

**Year 2, Semester I, 2025**

**Group Assignment**

**Online E-Shopping Store**

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# **1. Introduction**

“PetStore” is a functional web-based e-commerce platform designed to streamline the operations of a pet accessories online store by integrating product management, customer support, promotional activities, user administration, and customer interaction into a single cohesive system. The platform supports multiple user roles, each contributing to the overall functionality and success of the store. It caters to both casual browsers (Guests) and registered Customers, offering an intuitive shopping experience while ensuring backend efficiency for business operations.

**Customers :** Customers, upon registering and logging in, can browse and search for pet products, add items to their shopping cart, place orders, choose from multiple payment methods (cash or card), track the delivery status of their purchases, view order history, confirm or cancel orders, and submit inquiries or product reviews. Guests, who are not logged in, can visit the homepage, view products, access search functionality, and add products to their cart; however, they must register or log in to complete any purchasing. This login mechanism includes credential validation, with prompts for re-entry in case of invalid login attempts, thereby maintaining platform security and preventing unauthorized access.

**Product Managers :** Product Managers play a crucial role in maintaining the product catalog. They are responsible for adding new products, editing existing details, deleting outdated items, updating stock levels, restocking inventory as required, and managing promotional campaigns and discounts. Their role ensures that the store remains current, competitive, and responsive to inventory demands.

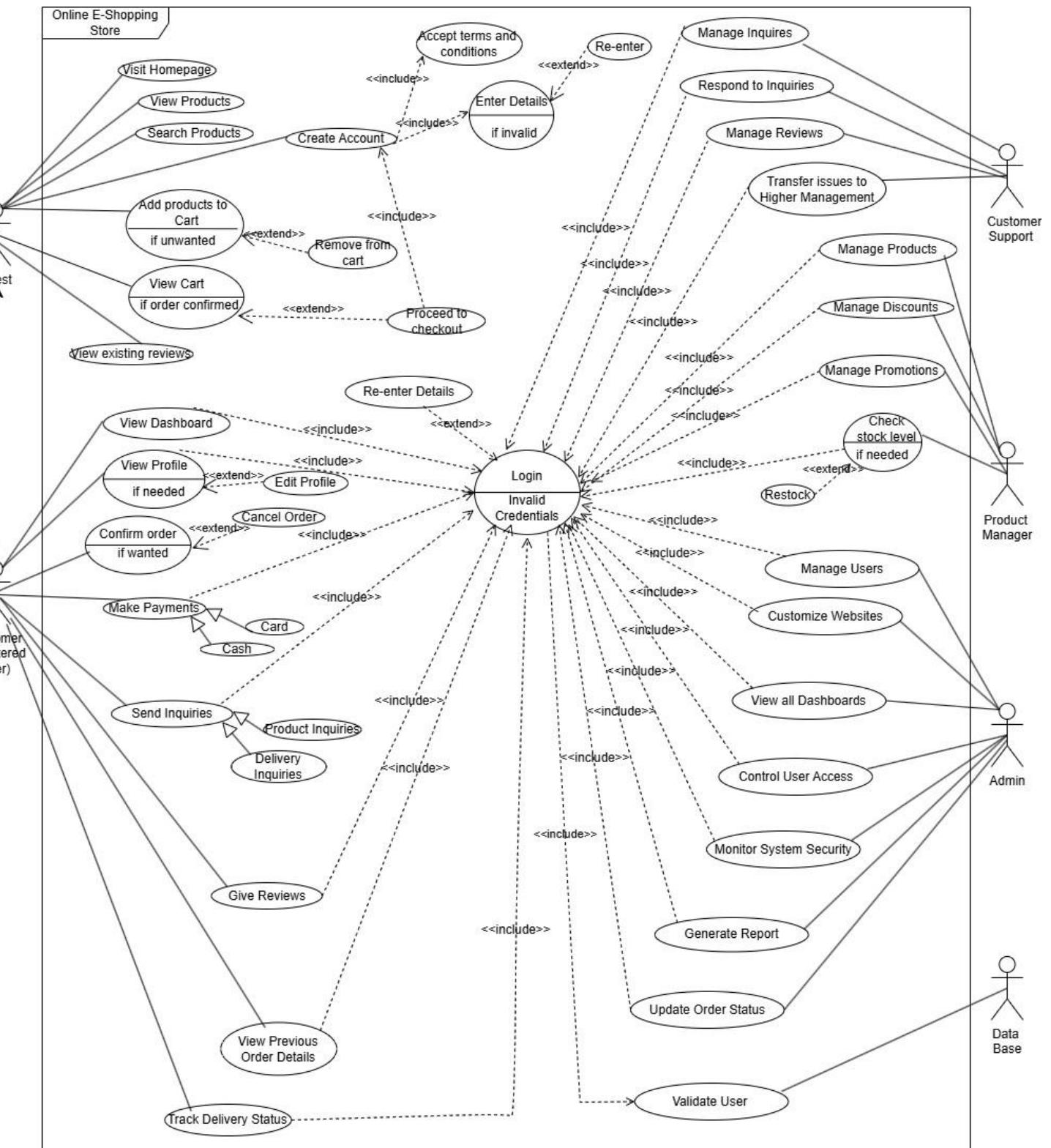
**Customer Support Representatives** contribute to customer satisfaction by managing inquiries, responding to feedback, handling product-related and delivery-related questions, and moderating customer reviews. They are also responsible for escalating complex or unresolved issues to higher management, ensuring timely resolutions and maintaining user trust.

**Administrators** serve as the system overseers. They manage user accounts, customize website layouts and features, control access rights, and monitor the overall functionality, security, and performance of the platform. Additionally, they generate business performance reports and have access to all dashboards for data analysis and decision-making.

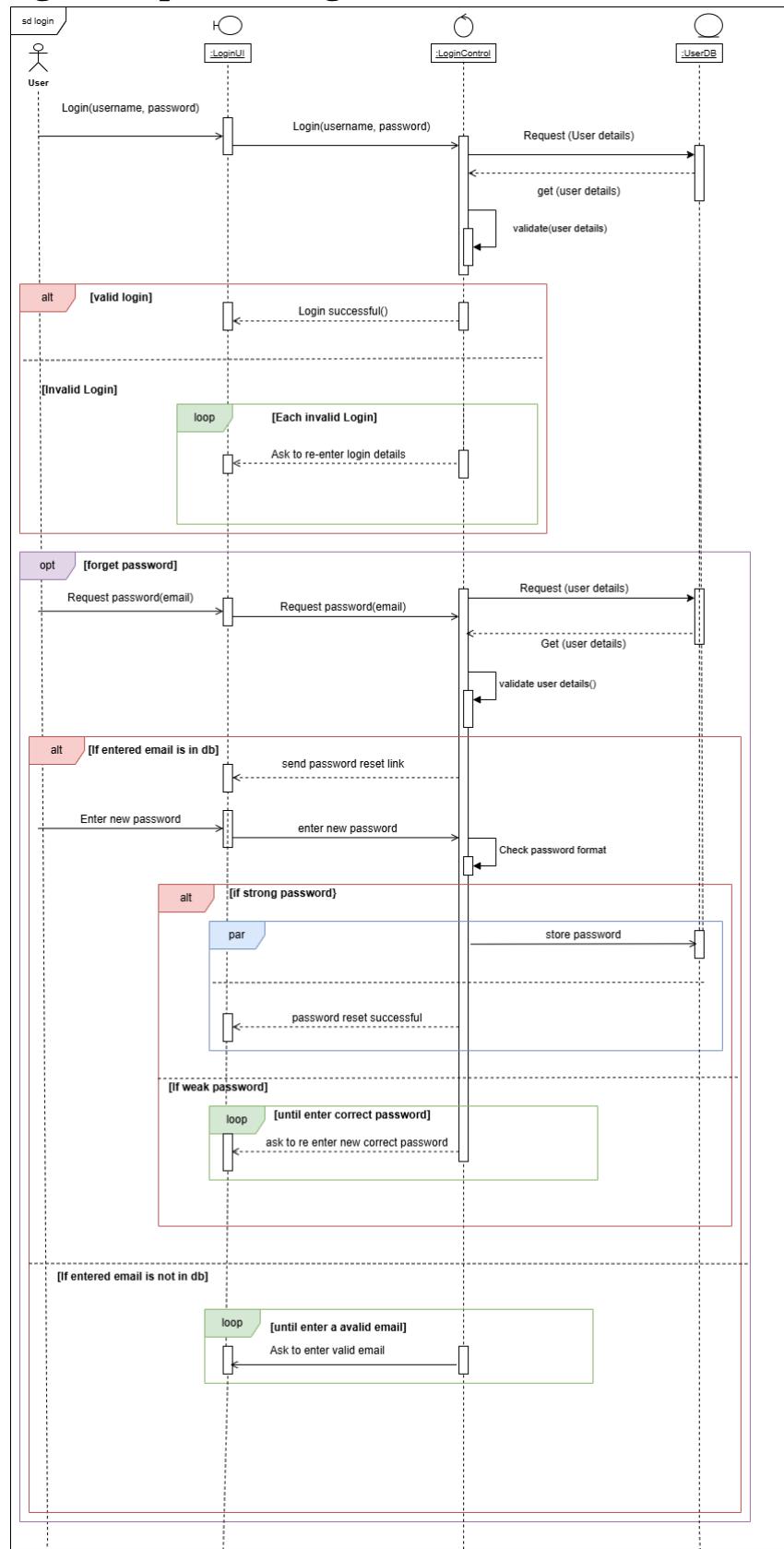
All components of PetStore are supported by a centralized and secure database system that stores product information, user credentials, order histories, inquiry logs, and transaction data. The platform includes specialized modules for shopping cart management, secure checkout, order status updates, user validation, and feedback collection.

This project report outlines the development, implementation, and functionality of the PetPal e-commerce platform. It demonstrates how a use case-driven architecture enhances operational efficiency, ensures secure and personalized user experiences, and supports sustainable growth in the competitive online pet accessories market.

## 2. Use Case Diagram



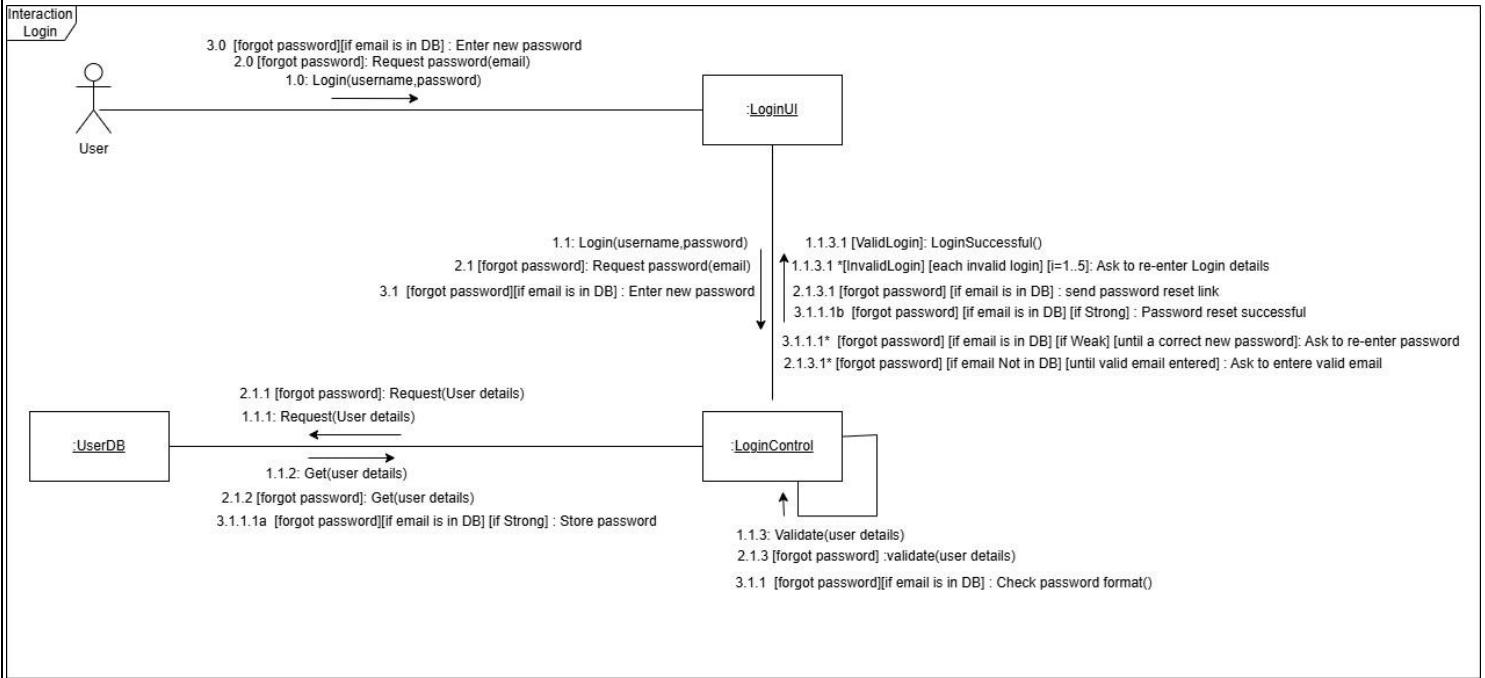
### 3.1 Login - Sequence Diagram



#### Assumptions:

All users must be logged in to perform their relevant use case, if not they will be redirected to the login page first

### 3.2 Login -Communication Diagram



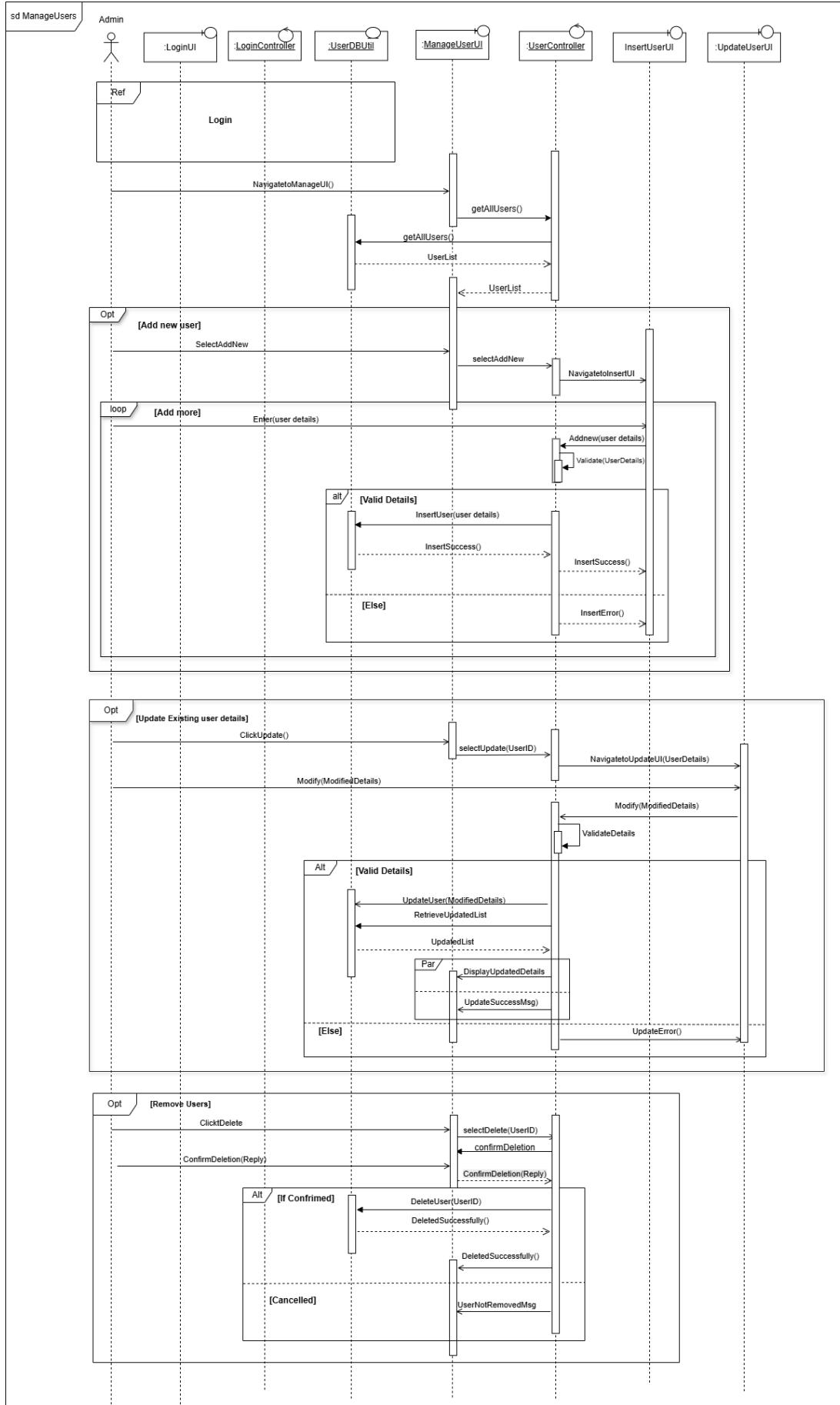
## Manage Users

### Use Case Scenario- Manage Users

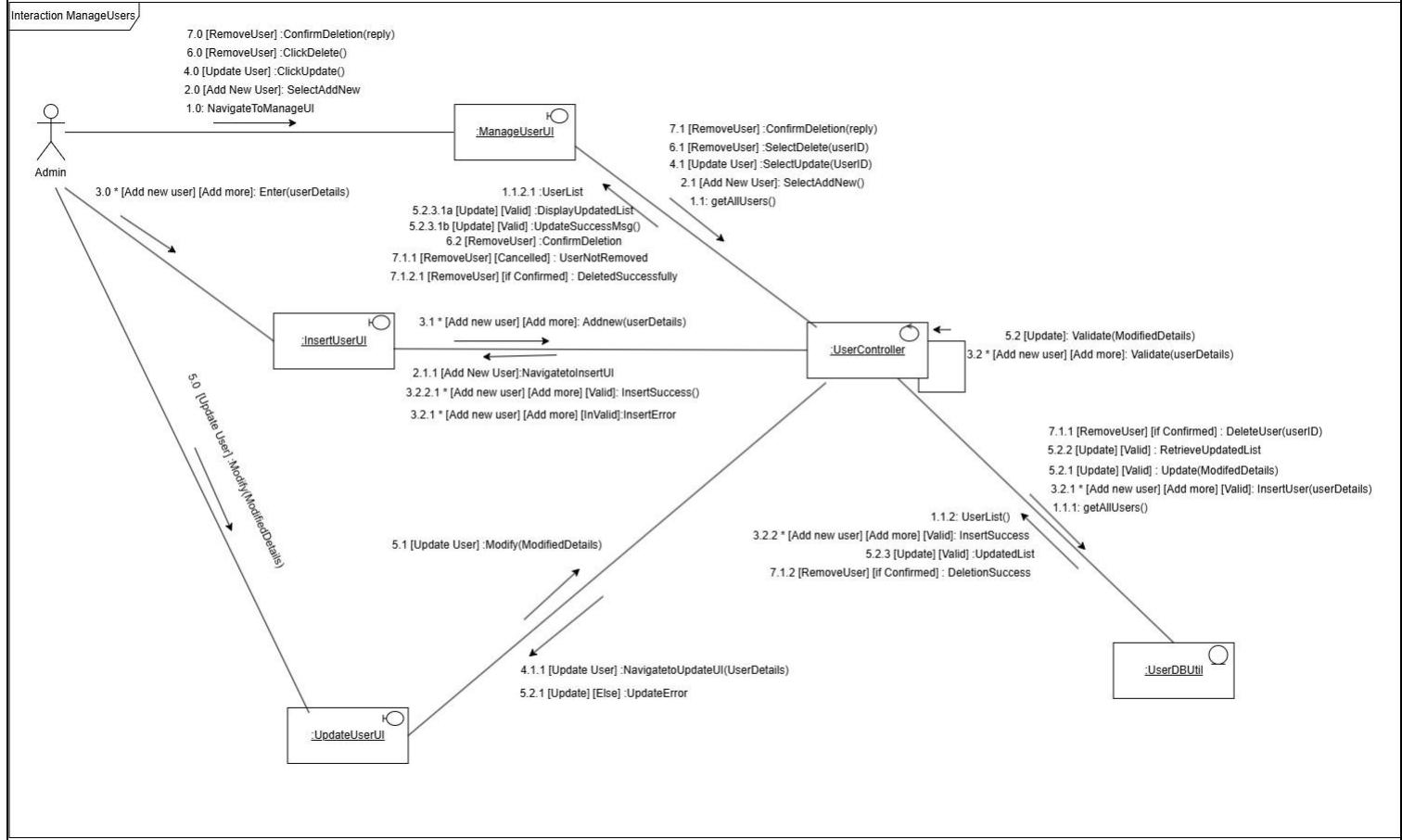
Name	Admin manages user	
Summary	Admin views and manages user accounts	
Priority	2	
Pre-conditions	Admin must login to the system	
Post-conditions	Admin manages accounts and keeps them updated	
Primary Actor(s)	Admin	
Secondary Actor(s)	Employee	
Main Scenario	Step	Action
	1	Admin enters email and password and logs into the system
	2	System validates entered credentials
	3	System directs to the admin dashboard
	4	Admin navigates to "Manage Users" page from sidebar
	5	Admin can add, edit or remove employee accounts.
	6	Admin selects "Add new" Button to add a new employee
	7	System navigates to "Add New User" page
	8	Admin enters new user details and click "Submit"
	9	System displays "Added User successfully" message
	10	System navigates back to Manage Users page
	11	Admin clicks on Update button to update details
	12	System navigates to Update Users page
	13	Admin modifies/updates the details and click on "Update" button
	14	System redirects to Manage Users page
	15	System displays a "Updated successfully message"
	16	Admin clicks on "delete" button to remove a user
	17	System displays an alert message to confirm deletion
	18	Admin clicks on confirm
	19	System removes the user from system

	20	System displays “Deleted Successfully” message
Extensions	<b>Step</b>	<b>Branching action</b>
	2. a	If the entered credentials are invalid system displays an error message
	2.b	System redirects back to login to reenter credentials
	8. a	If any fields are left empty, the system prompts admin to fill them.
	8. b	If invalid values are entered into the fields, the system will display an error and won’t add them to DB
	13.a	If invalid values are entered into the fields, system will display an error and will not update the changes
	18. a	If admin clicks on cancel the system won’t remove that user
	18.b	System display “User Not Removed” error message

## Sequence Diagram



## Communication diagram

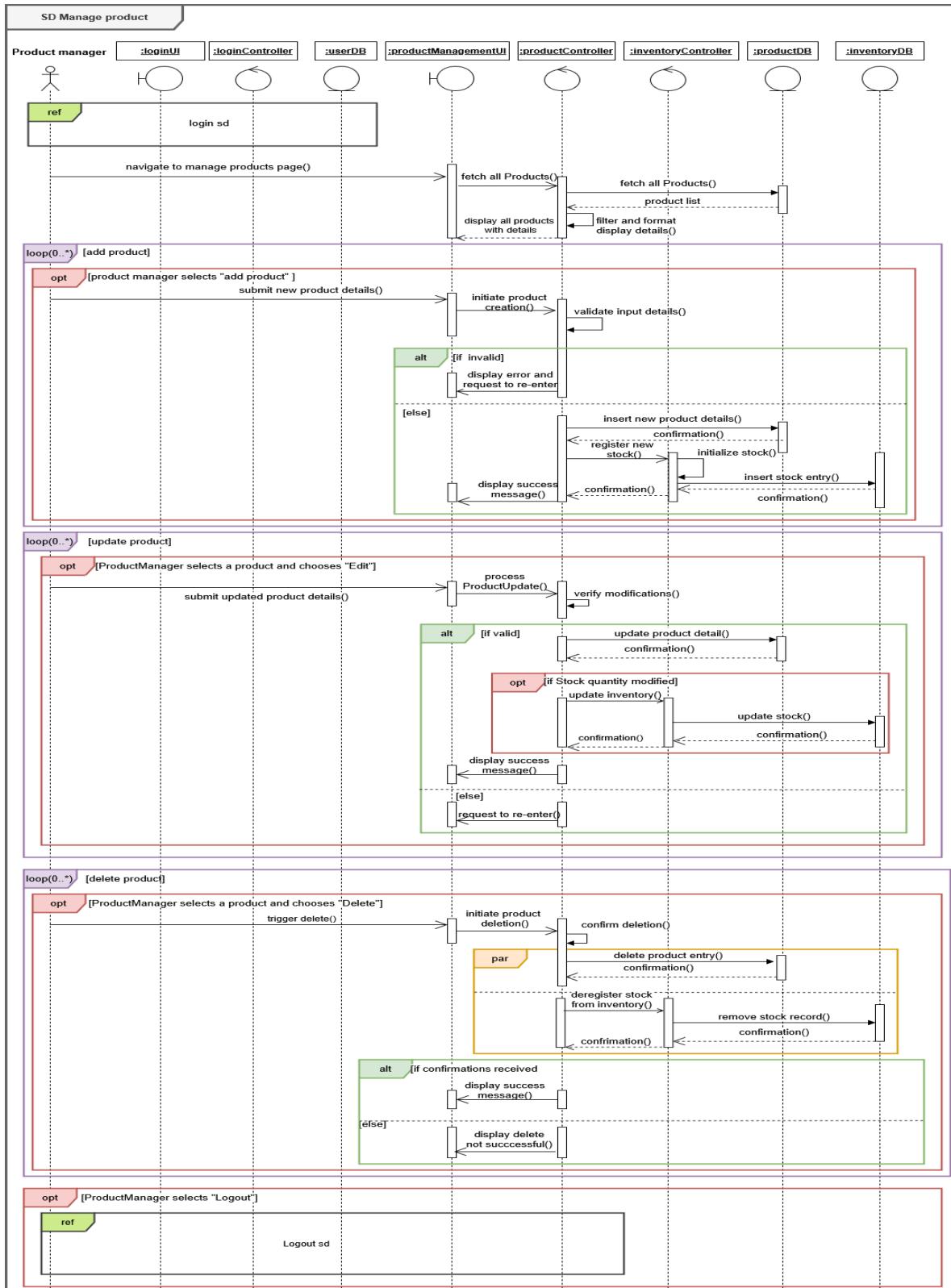


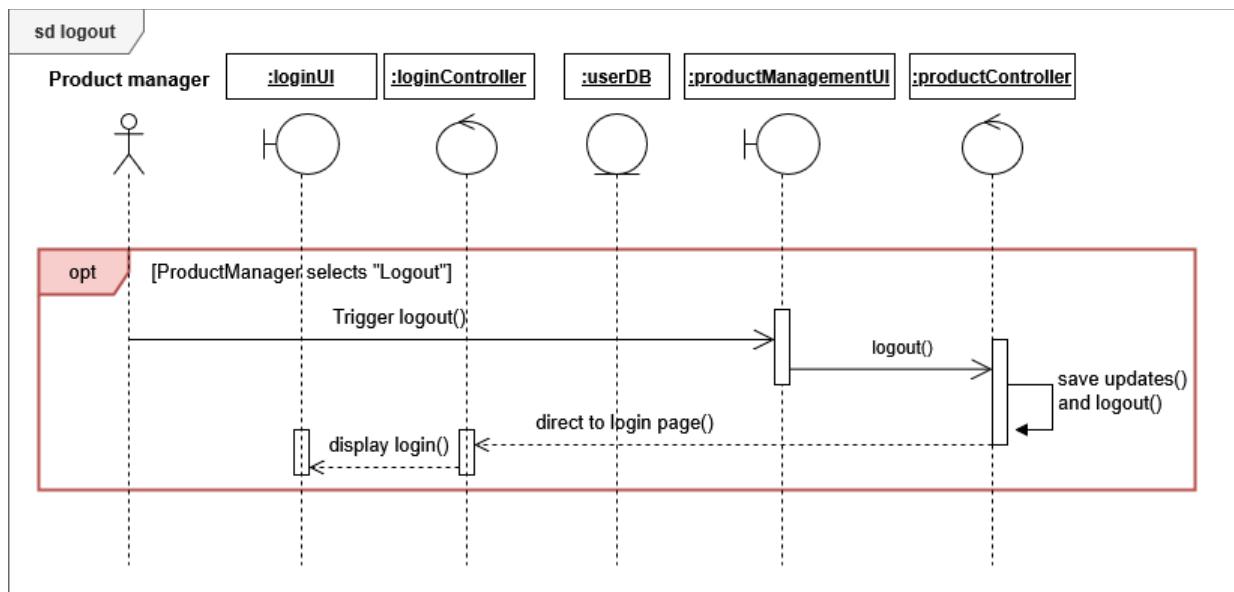
## Use case- Manage Products

<b>Use case ID</b>	02	
<b>Use case name</b>	Manage product	
<b>Summary</b>	Product manager maintains the online store product information including adding, updating, deleting, and viewing products	
<b>Priority</b>	4	
<b>Pre-condition</b>	Product manager is authenticated and authorized The system is operational with database connectivity Inventory system is available	
<b>Post-condition</b>	Products details must be updated based on the performed actions (add/update/delete/view) Inventory records are synchronized when applicable	
<b>Primary actor(s)</b>	Product manager	
<b>Secondary actor(s)</b>	Inventory system	
<b>Trigger</b>	Product manager decides to manage products and selects manage product option from the dashboard	
<b>Main success scenario</b>	<b>Step</b>	<b>Action</b>
	<b>1</b>	The system displays the all available products with management options
	<b>2</b>	Product manager views all existing products
	<b>3</b>	Product manager selects a desired action if needed: Add new product, Update existing product, Delete product
	<b>4</b>	If add selected: system shows an empty form that must be filled with new details
	<b>5</b>	Product manager enters details and system validates those input data
	<b>6</b>	System creates new product record , initializes inventory record, gives confirmation and displays a success message
	<b>7</b>	If update selected: system displays pre-filled product form With editable fields
	<b>8</b>	Product manager modifies necessary fields, system validates and updates the relevant product record
	<b>9</b>	If stock related fields changed, system updates inventory record, gives confirmation and displays success message
	<b>10</b>	If delete: System asks to confirm deletion
	<b>11</b>	System removes product record, clears related inventory record and displays success message
	<b>12</b>	Product Manager can repeat Add, Update, and Delete actions as needed

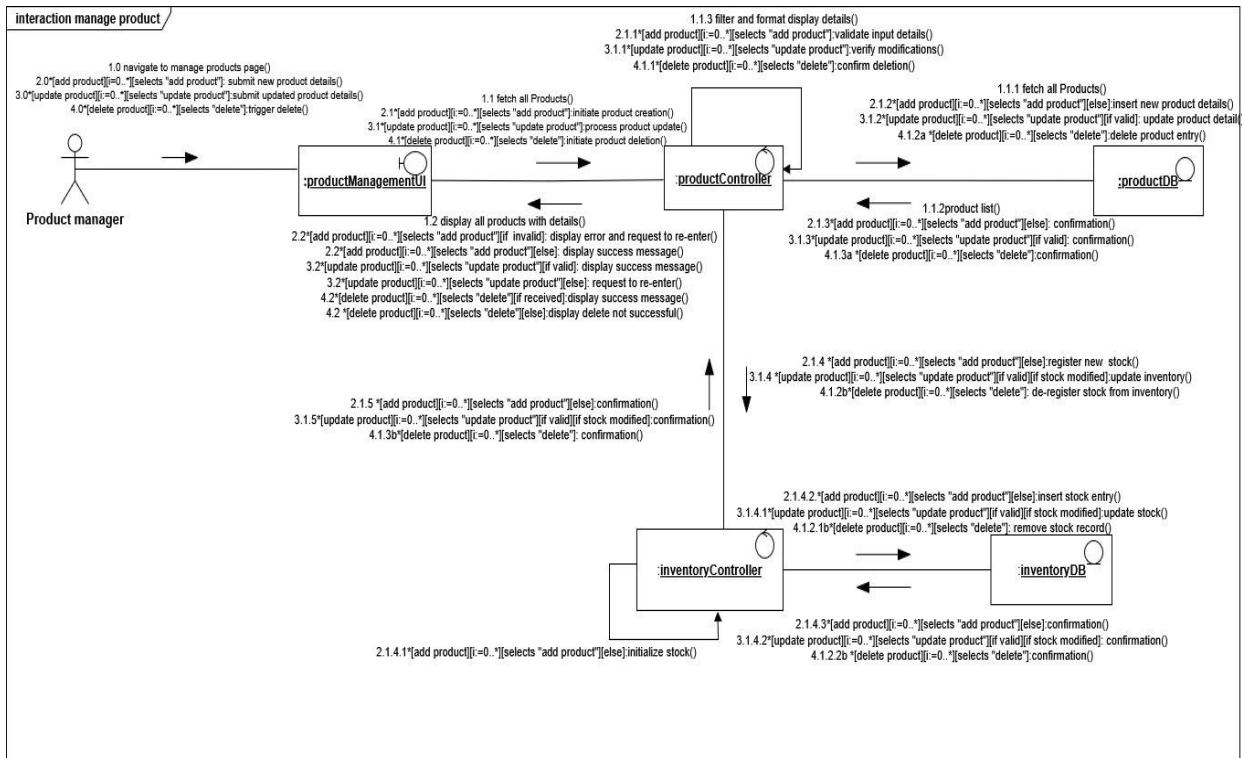
	<b>13</b>	Product Manager logs out after completing product management tasks
<b>Extension</b>	<b>Step</b>	<b>Branching action</b>
	<b>4A</b>	If form fields are incomplete or invalid during "Add", the system displays an error message and prompts to re-enter.
	<b>8A</b>	If updated details are invalid or violate data rules, the system prompts for corrections before saving
	<b>10A</b>	If deletion is not confirmed, the product remains unchanged
	<b>11A</b>	If product deletion fails, the system displays error message

# Sequence Diagram





# Communication Diagram

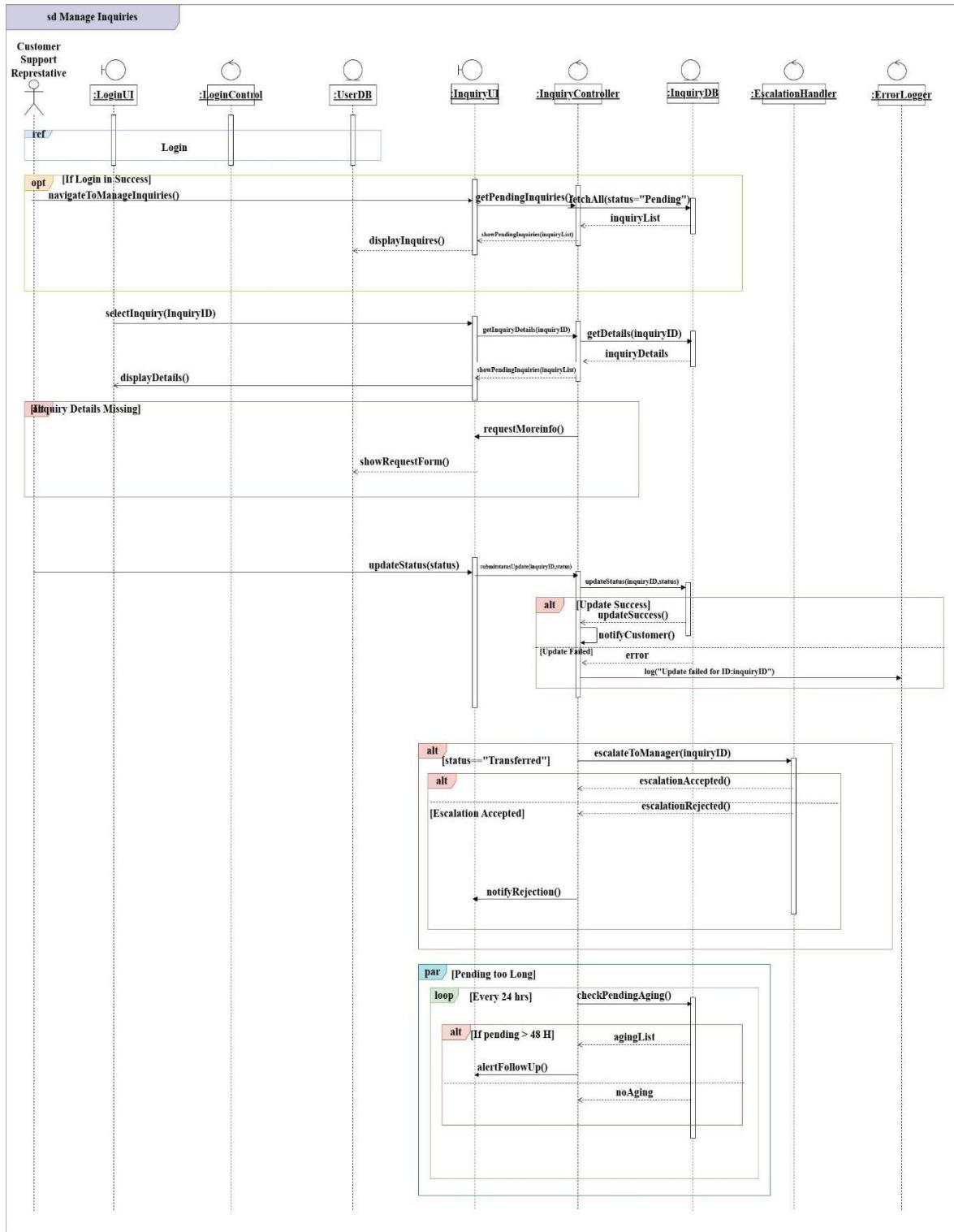


## Use Case Scenario-Manage Inquiries

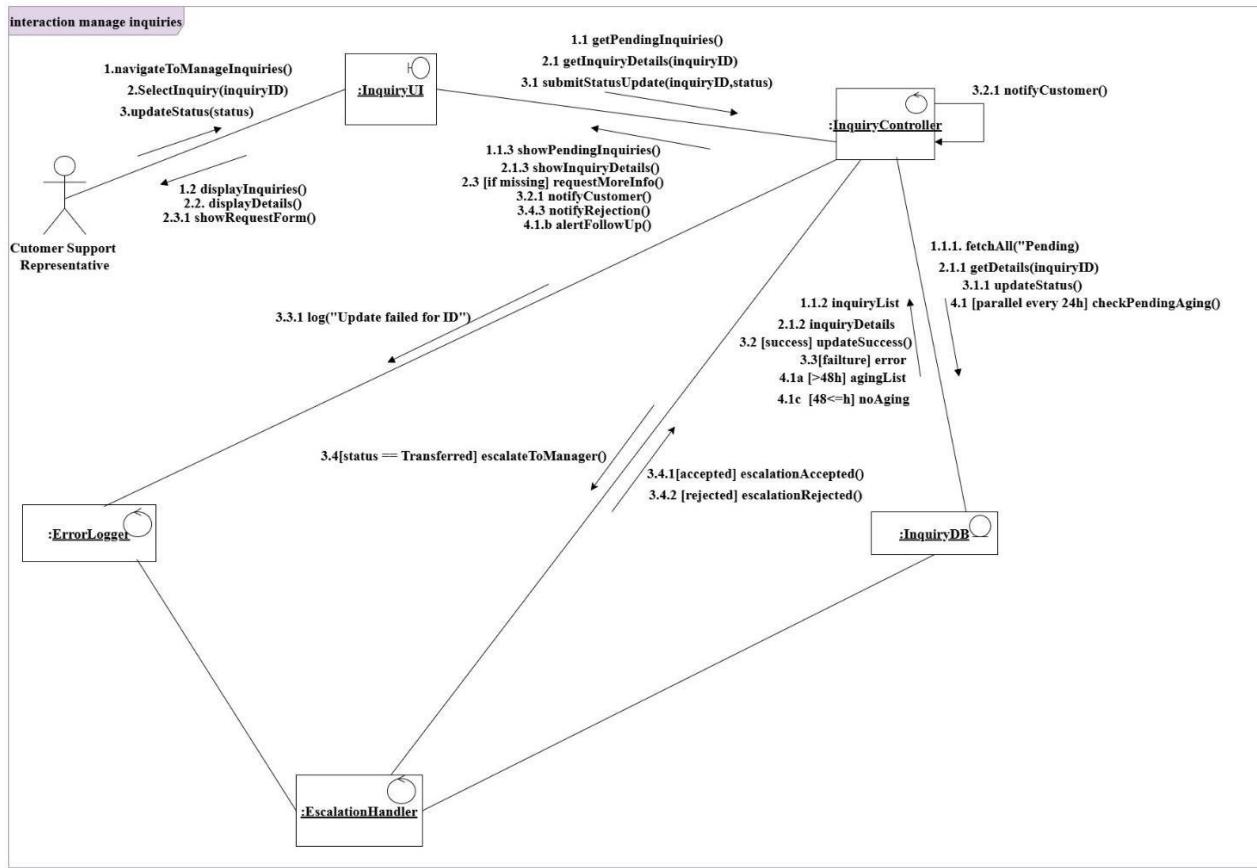
Name	Customer confirms order.	
Summary	Customer Support Representative receives, reviews, and resolves customer inquiries related to orders, products, payments, delivery or other concerns.	
Priority	2	
Pre-conditions	Customer must have submitted an inquiry through the website. Customer Support Representative must be logged into the system.	
Post-conditions	Inquiry is either resolved or escalated to higher management or marked as invalid.  Inquiry Status is updated (Resolved, Pending, Transferred)	
Primary Actor(s)	Customer Support Representative.	
Secondary Actor(s)	Customer, System, Higher Management.	
Main Scenario	Step	Action
	1	Customer submits an inquiry through the website (via chat, email, or contact form).
	2	System records the inquiry and assigns it a unique inquiry ID.
	3	Customer Support Representative logs into the system.
	4	Representative navigates to the "Manage Inquiries" section.
	5	Representative views the list of pending inquiries.
	6	The representative selects an inquiry and reviews the details.
	7	Representative updates the status of the inquiry based on the resolution process.
	8	If the inquiry is resolved, the status is updated to " <b>Resolved</b> ", and a response is sent to the customer.
	9	If the inquiry requires more time, the status is updated to " <b>Pending</b> " for further investigation.
	10	If the inquiry requires escalation, the status is updated to " <b>Transferred</b> ", and the case is forwarded to higher management.
	11	If the inquiry is spam or irrelevant, the status is updated to " <b>Invalid</b> ", and the system archives it.

	12	The system notifies the customer of the status update.
Extensions	<b>Step</b>	<b>Branching action</b>
	3.a	If login credentials are incorrect, the system displays an error message.
	3.b	System redirects back to the login page for re-entering credentials.
	6.a	If the inquiry lacks sufficient details, the representative requests more information from the customer.
	7.a	If the inquiry cannot be updated due to system issues, the system logs an error message.
	9.a	If the inquiry remains in " <b>Pending</b> " status for too long, the system triggers an alert to follow up.
	10. a	If escalation is rejected by higher management, the inquiry is returned to the representative for further action.
	12.a	If the customer disputes the resolution, the inquiry is reopened for further review.

# Sequence Diagram



# Communication Diagram

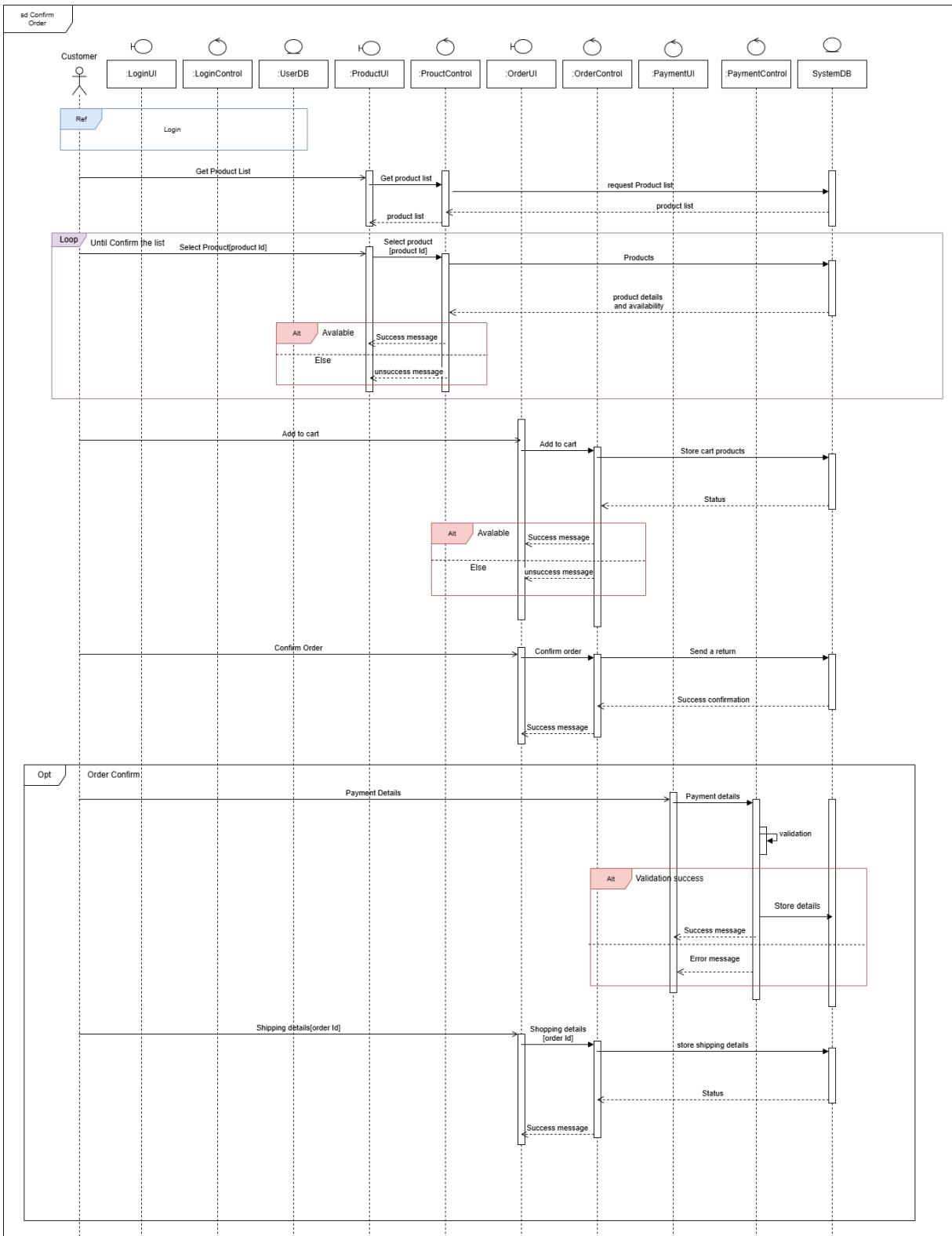


## Use Case Scenario – Placing Order

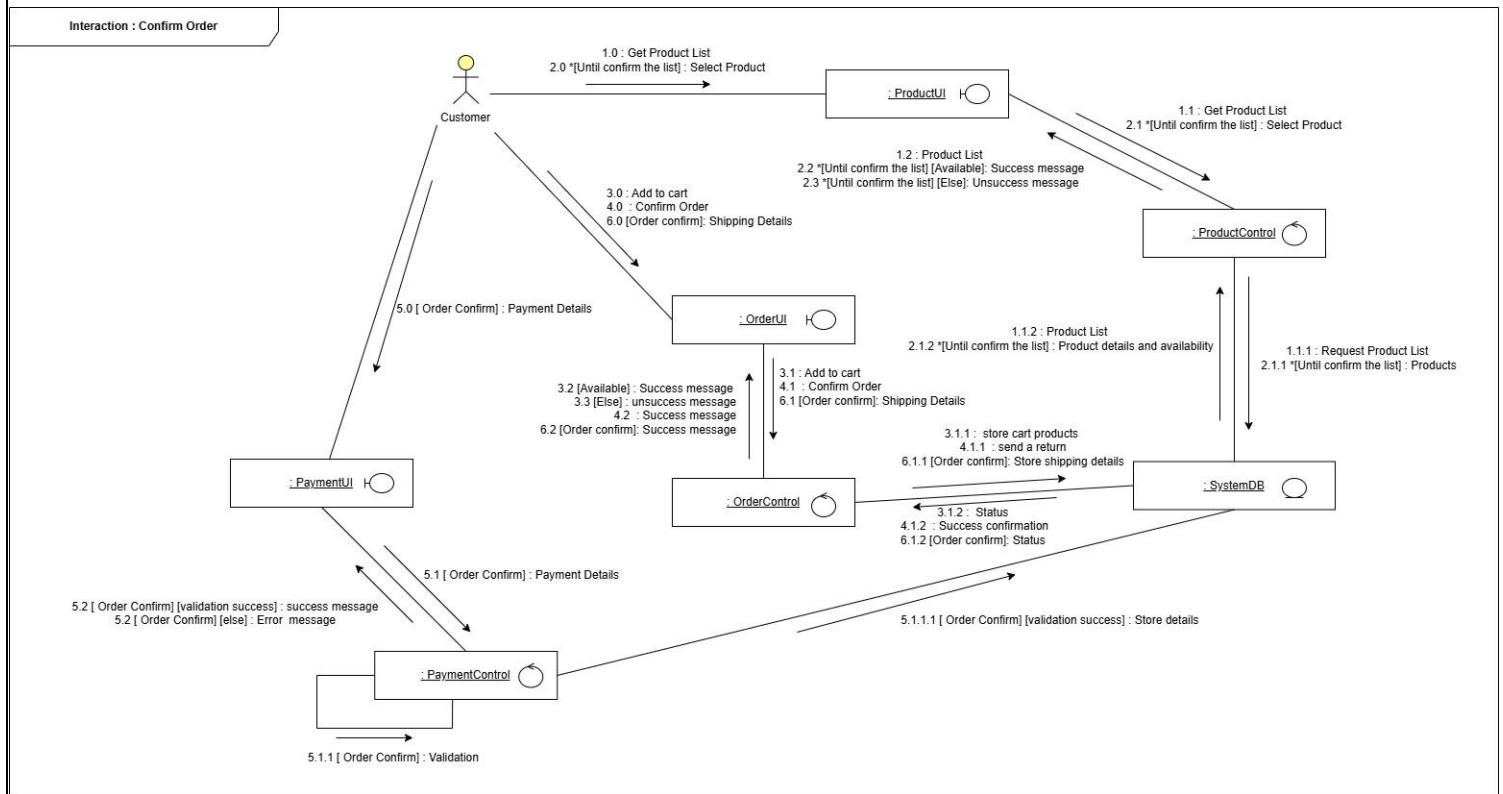
Name	Customer confirms order.	
Summary	Customer selects products, proceeds to checkout, and completes the order placement.	
Priority	1	
Pre-conditions	Customer must be logged into the system.	
Post-conditions	Order is successfully placed, and inventory is updated.	
Primary Actor(s)	Customer	
Secondary Actor(s)		
Main Scenario	Step	Action
	1	Customer logs into the system using email and password.
	2	System validates entered credentials
	3	System directs the customer to the dashboard.
	4	Customer navigates to the products page.
	5	Customer selects products and adds them to the shopping cart.
	6	Customer reviews the cart and clicks on the "Proceed to Checkout" button.
	7	System displays the order summary, including products, prices, and total cost.
	8	Customer enters shipping details or selects a saved address.
	9	Customer selects a payment method (e.g., credit card, debit card or cash on delivery).
	10	Customer confirms the order and clicks on the "Pay Now" button.
	11	System processes the payment through the payment gateway.
	12	System verifies payment and updates the order status to "Confirmed."
	13	System updates the inventory to reflect the purchased products.
	14	System generates an order confirmation and sends it via email/SMS.
	15	Admin/Product Manager is notified to process the order for dispatch.

	<b>Step</b>	<b>Branching action</b>
Extensions	2. a	If the entered credentials are invalid, the system displays an error message.
	2.b	System redirects back to the login page to re-enter credentials.
	8. a	If any fields are left empty, system prompts admin to fill them.
	6.a	If the cart is empty, the system prevents checkout and displays a message.
	9.a	If no payment method is selected, the system prompts the customer to choose one.
	11. a	If payment fails, the system displays an error and allows retrying or selecting another method.
	12.a	If payment is declined, the order remains unconfirmed, and the customer is notified.
	13.a	If a product goes out of stock before confirmation, the system alerts the customer to modify the order.
	15.a	<b>Order Cancellation:</b> If the customer chooses to cancel the order before dispatch, the system confirms cancellation and initiates a refund (if applicable).
	15.b	If the order is already dispatched, cancellation is not allowed, and the system notifies the customer.

## Sequence Diagram



## Communication Diagram



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