



IT314: Software Engineering

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Lab-6: Point-Of-Sale system

Task 1: Develop Use Case Textual Description for "Process Sale" and "Handle Return" use cases.

Use Case Name: Process Sale

Actors: Cashier, Catalog System, Inventory System

Preconditions:

1. Cashier must be logged into the POS system.
2. Items are available in the inventory.

Main Flow:

1. The cashier starts a new sale.
2. The cashier scans the items.
3. The system retrieves the item details of the item from the Catalog System.
4. The system checks the stock and updates the inventory.
5. The customer chooses a payment method cash or credit.
6. Payment is processed.
7. A receipt is printed.

Postconditions:

1. The sale is recorded.
2. Inventory is updated.
3. A receipt is printed.
4. Payment is completed.

Alternate Flows:

- 6.a. If the payment fails, the cashier retries or cancels the sale.
- 2.a. If a gift coupon is used, the system adjusts the final price.

Use Case Name: Handle Return

Actors: Cashier, Inventory System

Preconditions:

1. The customer must have a valid receipt for the item.
2. The item must be eligible for return.

Main Flow:

1. The cashier starts the return process.
2. The cashier scans the receipt and the item.
3. The system verifies the item eligibility.
4. The system updates the inventory, adding the item back.
5. The customer receives a refund or store credit.

Postconditions:

1. The return is processed.
2. The inventory is updated.
3. A refund or store credit is issued.

Alternate Flows:

- 2.a. If the item is ineligible for return, the system informs the cashier.
- 2.b. The cashier can choose to offer store credit if a refund is not possible.

Task 2: Identify Entity/Boundary Control Objects

Entity Objects:

1. Sale Transaction
2. Item
3. Payment
4. Receipt
5. Inventory
6. Coupon

Boundary Objects:

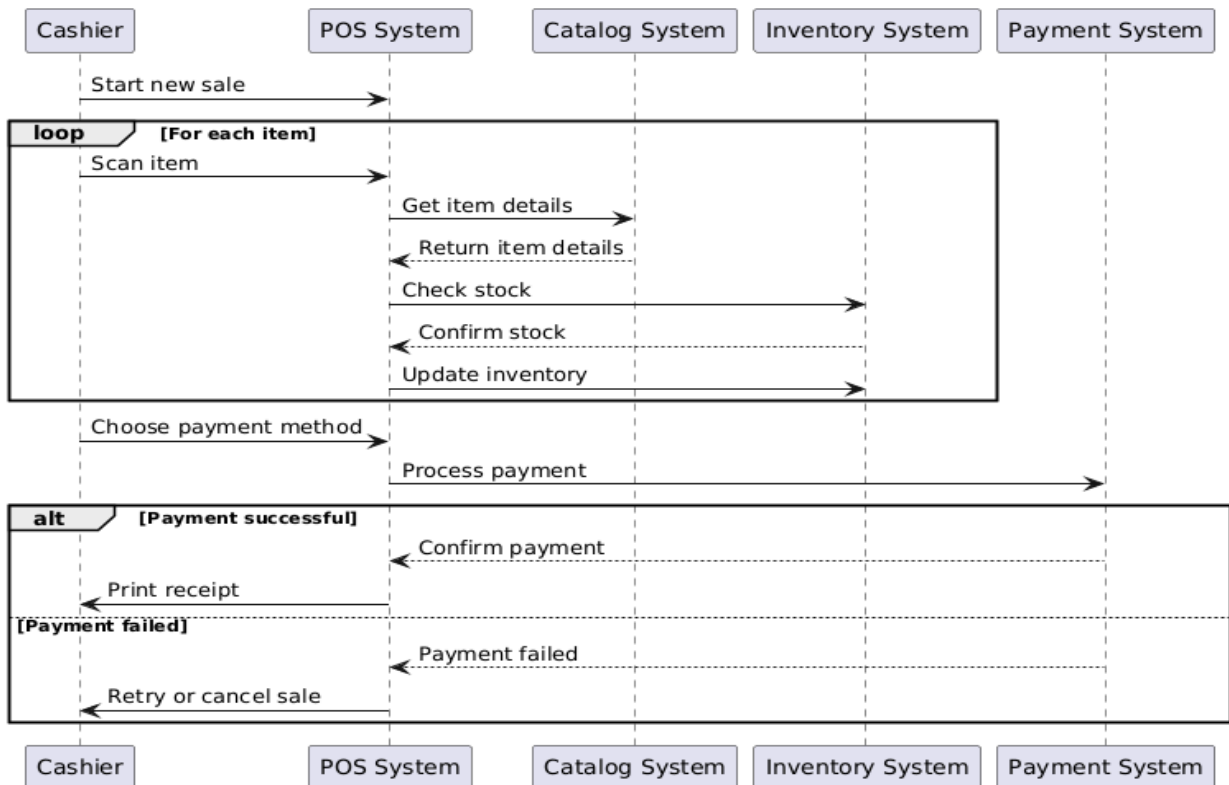
1. POS User Interface
2. Catalog System - External system
3. Inventory System - External system
4. Barcode Scanner

Control Objects:

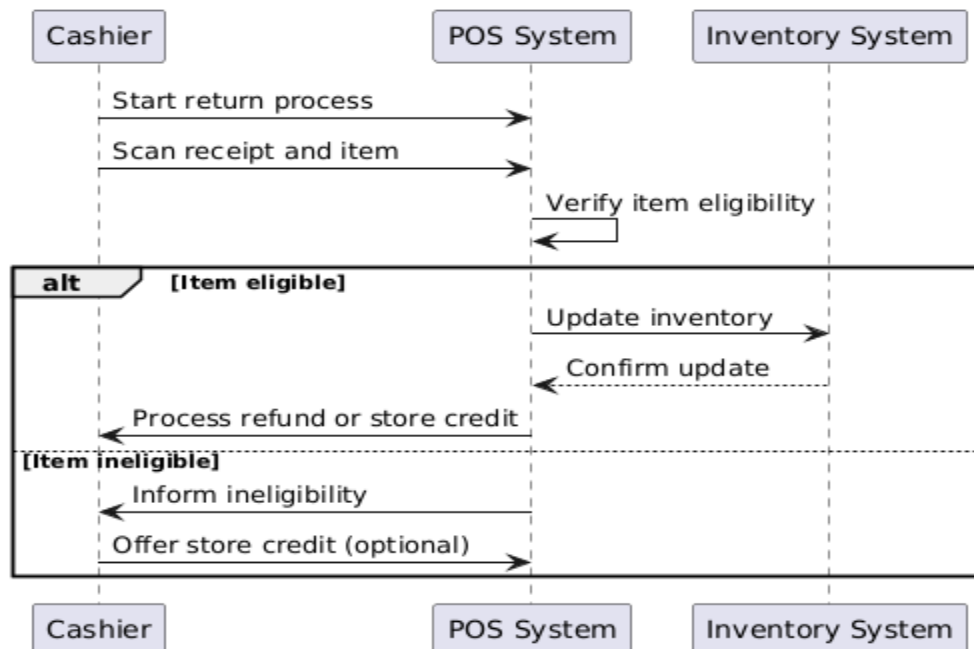
1. Sale Controller - Handles sale logic
2. Return Controller - Handles returns logic
3. Payment Controller - Handles payments

Task 3: Develop Sequence Diagrams

Sequence Diagram For "Process Sale":

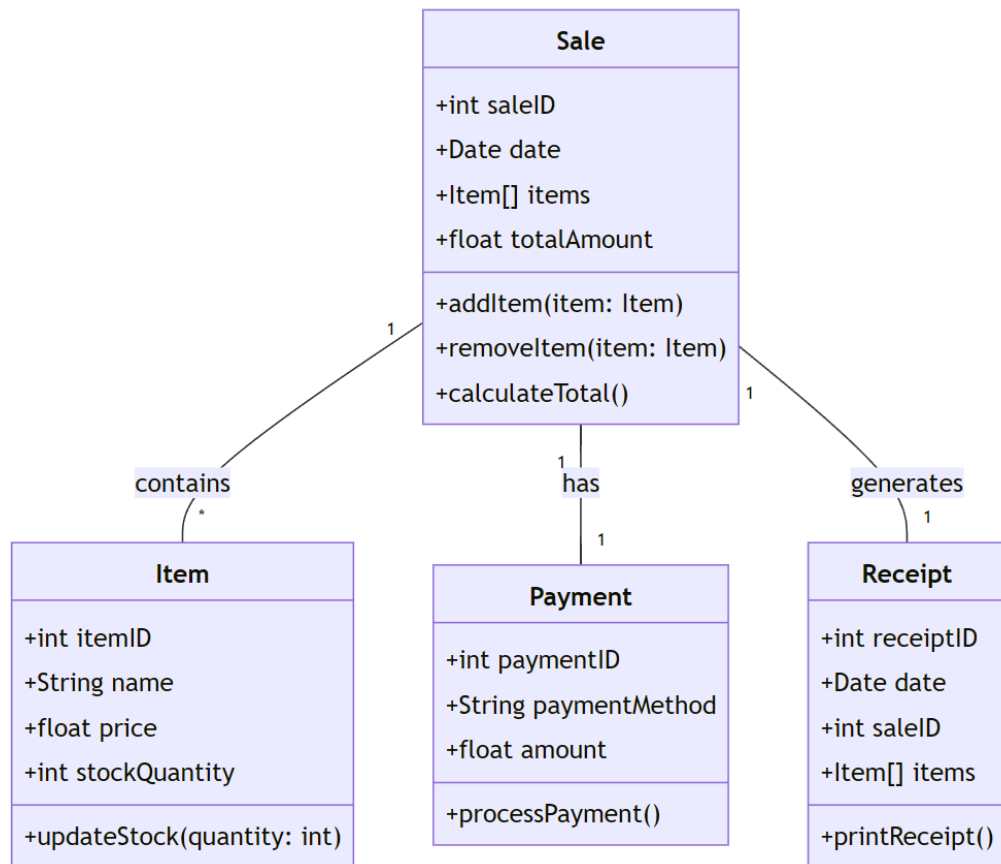


Sequence Diagram For "Handle Return":

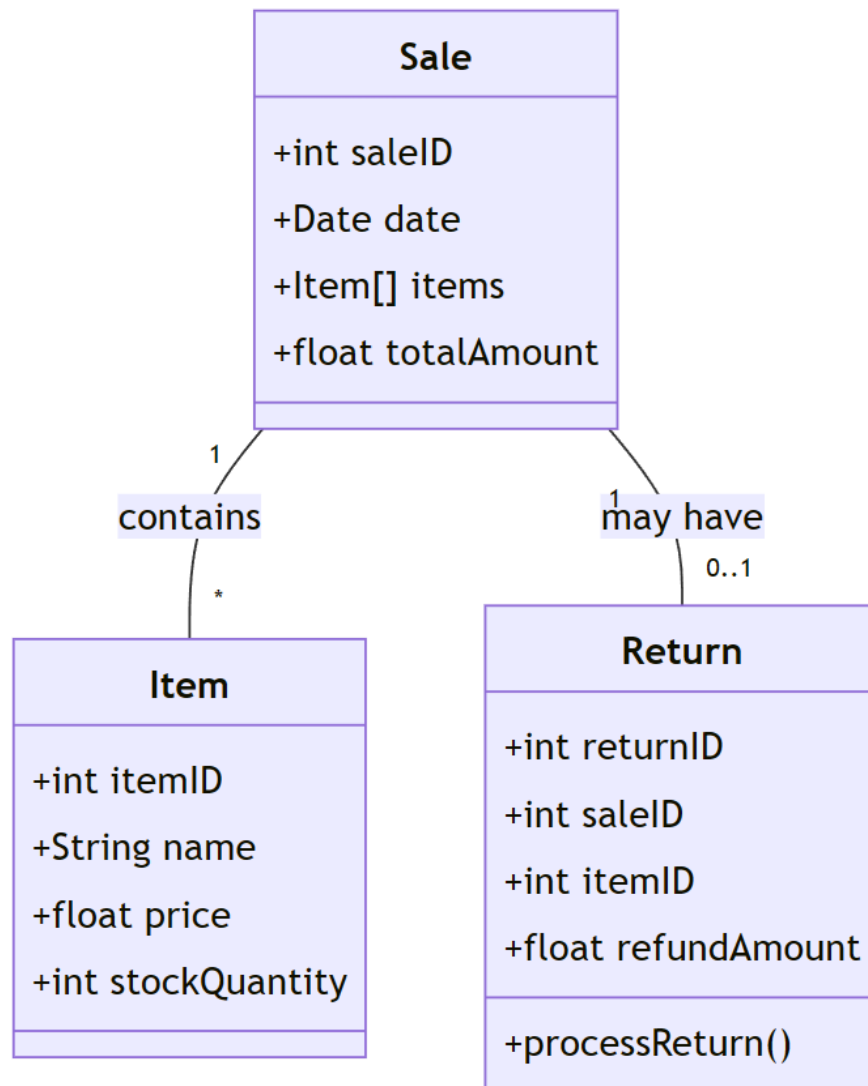


Task 4: Develop Analysis Domain Models

Class Diagram for "Process Sale":

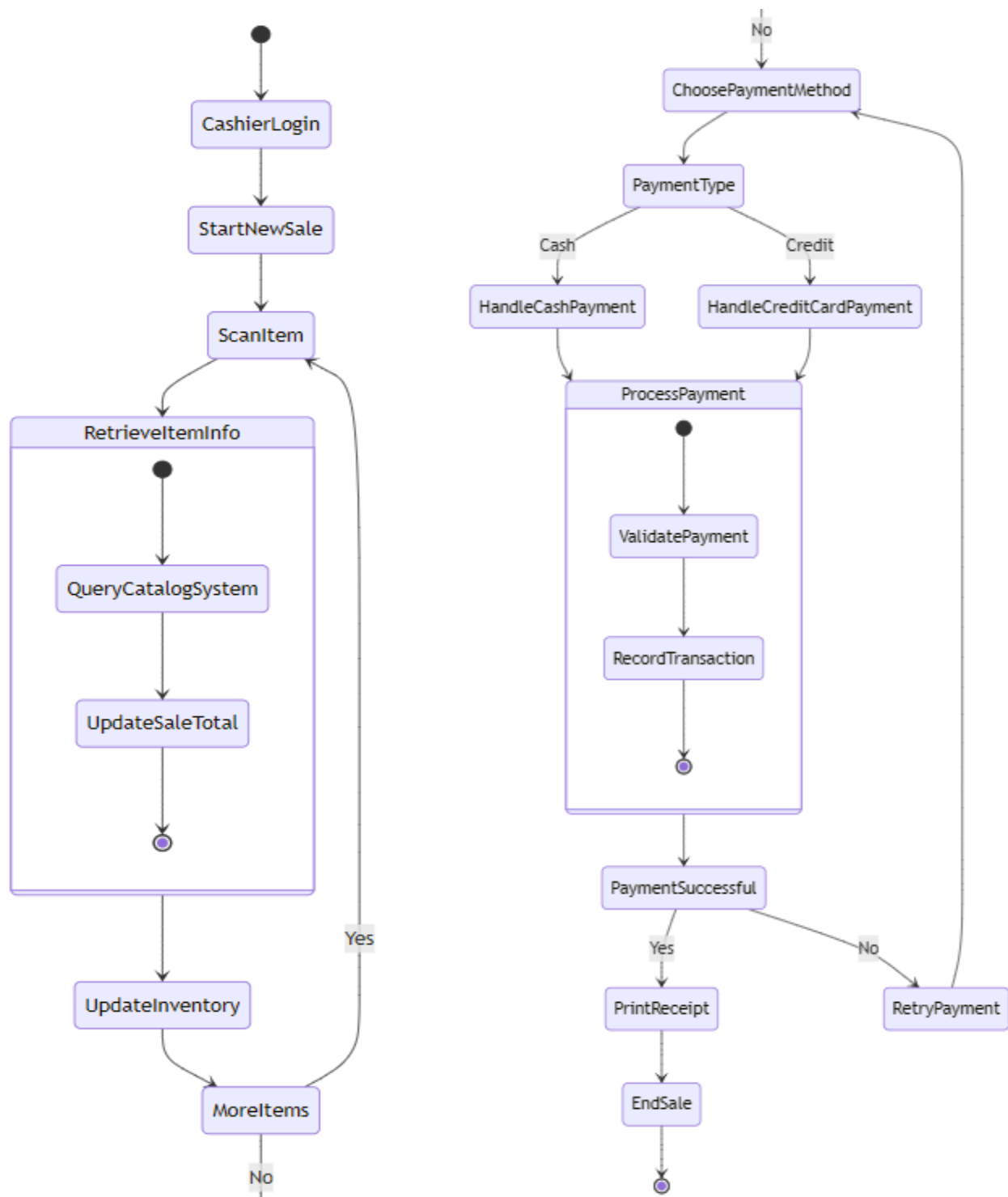


Class Diagram for "Handle Return":



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

Activity Diagram for "Process Sale":



Activity Diagram for "Handle Return":

