```java
package project1;
import java.util.Scanner;
public class EcommerceSystem {
    public static void main(String[] args) {
    Scanner scanner = new Scanner(source:System.in);

        ELectronicProduct smartphone = new ELectronicProduct(brand: "smartphone", warrantyPeriod: 1 , productId:1 , name: "Samsung", price: 599.99f);
        ClothingProduct tShirt = new ClothingProduct(size: "Medium", fabric:"Cotton", productId:2, name: "T-shirt", price: 19.99f);
        BookProduct oopBook = new BookProduct(author:"O'Reilly", publisher:"X Publications", productId:3, name: "OOP", price: 39.99f);

        System.out.println(x: "Welcome to the E-Commerce System!");
        System.out.println(x: "Please enter your ID:");
        int id=scanner.nextInt();
        scanner.nextLine();

        System.out.println(x: "Please enter your name:");
        String name=scanner.nextLine();

        System.out.println(x: "Please enter your address:");
        String address=scanner.nextLine();

        System.out.println(x: "How many products you want to add to your cart?");
        int nProducts=scanner.nextInt();
        Product[] products = new Product[nProducts];

        Customer customer = new Customer(customerId: id, name, address);
        Cart cart = new Cart(customerId: id, nProducts, products);

    for (int i=0; i<nProducts; i++) {
        System.out.println(x: "Which product would you like to add? 1- Smartphones 2- T-shirt 3- OOP book");
        int choice = scanner.nextInt();
        scanner.nextLine();
        switch (choice) {
            case 1:
                cart.addProduct(product: smartphone);
                break;
            case 2:
                cart.addProduct(product: tShirt);
                break;
            case 3:
                cart.addProduct(product: oopBook);
                break;
            default:
                System.out.println(x: "Invalid choice! Choose a number between 1-3.");
                i--;
                continue;
        }
    }
        float totalPrice = cart.calculatePrice();
        System.out.println("Your total is $"+totalPrice+" Would you like to place the order? 1-Yes 2- No");
        int OrderChoice=scanner.nextInt();
            Order order = new Order( customerId: customer.getCustomerId(), orderId: 1, products: cart.getProducts(), totalPrice: cart.calculatePrice());
                Order order = new Order( customerId: customer.getCustomerId(), orderId: 1, products: cart.getProduc

            if(OrderChoice==1){
                cart.placeOrder();
                order.printOrderInfo();
            }else if(OrderChoice==2)
                System.out.println(x: "Order wasn't placed");
            System.out.println(x: "Would you like to remove a product from your cart? 1-yes 2-No");
            int removeChoice = scanner.nextInt();
            if(removeChoice <= nProducts && removeChoice != 0){
                System.out.println(x: "Enter index of product you want to remove");
                int indexToRemove = scanner.nextInt();
                cart.removeProduct(index: indexToRemove);
                System.out.println(x: "Product removed.");
                order.printOrderInfo();
            }else
                System.out.println(x: "Invalid");

    }

    }
```

```java
package project1;
public class Product {
    protected int productId;
    protected String name;
    protected float price;

    public Product(int productId, String name, float price) {
        this.productId = Math.abs(a: productId);
        this.name = name;
        this.price = Math.abs(a: price);
    }



    public int getProductId() {
        return productId;
    }

    public void setProductId(int productId) {
        this.productId = Math.abs(a: productId);
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public float getPrice() {
        return price;
    }

    public void setPrice(float price) {
        this.price = Math.abs(a: price);
    } }
```

```java
package project1;
public class ELectronicProduct extends Product {
    private String brand;
    private int warrantyPeriod;

    public ELectronicProduct(String brand, int warrantyPeriod, int productId, String name, float price) {
        super(productId, name, price);
        this.brand = brand;
        this.warrantyPeriod = warrantyPeriod;
    }

    public String getBrand() {
        return brand;
    }

    public void setBrand(String brand) {
        this.brand = brand;
    }

    public int getWarrantyPeriod() {
        return warrantyPeriod;
    }

    public void setWarrantyPeriod(int warrantyPeriod) {
        this.warrantyPeriod = warrantyPeriod;
    }

}
```

```java
package project1;
public class BookProduct extends Product{
    private String author;
    private String publisher;

    public BookProduct(String author, String publisher, int productId, String name, float price) {
        super(productId, name, price);
        this.author = author;
        this.publisher = publisher;
    }

    public String getAuthor() {
        return author;
    }

    public void setAuthor(String author) {
        this.author = author;
    }

    public String getPublisher() {
        return publisher;
    }

    public void setPublisher(String publisher) {
        this.publisher = publisher;
    }

}
```

```java
package project1;
public class ClothingProduct extends Product {
    private String size;
    private String fabric;

    public ClothingProduct(String size, String fabric, int productId, String name, float price) {
        super(productId, name, price);
        this.size = size;
        this.fabric = fabric;
    }

    public String getSize() {
        return size;
    }

    public void setSize(String size) {
        this.size = size;
    }

    public String getFabric() {
        return fabric;
    }

    public void setFabric(String fabric) {
        this.fabric = fabric;
    }

}
```

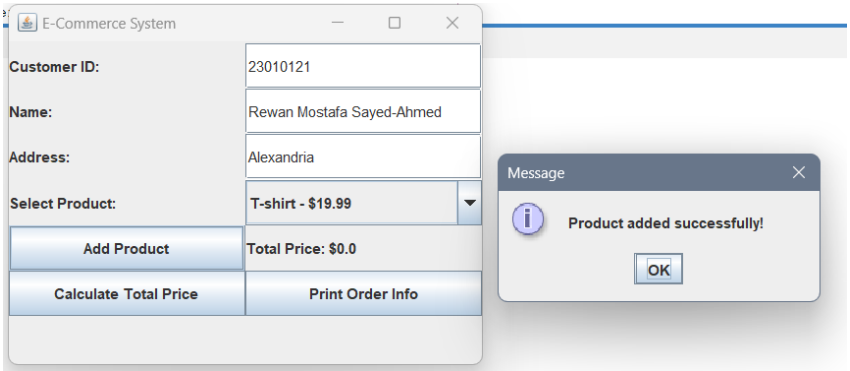
```java
package project1;
public class Customer {
    private int customerId;
    private String name;
    private String address;

    public Customer(int customerId, String name, String address) {
        this.customerId = Math.abs(a: customerId);
        this.name = name;
        this.address = address;
    }

    public int getCustomerId() {
        return Math.abs(a: customerId);
    }

    public void setCustomerId(int customerId) {
        this.customerId = customerId;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public String getAddress() {
        return address;
    }

    public void setAddress(String address) {
        this.address = address;
    }
}
```

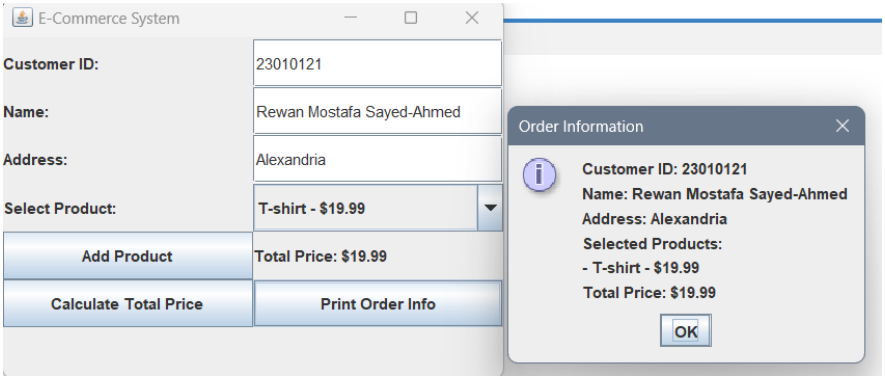
```java
package project1;
public class Order {
    private int customerId;
    private int orderId;
    private Product[] products;
    private float totalPrice;

    public Order(int customerId, int orderId, Product[] products, float totalPrice) {
        this.customerId = Math.abs(a: customerId);
        this.orderId = Math.abs(a: orderId);
        this.products = products;
        this.totalPrice = Math.abs(a: totalPrice);
    }

    public void printOrderInfo() {
        System.out.println(x: "Your order's symmary: ");
        System.out.println("Order ID: " + orderId);
        System.out.println("Customer ID: " + customerId);
        for (Product product : products) {
            if (product != null) {
                System.out.println(product.getName()+" $" + product.getPrice());
            }
        }
        System.out.println("Total price: $"+totalPrice);
    }

}
```

```java
package project1;
public class Cart {
    private int customerId;
    private int nProducts;
    private Product[] products;

    public Cart(int customerId, int nProducts, Product[] products) {
        this.customerId = customerId;
        this.nProducts = nProducts;
        this.products = products;
    }

    public int getCustomerId() {
        return customerId;
    }

    public void setCustomerId(int customerId) {
        this.customerId = customerId;
    }

    public int getnProducts() {
        return Math.abs(a: nProducts);
    }

    public void setnProducts(int nProducts) {
        this.nProducts = nProducts;
    }

    public Product[] getProducts() {
        return products;
    }

    public void setProducts(Product[] products) {
        this.products = products;
    }


    public void addProduct(Product product) {
        for (int i = 0; i<products.length; i++) {
            if (products[i] == null) {
                products[i] = product;
                break;
            }
        }
    }

    public void removeProduct(int index) {
        for (int i = 0; i<products.length; i++) {
           if(i >= 0 && index < nProducts){
               products[i]=null;
               break;
           }
        }
    }

    public float calculatePrice() {
        float totalPrice = 0;
        for(int i=0; i<nProducts; i++){
            totalPrice += products[i].getPrice();
        }
        return totalPrice;
    }

    public void placeOrder(){
          System.out.println(x: "Order was placed successfully!");

    }
    }
```

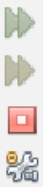
```java
package project1;
import javax.swing.*;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class GUI extends JFrame {
    private JLabel customerIdLabel, nameLabel, addressLabel, productsLabel, totalPriceLabel;
    private JTextField customerIdField, nameField, addressField;
    private JComboBox<String> productsComboBox;
    private JButton addProductButton, calculatePriceButton, printOrderButton;
    private String[] selectedProducts = new String[3]; // Assuming a maximum of 3 products can be selected
    private double totalPrice = 0;

    public GUI() {
        setTitle(title: "E-Commerce System");
        setSize(width: 400, height:300);
        setDefaultCloseOperation(operation:JFrame.EXIT_ON_CLOSE);
        setLayout(new GridLayout(rows: 7, cols: 2));

        customerIdLabel = new JLabel(text: "Customer ID:");
        add(comp: customerIdLabel);
        customerIdField = new JTextField();
        add(comp: customerIdField);

        nameLabel = new JLabel(text: "Name:");
        add(comp: nameLabel);
        nameField = new JTextField();
        add(comp: nameField);

        addressLabel = new JLabel(text: "Address:");
        add(comp: addressLabel);
        addressField = new JTextField();
        add(comp: addressField);

        productsLabel = new JLabel(text: "Select Product:");
        add(comp: productsLabel);
        String[] products = {"T-shirt - $19.99", "Smartphone - $599.9", "OOP Book - $39.99"};
        productsComboBox = new JComboBox<>(items: products);
        add(comp: productsComboBox);

        addProductButton = new JButton(text: "Add Product");
        add(comp: addProductButton);

        totalPriceLabel = new JLabel(text: "Total Price: $0.0");
        add(comp: totalPriceLabel);

        calculatePriceButton = new JButton(text: "Calculate Total Price");
        add(comp: calculatePriceButton);

        printOrderButton = new JButton(text: "Print Order Info");
        add(comp: printOrderButton);

        addProductButton.addActionListener(new ActionListener() {
            @Override
            public void actionPerformed(ActionEvent e) {
                for (int i = 0; i < selectedProducts.length; i++) {
                    if (selectedProducts[i] == null) {
                        selectedProducts[i] = (String) productsComboBox.getSelectedItem();
                        JOptionPane.showMessageDialog(parentComponent: null, message: "Product added successfully!");
                        break;
                    }
                }
            }
        });
```

```java
        calculatePriceButton.addActionListener(new ActionListener() {
            @Override
            public void actionPerformed(ActionEvent e) {
                totalPrice = 0;
                for (String product : selectedProducts) {
                    if (product != null) {
                        if (product.contains(s: "T-shirt")) {
                            totalPrice += 19.99;
                        } else if (product.contains(s: "Smartphone")) {
                            totalPrice += 599.9;
                        } else if (product.contains(s: "OOP Book")) {
                            totalPrice += 39.99;
                        }
                    }
                }
                totalPriceLabel.setText("Total Price: $" + totalPrice);
            }
        });

        printOrderButton.addActionListener(new ActionListener() {
            @Override
            public void actionPerformed(ActionEvent e) {
                StringBuilder orderInfo = new StringBuilder();
                orderInfo.append(str: "Customer ID: ").append(str: customerIdField.getText()).append(str: "\n");
                orderInfo.append(str: "Name: ").append(str: nameField.getText()).append(str: "\n");
                orderInfo.append(str: "Address: ").append(str: addressField.getText()).append(str: "\n");
                orderInfo.append(str: "Selected Products:\n");
                for (String product : selectedProducts) {
                    if (product != null) {
                        orderInfo.append(str: "- ").append(str: product).append(str: "\n");
                    }
                }
                orderInfo.append(str: "Total Price: $").append(d: totalPrice);
                JOptionPane.showMessageDialog(parentComponent: null, message: orderInfo.toString(), title: "Order Information", messageType: JOptionPane.INFORMATION_MESSAGE);
            }
        });


        setVisible(b: true);
    }

    public static void main(String[] args) {
        SwingUtilities.invokeLater(() -> new GUI());
    }
}
```





Output - **Project1 (run)**



```
run:
Welcome to the E-Commerce System!
Please enter your ID:
23010121
Please enter your name:
Rewan Mostafa Sayed-Ahmed Ramadan
Please enter your address:
Alexandria
How many products you want to add to your cart?
4
Which product would you like to add? 1- Smartphones 2- T-shirt 3- OOP book
1
Which product would you like to add? 1- Smartphones 2- T-shirt 3- OOP book
2
Which product would you like to add? 1- Smartphones 2- T-shirt 3- OOP book
3
Which product would you like to add? 1- Smartphones 2- T-shirt 3- OOP book
1
Your total is $1259.96 Would you like to place the order? 1-Yes 2- No
1
Order was placed successfully!
Your order's symmary:
Order ID: 1
Customer ID: 23010121
Samsung $599.99
T-shirt $19.99
OOP $39.99
Samsung $599.99
Total price: $1259.96
Would you like to remove a product from your cart? 1-yes 2-No
```