

Lab 6: Modeling Class Diagram and Activity Diagram

Use Case: Process Sale

Primary Actor: Cashier

Preconditions:

- Cashier is logged into the POS system.
- Customers have items to purchase.

Main Flow:

1. Cashier starts a new sale transaction
2. For each item:
 - a. Cashier scans the item barcode.
 - b. System retrieves item details from the catalog.
 - c. System updates inventory.
 - d. System adds items to the current transaction.
3. System calculates the total amount of all the purchases.
4. If a customer has gift coupons:
 - a. Cashier applies the available gift coupons.
 - b. System recalculates the total amount of the bill.
5. Cashier selects the payment method (cash, credit card, or check).
6. Customer does payment using the selected method.
7. Cashier processes payment.
8. System confirms payment.
9. System generates receipts.
10. Cashier gives the receipt to the customer.

Alternative Flows:

- If an item's barcode cannot be scanned, the cashier can manually enter the item code.
- If the payment is declined, the cashier can choose another payment method or cancel the transaction.

Postconditions:

- Sale is recorded in the system
- Inventory is updated
- Payment is processed
- Receipt is printed

Use Case: Handle Return

Primary Actor: Cashier

Preconditions:

- Cashier is logged into the POS system.
- Customers have items to return.

Main Flow:

1. Cashier initiates the return process.
2. Cashier scans or enters details of item(s) being returned.
3. System verifies return eligibility.
4. System calculates the refund amount.
5. Cashier confirms return with customer.
6. System updates inventory.
7. System processes refund.
8. System generates a return receipt.
9. Cashier gives a return receipt to the customer.

Alternative Flows:

- If the item is damaged or not eligible for return, the cashier can deny the return.
- If the original payment method is not available, an alternative refund method can be used.

Postconditions:

- Return is recorded in the system.
- Inventory is updated.
- Refunds are processed.
- Return receipt is printed.

Identification of Entity / Boundary / Control Objects:

Entity Objects:

- Sale
- Item
- Inventory
- Payment
- Receipt
- User (Cashier, Administrator)
- Coupon
- Return

Boundary Objects:

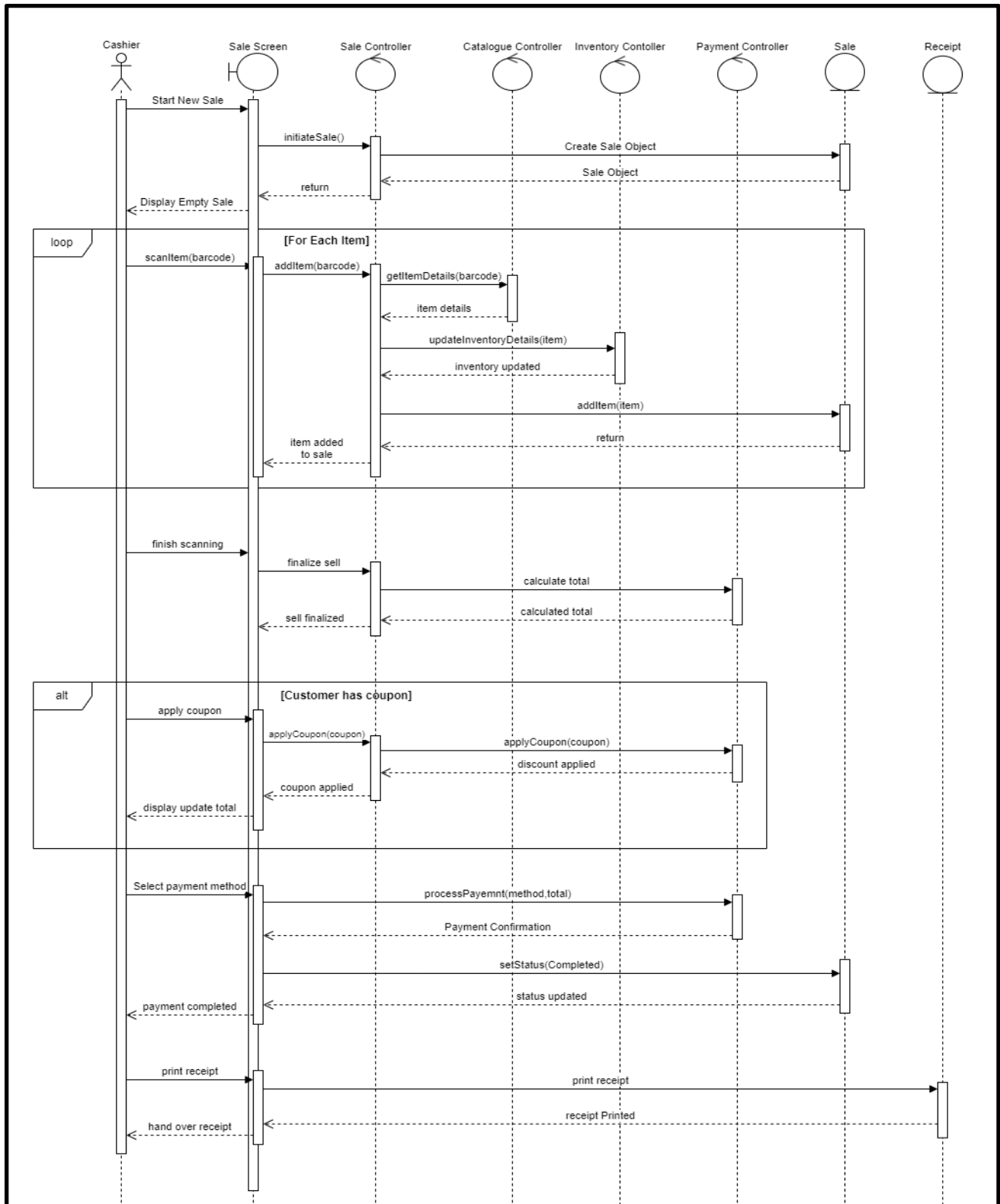
- Login Screen
- Sale Transaction Screen
- Payment Screen
- Return Screen
- User Management Screen (for Administrator)
- Security Configuration Screen (for Administrator)

Controller Objects:

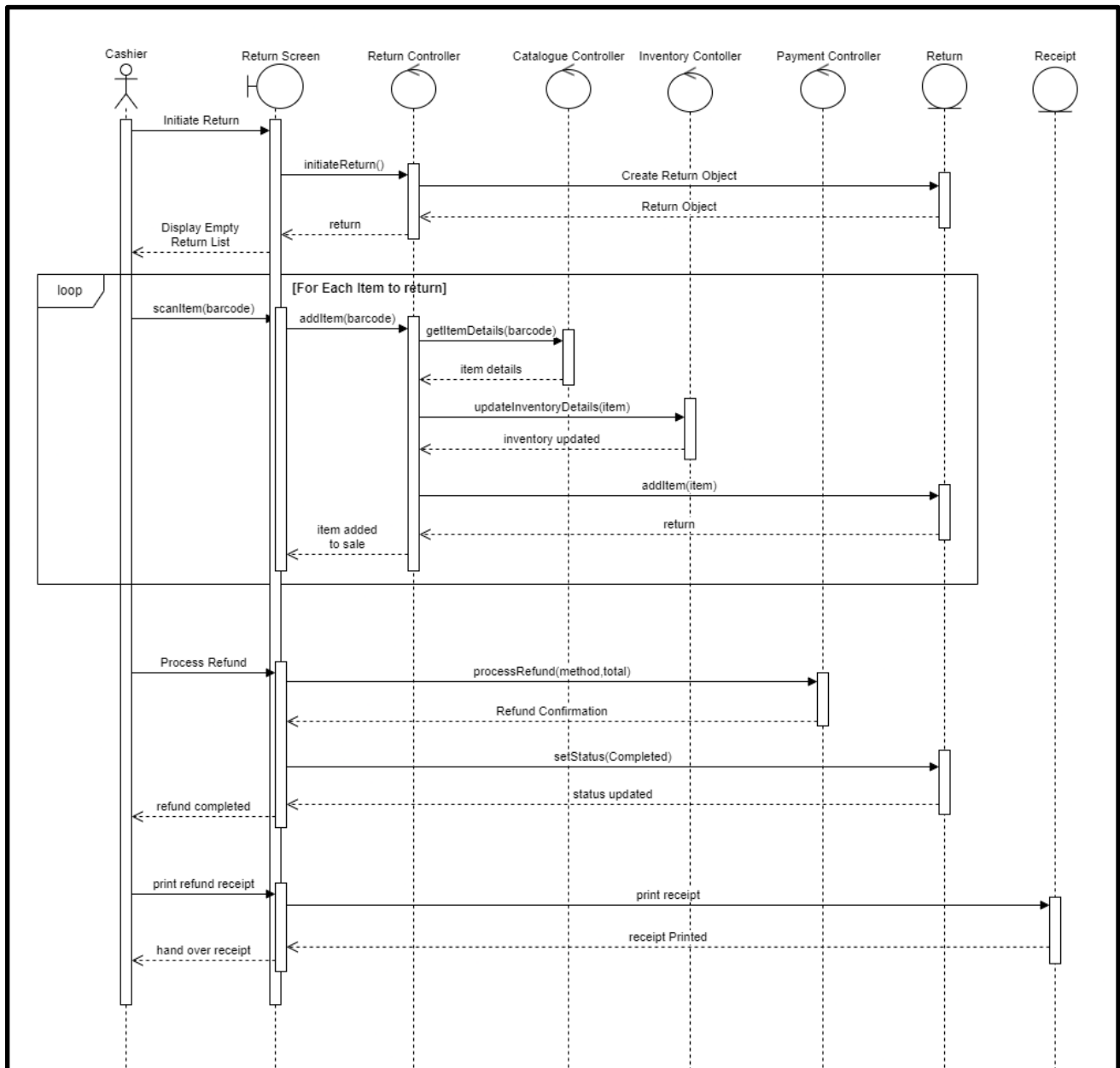
- Sale Controller
- Inventory Controller
- Payment Controller
- User Authentication Controller
- Return Controller
- Catalog Controller

Sequence Diagrams:

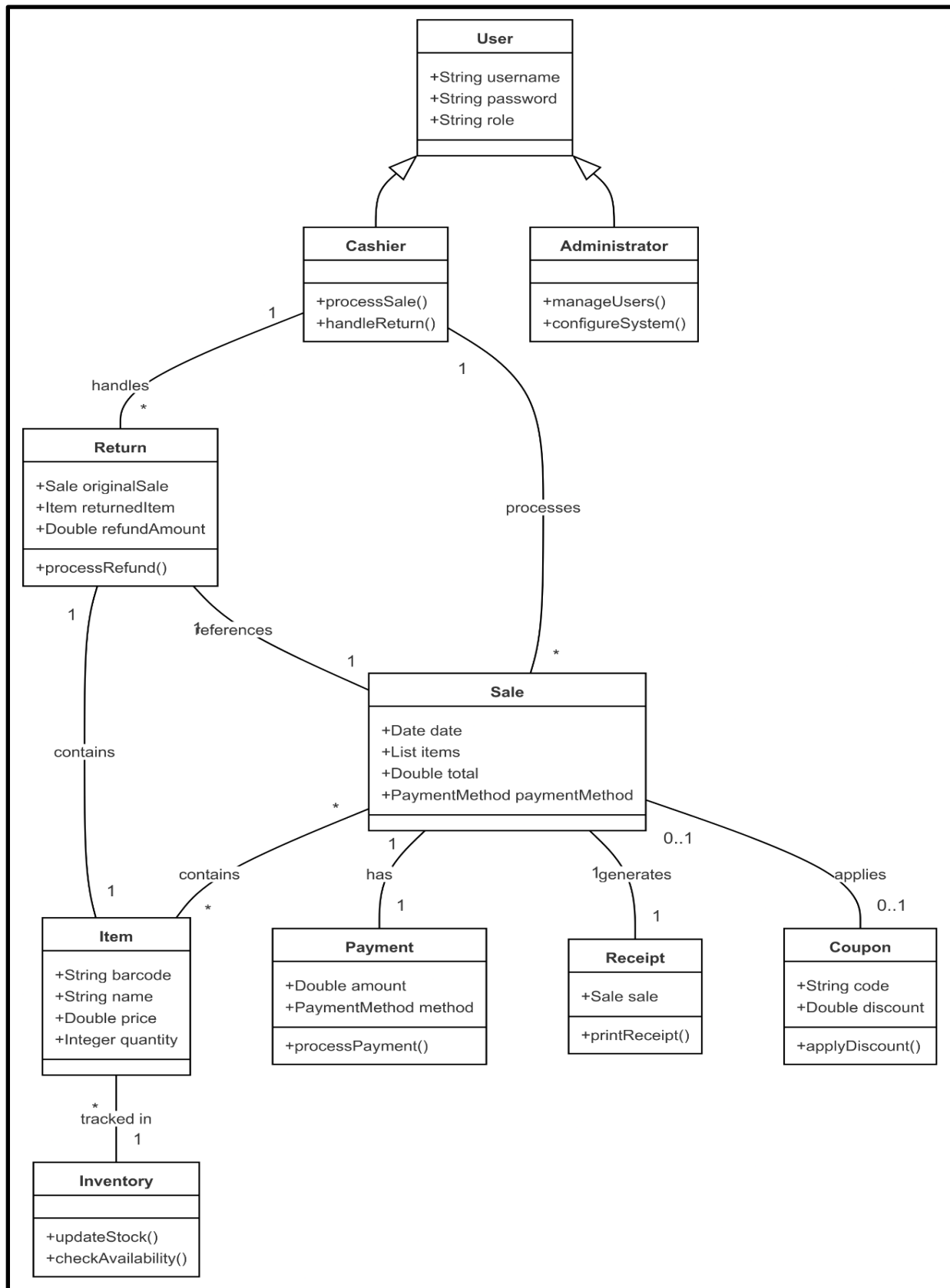
1. Process Sell:



2. Handle Return:

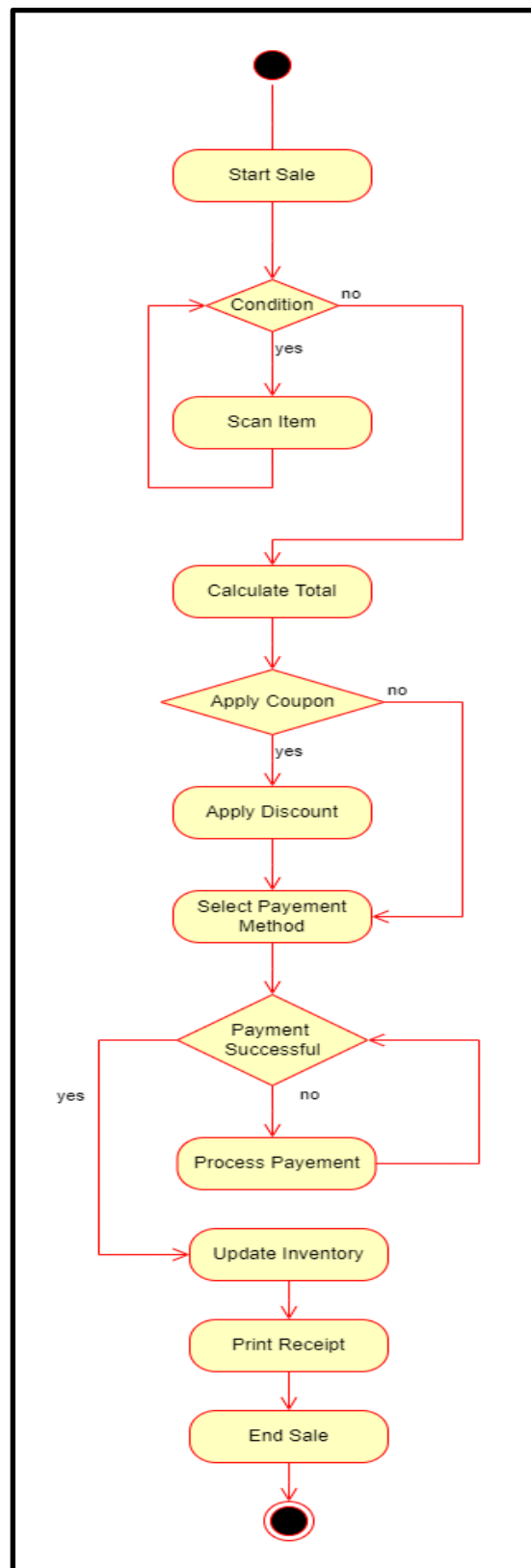


Analysis Domain Model:



Activity Diagram:

Process Sale:



Handle Return:

