

IT-314 : Software Engineering

Lab-6



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❖ Use Case Textual Descriptions

1. Process Sale

Title: Process Sale

Actors: Cashier, Catalog System, Inventory System

Precondition: The cashier must be logged into the POS system.

Basic Flow:

1. The cashier initiates a new sale transaction.
2. The customer presents goods at the POS counter.
3. The cashier scans the barcode of the goods.
4. The system retrieves the name and price of the goods from the Catalog System.
5. The system interacts with the Inventory System to deduct the stock for the goods.
6. The customer selects a payment method (cash, credit card, gift coupon).
7. The payment is processed.
8. Upon successful payment, the system prints a receipt for the customer.

Alternate Flow:

- If there is a system issue retrieving product information, the cashier enters product details manually.
- If payment fails, the system prompts the cashier to retry or select a different payment method.

Postcondition: The sale transaction is completed, and the stock for the purchased items is updated.

2. Handle Returns

Title: Handle Returns

Actors: Cashier, Inventory System

Precondition: The customer must present a valid receipt or order ID.

Basic Flow:

1. The cashier initiates a return transaction in the POS system.

2. The system verifies the original purchase details using the receipt or order ID.
3. The customer presents the items for return.
4. The system interacts with the Inventory System to update the stock, adding the returned items back.
5. The system processes the refund via the customer's original payment method (cash, credit card, etc.).
6. The cashier prints a return receipt for the customer.

Alternate Flow:

- If the item is damaged or unreturnable, the cashier rejects the return and explains the policy to the customer.
- If the original payment method is unavailable, an alternate refund method is chosen.

Postcondition: The returned items are restocked, and the customer is refunded.

Entity/Boundary/Control Objects

- **Entity Objects:**
 - *Product*: Represents items in the catalog.
 - *Transaction*: Represents sales and return transactions.
 - *Payment*: Represents payment processing (cash, credit card, gift coupon).
- **Boundary Objects:**
 - *POS Interface*: Used by the cashier to interact with the system (e.g., starting transactions, scanning items).
 - *Receipt Printer*: Prints receipts for completed sales or returns.
- **Control Objects:**
 - *SaleController*: Manages the process of handling sales.
 - *ReturnController*: Manages the process of handling returns.

- *PaymentController*: Manages payment processing.
- *InventoryController*: Handles interactions with the Inventory System.

❖ **Identify Entity/Boundary Control Objects.**

- **Entity Objects:**

- Product
- Receipt
- Sale Transaction
- Payment Method (Cash, Credit, Check)
- Return Transaction

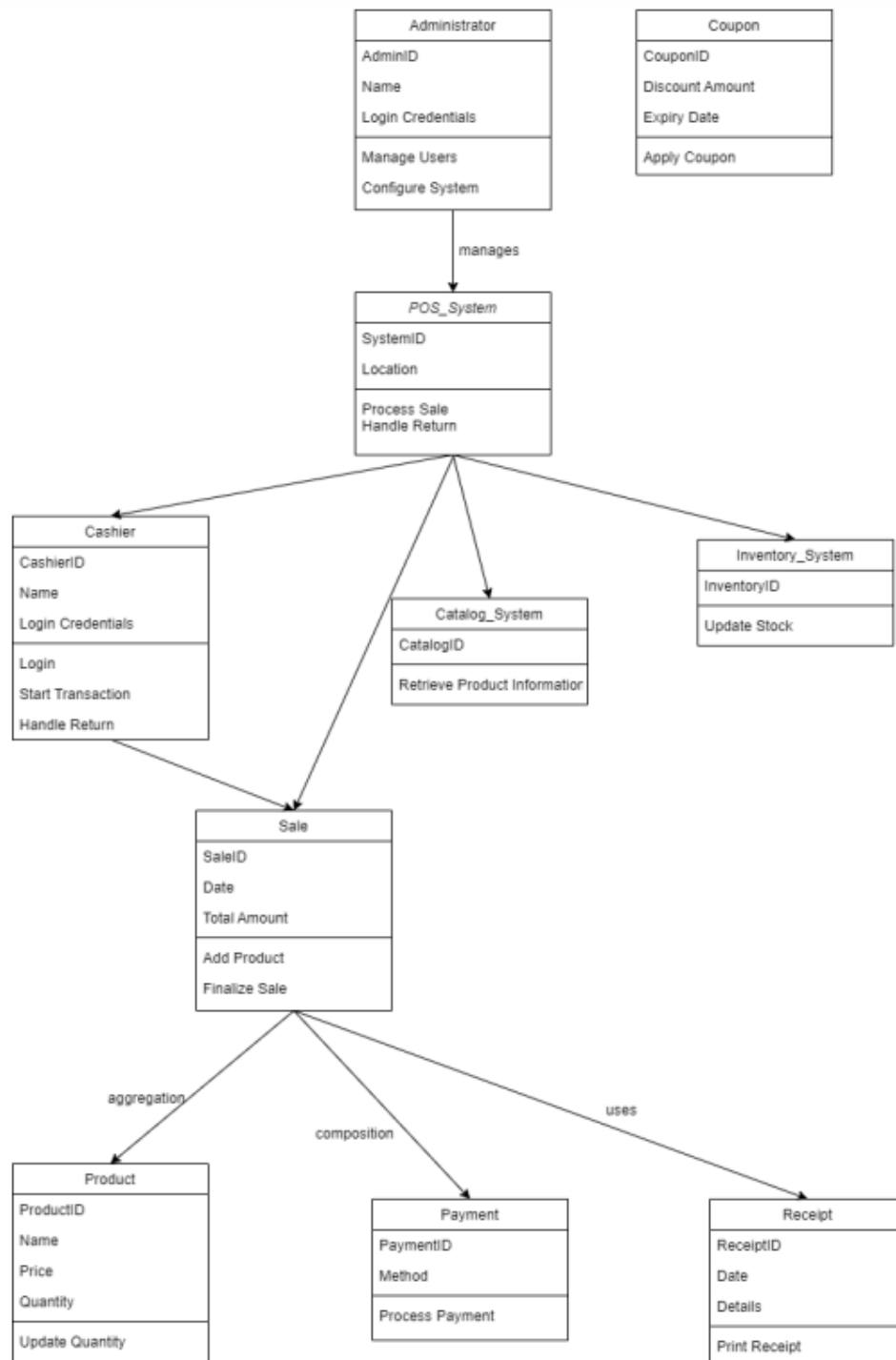
- **Boundary Objects:**

- Cashier Interface
- Payment Interface (Credit Card Machine, Cash Register)
- Inventory System
- Catalog System

- **Control Objects:**

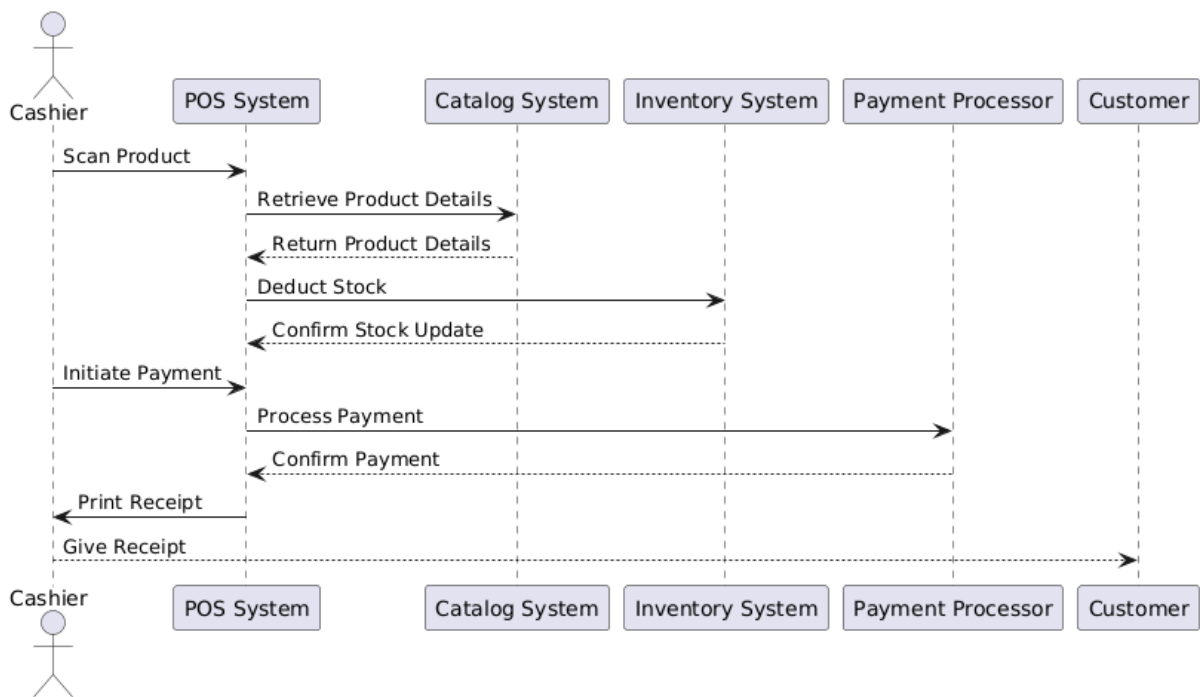
- Sale Processor (Handles sales logic)
- Payment Handler (Handles payment processing)
- Return Processor (Handles returns)

❖ Class Diagram

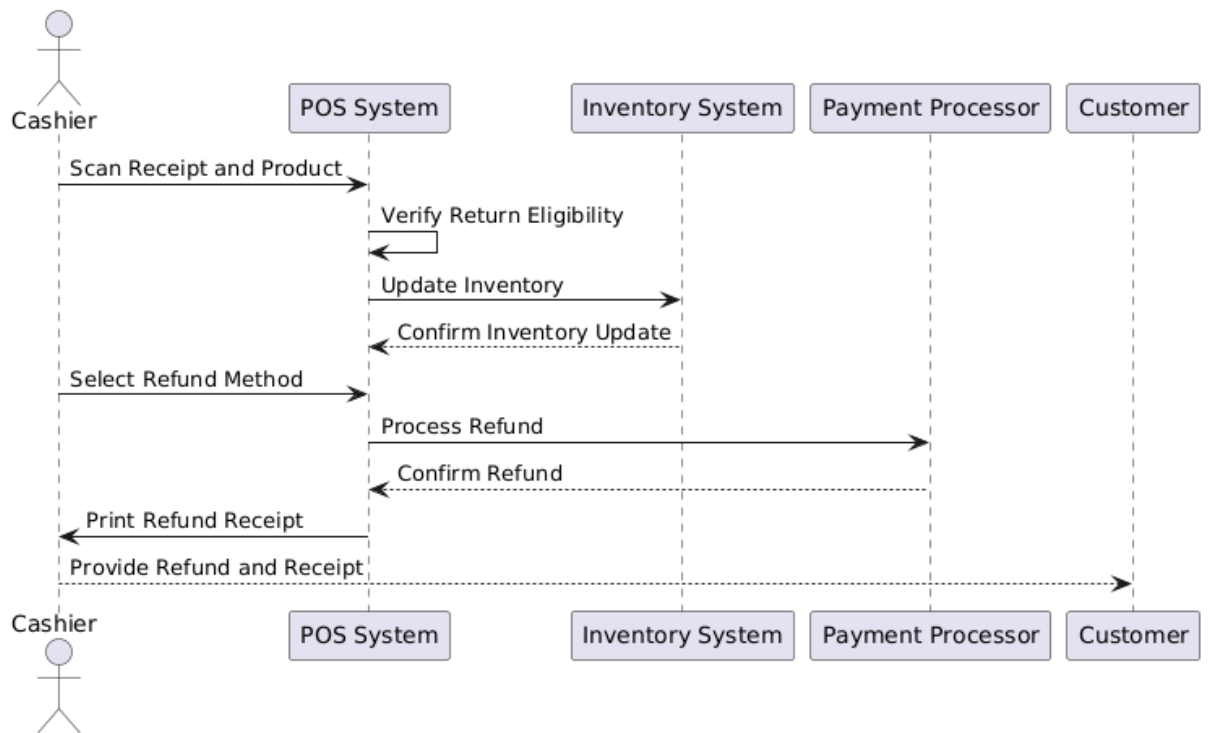


❖ **Develop Sequence Diagrams.**

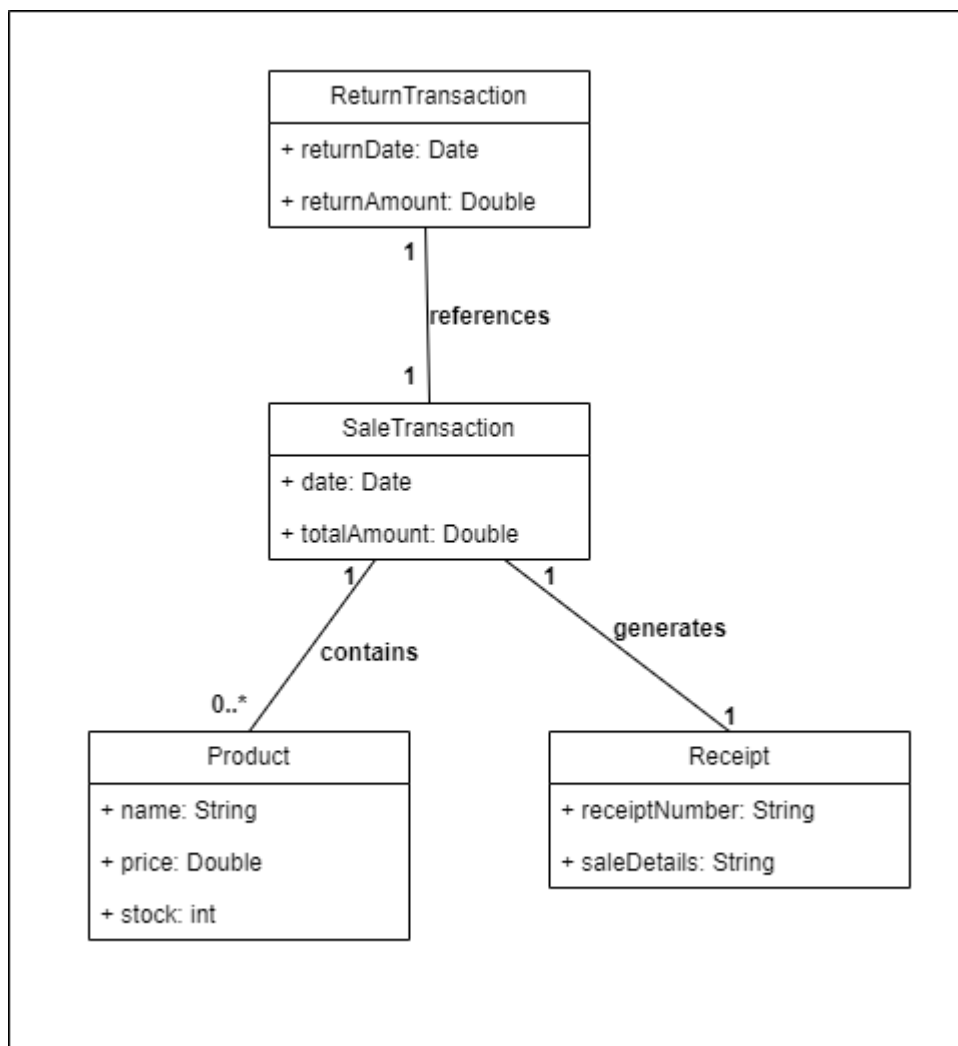
Process Sale



Handle Return

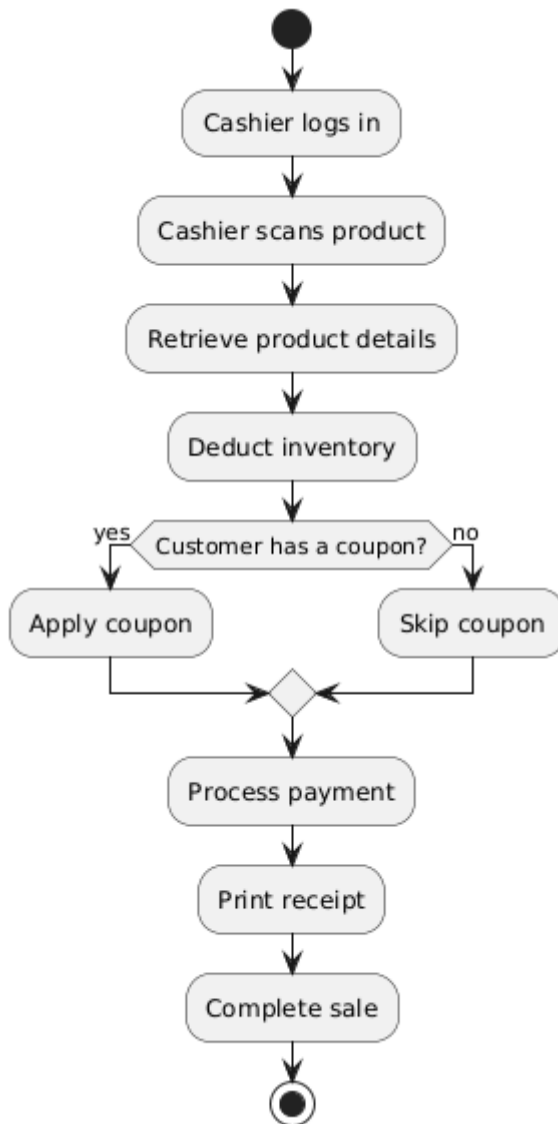


❖ **Develop Analysis Domain Models.**



❖ Develop activity diagram for "Process Sale" and "Handle Return" use cases.

- Process Sale



- **Handle Return**

