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**SOFTWARE ENGINEERING**

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## **1. Use Case Textual Description**

### **Process Sale:**

**Primary Actor:** Cashier

**Preconditions:** The cashier is logged into the POS system.

### **Main Flow:**

- The cashier starts a new sale transaction.
- The cashier scans the barcode of each item.
- The POS system retrieves the item details (name, price) from the catalog system.
- The POS system interacts with the inventory system to update the stock.
- The cashier selects the payment method (cash, credit card, check, or gift coupon).
- The POS system processes the payment.
- The POS system prints the receipt.

**Postconditions:** The sale is recorded, and the inventory is updated.

### **Handle Return:**

**Primary Actor:** Cashier

**Preconditions:** The cashier is logged into the POS system, and the customer has a valid receipt.

### **Main Flow:**

- The cashier starts a return transaction.
- The cashier scans the barcode of the item to be returned.
- The POS system verifies the return eligibility.

- The cashier processes the refund or exchange.
- The POS system updates the inventory.
- The POS system prints a return receipt. Postconditions: The return is recorded, and the inventory is updated.

## **2. Entity/Boundary Control Objects**

### **Entities:**

- Item
- Sale
- Receipt
- InventoryRecord
- PaymentMethod (with subclasses CashPayment, CreditCardPayment, CheckPayment, GiftCoupon)

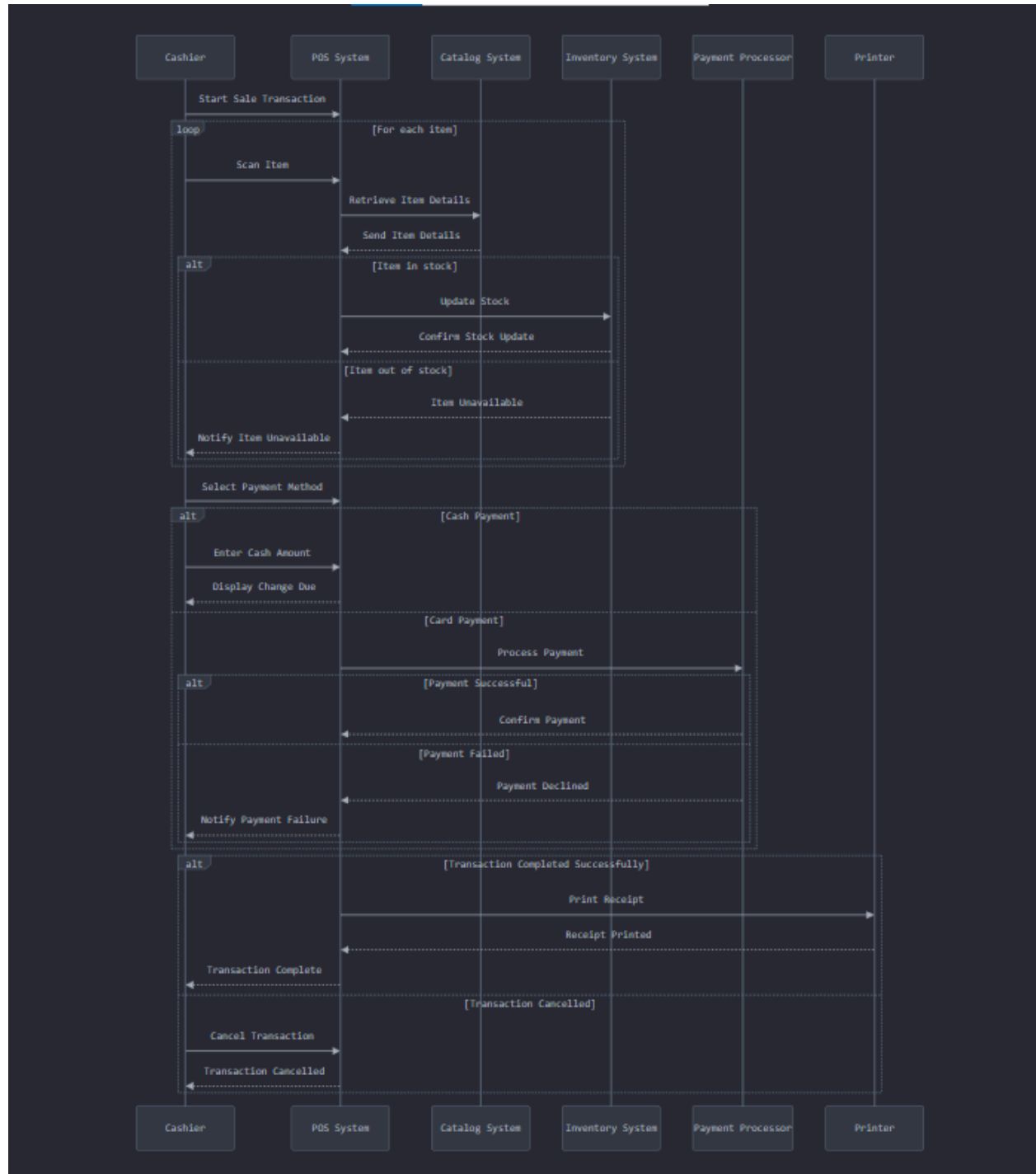
### **Boundary Objects:**

- POS System Interface
- Barcode Scanner
- PaymentTerminal
- ReceiptPrinter
- Admin Interface

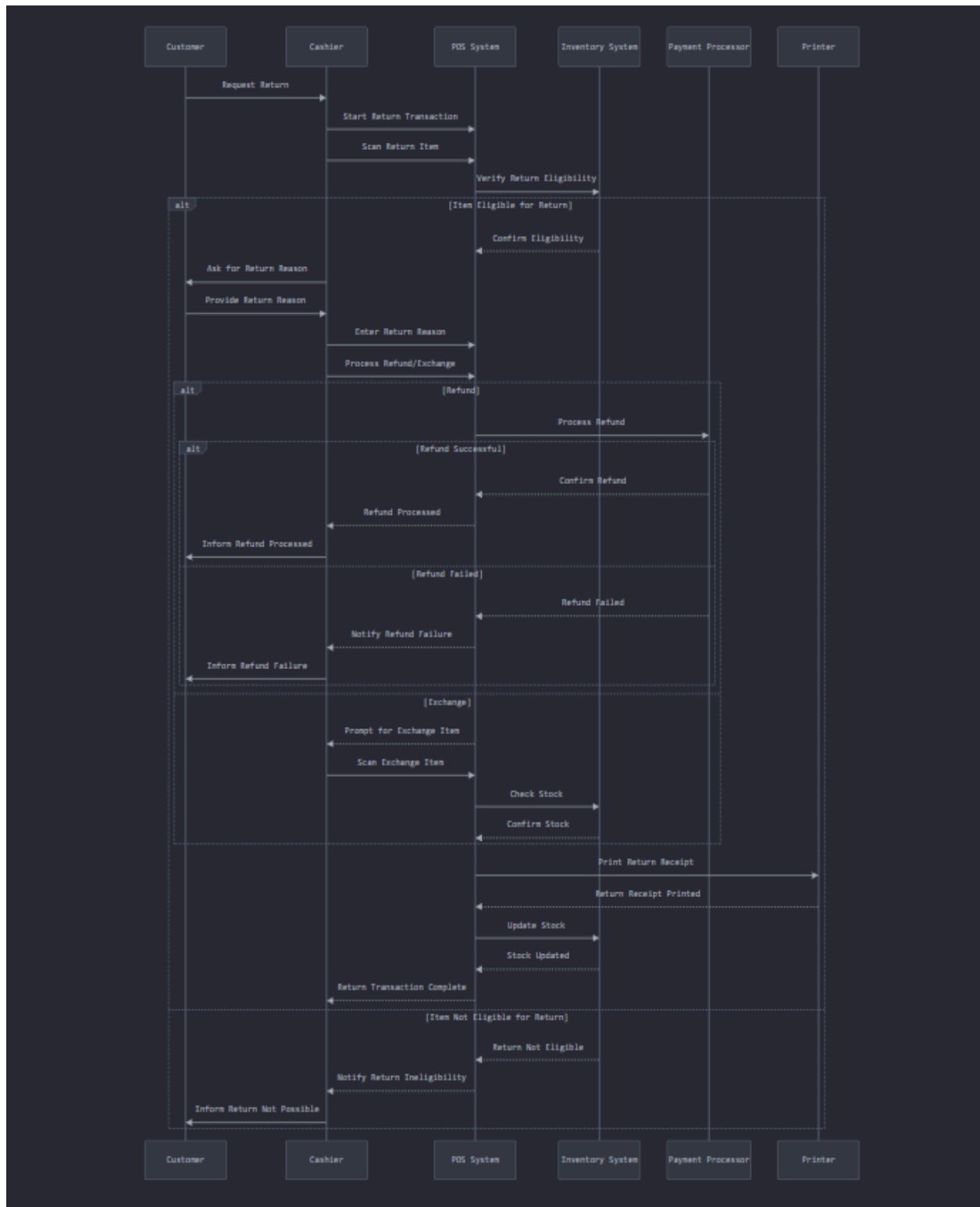
### **Control Objects:**

- Cashier

### 3. Sequence Diagrams Process Sale Sequence Diagram



# Handle Returns sequence diagram



## 4. Analysis Domain Models

The analysis domain model would include classes such as:

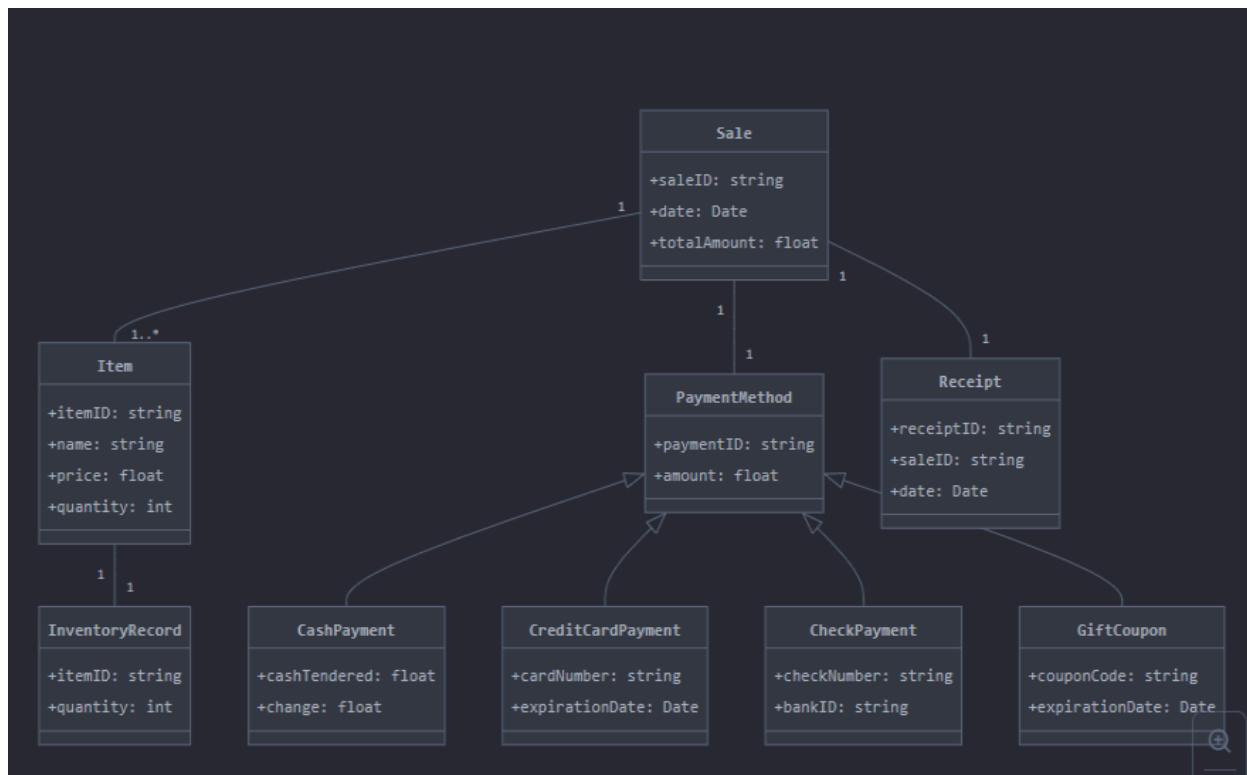
**Item:** Attributes like itemID, name, price, quantity.

**Sale:** Attributes like saleID, date, totalAmount.

**PaymentMethod:** Subclasses for CashPayment, CreditCardPayment, CheckPayment, GiftCoupon.

**Receipt:** Attributes like receiptID, saleID, date.

**InventoryRecord:** Attributes like itemID, quantity



## 5. Activity Diagrams

Process Sale Activity Diagram:





## Handle returns Activity Diagram

