

LAB ASSIGNMENT 9

To draw the behavioral view diagram: Sequence diagram.

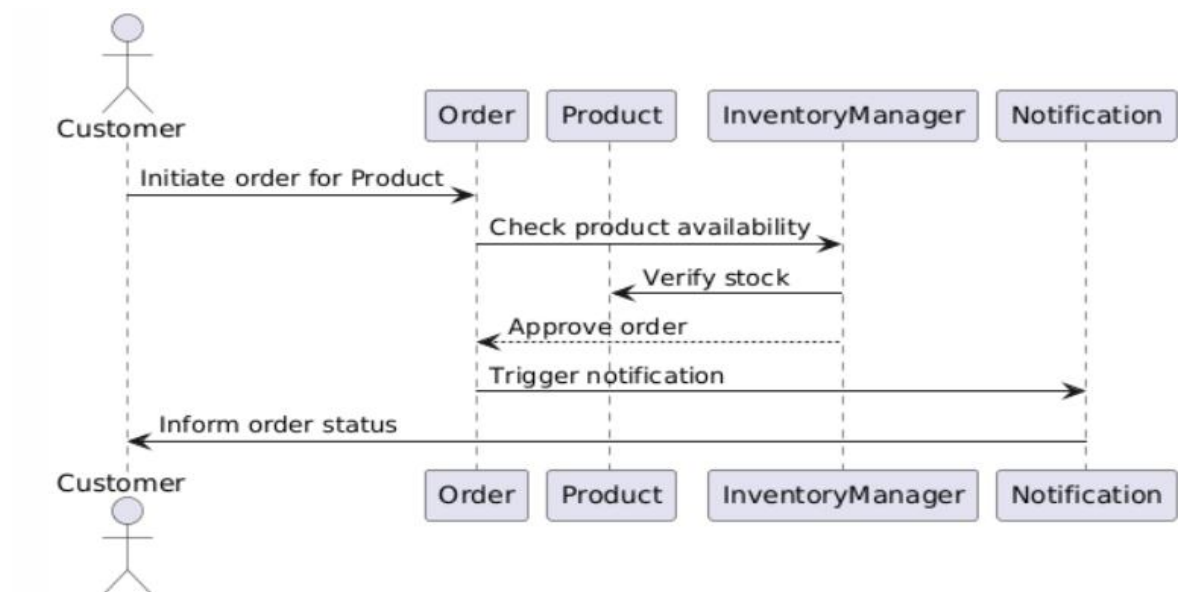
A sequence diagram is a type of UML (Unified Modeling Language) diagram that shows how processes interact with each other in a specific sequence of time. This diagram visually represents the flow of messages between different components or actors in a system, emphasizing how tasks are performed step by step.

Sequence Diagram for different time scenarios :

1. Ordering a Product

Actors and Components:

- **Actors:**
 - **Customer** — The end user initiating the order process.
- **Objects (Lifelines):**
 - **Order** — Handles order-related actions.
 - **Product** — Manages product details and availability.
 - **InventoryManager** — Verifies stock levels.
 - **Notification** — Sends order status updates.



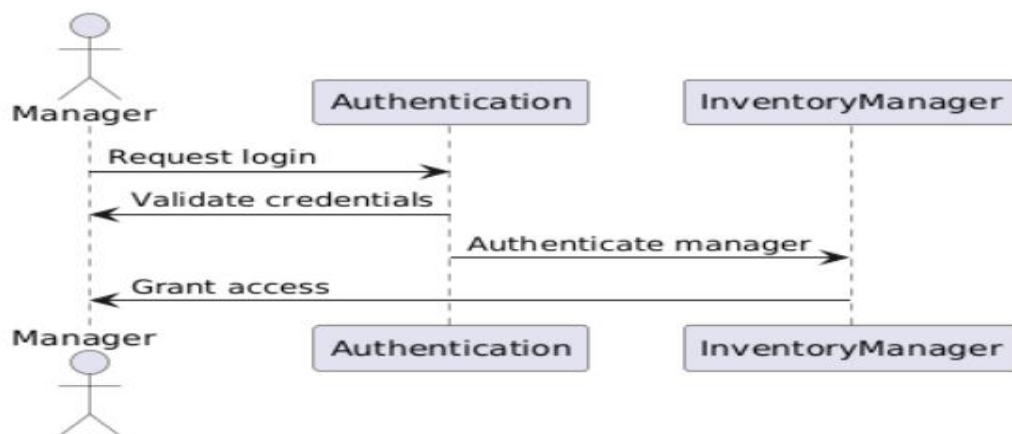
Flow of Interactions:

- Customer initiates an order — The customer starts the process by sending a request to the Order component.
- Order requests product availability — The Order component asks the Product component to check availability.
- Product verifies stock — The Product component communicates with the Inventory Manager to confirm if the item is in stock.
- Inventory Manager confirms stock — The Inventory Manager verifies and responds back to the Product.
- Order approval — The Order component approves the order and proceeds.
- Trigger notification — The Order component triggers the Notification component to inform the customer.
- Inform order status — Finally, the customer receives a confirmation regarding the order status.

2. Manager Login Process

Actors and Components:

- **Actors:**
 - **Manager** — The user who is attempting to log in.
- **Objects (Lifelines):**
 - **Authentication** — Handles user credential validation.
 - **InventoryManager** — Manages inventory but plays a role in verifying manager authentication.



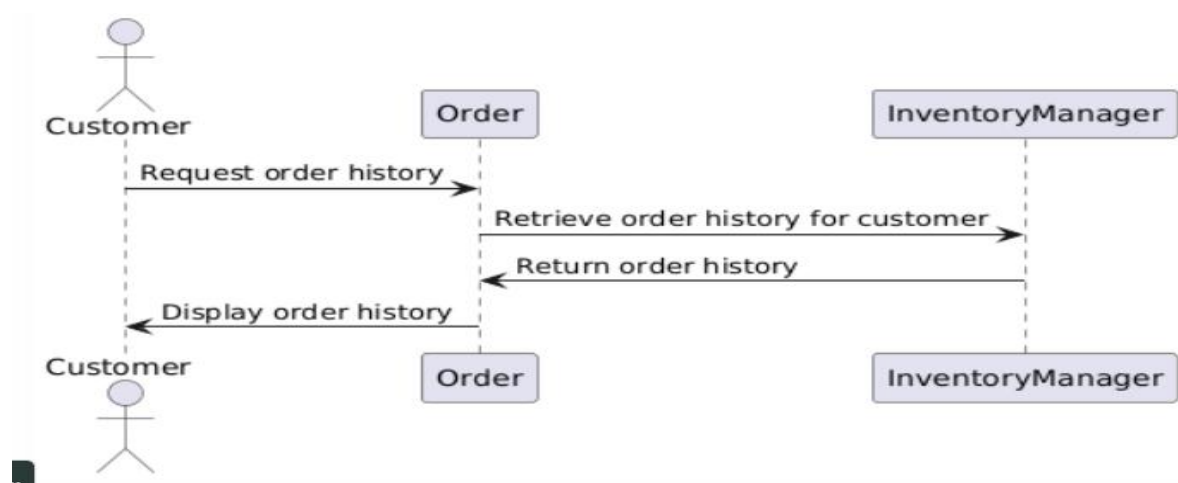
Flow of Interactions:

- Request Login:
 - The Manager initiates a login request by sending a message to the Authentication component.
- Validate Credentials:
 - The Authentication component verifies the manager's credentials and performs initial checks.
- Authenticate Manager:
 - The Authentication system sends a request to the InventoryManager to confirm the manager's identity or role.
- Grant Access:
 - Upon successful authentication, the Authentication system sends a confirmation back to the Manager, granting access.

3. Order History Retrieval Process

Actors and Components:

- **Actors:**
 - **Customer** — The user who requests their order history.
- **Objects (Lifelines):**
 - **Order** — Handles order-related requests and interactions.
 - **InventoryManager** — Manages inventory data and provides order history details.



Flow of Interactions:

- **Request Order History:**
 - The **Customer** initiates the process by sending a request to the **Order** component to retrieve their order history.
- **Retrieve Order History for Customer:**
 - The **Order** component requests the **InventoryManager** to fetch the customer's order history.
- **Return Order History:**
 - The **InventoryManager** responds by sending the retrieved order history data back to the **Order** component.
- **Display Order History:**
 - Finally, the **Order** component presents the retrieved order history to the **Customer**.

4. Product Supply Process

Actors and Components (Lifelines):

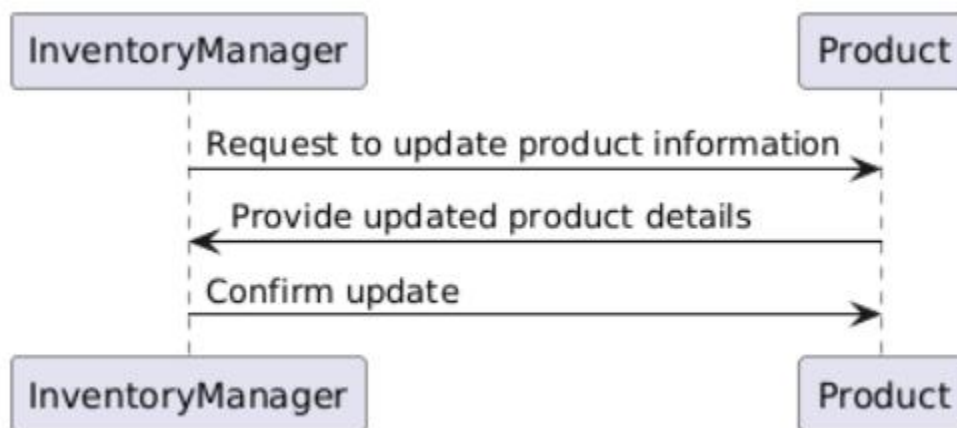
- **Supplier:** Represents the entity that provides the products.
- **Product:** Represents the product itself (or an object representing the product's data/logic).
- **InventoryManager:** Represents the entity that manages the inventory.



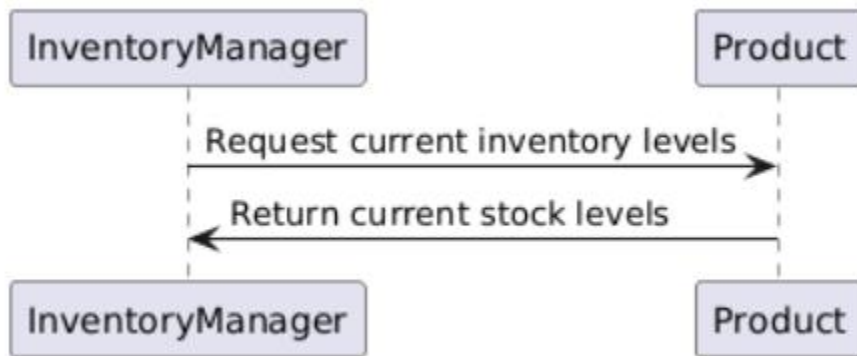
Flow of Interactions:

- Send supply request for Product:
 - The InventoryManager initiates the process by sending a synchronous message (solid arrow) to the Product.
 - This message indicates a request for a supply of the specified product.
- Update inventory with new quantity:
 - The Product receives the request.
 - It then sends a synchronous message (solid arrow) back to the InventoryManager.
 - This message confirms that the inventory has been updated with the new quantity of the product.
- Confirm supply:
 - The InventoryManager receives the confirmation from the Product.
 - It then sends an asynchronous message (dashed arrow) to the Supplier.
 - This message confirms the supply of the product.

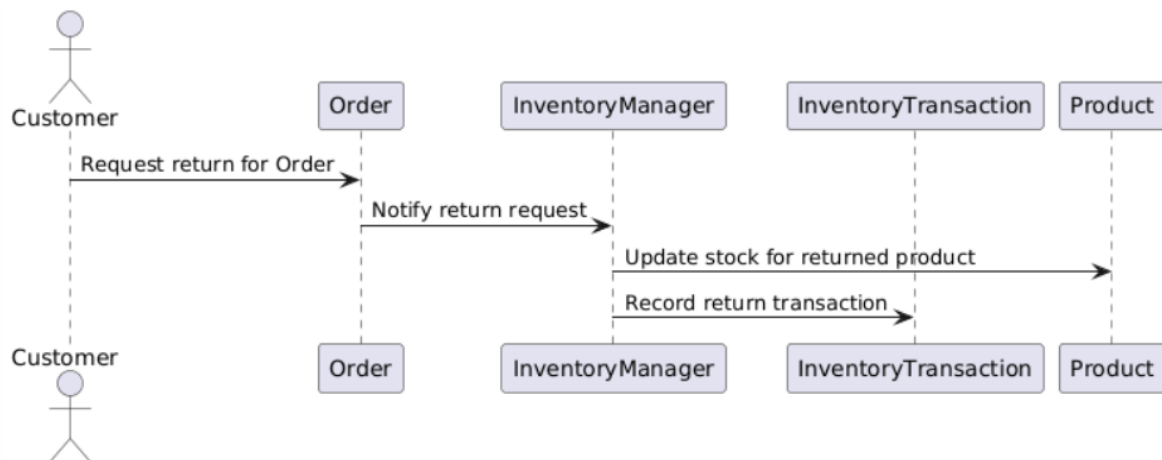
5. Order Confirmation



6. Current Inventory Level



7. Order Return Request



8. Sales Data

