



Dhirubhai Ambani Institute of Information and Communication Technology

SOFTWARE ENGINEERING (IT 313)

LAB 6

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

Use case : Process Sale

Description : The cashier processes a sale transaction by scanning items, applying any applicable promotions, accepting payment, and printing a receipt.

Actors : Cashier

Preconditions :

- The cashier is logged into the POS system.

- Goods are available in the inventory.
- Product details are stored in the catalog system.

Main Flow :

- The cashier initiates a new transaction by selecting the “New Sale” option in the POS system.
- The cashier scans the barcode of each item the customer wants to purchase.
- For each scanned item, the system retrieves name, price and other related information to the product from the inventory database.
- The system deducts the quantity of selected items from the inventory.
- The cashier confirms the total amount adding each scanned item’s amount to the system.
- Apply coupon (if any)
 - The cashier enters a coupon code into the system.
 - System validates the coupon code.
 - If the coupon is valid, then it applies the discount to the total amount.
 - If the coupon is invalid, the system shows a “Coupon Invalid” message.
- The customer select a payment method (cash, card, etc)
 - If paying by cash, the cashier receives the cash and gives changes if necessary.
 - If paying by card (credit), the system securely processes the payment.
- Once the payment is confirmed, a receipt is printed, and the sale transaction is terminated.

Postconditions :

- A receipt is printed for the customer.
- The sale transaction is recorded into the system
- Inventory databases for sold items are updated.

Alternative flow:

- If the barcode scanner fails, the cashier enters the product details manually.
- If the payment is unsuccessful (e.g., credit card declined), the system prompts the cashier to request a different payment method or to try again.

[2] Use case Handle Return

Use Case Name: Handle Return

Description : The cashier processes a return of purchased items by verifying the item and issuing a refund.

Actor : Cashier

Preconditions:

- The cashier is logged into the POS system.
- The customer has to return the item, possibly with the receipt.

Main Flow :

- The cashier selects the "Return" option in the POS system to start the return process.
- The cashier scans the barcode of the item the customer wants to return.
- The system retrieves the name, price and return eligibility status from the inventory database.
- The system checks if the item is eligible for return (e.g., within the return period, undamaged, original packaging).
- If the product is eligible for return, then proceeds to the next step, otherwise it will show the product is "Not Eligible For Return".
- The cashier confirms the return, and proceeds the refund. The refund can be issued via cash, store credit, or returned to the credit card.
- A return receipt is printed to the customer.

Alternative Flow:

- If the item is not eligible for return, the cashier explains the return policy to the customer and offers alternatives (if any).
- If the item does not match any previous transaction, the cashier is notified, and the return is rejected.

Postconditions :

- A return receipt is printed for the customer.
- Inventory levels for the returned item are updated.
- The return transaction is recorded in the system.

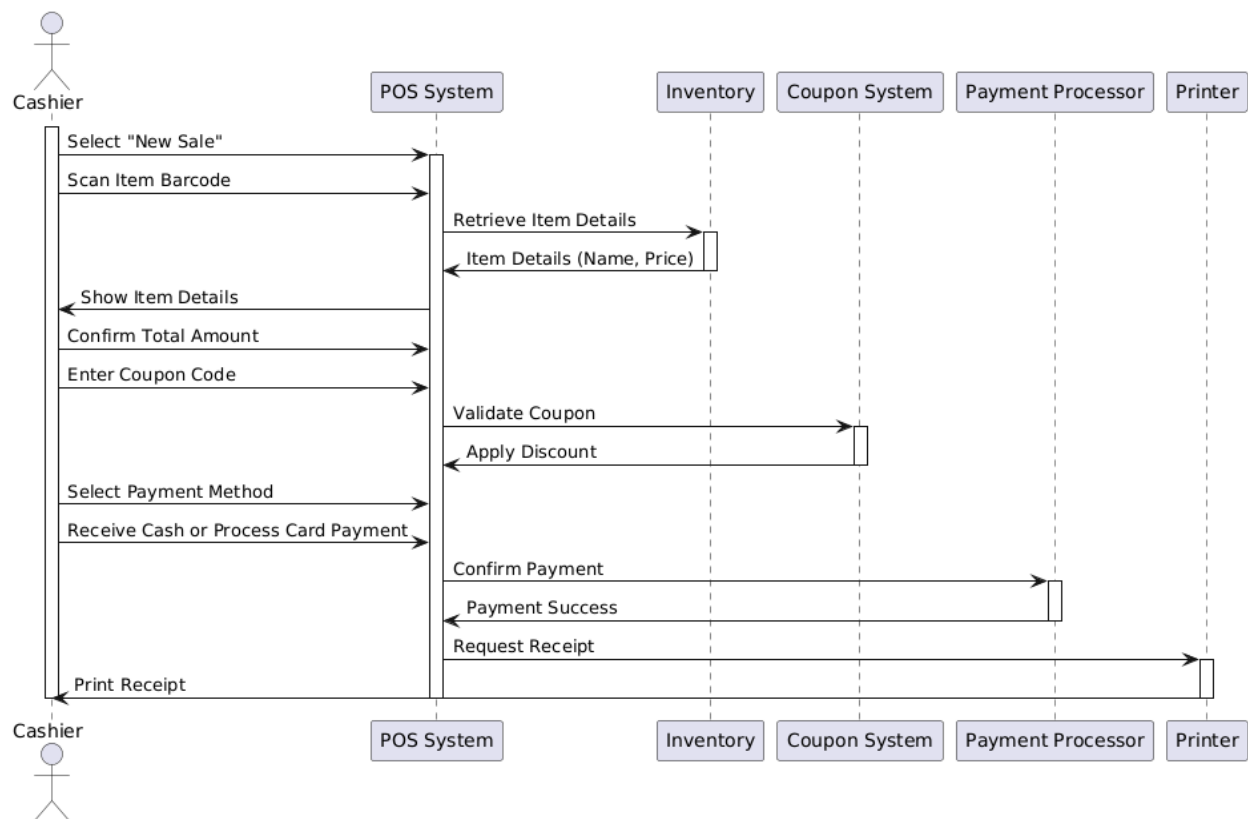
[Q.2] Identify Entity/Boundary Control Objects

- **Entity Objects**
 - Product
 - Payment
 - Coupon
 - Receipt

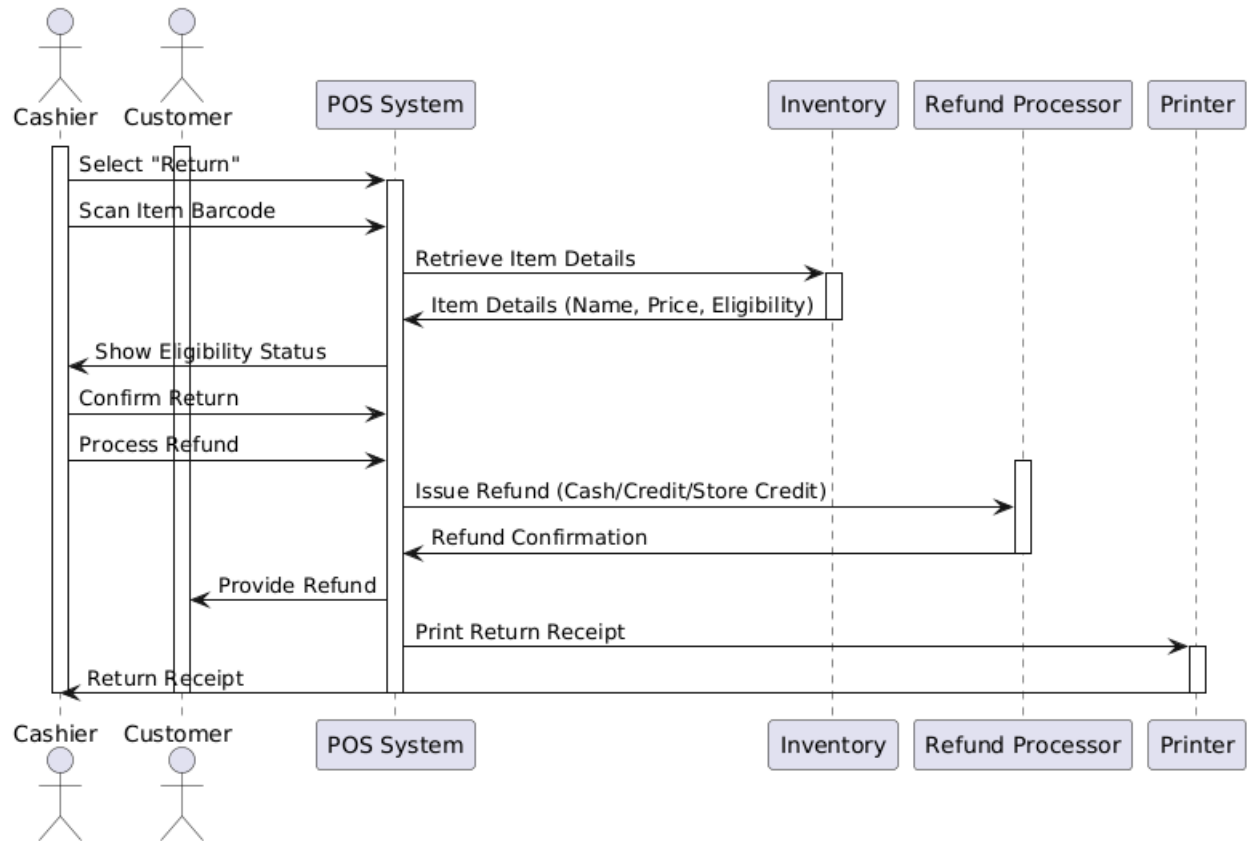
- **Boundary Objects**
 - POS interface
 - Inventory system
 - Catalog system
 - Printer (receipt printer)
- **Control Objects**
 - Sale controller
 - Return controller
 - Payment Process
 - Coupon manage

[Q.3] Develop Sequence Diagrams

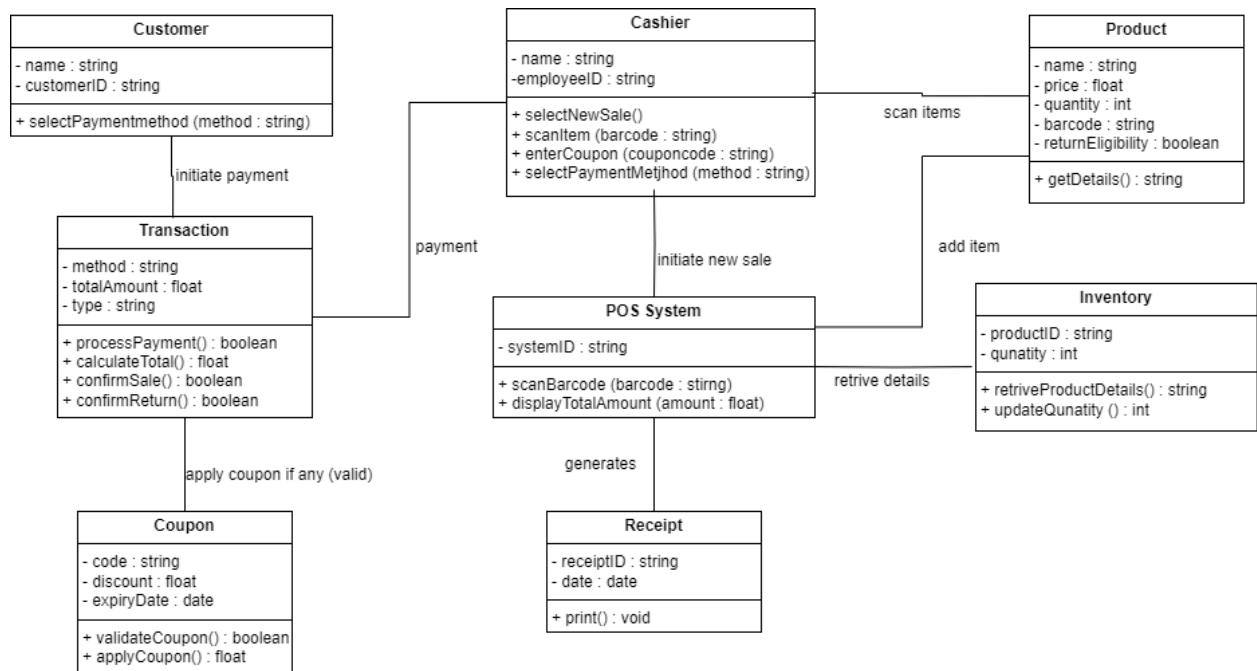
(1) Process Sale



(2) Handle Return

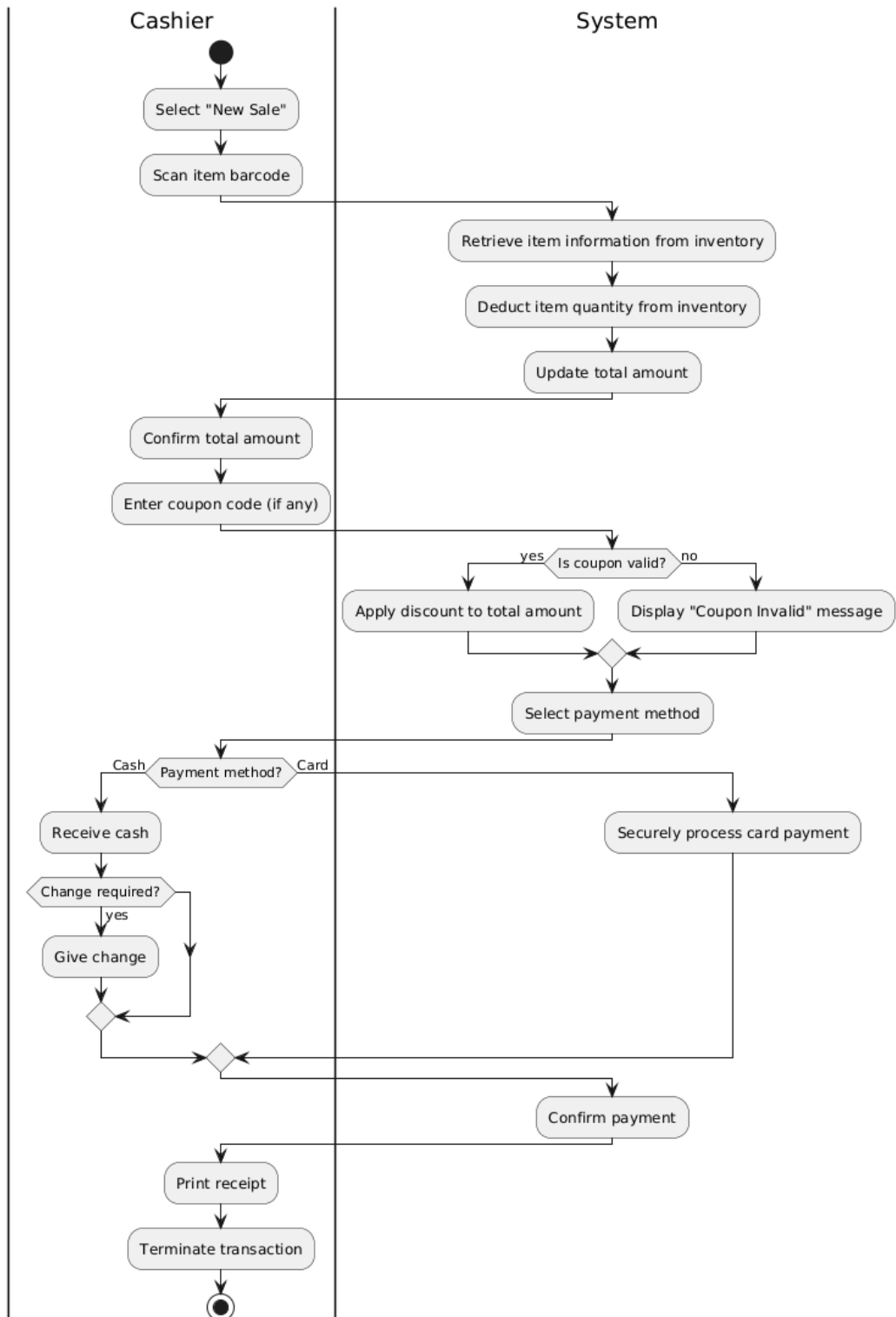


[Q.4] Develop Analysis Domain Models



[Q.5] Develop activity diagram for "Process Sale" and "Handle Return" use cases.

(1) Process Sale



(2) Handle Return

