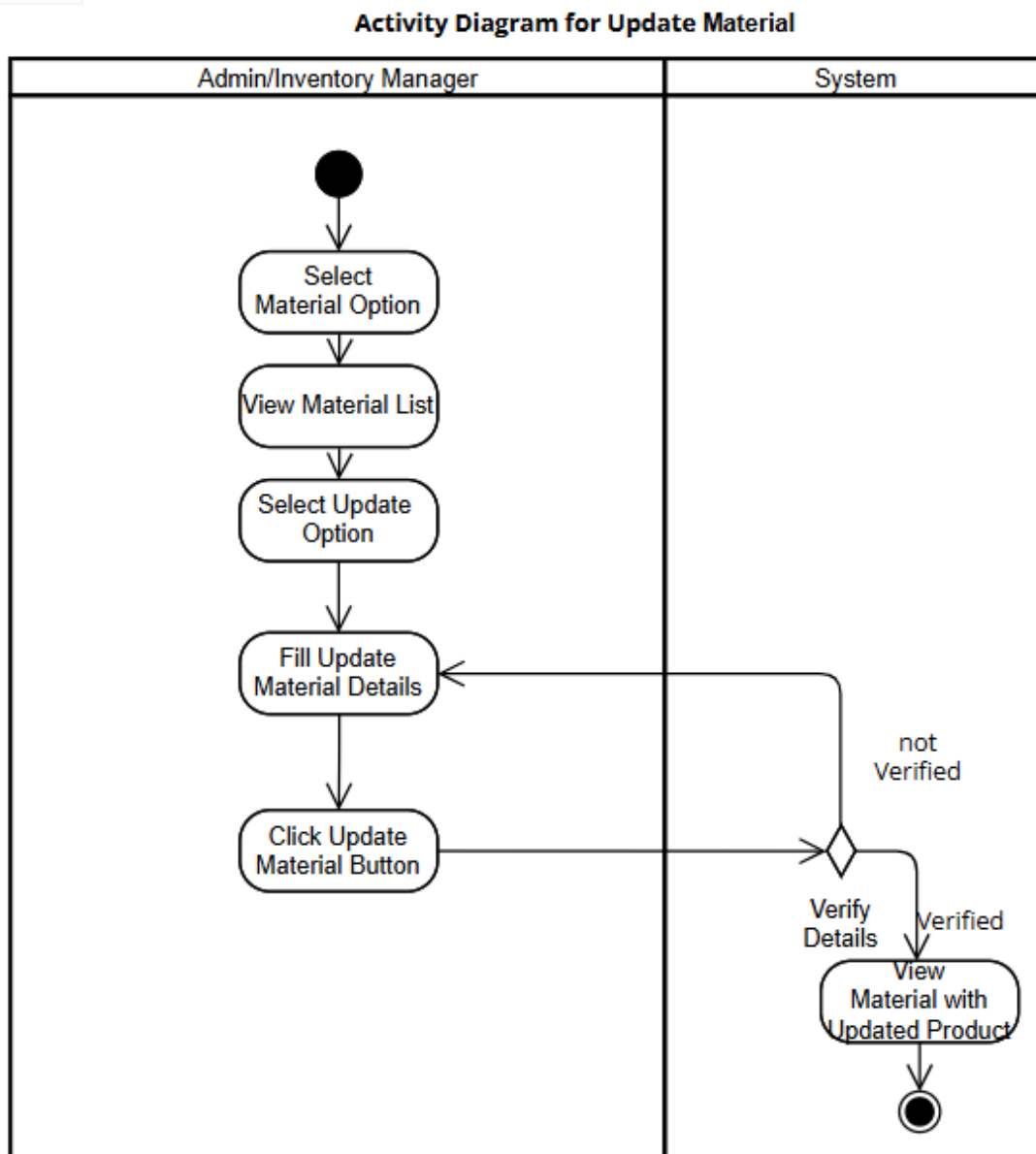


Figure 24-Activity Diagram for the UC5.2-Update Material

Activity Diagram for the UC5.3-Delete Materials

Activity diagram to explain how web administrator and the system interact when deleting material is displayed below.

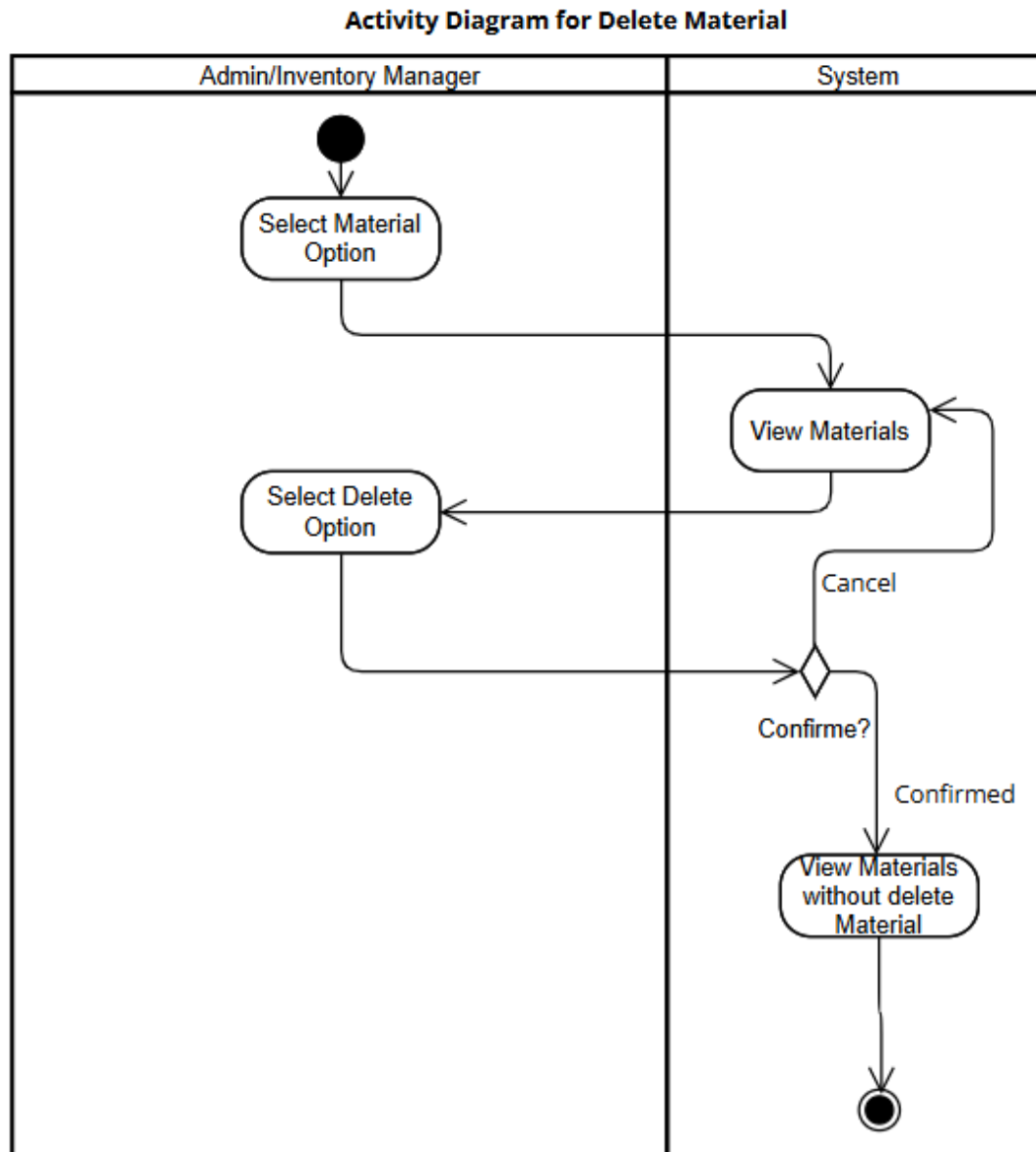


Figure 25-Activity Diagram for the UC5.3-Delete Materials

Activity Diagrams Generate Inventory Reports

Activity diagram to explain how web administrator or the manager and the system interact when generating inventory overview report is displayed below.

Activity Diagram for the UC5.4 Product Details report

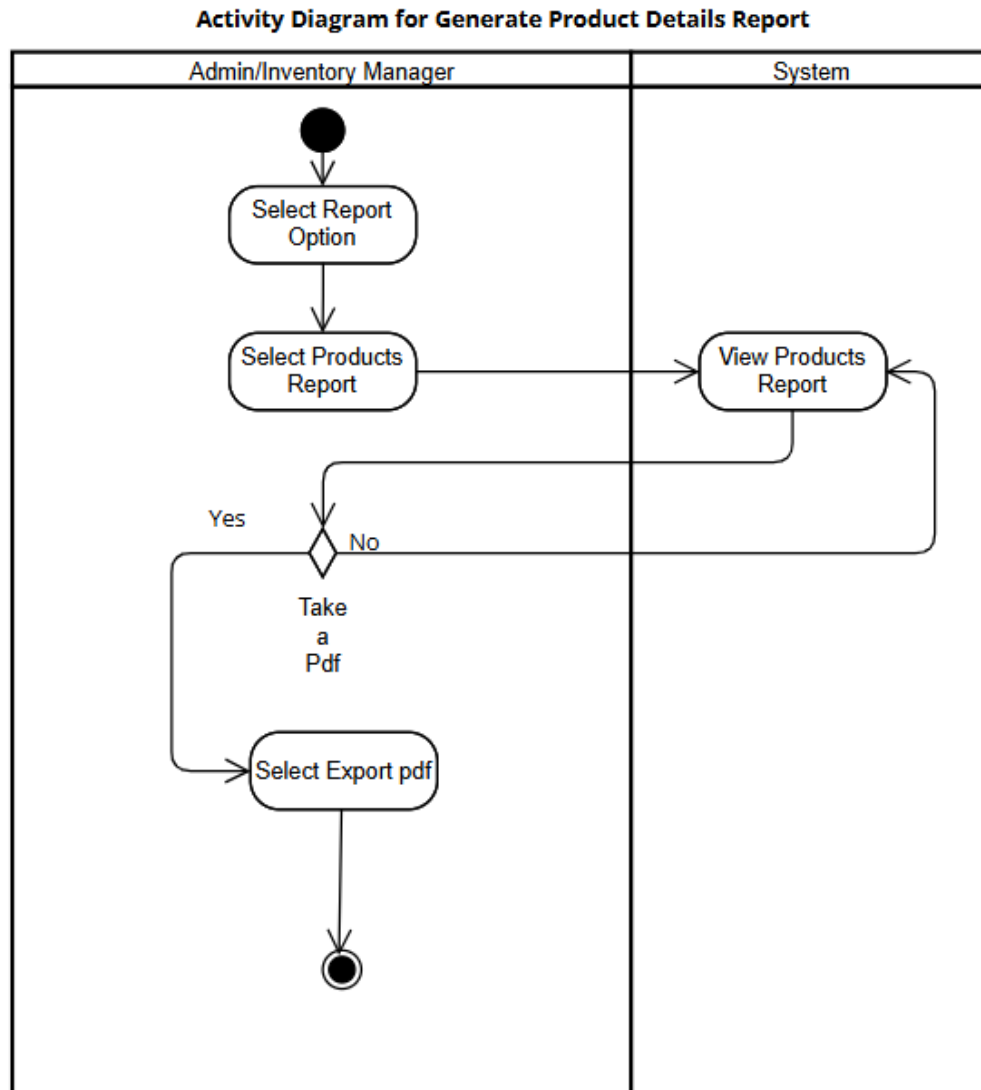


Figure 26-Activity Diagram for the UC5.4-Generate Inventory Report

Activity Diagram for the UC5.5 Material Details Report

Activity Diagram for Generate Material Details Report

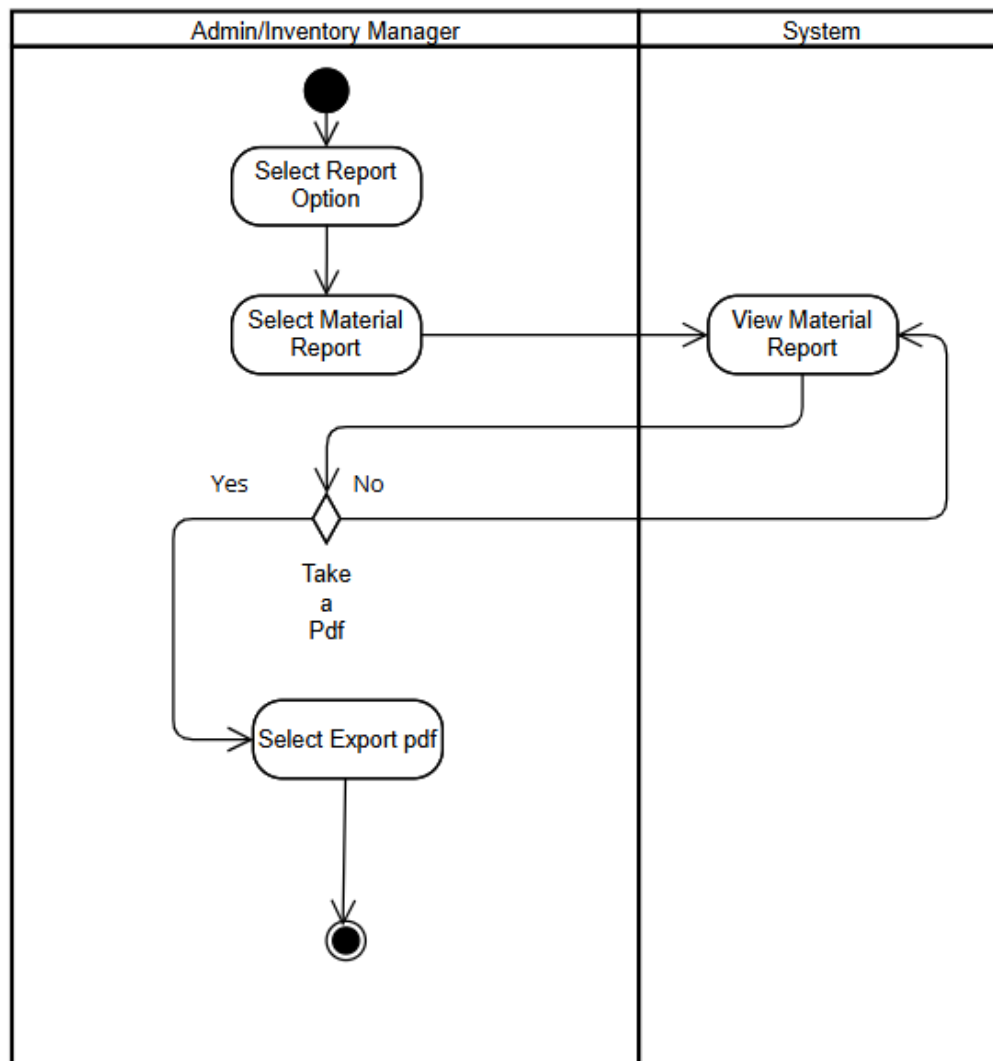


Figure 27-Activity Diagram for the UC5.5 Material Details Report

Activity Diagram for the UC5.6 Order Details Report

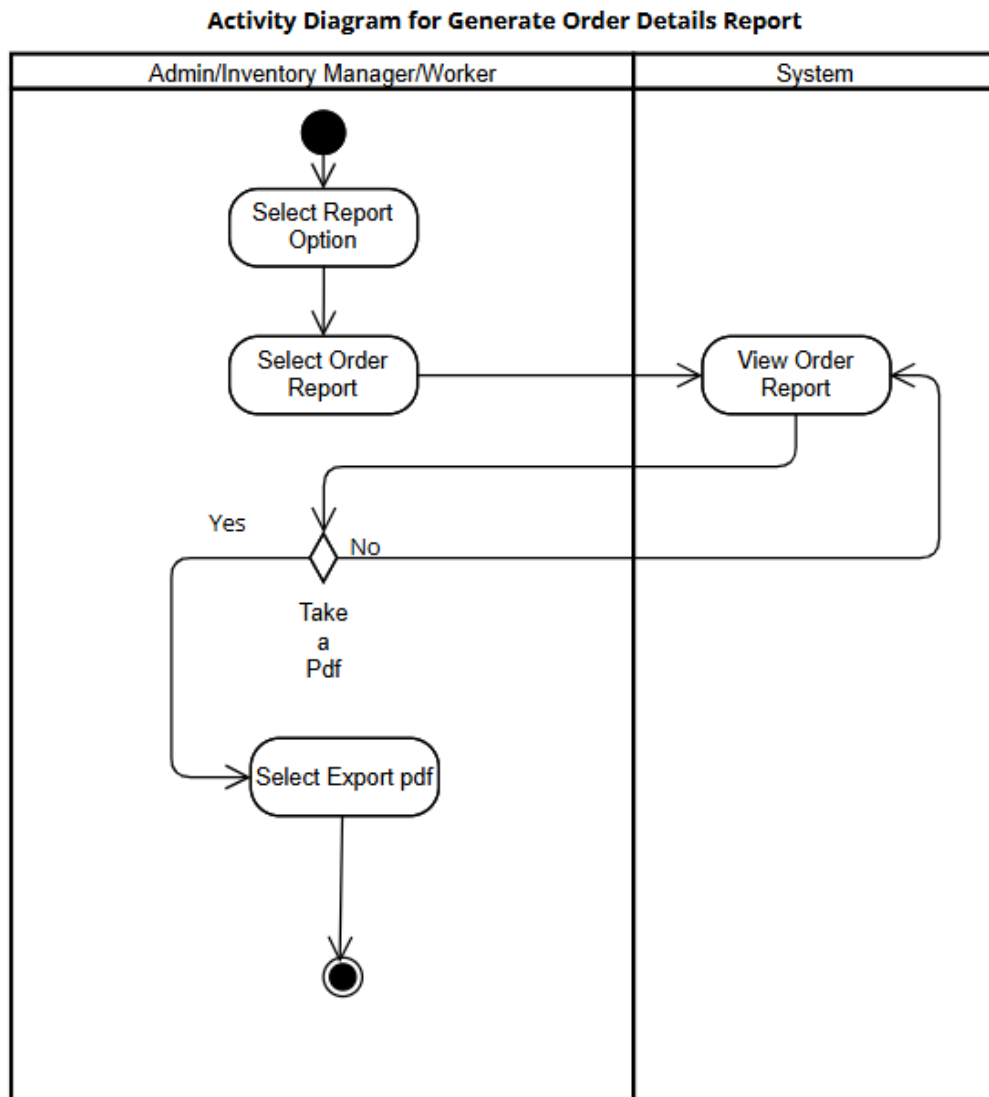


Figure 28-Activity Diagram for the UC5.6 Order Details Report

Activity Diagram for the UC9-Manage Delivery

Activity diagram to explain how web administrator and the system interact when managing delivery is displayed below.

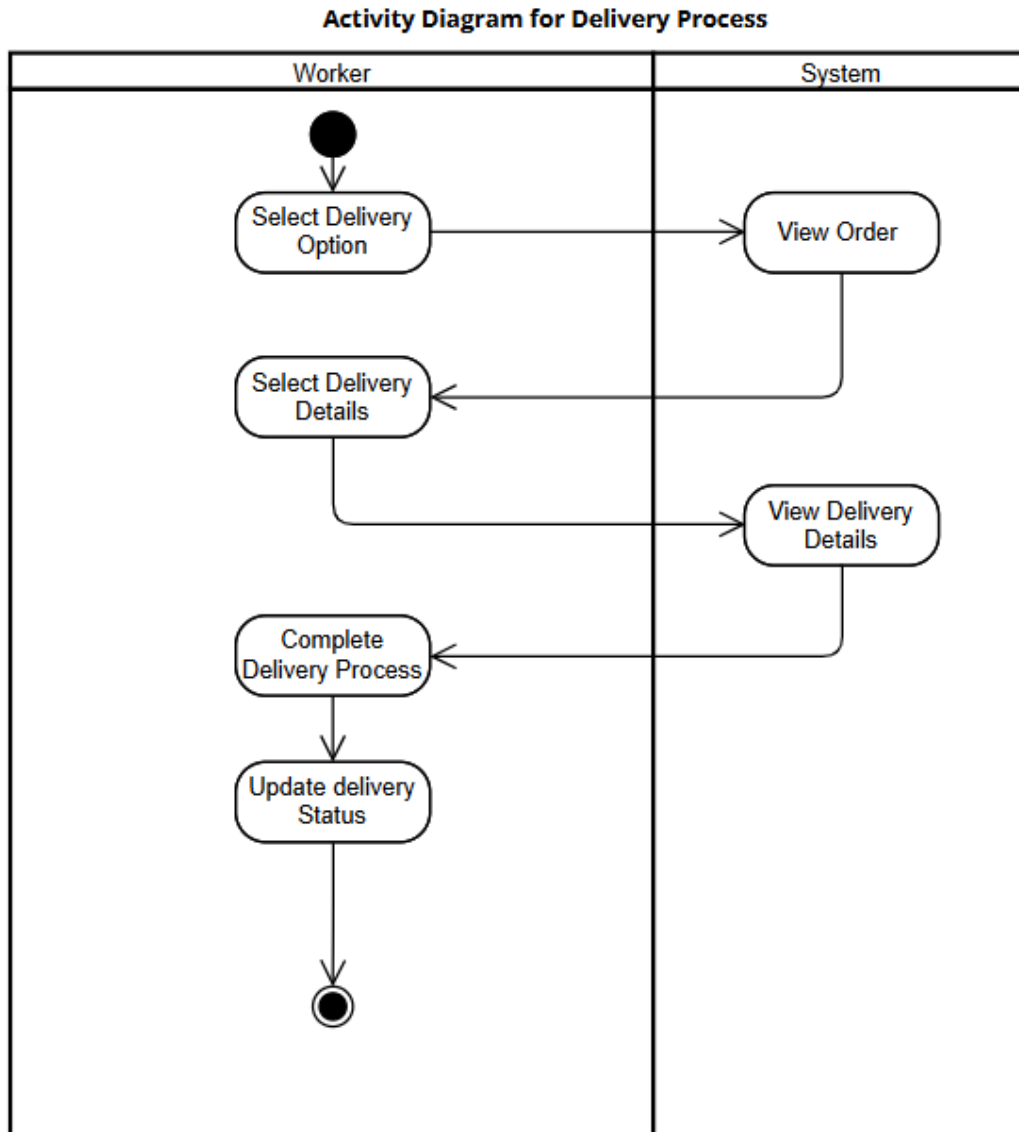


Figure 29-Activity Diagram for the UC9-Manage Delivery

Activity Diagram for the UC10-Manage Staff

Activity Diagram for the UC10.1-Add Staff

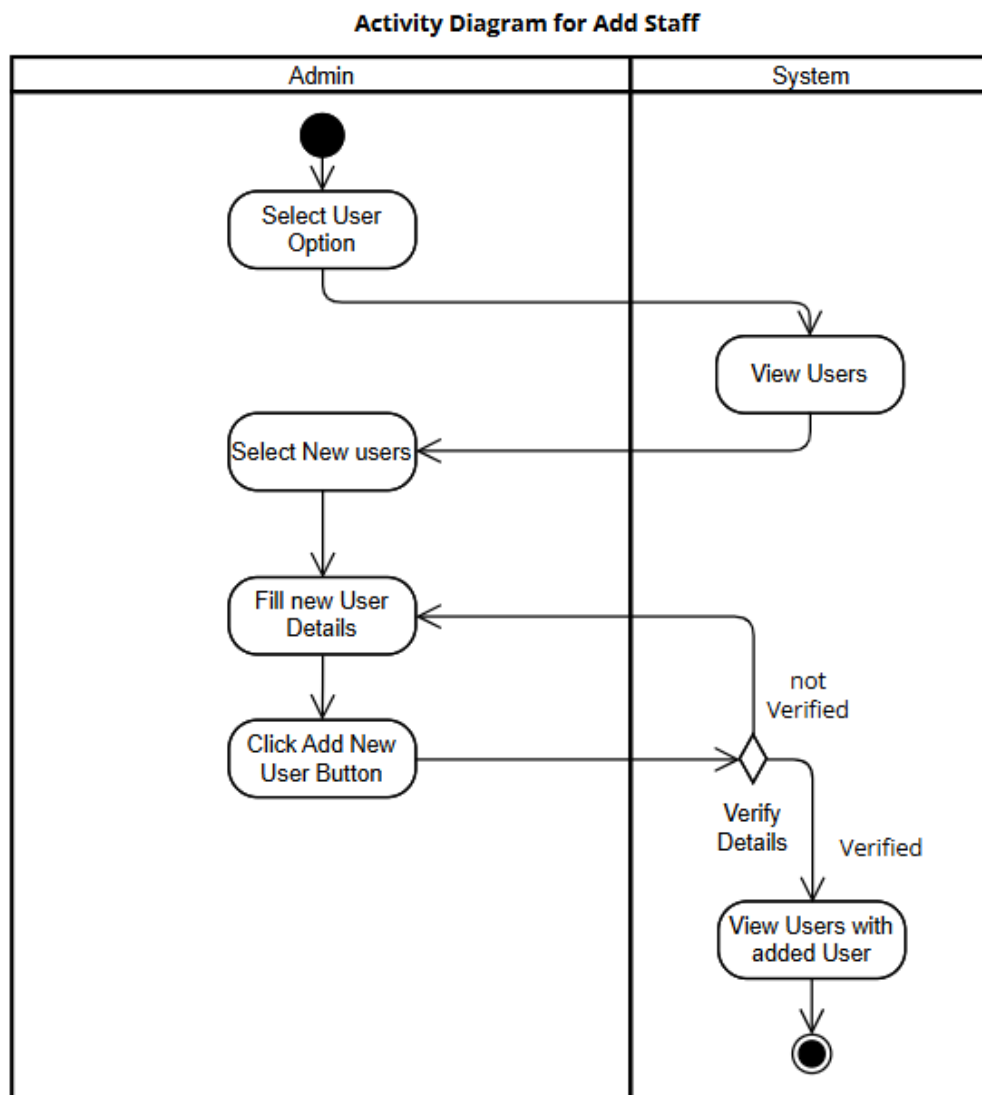


Figure 30-Activity Diagram for the UC10.1-Add Staff

Activity Diagram for the UC10.2-Update Staff profile

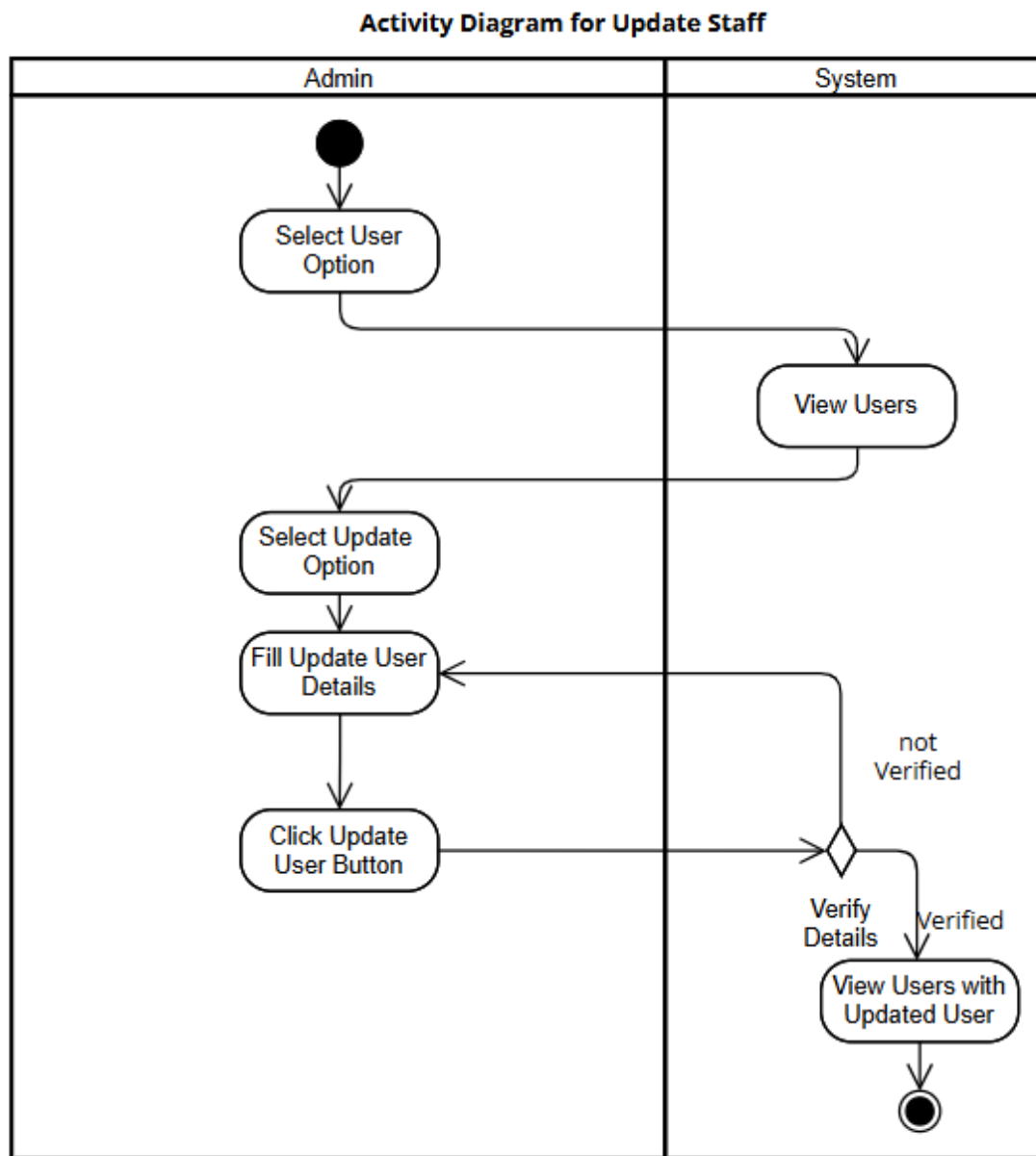


Figure 31-Activity Diagram for the UC10.2-Update Staff profile

Activity Diagram for the UC10.3-Delete Staff

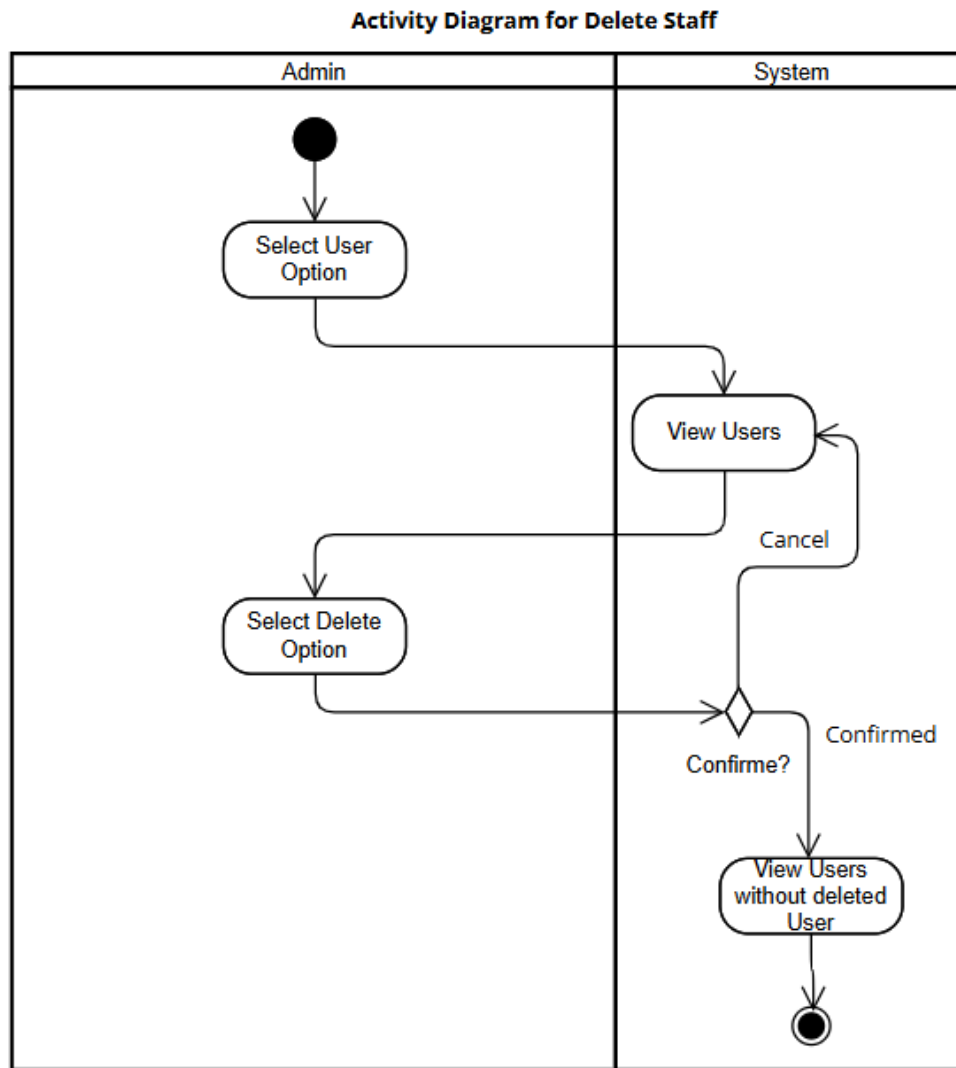


Figure 32-Activity Diagram for the UC10.3-Delete Staff

Class Diagram

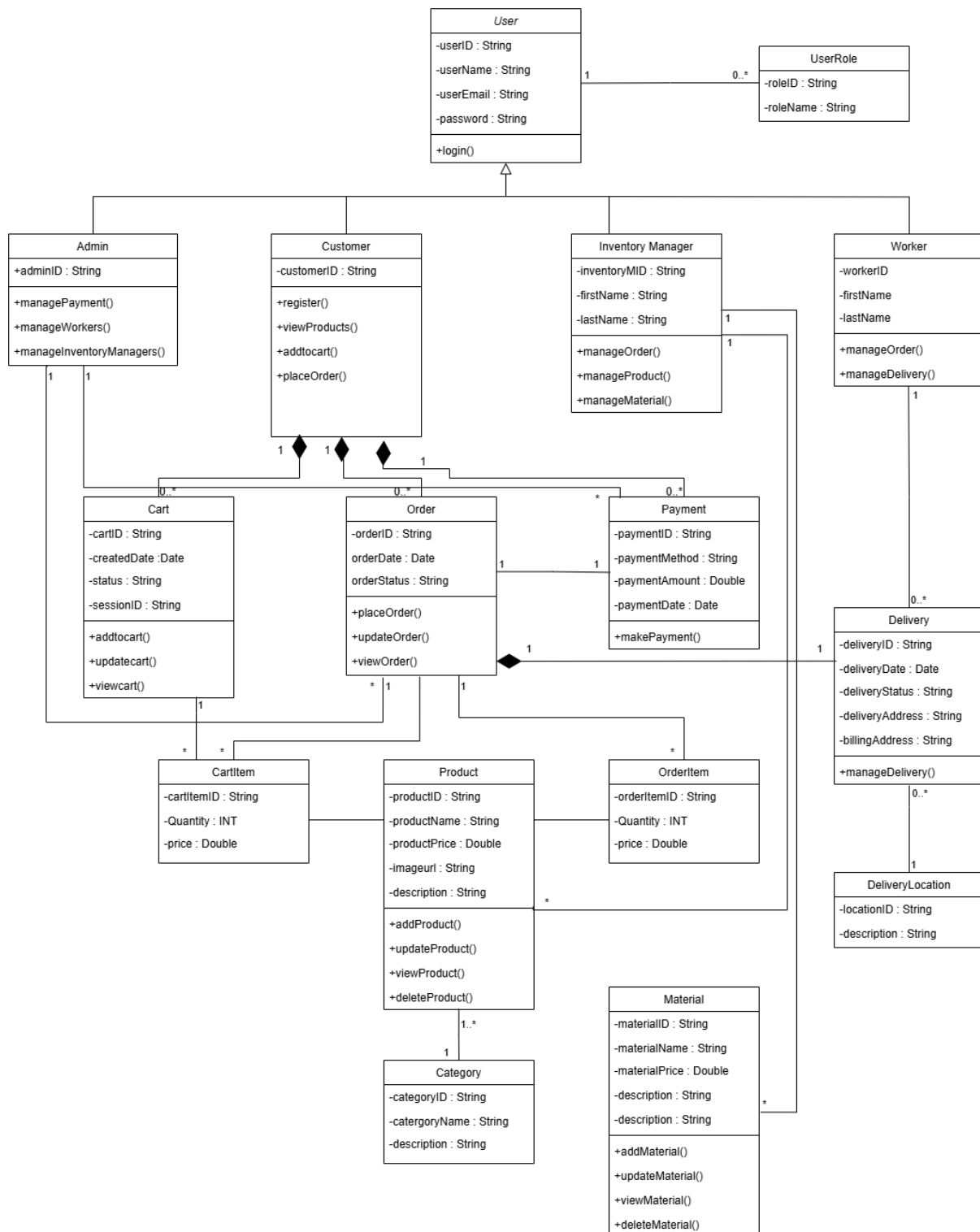
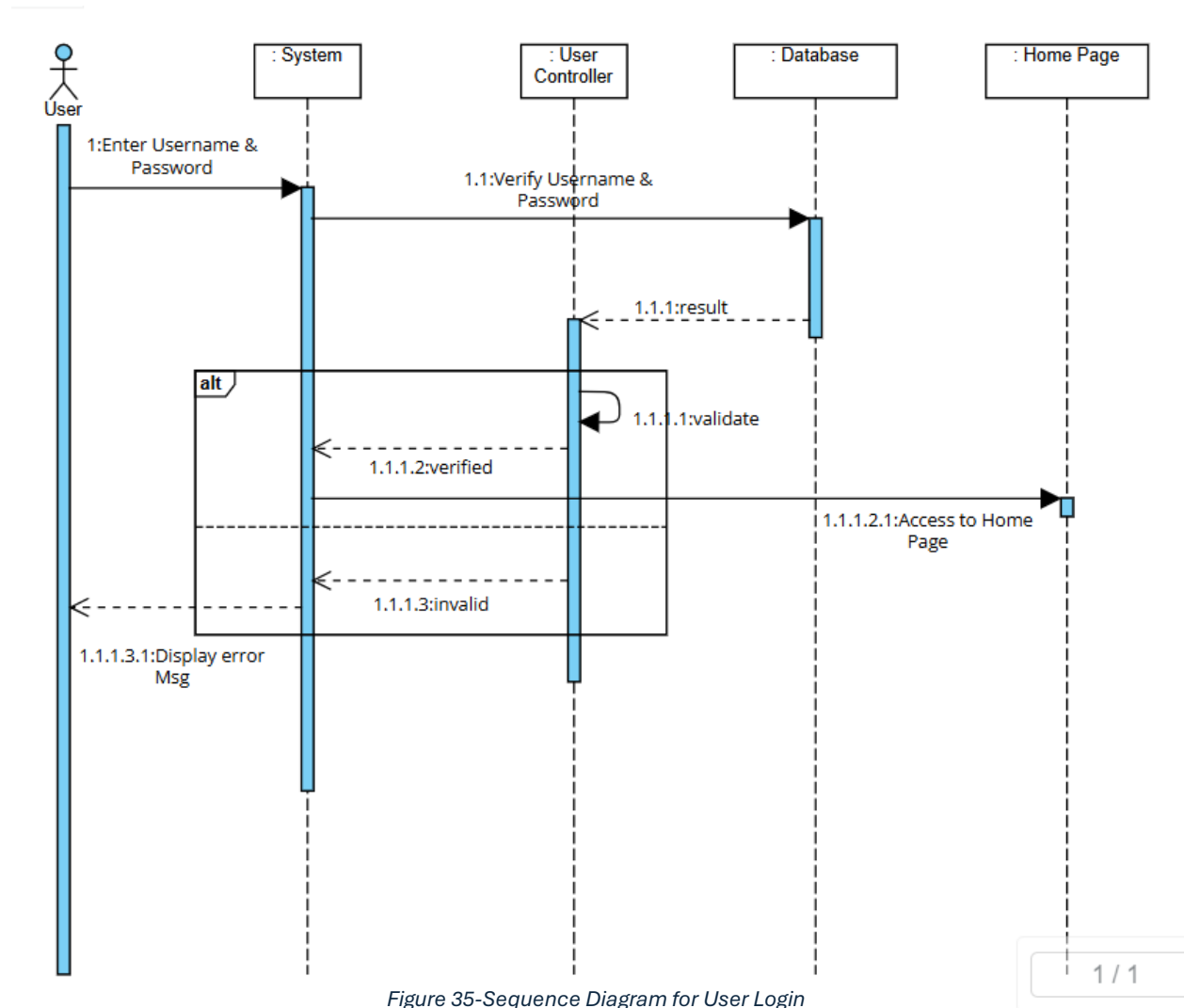


Figure 33-Class Diagram

Sequence Diagram

Sequence Diagram for User Login



Sequence Diagram for View Items

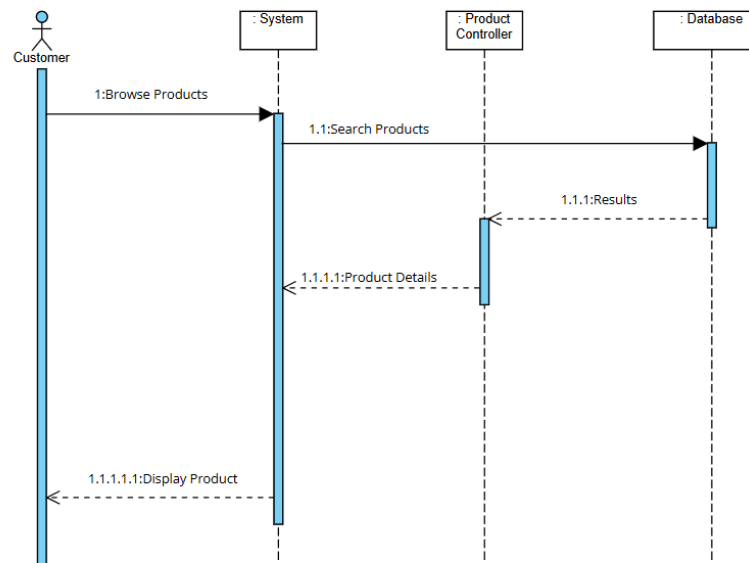


Figure 36-Sequence Diagram for View Items

Sequence Diagram for Checkout

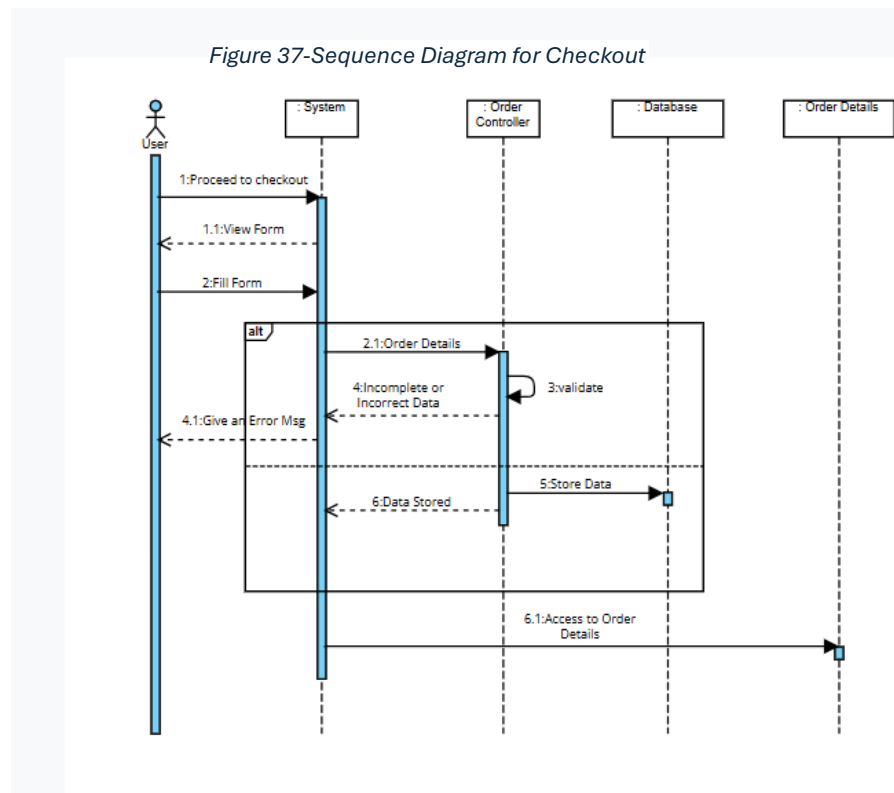


Figure 37-Sequence Diagram for Checkout

Sequence Diagrams for Manage Products

Sequence Diagram for Add Products

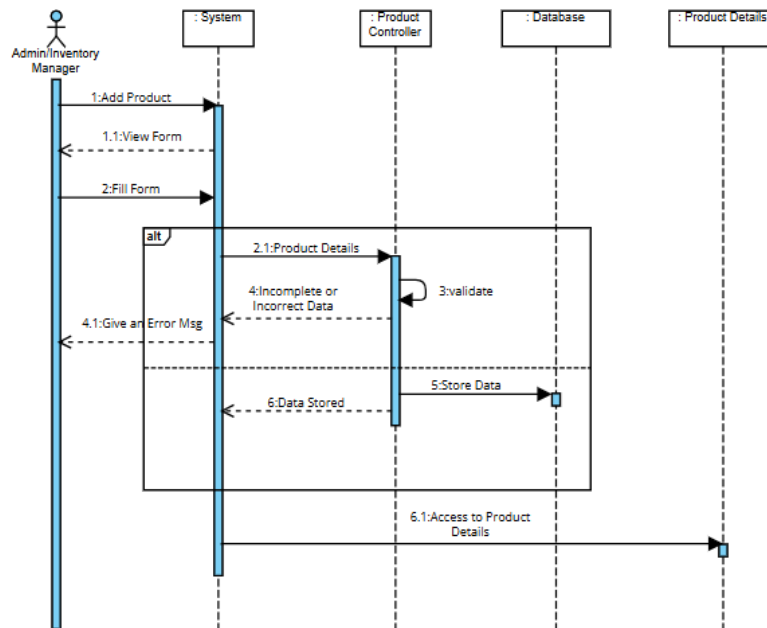


Figure 38-Sequence Diagram for Add Products

Sequence Diagram for View Products

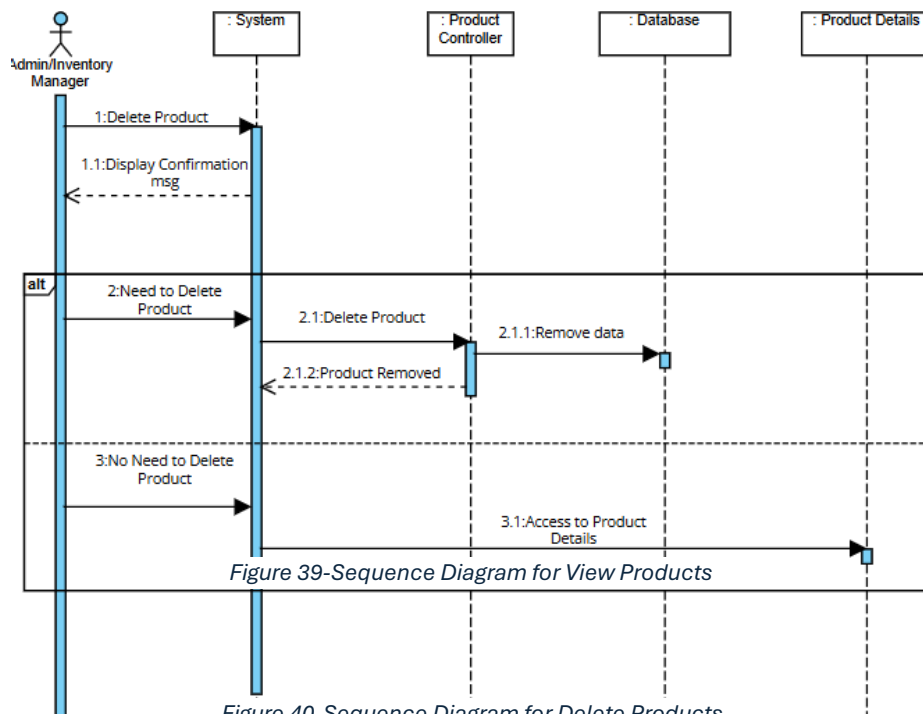


Figure 39-Sequence Diagram for View Products

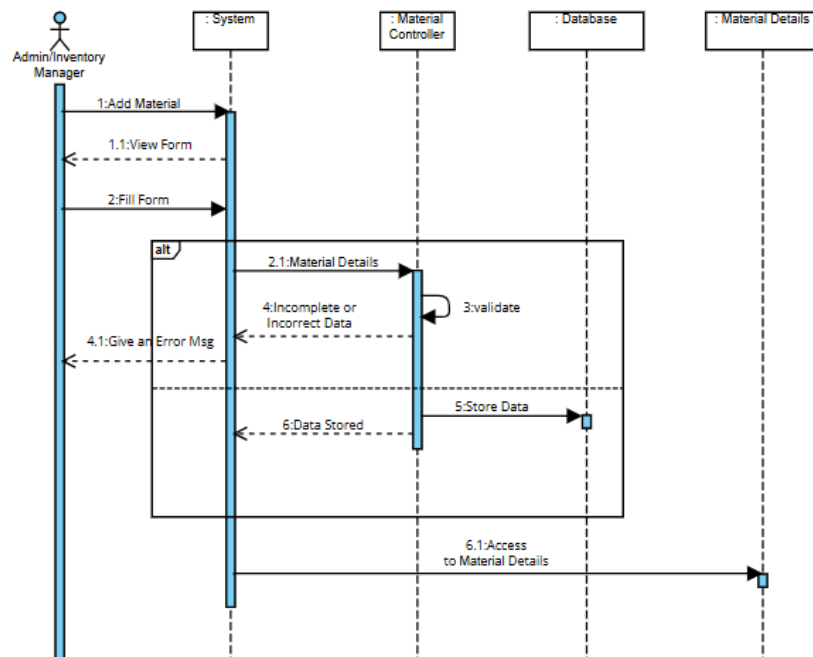
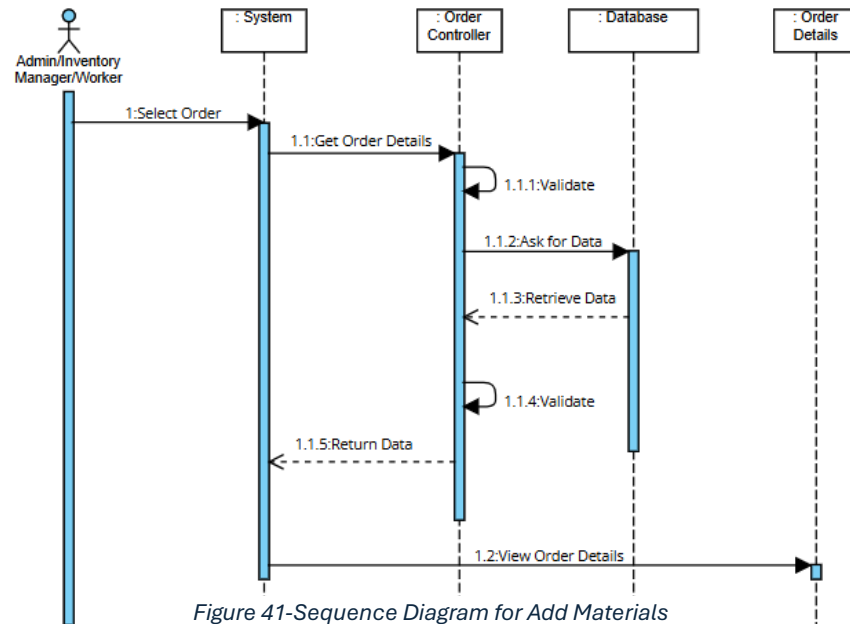
Figure 40-Sequence Diagram for Delete Products

Sequence Diagram for Delete Products

Sequence Diagrams for Manage Materials

Sequence Diagram for Add Materials

Sequence Diagram for View Materials



Sequence Diagram for Delete Materials

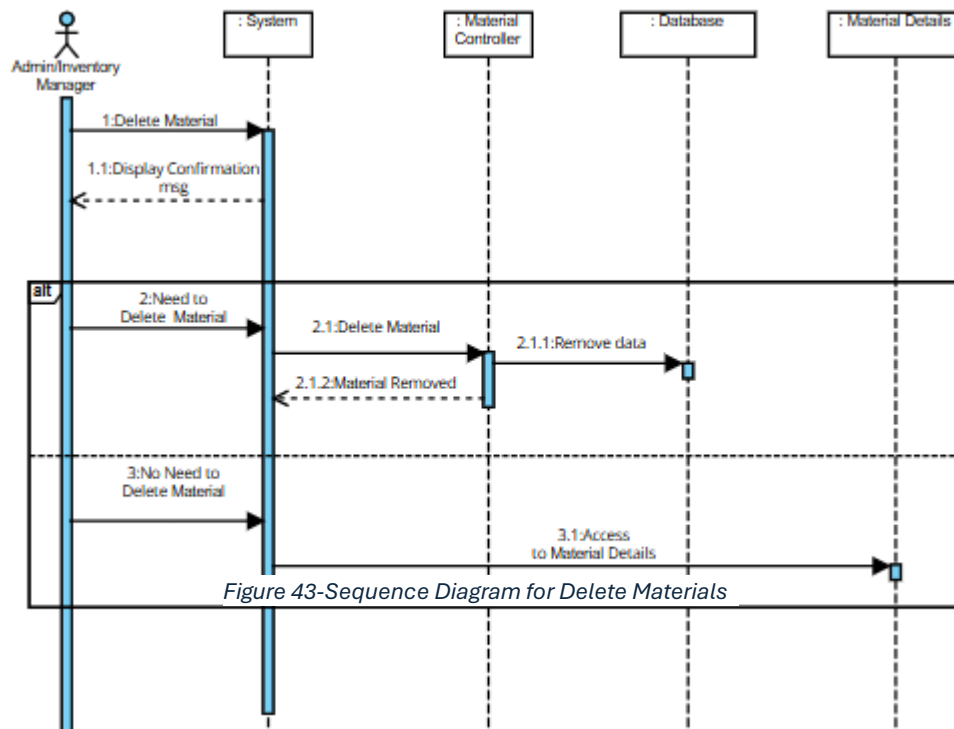


Figure 43-Sequence Diagram for Delete Materials

Figure 44-Sequence Diagrams for View Orders

Sequence Diagrams for View Orders

Entity-Relational Model

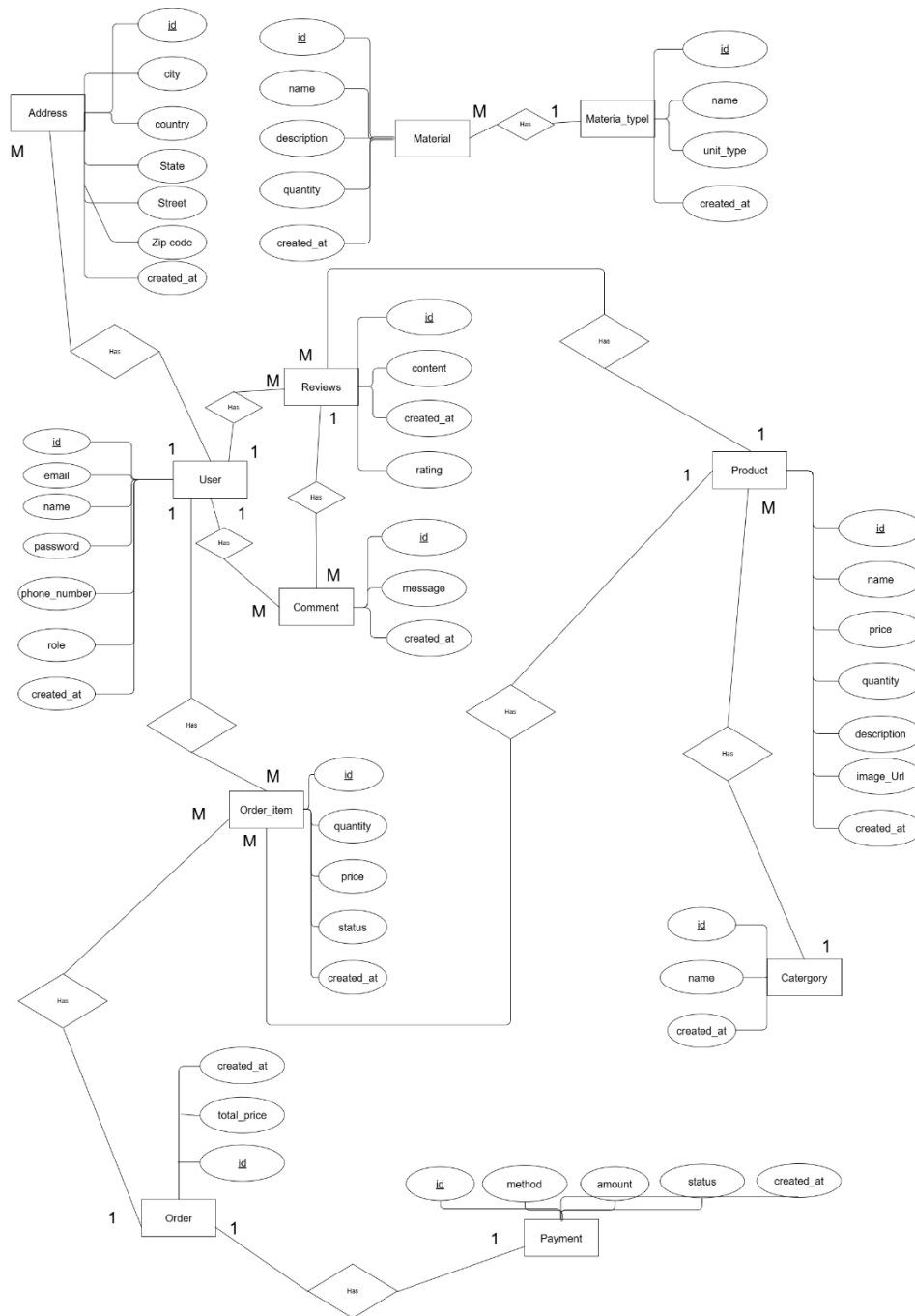


Figure 45- Entity-Relational Model

Database Design

Entities to Tables: Each entity (e.g., User, Product, Order) becomes a table. Attributes become columns, and primary keys are added.

Relationships:

For 1:1 - relationships, add the primary key of one entity as a foreign key in the other.

For 1 - relationships, add the primary key of the "one" side as a foreign key on the "many" sides.

Normalized Database Design

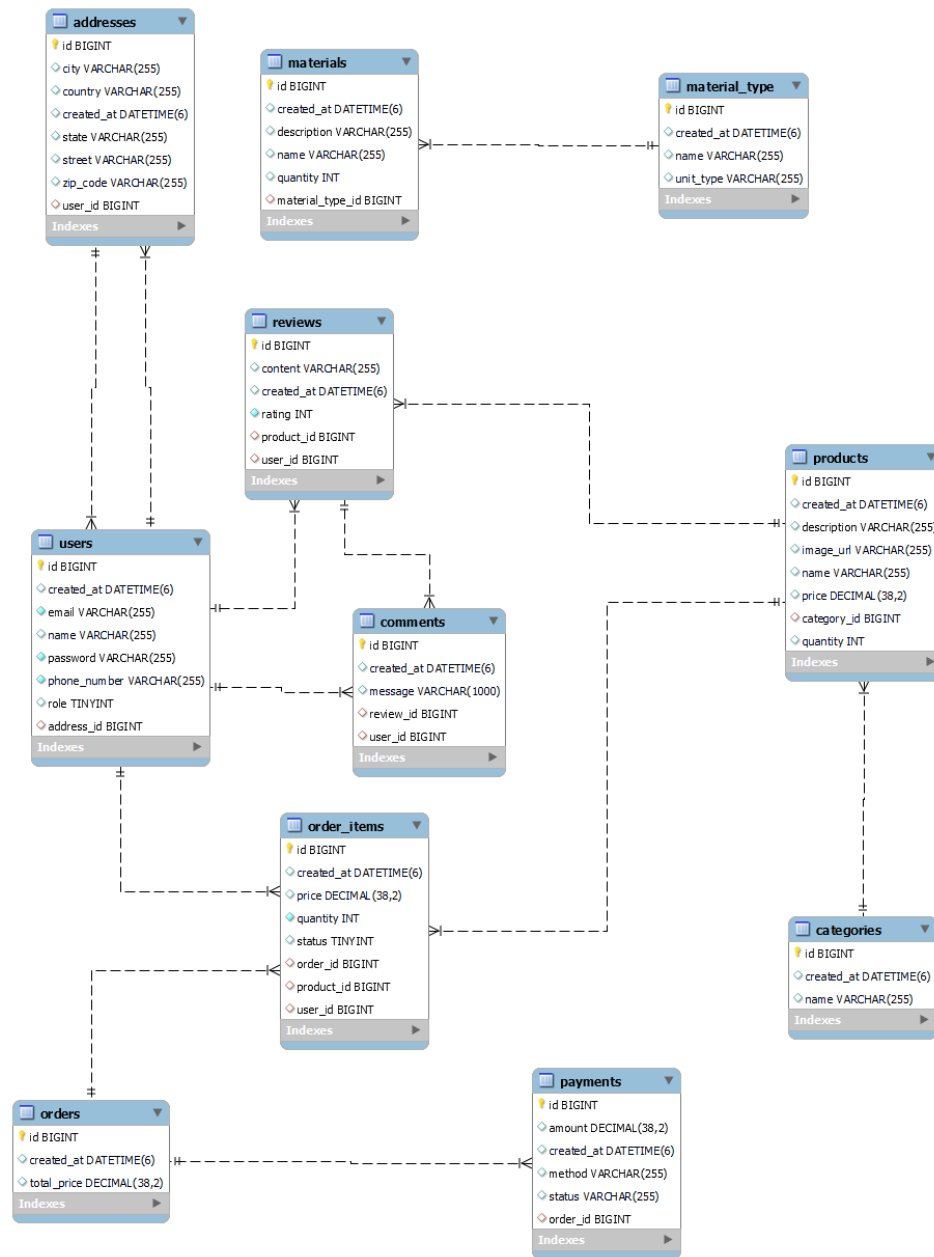


Figure 46-Normalized Database Design