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# **Lab06 - Modeling Class Diagram and Activity Diagram**

**(Point of Sale System)**

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# Task 1: Use Case Textual Descriptions for "Process Sale" and "Handle Return" Use Cases

## Use Case 1: Process Sale

- **Use Case Name:** Process Sale
- **Actor(s):**
  - Cashier
  - Catalog System (external actor)
  - Inventory System (external actor)
- **Precondition:**
  - The cashier must be logged in.
  - The items must exist in the catalog and inventory system.
- **Postcondition:**
  - The sale is completed and stored in the system.
  - The stock is updated in the inventory system.
  - The receipt is printed for the customer.
- **Main Flow:**
  - The cashier starts a new sale.
  - The cashier scans an item.
  - The system retrieves the item information from the catalog.
  - The system deducts the quantity of the item from the inventory.
  - The cashier repeats steps 2-4 for all items.
  - The customer chooses a payment method.
  - The system processes the payment (either cash, credit card, etc.).
  - Once payment is confirmed, the system prints a receipt.
- **Alternative Flow:**
  - If an item is not found in the catalog, the cashier is notified.
  - If there is insufficient stock, the cashier is notified to inform the customer.
  - If payment fails, the cashier retries payment or cancels the sale.

## Use Case 2: Handle Returns

- **Use Case Name:** Handle Returns
- **Actor(s):**
  - Cashier
  - Inventory System (external actor)

- **Precondition:**
    - The cashier must be logged in.
    - The returned item must have been part of a previous sale.
  - **Postcondition:**
    - The return is processed, and stock is updated in the inventory system.
    - The customer receives the appropriate refund or credit.
  - **Main Flow:**
    - The cashier starts a new return transaction.
    - The cashier scans the returned item(s) and verifies the original sale (if required).
    - The system retrieves the item(s) information from the inventory system.
    - The cashier confirms the return is within the return policy.
    - The system updates the stock in the inventory system by adding the returned item(s).
    - The system issues a refund or store credit to the customer.
  - **Alternative Flow:**
    - If the return period has expired, the system notifies the cashier to reject the return.
    - If the item is damaged or missing, the return may be partially refunded or rejected.
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## Task 2: Identification of Entity, Boundary, and Control Objects

### Entity Objects:

- Sale
- Product
- Payment:
- Receipt
- Return

### Boundary Objects:

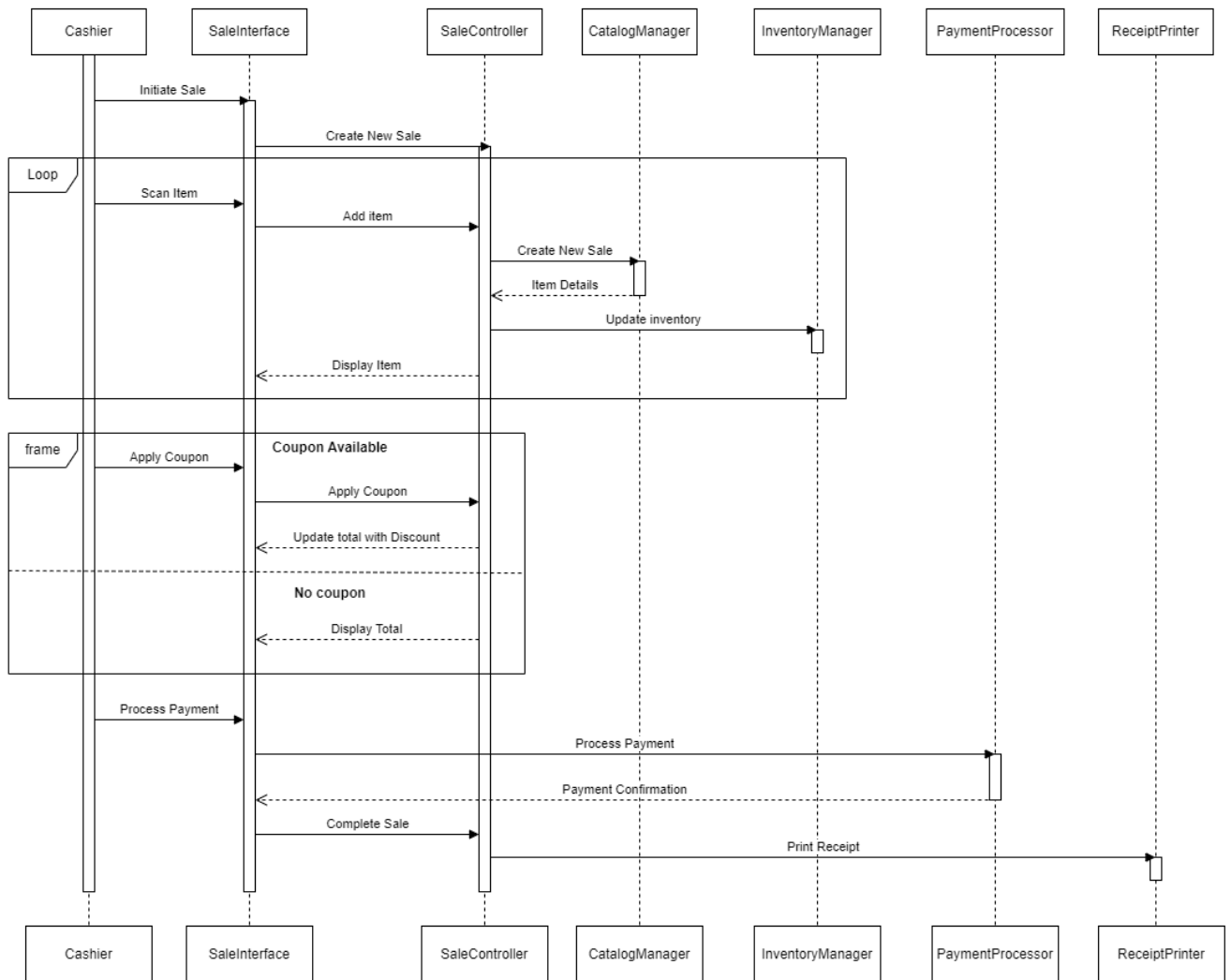
- Cashier Interface
- Catalog System
- Inventory System

### Control Objects:

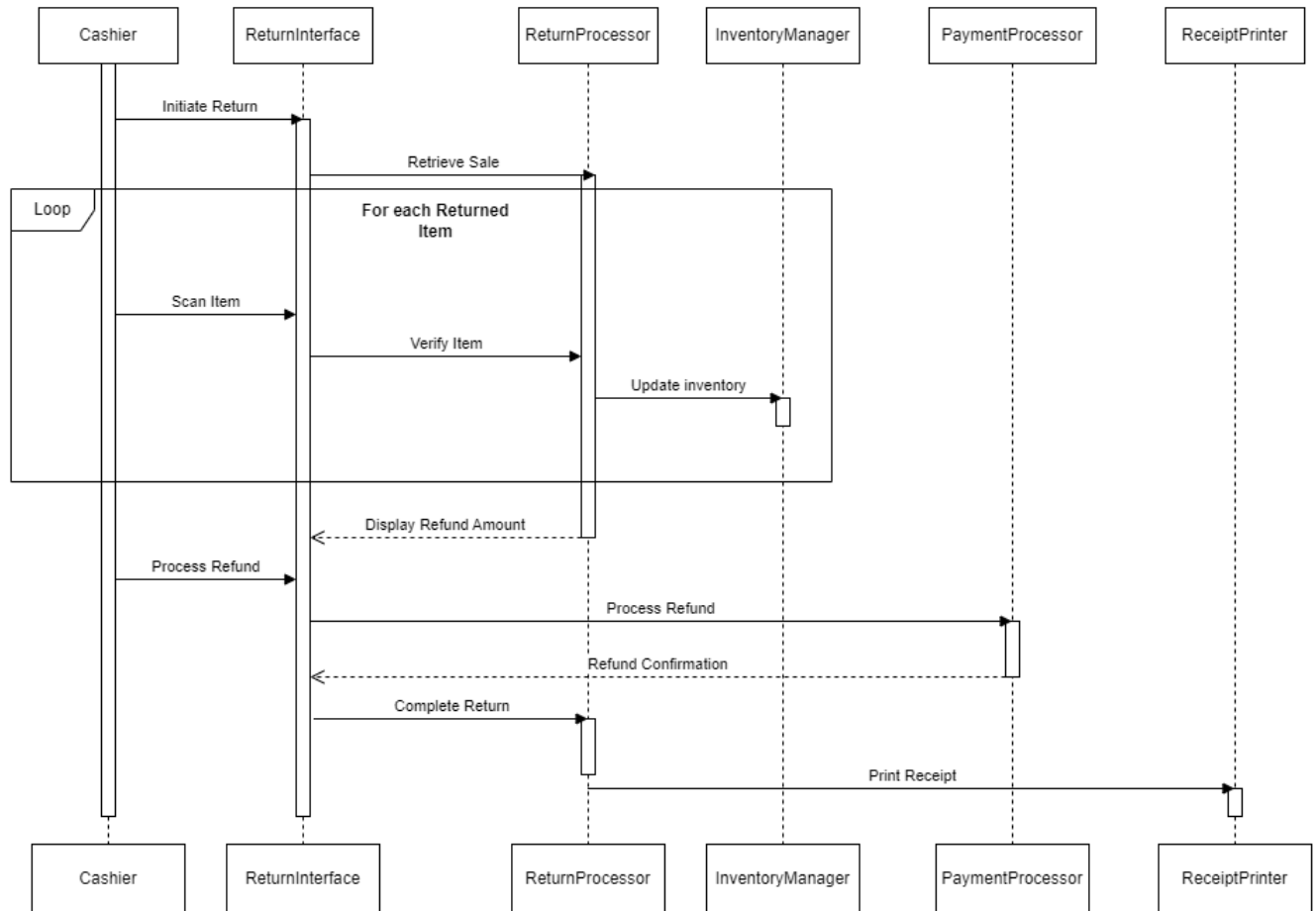
- Process Sale Controller
  - Handle Payment Controller
  - Handle Return Controller
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# Task 3: Develop Sequence Diagrams

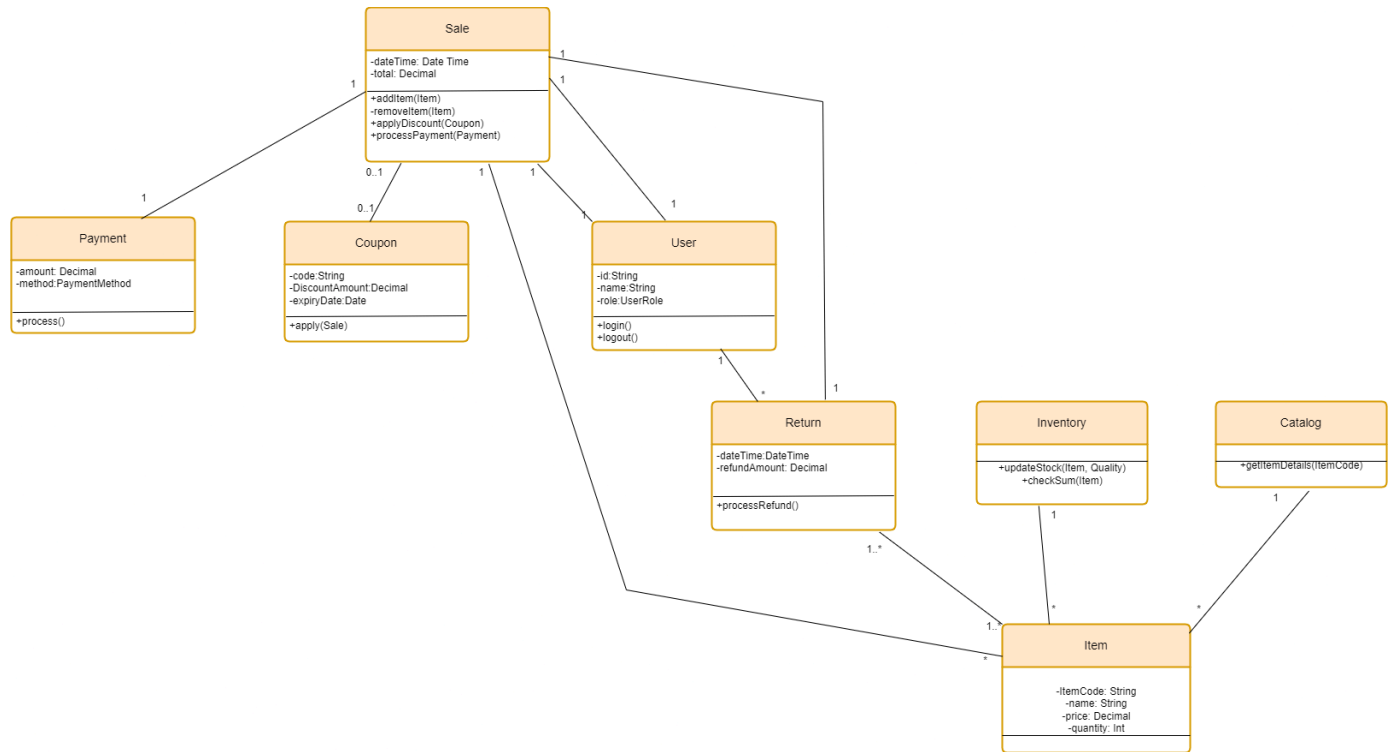
## ● Process Sale



## ● Handle Return

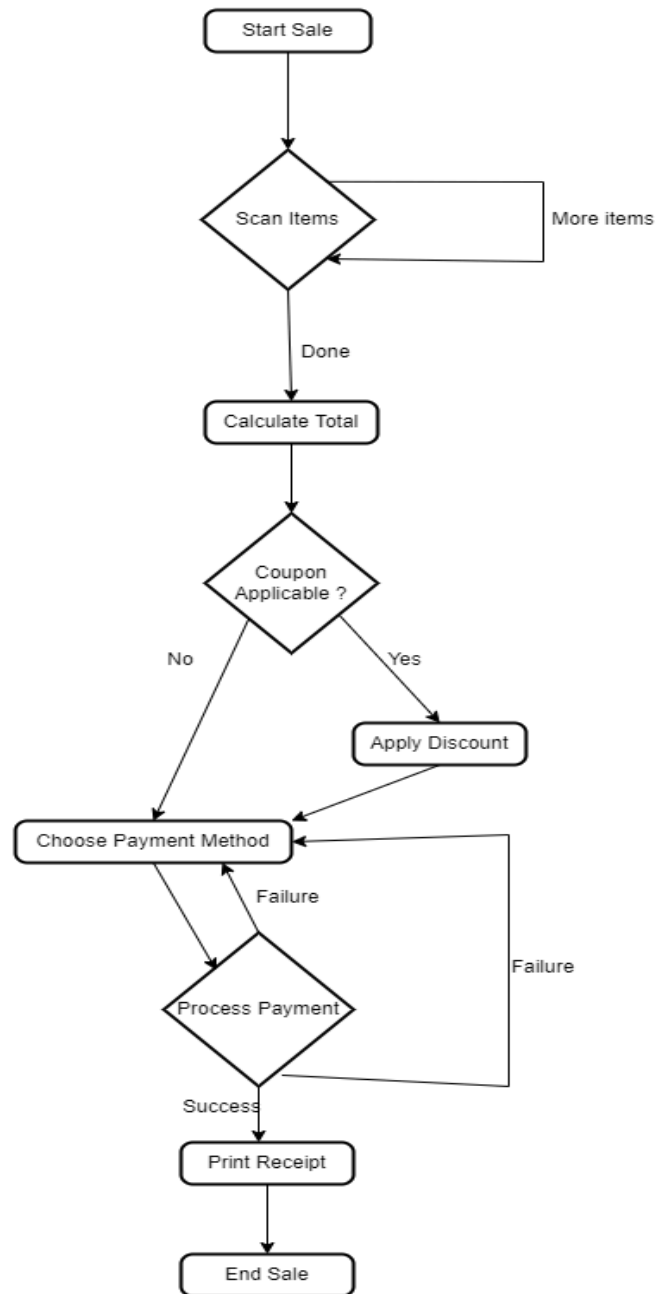


## Task 4: Develop Analysis Domain Models



## Task 5: Develop activity diagram for "Process Sale" and "Handle Return" use cases.

- Process Sale





- **Handle Return**

