IT314-Lab_assignment-6

(Point of Sale System)

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Use Case: Process Sale

Actor: Cashier

Pre-conditions:

- The cashier is logged into the POS system.
- The customer has items to purchase.

Main Flow:

1. The cashier starts a new sale transaction.
2. For each item, the cashier scans the barcode, and the system retrieves the item's details (such as name and price) from the product catalog. The system then displays the item information on the screen and deducts the item from the inventory.
3. The system calculates the total amount for the sale.
4. If the customer has gift coupons, the cashier applies them, and the system recalculates the total amount.
5. The cashier informs the customer of the final total.
6. The customer selects a payment method—cash, credit card, or check.
7. The cashier processes the payment based on the chosen method.
8. The system validates the payment.
9. The system generates a receipt for the transaction.
10. The cashier prints the receipt.
11. The system finalizes the sale and completes the transaction.

Post-conditions:

- The sale is recorded in the system.
- The inventory is updated.
- The receipt is printed and provided to the customer.

Alternate Flows:

- **2.1.** If an item's barcode does not scan, the cashier manually enters the item code, and the system continues to retrieve the item information as in the normal flow.
- **4.1.** If a gift coupon is invalid cashier asks the customer to enter a gift coupon.
- **8.1.** If the payment is declined, the system displays an error message, and then the transaction is canceled.

Use Case: Handle Return

Actor: Cashier

Pre-conditions:

- The cashier is logged into the POS system.
- The customer has items to return and presents the original receipt.

Main Flow:

1. The cashier begins a return transaction.
2. The cashier scans or manually enters the receipt number, and the system retrieves the original sale details.
3. For each returned item, the cashier scans the item's barcode, and the system verifies that the item was part of the original sale. The system then calculates the refund amount for each returned item and updates the inventory by adding the item back.
4. The system calculates the total refund amount for all the returned items.
5. The cashier processes the refund using the same payment method as the original purchase.
6. The system generates a return receipt.
7. The cashier prints the return receipt.
8. The system finalizes the return transaction.

Post-conditions:

- The return is recorded in the system.
- The inventory is updated to include the returned items.
- The refund is processed, and the return receipt is printed.

Alternate Flows:

- **2.1.** If the customer does not have the original receipt, the cashier follows store policy for returns without a receipt. If the return is allowed, the process continues. If the return is not allowed, the use case ends.
- **3.1.** If an item is not found in the original sale, the system displays an error message, and the cashier can skip the return of that item.

Identify Entity/Boundary/Control Objects:

For the "Process Sale" use case:

Entity Objects:

- Sale
- Item
- Inventory
- Payment
- Receipt
- Coupon

Boundary Objects:

- ScannerInterface
- DisplayInterface
- PaymentInterface
- PrinterInterface

Control Objects:

- SaleController
- InventoryController
- PaymentController
- CatalogController

For the "Handle Return" use case:

Entity Objects:

- Return
- Sale
- Item
- Inventory
- Refund
- Receipt

Boundary Objects:

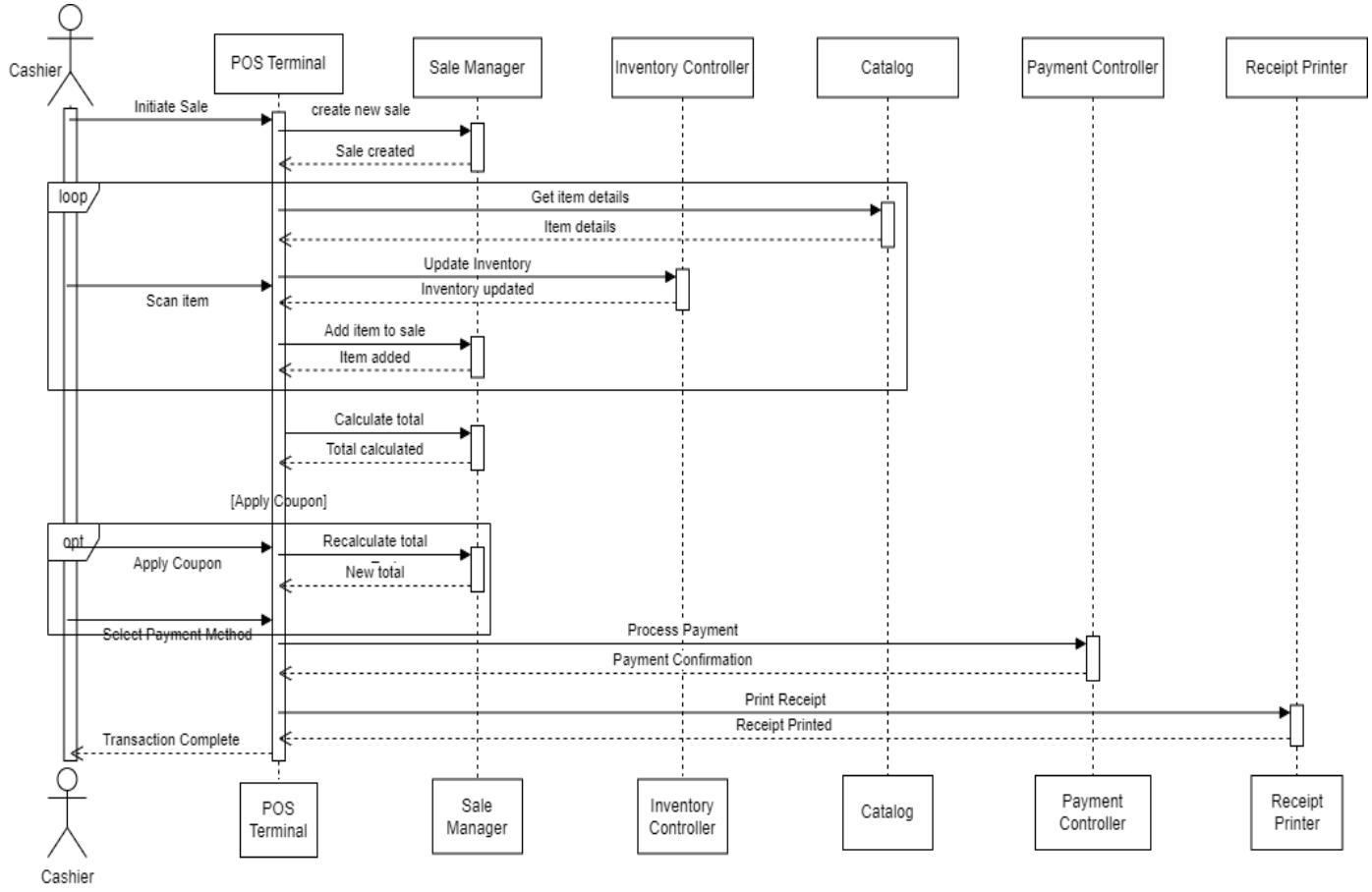
- ScannerInterface
- DisplayInterface
- RefundInterface
- PrinterInterface

Control Objects:

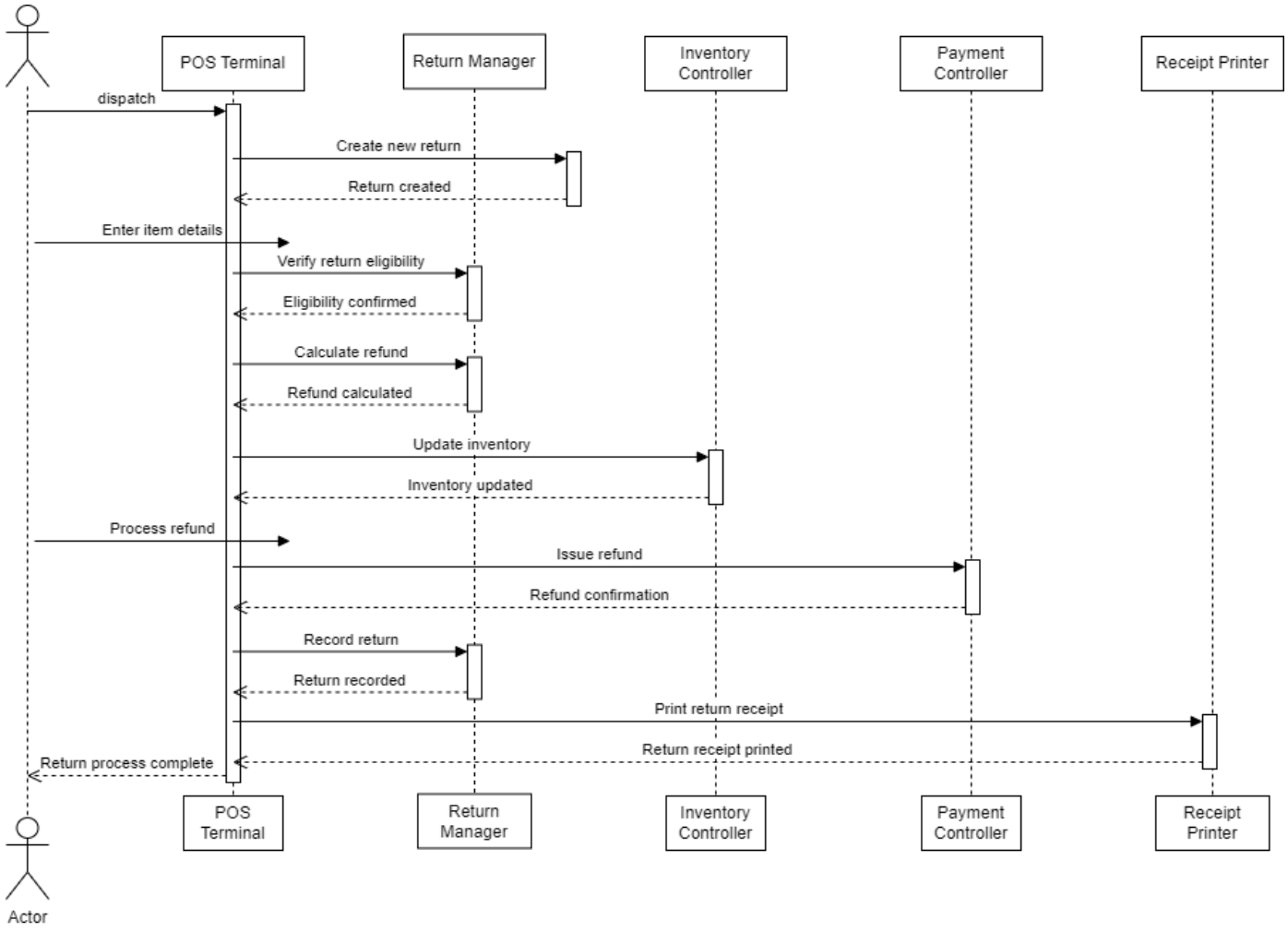
- ReturnController
- InventoryController
- RefundController
- SaleHistoryController

Sequence Diagrams:

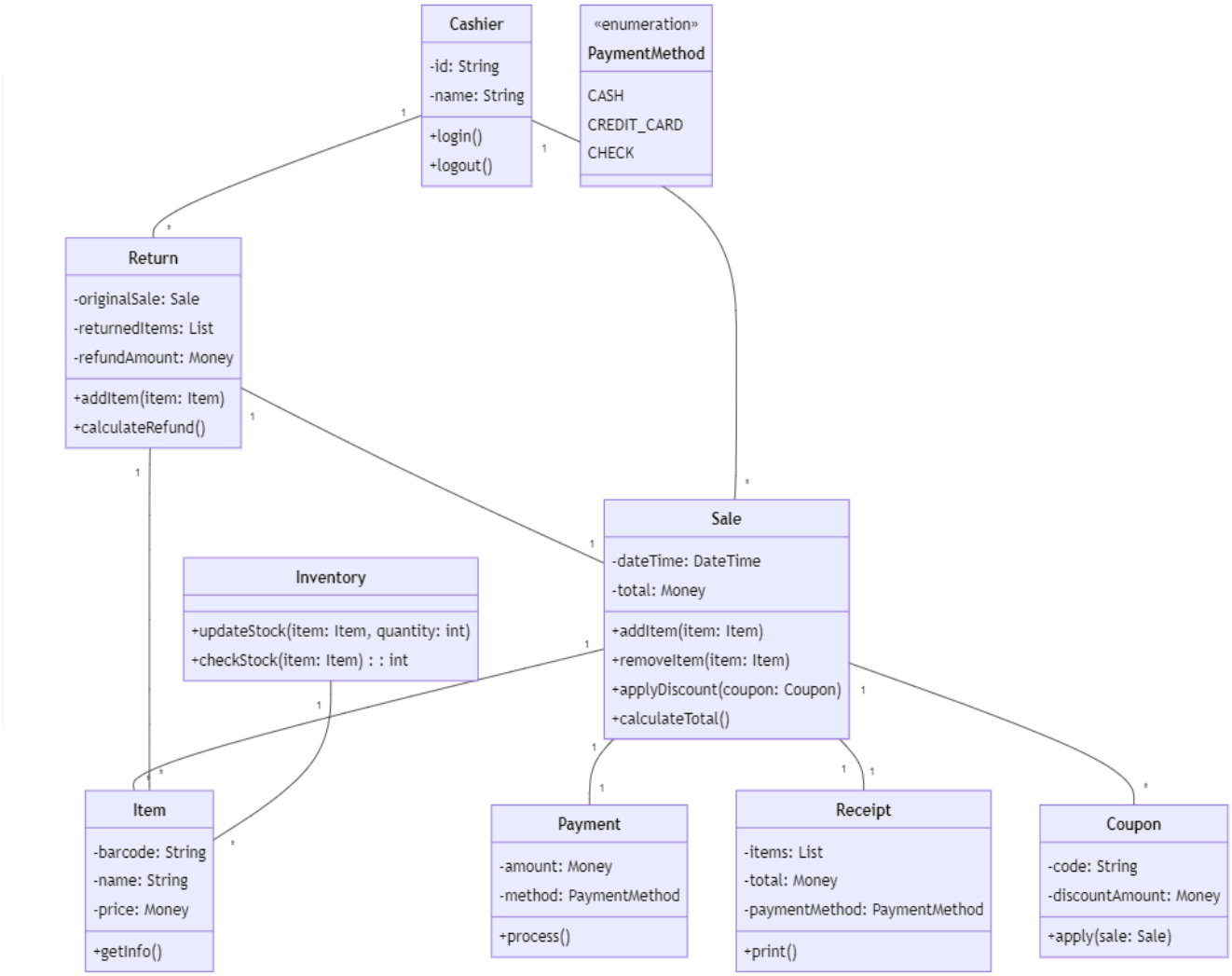
Process sale:



Handle Return:

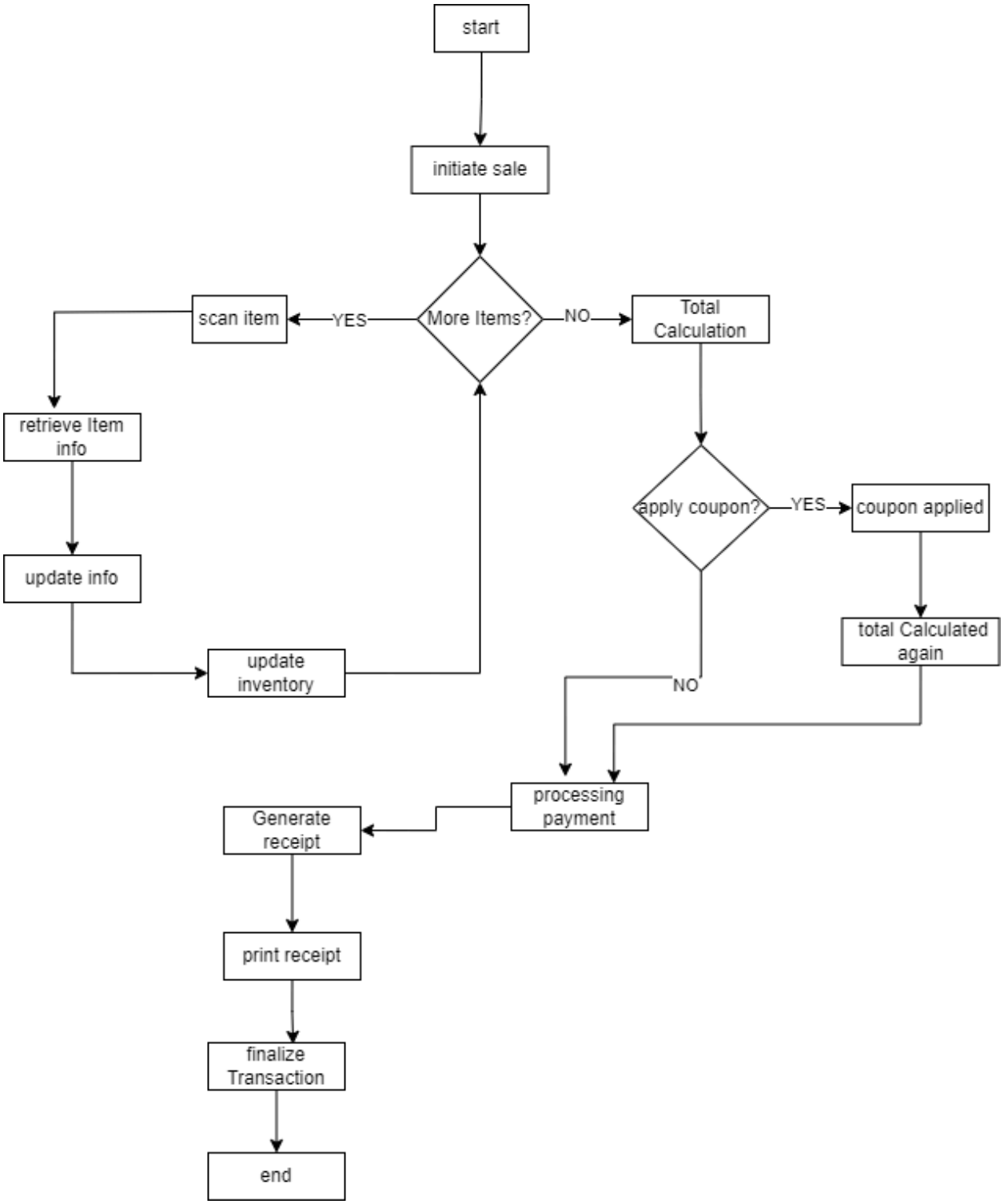


Analysis Domain Models:



Activity Diagram:

Process sale:



Handle Return: