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- **Develop Use Case Textual Description for "Process Sale" and "Handle Return" use cases.**

Process Sale

Primary Actor: Cashier
Precondition: The cashier is logged into the POS system.

Main Success Scenario:

1. The cashier scans the items' barcodes that the customer wishes to purchase.
2. The POS system retrieves relevant item information (name, price) from the Catalog System.
3. The system computes the total cost for all items.
4. The customer selects a payment method, either cash or credit card.
    - **If cash:** The cashier enters the amount received, and the system calculates the change due.
    - **If credit card:** The customer's card is swiped for payment processing.
5. Upon successful payment processing, the Inventory System updates the stock levels of the sold items.
6. A receipt is printed for the customer.

Postcondition: The sale is finalized, and inventory records are updated accordingly.

Extensions:

- If a gift coupon is presented, the system reduces the total amount by the coupon's value.
- If the payment fails (e.g., credit card is declined), the system prompts the cashier to either retry the transaction or choose a different payment option.

Handle Return

Primary Actor: Cashier
Precondition: The cashier is logged into the POS system, and the customer provides the receipt for the return.

Main Success Scenario:

1. The cashier scans the item that the customer wishes to return.
2. The system verifies the original sale by accessing the database with the receipt details.
3. The system checks if the item is eligible for return according to the return policy.
4. The refund amount is calculated by the system.
    - **If the item was paid for in cash:** The refund is processed in cash.
    - **If the item was purchased with a credit card:** The refund is issued back to theoriginal credit card.
5. The Inventory System adjusts the stock levels to reflect the returned item.
6. A return receipt is printed for the customer.

Postcondition: The return is successfully processed, and inventory records are updated.

Extensions:

- If the receipt is lost or damaged, the system allows the cashier to search by transaction date or ID.
- If the item does not meet return eligibility criteria, the system alerts the cashier.

• Identifying Entity, Boundary, and Control Objects

Entity Objects (representing real-world business objects and data):

- Sale
- Item
- Payment
- Customer
- Receipt
- Return
- Gift Coupon

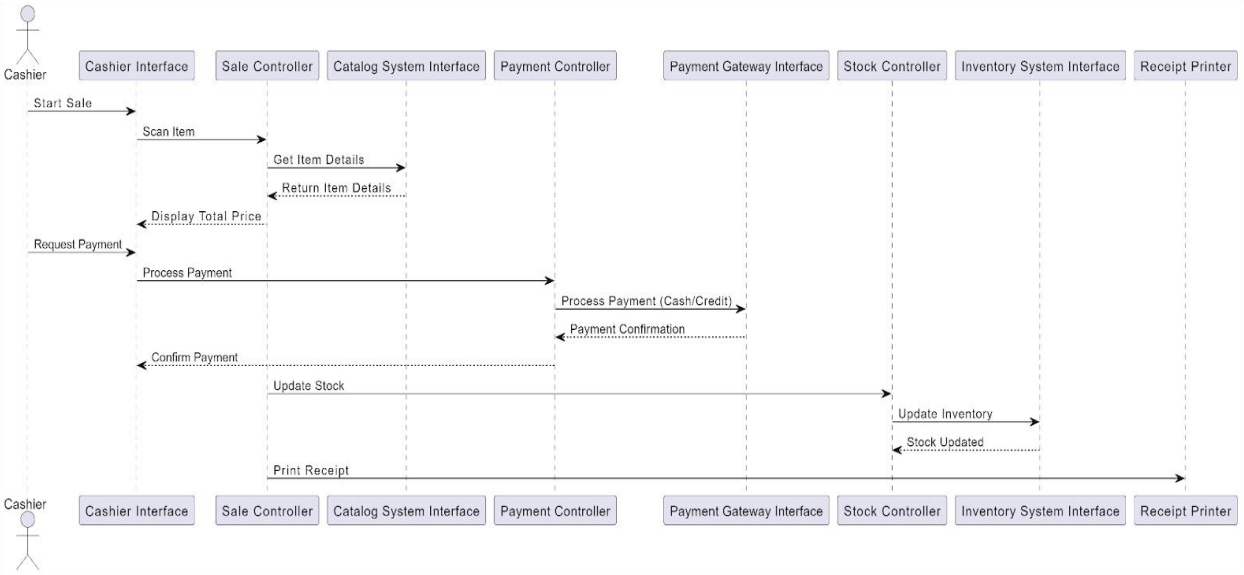
Boundary Objects (serving as the interface between actors and the system):

- Cashier Interface
- Payment Gateway Interface
- Catalog System Interface
- Inventory System Interface

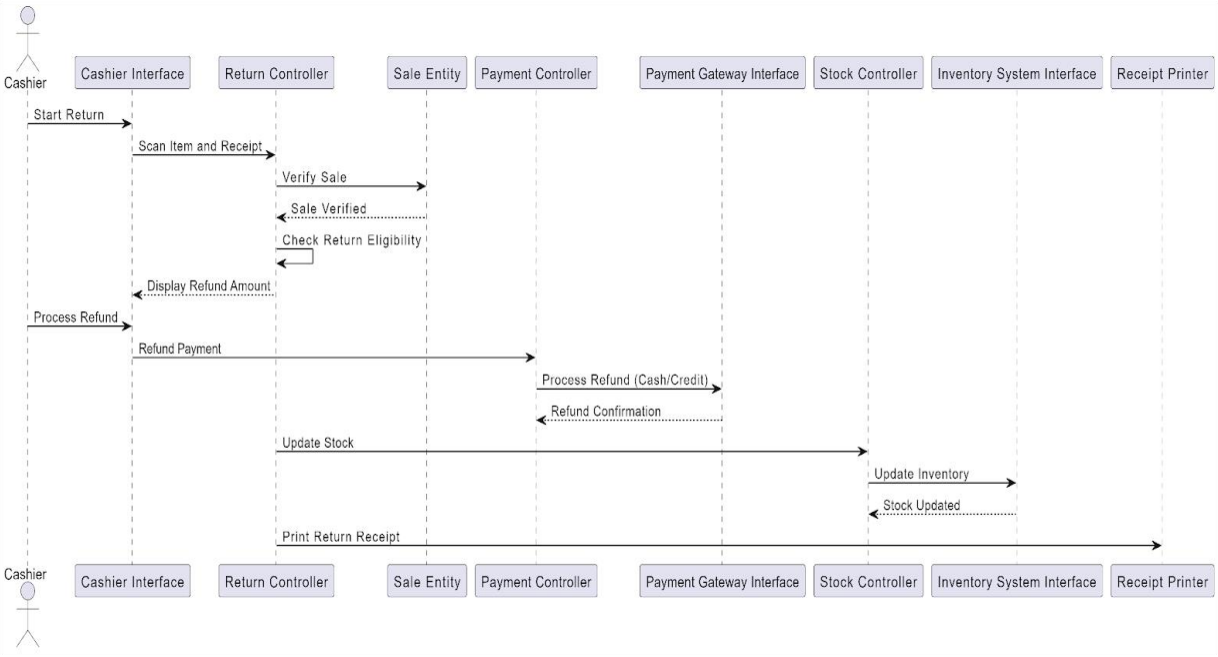
Control Objects (responsible for managing workflows of the use cases):

- SaleController (handles the logic for processing sales)
- ReturnController (manages the return process)
- PaymentController (facilitates various payment methods)
- CouponController (manages the application of coupons)
- StockController (coordinates with the Inventory System)

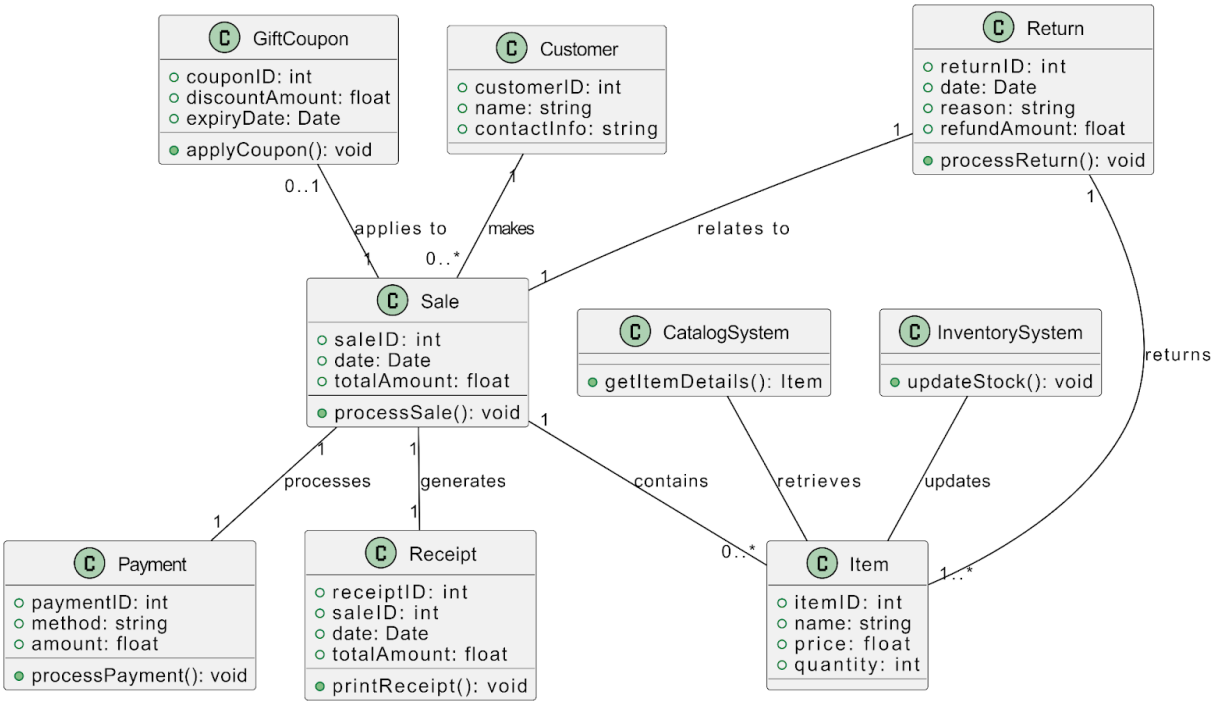
1.Process Sale Sequence Diagram



2.Handle Return Sequence Diagram

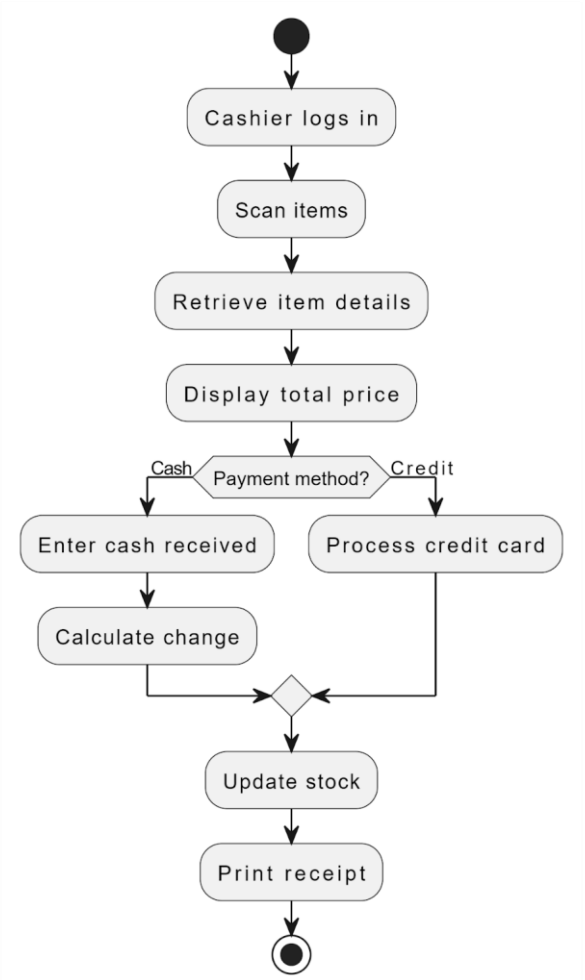


- **Analysis Domain Model (Class Diagram)**



- **Develop activity diagram for "Process Sale" and "Handle Return" use cases.**

1. Process Sale Activity Diagram



2. Handle Return Activity Diagram