

IT314 Lab : Modeling Class Diagram and Activity Diagram (Point of Sale System)

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Use Cases : Process Sale

Primary Actor: Cashier

Preconditions: 1) Cashier should be logged into the system.

2) Customer is at the POS terminal to buy the product/s.

Success End Condition:

→ The transaction has been recorded and the inventory is updated also with the printing bill of the products purchased.

Basic Flow for Processing a Sale:

1. A customer arrives at the POS counter with products they want to buy.
2. The cashier initiates a new sale.
3. The cashier scans the product barcodes.
4. The system retrieves the product details and prices from the catalog.
5. Steps 3 and 4 are repeated for all products in the transaction.
6. The total amount is calculated by the POS system.
7. The customer selects a payment method.
8. The payment is processed, and the inventory is updated accordingly.
9. A receipt is printed.
10. The customer leaves with their purchased goods and receipt.

Extensions:

→If the barcode is unreadable, the cashier can manually input it.

→If the customer decides to cancel the purchase, the cashier can void the transaction.

Use Case: Handling Returns

Primary Actor: Cashier

Preconditions:

→The cashier is logged in and authorized.

→The customer has a valid receipt or the item to return.

Successful Outcome:

→The item is returned, and stock levels are updated.

Basic Flow:

1. A customer approaches the POS to return an item.
2. The cashier starts a return transaction.
3. The cashier scans the barcode from the receipt or item.
4. The system retrieves the item's details (e.g., name, price, purchase date).
5. The cashier confirms the item is returnable (e.g., within the return policy window).
6. The system processes the return and adjusts the stock.
7. The customer receives a refund or store credit.
8. The system generates a return receipt.

Extensions:

→If the item or receipt has no barcode, a manual lookup is required.

→If the return is outside the permitted period, the request can be declined.

Entity/Boundary/Control Objects**Process Sale****Entity Objects:**

→Product

→Sales Transaction

→Receipt

→Stock

→Payment

Boundary Objects:

→Cashier Interface

→Barcode Scanner

→Card Reader

→Printer

Control Objects:

→SaleController

→PaymentController

→StockManager

Handle Return

Entity Objects:

- Product
- Return Transaction
- Stock
- Receipt

Boundary Objects:

- 1.Cashier Interface
- 2.Barcode Scanner
- 3.Printer

Control Objects:

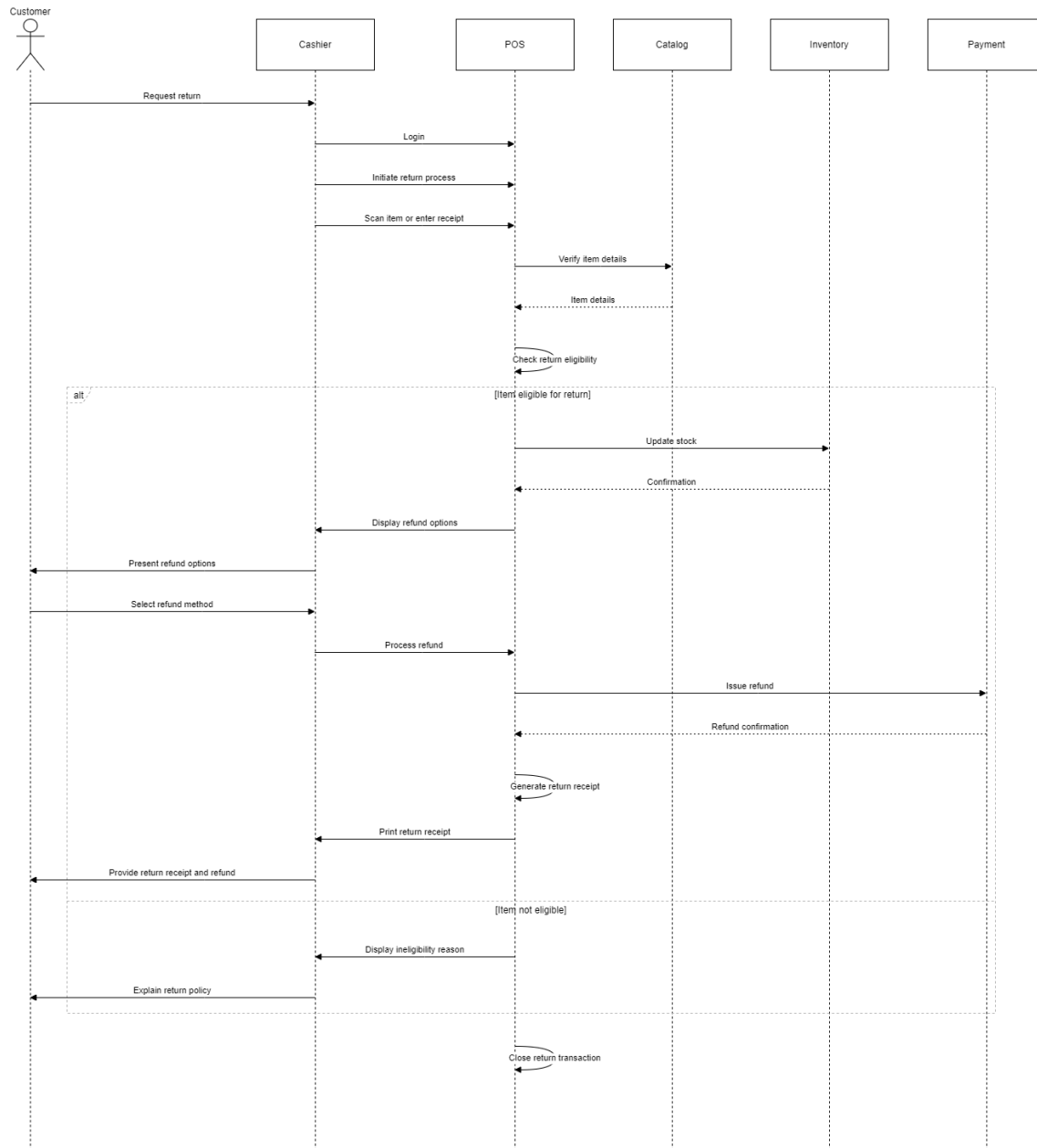
- 1.ReturnController
- 2.StockManager
- 3.RefundProcessor

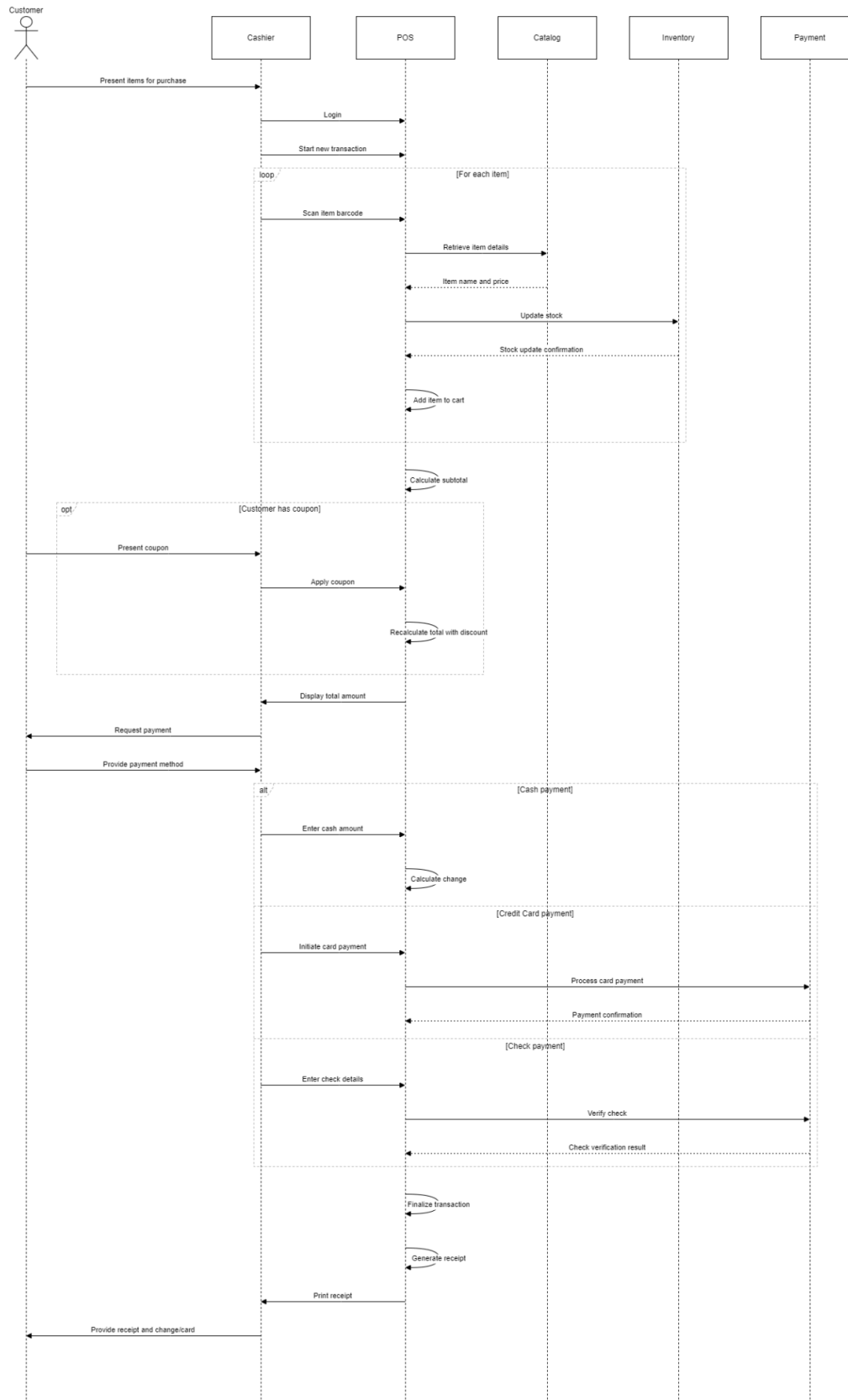
Sequence Diagram: Process Sale

1. The cashier begins a sale transaction.
2. The POS prompts for the product barcode.
3. The barcode scanner sends the scanned item information to the POS.
4. The POS retrieves item details from the catalog system.
5. Steps 2-4 are repeated for each item.
6. The POS calculates the total amount.
7. The customer pays, and the POS interacts with the payment system.
8. The inventory system adjusts the stock count.
9. The POS prints the receipt.

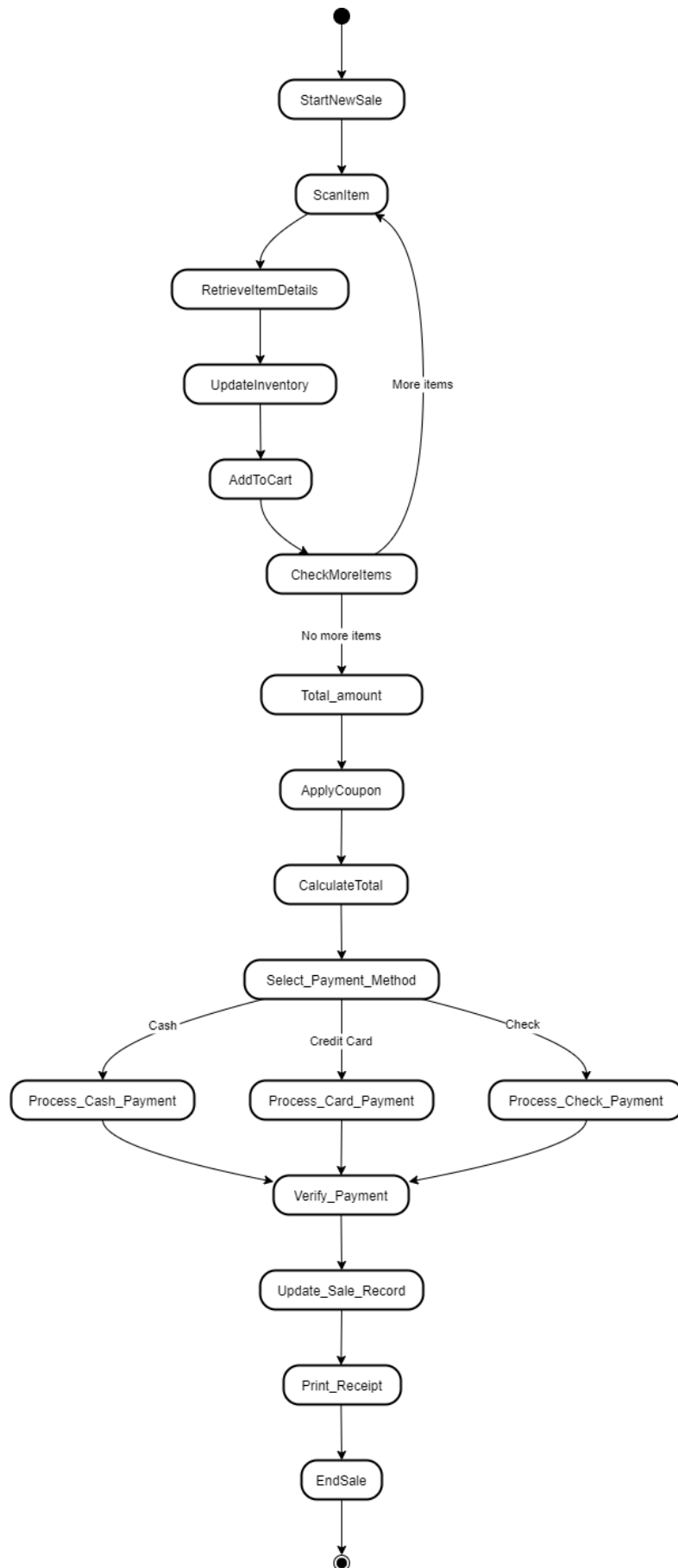
Sequence Diagrams:

Handle returns and process sales :

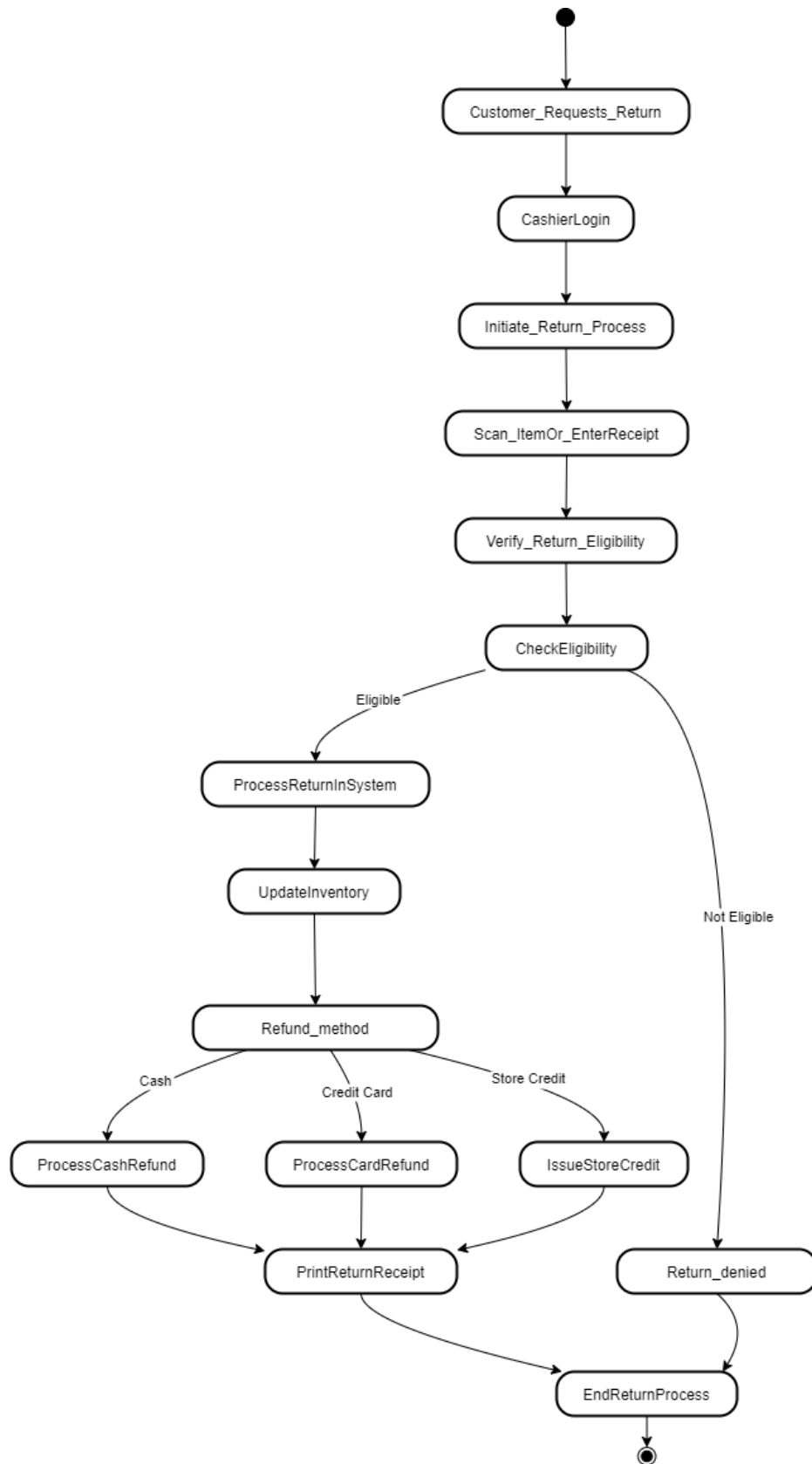




Activity Diagrams:
Process sale:



Handle return:



Analysis domain model:

Class Diagram:

