Project Report: Online Shopping Cart for Abaya store.

Program Description:

The Abaya Shopping Application is an online store offering customizable abayas. Customers can choose from various styles, fabrics, colors, and sizes to create personalized garments. The platform features a user-friendly customization process, real-time pricing, and a flexible shopping cart. It streamlines the abaya buying experience, blending traditional designs with modern e-commerce convenience. The application caters to diverse tastes, from classic to contemporary, providing an efficient way for customers to design and purchase abayas tailored to their preferences.

Team members:

1. Joory Abdullah Alzahrani
2. Joory Ahmad Alzahrani
3. Aisha Aladwani
4. Ghala Marzouq Alsaedi
5. Rawan Alzahrani

Program Capabilities:

- **User Interaction:** The store allows users to choose each abaya's size, fabric, and style. Shopping

- **Cart Management:** Customers can add multiple abayas to their cart, review selections, and modify or remove items.

- **Customizable Products:** Abayas are tailored to user preferences, with prices adjusting based on fabric, style, and color. Users can further modify their abayas even after adding them to the cart.

- **Order Processing:** The program collects client information and handles payments via a credit card system.

- **Final Summary:** Users receive a comprehensive order summary and confirmation following successful payment.

User-centric Program flow:

1. **Welcome and Setup**
    - User is greeted with a welcome message.
    - User enters their personal information.
2. **Abaya Customization Process**
    - User begins customizing their abaya by:
        - Choosing a fabric type.
        - Selecting a style.
        - Picking a color.
        - Specifying the size.
    - User has the option to customize multiple abayas.
3. **Review and Modify Customizations**
    - User reviews their customized abayas.
    - Option to make changes if needed.
4. **Shopping Cart Management**
    - User's selections are added to the shopping cart.
    - User can view and modify cart contents:
        - Remove items.
        - Add more items.
        - Review the total price.
5. **Checkout and Payment**
    - When ready to purchase, user proceeds to checkout.
    - User completes the payment process.
6. **Order Confirmation and Post-Purchase**
    - User receives an order confirmation and summary.
    - User can perform post-purchase actions (e.g., track the order).
7. **Exit**
    - User exits the application.

Task Distribution:

Joory Abdullah Alzahrani:

- Managed the overall program structure and interaction flow.
- Handled the **Main** class, which controls the store's processes.
- Handled the **Display Interface**
- Created the **project outline**, which included:
  - Structure of the application.
  - General overview of the classes, their designs, and relationships.
- Handled **whole program debugging**

Joory Ahmad Alzahrani:

- Created the **Abaya** class, managing all aspects of abayas.
- Designed the **UML diagram** for the Abaya class.
- Reviewed and contributed to **exception handling** across the project.
- Identified and reported **bugs** within the program.

Aisha Aladwani:

- Created the **Customer class** to manage customer data.
- Integrated **ShoppingCart** features with the Customer class.
- Reviewed and contributed to **exception handling** throughout the project.
- Reviewed all **Javadoc comments** for accuracy and clarity.
- Identified and reported **bugs** within the program.

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Ghala Marzouq Alsaedi:

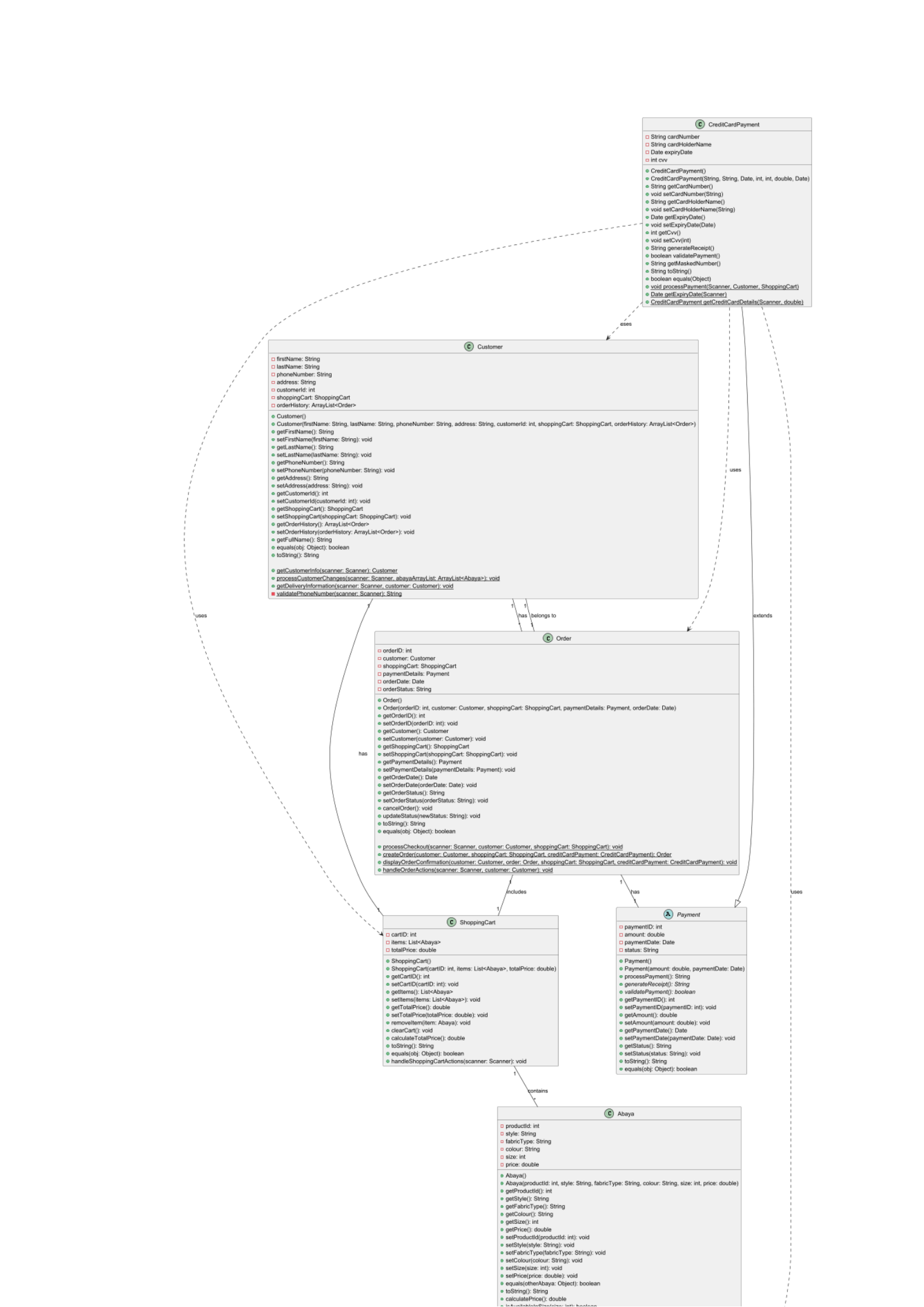
- Created the **ShoppingCart** class to manage user selections
- Managed the **Order** class to track completed orders.
- Contributed to **exception handling** across the project.
- Handled the **project report**
- Identified and reported **bugs** within the program.

Rawan Alzahrani:

- Created the **Payment** class and **CreditCardPayment** class to design and implement the payment processing system for the online shopping cart.
- Conducted **test runs** to validate functionality.
- Identified and reported **bugs** within the program.

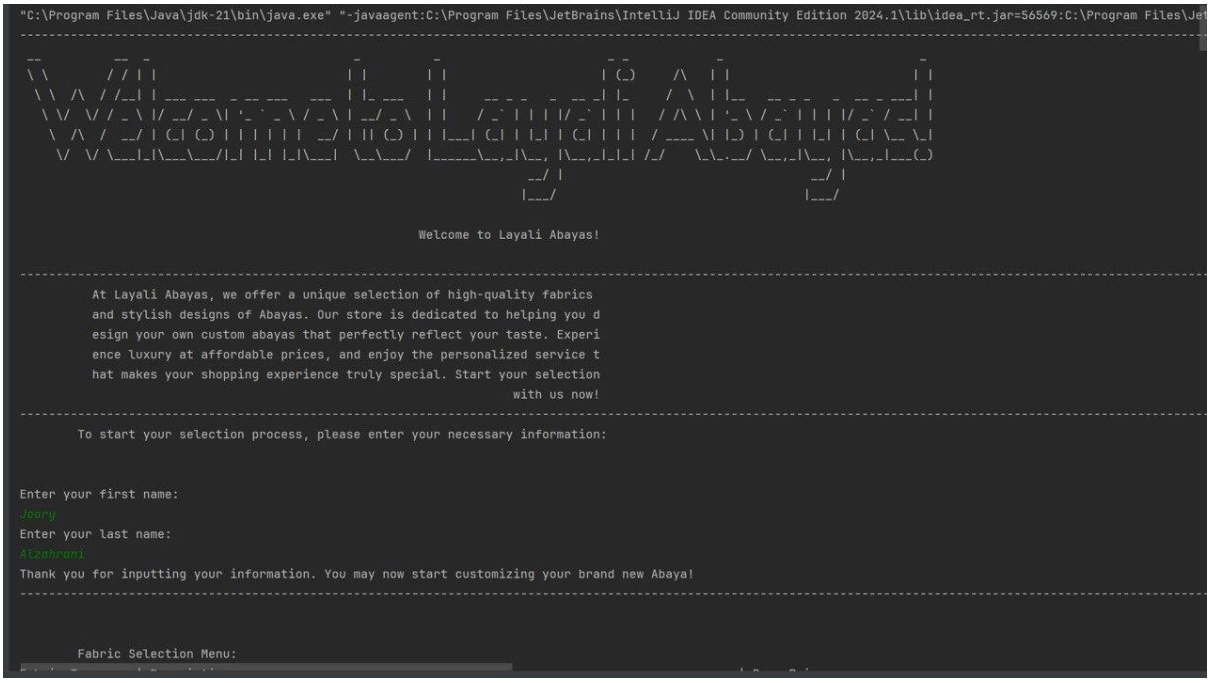
UML:

- The diagram is also available as a **PNG** in the project file, as well as a **.puml file** for viewing in **Plant UML plug-in**.


CreditCardPayment
- String cardNumber
- String cardHolderName
- Date expiryDate
- int cvv
+ CreditCardPayment()
+ CreditCardPayment(String, String, Date, int, int, double, Date)
+ String getCardNumber()
+ void setCardNumber(String)
+ String getCardHolderName()
+ void setCardHolderName(String)
+ Date getExpiryDate()
+ void setExpiryDate(Date)
+ int getCvv()
+ void setCvv(int)
+ String generateReceipt()
+ boolean validatePayment()
+ String getMaskedNumber()
+ String toString()
+ boolean equals(Object)
+ void processPayment(Scanner, Customer, ShoppingCart)
+ Date getExpiryDate(Scanner)
+ CreditCardPayment getCreditCardDetails(Scanner, double)
uses
Customer
- firstName: String
- lastName: String
- phoneNumber: String
- address: String
- customerId: int
- shoppingCart: ShoppingCart
- orderHistory: ArrayList<Order>
+ Customer()
+ Customer(firstName: String, lastName: String, phoneNumber: String, address: String, customerId: int, shoppingCart: ShoppingCart, orderHistory: ArrayList<Order>)
+ getFirstName(): String
+ setFirstName(firstName: String): void
+ getLastName(): String
+ setLastName(lastName: String): void
+ getPhoneNumber(): String
+ setPhoneNumber(phoneNumber: String): void
+ getAddress(): String
+ setAddress(address: String): void
+ getCustomerId(): int
+ setCustomerId(customerId: int): void
+ getShoppingCart(): ShoppingCart
+ setShoppingCart(shoppingCart: ShoppingCart): void
+ getOrderHistory(): ArrayList<Order>
+ setOrderHistory(orderHistory: ArrayList<Order>): void
+ getFullName(): String
+ equals(obj: Object): boolean
+ toString(): String
+ getCustomerInfo(scanner: Scanner): Customer
+ processCustomerChanges(scanner: Scanner, abayaArrayList: ArrayList<Abaya>): void
+ getDeliveryInformation(scanner: Scanner, customer: Customer): void
- validatePhoneNumber(scanner: Scanner): String
uses
uses
1
1
has
belongs to
extends
Order
- orderID: int
- customer: Customer
- shoppingCart: ShoppingCart
- paymentDetails: Payment
- orderDate: Date
- orderStatus: String
+ Order()
+ Order(orderID: int, customer: Customer, shoppingCart: ShoppingCart, paymentDetails: Payment, orderDate: Date)
+ getOrderID(): int
+ setOrderID(orderID: int): void
+ getCustomer(): Customer
+ setCustomer(customer: Customer): void
+ getShoppingCart(): ShoppingCart
+ setShoppingCart(shoppingCart: ShoppingCart): void
+ getPaymentDetails(): Payment
+ setPaymentDetails(paymentDetails: Payment): void
+ getOrderDate(): Date
+ setOrderDate(orderDate: Date): void
+ getOrderStatus(): String
+ setOrderStatus(orderStatus: String): void
+ cancelOrder(): void
+ updateStatus(newStatus: String): void
+ toString(): String
+ equals(obj: Object): boolean
+ processCheckout(scanner: Scanner, customer: Customer, shoppingCart: ShoppingCart): void
+ createOrder(customer: Customer, shoppingCart: ShoppingCart, creditCardPayment: CreditCardPayment): Order
+ displayOrderConfirmation(customer: Customer, order: Order, shoppingCart: ShoppingCart, creditCardPayment: CreditCardPayment): void
+ handleOrderActions(scanner: Scanner, customer: Customer): void
has
1
1
includes
1
has
uses
ShoppingCart
- cartID: int
- items: List<Abaya>
- totalPrice: double
+ ShoppingCart()
+ ShoppingCart(cartID: int, items: List<Abaya>, totalPrice: double)
+ getCartID(): int
+ setCartID(cartID: int): void
+ getItems(): List<Abaya>
+ setItems(items: List<Abaya>): void
+ getTotalPrice(): double
+ setTotalPrice(totalPrice: double): void
+ removeItem(item: Abaya): void
+ clearCart(): void
+ calculateTotalPrice(): double
+ toString(): String
+ equals(obj: Object): boolean
+ handleShoppingCartActions(scanner: Scanner): void
Payment
- paymentID: int
- amount: double
- paymentDate: Date
- status: String
+ Payment()
+ Payment(amount: double, paymentDate: Date)
+ processPayment(): String
+ generateReceipt(): String
+ validatePayment(): boolean
+ getPaymentID(): int
+ setPaymentID(paymentID: int): void
+ getAmount(): double
+ setAmount(amount: double): void
+ getPaymentDate(): Date
+ setPaymentDate(paymentDate: Date): void
+ getStatus(): String
+ setStatus(status: String): void
+ toString(): String
+ equals(obj: Object): boolean
1
contains
Abaya
- productId: int
- style: String
- fabricType: String
- colour: String
- size: int
- price: double
+ Abaya()
+ Abaya(productId: int, style: String, fabricType: String, colour: String, size: int, price: double)
+ getProductId(): int
+ getStyle(): String
+ getFabricType(): String
+ getColour(): String
+ getSize(): int
+ getPrice(): double
+ setProductId(productId: int): void
+ setStyle(style: String): void
+ setFabricType(fabricType: String): void
+ setColour(colour: String): void
+ setSize(size: int): void
+ setPrice(price: double): void
+ equals(otherAbaya: Object): boolean
+ toString(): String
+ calculatePrice(): double

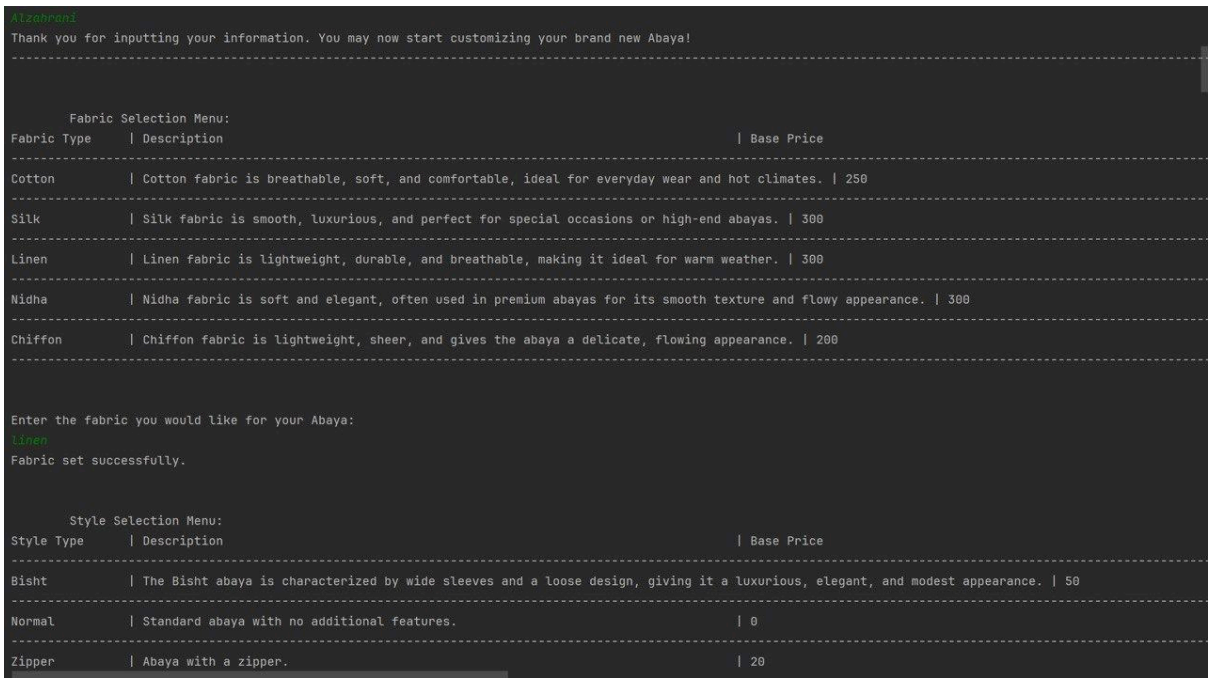
Program outputs:

1. **Welcome screen and user information collection.**



2. **Start of Abaya selection & customization process.**

Displays the fabric, style and colour menus and prompts the user to enter their choices. Includes validation and exception handling for any incorrectly entered values.

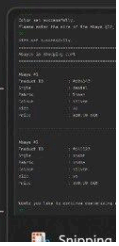


```
        Style Selection Menu:
Style Type      | Description                                                
```

```
Color set successfully.
Please enter the size of the Abaya (52, 54, 56, 58, 60):
58
Size set successfully.
==========
Abayas in Shopping Cart
==========
----------
Abaya #1
Product ID          : #694147
Style               : dantel
Fabric              : linen
Colour              : silver
Size                : 52
Price               : 410.00 SAR

----------
----------
Abaya #2
Product ID          : #641022
Style               : bisht
Fabric              : nidha
Colour              : silver
Size                : 58
Price               : 360.00 SAR

----------
Would you like to continue customizing another Abaya? (yes/no)
no
Your Abaya customizations have been saved.
----------
Here is an overview of your current Abaya selections and customizations:
==========
```

4. **Show the abayas saved in the cart and ask the user if he wants to modify his cart**

```
----------
Abayas in Shopping Cart
==========
----------
Abaya #1
Product ID          : #694147
Style               : dantel
Fabric              : linen
Colour              : silver
Size                : 52
Price               : 410.00 SAR

----------
----------
Abaya #2
Product ID          : #641022
Style               : bisht
Fabric              : nidha
Colour              : silver
Size                : 58
Price               : 360.00 SAR

----------
Would you like to make any changes to your currently customized Abayas? (yes/no)
yes
Enter the product ID of the Abaya you would like to make changes to.
641022
----------
Abaya #2
```



5. **Show the available operations to modify the cart, such as deleting the abaya and showing the cart after modification**

```
What feature would you like to change for this Abaya? (fabric/style/size/colour)
fabric


       Fabric Selection Menu:
Fabric Type     | Description                                                                    | Base Price
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Cotton          | Cotton fabric is breathable, soft, and comfortable, ideal for everyday wear and hot climates. | 250
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Silk            | Silk fabric is smooth, luxurious, and perfect for special occasions or high-end abayas. | 300
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Linen           | Linen fabric is lightweight, durable, and breathable, making it ideal for warm weather. | 300
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Nidha           | Nidha fabric is soft and elegant, often used in premium abayas for its smooth texture and flowy appearance. | 300
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Chiffon         | Chiffon fabric is lightweight, sheer, and gives the abaya a delicate, flowing appearance. | 200
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Please enter the name of the fabric you would like to change your abaya to:
cotton
Fabric change confirmed!
Would you like to make changes to another Abaya? (yes/no)
no
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Customization changes completed. Saving selections to your shopping cart.
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Shopping Cart Actions
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Option 1            | Remove an Abaya from the cart
Option 2             | Clear the entire cart
Option 3             | End shopping cart actions and proceed to checkout.
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Enter your choice (1-3): 1
```

```
Option 3             | End shopping cart actions and proceed to checkout.
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Enter your choice (1-3): 1
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Remove Abaya
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Action              | Enter the product ID of the Abaya to remove
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
641022
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Abaya removed from the cart
-------------------------------------------------------------------------------------------------------------------------------------------------------------------

Updated Shopping Cart:
===================================================================================================================================================================
Abayas in Shopping Cart
===================================================================================================================================================================
-------------------------------------------------------------------------------------------------------------------------------------------------------------------
Abaya #1
Product ID          : #694147
Style               : dantel
Fabric              : linen
Colour              : silver
Size                : 52
Price               : 410.00 SAR

-------------------------------------------------------------------------------------------------------------------------------------------------------------------
===================================================================================================================================================================
===================================================================================================================================================================
Number of Items      | 1
Total Price          | 410.00 SAR
===================================================================================================================================================================
===================================================================================================================================================================
```

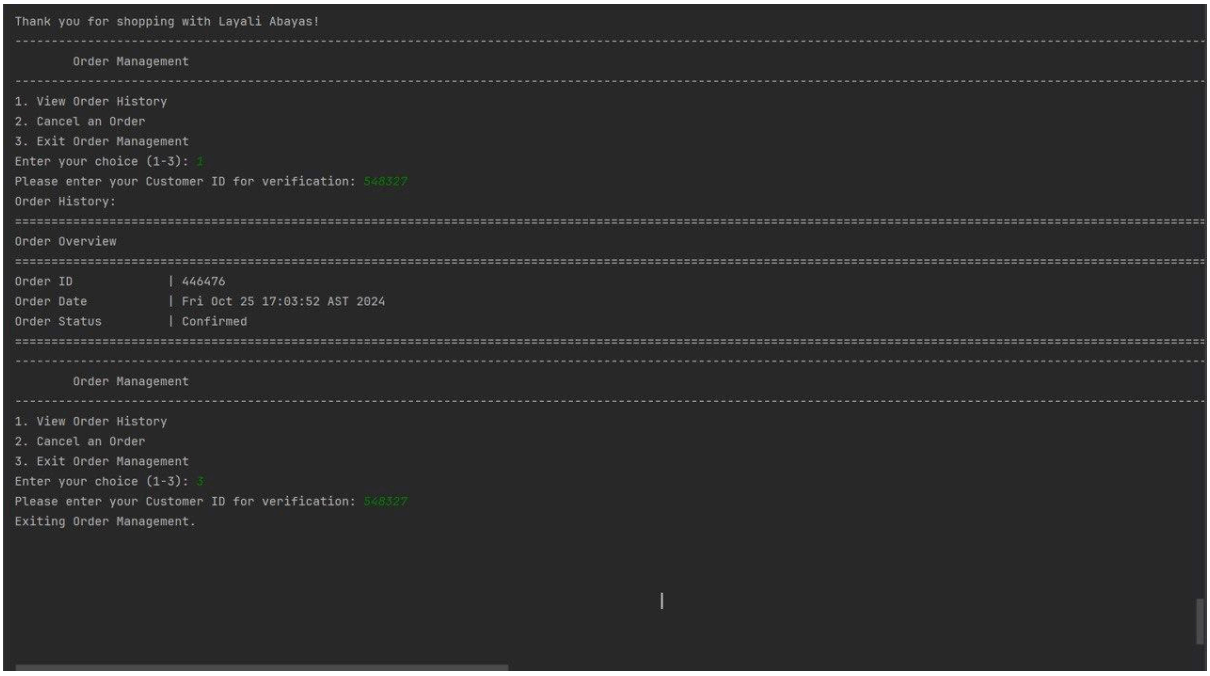
6. Processing to checkout and ask the user for delivery and payment information

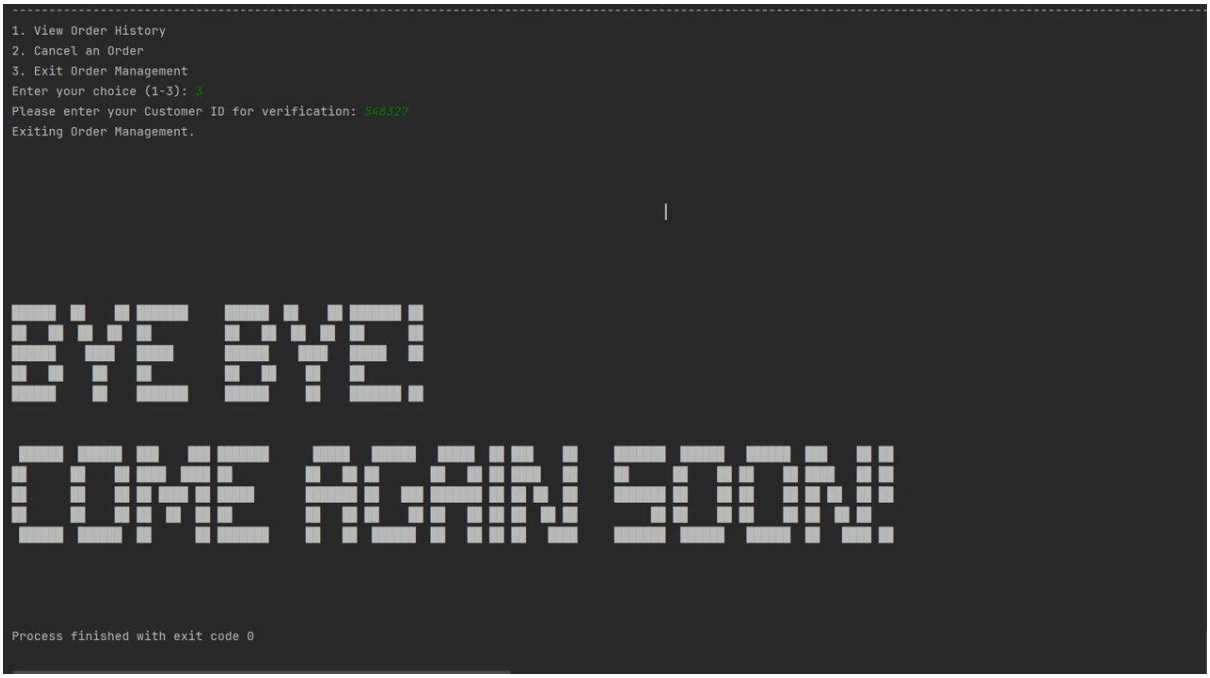
```
Would you like to continue taking actions on the shopping cart? (yes/no)
no
--------------------------------------------------------------------------------------------------------------------------------
--------------------------------------------------------------------------------------------------------------------------------
Proceeding to checkout...
--------------------------------------------------------------------------------------------------------------------------------
        Enter delivery information:
1. Enter home address:
makkah
1. Enter Phone number:
Enter phone number: +966 0558446689
Invalid phone number. Please enter 9 digits.
Enter phone number: +966 558446689
--------------------------------------------------------------------------------------------------------------------------------
Currently, the only method of payment available is through credit card. Would you like to proceed?(yes/no)
yes
--------------------------------------------------------------------------------------------------------------------------------
        Enter payment details:
1. Enter Card Number:
1666166616661666
2. Enter Card holder name:
JooryAlzahrani
3. Enter Card expiry date (MM/yy):
09/28
4. Enter CVV:
232
Credit Card Credentials are correct: Processing...
--------------------------------------------------------------------------------------------------------------------------------
        Order Confirmation
--------------------------------------------------------------------------------------------------------------------------------
Customer Details
--------------------------------------------------------------------------------------------------------------------------------
```

7. Showing order confirmation with customer, order, shopping cart and credit card payment details .

```
Credit Card Credentials are correct: Processing...
--------------------------------------------------------------------------------------------------------------------------------
        Order Confirmation
--------------------------------------------------------------------------------------------------------------------------------
Customer Details
--------------------------------------------------------------------------------------------------------------------------------
Customer ID         | #548327
Full Name            | Joory Alzahrani
Address              | makkah
Phone Number         | +966558446689
--------------------------------------------------------------------------------------------------------------------------------
================================================================================================================================
Order Overview
================================================================================================================================
Order ID             | 446476
Order Date           | Fri Oct 25 17:03:52 AST 2024
Order Status         | Confirmed
================================================================================================================================
================================================================================================================================
Abayas in Shopping Cart
================================================================================================================================
--------------------------------------------------------------------------------------------------------------------------------
Abaya #1
Product ID          : #694147
Style               : dantel
Fabric              : linen
Colour              : silver
Size                : 52
Price               : 410.00 SAR

--------------------------------------------------------------------------------------------------------------------------------
Total Price: SAR 410.0
```

8. Displays the order management section and the operations available on it. User is asked to verify their Customer identity using their ID. Exception handling and validation is implemented for if the user enters an incorrect ID.





9. The program ends, and a nice farewell message is displayed to the user.

Thank you for your time reading and reviewing our project! We hope you enjoy your uniquely customized Abaya's which you should receive in 3-5 days! :)