IT314-Software Engineering
Lab-6
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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 be available in both the catalog and inventory systems.
- **Postcondition**:
  - The sale is completed and stored in the system.
  - The inventory system reflects the updated stock levels.
  - A receipt is printed and given to the customer.
- **Main Flow**:
  - The cashier initiates a new sale.
  - The cashier scans an item.

    - The system fetches 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 selects a payment method.
    - The system processes the payment (cash, credit card, etc.).
    - Once the payment is confirmed, the system prints a receipt.
- **Alternative Flow**:
    - If an item is missing from the catalog,the system informs the cashier
    - If the stock is insufficient,cashier is notified and same is informed to the customer.
    - If the payment transaction fails, the cashier either retries or cancels the sale(transaction).

Use Case 2: Handle Return

- **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 successfully, and the stock is updated in the inventory system.
    - The customer receives the refund or credit.
- **Main Flow**:
    - The cashier starts a new return process transaction.
    - The cashier scans the returned item(s) and verifies the original sale (if required).
    - The system fetches the item(s) information from the inventory system.
    - The cashier approves 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 been expired, the system notifies the cashier to discard the return.
    - If the item is damaged or missing, the return may be partially refunded or discarded.

Task 2: Identify Entity, Boundary and Control Objects

Entity Objects:

-Sale/Transaction

-Product/Item

-Payment

-Receipt

-Return

-Inventory

Boundary Objects:

-Cashier Interface(POS Terminal)

-Catalog System

-Inventory System

-Payment Gateway

Control Objects:

-Process Sale Controller

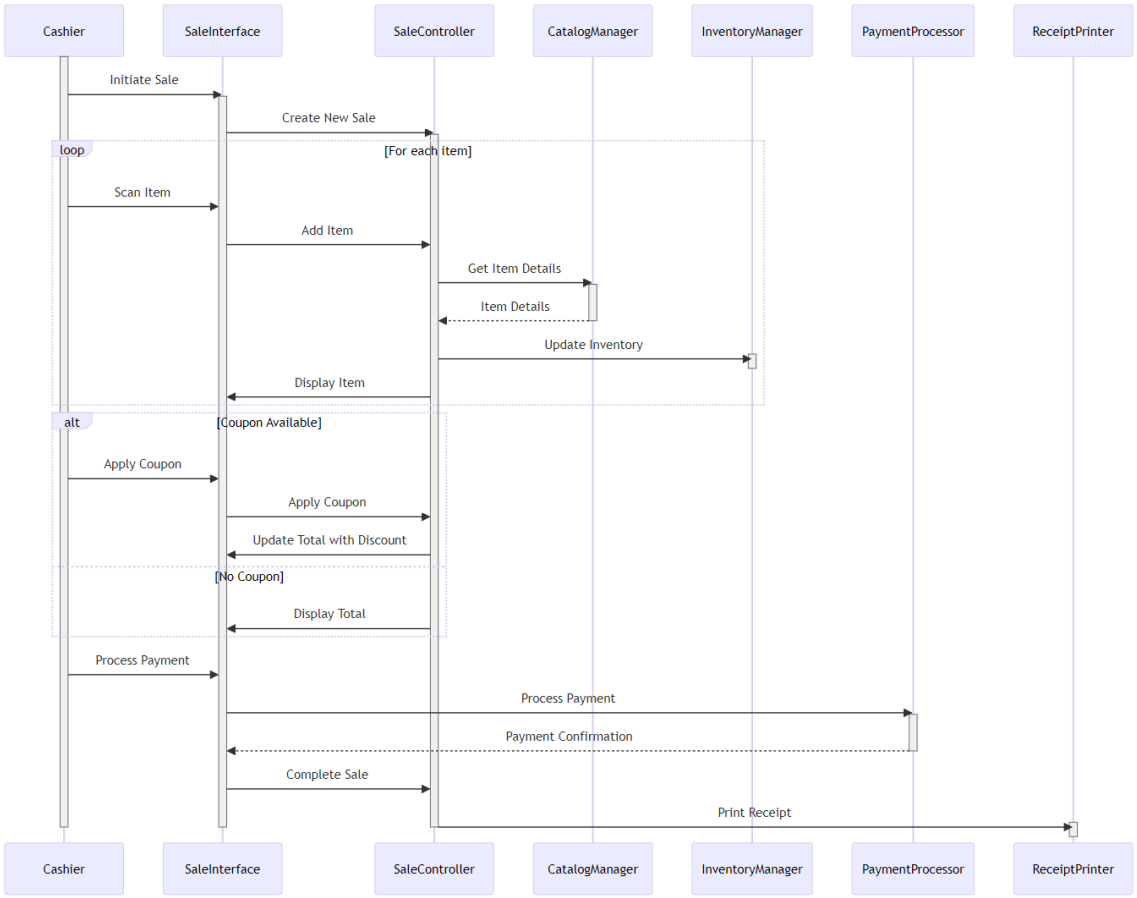
-Payment Controller

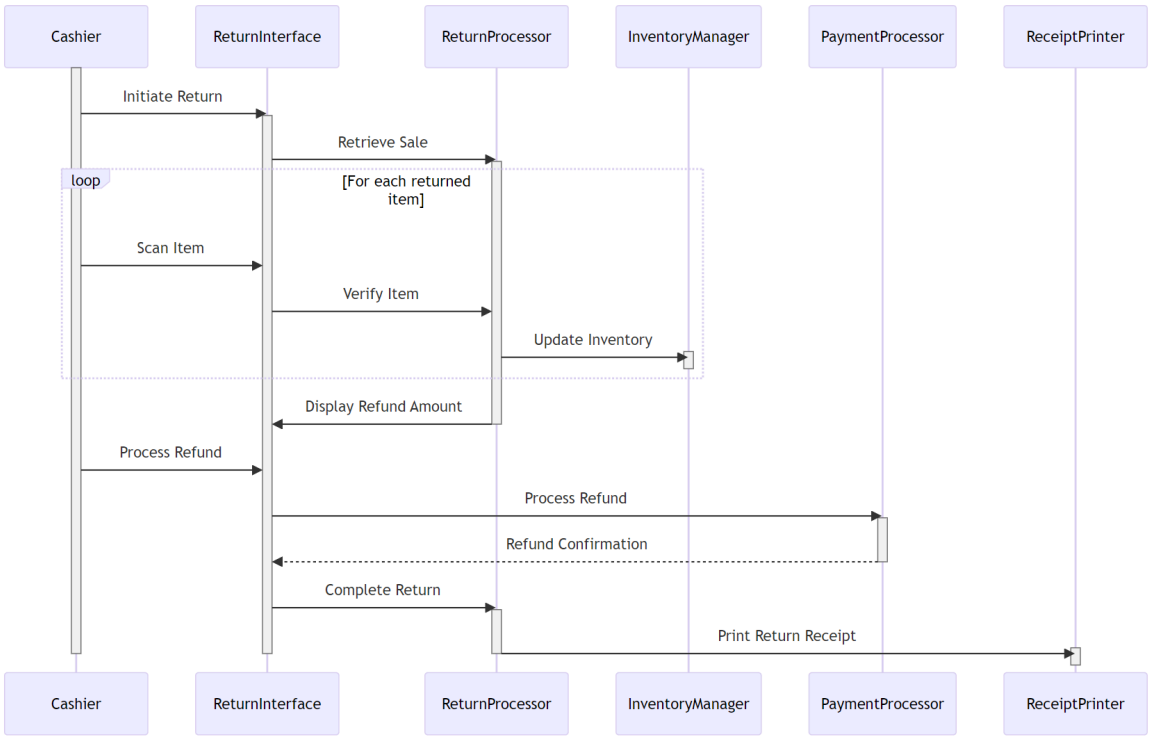
-Return Controller

-Inventory Controller

-Catalog Controller

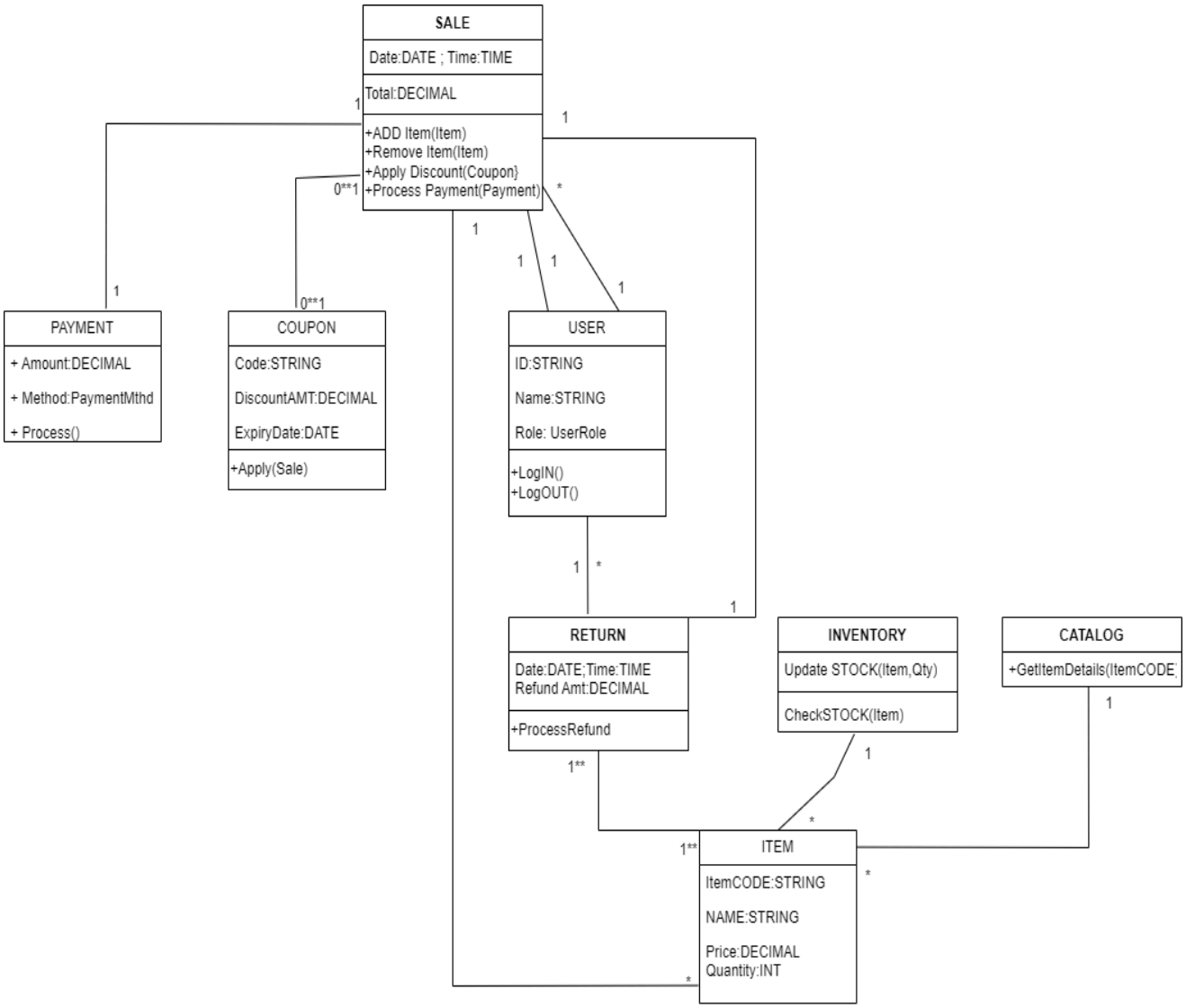
TASK3:Develope Sequence Diagrams



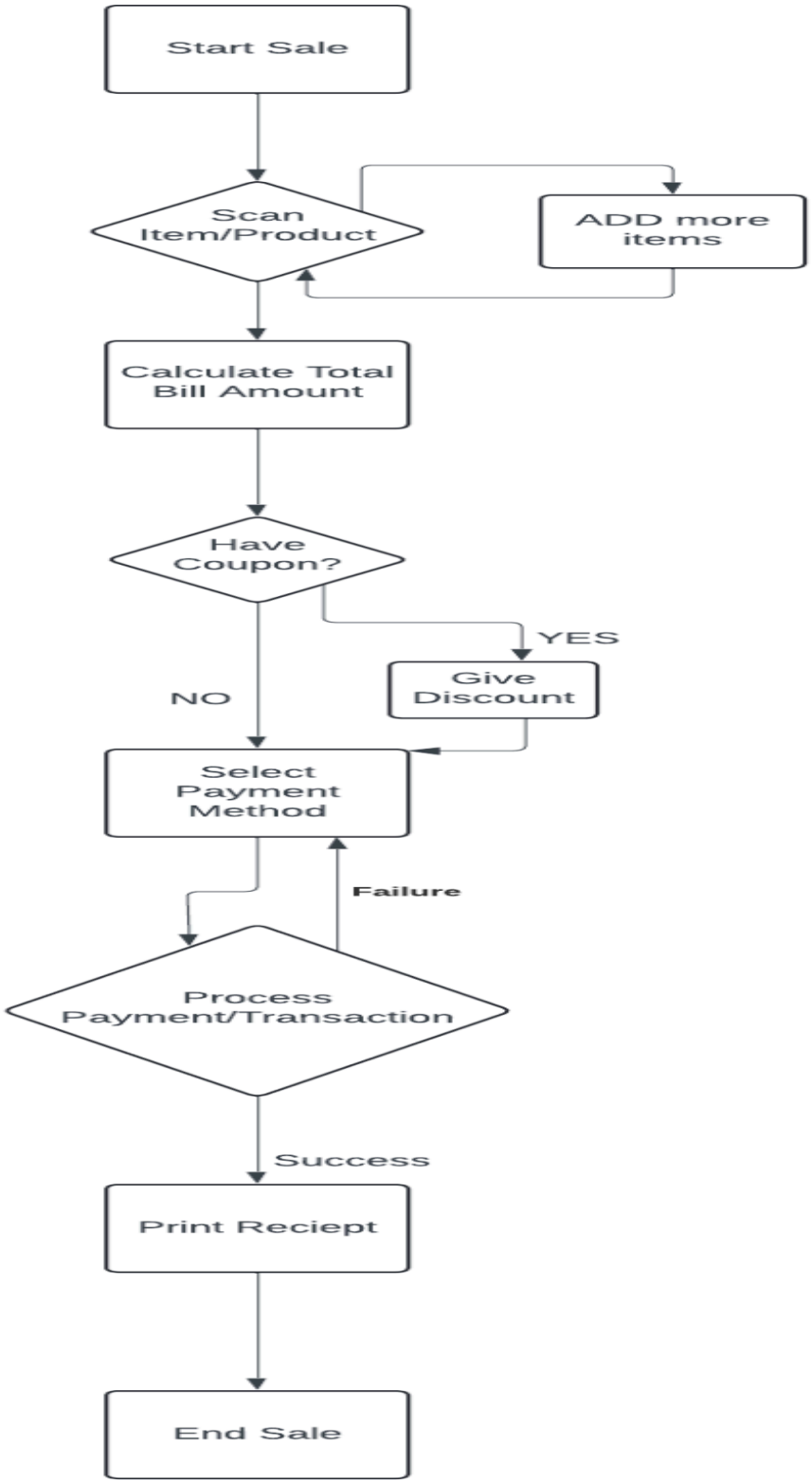

Cashier
ReturnInterface
ReturnProcessor
InventoryManager
PaymentProcessor
ReceiptPrinter
Initiate Return
Retrieve Sale
loop
[For each returned item]
Scan Item
Verify Item
Update Inventory
Display Refund Amount
Process Refund
Process Refund
Refund Confirmation
Complete Return
Print Return Receipt
Cashier
ReturnInterface
ReturnProcessor
InventoryManager
PaymentProcessor
ReceiptPrinter

-Return

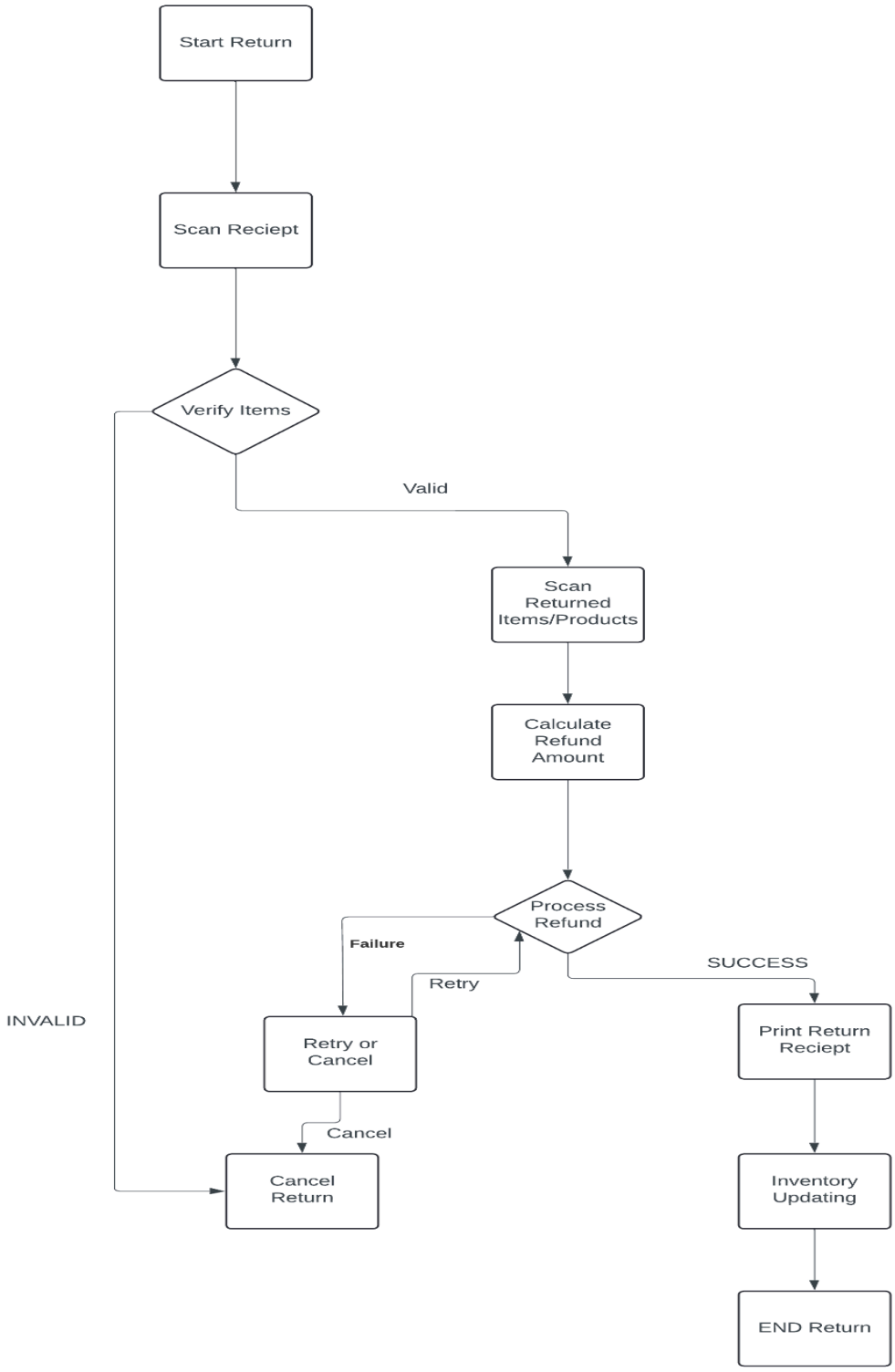
Task4:Develope Analysis Domain Model



TASK5: Develope Activity Diagram for *"Process Sale"* and "*Handle Return"* use cases



-Process Sale



-Handle Return