



Dhirubhai Ambani
Institute of Information and Communication Technology

IT314 - Software Engineering

Lab06

Modeling Class Diagram and Activity Diagram

(Point of Sale System)

Jay Rathod
202201255
Group: 18

Task 1: Use Case Textual Descriptions for "Process Sale" and "Handle Return" Use Cases

- **Use Case Name:** Process Sale

- **Actor(s):**

- Primary : Cashier
- Secondary : Catalog System & Inventory System (external actors)

- **Precondition:**

- The cashier must be logged into the system.
- POS system is connected to the inventory and catalog systems.

- **Postcondition:**

- The sale is completed and stored in the system.
- The stock is updated in the inventory system.
- The receipt is printed for the customer.

- **Main Flow:**

1. Cashier initiates a new sale transaction
2. The cashier scans an item.
3. The system retrieves the item information from the catalog.
4. The system deducts the quantity of the item from the inventory.
5. The cashier repeats steps 2-4 for all items.
6. Cashier informs customer of the total amount
7. The customer chooses a payment method. (cash, credit card, or check)
8. The system processes the payment (either cash, credit card, etc.).
9. System validates the payment
10. Once payment is confirmed, the system prints a receipt.

- **Alternative Flow:**

- 6a. Customer presents a gift coupon
 1. Cashier applies the coupon
 2. System recalculates the total

- 9a. Payment is declined
 - 1. System notifies the cashier
 - 2. Return to step 7

Use Case 2: Handle Returns

- **Use Case Name:** Handle Returns
- **Actor(s):**
 - Cashier
 - Inventory System (external actor)
- **Precondition:**
 - The cashier must be logged in.
 - Customer has the item to be returned and the original receipt
- **Postcondition:**
 - The return is processed, and stock is updated in the inventory system.
 - Refund is process and Return receipt is printed
- **Main Flow:**
 - 1. Cashier initiates a return transaction
 - 2. Cashier scans the item's barcode
 - 3. System retrieves item details from the catalog
 - 4. Cashier verifies the item condition
 - 5. System validates the return eligibility (e.g., within return period)
 - 6. System calculates the refund amount
 - 7. Cashier processes the refund
 - 8. System updates the inventory
 - 9. System prints a return receipt
- **Alternative Flow:**
 - 5a. Item is not eligible for return
 - 1. System notifies the cashier
 - 2. Cashier informs the customer
 - 3. Use case ends
 - 7a. Original payment was by credit card
 - 1. System initiates a refund to the original credit card

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

Entity Objects:

- Sale
- Product
- Payment:
- Inventory
- Receipt
- Return

Boundary Objects:

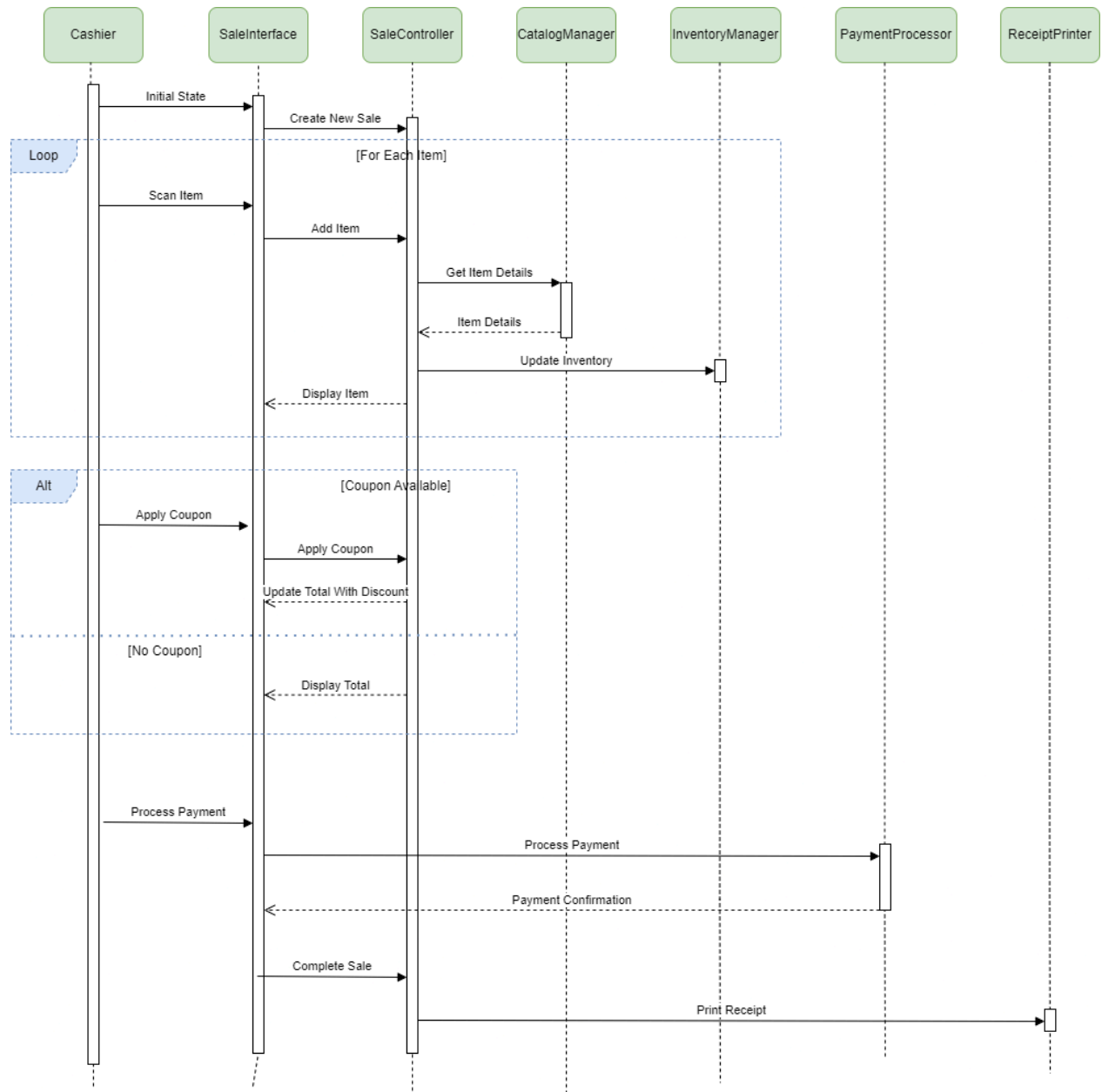
- Cashier Interface
- Catalog System
- Barcode Scanner
- Inventory System

Control Objects:

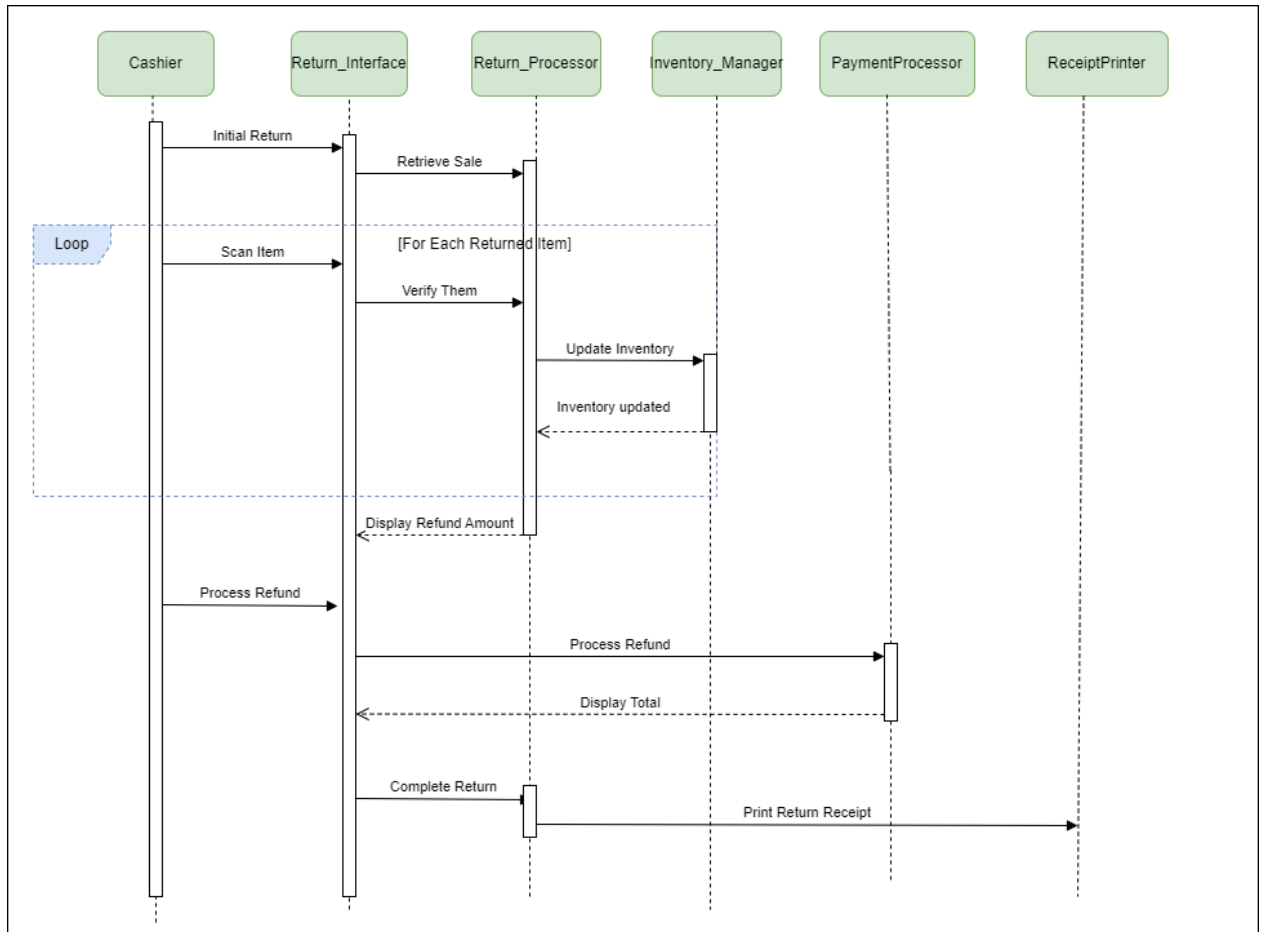
- Process Sale Manager
- Handle Payment Controller
- Handle Return Controller

Task 3: Develop Sequence Diagrams

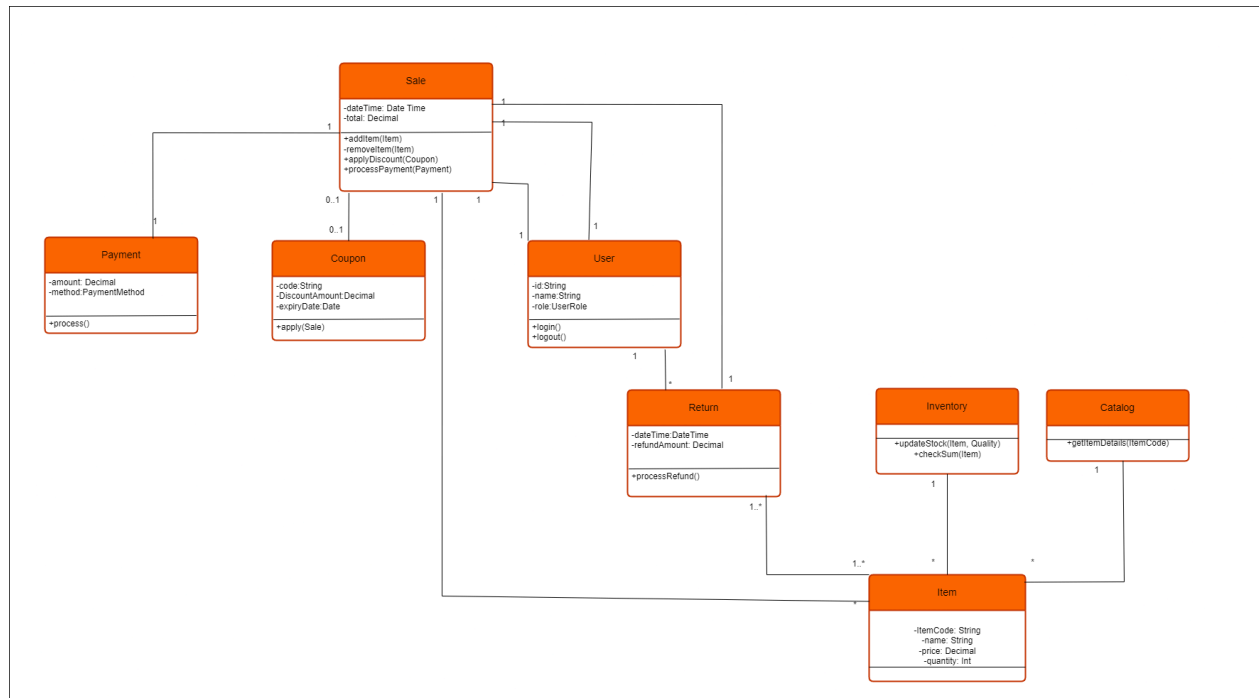
• Process Sale



• Handle Return

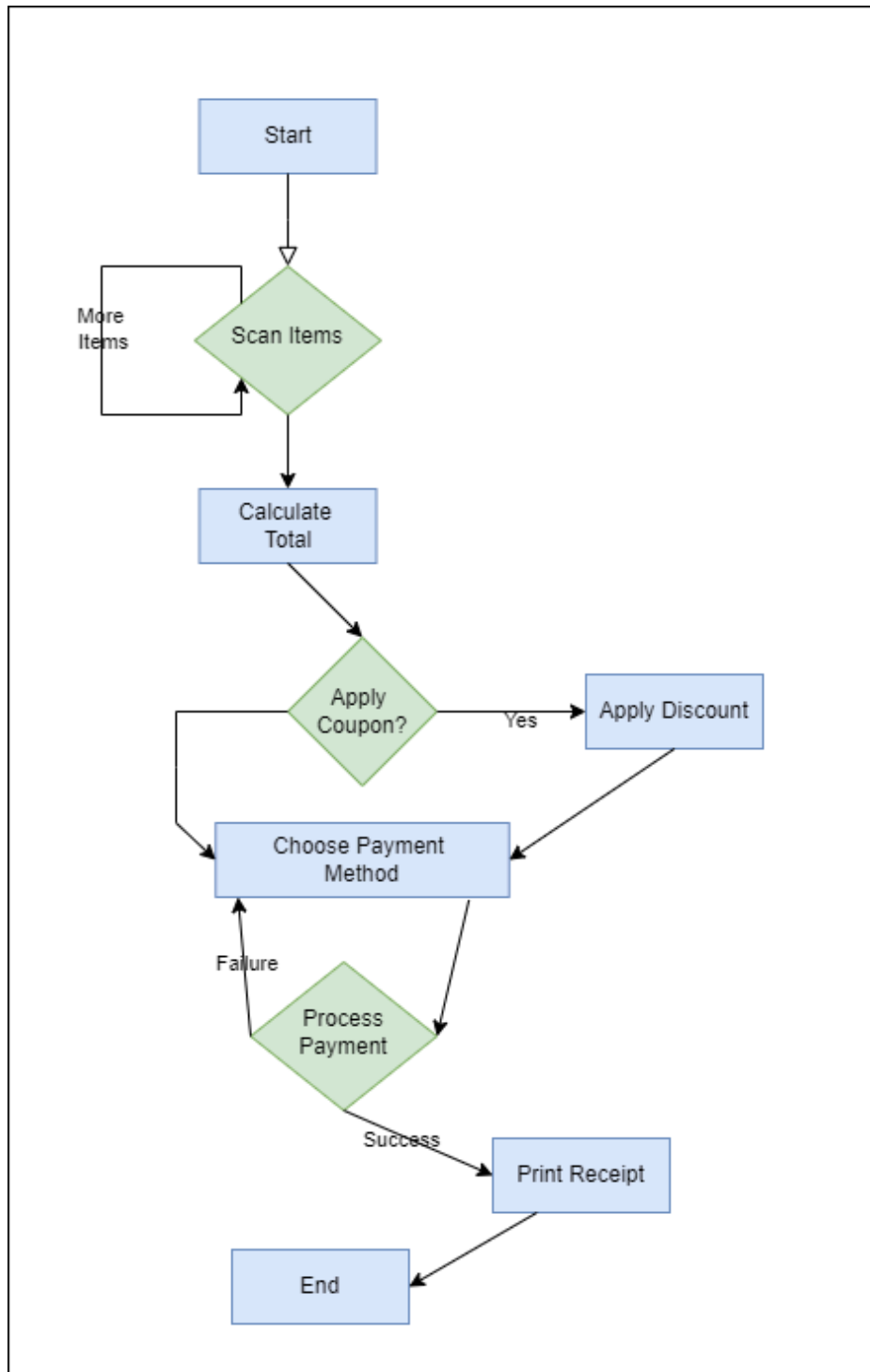


Task 4: Develop Analysis Domain Models



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

• Process Sale



• Handle Return

