

Lab6

Modeling Class Diagram and Activity Diagram (Point of Sale System)

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Process Sale:

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

Use Case: Process Sale

Actors: Cashier, POS system, Bank

Preconditions:

- The cashier is logged into the in-store Point of Sale (POS) system.
- The system has the latest inventory and pricing information.
- Payment systems (like card readers) are connected or offline-ready for cash transactions.

Basic Flow:

1. Customer arrives at the checkout point with products.
2. The cashier scans or manually enters the items being

Purchased into the POS system.

3. The POS system retrieves the price, description, and stock status from the stored database.
4. The cashier confirms the total price, including any applicable taxes or discounts and the system calculates the running total of the price of the items being scanned.
5. The system calculates the final amount based on locally stored tax and discount rules.
6. The cashier tells the final amount to the customer
7. Customer selects a payment method and the cashier processes the payment.
8. Once the payment is successful, the system deducts the no. of items bought by customer from the inventory.
9. The system prints a receipt for the customer.
10. The sale is recorded in the database.

Post Condition:

- The sale is recorded in the POS system.
- Inventory is updated.

Alternate Flow:

2.1 Barcode Scan Error: System shows a barcode scan error and cashier manually enters the code.

2.2 Remove an item: Cashier removes the item from the list and bill is updated.

7.1 Promotional Coupons: Customer presents a coupon to the cashier and the cashier enters/scans the code and the amount is updated.

7.2 Payment Failure: The customer is not able to make connection with the bank and is unable to pay through card. The cashier prompts the customer to pay through cash.

2. Identify Entity/Boundary Control Objects

Entity Objects:

- Product(goods)
- Inventory
- Cashier
- Customer
- Receipt
- Payment

Boundary Objects:

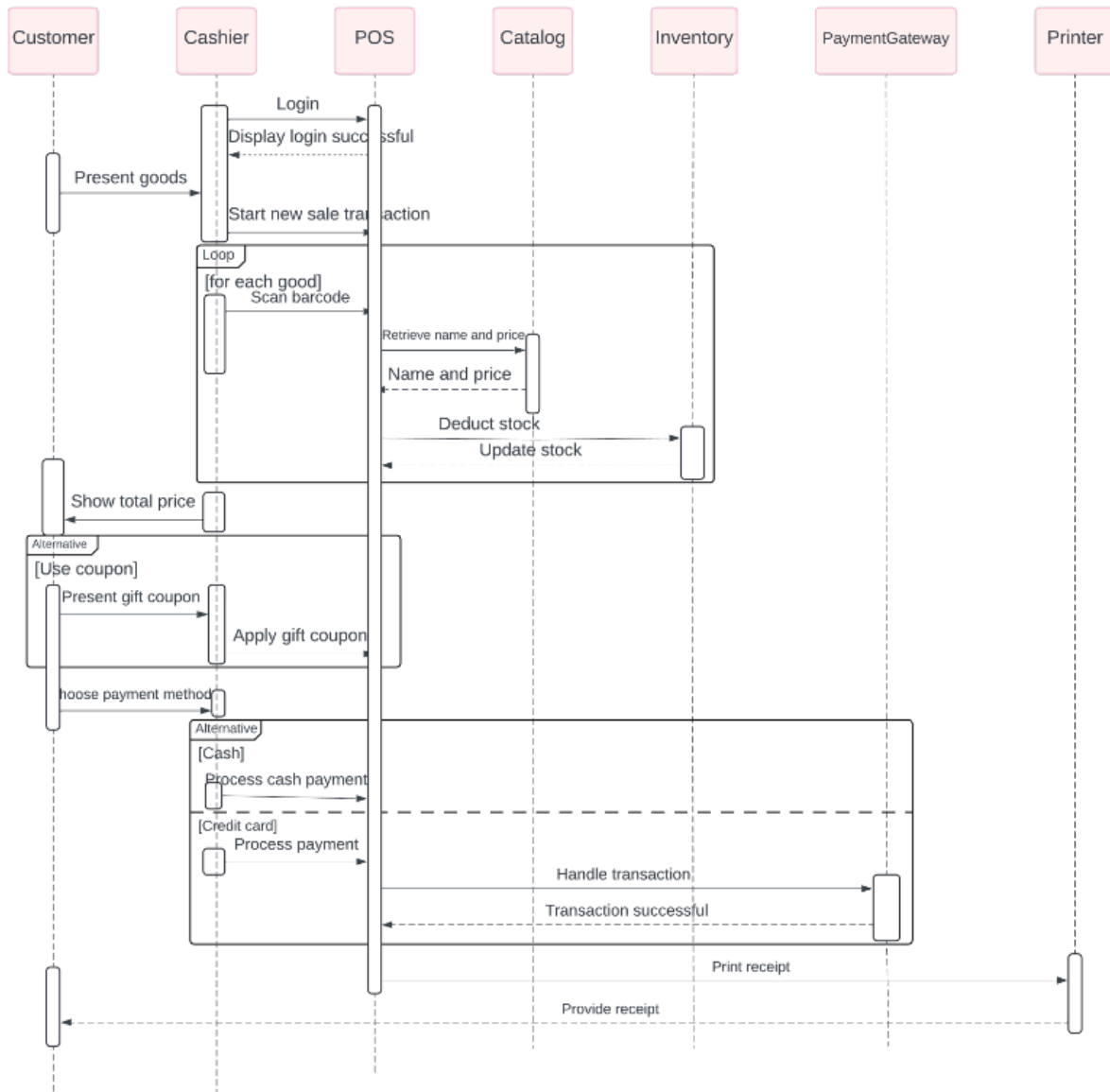
- POS interface

- Display
- Barcode Scanner

Control Objects:

- Inventory
- Payment Gateway

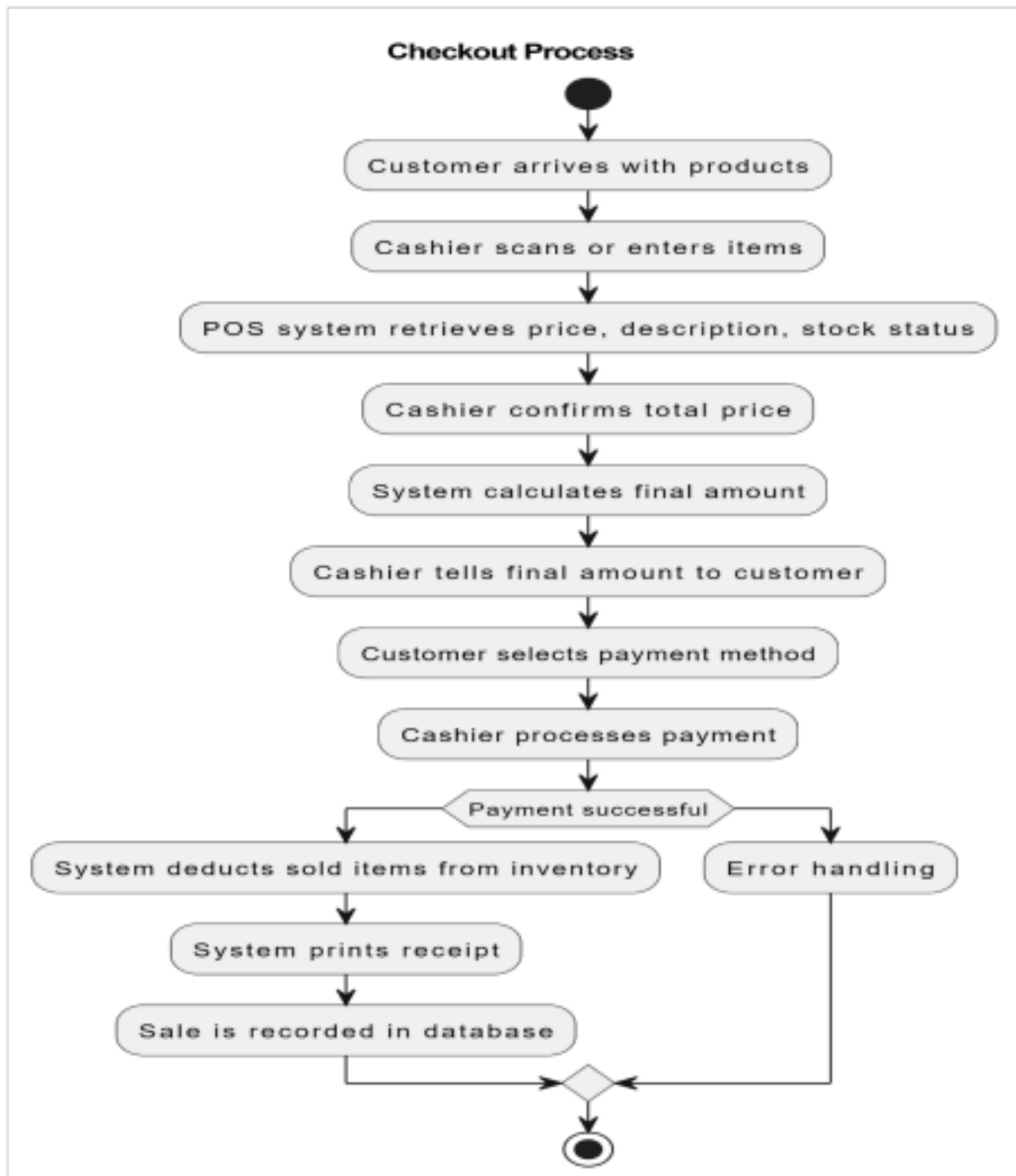
3. Sequence Diagram



4. Analysis Domain Model



5. Activity diagram



Handle Returns:

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

Use Case: Handle Returns

Actors: Cashier, POS System, Customer

Precondition:

- The POS system is operational.
- The customer provides a valid receipt or proof of purchase.
- Sales data is accessible.

Flow:

1. The customer requests a return.
2. The cashier manually searches for the sale in the local database using the receipt or transaction ID.
3. The system verifies if the items are eligible for return based on the store policy.
4. The cashier confirms the return and processes it.

5. The system calculates the refund based on the original transaction (refund will likely be cash-based).
6. The system updates the inventory and stores the return transaction locally.
7. A return receipt is printed for the customer.

Postcondition:

- The return is recorded in the database.
- Inventory is updated.

Alternate Flow:

2.1 Product Not Found in the System:

The system prompts an error indicating the product cannot be found in the database, and the cashier manually verifies the purchase receipt.

3.1 No Receipt Available:

The customer does not have a receipt, so the cashier requests alternate proof of purchase (e.g., card transaction history, etc.).

4.1 Item Condition Not Acceptable:

The item is damaged or not in return condition, and the cashier informs the customer of the return policy.

5.1 Partial Refund or Exchange:

Instead of a full refund, the customer opts for an exchange or partial refund based on the store's return policy.

7.1 System Error During Refund:

A system error occurs during the refund process, and the cashier manually processes the refund.

2. Identify Entity/Boundary Control Objects

Entity Objects:

- Customer
- Cashier
- Backend Catalog
- Refund
- Return

- Receipt
- Product

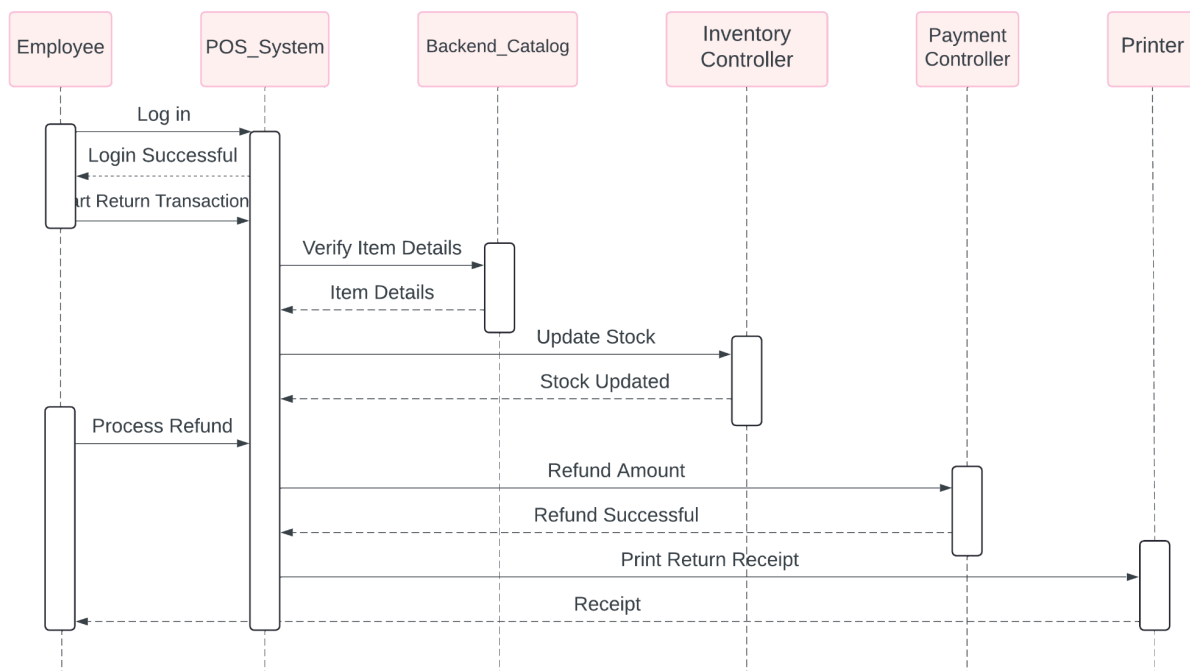
Boundary Objects:

- POS Interface
- Display

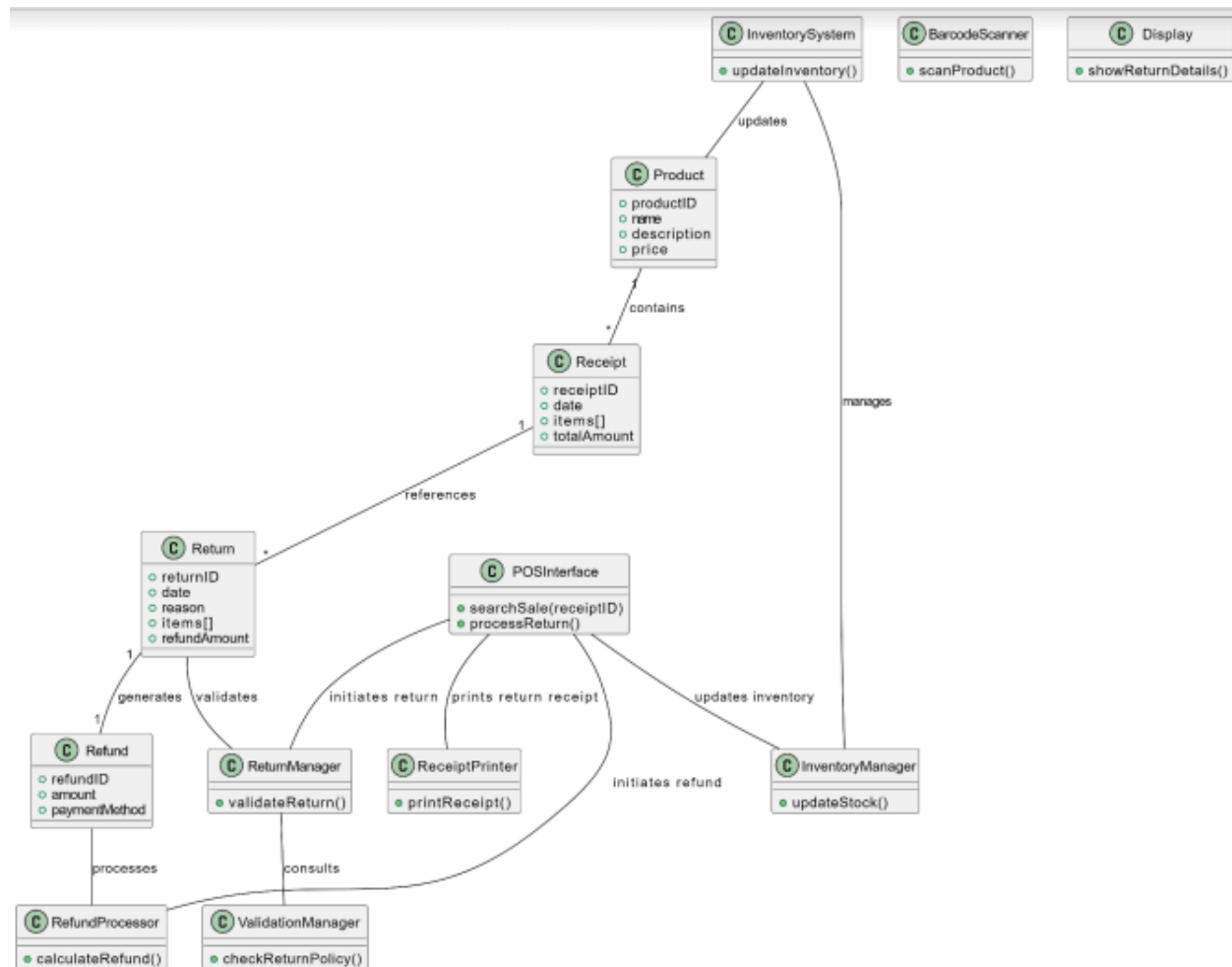
Control Objects

- Payment Controller
- Inventory Controller

3. Sequence Diagram



4. Analysis Domain Model



5. Activity diagram

