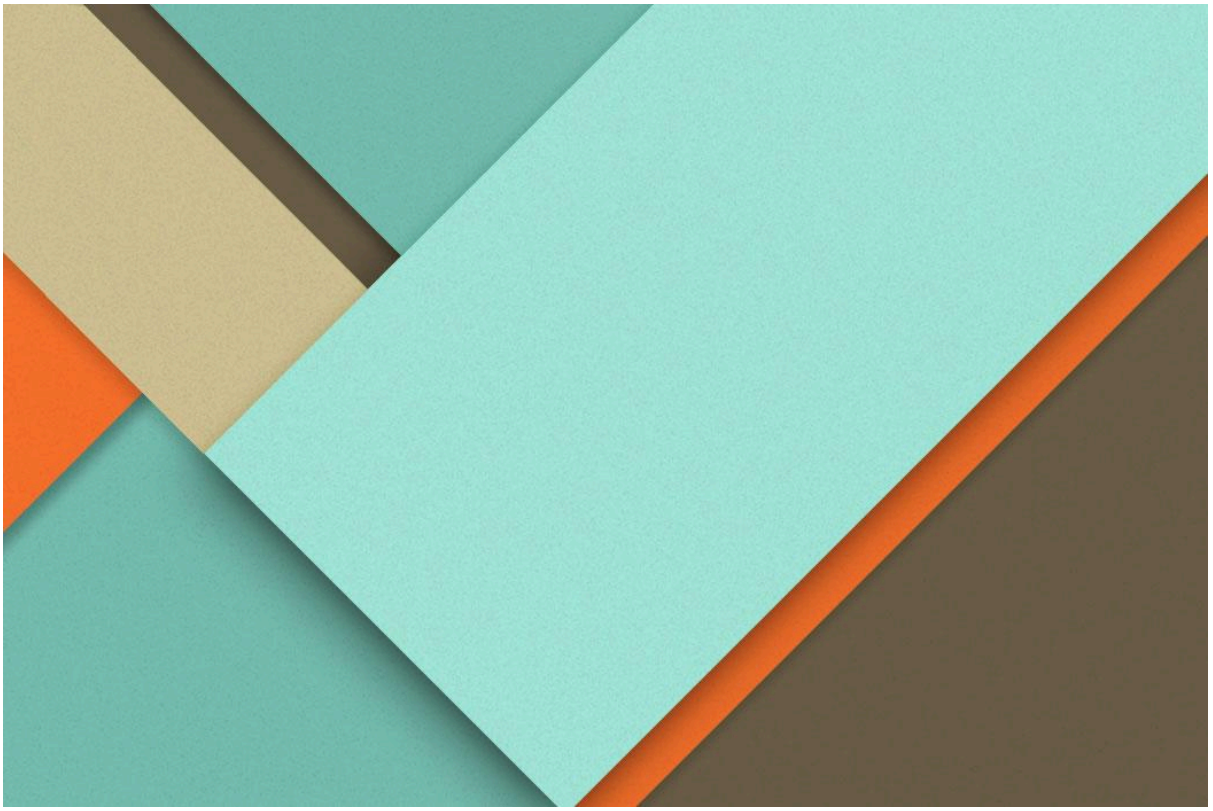

IT314 : Software Engineering

LAB - 06 : Modeling Class Diagram and Activity Diagram (Point of Sale System)

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

Use Case Descriptions : Process Sale

Actors:

- Cashier (Primary Actor)
- Customer
- Backend Catalog System
- Inventory System
- Payment System (External Service)
- Receipt Printer

Preconditions:

- Cashier is logged in to the POS system.
- The system is operational.

Basic Flow:

1. The cashier starts a new sale transaction.
2. The customer presents goods.
3. The cashier scans the goods using the barcode scanner.
4. The POS system retrieves the product details (name and price) from the backend catalog.
5. The POS system updates the inventory system to reduce the stock quantity.
6. The cashier completes the scanning process.
7. The POS system calculates the total price, including any discounts or gift coupons.
8. The customer selects a payment method (cash, card, or check).
9. The payment is processed by the POS system, which interacts with external payment systems.
10. The payment is confirmed, and the POS system generates a receipt.
11. The receipt is printed and given to the customer.

12. The sale transaction is completed.

Postconditions:

- The sale is recorded in the system.
- The inventory is updated.
- A receipt is issued to the customer.

Extensions:

- If a product is not in the catalog (step 4), the cashier is prompted to enter it manually.
- If payment fails (step 9), the cashier is prompted to retry or choose another payment method.

Use Case Descriptions : Handle Return

Actors:

- Cashier (Primary Actor)
- Customer
- Backend Catalog System
- Inventory System
- Payment System (External Service)

Preconditions:

- The customer has proof of purchase (e.g., a receipt).
- The product is eligible for return.

Basic Flow:

1. The customer requests a return at the POS counter.
2. The cashier starts a return transaction.
3. The cashier scans the product or enters its details.
4. The POS system retrieves the original sale details from the backend catalog and verifies return eligibility.
5. The POS system updates the inventory system to increase stock quantity.
6. The cashier processes the refund using the original payment method.

7. The POS system communicates with the payment system to refund the money.
8. The POS system generates a return receipt.
9. The receipt is printed and given to the customer.
10. The return transaction is completed.

Postconditions:

- The inventory is updated.
- A return receipt is issued to the customer.
- The refund is processed successfully.

Extensions:

- If the product is not eligible for return, the transaction is cancelled, and the cashier informs the customer.

Identify Entity/Boundary Control Objects

Entity Objects:

- Product
- Sale
- Payment
- Return
- Receipt
- Inventory

Boundary Objects:

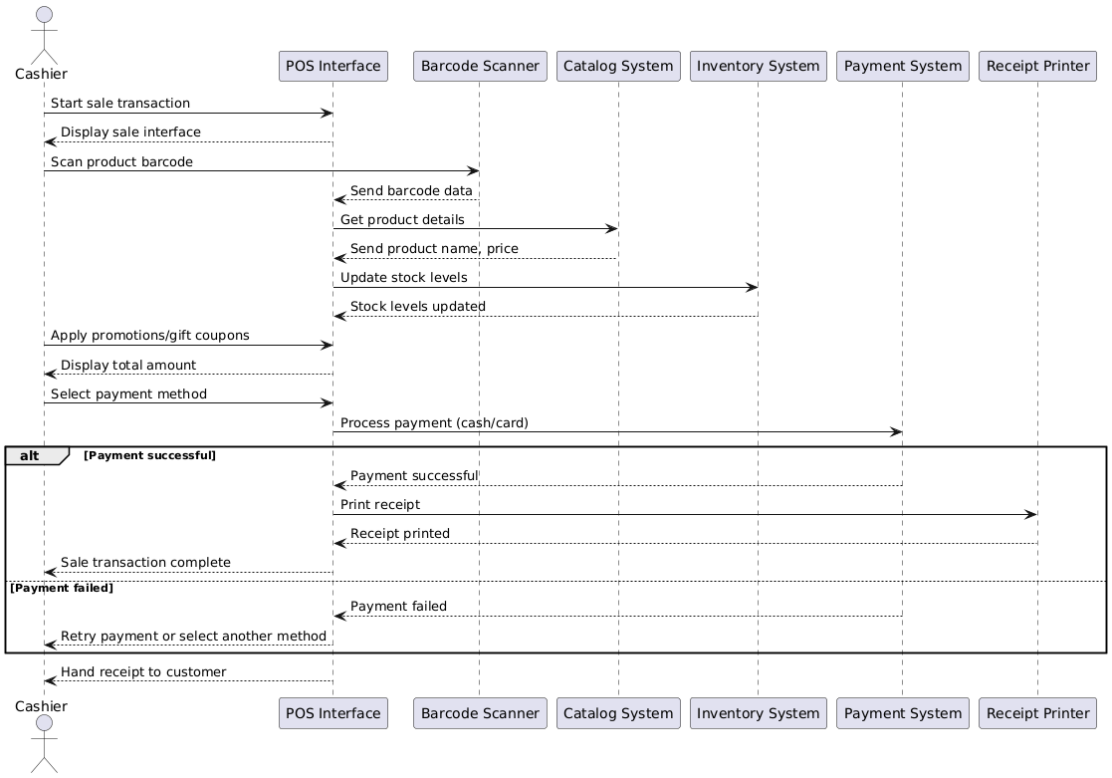
- POS Interface (UI)
- Barcode Scanner
- Payment Terminal
- Receipt Printer

Control Objects:

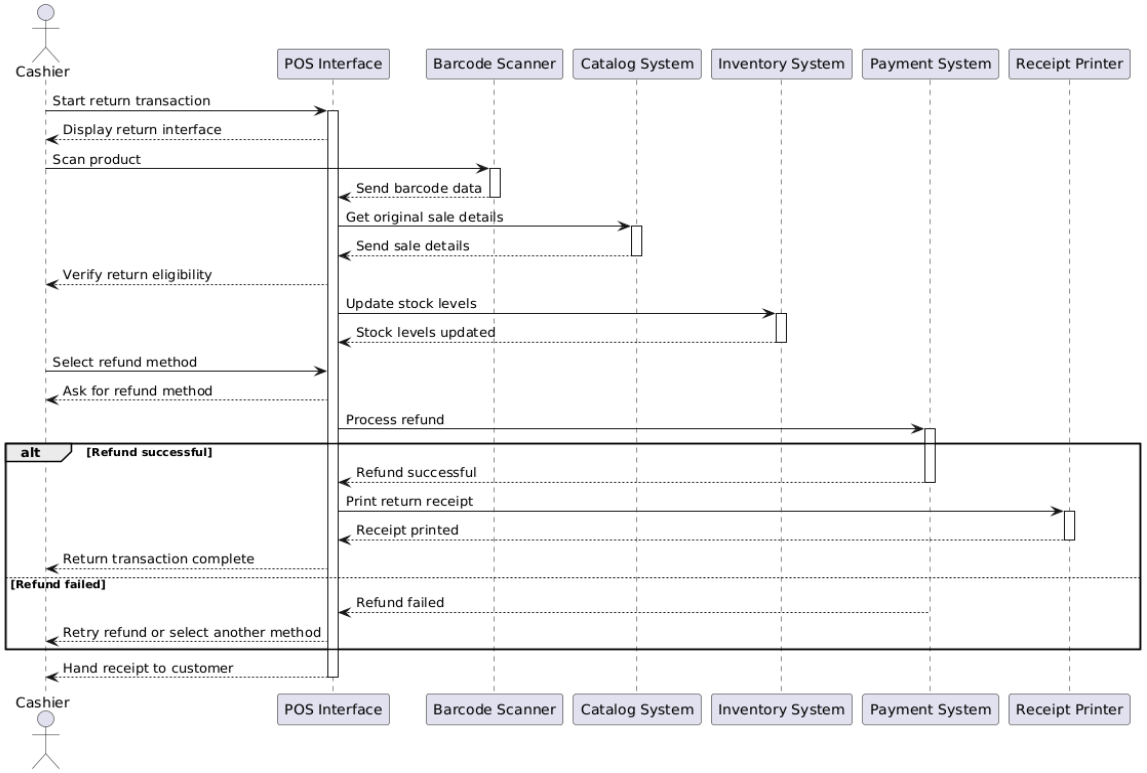
- Sale Controller
- Payment Controller
- Return Controller

Develop Sequence Diagrams

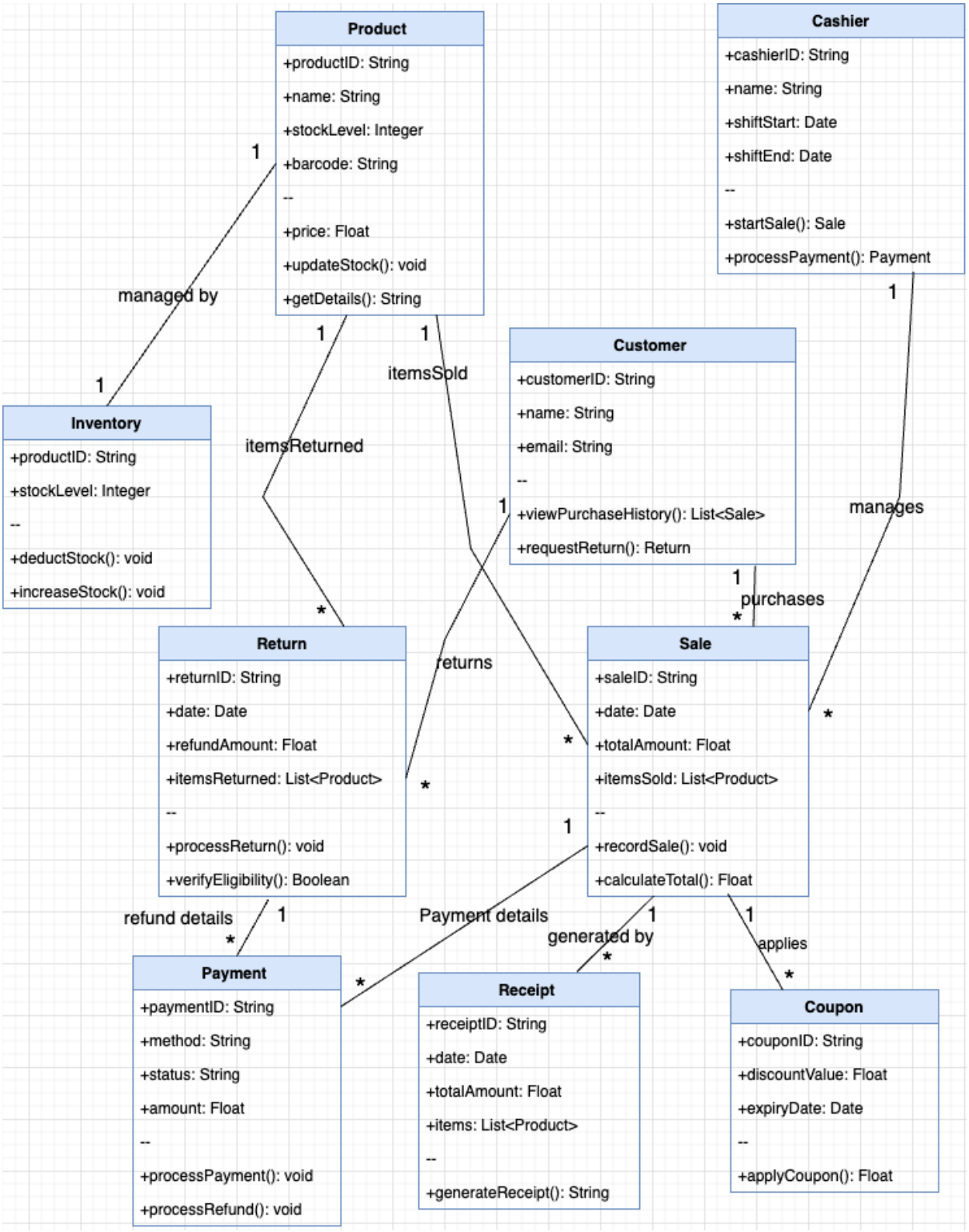
Process Sale:



Handle Return:

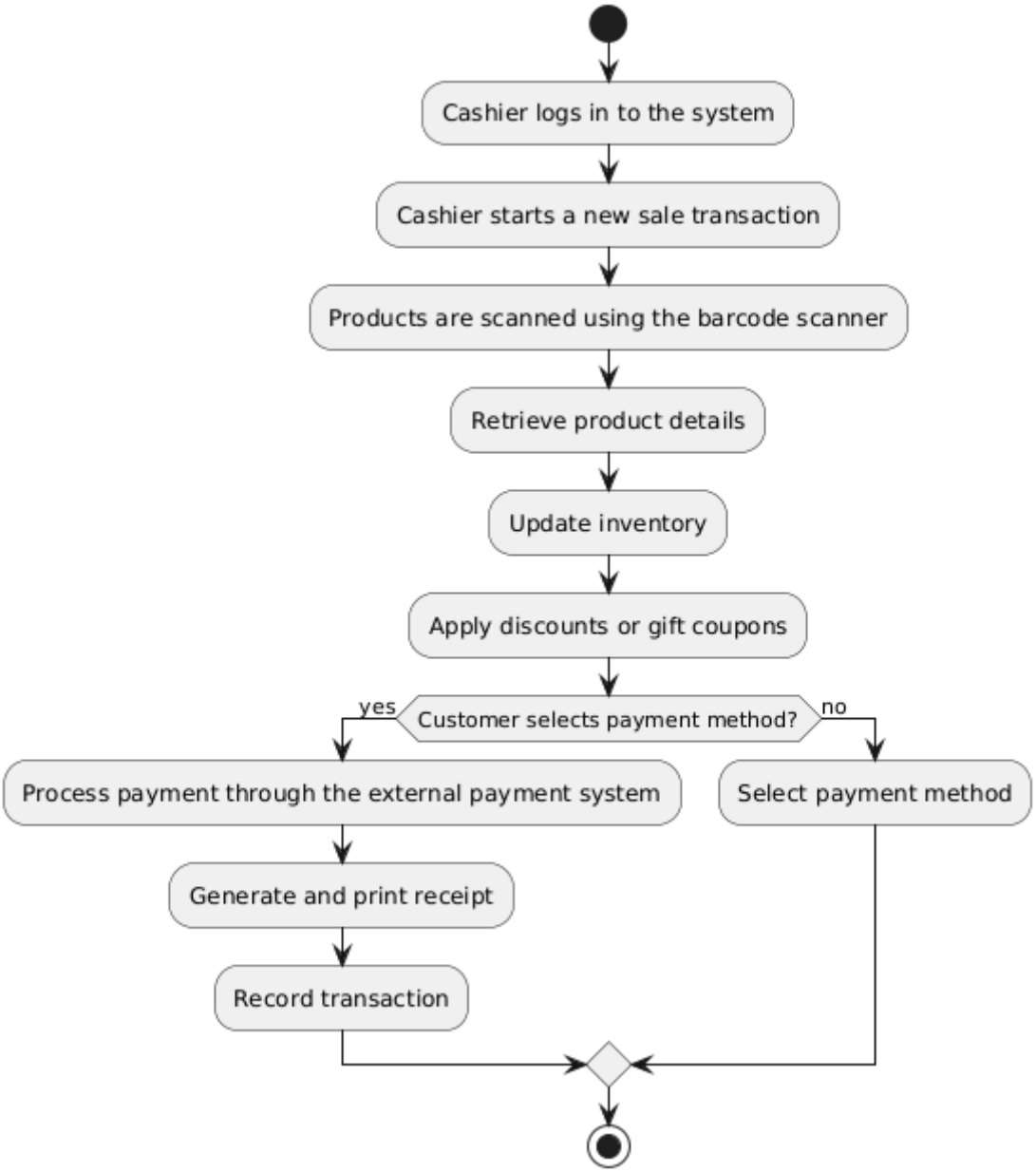


Develop Analysis Domain Models

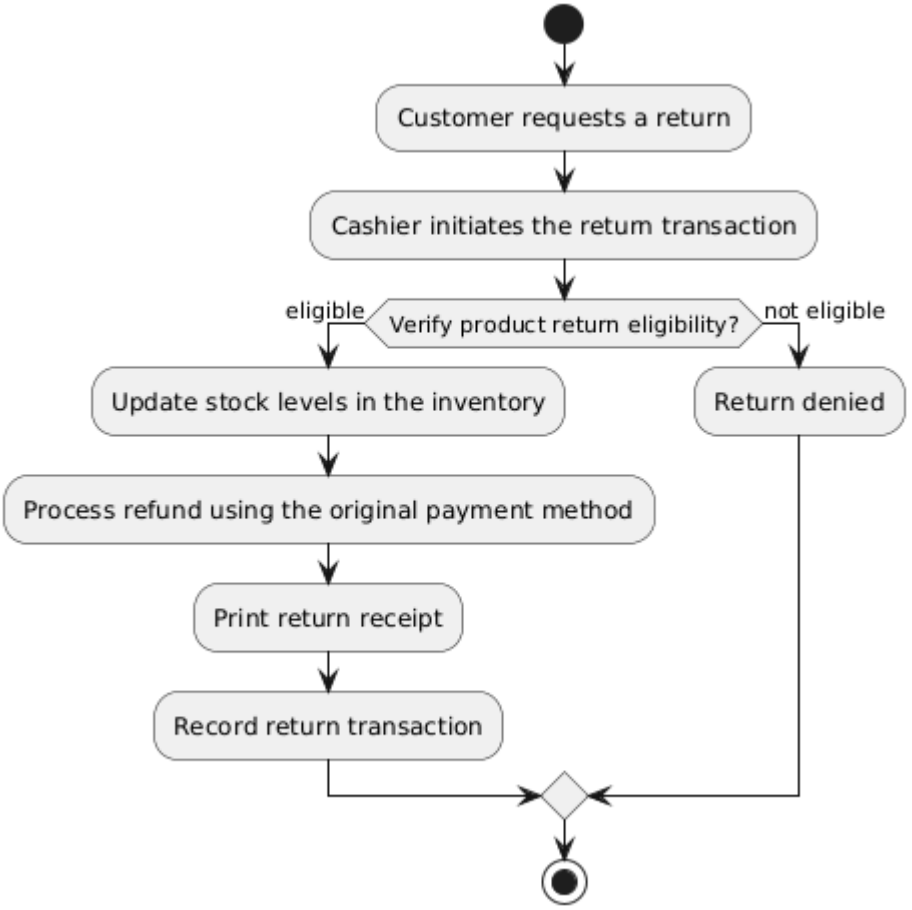


Develop activity diagram for "Process Sale" and "Handle Return" use cases

Process Sale:



Handle Return:



Thank You