



IT-314 Software Engineering
LAB 6-Point of scale system

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Use Case 1: “Process Sale”

Actor:

- Cashier

Preconditions:

- The POS system is active and functional.
- The cashier is authenticated and logged into the system.

Postconditions:

- The sale is logged in the system.
- The inventory is updated to reflect the transaction.
- The customer is issued a receipt.

Basic Flow:

1. The customer brings items to the checkout.
2. The cashier initiates a new sale in the POS system.
3. For each item:
 - The cashier scans the item's barcode.
 - The system retrieves item details (name, price) from the database.
 - The system adds the item to the current transaction.
4. The system calculates and displays the total amount due.
5. The cashier informs the customer of the total.
6. The customer selects a payment method (cash, credit card, or mobile payment).
7. The cashier processes the payment via the POS system.
8. The system logs the sale and updates the inventory.
9. The system generates a receipt.
10. The cashier hands over the receipt and purchased items to the customer.

Alternative Flows:

- **3b. Manual Entry:** If the barcode is unreadable, the cashier manually enters the item's SKU or searches for it in the system.
- **5a. Apply Discount:**
 - The customer presents a coupon or discount code.
 - The cashier applies the discount to the transaction.
 - The system recalculates the total amount due.
- **6a. Payment Declined:**
 - If the payment method is declined, the cashier informs the customer.
 - The customer selects an alternate payment method or cancels items.
- **7a. Cancel Transaction:**
 - At any point before finalization, the customer may cancel the transaction.
 - The cashier cancels the transaction in the system.
 - The system voids the sale and restores the inventory.

Use Case 2: “Handle Return”

Actor:

- Cashier

Preconditions:

- The POS system is active and functional.
- The cashier is authenticated and logged into the system.
- The customer has items to return and the original purchase receipt.

Postconditions:

- The return is processed and logged in the system.
- The inventory is updated to reflect the returned items.
- The customer receives a refund and a return receipt.

Basic Flow:

1. The customer approaches the counter with the items to return and the original receipt.
2. The cashier starts a new return transaction in the POS system.
3. The cashier scans the items being returned.
4. The system checks if the items are eligible for return (e.g., within the return period, item condition).
5. The system calculates the refund amount.
6. The cashier confirms the reason for the return with the customer.
7. The system updates the inventory to reflect the return.
8. The cashier processes the refund using the original payment method.
9. The system records the return transaction.
10. The system generates a return receipt.
11. The cashier provides the return receipt to the customer.

Alternative Flows:

- **3a. Manual Entry:** If the scanner is unavailable, the cashier manually enters the item details into the system.
- **4a. Ineligible Item:**
 - The system notifies the cashier if an item is not eligible for return.
 - The cashier informs the customer.
 - The customer either proceeds with the return for eligible items or cancels the return.
- **7a. Damaged or Used Item:**
 - The cashier inspects the item for damage or signs of use.
 - The system applies a restocking fee or adjusts the refund.
 - The cashier informs the customer of the modified refund.
 - The customer decides whether to proceed with the return.
- **8a. Unavailable Original Payment Method:**
 - If the original payment method is unavailable for a refund, the cashier selects an alternate method (e.g., store credit).
 - The system processes the refund with the alternative method.

Object Identification

Entity Objects:

1. **Cashier**
2. **Receipt**
3. **Discount.**

Boundary Objects:

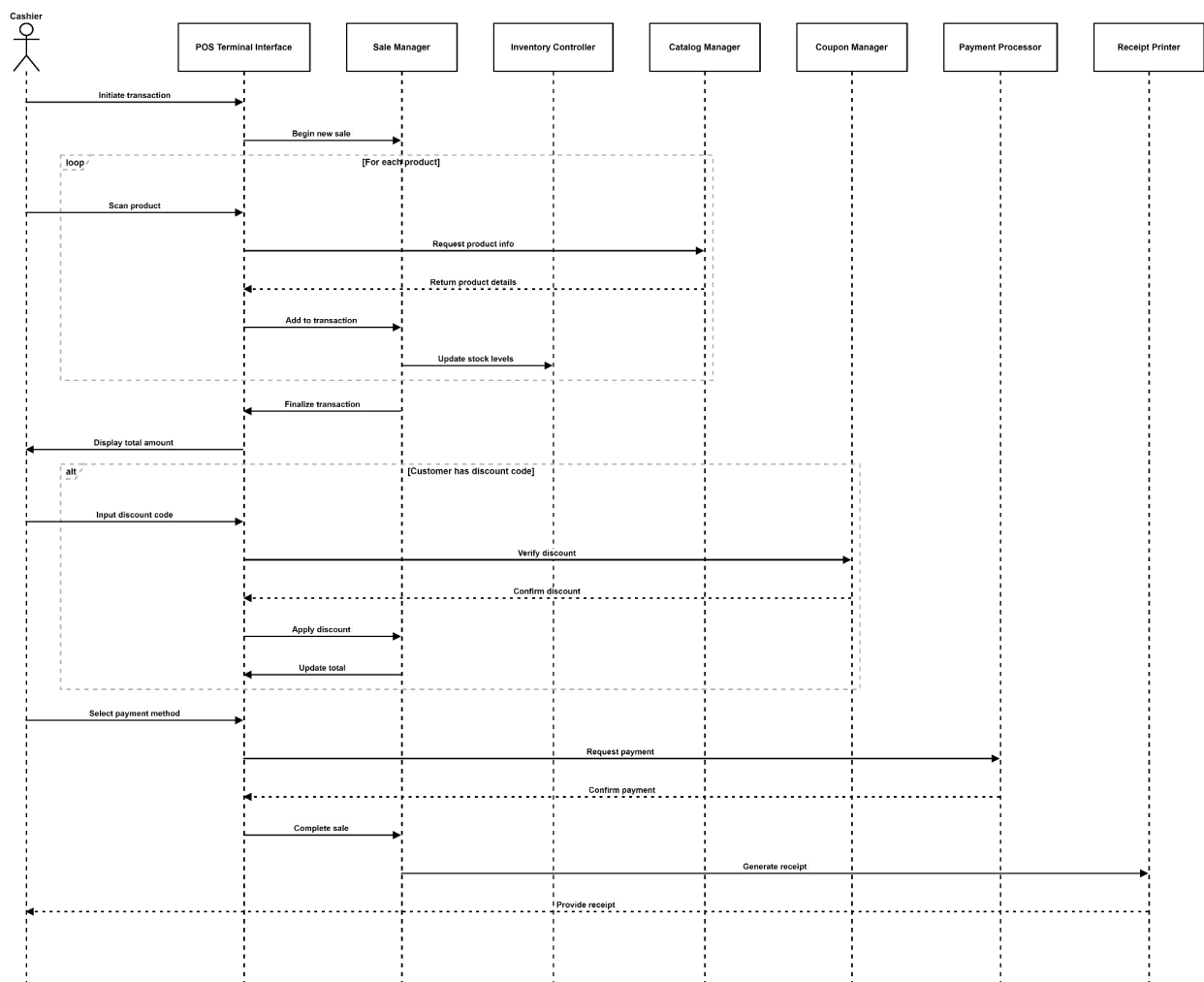
1. **POS Terminal**
2. **Barcode Scanner**
3. **Payment Terminal**

Control Objects:

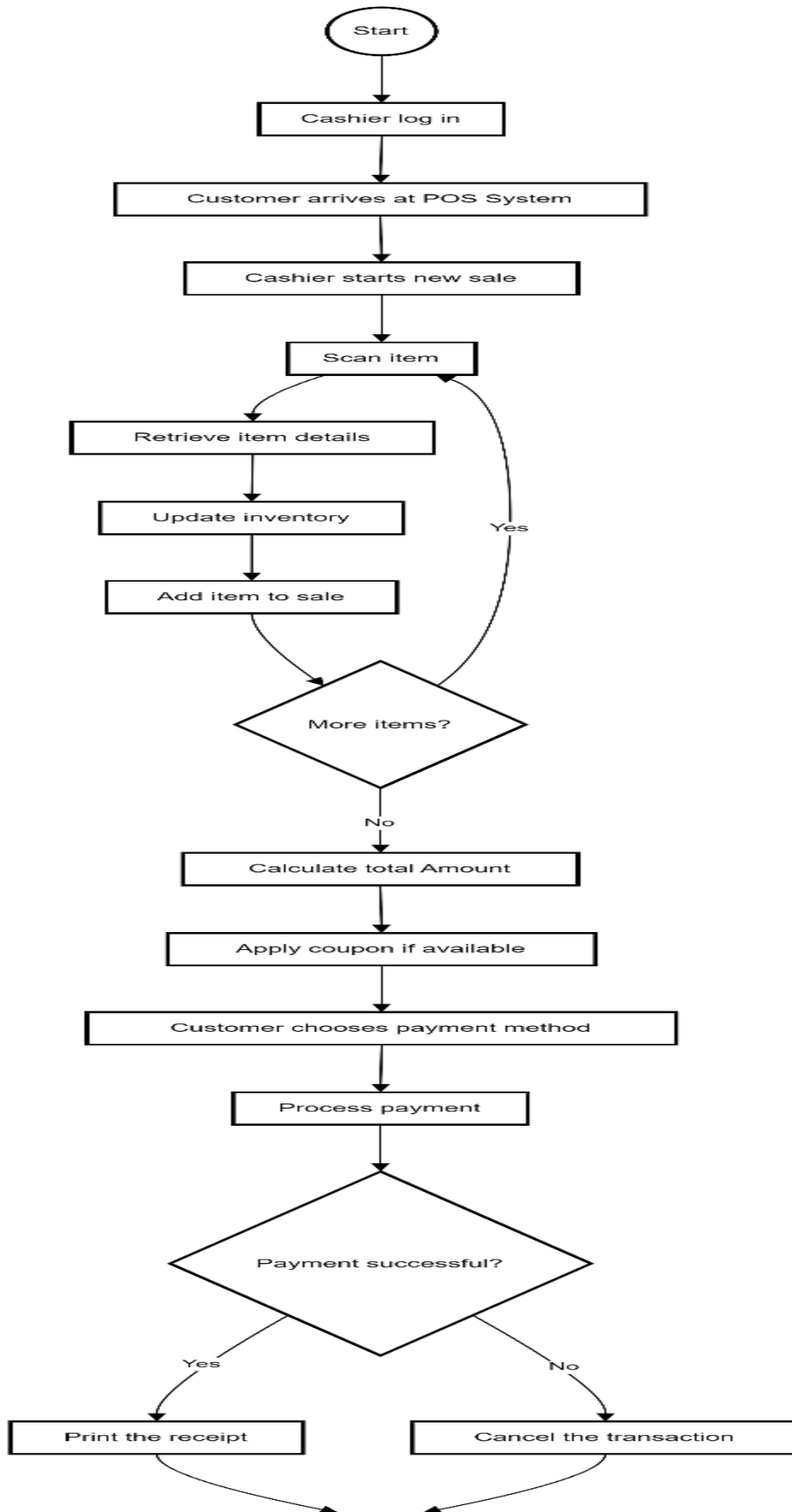
1. **Sales Management System**
2. **Return Management System**
3. **Inventory Management System**
4. **Payment Processor**
5. **Product Verification System**
6. **Receipt Generation System**

● For “Process sale”

Sequence Diagrams

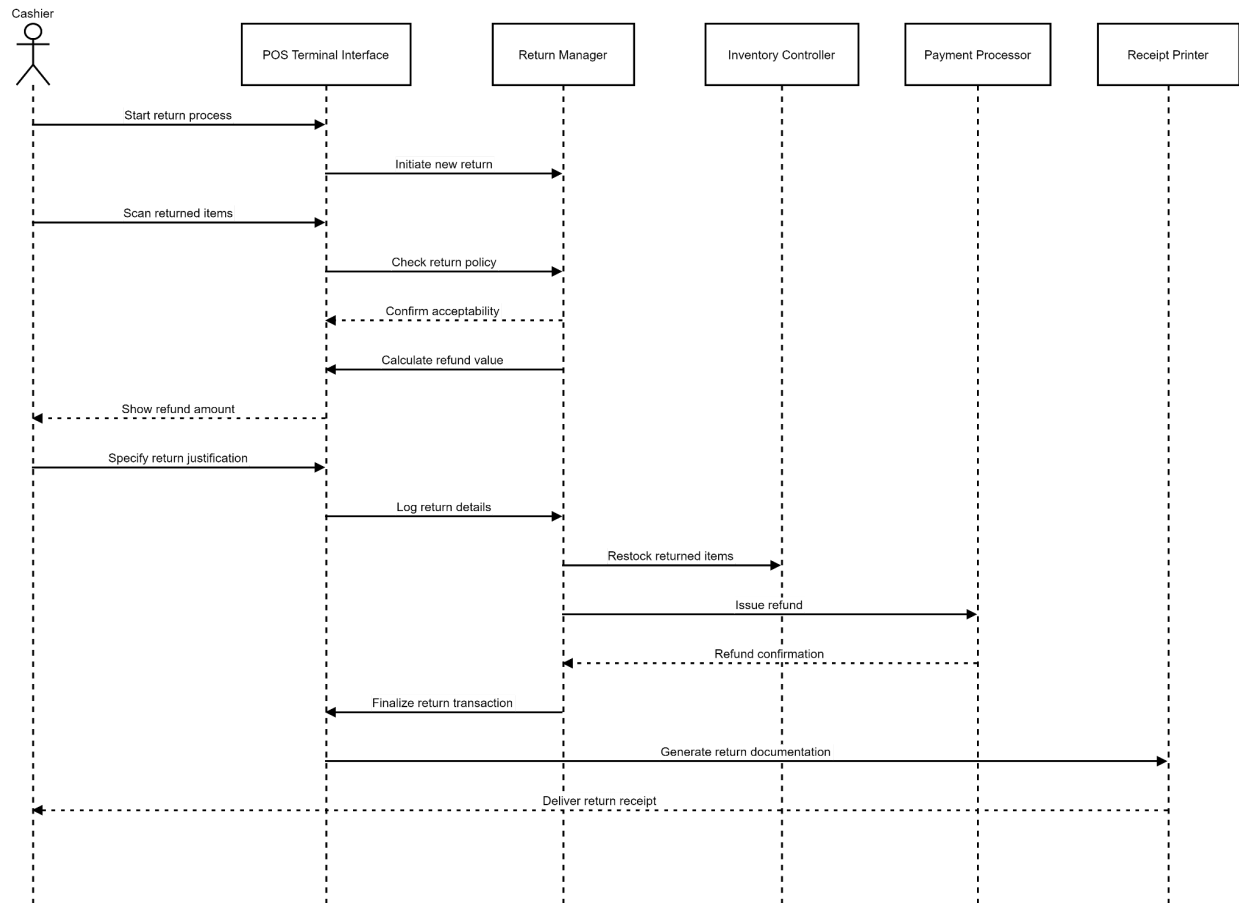


Activity Diagram

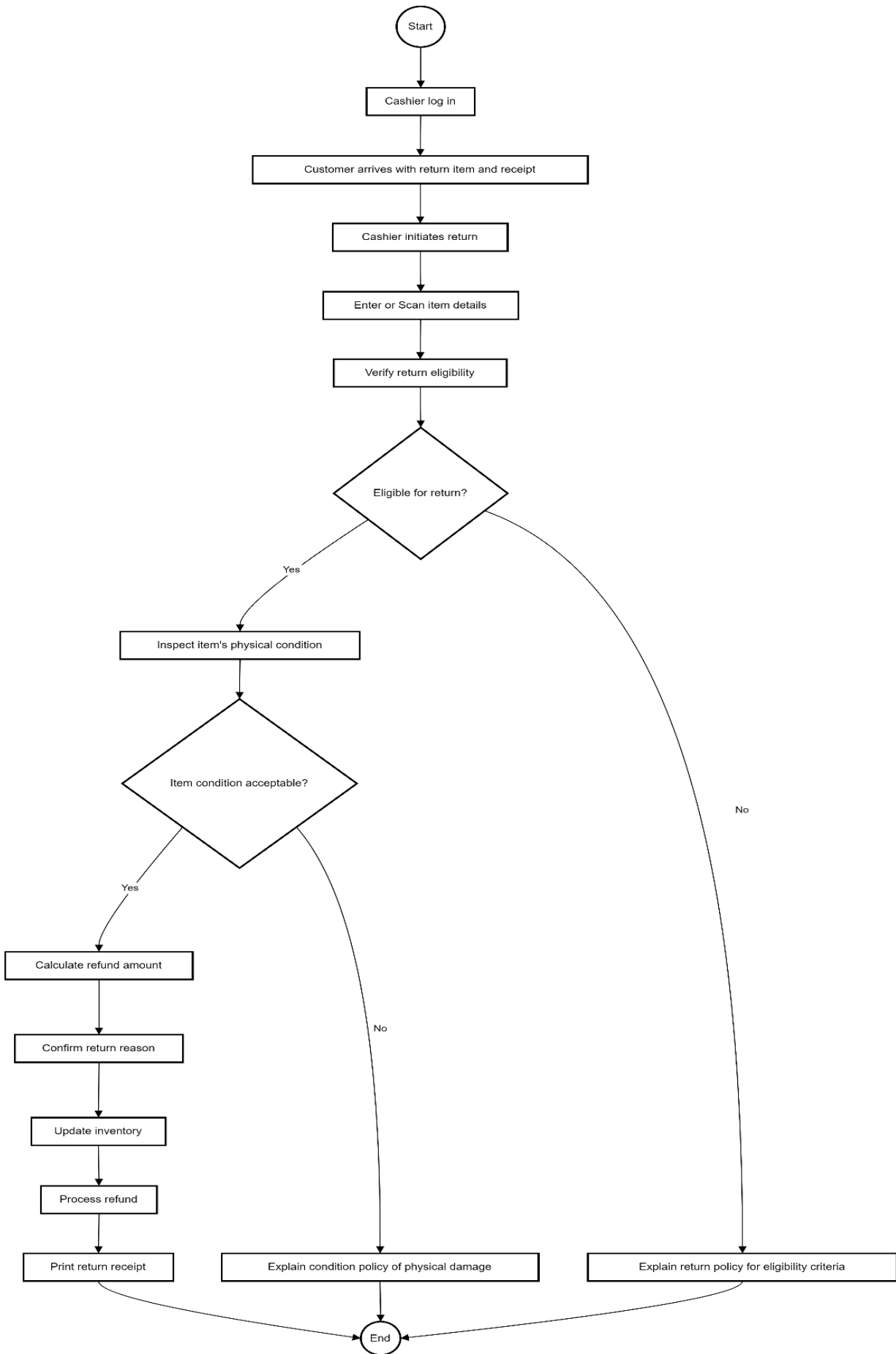


● For “Handle Returns”

Sequence Diagram



Activity Diagram



● Develop Analysis Domain Models

