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IT314: Lab 6

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

Use Case : Process Sale

Use Case Description:

- **Name:** Process Sale
- **Actors:** Cashier, Customer
- **Preconditions:**
 1. The cashier is authenticated and logged into the POS system.
 2. The customer has selected products for purchase.
 3. The required products are available in stock as per the inventory system.
- **Postconditions:**
 1. The transaction is finalized successfully.
 2. Payment has been accepted, and a receipt is generated.
 3. The stock levels in the inventory are adjusted to reflect the items sold.
- **Main Success Scenario**
 1. The cashier initiates a new sale.
 2. The cashier scans the barcode of each item.
 3. The POS system retrieves the item details (name, price) from the catalog and updates the total amount.
 4. The system checks the inventory system to ensure each item is in stock.

5. The cashier asks the customer for the payment method (cash, credit card, or check).
6. The customer provides payment.
7. The POS system processes the payment.
8. If applicable, the customer presents a coupon, and the system applies the discount.
9. The POS system prints a receipt.
10. The inventory system is updated to reflect the sale

- **Alternate Scenarios:**

1. **4a. Item Out of Stock:**

The system alerts the cashier that the item is not available.

2. **6a. Payment Method Not Supported:**

The customer provides a payment method that the store does not accept. The cashier informs the customer and requests an alternative form of payment.

3. **7a. Payment Failed:**

The cashier asks the customer to provide an alternative payment method.

4. **8a. Coupon Invalid:**

The system rejects the coupon, and the cashier informs the customer.

Use Case: Handle Return

Use Case: Handle Return

Actors:

- **Primary Actor:** Cashier
- **Supporting Actor:** Customer

Preconditions:

1. The cashier must be authenticated and logged into the POS system.
2. The customer has either the original receipt or the transaction is retrievable in the system (via purchase history or account lookup).

Postconditions:

1. The return is successfully processed, and the items are removed from the transaction.
2. The customer is refunded (if applicable) using the same payment method as the original purchase or through store credit.
3. The inventory is updated to reflect the returned items.

Main Success Scenario:

1. The customer approaches the cashier with items for return.
2. The cashier retrieves the original transaction by scanning the receipt or locating it in the system using customer information (e.g., phone number, email, or account).
3. The cashier selects the specific items the customer wants to return.
4. The POS system checks the return eligibility of each item (e.g., within return policy, not damaged).
5. The system processes the return for the eligible items.
6. The customer receives a refund using the original payment method (e.g., cash, credit card, or store credit).
7. The POS system updates the inventory, adjusting stock levels based on the returned items.
8. A return receipt or refund confirmation is printed or emailed to the customer for their records.

Alternate Scenarios:**4a. Items Not Eligible for Return:**

- The system alerts the cashier that certain items are not eligible for return (e.g., past the allowed return period, marked as non-returnable, or damaged). The cashier informs the customer and removes those items from the return transaction.

5a. Partial Return:

- The customer chooses to return only a portion of the items from the original transaction. The cashier processes the return for the selected items, and the system adjusts the inventory and refund accordingly.

5b. Restocking Fee Applied:

- The store's return policy may include a restocking fee for certain items. The system calculates the fee, adjusts the refund amount, and informs the cashier to notify the customer.

6a. Refund Failed:

- The refund cannot be processed through the original payment method (e.g., credit card issues, payment gateway error). The cashier offers alternative options (e.g., store credit, cash refund, or advising the customer to contact their bank).

Q-2. Identify Entity/Boundary/Control Objects

Use Case: Process Sale

Entity Objects

- Sale
- Product
- Payment
- Sale Transaction
- Item
- Inventory
- Coupon
- Receipt
- Customer

Boundary Objects

- Barcode Scanner
- User Interface
- Catalog System
- Inventory System
- POS Interface
- Payment Terminal

Control Objects

- Sale Controller
- Payment Processor
- Return Controller
- Payment Controller
- Coupon Validator
- Inventory Manager

Use Case: Handle Return

Entity Objects

- Return
- Item
- Refund (Payment)
- Receipt
- Inventory

Boundary Objects

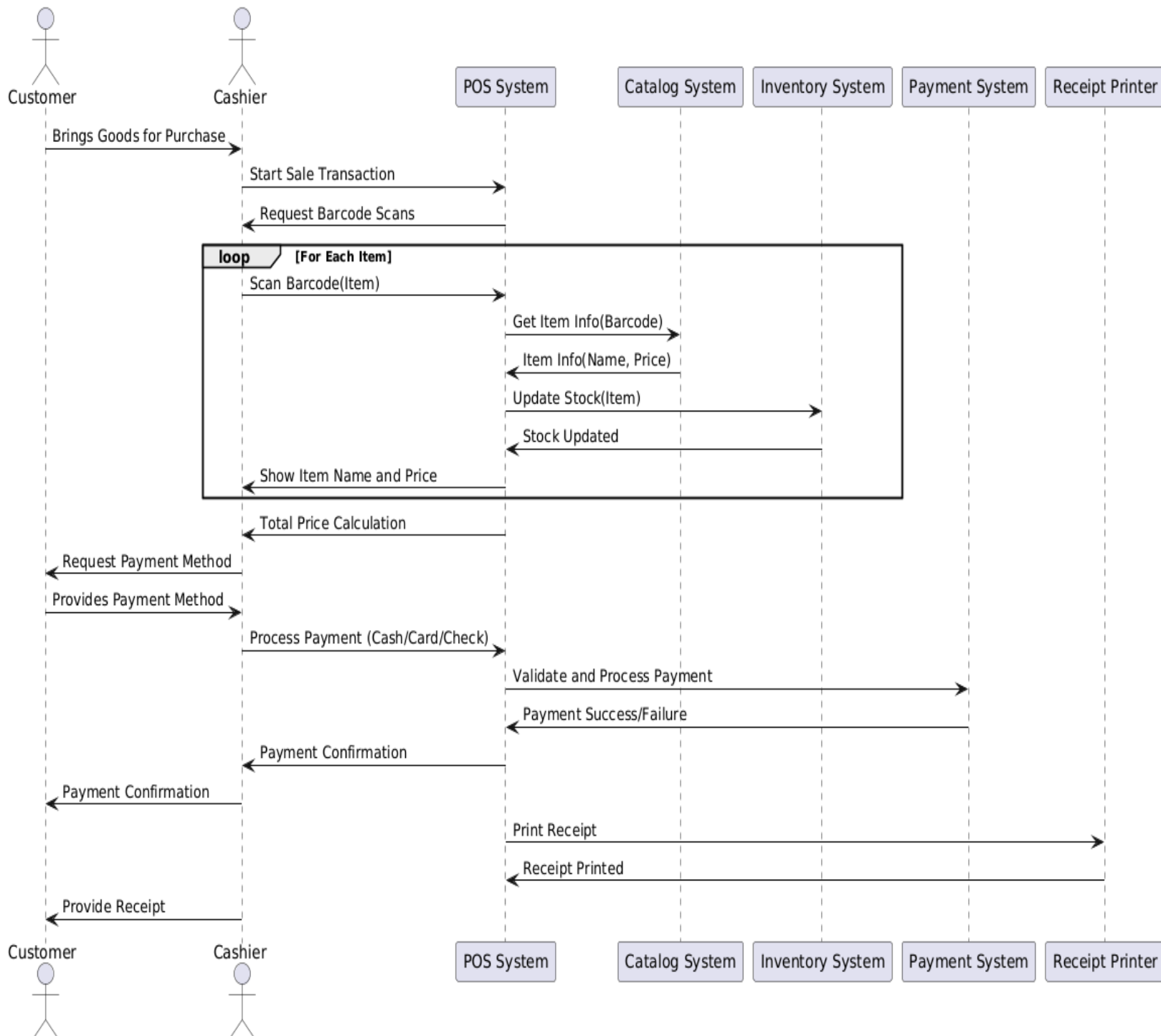
- Barcode Scanner
- User Interface
- Catalog System
- Inventory System
- Payment Terminal

Control Objects

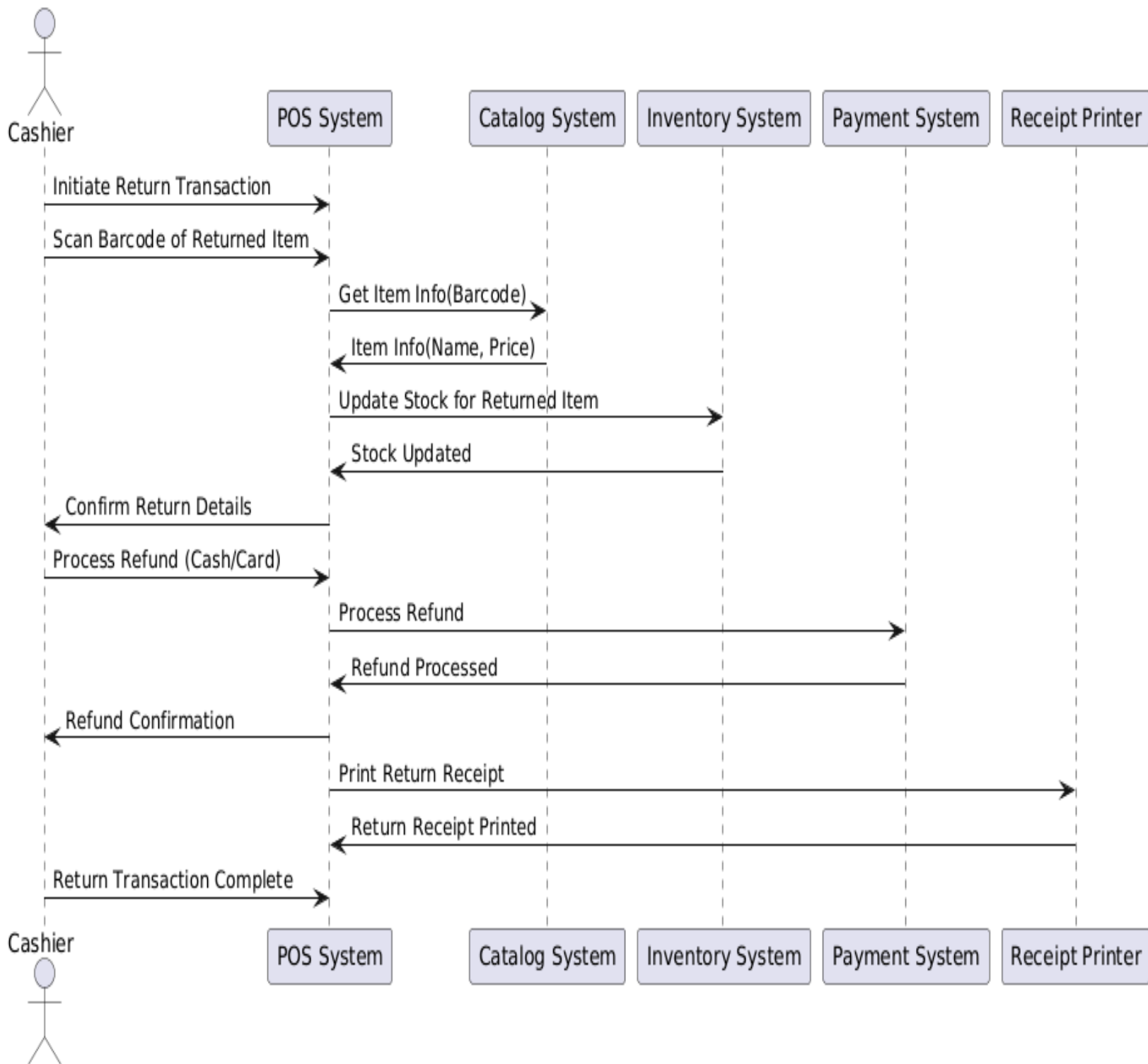
- Sale Controller
- Payment Processor
- Return Controller
- Payment Controller
- Coupon Validator
- Inventory Manager

Q-3. Develop Sequence Diagrams

Use Case: Process Sale



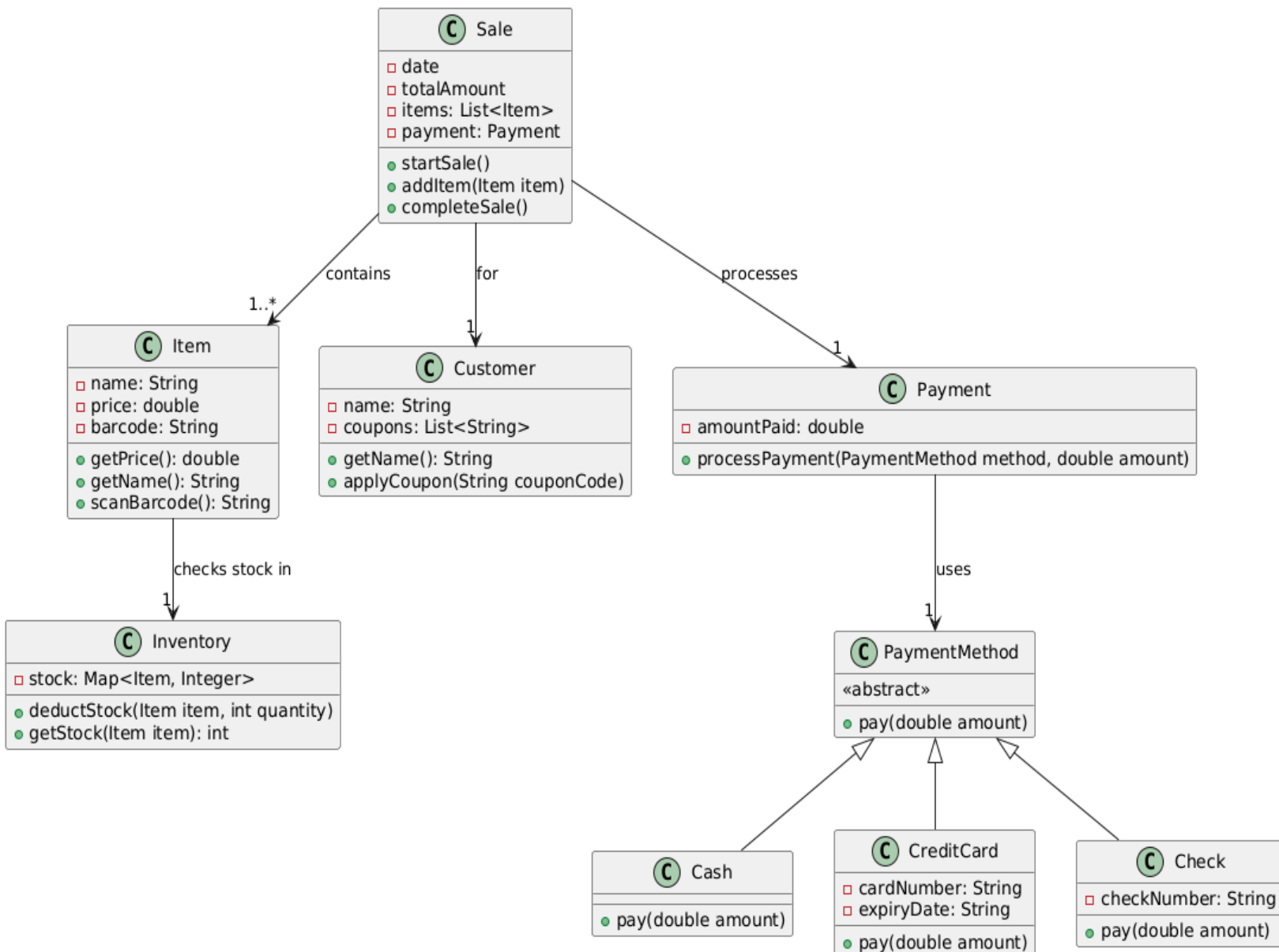
Use Case: Handle Return



Q-4. Develop Analysis Domain Models

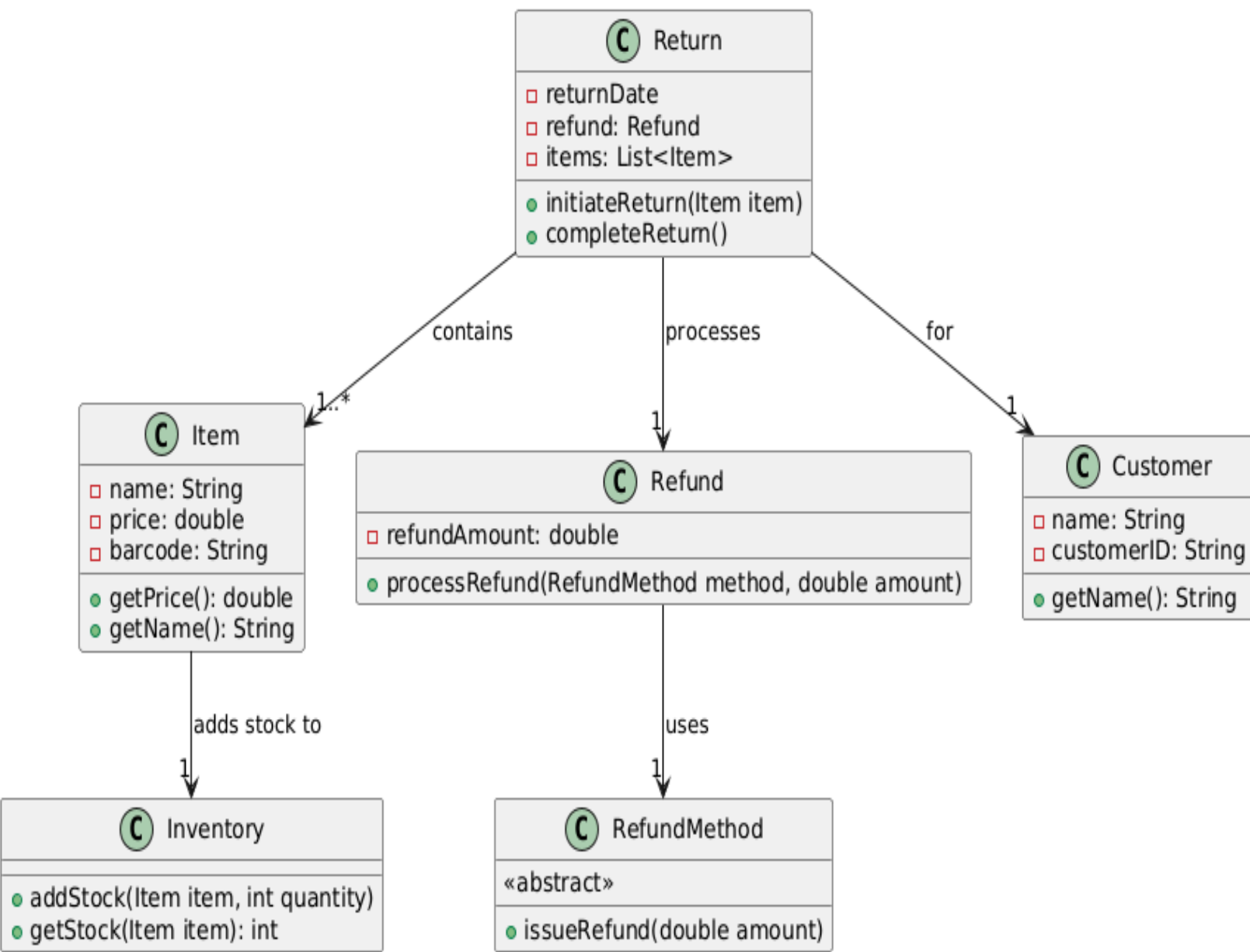
Use Case: Process Sale

Use Case: Process Sale



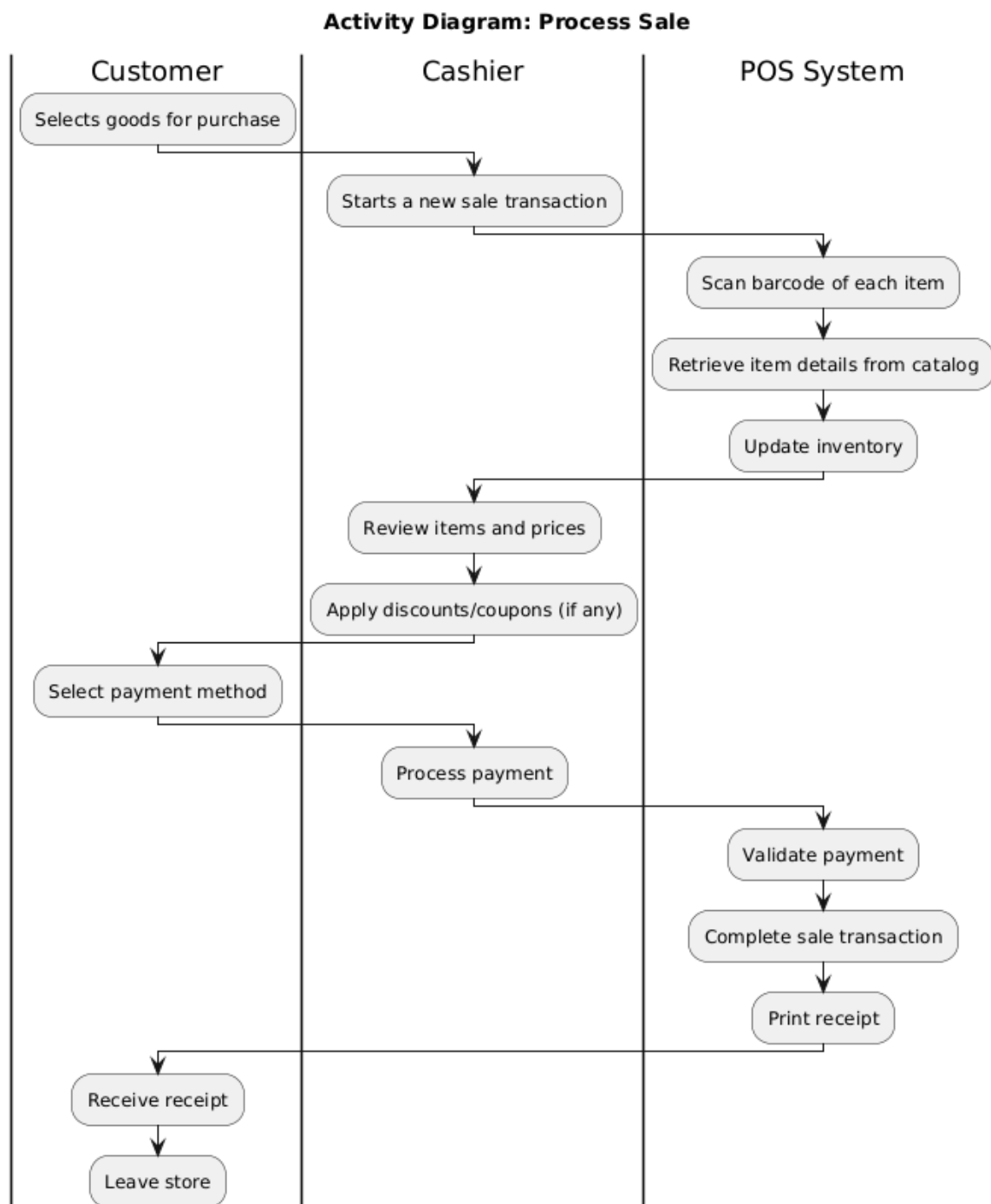
Use Case: Handle Return

Use Case: Handle Return



Q-5. Develop activity diagrams for Process Sale and Handle Return use cases.

Use Case: Process Sale



Use Case: Handle Return

Activity Diagram: Handle Return

