



Dhirubhai Ambani Institute of Information
and Communication Technology

IT-314: Software Engineering

Group number - 8

Lab-6: Modeling Class Diagram and Activity
Diagram (Point of Sale System)

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

Use Case 1: Process Sale

Primary Actor: Cashier

Preconditions:

- The cashier is logged into the POS system.
- The product catalog and inventory system are active.

Main Flow:

1. The cashier begins a new sale when the customer approaches with goods.
2. The system scans the goods via barcode, retrieves the product information (name and price), and displays it.
3. The system checks the inventory and updates stock levels accordingly.
4. The cashier may apply any active gift coupons or promotions.
5. The system calculates the total sale price.
6. The customer chooses a payment method (cash, credit card, or check).
7. Once the payment is successful, the system prints a receipt.

Postconditions:

- The sale is completed, and inventory is updated.

Alternative Flow:

- Invalid barcode or item not found.
- Payment failure.

Use Case 2: Handle Returns

Primary Actor: Cashier

Preconditions:

- The cashier is logged into the POS system.
- The item to be returned must have been previously purchased.

Main Flow:

1. The customer requests to return an item.
2. The cashier scans the receipt or the returned item's barcode.
3. The system retrieves the original sale transaction.
4. The system checks the item's return eligibility (based on date or condition).
5. If valid, the system updates the inventory and reverses the sale.
6. The customer receives a refund in the original payment method.

Postconditions:

- The return is processed, and inventory is updated.

Alternative Flow:

- Invalid return (out of return period, damaged item)

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

Entity Objects:

- **Sale:** Represents a transaction.
- **Product:** Represents goods in the store.
- **Payment:** Represents the payment information.
- **Inventory:** Represents stock levels of products.
- **Receipt:** Holds sale information.

Boundary Objects:

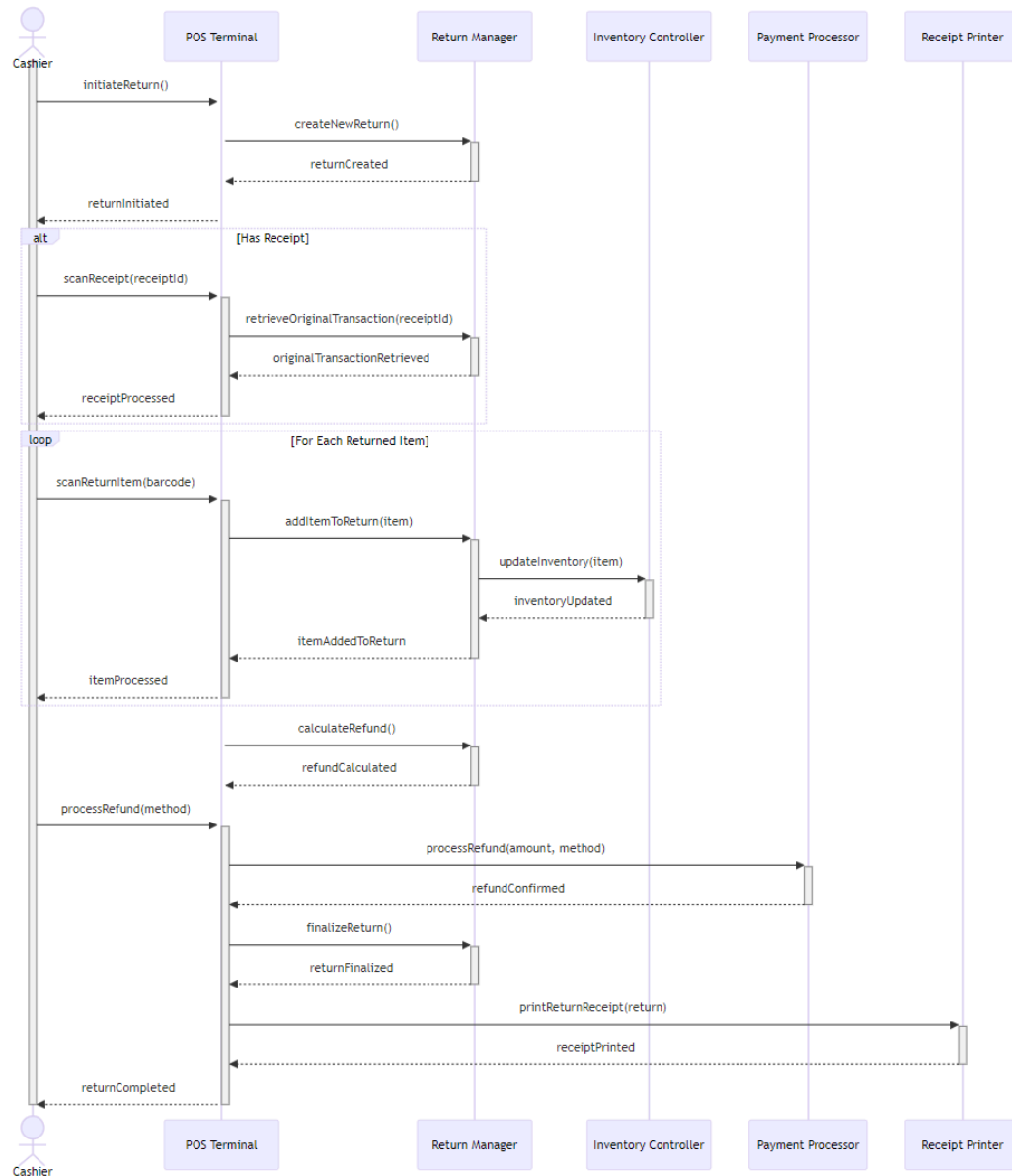
- **POS Interface:** Cashier interacts through this interface to process the sale/return.

Control Objects:

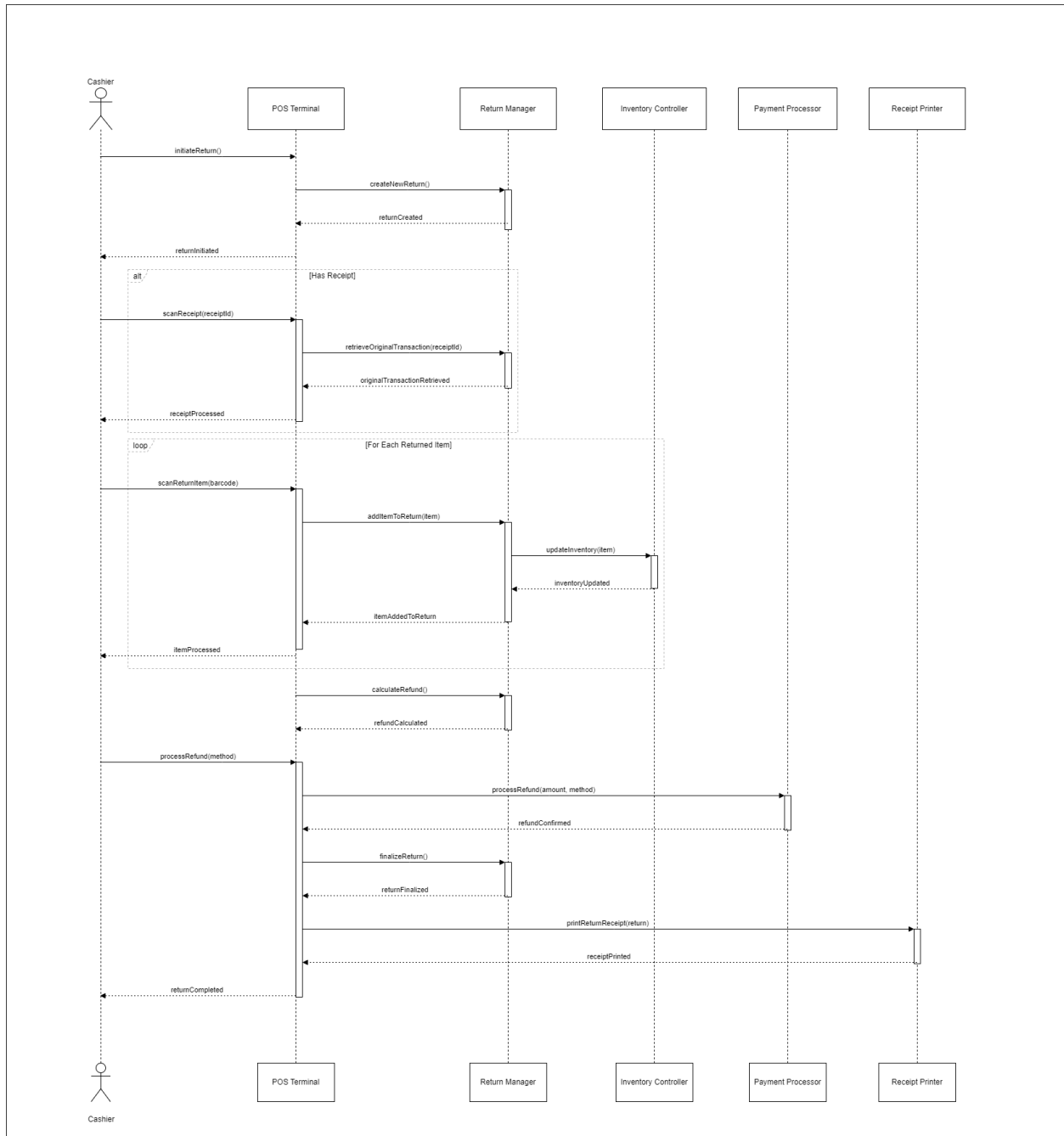
- **Sale Controller:** Manages the sale process.
- **Return Controller:** Manages the return process.
- **Payment Controller:** Manages the payment process.
- **Inventory Controller:** Manages inventory updates.

Task 3: Develop Sequence Diagrams

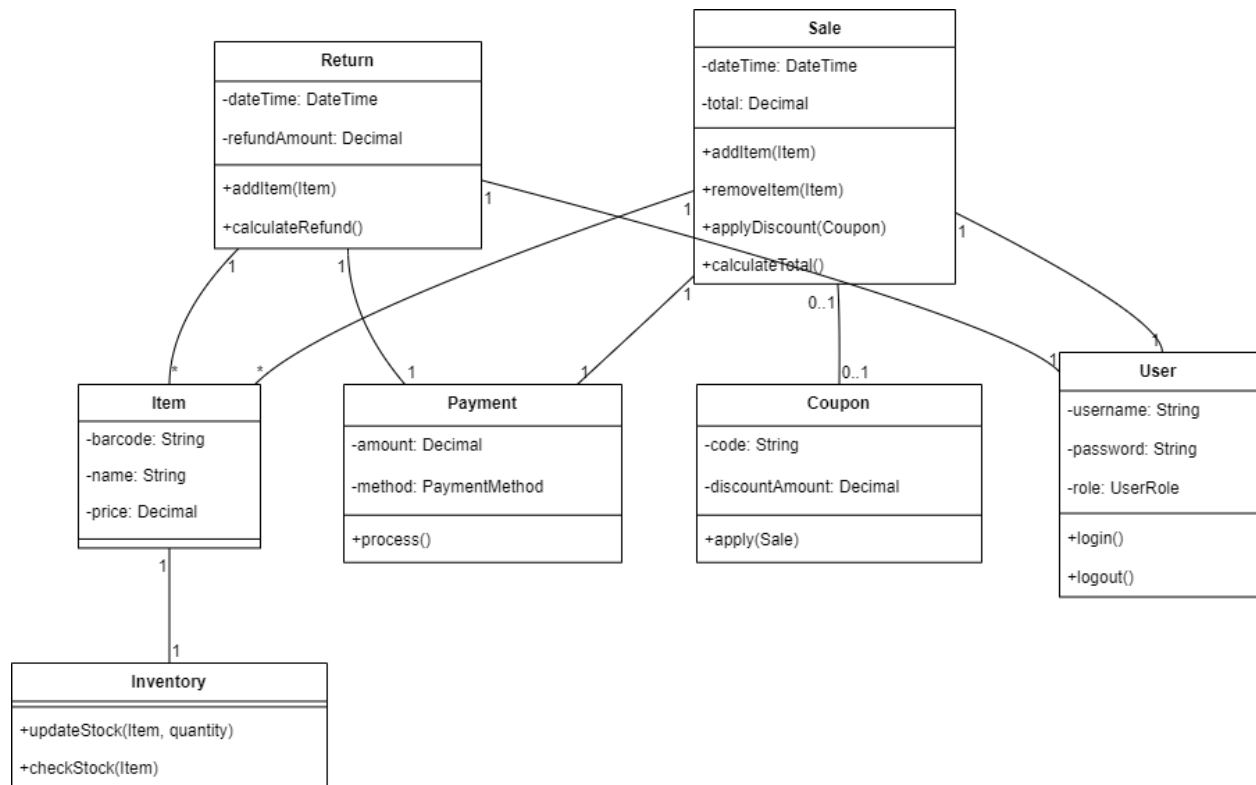
- Process Sale



● Handle Return

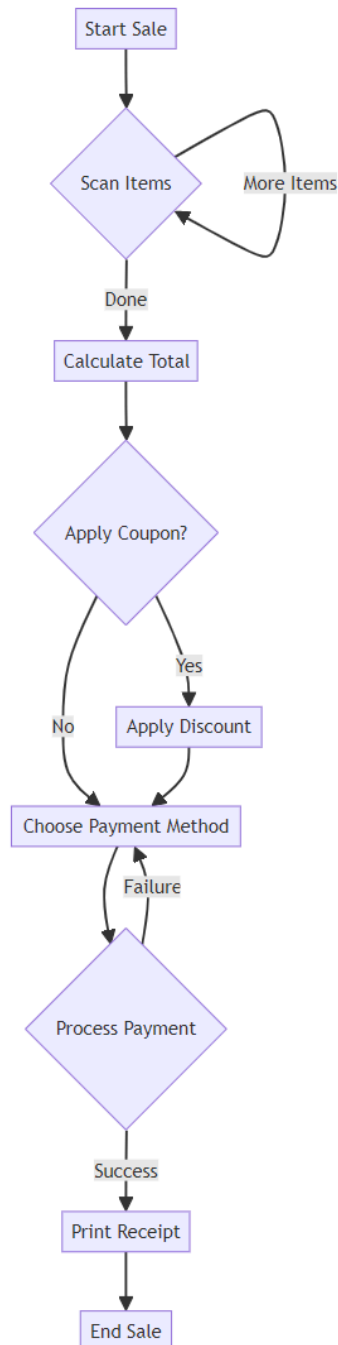


Task 4: Develop Analysis Domain Models



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

- Process Sale



- **Handle Return**

