

IT314-Software Engineering

Lab-6

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

Actors:

- Cashier
- Catalog System (external)
- Inventory System (external)

Preconditions:

- The cashier is logged in.
- Items are available in both the catalog and inventory systems.

Postconditions:

- The sale is recorded in the system.
- Inventory levels are updated.
- A receipt is generated and printed for the customer.

Main Flow:

1. The cashier initiates a new sale.
2. The cashier scans an item.
3. The system retrieves the item details from the catalog.
4. The system deducts the item quantity from the inventory.
5. Steps 2-4 are repeated for each item in the transaction.

6. The customer selects a payment method.
7. The system processes the payment (e.g., cash, credit card).
8. Upon successful payment, the system prints a receipt.

Alternative Flows:

- **Item Not Found:**
 - If an item is not in the catalog, the system notifies the cashier.
- **Insufficient Stock:**
 - If stock is insufficient, the system alerts the cashier, who informs the customer.
- **Payment Failure:**
 - If payment fails, the cashier can retry or cancel the transaction.

Use Case 2: Handle Returns

- **Use Case Name:** Handle Returns

Actors:

- Cashier
- Inventory System (external)

Preconditions:

- The cashier is logged in.
- The returned item must have been part of a previous sale.

Postconditions:

- The return is processed, updating the inventory.
- The customer receives the appropriate refund or store 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 item information from the inventory system.
4. The cashier checks that the return complies with the store's return policy.
5. The system updates the inventory by adding the returned item(s).
6. The system processes the refund or issues store credit to the customer.

Alternative Flows:

- **Return Period Expired:**
 - If the return period has expired, the system notifies the cashier to reject the return.
- **Damaged or Missing Items:**
 - If the item is damaged or incomplete, the system may allow a partial refund or notify the cashier to reject the return.

Task 2: Identification of Entity, Boundary, and Control Objects

Entity Objects:

- Sale
- Product
- Payment:
- Receipt
- Return

Boundary Objects:

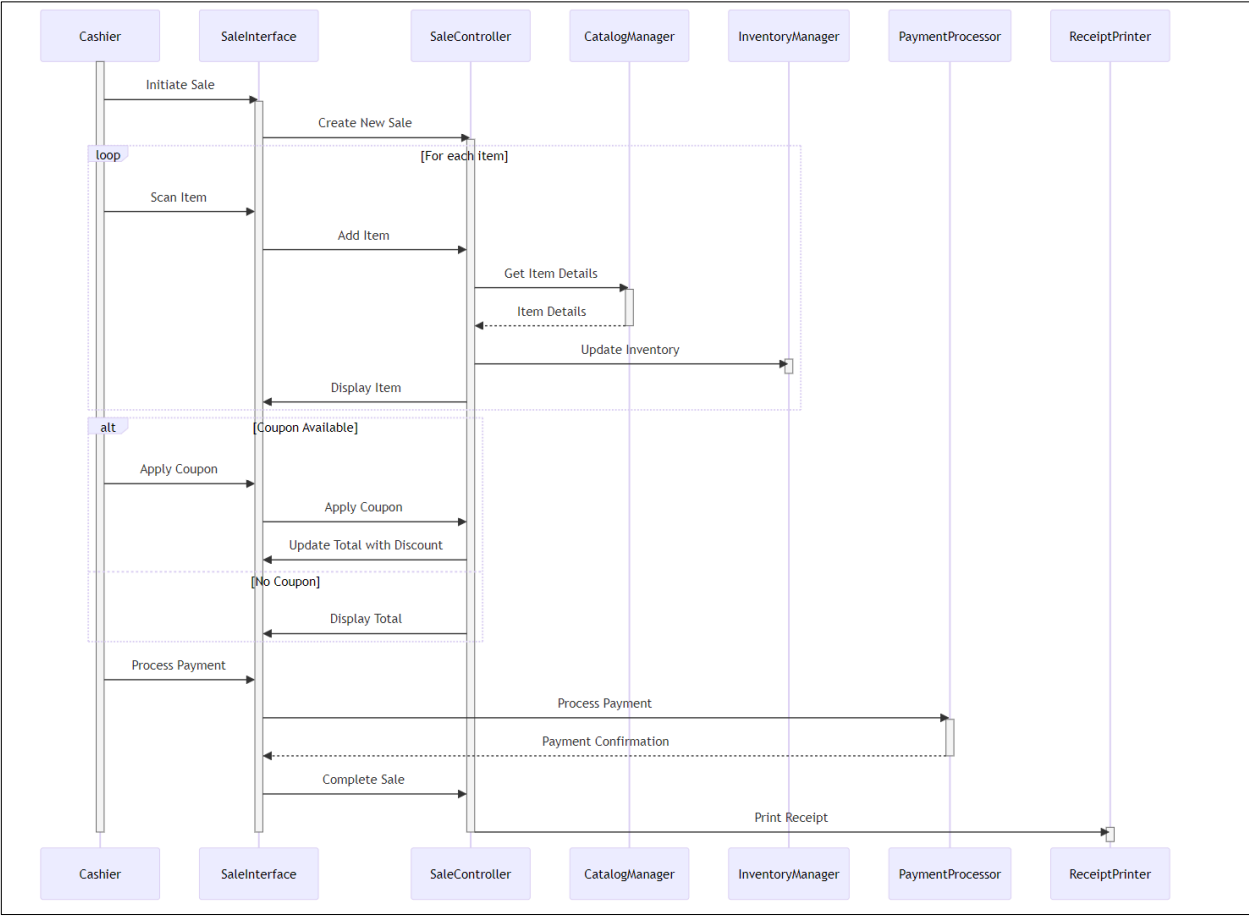
- Cashier Interface
- Catalog System
- Inventory System

Control Objects:

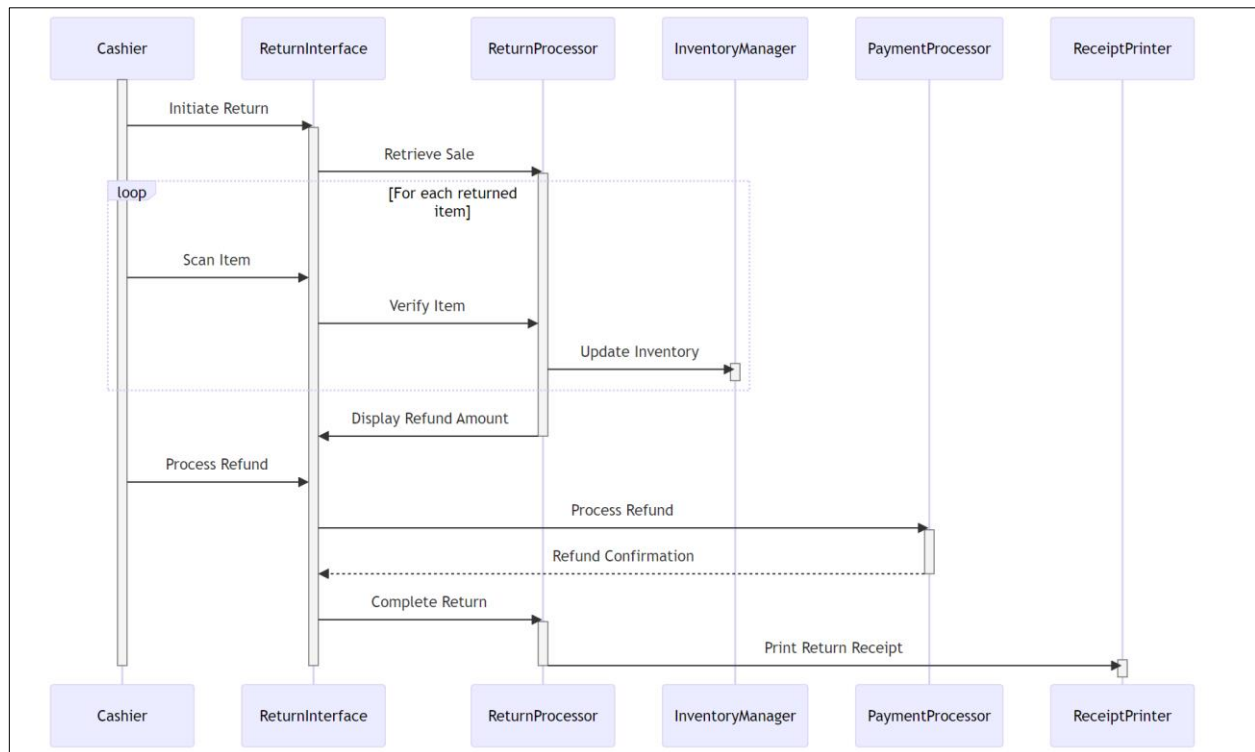
- Process Sale Controller
- Handle Payment Controller
- Handle Return Controller

Task 3: Develop Sequence Diagrams

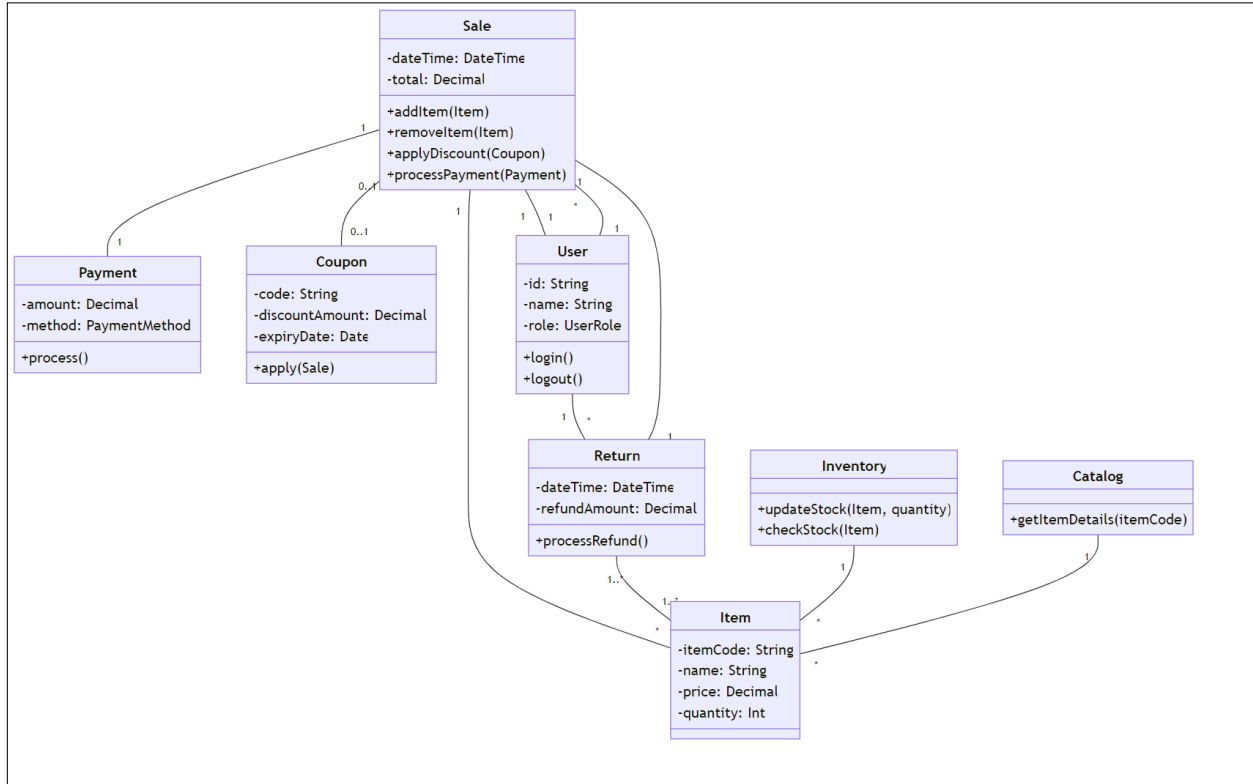
- **Process Sale**



- **Handle Return**

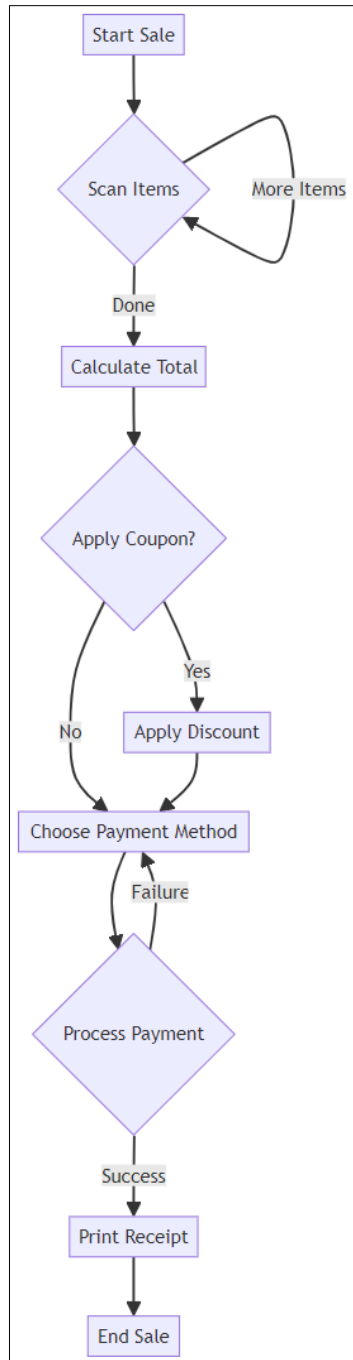


Task 4: Develop Analysis Domain Models



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

- Process Sale



- **Handle Return**

