IT314: Software Engineering

Lab 6: Modeling Class Diagram and

Activity Diagram (Point of Sale System)

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- **Develop Use Case Textual Description for "Process Sale" and "Handle Return" use cases:**

Use Case 1: Process Sale

- **Actors:**
  - Cashier
  - Catalog System (external actor)
  - Inventory System (external actor)

- **Pre-Conditions:**
  - The cashier must be logged into the system.
  - The items must exist in the catalog and inventory system.

- **Main Flow:**
  1. The cashier starts a new sale.
  2. The cashier scans the item.
  3. The system retrieves the item information from the Catalog.
  4. The system deducts the stock of the item from the inventory.
  5. The cashier repeats the steps 1-4 for all items.
  6. The customer chooses a payment method.(cash,credit card or cheque)
  7. The system processes the payment.
  8. Once payment has been confirmed , the system generates a receipt.

- **Alternate Flow:**

  3.a. Item is not found in the catalog.

     3.a.1. The cashier gets notified that the item is not found.

4.a. There is insufficient stock in inventory.

    4.a.1. The cashier is notified to inform the customer.

7.a. The payment fails.

    7.a.1. The cashier retries the payment or cancels the sale.

- **Post-Conditions:**
  - The sale is completed and recorded in the system.
  - The stock is updated in the inventory system.
  - The receipt is printed for the customer.

Use Case 2: Handle Return

- **Actors:**
  - Cashier
  - Inventory System(external actor)

- **Pre-Conditions:**
  - The cashier must be logged into the system.
  - The item to be returned must be a part of a previous sale.

- **Main Flow:**
  1. The cashier starts a new return transaction.
  2. The cashier scans the returned item(s) and verifies the original sale.
  3. The system retrieves the item information and return period information from the inventory.

4. The cashier confirms that the returned item is within the return policy.
5. The system updates the stock in the inventory by adding the item.
6. The system issues a refund or a store credit to the customer.

- **Alternate Flow:**

  3.a. The return period has expired.

      3.a.1. The system notifies the cashier to reject the return.

  4.a. The item is damaged or missing.

      4.a.1. The system notifies the cashier to reject the return.

- **Post-Conditions:**
  - The return is processed and updated in the inventory system.
  - The customer is compensated with appropriate refund or credit.

- **Identify Entity/Boundary Control Objects:**

  - **Entity Objects:**
    - Cashier
    - Catalog System
    - Inventory System
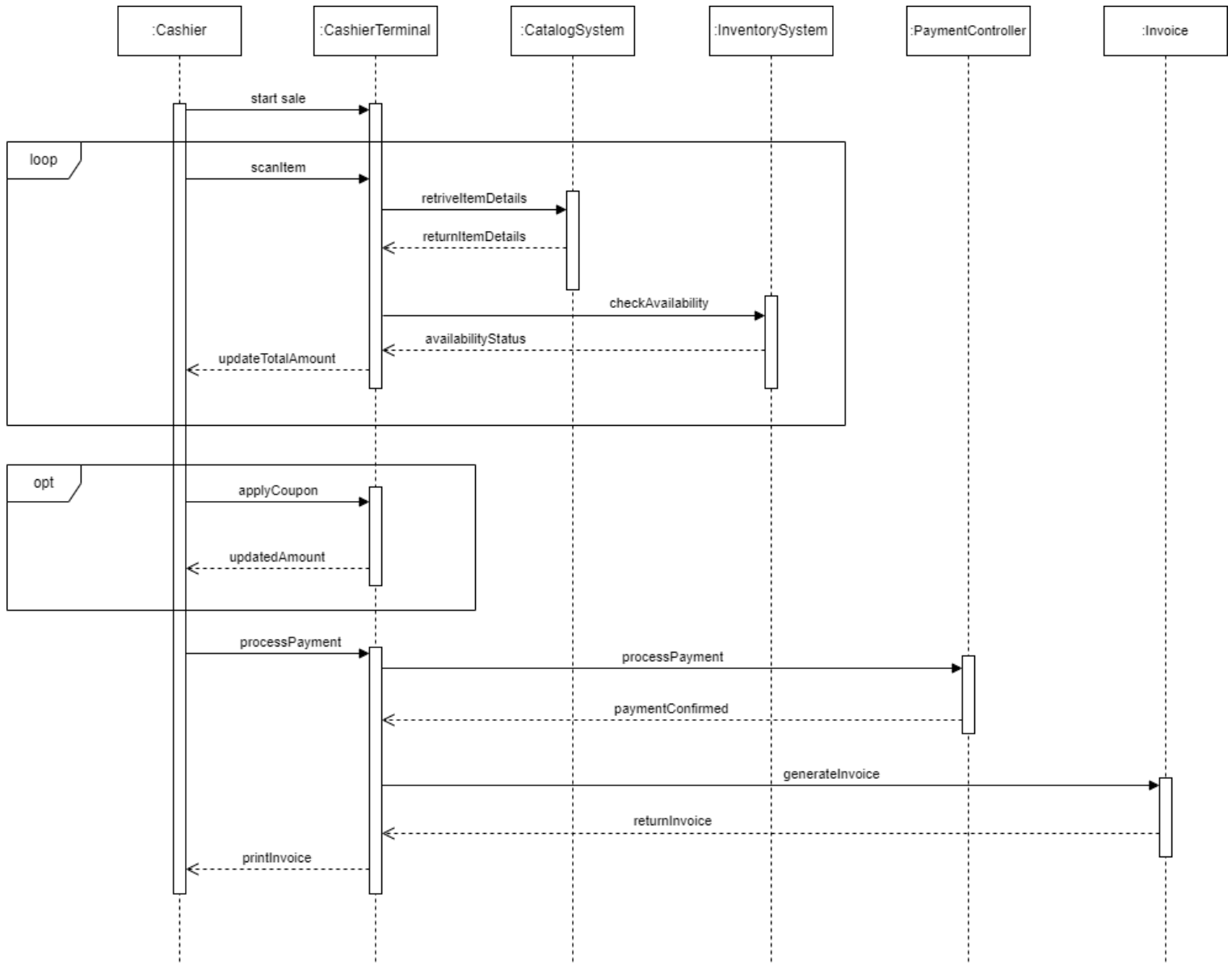   - Invoice
    - Return Invoice

  - **Boundary Objects:**
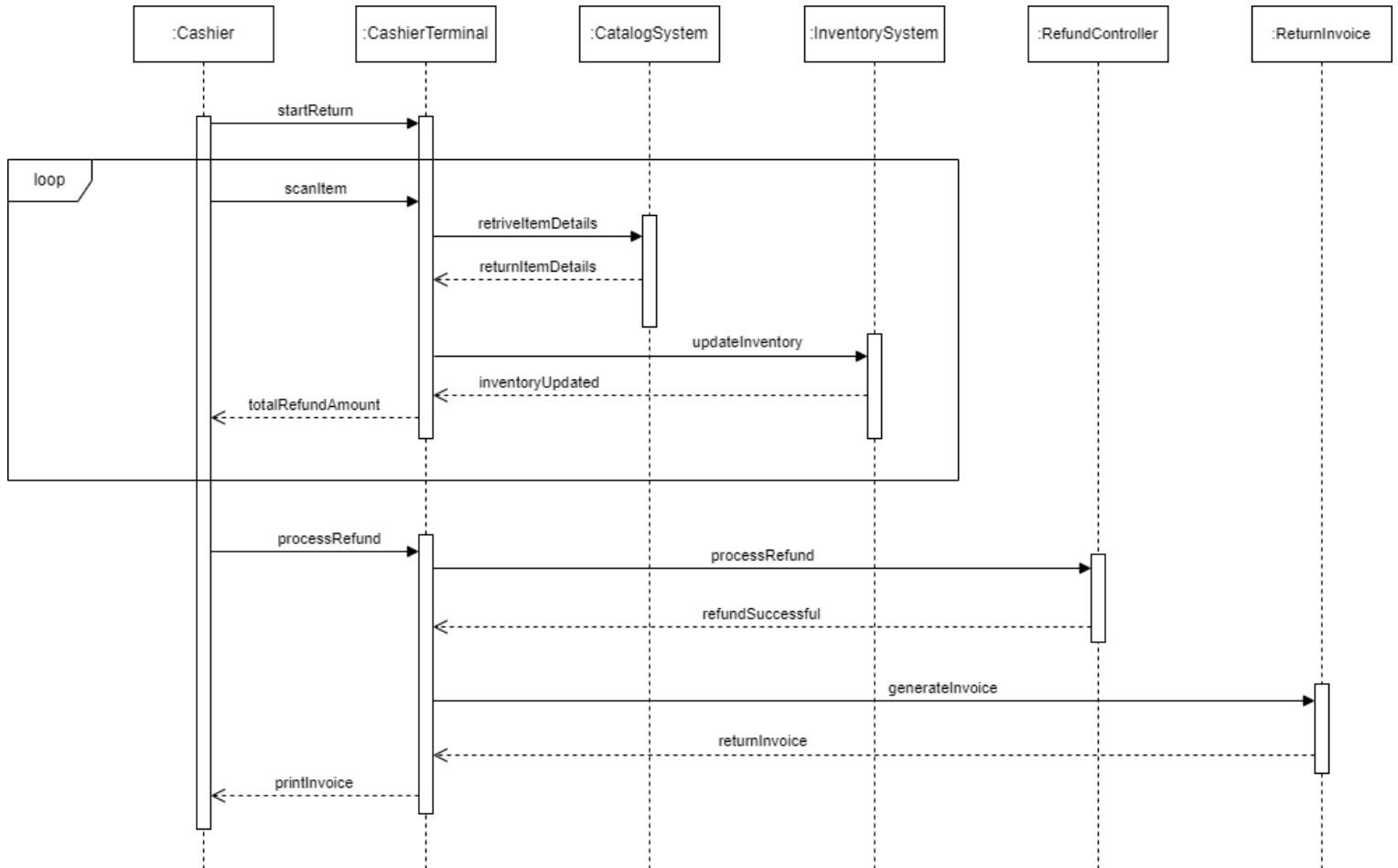   - Cashier Terminal
    - Scanner

  - **Control Objects:**
    - Payment Controller
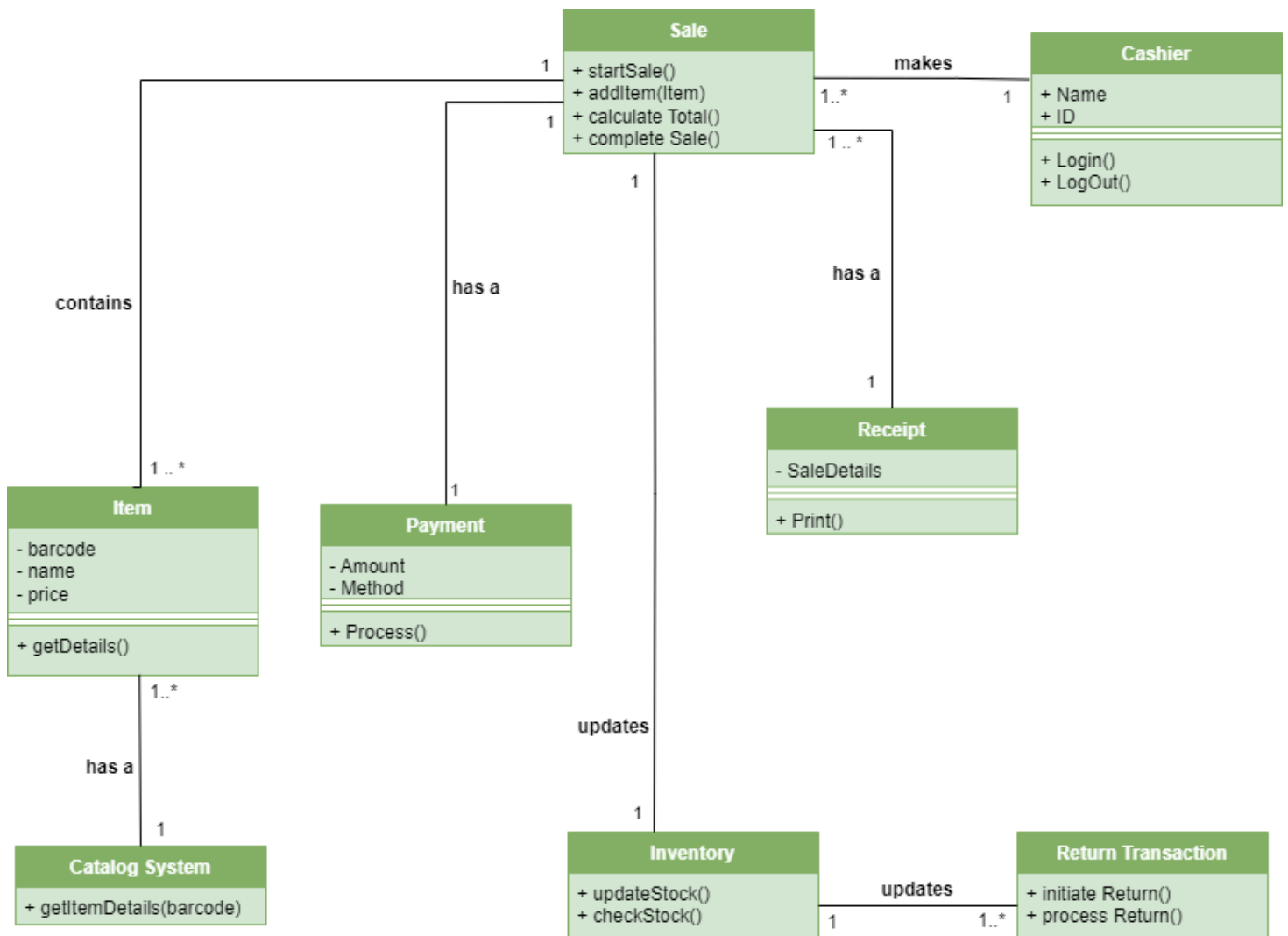   - Refund Controller

● **Develop Sequence Diagrams:**

  ● **Process Sale**
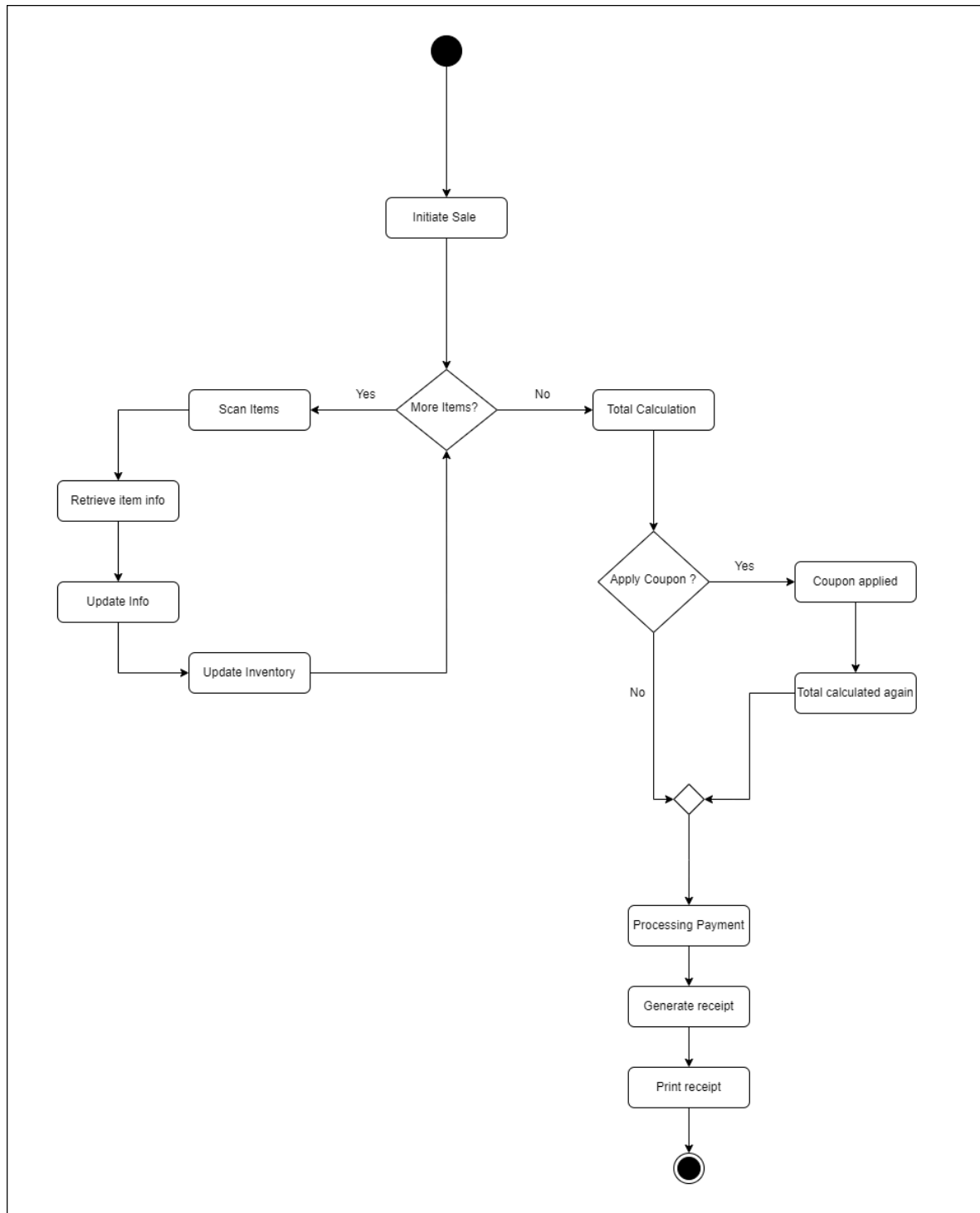
● Handle Return

● Develop Analysis Domain Models:

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

  - **Process Sale**

● **Handle Return**