IT 314
Software Engineering

LAB - 6

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Modelling Diagrams

- Class Diagram
- Sequence Diagram
- Activity Diagram

1. Use Case Description:

Use Case: Process Sale

Actor: Cashier

Preconditions:

- The POS system is fully operational.
- The cashier is logged into the system.

Postconditions:

- The sale is successfully recorded.
- The inventory reflects the updated stock levels.
- A receipt is printed.

Basic Flow:

1. The customer approaches the POS with items to purchase.
2. The cashier begins a new sale transaction.
3. For each item:
    a. The cashier scans the item's barcode.
    b. The system retrieves the item's name and price from the product catalog.
    c. The system adjusts the inventory to reflect the reduced stock.
    d. The item is added to the ongoing transaction.
4. The system calculates and shows the total amount due.
5. The customer selects a payment option (cash, credit card, or check).
6. The cashier completes the payment process.
7. The system logs the sale.
8. The system prints a receipt.

9. The cashier hands the receipt and purchased goods to the customer.

Alternative Flows:

- 4a. The customer presents a gift coupon for the transaction.
- 5a. The customer decides to cancel the purchase.

Use Case: Handle Return

Actor: Cashier

Preconditions:

- The POS system is up and running.
- The cashier is logged into the system.
- The customer presents the goods for return along with the original receipt.

Postconditions:

- The return is successfully logged.
- Inventory is updated to reflect the returned items.
- Refunds are issued.
- A return receipt is printed.

Basic Flow:

1. The customer approaches the POS with the items to return and provides the original receipt.
2. The cashier initiates a new return transaction.
3. The cashier scans or manually enters the details of the items being returned.
4. The system checks if the items are eligible for return (e.g., within the return period).
5. The system calculates the refund amount based on the items.
6. The cashier confirms the reason for the return with the customer.
7. The system updates the inventory to reflect the returned items.
8. The cashier processes the refund using the original payment method.
9. The system logs the return.
10. The system prints the return receipt.

11. The cashier hands the return receipt to the customer.

Alternative Flows:

- 4a. The items are not eligible for return.
- 7a. The items are damaged or show signs of use.
- 8a. The original payment method is unavailable, and an alternative method is used for the refund.

2. Identify Entity/Boundary Control Objects

Entity Objects:

1. Cashier
2. Invoice
3. Discount

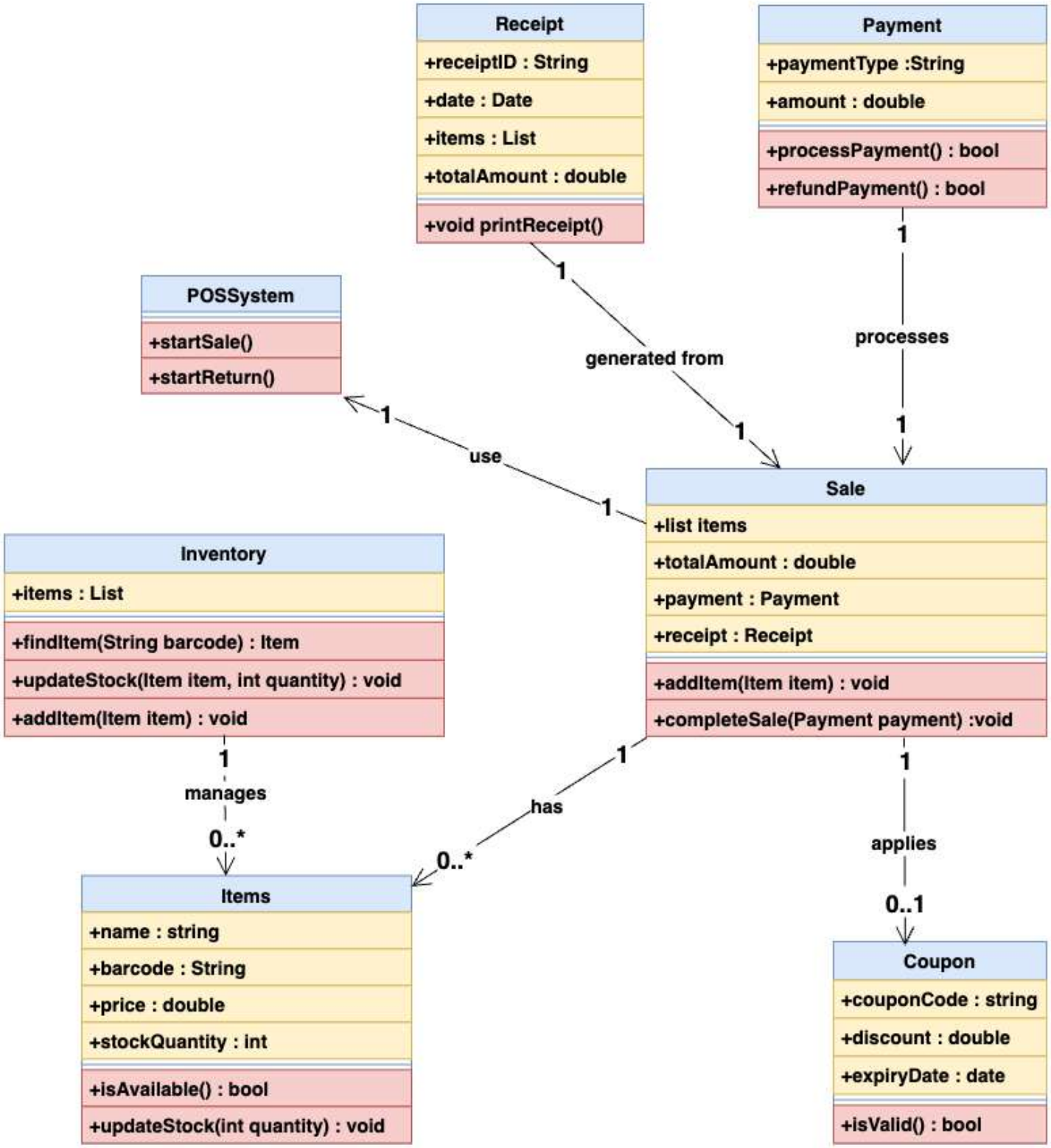
Boundary Objects:

1. POSTerminal
2. BarcodeScanner
3. PaymentTerminal

Control Objects:

1. Sales Management System
2. Return Management System
3. Stock Management System
4. Payment Processor
5. Item Verification System
6. Receipt Generator System

Point of Sale System Class Diagram



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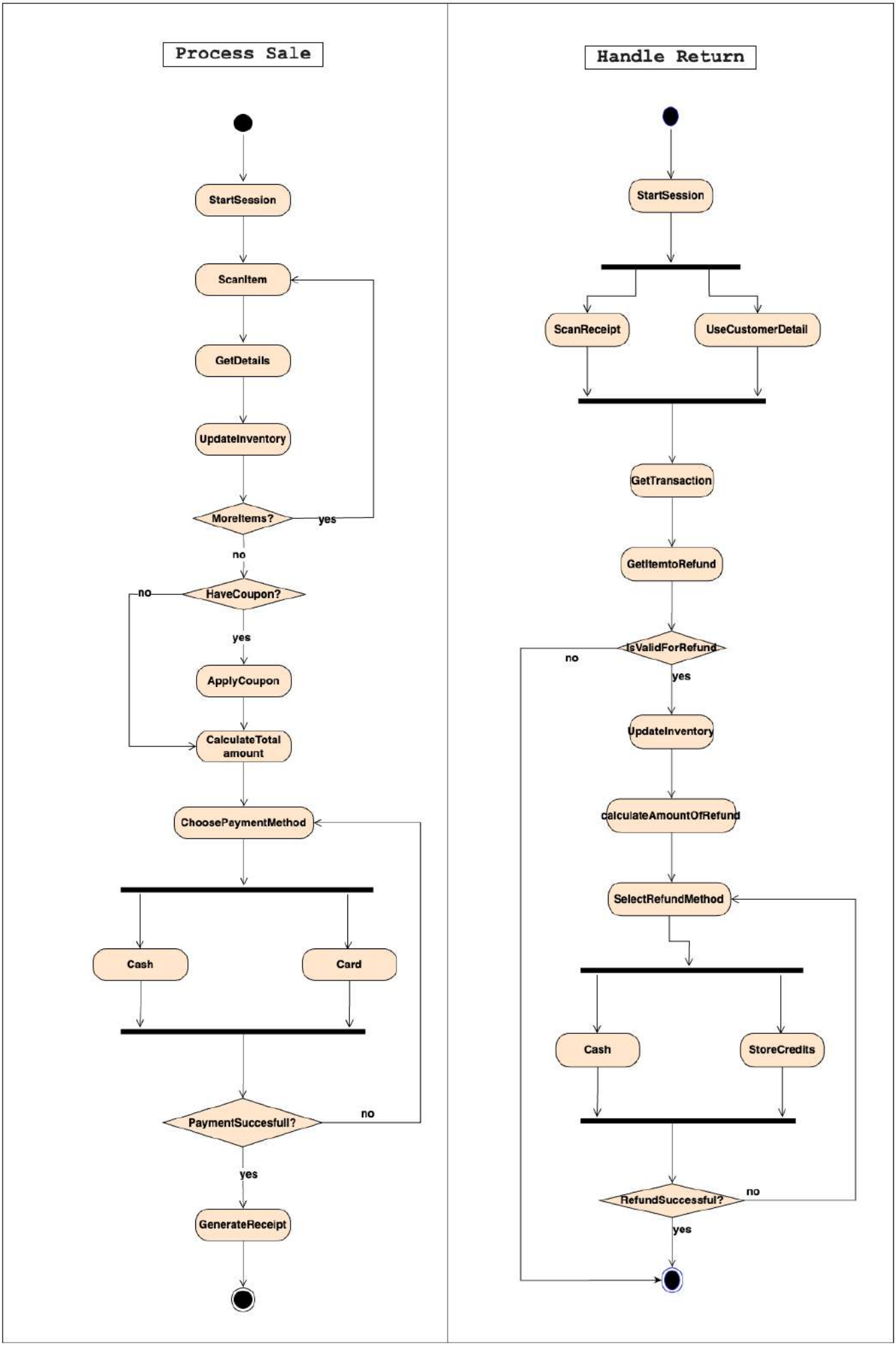
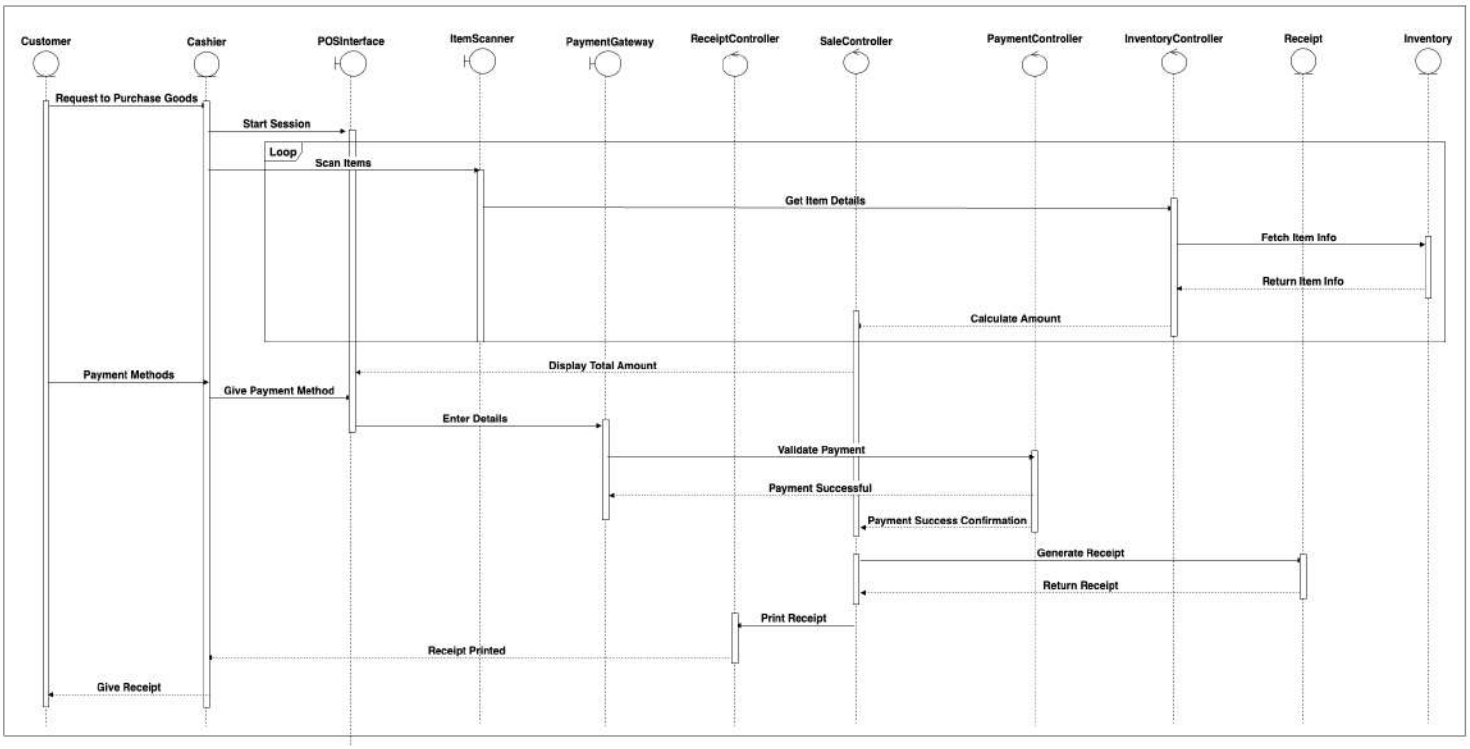
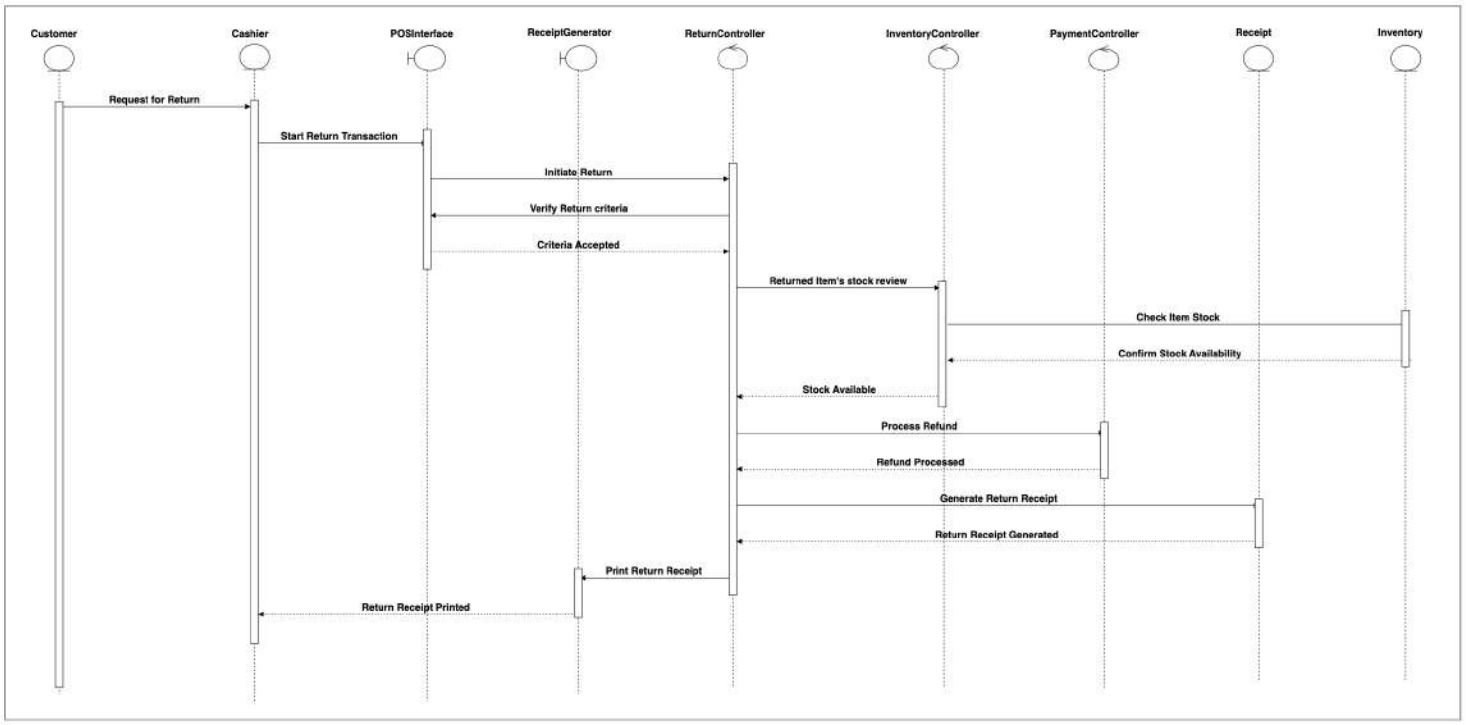
Activity Diagram



Process Sale Sequence Diagrams



Handle Return Sequence Diagrams



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