LAB-6
Name: Mausam Kamdar
ID: 202201372

1. Use Case Textual Descriptions:

Use Case: Process Sale

Goal: To handle a customer sale and process payment.

Primary Actor: Cashier

Preconditions:

- Cashier is logged into the POS system.
- The system is connected to the inventory and catalog systems.
- The system should be fully operational

Trigger: A customer arrives at the counter for purchase of goods

Main Scenario Flow:

1. The cashier selects "New Sale" in the POS system.
2. The cashier scans the barcode of each product.
3. The system retrieves and displays the product details (name, price) from the catalog system.
4. The system checks the inventory system and updates stock quantities for each scanned product.
5. The cashier applies any gift coupons or promotions.
6. The system calculates the total price.
7. The customer chooses the payment method (cash, credit card, or check).
8. The system processes the payment.
9. The system prints the receipt.
10. The sale is completed.

Extensions/Alternate scenario:

- 3a. If a barcode is invalid, the system prompts the cashier to enter the product manually.
- 7a. If payment is declined, the system requests a different payment method.
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Postconditions:

- The inventory is updated.

- The sale transaction is saved in the system.

Use Case: Handle Return

Goal: To process a customer return and adjust inventory.

Primary Actor: Cashier

Trigger: A customer requests to return items purchased from the store.

Preconditions:

- Cashier is logged into the POS system.
- The customer has a valid receipt or proof of purchase.

Main Scenario Flow:

1. The cashier selects "Return Item" in the POS system.
2. The cashier scans the receipt
3. The system retrieves the transaction and the details of the items purchased.
4. The cashier selects the items to be returned.
5. The system verifies the return policy (e.g., return period, condition of items).
6. The system processes the return, adjusts the inventory, and updates stock levels.
7. The system initiates the refund process (cash, card, or store credit).
8. The system prints a return receipt.
9. The return is completed.

Extensions/ Alternate Scenario::

- 5a. If the return policy is not met (e.g., past return period), the system rejects the return.
- 7a. If the current payment method does not work, the customer chooses another one
- 2a. If the scanner is unable to identify the receipt, the cashier enters details manually

Postconditions:

- The inventory is updated.
- The return transaction is saved in the system.

2. Identify Entity/Boundary Control Objects

Use Case: Process Sale

Entity object:

1. Cashier,
2. Catalog system
3. Inventory system
4. Product

Boundary objects:

1. Barcode scanner
2. User Interface
3. Payment interface
4. Receipt printer

Control objects:

1. Payment controller
2. Sale processor
3. Inventory manager
4. Catalog manager

Use Case:Handle return

Entity object:

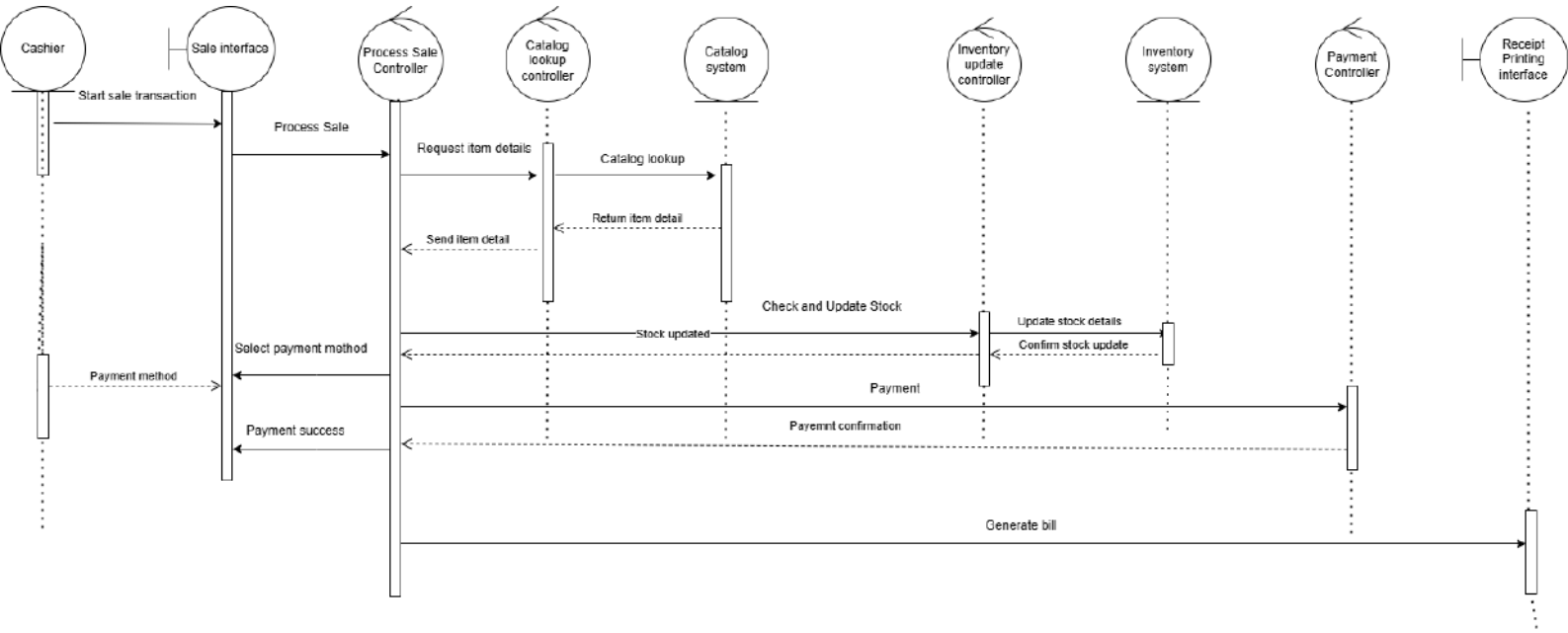
1. Cashier
2. Inventory
3. Product

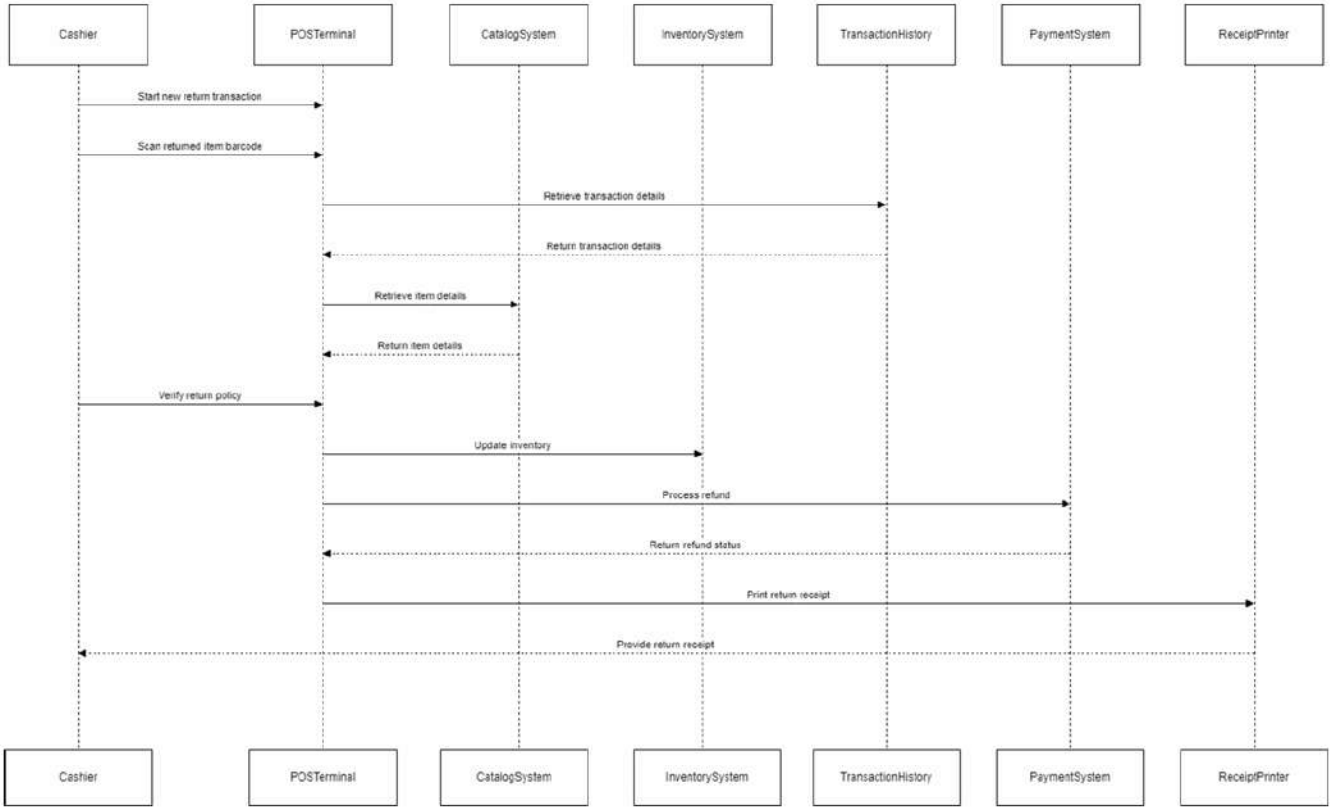
Boundary object:

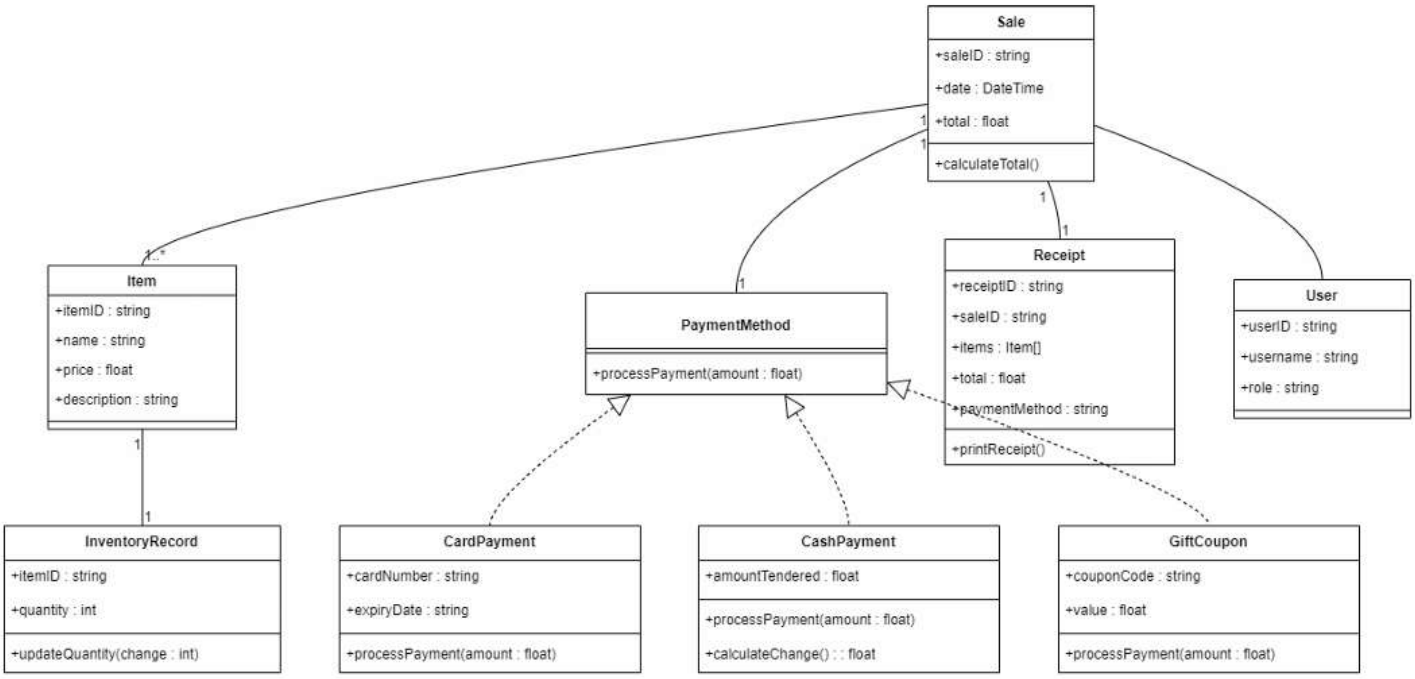
1. Cashier interface
2. Refund interface

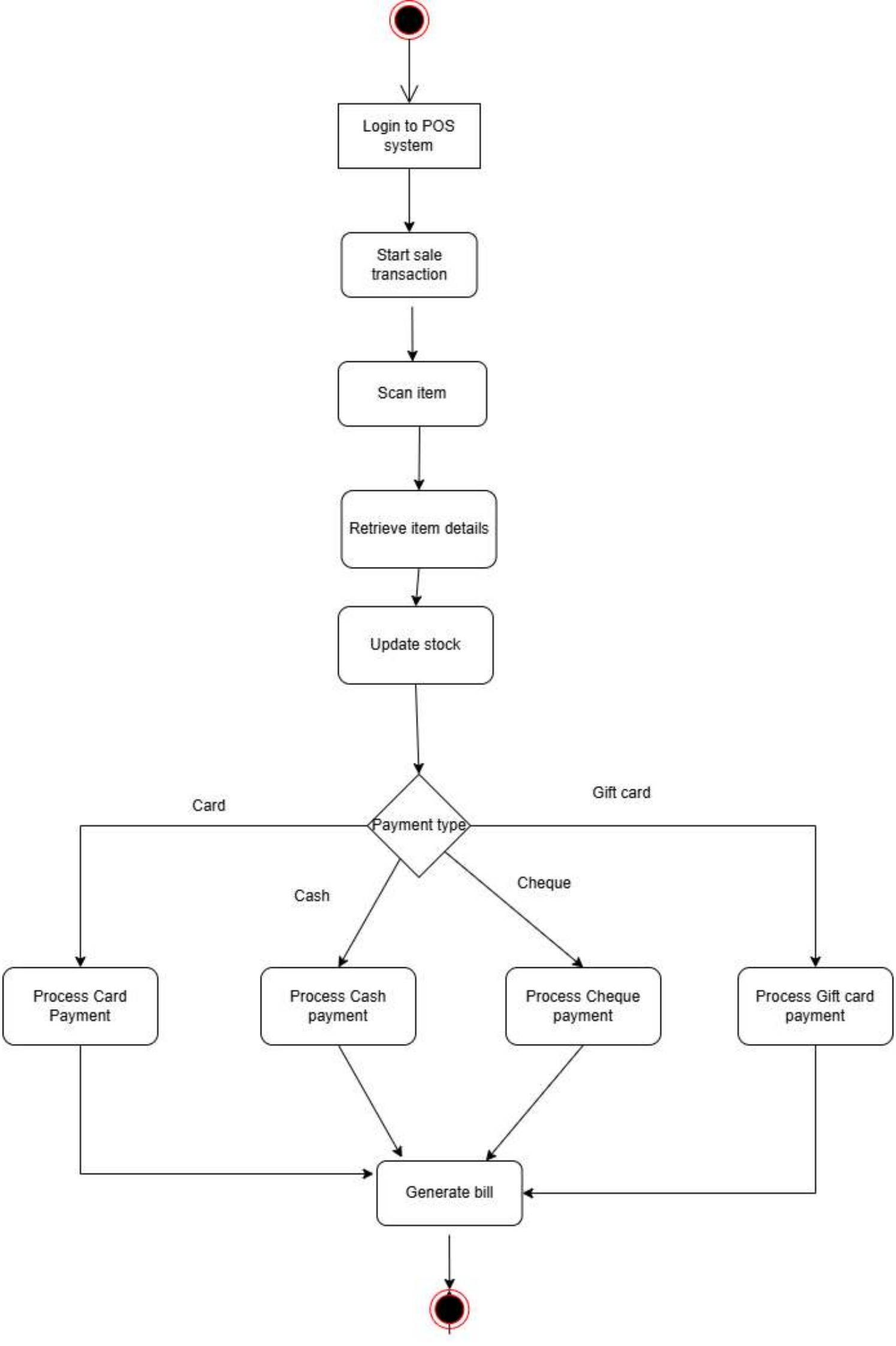
Control object:

1. Refund controller
2. Return processor
3. Inventory manager


Cashier
Sale interface
Process Sale Controller
Catalog lookup controller
Catalog system
Inventory update controller
Inventory system
Payment Controller
Receipt Printing interface
Start sale transaction
Process Sale
Request item details
Catalog lookup
Return item detail
Send item detail
Check and Update Stock
Stock updated
Update stock details
Confirm stock update
Select payment method
Payment method
Payment
Payment success
Payemnt confirmation
Generate bill


Cashier
POSTerminal
CatalogSystem
InventorySystem
TransactionHistory
PaymentSystem
ReceiptPrinter
Start new return transaction
Scan returned item barcode
Retrieve transaction details
Return transaction details
Retrieve item details
Return item details
Verify return policy
Update inventory
Process refund
Return refund status
Print return receipt
Provide return receipt
Cashier
POSTerminal
CatalogSystem
InventorySystem
TransactionHistory
PaymentSystem
ReceiptPrinter


Sale
+saleID : string
+date : DateTime
+total : float
+calculateTotal()
Item
+itemID : string
+name : string
+price : float
+description : string
PaymentMethod
+processPayment(amount : float)
Receipt
+receiptID : string
+saleID : string
+items : Item[]
+total : float
+paymentMethod : string
+printReceipt()
User
+userID : string
+username : string
+role : string
InventoryRecord
+itemID : string
+quantity : int
+updateQuantity(change : int)
CardPayment
+cardNumber : string
+expiryDate : string
+processPayment(amount : float)
CashPayment
+amountTendered : float
+processPayment(amount : float)
+calculateChange() : : float
GiftCoupon
+couponCode : string
+value : float
+processPayment(amount : float)


Login to POS system
Start sale transaction
Scan item
Retrieve item details
Update stock
Payment type
Card
Cash
Cheque
Gift card
Process Card Payment
Process Cash payment
Process Cheque payment
Process Gift card payment
Generate bill