Software Engineering

Lab06 - Modeling Class Diagram and Acticity Diagram (Point Of Sale)

Name : Zeel Boghara
ID : 202201201

TASK-I

Use Case Textual Descriptions for "Process Sale" and "Handle Return" Use Cases

- **Use Case 1: Process Sale**
  - Actors:
    - Cashier
      1. Catalog System (external actor)
      2. Inventory System (external actor)
    - Preconditions:
      The cashier must be logged in.
      The items must be present in both the catalog and inventory systems.
    - Postconditions:
      The sale is finalized and recorded in the system.
      The inventory is updated accordingly.
      A receipt is generated for the customer.
    - Main Flow:

1. The cashier initiates a new sale.
2. The cashier scans the item.
3. The system fetches the item details from the catalog.
4. The system reduces the item's quantity in the inventory.
5. The cashier repeats steps 2-4 for all items.
6. The customer selects a payment method.
7. The system processes the payment (cash, credit card, etc.).
8. Once the payment is confirmed, the system produces a receipt.

- Alternative Flow:
  - If an item is not located in the catalog, the cashier receives a notification.
  - If there is insufficient stock, the cashier is alerted to inform the customer.
  - If the payment fails, the cashier can retry the payment or cancel the transaction.

- **Use Case 2: Handle Returns**
    - Actors:
        - Cashier
        - Inventory System (external actor)
    - Preconditions:
        - The cashier must be logged in.
        - The item being returned must have been part of a previous sale.
    - Postconditions:
        - The return is processed, and the inventory is updated accordingly.
        - The customer receives the appropriate refund or credit.
    - Main Flow:

1. The cashier initiates a new return transaction.
2. The cashier scans the returned item(s) and verifies the original sale if necessary.
3. The system retrieves the item(s) information from the inventory system.
4. The cashier confirms that the return complies with the return policy.

5. The system updates the inventory by adding the returned item(s).
6. The system issues a refund or store credit to the customer.

- Alternative Flow:
  - If the return period has lapsed, the system notifies the cashier to decline the return.
  - If the item is damaged or incomplete, the return may be partially refunded or rejected.

Task-II

Identification of Entity, Boundary, and Control Objects

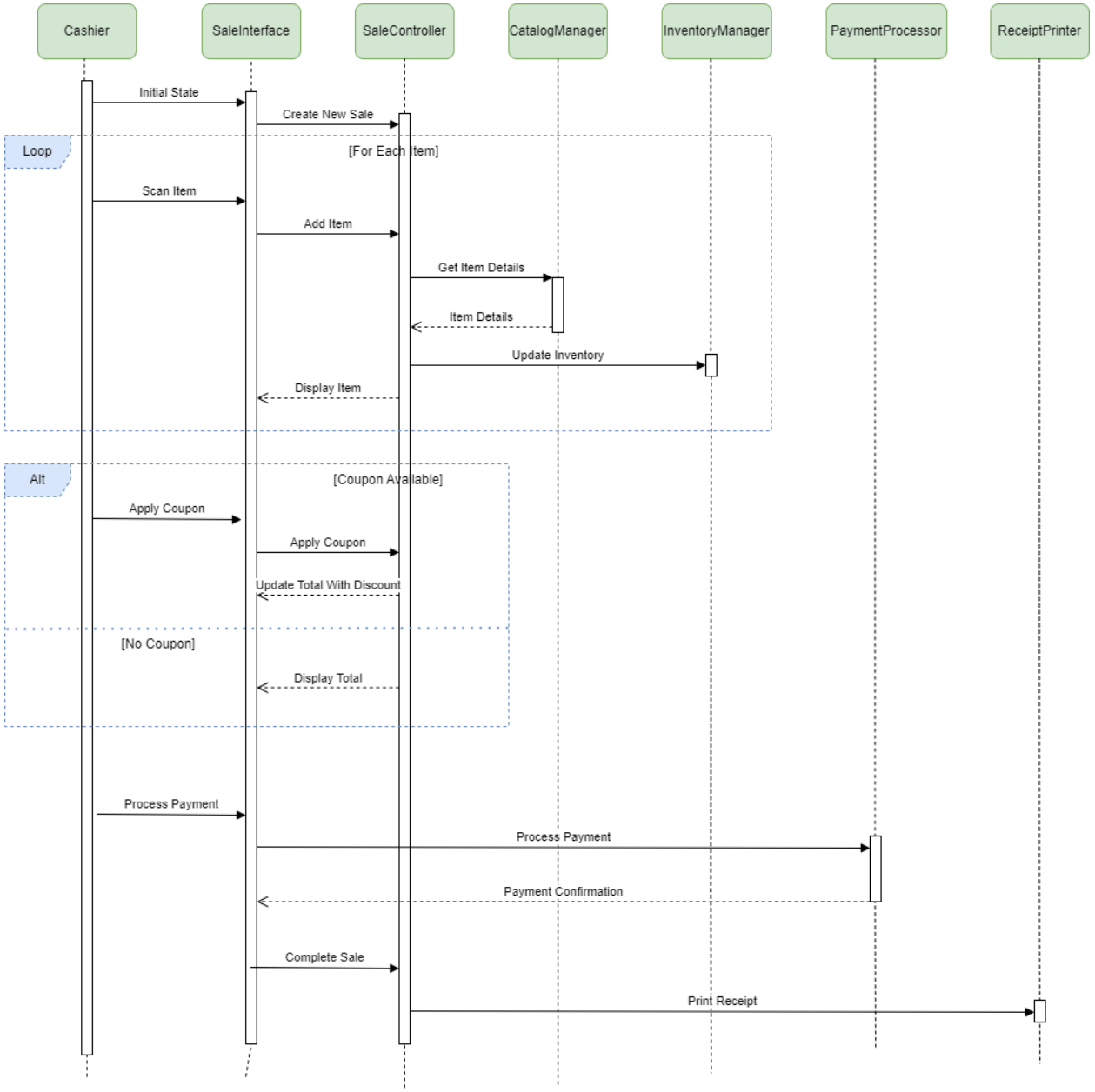
- Entity Objects:
  - Transaction
  - Item
  - Payment
  - Receipt
  - Return

- Boundary Objects:
  - Cashier Interface
  - Catalog System
  - Inventory System

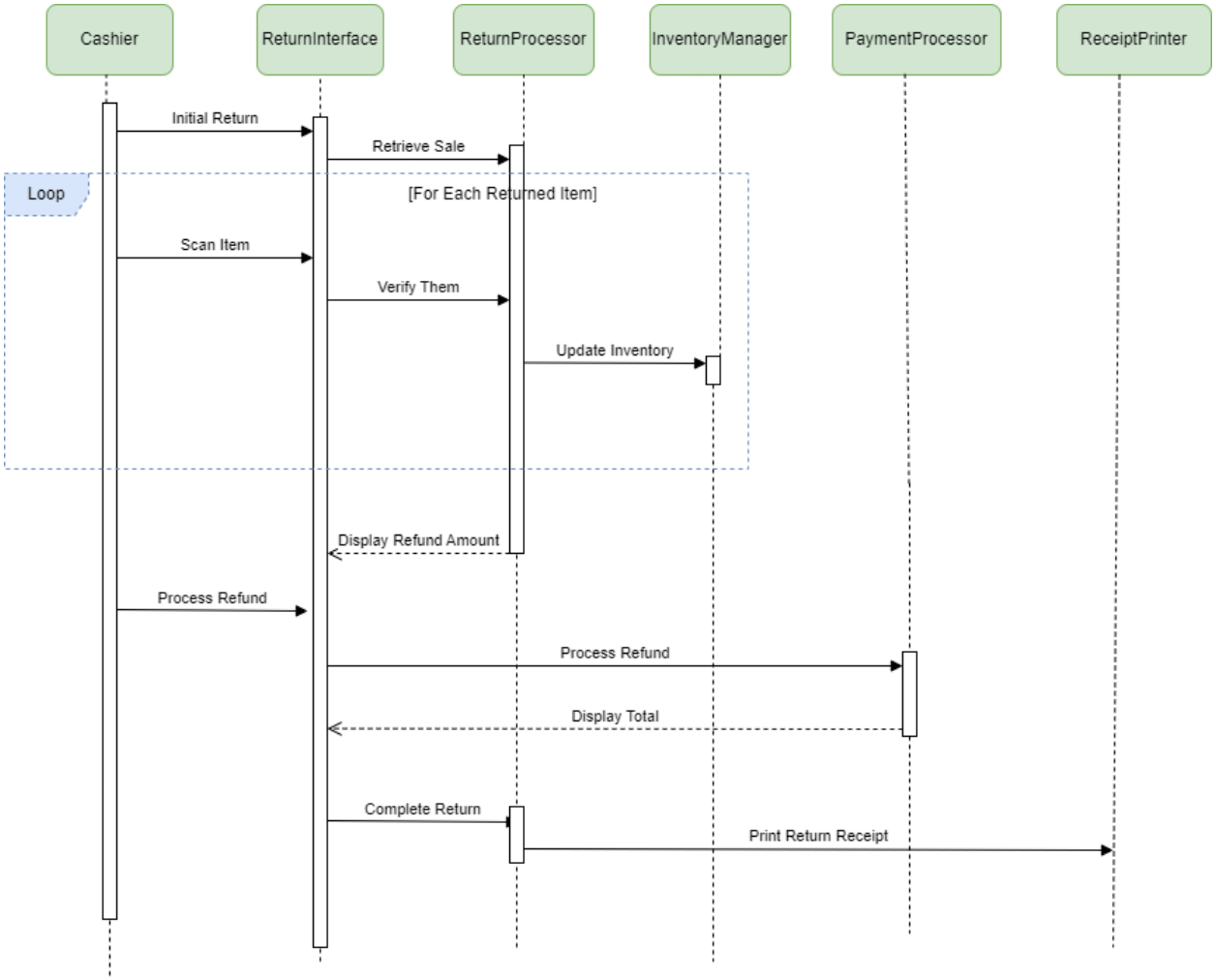
- Control Objects:
  - Sale Processing Controller
  - Payment Processing Controller
  - Return Handling Controller

Task-III

- Process Sale:-

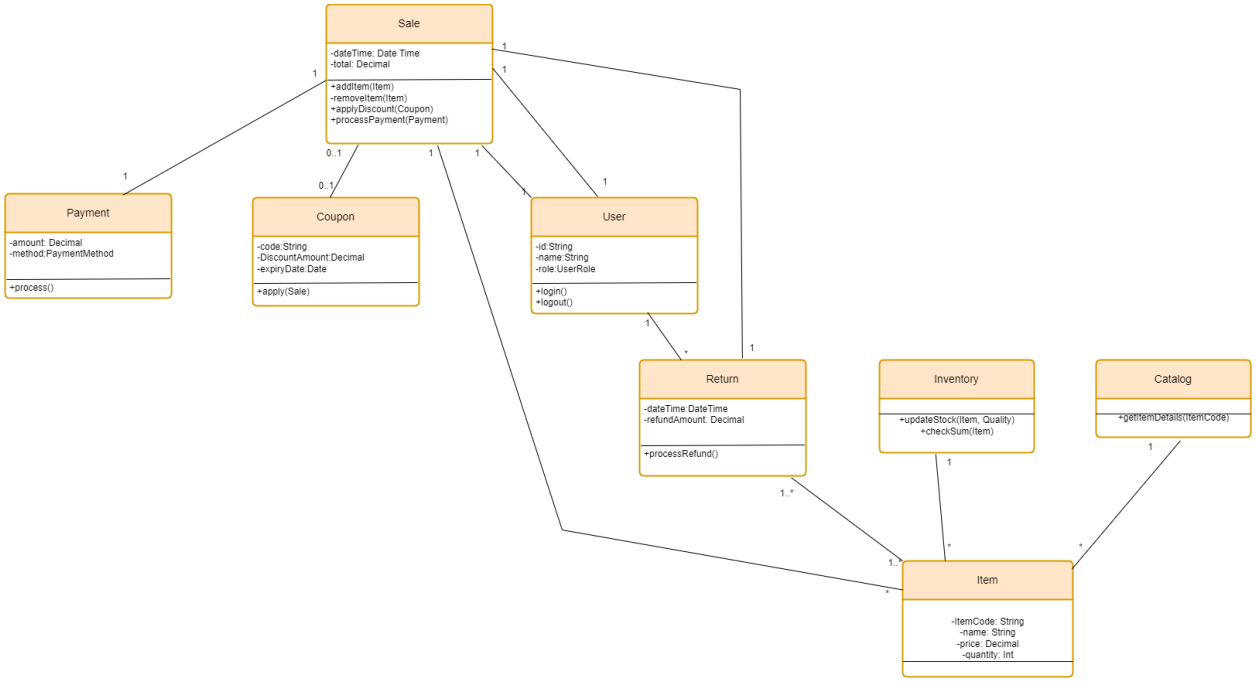


- Handle Sale:-



Task-IV

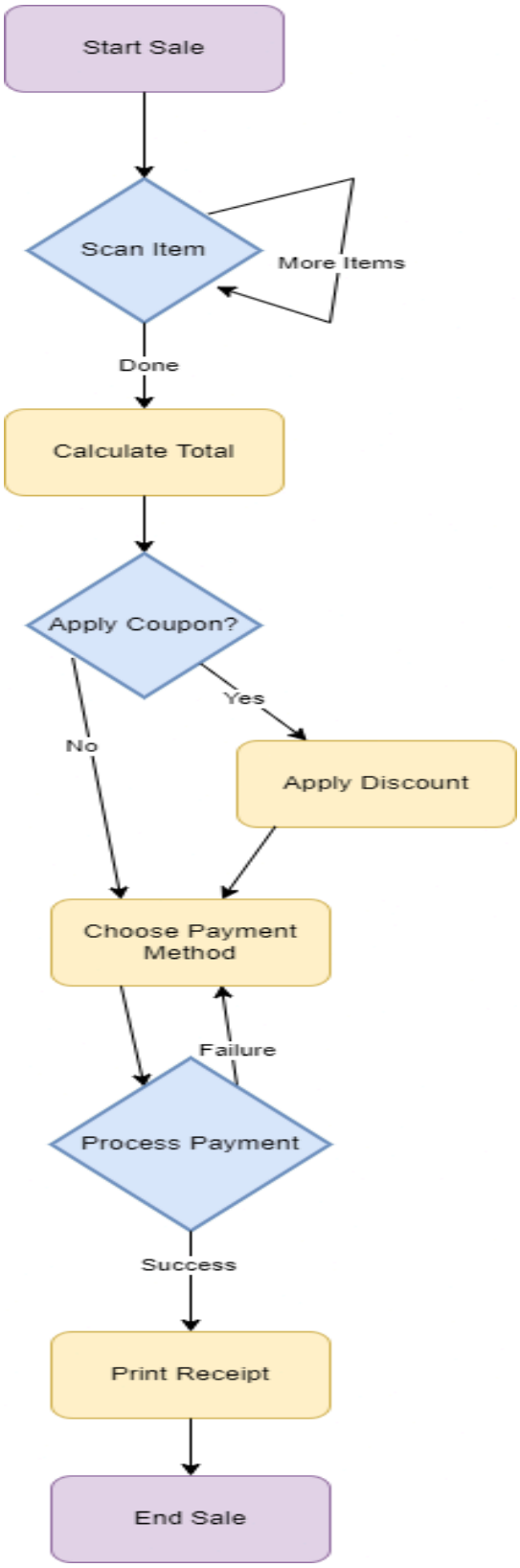
- **Develop Analysis Domain Models**



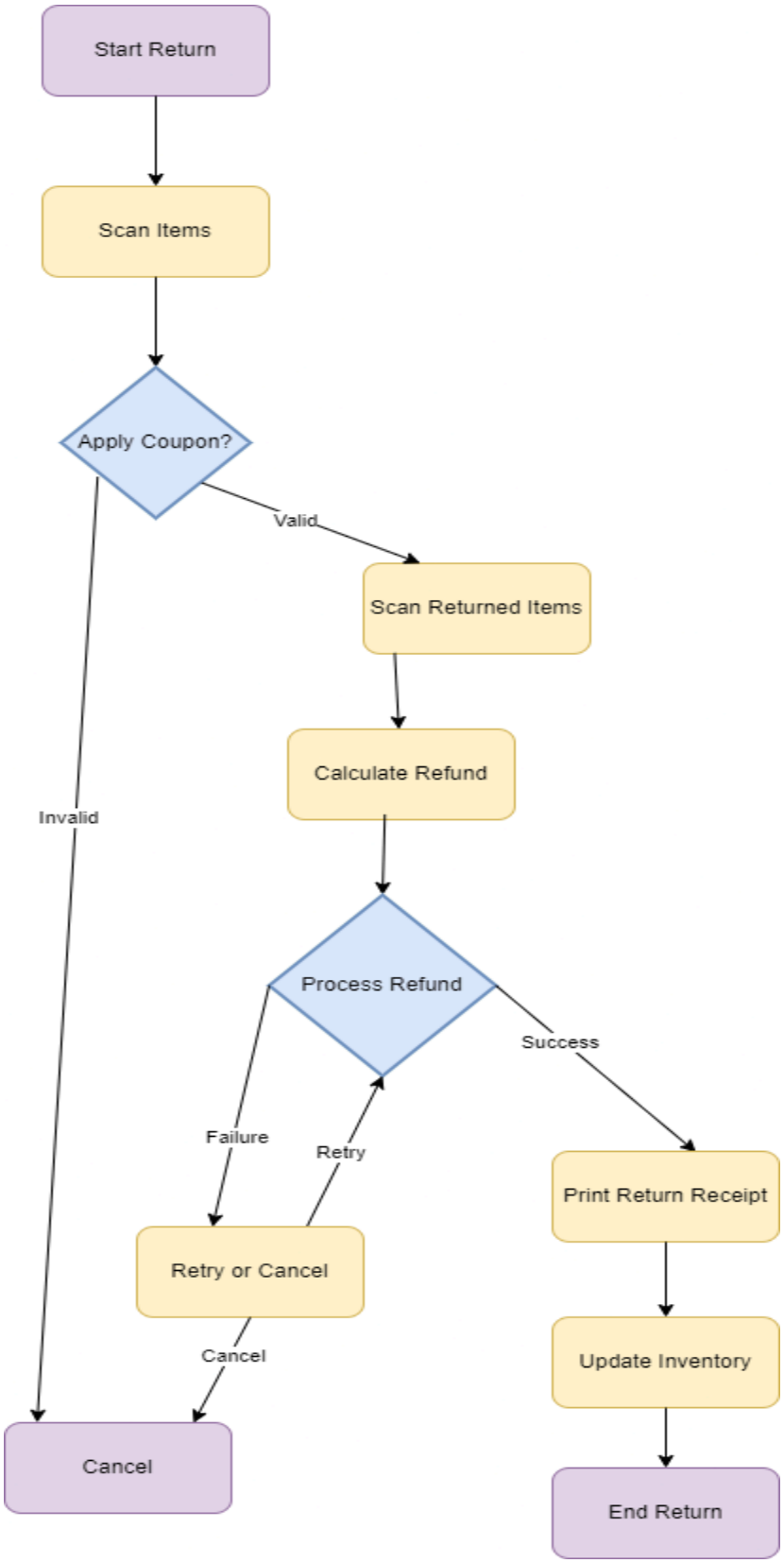
TASK-V

- **Develop activity diagram for "Process Sale" and "Handle Return" use cases.**

- Process Sale



- Handle Sale:


Start Return
Scan Items
Apply Coupon?
Valid
Invalid
Scan Returned Items
Calculate Refund
Process Refund
Success
Failure
Retry
Retry or Cancel
Cancel
Print Return Receipt
Update Inventory
End Return
Cancel