

IT-314: Lab 6

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Use Case: Process Sale

Actor: Cashier

Preconditions:

1. The cashier is logged into the point-of-sale (POS) system.
2. The POS system is connected to the catalog and inventory systems.

Main Flow:

1. The cashier initiates a new sales transaction.
2. For each item in the transaction: a. The cashier scans the item's barcode. b. The system retrieves the item's name and price from the product catalog. c. The inventory count is updated accordingly. d. The item is added to the transaction.
3. The system calculates the total amount due for the transaction.
4. If the customer has a gift coupon: a. The cashier applies the coupon to the transaction. b. The system adjusts the total amount based on the coupon.
5. The cashier informs the customer of the total amount due.
6. The customer selects a payment method (cash, credit card, or check).
7. The cashier processes the selected payment method.
8. The system verifies the payment details.
9. A receipt is generated and printed by the system.
10. The transaction is finalized and closed by the system.

Alternative Flows:

4a. Invalid Coupon Scenario:

1. The system alerts the cashier that the coupon is invalid.

2. The cashier informs the customer about the invalid coupon and continues the transaction from step 5.

8a. Payment Validation Failure:

1. The system notifies the cashier that payment validation has failed.
2. The cashier asks the customer for a different payment method.
3. If the customer provides an alternative method, return to step 7; if not, cancel the transaction.

Postconditions:

1. The transaction is recorded in the system.
2. Inventory is updated to reflect the sale.
3. The payment is successfully processed.
4. A receipt has been printed.

Use Case: Processing a Return

Actor: Cashier

Preconditions:

1. The cashier is logged into the POS system.
2. The customer has a valid receipt for the items they want to return.

Main Flow:

1. The cashier starts a new return transaction.
2. The cashier scans the receipt or manually enters its details.
3. The system retrieves the original transaction information.
4. For each item being returned: a. The cashier scans the barcode of the item. b. The system verifies that the item corresponds to the original transaction. c. Inventory levels are updated to reflect the return. d. The item is added to the return transaction.
5. The system calculates the total refund amount.
6. The cashier reviews the return details with the customer.
7. The system processes the refund using the same payment method as the original transaction.
8. A return receipt is generated and printed by the system.
9. The system finalizes and completes the return transaction.

Alternative Flows:**2a. Receipt Not Found:**

1. The system notifies the cashier that the receipt is invalid or cannot be found.
2. The cashier informs the customer that the return cannot proceed and ends the process.

4b. Item Verification Failure:

1. The system indicates that the item does not match the original transaction.
2. The cashier informs the customer and decides whether to proceed with the next item or cancel the return.

7a. Original Payment Method Unavailable:

1. The cashier selects an alternative refund method (e.g., store credit or cash).
2. The system processes the refund using the chosen method.

Postconditions:

1. The return is recorded in the system.
2. Inventory is updated to reflect the returned items.
3. The refund is successfully processed.
4. 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

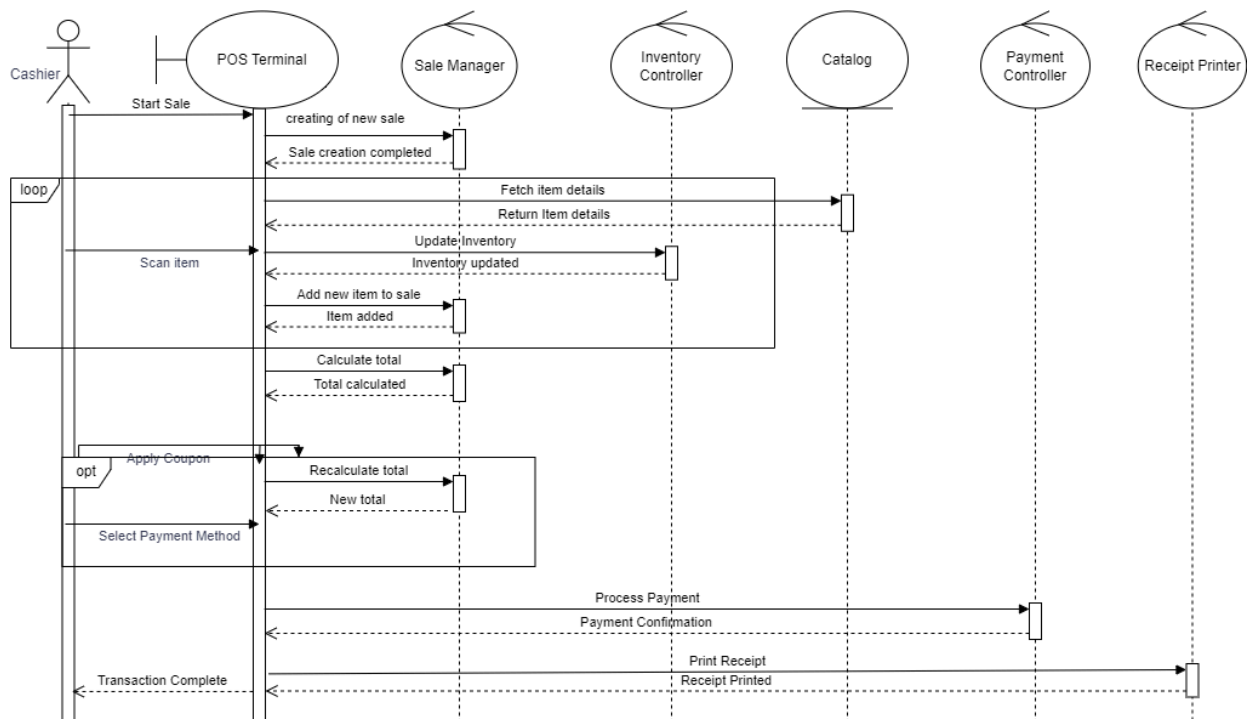
- Payment Processing Interface
- Receipt Printer Interface

Control Objects:

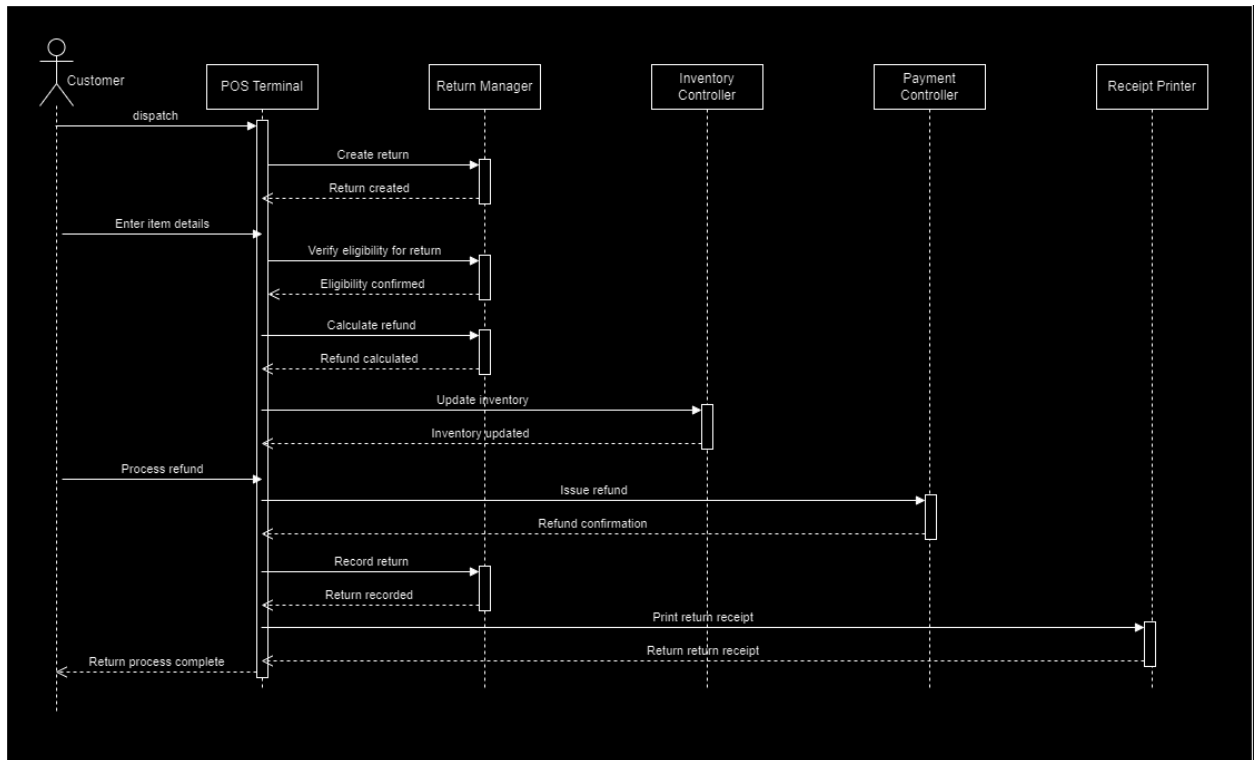
- Sale Manager
- Inventory Manager
- Catalog Manager
- Payment Manager
- User Authentication Manager
- Return Manager

Sequence Diagram

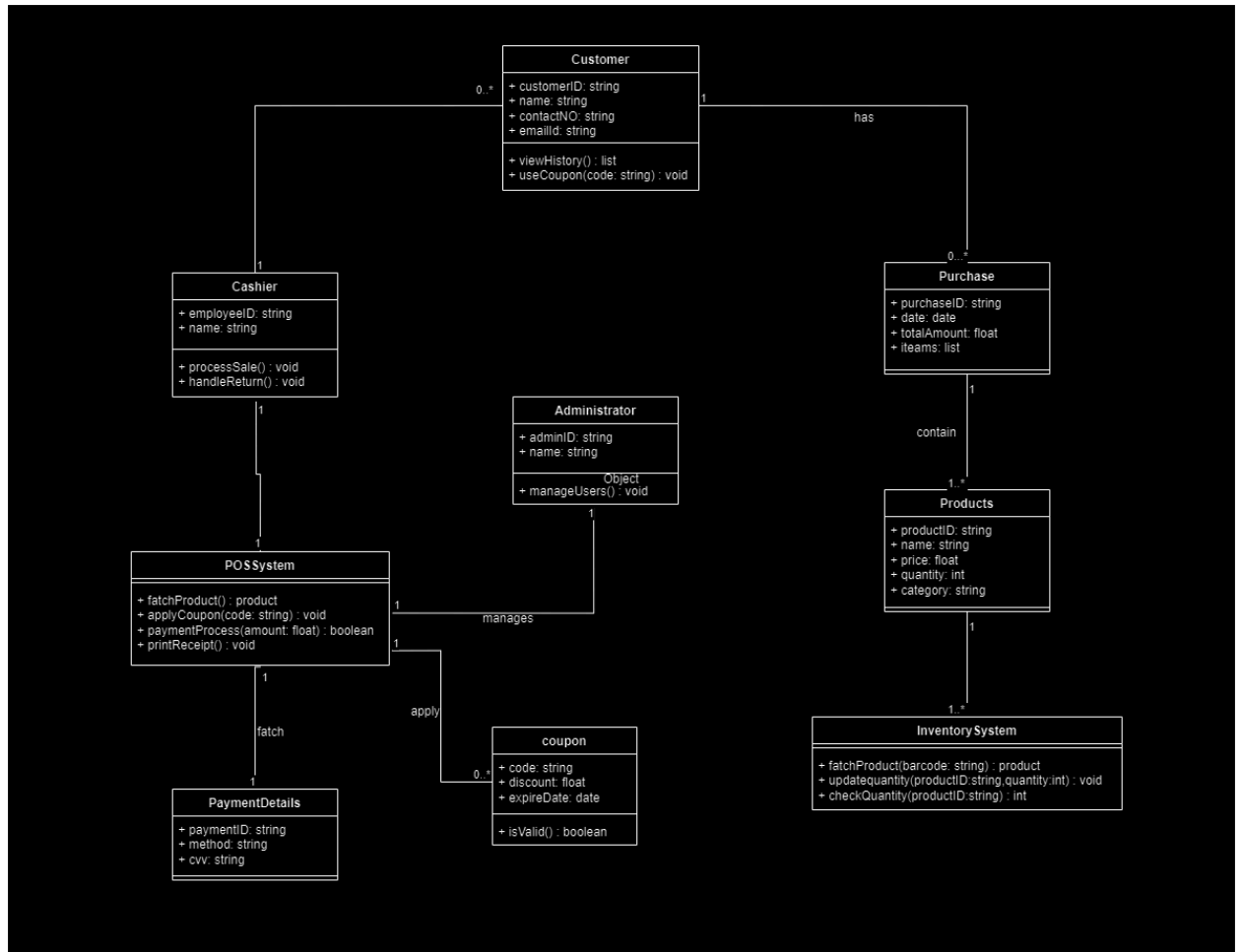
1) Process Sale



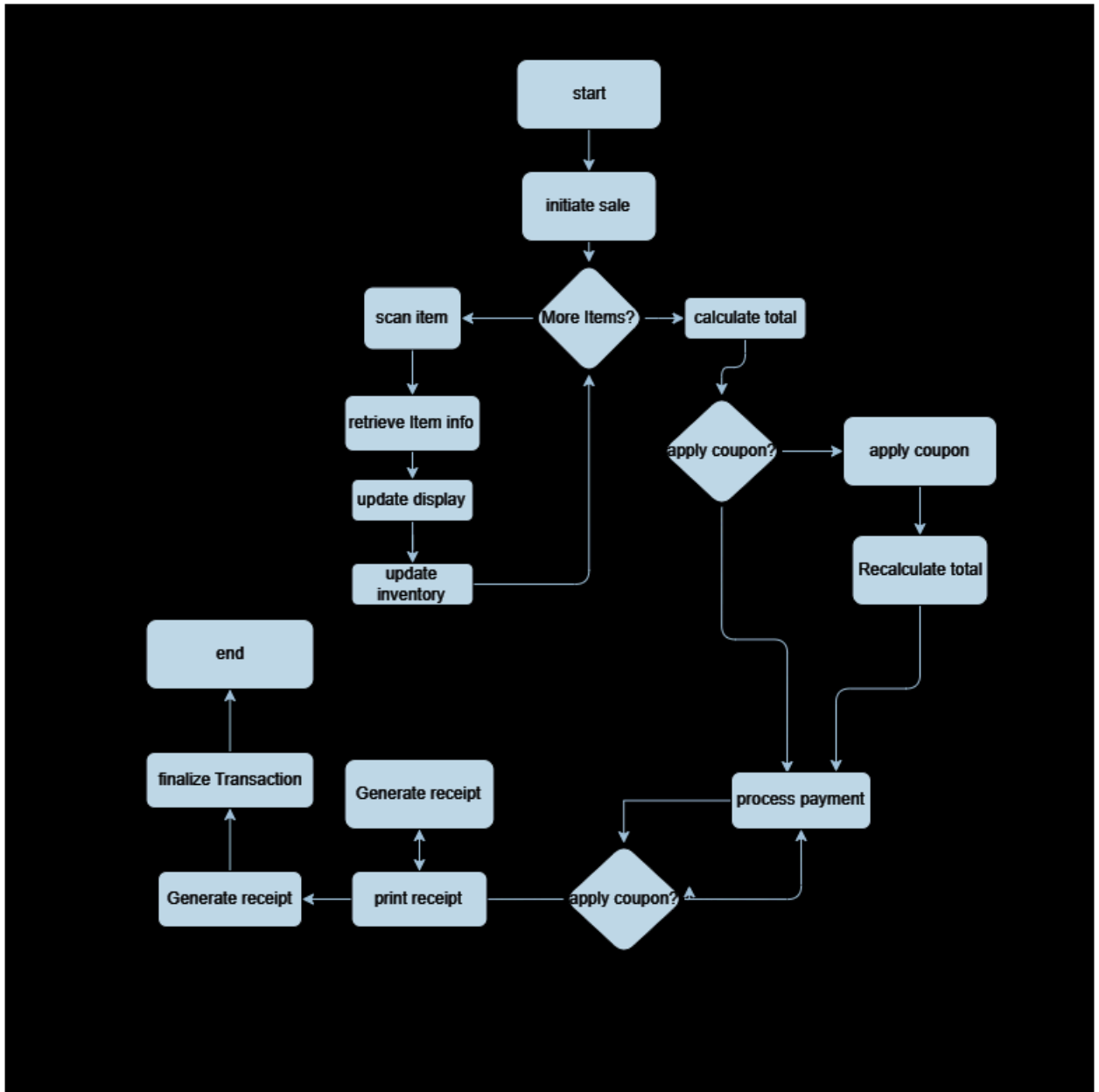
2) Handle Return



Analysis Domain Model



Process Sale Activity Diagram



Handle Return Activity Diagram

