Dhirubhai Ambani
Institute of Information and Communication Technology

LAB - Modeling Class Diagram and Activity Diagram (Point of Sale System):

COURSE - IT314 Software Engineering

NAME - Brahmmbhatt Krisha Pankajkumar
ID - 202201164

Use Case Descriptions

Use Case: Process Sale

Use Case ID: UC-01

Actors: Cashier, Customer

Preconditions:

- Cashier is logged into the POS system.

- Customers present items for purchase.

Postconditions:

- Sale is completed, and inventory is updated.

- Receipts are printed for the customer.

Main Flow:

1. The cashier initiates a new sale transaction.

2. The cashier scans the barcode of the first item.

3. The system retrieves the item details (name, price) from the inventory.

4. The system updates the inventory to reflect the deducted stock amount.

5. The cashier continues scanning items until the customer is ready to pay.

6. The system displays the total amount due.

7. The cashier informs the customer of the total and available payment options.

8. The customer selects a payment method (cash, credit card, or check).

9. The cashier processes the payment:

   - If cash, the cashier inputs the amount given and calculates change.

   - If using a credit card, the cashier swipes or inserts the card and confirms the payment.

   - If checked, the cashier verifies the check and processes it.

10. Upon successful payment, the system generates a receipt.

11. The cashier hands the receipt to the customer and thanks them for their purchase.

Alternative Flows:

- Invalid Barcode Scanned:

  - If the scanned barcode is invalid, the system alerts the cashier to re-scan.

- Payment Failure:

  - If payment is unsuccessful, the system prompts the cashier to try again or select a different payment method.

Use Case: Handle Return

Use Case ID: UC-02

Actors: Cashier, Customer

Preconditions:

- Cashier is logged into the POS system.

- Customer presents an item for return, along with the original receipt.

Postconditions:

- Return is processed, and inventory is updated.

- Refunds are issued to the customer.

Main Flow:

1. The cashier initiates the return process.

2. The cashier asks for the receipt and verifies the purchase details.

3. The cashier scans the barcode of the returned item.

4. The system retrieves the item details from the sales records.

5. The cashier confirms the return is valid (within return period, item in sellable condition).

6. The system updates the inventory to reflect the returned stock amount.

7. The system calculates the refund amount based on the original sale price.

8. The cashier informs the customer of the refund amount.

9. The customer selects a refund method (cash, credit to card, store credit).

10. The cashier processes the refund:

    - If cash, the cashier gives the refund amount in cash.

    - If credit card, the cashier processes the refund back to the original card.

    - If store credit, the cashier issues a store credit voucher.

11. The system generates a return receipt for the customer.

Alternative Flows:

- Item Not Found:

  - If the item cannot be found in the system, the cashier informs the customer and suggests contacting customer service.

Entity/Boundary Control Objects

Entity Objects

1. Product: Represents items in the inventory with attributes such as name, price, barcode, and stock level.

2. Transaction: Represents a sale or return transaction, containing details of items purchased/returned, total amount, payment method, and date/time.

3. Customer: Represents the customer making a purchase or return, with attributes like name and payment information.

Boundary Objects

1. Cashier Interface: The user interface through which cashiers interact with the POS system, including scanning items, processing payments, and managing returns.

2. Receipt Printer: The hardware component that prints receipts for completed transactions, including sales and returns.

Control Objects

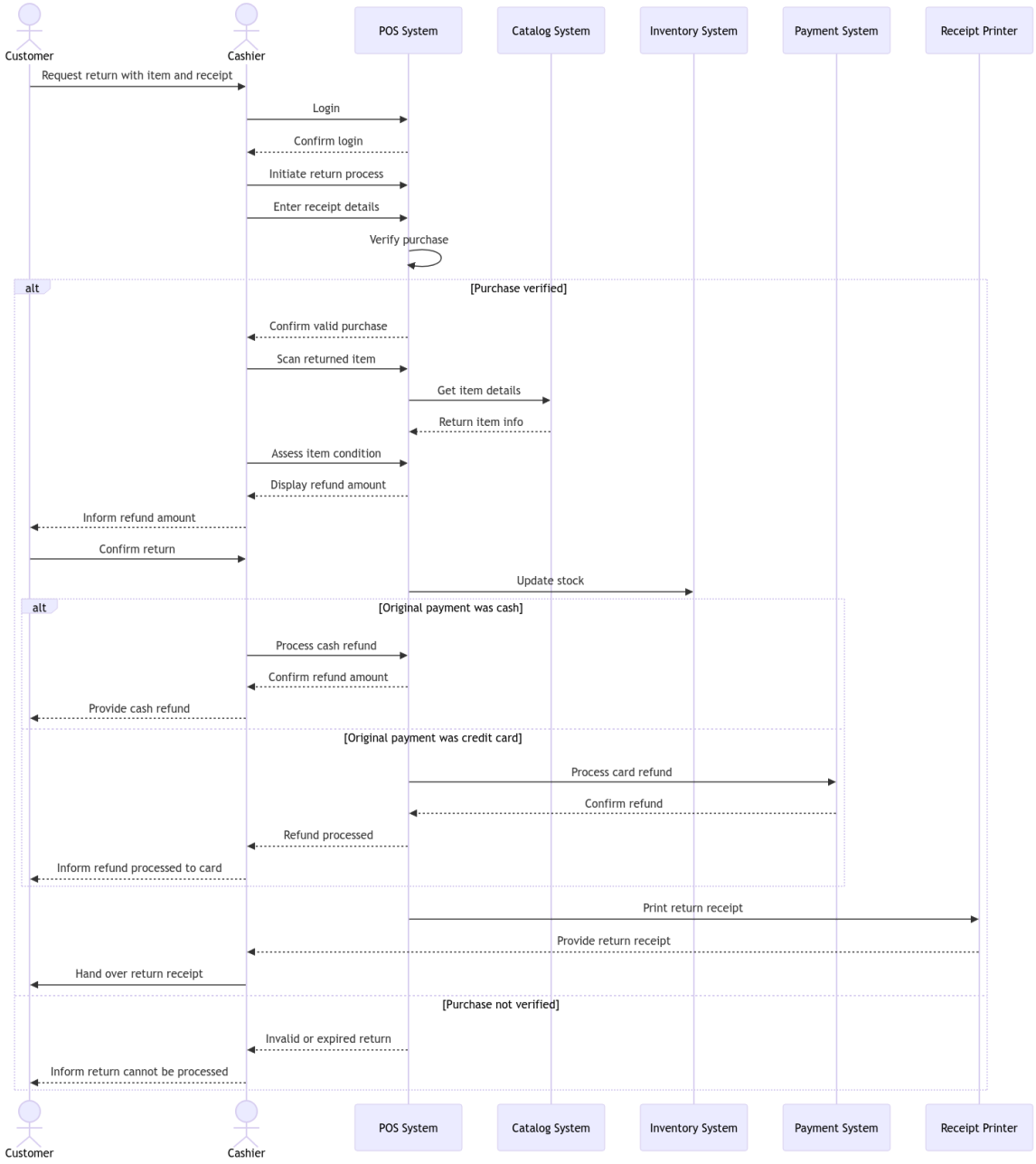
1. SalesController: Manages the process of a sale, including item scanning, payment processing, and receipt generation.

2. ReturnController: Manages the return process, including validation of returns, updating inventory, and processing refunds.

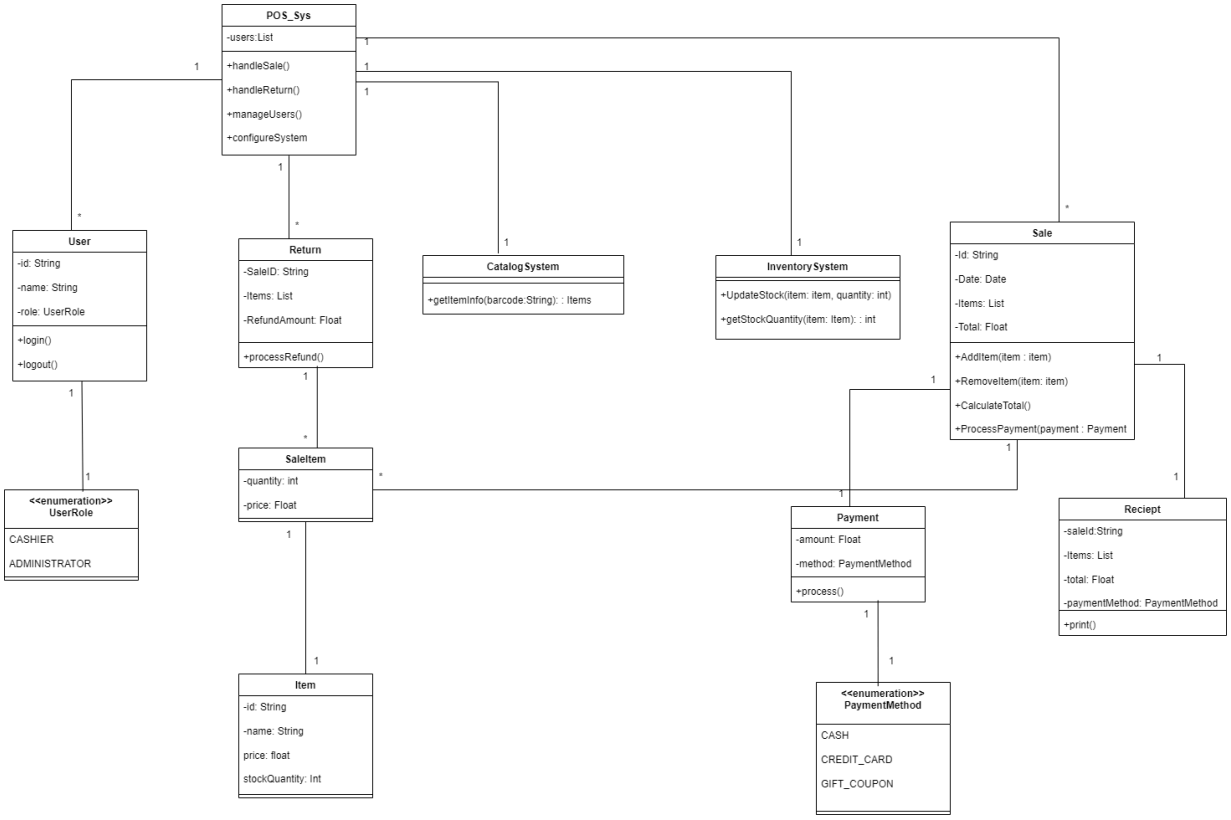
DEVELOP SEQUENCE DIAGRAMS:

1. Process Sale:

2.Handle Return:

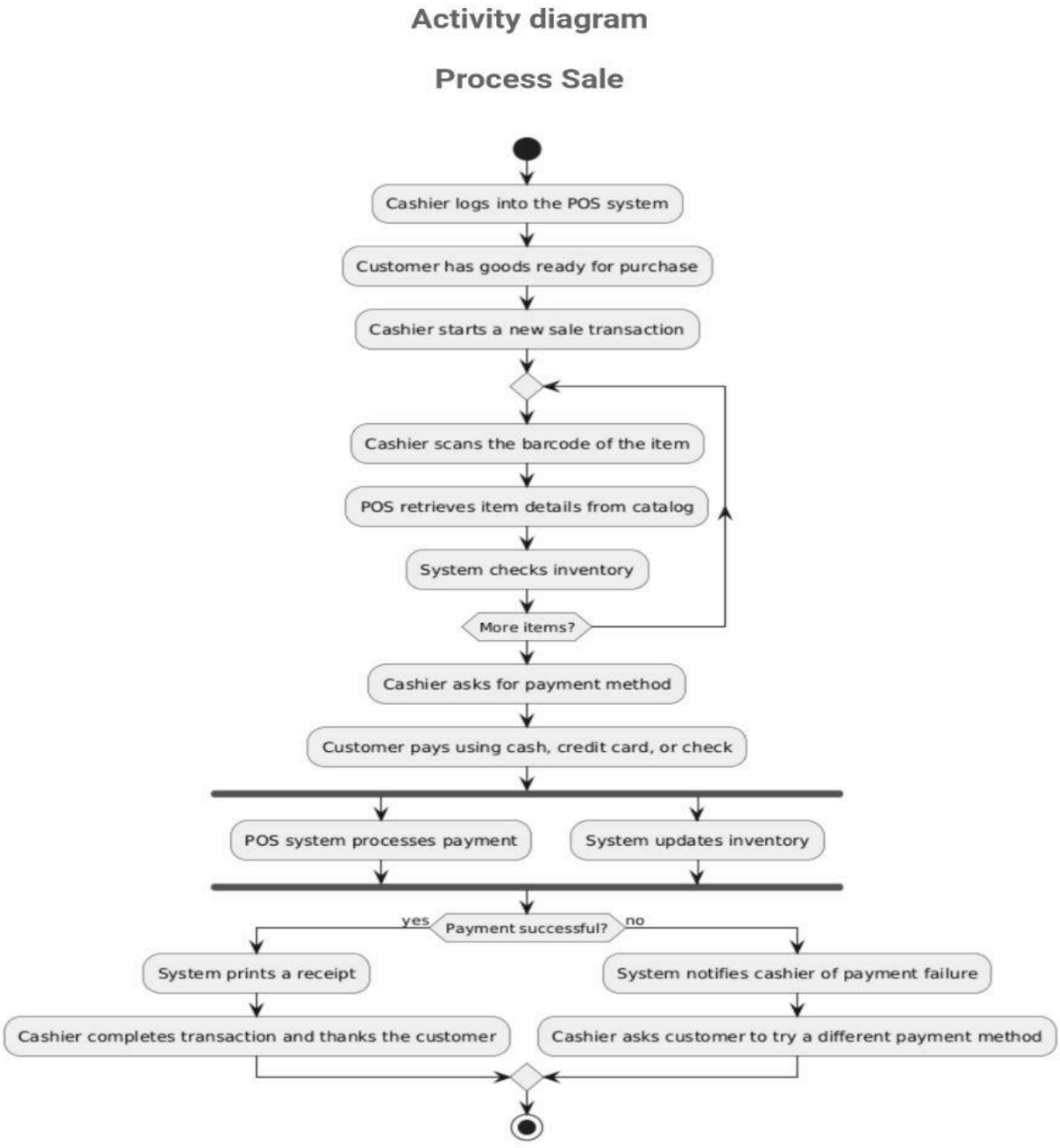


DEVELOP ANALYSIS DOMAIN MODEL:



Develop Activity Diagrams for "Process Sale" and "Handle Return" use cases

PROCESS SALE:



HANDLE RETURN