

**Name-Akhil Rachhadia**  
**Student Id-202201005**  
**Lab 6**

### **Use Case: Process Sale**

**Actor: Cashier**

#### **Preconditions**

- The cashier is logged into the point-of-sale (POS) system.
- The POS system is successfully connected to the product catalog and inventory systems.
- The customer is ready to make a purchase.

#### **Main Flow**

- The cashier initiates a new sales transaction.
- For each item in the transaction:
  - The cashier scans the item's barcode.
  - The system retrieves the item's name and price from the product catalog.
  - The inventory count is adjusted accordingly.
  - The item is added to the ongoing transaction.
- The system calculates the total transaction amount.
- If the customer has a gift coupon:
  - The cashier applies the coupon to the transaction.
  - The system adjusts the total amount accordingly.
- The customer selects a payment method (cash, credit card, or check).
- The cashier processes the chosen payment method.
- The system verifies the payment details.
- A receipt is generated and printed by the system.
- The transaction is closed and finalized by the system.

## **Alternate Flows**

- **Invalid Coupon Scenario:**

- The system alerts the cashier that the coupon is not valid.
- The cashier informs the customer and continues with the transaction from step 5.

- **Payment Validation Failure:**

- The system notifies the cashier of a payment validation failure.
- The cashier requests an alternative payment method.
- If the customer provides a different method, return to step 7; if not, the transaction is canceled.

## **Postconditions**

- The sale transaction is recorded in the system.
- Inventory levels are updated to reflect the sale.
- The payment is successfully processed.
- A receipt is generated and printed for the customer.

## **Use Case: Process Return**

**Actor: Cashier**

### **Preconditions**

- The cashier is logged into the POS system.
- The customer presents a valid receipt for the items they wish to return.
- The return policy allows for the items to be returned.

### **Main Flow**

- The cashier initiates a new return transaction.
- The cashier scans the receipt or manually inputs the receipt details.
- For each item being returned:
  - The cashier scans the item's barcode.
  - The system checks that the item matches the original transaction.
  - Inventory levels are updated to reflect the return.
  - The item is added to the ongoing return transaction.
- The system calculates the total refund amount.
- The cashier confirms the return details with the customer.
- A return receipt is generated and printed by the system.
- The return transaction is completed and closed by the system.

### **Alternate Flows**

- **Receipt Not Found:**
  - The system notifies the cashier that the receipt is invalid or not found.
  - The cashier informs the customer that the return cannot proceed and terminates the process.

- **Item Verification Failure:**

- The system flags the item as not matching the original transaction.
- The cashier informs the customer and either moves to the next item or halts the return process.

- **Original Payment Method Unavailable:**

- The cashier selects a different refund option (e.g., store credit or cash).
- The system processes the refund using the newly chosen method.

### **Postconditions**

- The return transaction is recorded in the system.
- Inventory levels are updated to reflect the returned items.
- The refund is successfully processed.
- A return receipt is printed and given to the customer.

## **Identify Entity/Boundary/Control Objects**

### **Entity Objects:**

- Item
- Inventory
- Catalog
- Payment
- Receipt
- Coupon
- User (Cashier/Administrator)
- Return

### **Boundary Objects:**

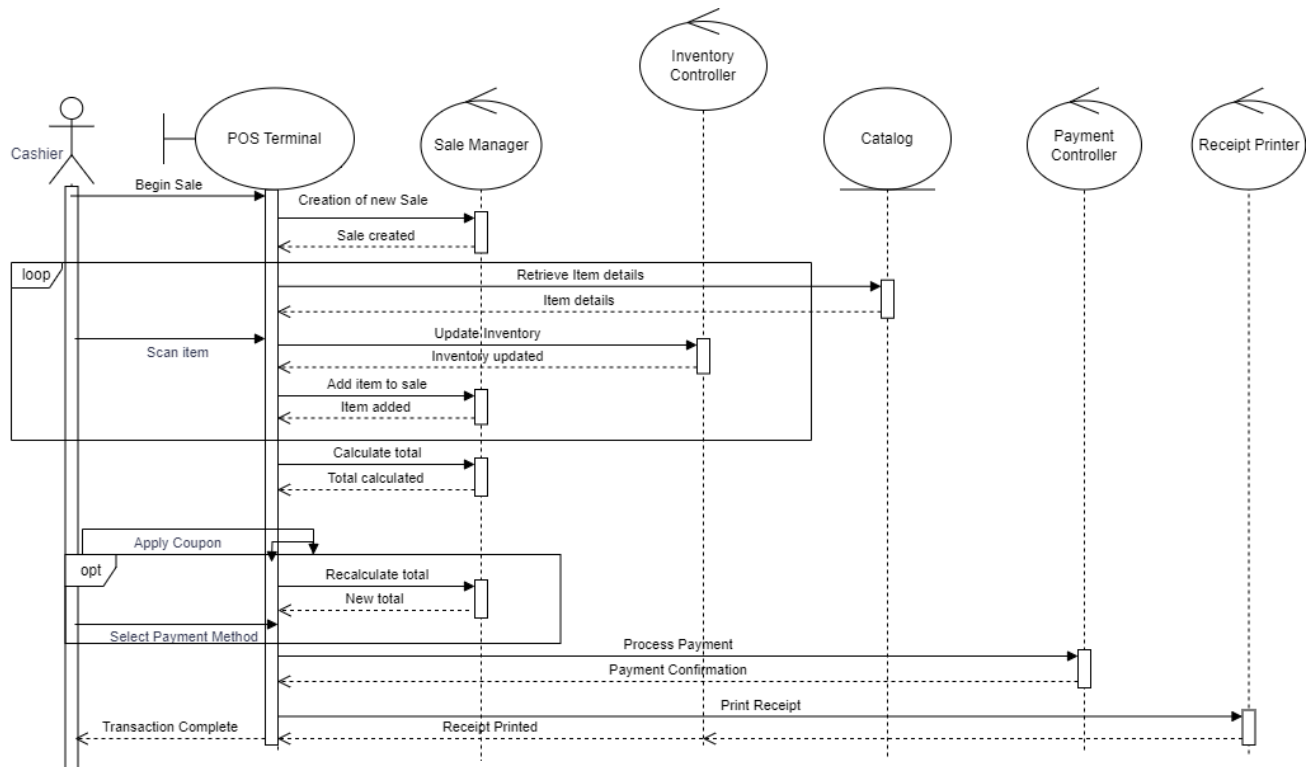
- POS Terminal Interface
- Scanner Interface
- Payment Processing Interface
- Receipt Printer Interface

### **Control Objects:**

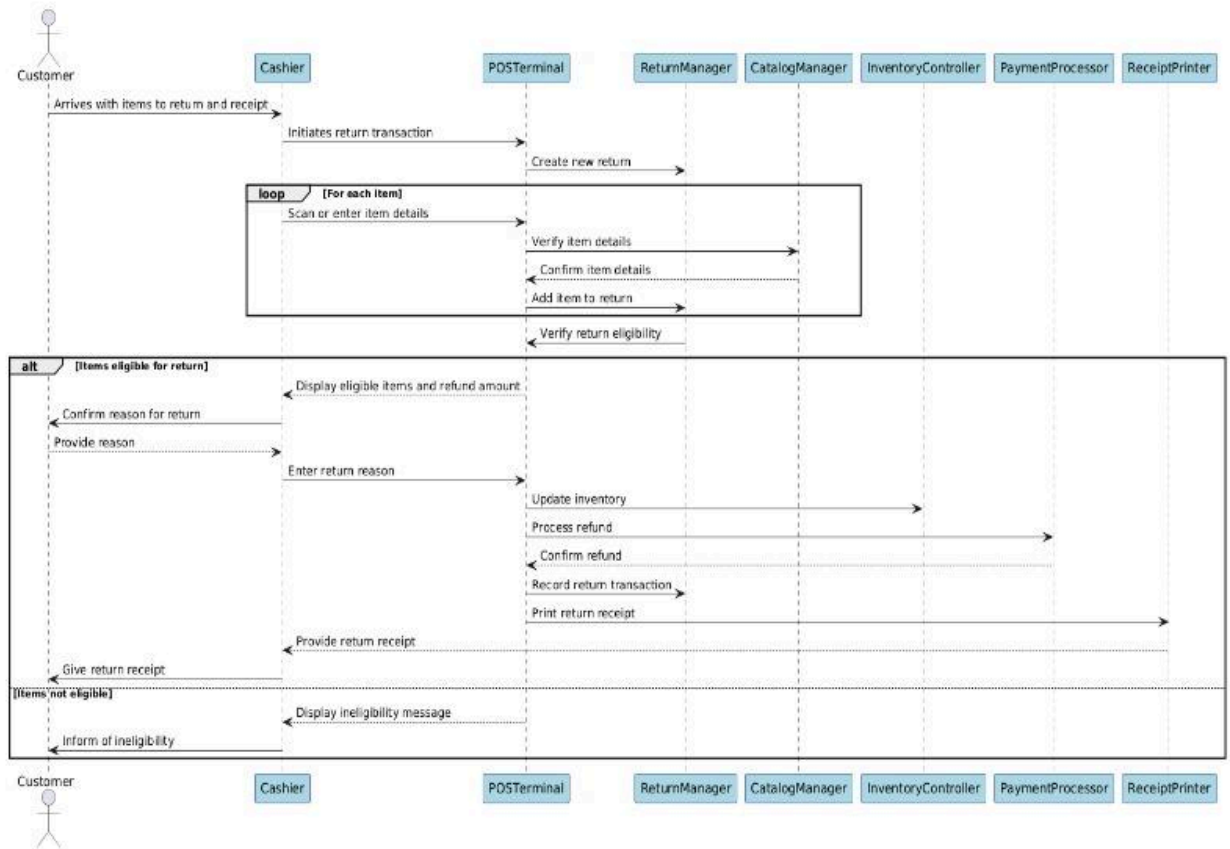
- Sale Manager
- Inventory Manager
- Catalog Manager
- Payment Manager
- User Authentication Manager
- Return Manager

# SEQUENCE DIAGRAM

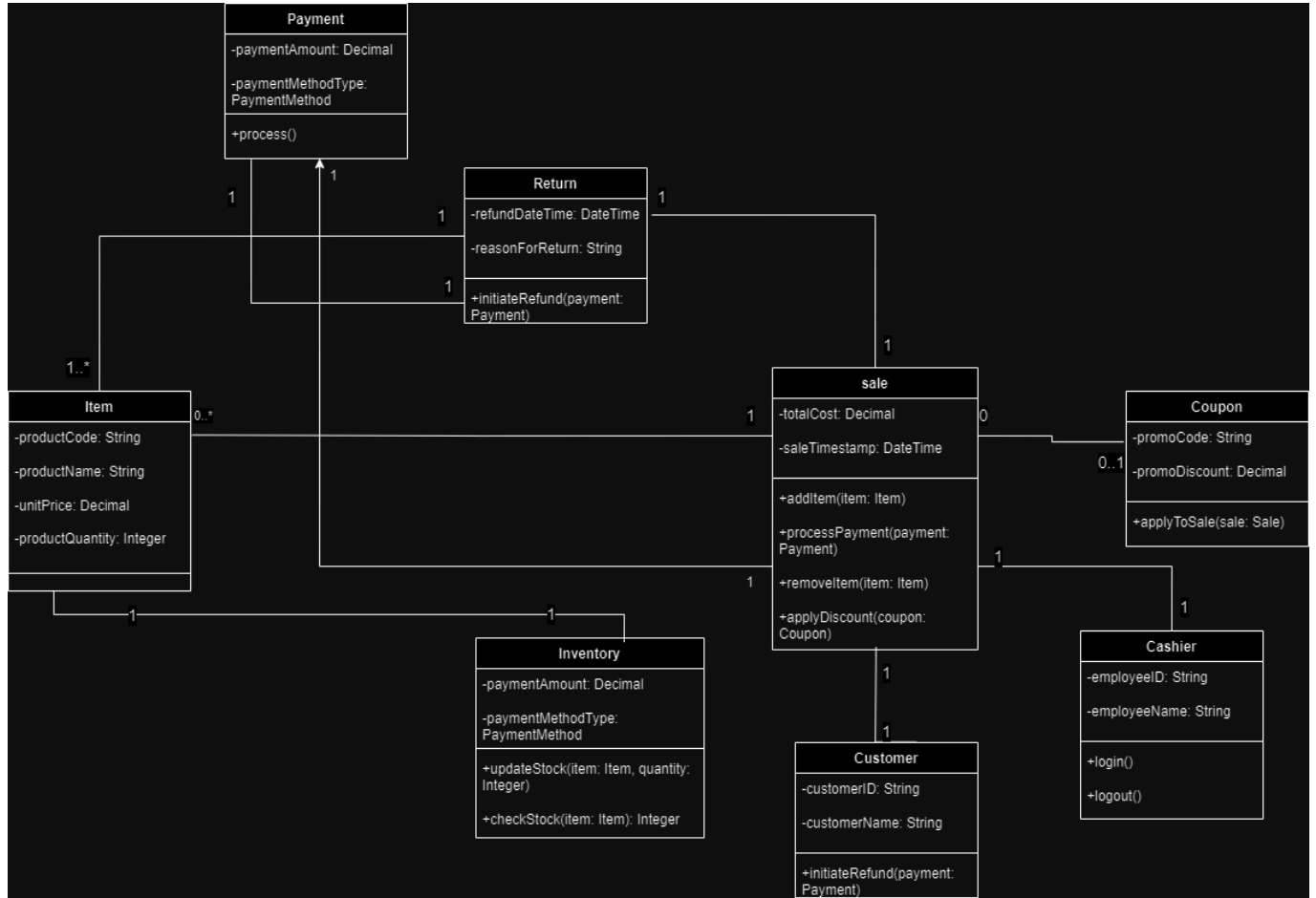
## Process sale sequence diagram



## Handle Return Sequence Diagram

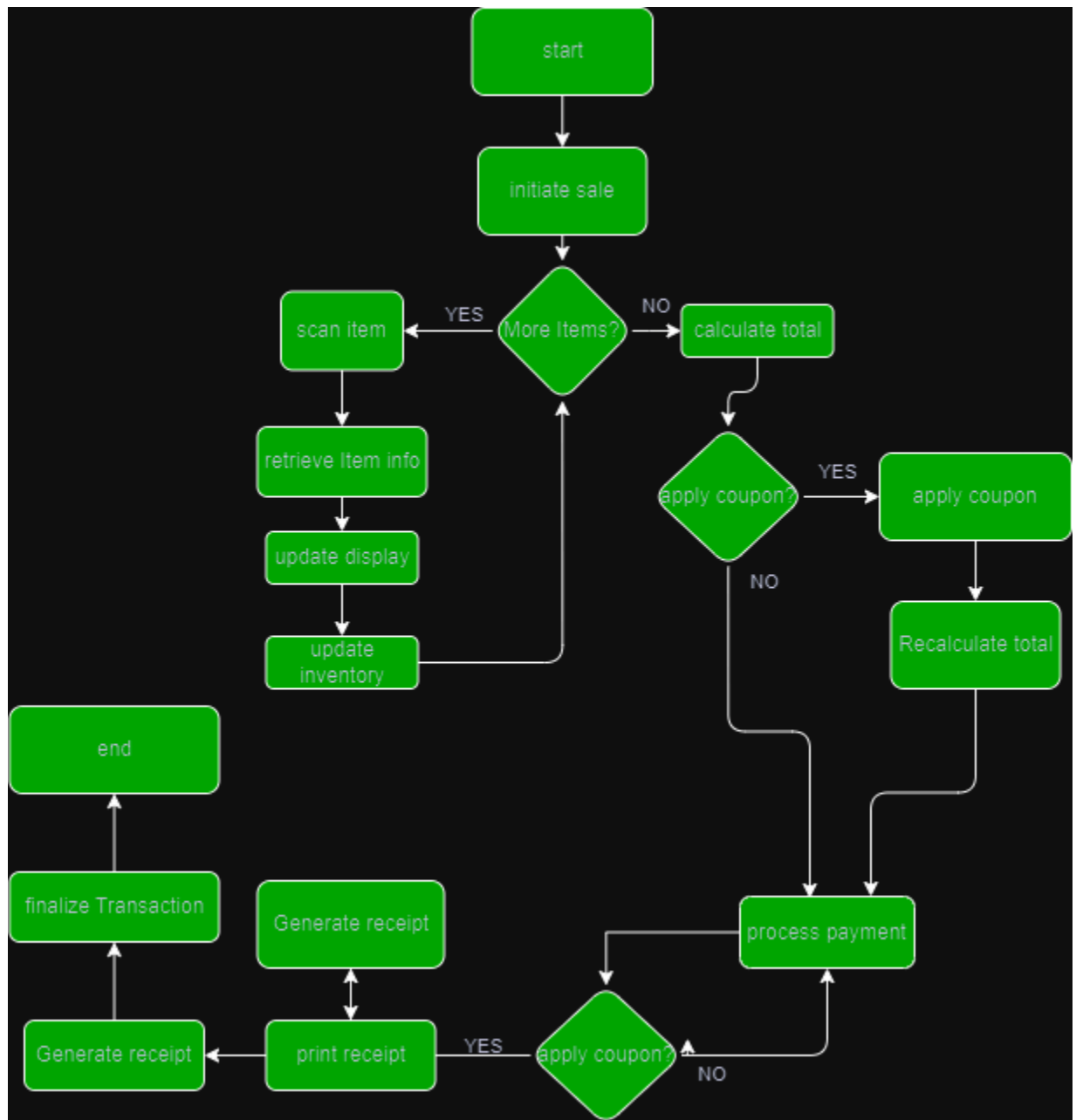


# Analysis Diagram





## Process Sale Activity Diagram



## Handle Return Activity Diagram

