



IT314 - Software Engineering

Lab - 06

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USE CASE: Process Sale

ACTOR: Cashier

DESCRIPTION:

This use case outlines the process of completing a sales transaction, including payment processing and receipt generation.

PRECONDITIONS:

- The cashier must log into the POS system.
- Customers must select the items they wish to purchase.

POSTCONDITIONS:

- The sale transaction will be completed.
- A receipt will be printed for the customer.
- The inventory will be updated.

MAIN FLOW:

1. The cashier scans the barcode of the first item.
2. The POS system retrieves details about that item, including price, expiry date, and category.
3. The system checks the item's stock availability.
4. The item is added to the transaction list.
5. Steps 1 to 4 are repeated for each additional item the customer wishes to purchase.
6. After all items are scanned, the customer confirms the total amount.
7. The customer selects a payment method, such as cash, card, or UPI.
8. If applicable, the customer can apply coupons for discounts, and the system will adjust the total amount accordingly.
9. The cashier proceeds as follows:
 - If the payment method is a card, the cashier swipes the card, and the system processes the payment.
 - If the payment method is cash, the cashier enters the amount received, and the system calculates the change due.
10. Upon payment confirmation, the system generates and prints the receipt for the customer.

USE CASE: Handle Return

ACTOR: Cashier

DESCRIPTION:

This use case outlines the process of handling a customer request to return purchased items.

PRECONDITIONS:

- The cashier must log into the POS system.
- The customer must present items for return along with the receipt for the original purchase.

POSTCONDITIONS:

- The returned items will be processed.
- The inventory will be updated to reflect the return.
- A return receipt will be printed for the customer.

MAIN FLOW:

1. The customer requests to return specific items.
2. The cashier asks for the original purchase receipt.
3. The cashier verifies the receipt and checks the return policy, including the time limit and condition of the items.
4. The cashier scans each item being returned.
5. The system retrieves the original purchase details from the Catalog System.
6. The system updates the Inventory System to add the returned items back into stock.
7. The system calculates any refund amount owed to the customer.
8. The cashier processes the refund using the original payment method:
 - If the payment was made in cash, the cashier prepares the cash refund.
 - If the payment was made by credit card, the system processes the refund back to the card.

The system generates and prints a return receipt for the customer.

ENTITY OBJECTS

1. Product

Represents items available for sale, including attributes such as product ID, name, price, and stock quantity.

2. Transaction

Represents a sale or return, containing details like transaction ID, date, items sold or returned, payment method, and total amount.

3. Receipt

Represents the printed receipt for transactions, detailing the transaction, including items, prices, and payment information.

4. Customer

Represents the individual making a purchase or return, with attributes like customer ID, name, and contact number.

5. Coupon

Represents coupons that provide discounts, including attributes such as coupon code, discount value, and expiration date.

6. Inventory

Represents the inventory database that tracks stock levels for each product.

BOUNDARY OBJECTS

1. POS Terminal Interface

A user interface for cashiers to interact with the POS system, featuring a touch screen and buttons.

2. Barcode Scanner

A device used to scan product barcodes, enabling interaction with the POS system to retrieve product information.

3. Payment Gateway Interface

An interface for processing credit card payments, connecting to external payment systems.

4. Receipt Printer

A boundary object responsible for printing transaction receipts for customers.

5. Coupon Input Interface

An interface for cashiers to input or scan coupons during transactions.

CONTROL OBJECTS

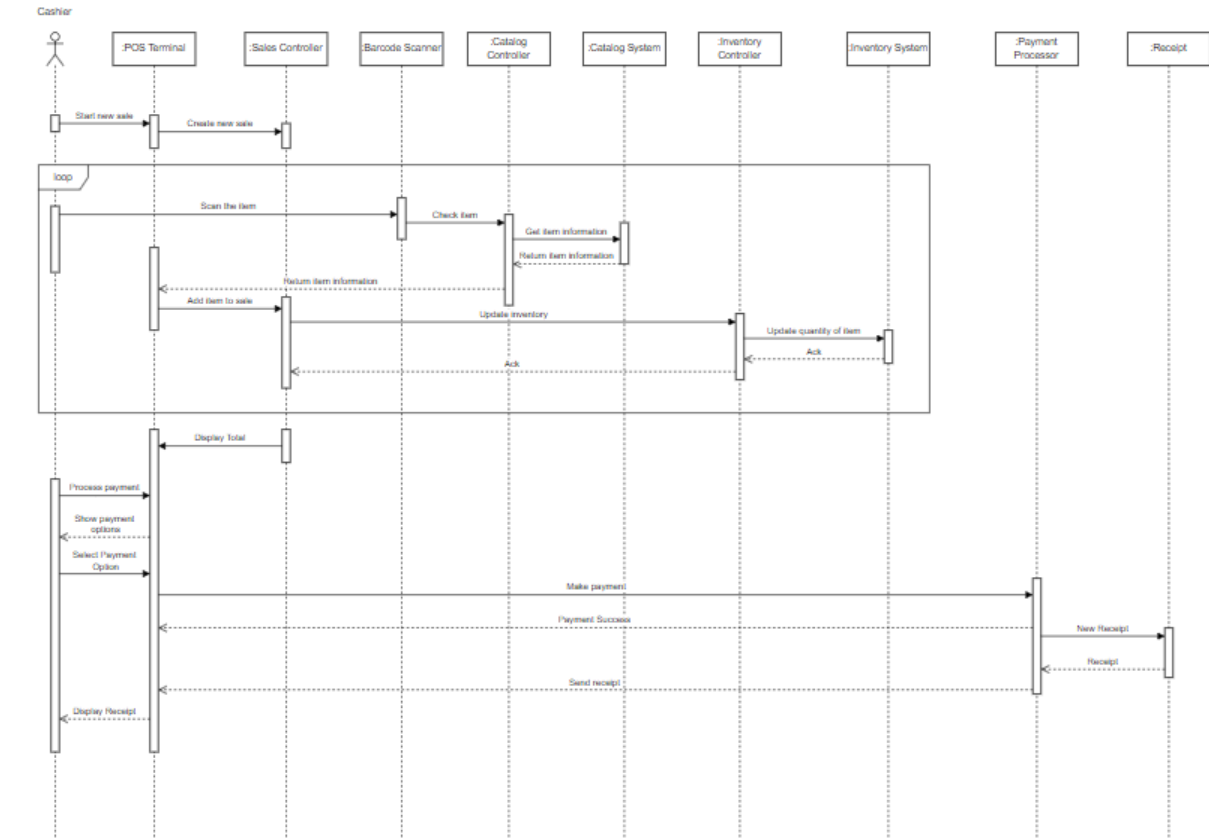
1. Process-Sale Control

This control is initiated when the cashier begins a sale transaction. It coordinates the scanning of items, manages payment processing, and generates the receipt. Additionally, it facilitates the flow of data between boundary objects such as the Barcode Scanner and Payment Gateway, as well as entity objects like Transaction and Product.

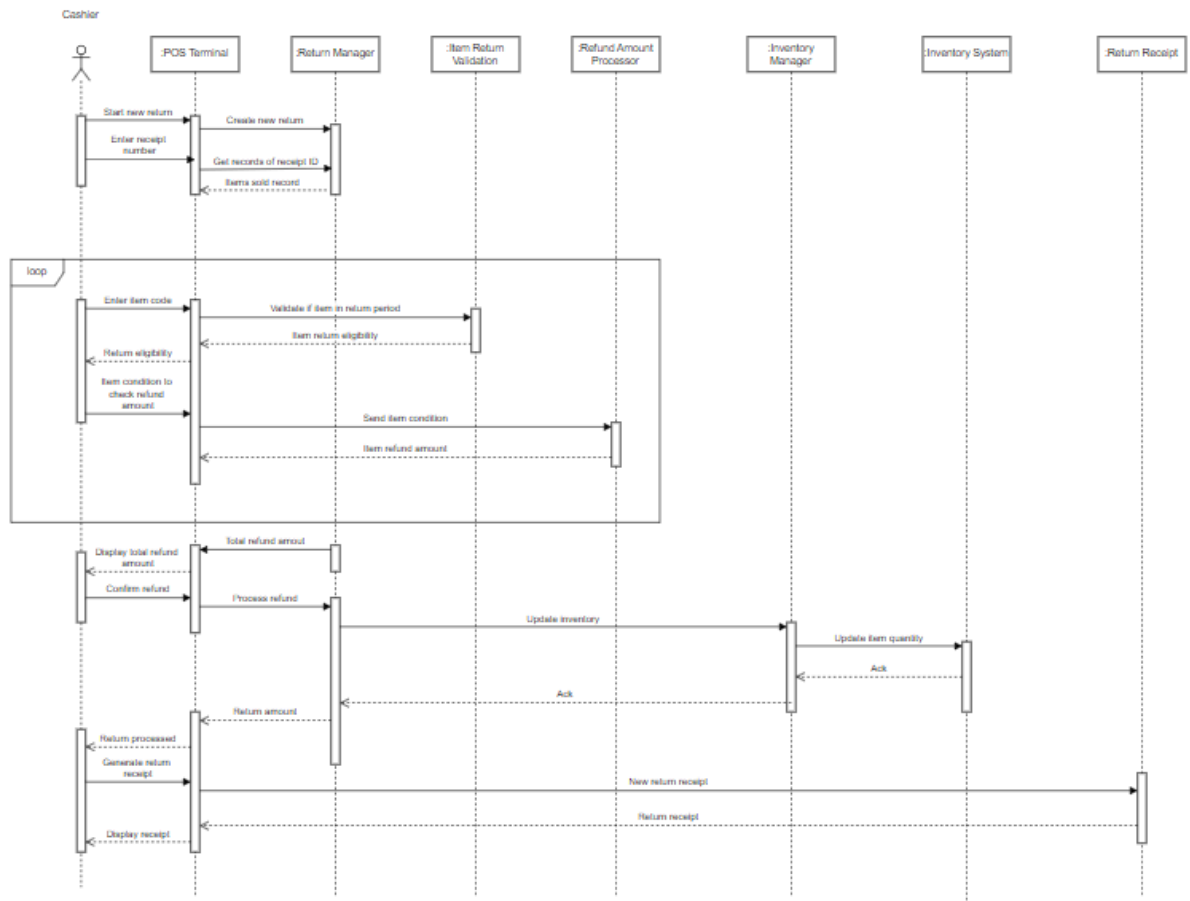
2. HandleReturnControl

This control is activated when the cashier starts processing a return. It oversees the scanning of returned items, checks the return policy, processes refunds, and generates return receipts. It also interacts with the relevant boundary and entity objects throughout the return process.

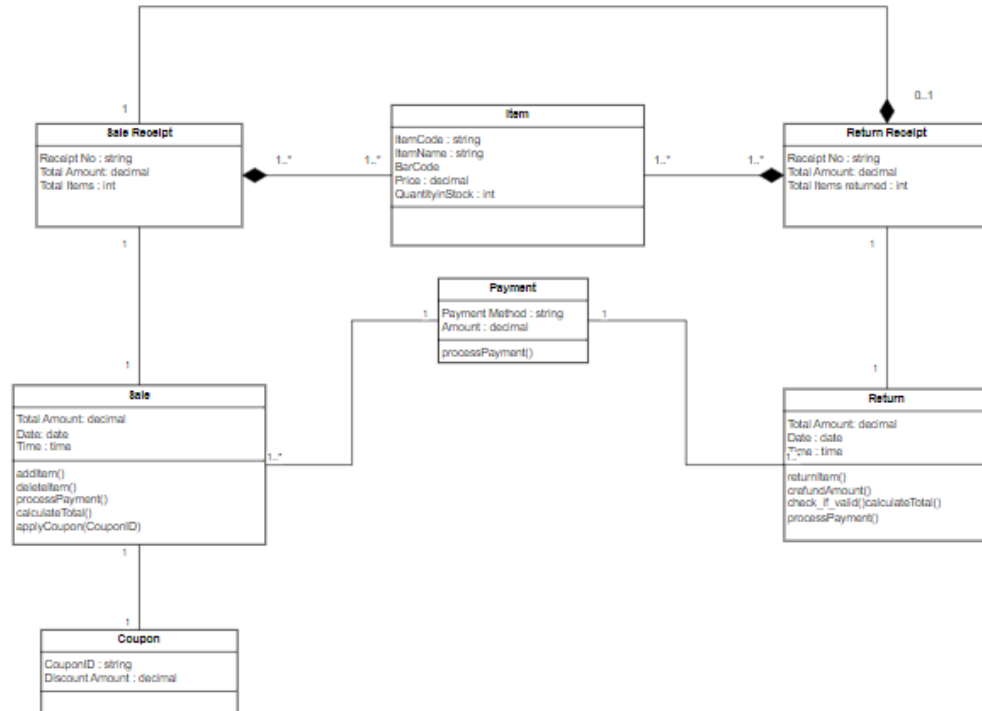
Process-sales Sequence diagram



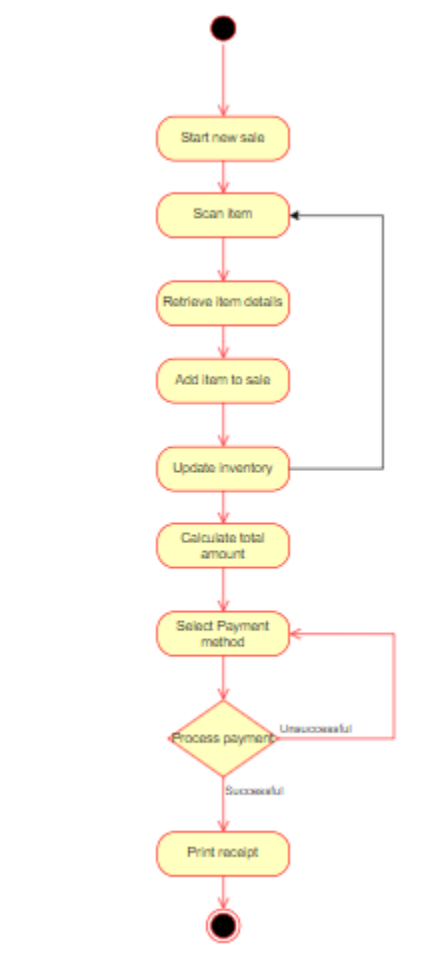
Handle returns sequence diagram



Develop Analysis Domain Models



Process-sales activity diagram



Handle-sales activity diagram

