IT-314: Software Engineering
Lab Assignment 6 : Point of Sale System

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Process Sale

Actor :

- Cashier

Preconditions :

- The Point of Sale (POS) system is functioning and ready for use
- The cashier is logged into the system

Postconditions :

- The transaction is recorded in the system
- Inventory levels are adjusted
- A receipt is printed and handed to the customer

Basic Flow :

1. The customer arrives at the POS with items they wish to purchase.
2. The cashier starts a new sale transaction.
3. For each item:
   a. The cashier scans the barcode of the item.
   b. The system retrieves the item information (name, price) from the catalog.
   c. The system updates the inventory accordingly.
   d. The system includes the item in the current transaction.
4. The system calculates and displays the total amount due.
5. The customer selects a payment method (cash, credit card, or check).
6. The cashier processes the payment via the Payment Processor.
7. The system logs the sale.
8. The system prints the receipt.
9. The cashier hands over the receipt and items to the customer.

Alternative Flows :

- 3b. If the item is not located in the catalog, the cashier manually inputs the item details.
- 4a. If the customer has a gift coupon:
    1. The cashier applies the coupon to the transaction.
    2. The system recalculates the total amount.
- 5a. If the customer chooses not to proceed with the purchase:
    1. The cashier cancels the transaction.

2. The system reverses any inventory adjustments.

- 6a. If payment processing encounters an issue:
    1. The system alerts the cashier.
    2. The cashier requests an alternative payment method from the customer.

Handle Return

Actor:

- Cashier

Preconditions:

- The POS system is functioning and ready for use
- The cashier is logged into the system
- The customer has items to return along with the original receipt

Postconditions:

- The return is recorded in the system
- Inventory levels are updated
- A refund is processed
- A return receipt is printed and given to the customer

Basic Flow:

1. The customer arrives at the POS with the items they wish to return and the original receipt.
2. The cashier starts a new return transaction.
3. The cashier scans or enters the details of the returned items.
4. The system verifies the eligibility for return (e.g., within the allowable return period).
5. The system calculates the refund amount.
6. The cashier confirms the reason for the return with the customer.
7. The system updates the inventory.

8. The cashier processes the refund.
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.** If items are not eligible for return:
    1. The system alerts the cashier.
    2. The cashier informs the customer.
    3. The return process is terminated.
- **7a.** If items are damaged or used:
    1. The cashier evaluates the condition of the items.
    2. The system may adjust the refund amount or decline the return.

Identify Entity/Boundary/Control Objects :

Entity Objects

1. Customer
2. Cashier
3. Item
4. Payment
5. Inventory
6. Sale
7. Coupon
8. Return

Boundary Objects

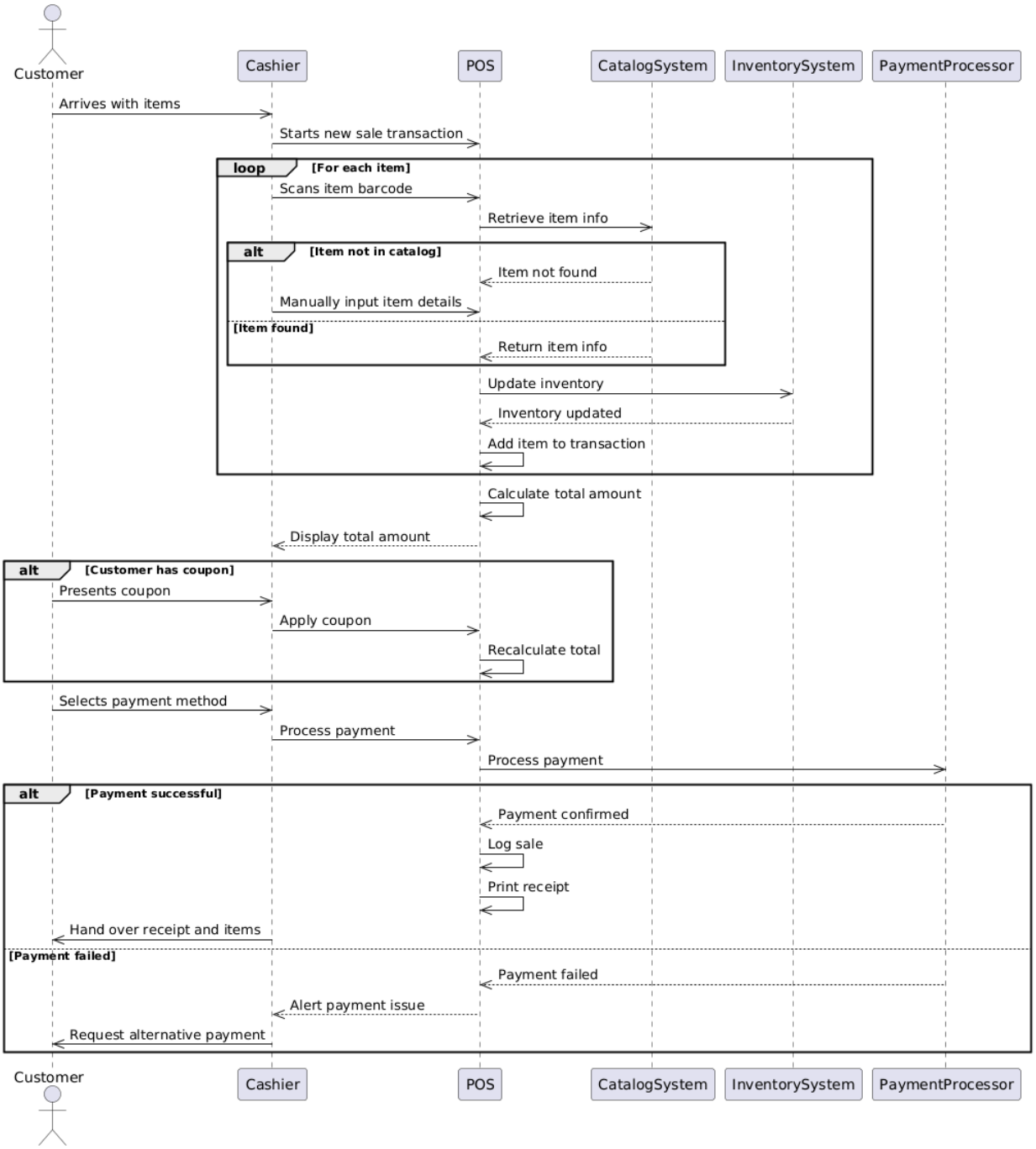
1. Payment Terminal
2. Receipt Printer
3. Barcode Scanner
4. POS Terminal Interface

Control Objects

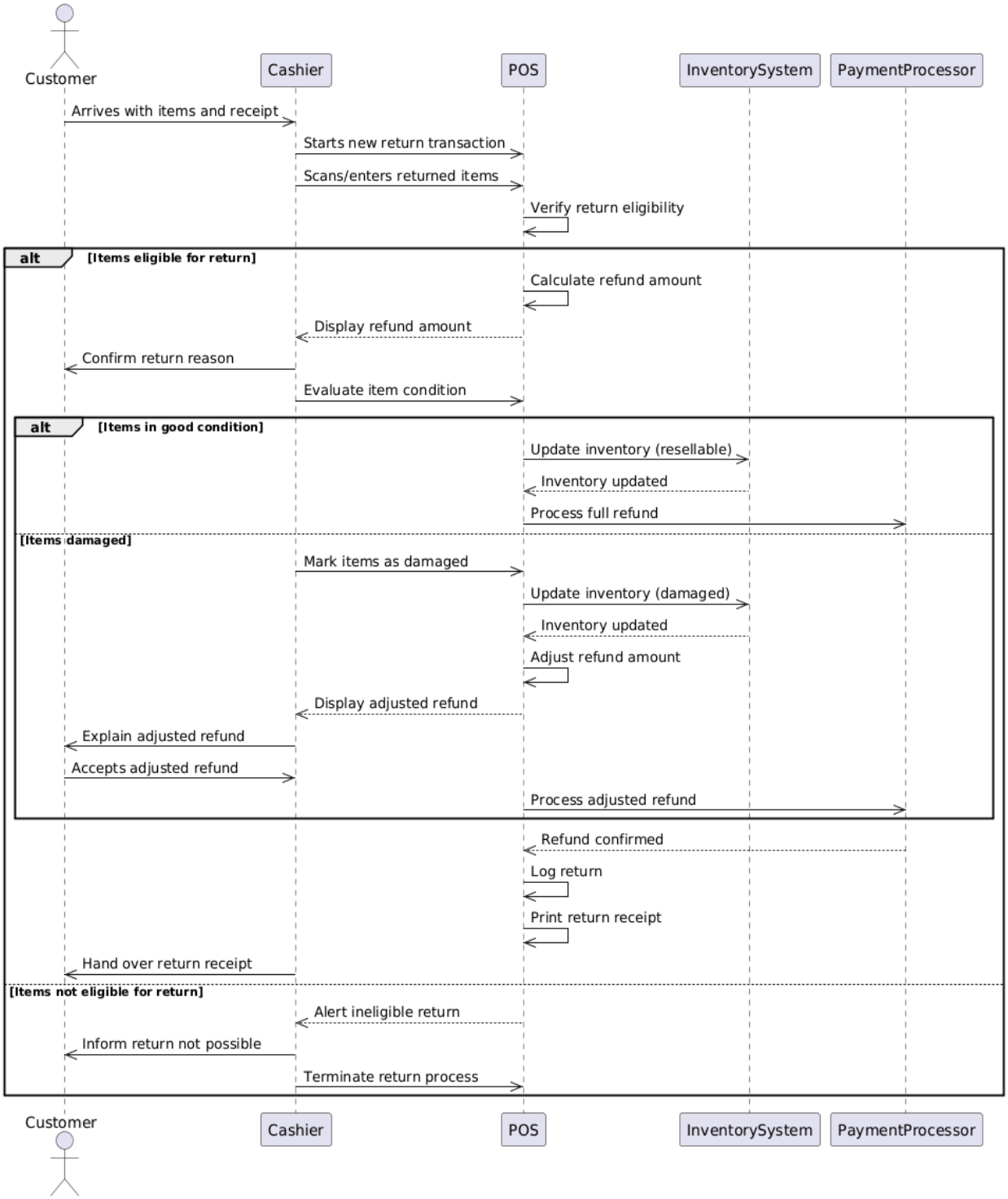
1. Return Manager
2. Payment Processor
3. Catalog Manager
4. Inventory Controller
5. Sale Manager

Sequence Diagram :

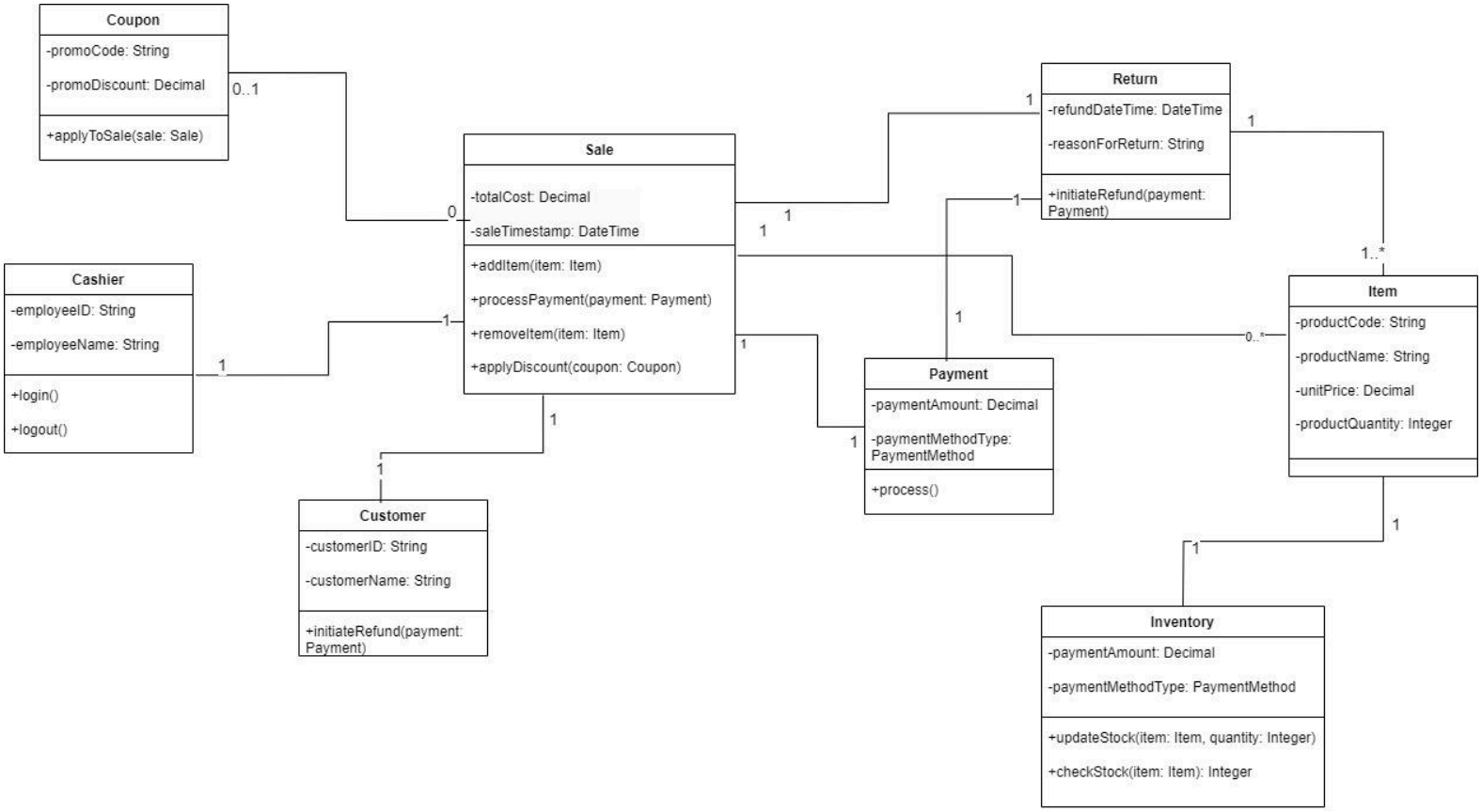
Process Sale :



Handle Return :

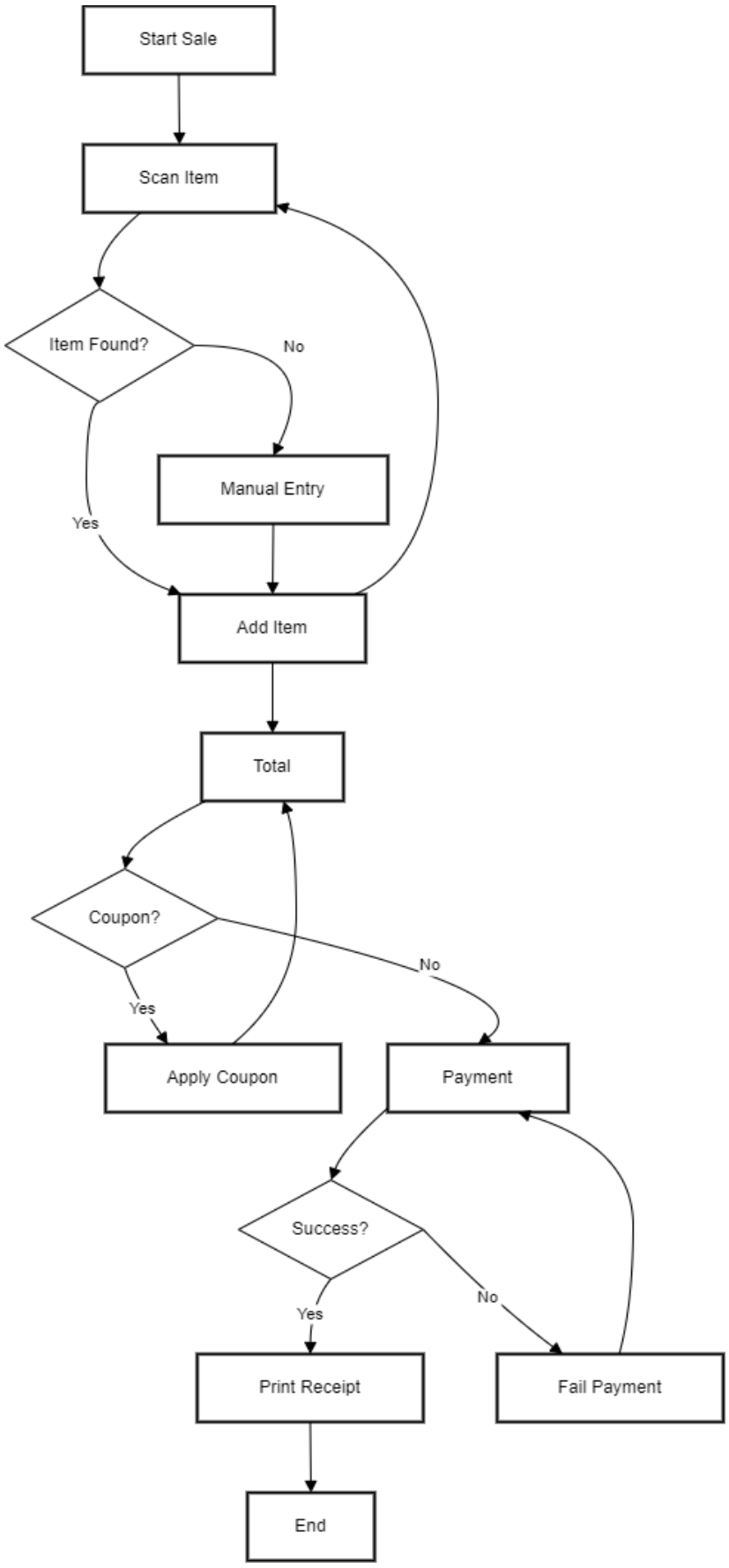
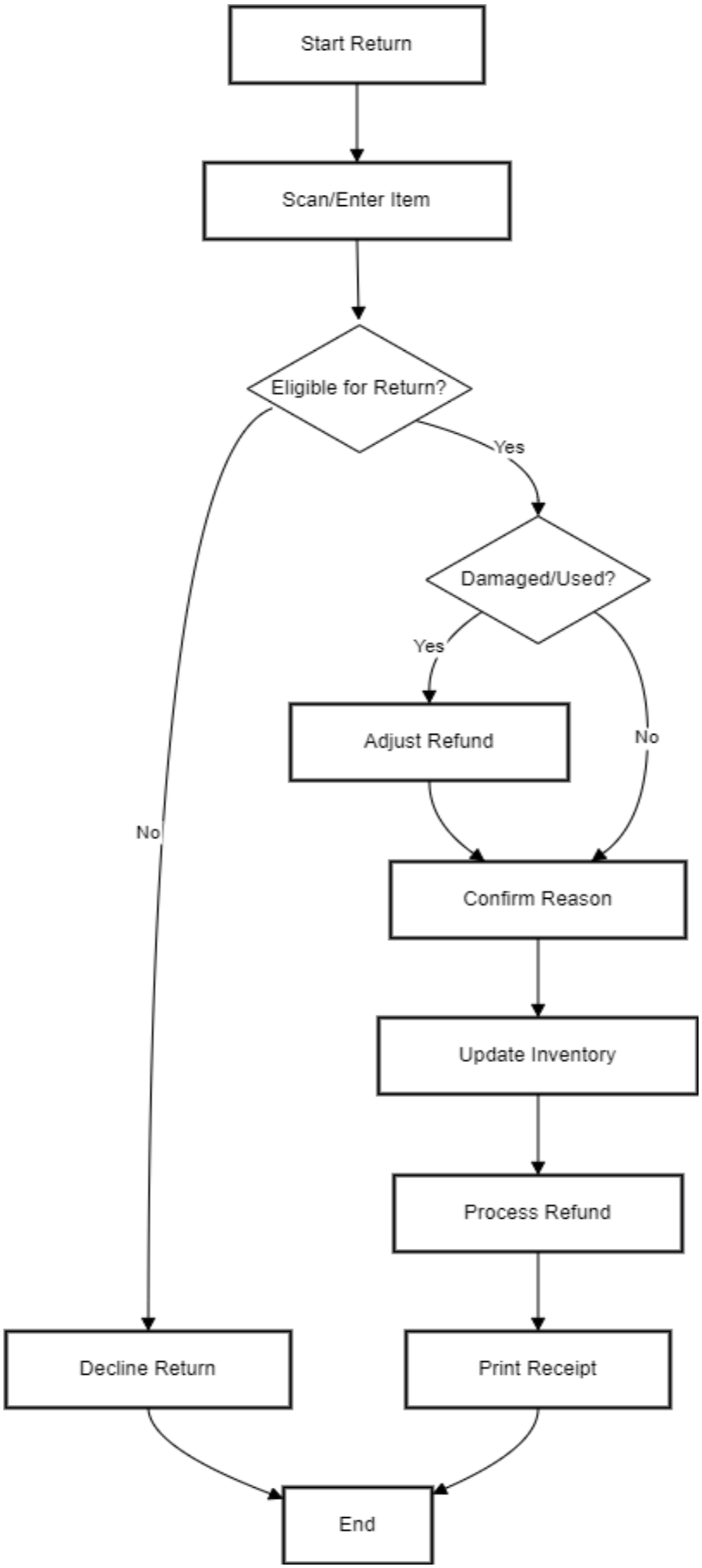


Develop Analysis Domain Models



Develop Activity Diagram :

- **Process Sales**



- **Handle Return**