IT314 : Software Engineering

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Q1. Develop Use Case Textual Description for "Process Sale" and "Handle Return" use cases.

1. For Process Sale :

Use Case: Process Sale

Actors: Cashier, Customer, Catalog System, Inventory System

Description:
This use case describes the process of handling a customer sale transaction at the POS. The cashier initiates the sale, scans items, applies any applicable promotions (gift coupons), handles the payment, and generates a receipt.

Precondition:

1. The cashier is logged in to the POS system.
2. The POS system is connected to the catalog and inventory systems.

Main Flow:

1. The cashier initiates a new sale.
2. The cashier scans the barcode of each item.
3. The POS retrieves the item's name and price from the catalog system.
4. The POS deducts the stock from the inventory system.
5. The cashier applies any gift coupons (optional).
6. The customer selects a payment method (cash, credit card, or check).
7. The POS processes the payment.
8. After a successful transaction, the system prints a receipt.

Postcondition:

1. The sale is recorded in the system.
2. The inventory is updated.
3. The receipt is printed and given to the customer.

Use Case: Handle Return

Actors: Cashier, Customer, Inventory System

Description:

This use case describes the process of handling the return of goods. The cashier processes the return, updates the stock in the inventory, and issues a refund or store credit.

Precondition:

1. The cashier is logged in to the POS system.
2. The original purchase information is available.

Main Flow:

1. The cashier initiates the return process.
2. The cashier scans the returned item(s).
3. The POS verifies the original purchase and calculates the refund amount.
4. The system updates the inventory to reflect the returned item(s).
5. The cashier processes the refund or issues store credit.
6. The system records the return transaction.

Postcondition:

1. The return is recorded in the system.
2. The inventory is updated.
3. The refund/store credit is issued to the customer.

2. Entity/Boundary/Control Objects

Entity Objects:

1.SaleTransaction: Handles details of individual sale transactions.

2.Item: Represents each item in the catalog and inventory.

3.Coupon: Represents any applicable discount or promotion.

4.Payment: Manages payment information and processes.

5.ReturnTransaction: Handles details of return transactions.

Boundary Objects:

1.CashierUI: Interface for the cashier to interact with the POS system.

2.CustomerReceipt: Represents the receipt given to the customer.

3.CatalogSystemAPI: Interface to fetch item details from the catalog system.

4.InventorySystemAPI: Interface to manage stock levels in the inventory system.

Control Objects:

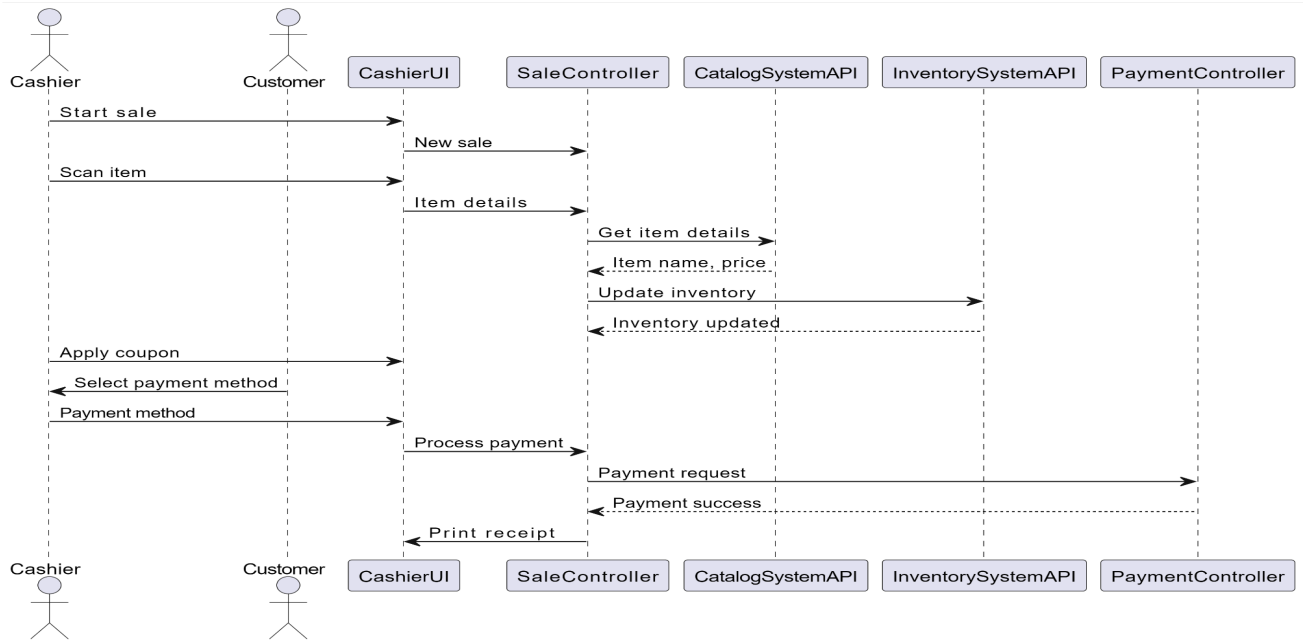
1.SaleController: Manages the sale process, including item scanning and payment processing.

2.ReturnController: Handles the return process and interacts with the inventory system.

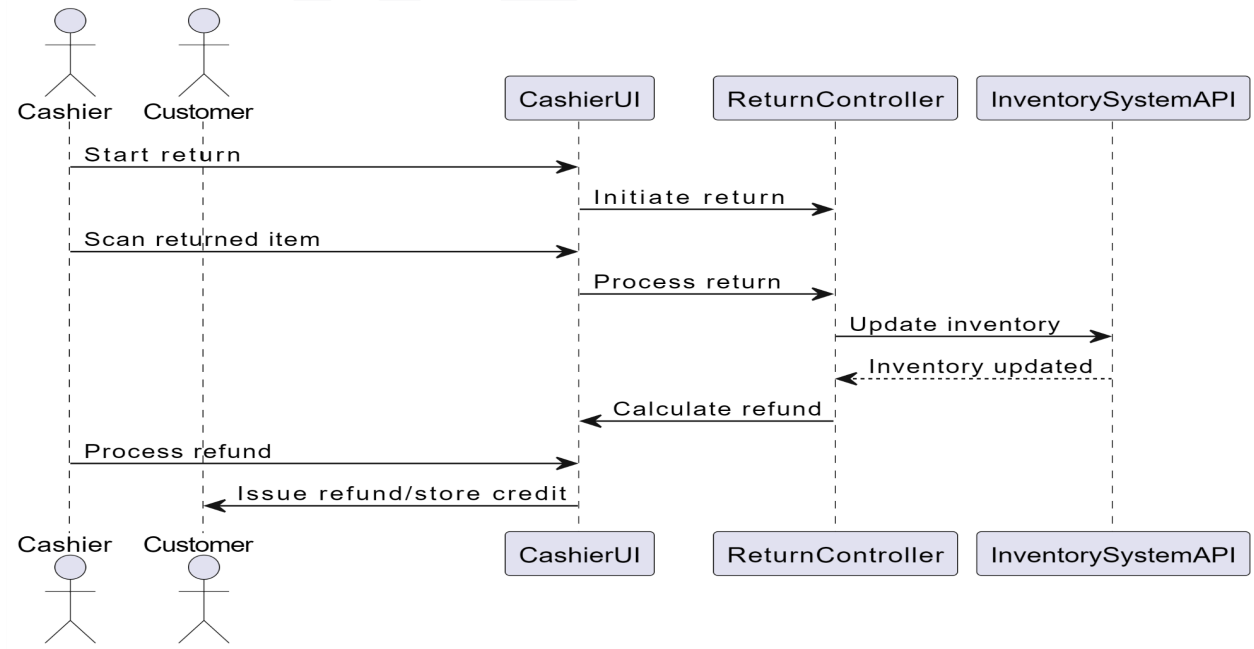
3.PaymentController: Manages the processing of different payment methods (cash, credit card).

3. Sequence Diagrams

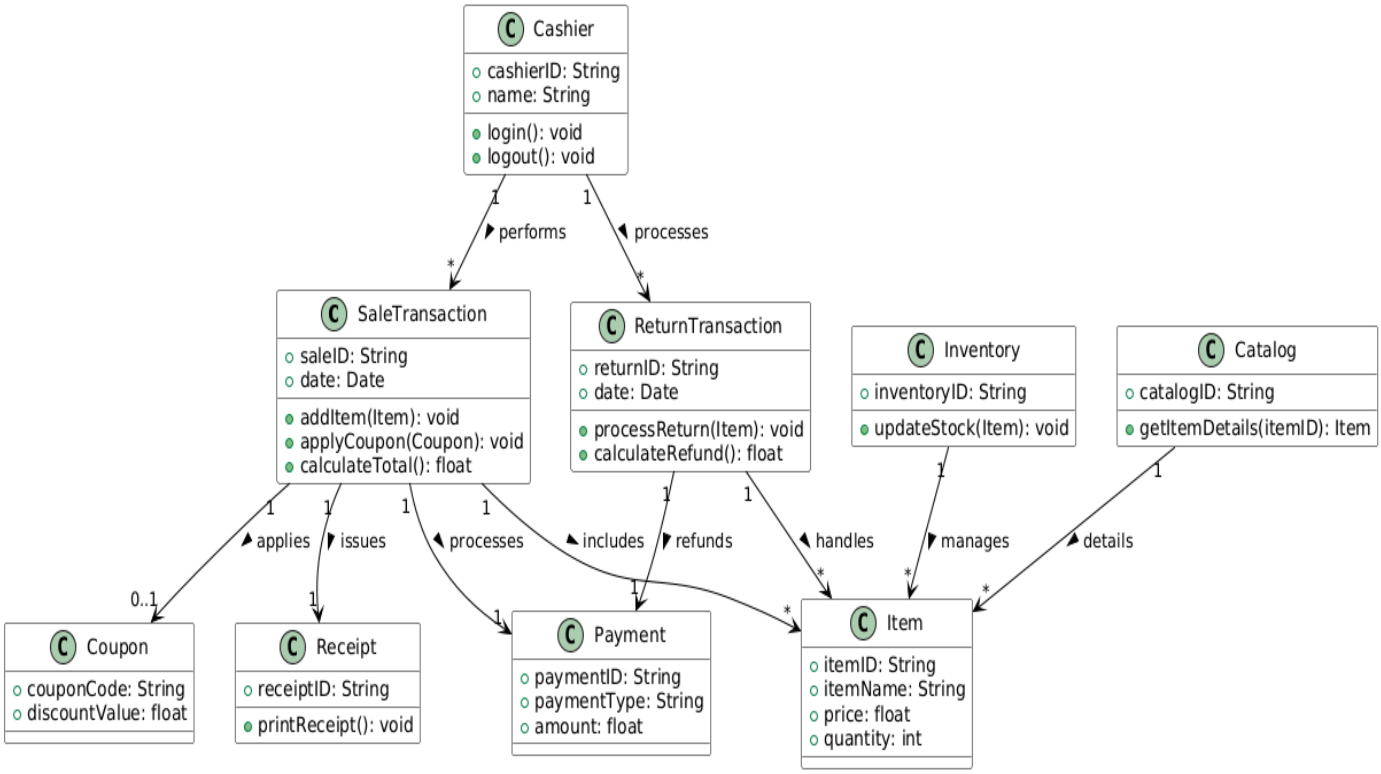
Sequence Diagram for "Process Sale"



Sequence Diagram for "Handle Return"



4.Analysis Domain Models



5.Develop activity diagram