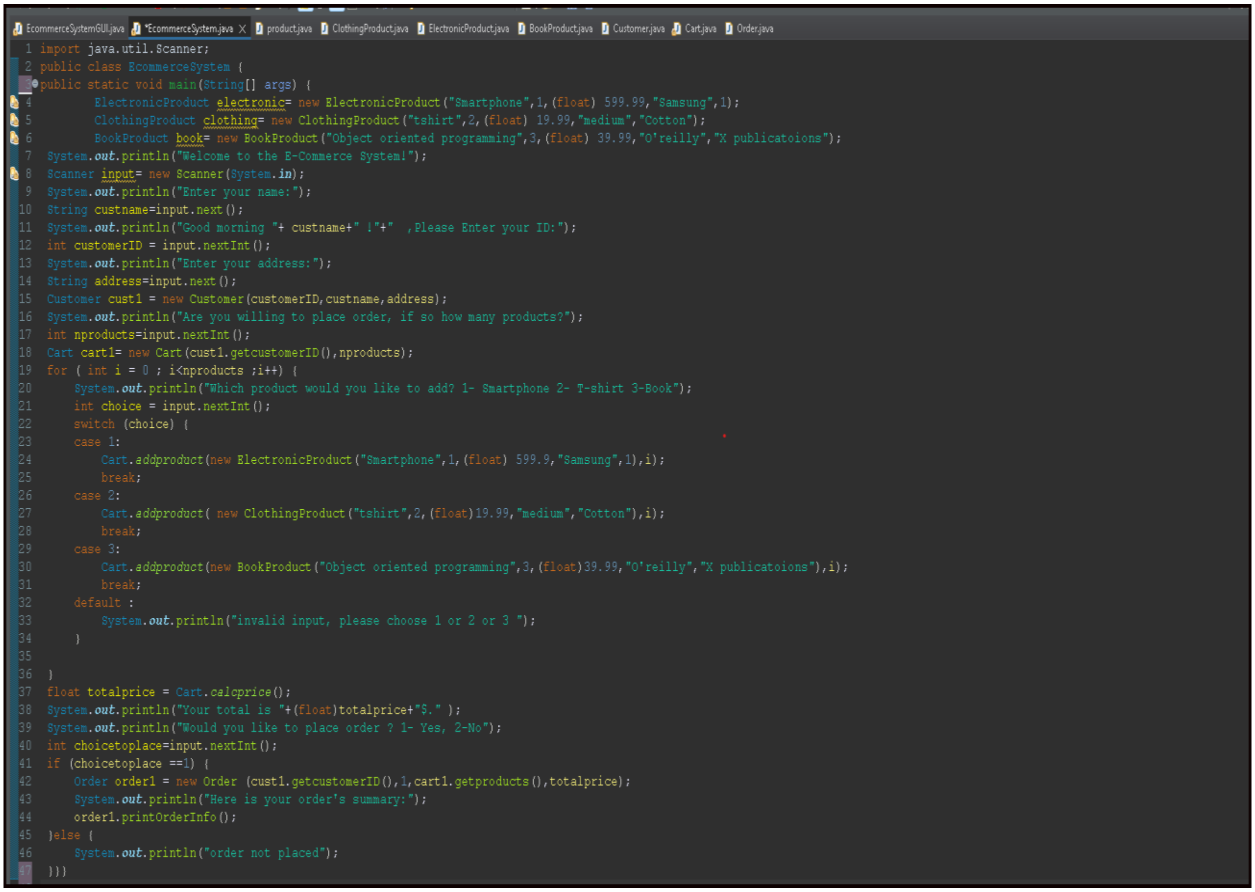
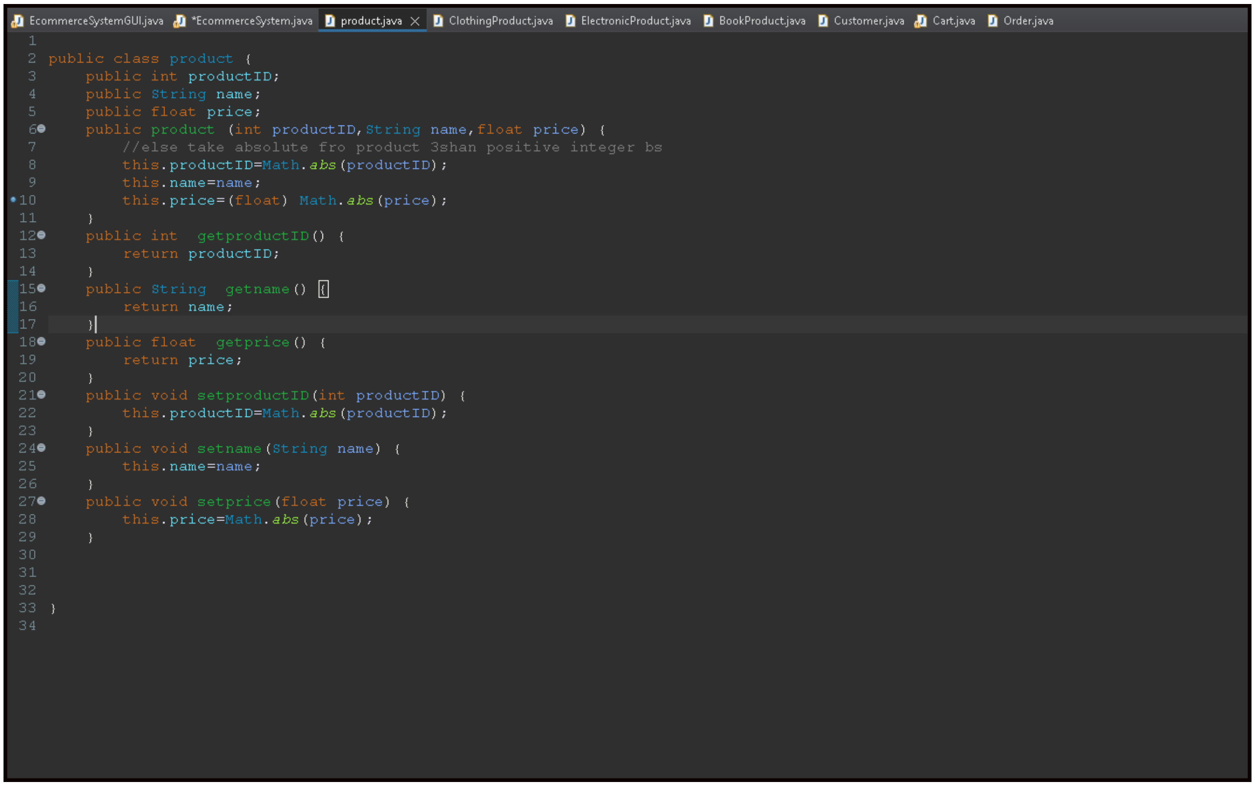
Main class : EcommerceSystem:



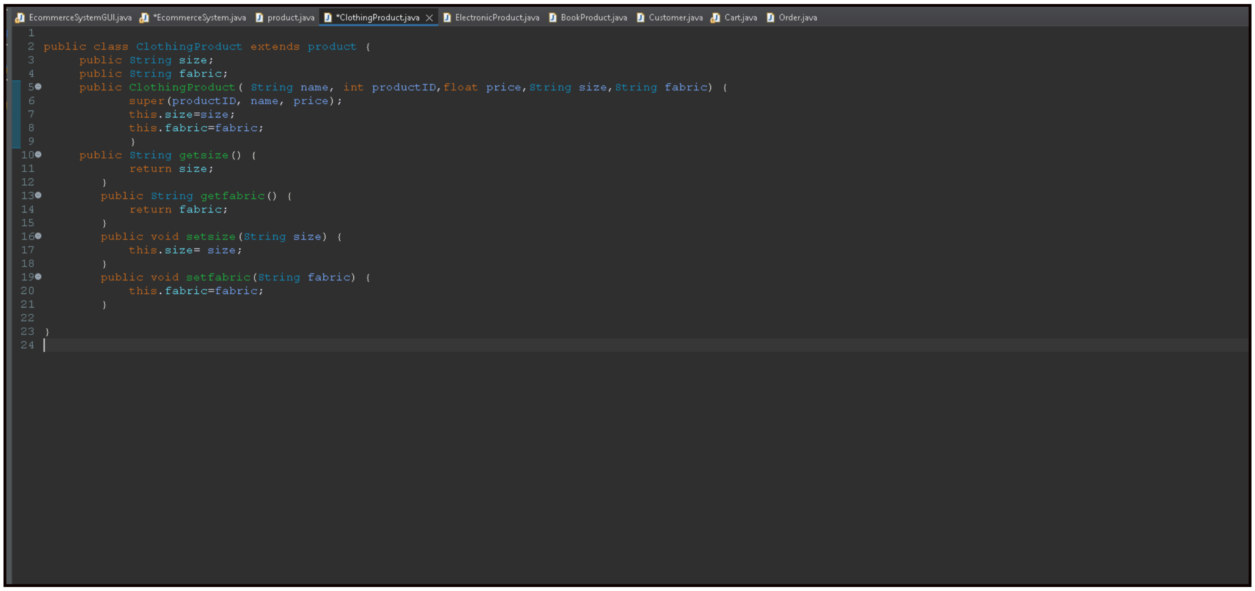
```java
import java.util.Scanner;
public class EcommerceSystem {
public static void main(String[] args) {
        ElectronicProduct electronic= new ElectronicProduct("Smartphone",1,(float) 599.99,"Samsung",1);
        ClothingProduct clothing= new ClothingProduct("tshirt",2,(float) 19.99,"medium","Cotton");
        BookProduct book= new BookProduct("Object oriented programming",3,(float) 39.99,"O'reilly","X publicatoions");
 System.out.println("Welcome to the E-Commerce System!");
 Scanner input= new Scanner(System.in);
 System.out.println("Enter your name:");
 String custname=input.next();
 System.out.println("Good morning "+ custname+" !"+"  ,Please Enter your ID:");
 int customerID = input.nextInt();
 System.out.println("Enter your address:");
 String address=input.next();
 Customer cust1 = new Customer(customerID,custname,address);
 System.out.println("Are you willing to place order, if so how many products?");
 int nproducts=input.nextInt();
 Cart cart1= new Cart(cust1.getcustomerID(),nproducts);
 for ( int i = 0 ; i<nproducts ;i++) {
     System.out.println("Which product would you like to add? 1- Smartphone 2- T-shirt 3-Book");
     int choice = input.nextInt();
     switch (choice) {
     case 1:
         Cart.addproduct(new ElectronicProduct("Smartphone",1,(float) 599.9,"Samsung",1),i);
         break;
     case 2:
         Cart.addproduct( new ClothingProduct("tshirt",2,(float)19.99,"medium","Cotton"),i);
         break;
     case 3:
         Cart.addproduct(new BookProduct("Object oriented programming",3,(float)39.99,"O'reilly","X publicatoions"),i);
         break;
     default :
         System.out.println("invalid input, please choose 1 or 2 or 3 ");
     }

 }
 float totalprice = Cart.calcprice();
 System.out.println("Your total is "+(float)totalprice+"$." );
 System.out.println("Would you like to place order ? 1- Yes, 2-No");
 int choicetoplace=input.nextInt();
 if (choicetoplace ==1) {
     Order order1 = new Order (cust1.getcustomerID(),1,cart1.getproducts(),totalprice);
     System.out.println("Here is your order's summary:");
     order1.printOrderInfo();
 }else {
     System.out.println("order not placed");
 }}}
```

Product class:



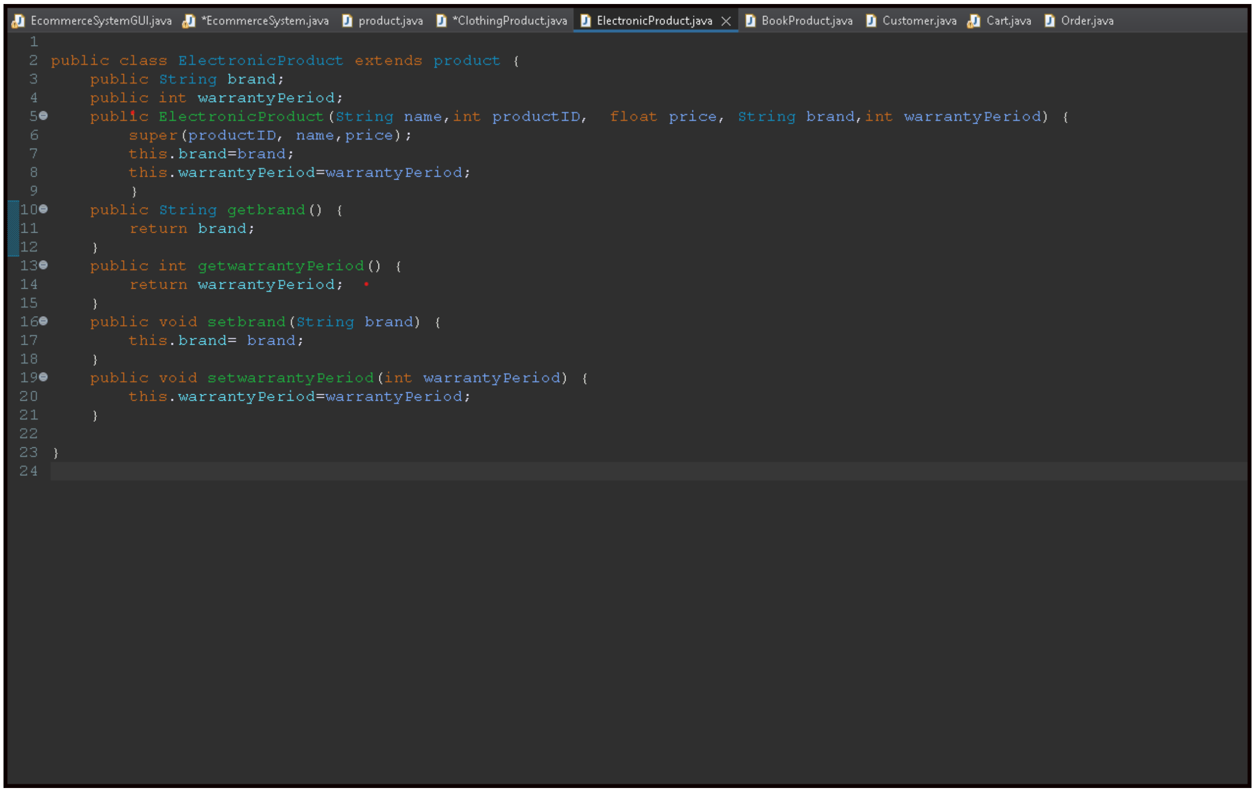
```java

public class product {
    public int productID;
    public String name;
    public float price;
    public product (int productID,String name,float price) {
        //else take absolute fro product 3shan positive integer bs
        this.productID=Math.abs(productID);
        this.name=name;
        this.price=(float) Math.abs(price);
    }
    public int  getproductID() {
        return productID;
    }
    public String  getname() {
        return name;
    }
    public float  getprice() {
        return price;
    }
    public void setproductID(int productID) {
        this.productID=Math.abs(productID);
    }
    public void setname(String name) {
        this.name=name;
    }
    public void setprice(float price) {
        this.price=Math.abs(price);
    }



}

```

Clothing product class:



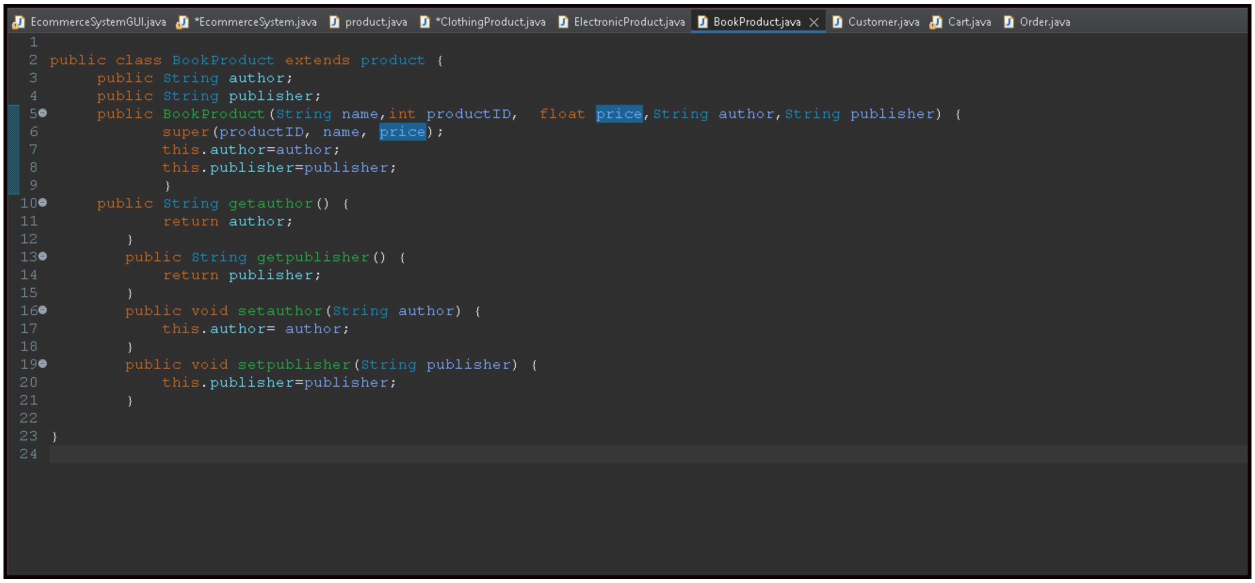
```

public class ClothingProduct extends product {
     public String size;
     public String fabric;
     public ClothingProduct( String name, int productID,float price,String size,String fabric) {
            super(productID, name, price);
            this.size=size;
            this.fabric=fabric;
            }
     public String getsize() {
            return size;
        }
        public String getfabric() {
            return fabric;
        }
        public void setsize(String size) {
            this.size= size;
        }
        public void setfabric(String fabric) {
            this.fabric=fabric;
        }

}

```

Electroinc product :



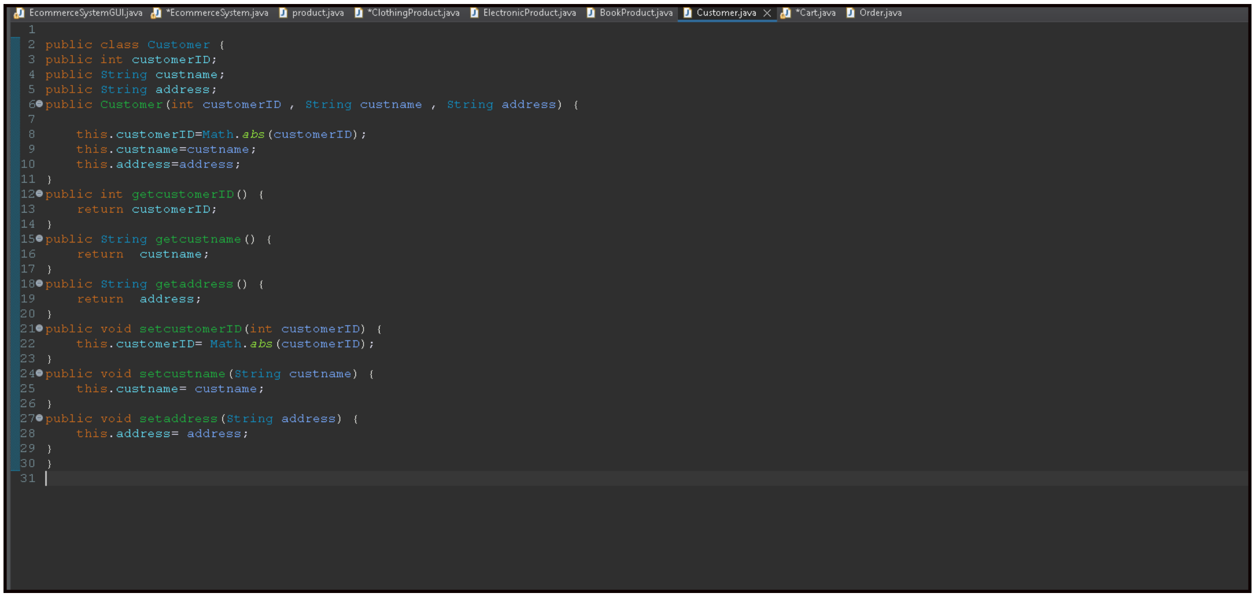
```

public class ElectronicProduct extends product {
    public String brand;
    public int warrantyPeriod;
    public ElectronicProduct(String name,int productID,  float price, String brand,int warrantyPeriod) {
        super(productID, name,price);
        this.brand=brand;
        this.warrantyPeriod=warrantyPeriod;
        }
    public String getbrand() {
        return brand;
    }
    public int getwarrantyPeriod() {
        return warrantyPeriod;
    }
    public void setbrand(String brand) {
        this.brand= brand;
    }
    public void setwarrantyPeriod(int warrantyPeriod) {
        this.warrantyPeriod=warrantyPeriod;
    }

}

```

Book product :



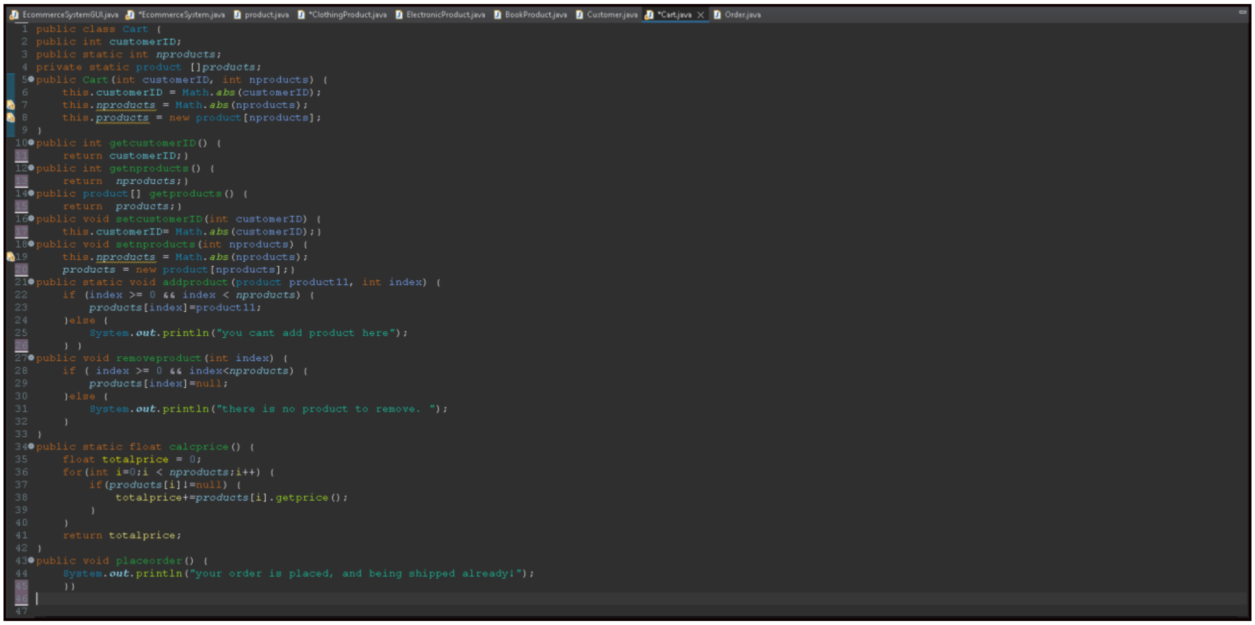
```java

public class BookProduct extends product {
     public String author;
     public String publisher;
     public BookProduct(String name,int productID,  float price,String author,String publisher) {
            super(productID, name, price);
            this.author=author;
            this.publisher=publisher;
            }
     public String getauthor() {
            return author;
        }
        public String getpublisher() {
            return publisher;
        }
        public void setauthor(String author) {
            this.author= author;
        }
        public void setpublisher(String publisher) {
            this.publisher=publisher;
        }

}

```

Customer class:



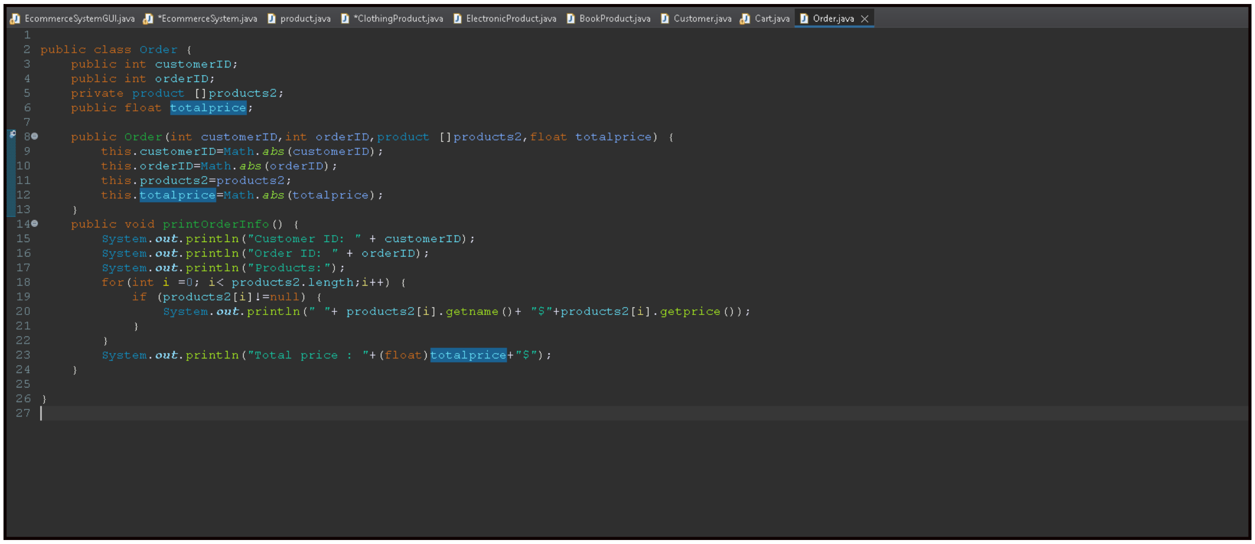
```java

public class Customer {
public int customerID;
public String custname;
public String address;
public Customer(int customerID , String custname , String address) {

    this.customerID=Math.abs(customerID);
    this.custname=custname;
    this.address=address;
}
public int getcustomerID() {
    return customerID;
}
public String getcustname() {
    return  custname;
}
public String getaddress() {
    return  address;
}
public void setcustomerID(int customerID) {
    this.customerID= Math.abs(customerID);
}
public void setcustname(String custname) {
    this.custname= custname;
}
public void setaddress(String address) {
    this.address= address;
}
}

```

Cart class:



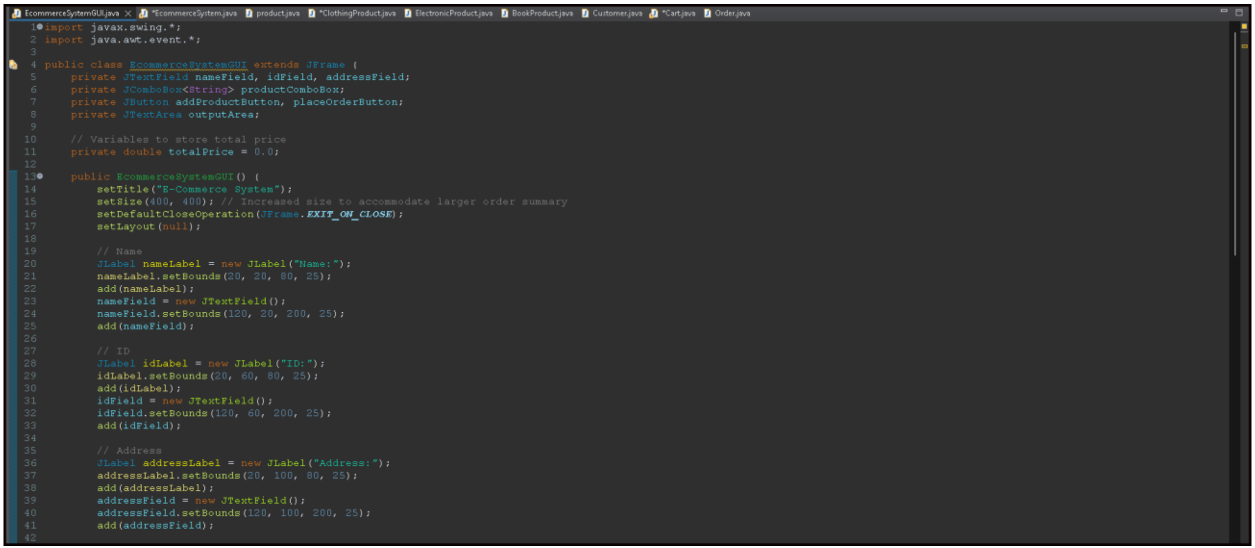
```java
public class Cart {
public int customerID;
public static int nproducts;
private static product []products;
public Cart(int customerID, int nproducts) {
    this.customerID = Math.abs(customerID);
    this.nproducts = Math.abs(nproducts);
    this.products = new product[nproducts];
}
public int getcustomerID() {
    return customerID;}
public int getnproducts() {
    return  nproducts;}
public product[] getproducts() {
    return  products;}
public void setcustomerID(int customerID) {
    this.customerID= Math.abs(customerID);}
public void setnproducts(int nproducts) {
    this.nproducts = Math.abs(nproducts);
    products = new product[nproducts];}
public static void addproduct(product product11, int index) {
    if (index >= 0 && index < nproducts) {
        products[index]=product11;
    }else {
        System.out.println("you cant add product here");
    } }
public void removeproduct(int index) {
    if ( index >= 0 && index<nproducts) {
        products[index]=null;
    }else {
        System.out.println("there is no product to remove. ");
    }
}
public static float calcprice() {
    float totalprice = 0;
    for(int i=0;i < nproducts;i++) {
        if(products[i]!=null) {
            totalprice+=products[i].getprice();
        }
    }
    return totalprice;
}
public void placeorder() {
    System.out.println("your order is placed, and being shipped already!");
    }}
```

Order class:

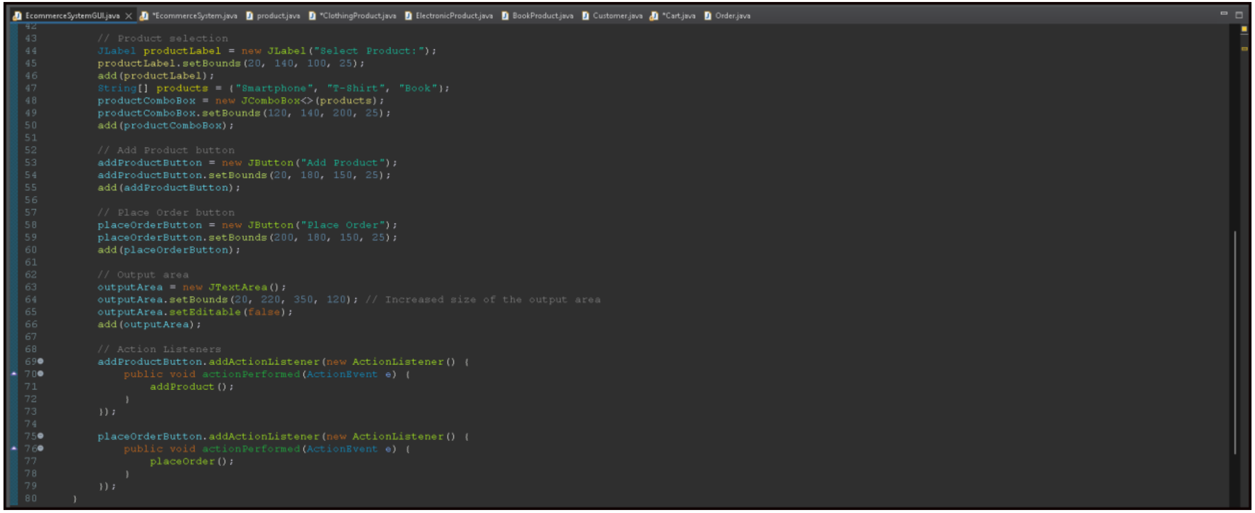


```java

public class Order {
    public int customerID;
    public int orderID;
    private product []products2;
    public float totalprice;

    public Order(int customerID,int orderID,product []products2,float totalprice) {
        this.customerID=Math.abs(customerID);
        this.orderID=Math.abs(orderID);
        this.products2=products2;
        this.totalprice=Math.abs(totalprice);
    }
    public void printOrderInfo() {
        System.out.println("Customer ID:  " + customerID);
        System.out.println("Order ID:  " + orderID);
        System.out.println("Products:");
        for(int i =0; i< products2.length;i++) {
            if (products2[i]!=null) {
                System.out.println(" "+ products2[i].getname()+ "$"+products2[i].getprice());
            }
        }
        System.out.println("Total price : "+(float)totalprice+"$");
    }

}

```

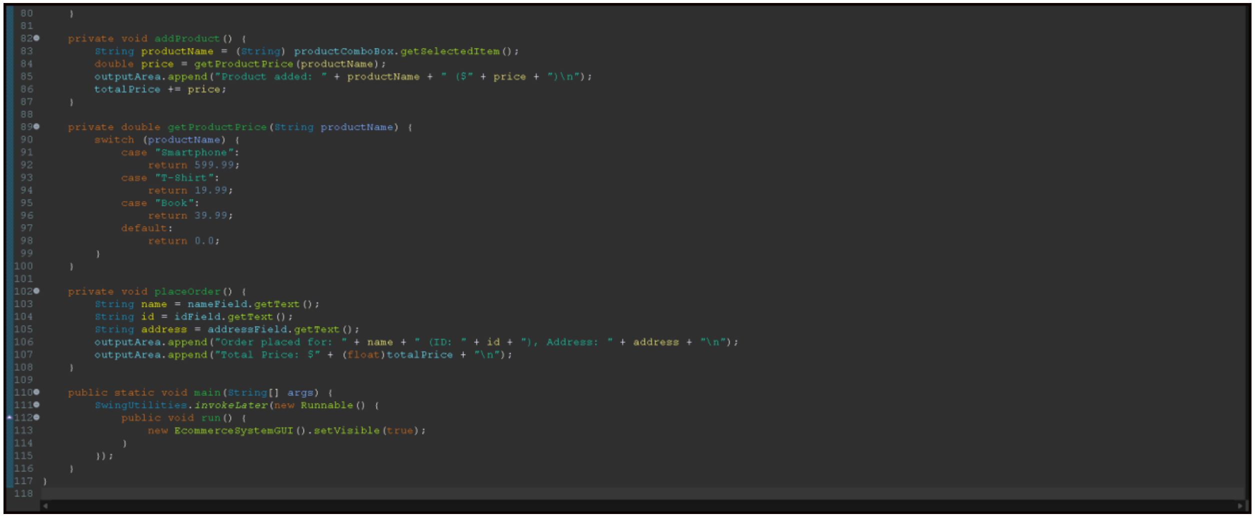
GUI class:



```java
import javax.swing.*;
import java.awt.event.*;

public class EcommerceSystemGUI extends JFrame {
    private JTextField nameField, idField, addressField;
    private JComboBox<String> productComboBox;
    private JButton addProductButton, placeOrderButton;
    private JTextArea outputArea;

    // Variables to store total price
    private double totalPrice = 0.0;

    public EcommerceSystemGUI() {
        setTitle("E-Commerce System");
        setSize(400, 400); // Increased size to accommodate larger order summary
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setLayout(null);

        // Name
        JLabel nameLabel = new JLabel("Name:");
        nameLabel.setBounds(20, 20, 80, 25);
        add(nameLabel);
        nameField = new JTextField();
        nameField.setBounds(120, 20, 200, 25);
        add(nameField);

        // ID
        JLabel idLabel = new JLabel("ID:");
        idLabel.setBounds(20, 60, 80, 25);
        add(idLabel);
        idField = new JTextField();
        idField.setBounds(120, 60, 200, 25);
        add(idField);

        // Address
        JLabel addressLabel = new JLabel("Address:");
        addressLabel.setBounds(20, 100, 80, 25);
        add(addressLabel);
        addressField = new JTextField();
        addressField.setBounds(120, 100, 200, 25);
        add(addressField);

```

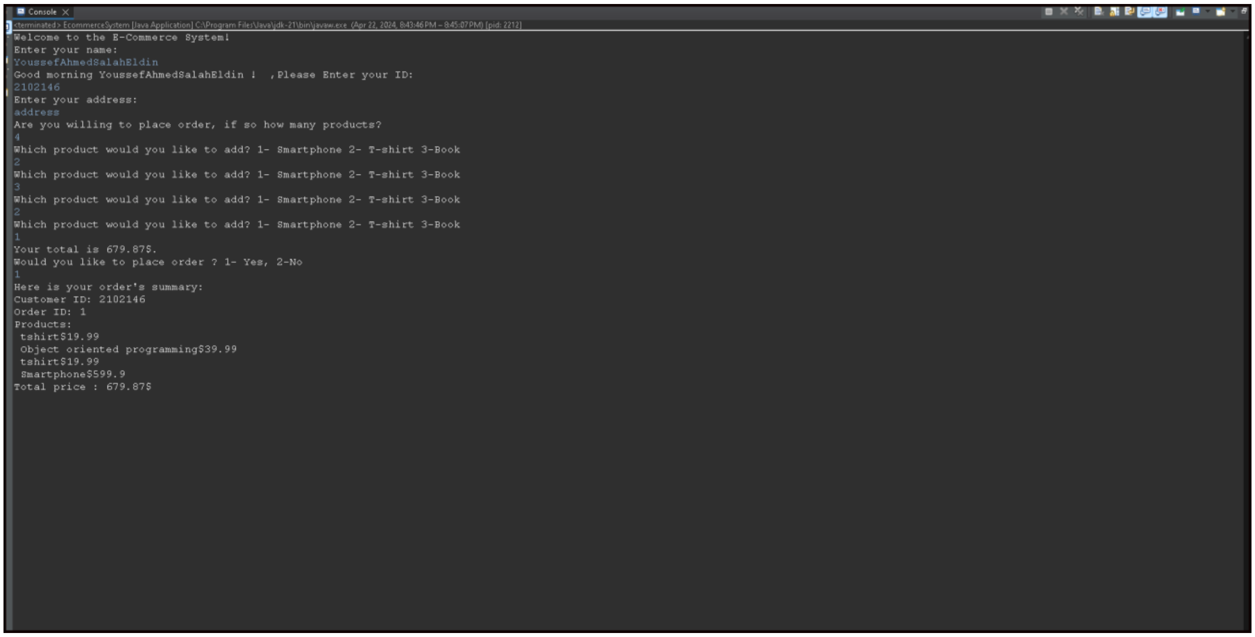


```java
        // Product selection
        JLabel productLabel = new JLabel("Select Product:");
        productLabel.setBounds(20, 140, 100, 25);
        add(productLabel);
        String[] products = {"Smartphone", "T-Shirt", "Book"};
        productComboBox = new JComboBox<>(products);
        productComboBox.setBounds(120, 140, 200, 25);
        add(productComboBox);

        // Add Product button
        addProductButton = new JButton("Add Product");
        addProductButton.setBounds(20, 180, 150, 25);
        add(addProductButton);

        // Place Order button
        placeOrderButton = new JButton("Place Order");
        placeOrderButton.setBounds(200, 180, 150, 25);
        add(placeOrderButton);

        // Output area
        outputArea = new JTextArea();
        outputArea.setBounds(20, 220, 350, 120); // Increased size of the output area
        outputArea.setEditable(false);
        add(outputArea);

        // Action Listeners
        addProductButton.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {
                addProduct();
            }
        });

        placeOrderButton.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {
                placeOrder();
            }
        });
    }
```



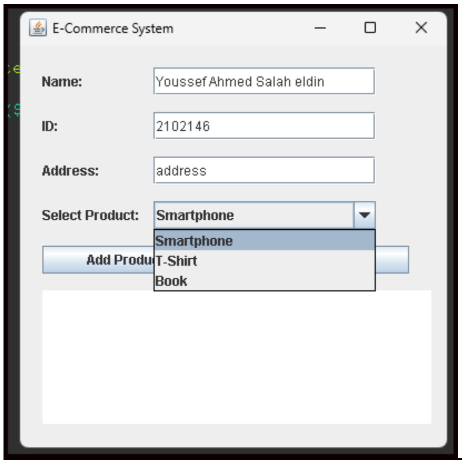
```java
    }

    private void addProduct() {
        String productName = (String) productComboBox.getSelectedItem();
        double price = getProductPrice(productName);
        outputArea.append("Product added: " + productName + " ($" + price + ")\n");
        totalPrice += price;
    }

    private double getProductPrice(String productName) {
        switch (productName) {
            case "Smartphone":
                return 599.99;
            case "T-Shirt":
                return 19.99;
            case "Book":
                return 39.99;
            default:
                return 0.0;
        }
    }

    private void placeOrder() {
        String name = nameField.getText();
        String id = idField.getText();
        String address = addressField.getText();
        outputArea.append("Order placed for: " + name + " (ID: " + id + "), Address: " + address + "\n");
        outputArea.append("Total Price: $" + (float)totalPrice + "\n");
    }

    public static void main(String[] args) {
        SwingUtilities.invokeLater(new Runnable() {
            public void run() {
                new EcommerceSystemGUI().setVisible(true);
            }
        });
    }
}
```

Test case:



```
<terminated> EcommerceSystem [Java Application] C:\Program Files\Java\jdk-21\bin\javaw.exe  (Apr 22, 2024, 8:43:46 PM – 8:45:07 PM) [pid: 2212]
Welcome to the E-Commerce System!
Enter your name:
YoussefAhmedSalahEldin
Good morning YoussefAhmedSalahEldin !  ,Please Enter your ID:
2102146
Enter your address:
address
Are you willing to place order, if so how many products?
4
Which product would you like to add? 1- Smartphone 2- T-shirt 3-Book
2
Which product would you like to add? 1- Smartphone 2- T-shirt 3-Book
3
Which product would you like to add? 1- Smartphone 2- T-shirt 3-Book
2
Which product would you like to add? 1- Smartphone 2- T-shirt 3-Book
1
Your total is 679.87$.
Would you like to place order ? 1- Yes, 2-No
1
Here is your order's summary:
Customer ID: 2102146
Order ID: 1
Products:
 tshirt$19.99
 Object oriented programming$39.99
 tshirt$19.99
 Smartphone$599.9
Total price : 679.87$
```

GUI example :

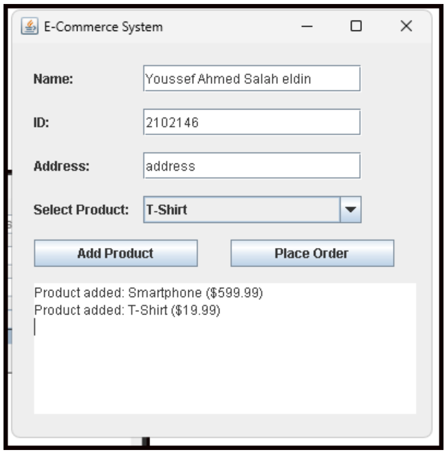


Name: Youssef Ahmed Salah eldin

ID: 2102146

Address: address

Select Product: Smartphone



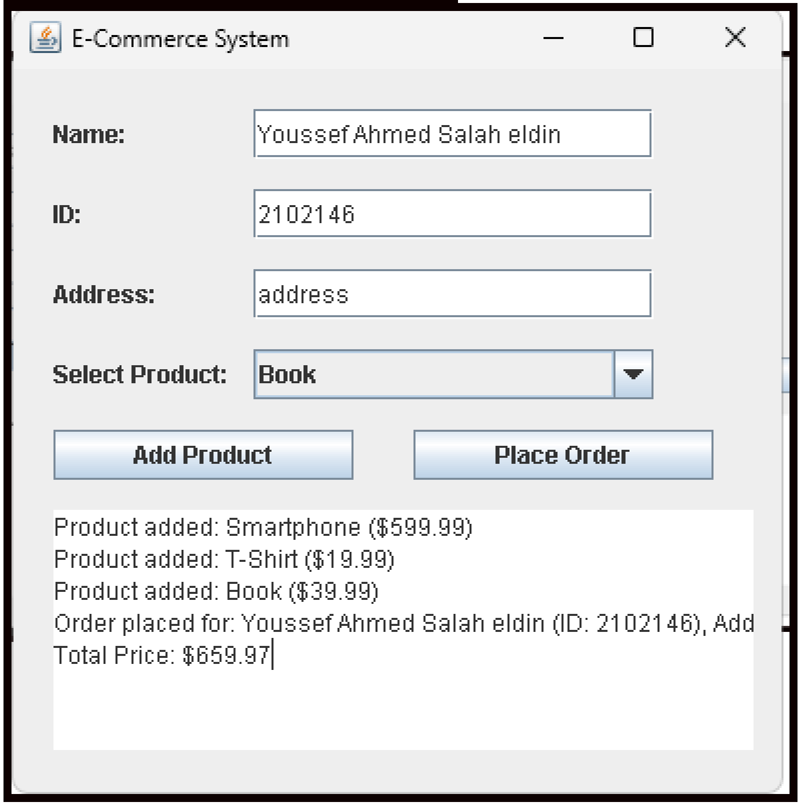
Name: Youssef Ahmed Salah eldin

ID: 2102146

Address: address

Select Product: T-Shirt

```
Product added: Smartphone ($599.99)
Product added: T-Shirt ($19.99)
```



Name: Youssef Ahmed Salah eldin

ID: 2102146

Address: address

Select Product: Book

```
Product added: Smartphone ($599.99)
Product added: T-Shirt ($19.99)
Product added: Book ($39.99)
Order placed for: Youssef Ahmed Salah eldin (ID: 2102146), Add
Total Price: $659.97
```