



**Dhirubhai Ambani
Institute of Information and Communication Technology**

SOFTWARE ENGINEERING (IT314)

LAB 6

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

Process Sale:

- A. Use case name: Process Sale
- B. Actor: Cashier
- C. Description: This use case outlines the procedure a cashier follows to complete a sale by scanning items, processing payment, and issuing a receipt.
- D. Precondition: The cashier must be logged into the system, which should be connected to both the catalog and inventory systems.
- E. Postcondition: The sale is successfully completed, inventory levels are updated, the payment is confirmed, and a receipt is printed for the customer.
- F. Main flow:
 - a. The cashier initiates a new sale transaction and begins scanning the barcodes of each product.
 - b. The system retrieves the product name and price from the catalog while simultaneously updating inventory.
 - c. This process continues for all scanned items until the total amount due is calculated.
 - d. The cashier inquires about the customer's preferred payment method: cash, credit card, or debit card.
 - e. The system processes the payment and confirms its approval.
 - f. A receipt is generated by the system, which the cashier then hands to the customer.
- G. Alternative Flow:
 - d1. If the customer has coupons:

The cashier verifies the validity of the coupons, and the system applies the applicable discounts.
 - d2. If the payment method is credit or debit card:

The system connects to the payment processing gateway for authorization and completes the transaction.
- H. Exception Flow:
 - e1. If the payment declined:

The system alerts the cashier, who then asks the customer for an alternative payment method.

Handle Returns:

- A. Use case name: Handle returns
- B. Actor: Cashier
- C. Description: This use case details the process a cashier follows when a customer returns items for a refund or exchange.
- D. Precondition : The cashier is logged into the system, which is connected to both the inventory and catalog systems, and the customer must have the receipt for the item being returned.
- E. Postcondition: The inventory is updated, the customer receives a refund, and a refund receipt is generated.
- F. Main Flow:
 - a. The customer requests a refund for an item, and the cashier verifies the return using the provided receipt.
 - b. The system retrieves the transaction details and displays the items eligible for return.
 - c. The cashier selects the specific products to be refunded.
 - d. The system updates the inventory levels and calculates the total refund amount.
 - e. The cashier inquires how the customer prefers to receive the refund: either as cash or store credit.
 - f. The system processes the refund and generates a receipt, which the cashier hands back to the customer.
- G. Alternative flow:
 - a1. If the customer does not have the receipt:
The cashier searches for the transaction using the customer's details.
 - d1. If the customer opts for store credit:
The system issues the corresponding amount of store credit to the customer's account.
- H. Exception Flow:
 - b1. If the transaction cannot be located:
The cashier informs the customer that the return cannot be processed, and the refund request is canceled.

2. Identify entity, boundary and control objects

Entity Objects:

- Customer
- Cashier
- Receipt
- Inventory

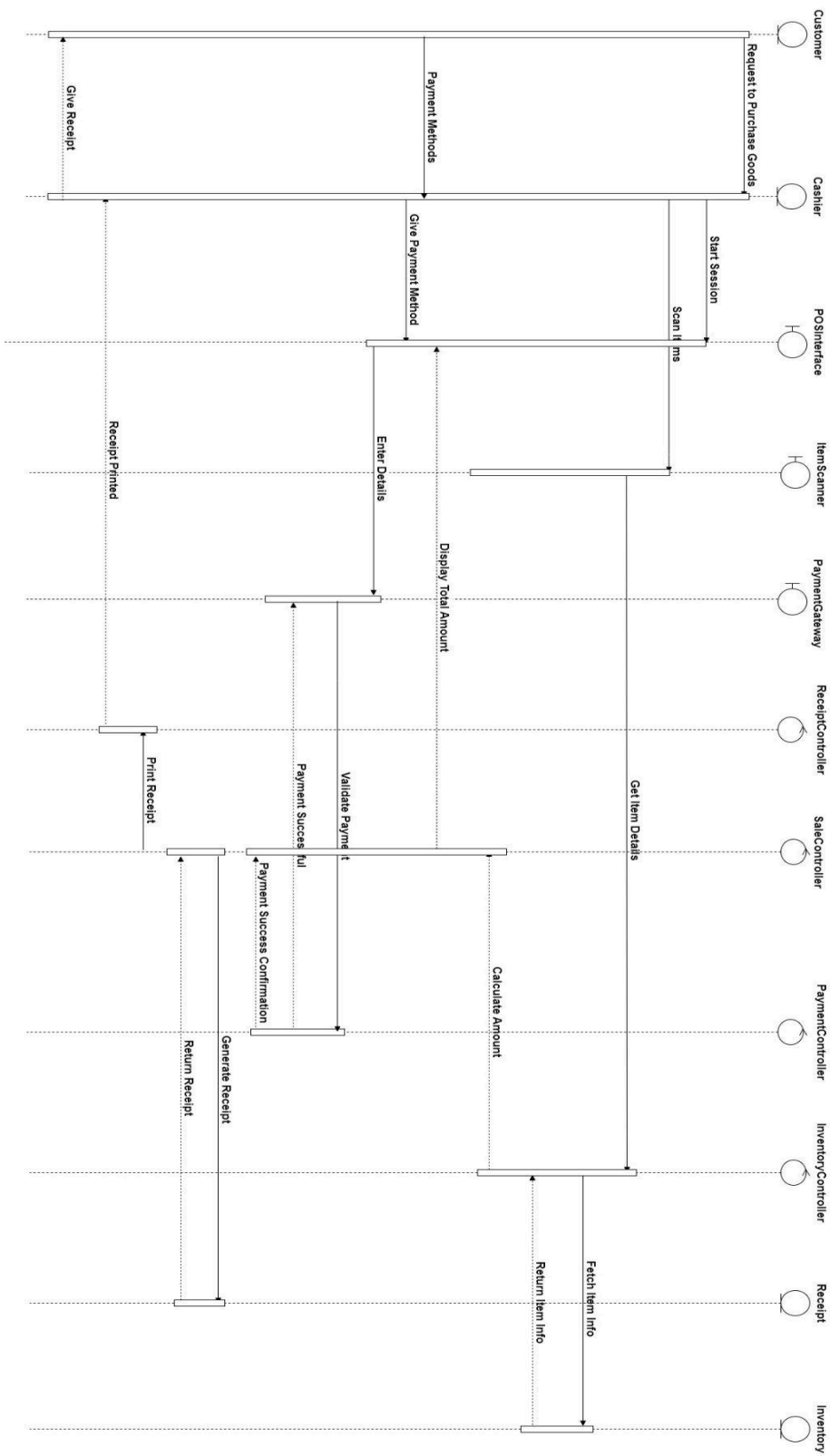
Boundary Objects:

- POSInterface
- ItemScanner
- PaymentGateway
- ReceiptGenerator

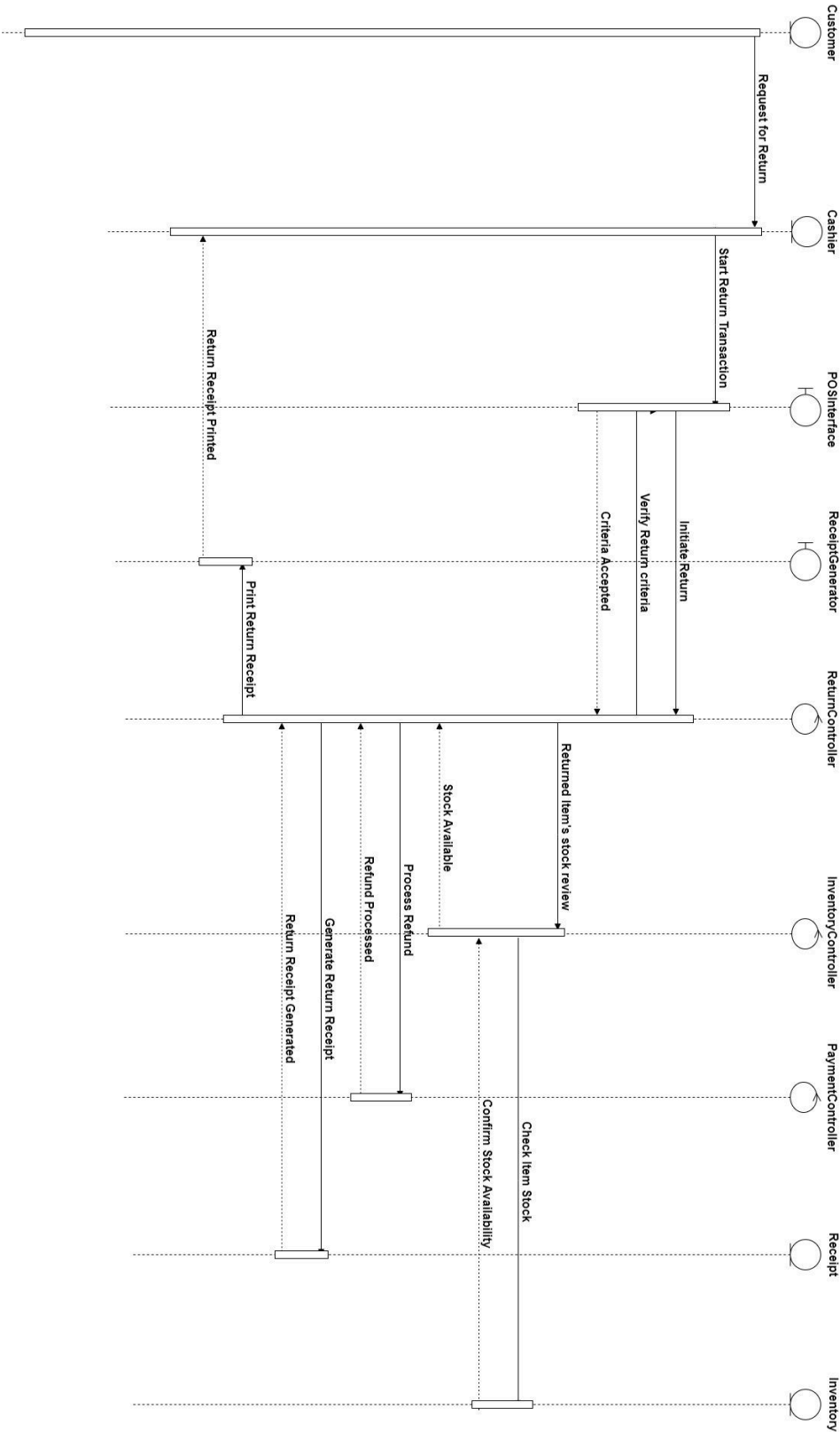
Controller Objects:

- SaleController
- PaymentController
- InventoryController

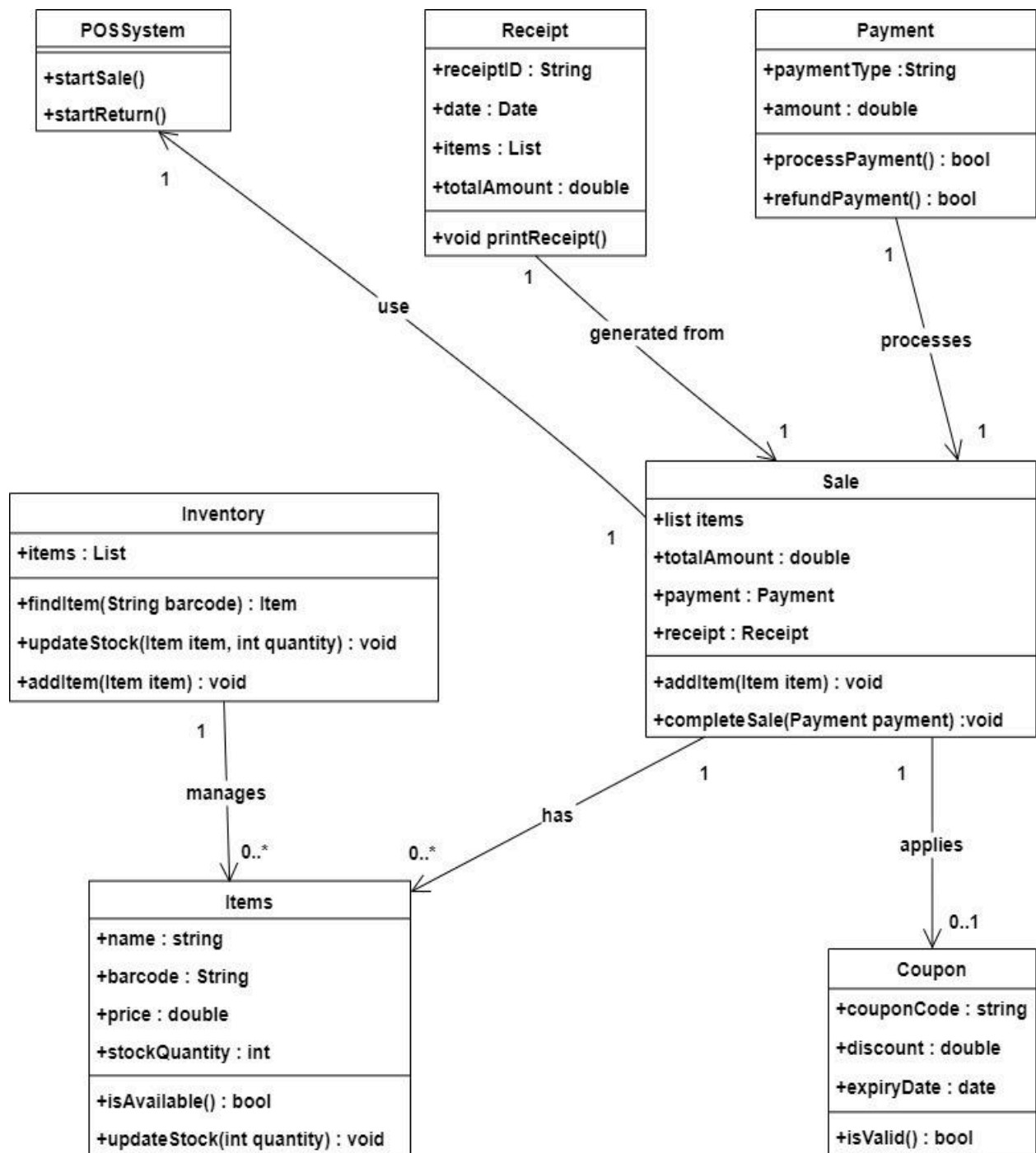
Process Sales :



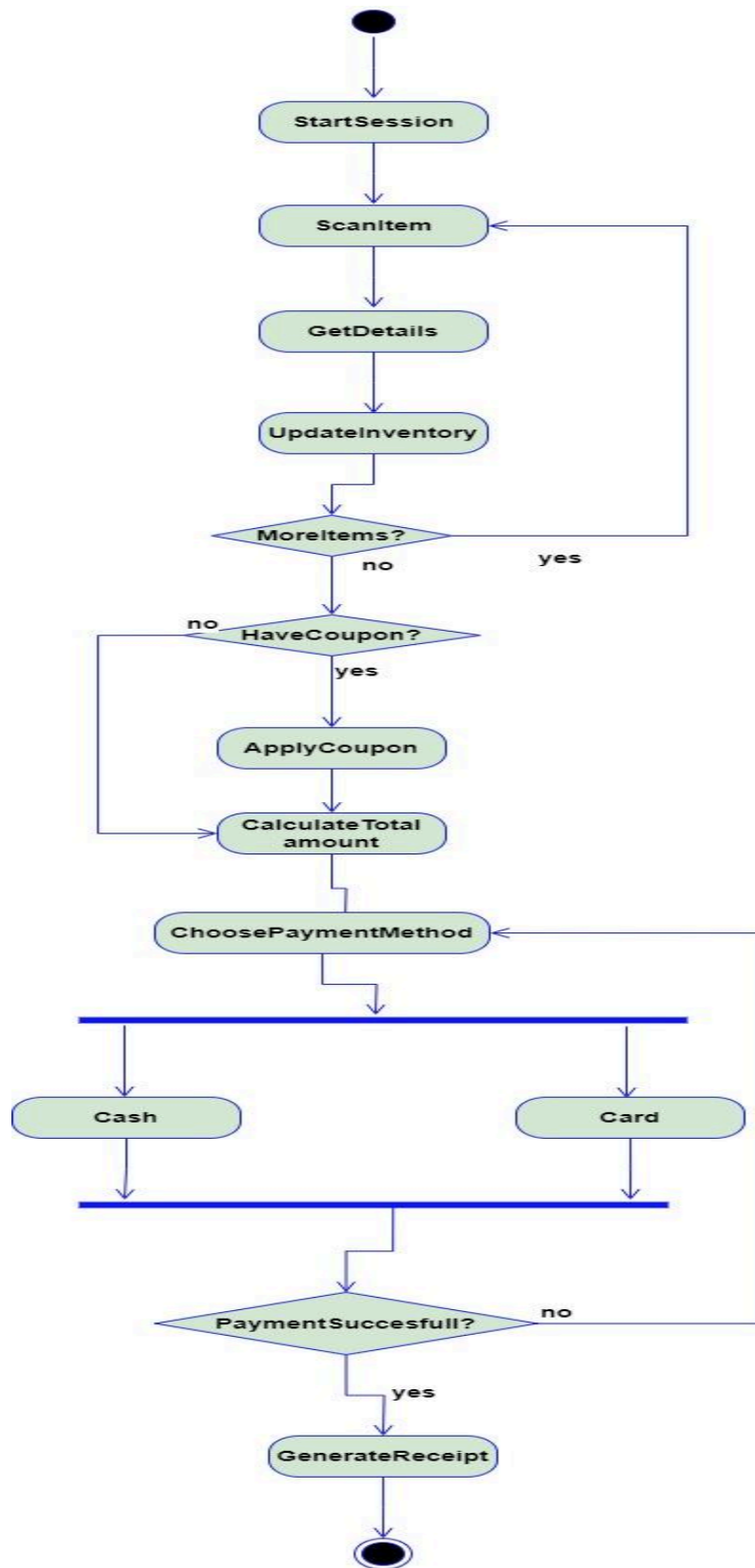
Handle Return :



3. Class Diagram



4. Activity Diagram: Process Sales



Handle Return:

