بسم الله الرحمن الرحيم

Name: Yousef Khaled Shawkyy

ID:23011635

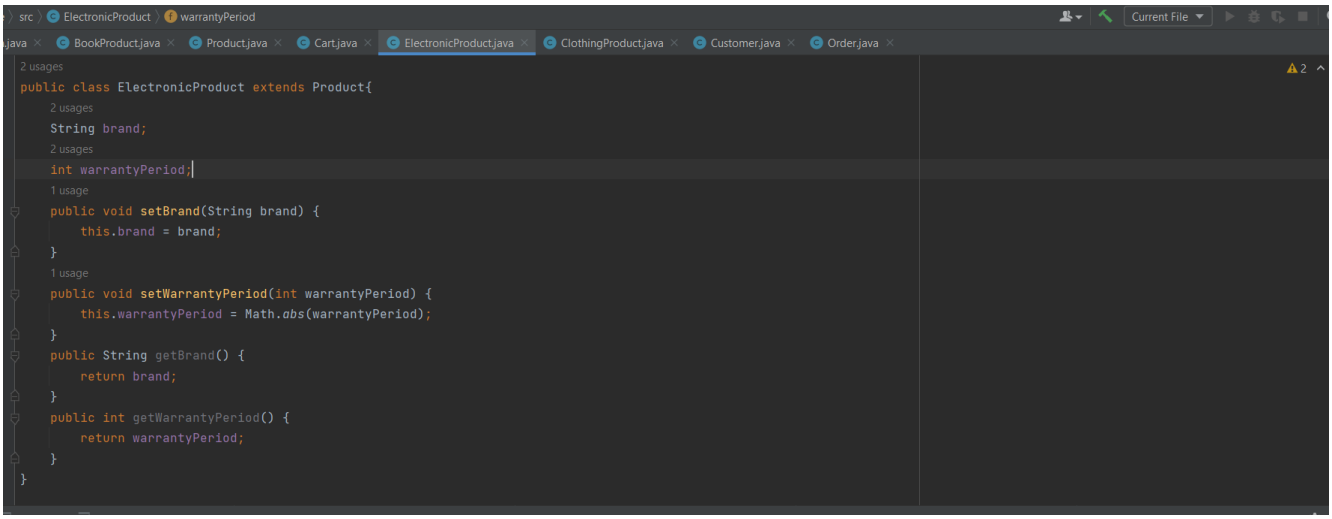
First Class product

ده اول كلاس خالص ده اللي هنعمله انهريت للكلاسيس التانية زي الالكترونيك برودكت و البوك برودكت و كلوثينج بروديكت

BookProduct.java | Product.java | Cart.java | ElectronicProduct.java | ClothingProduct.java | Customer.java | Order.java

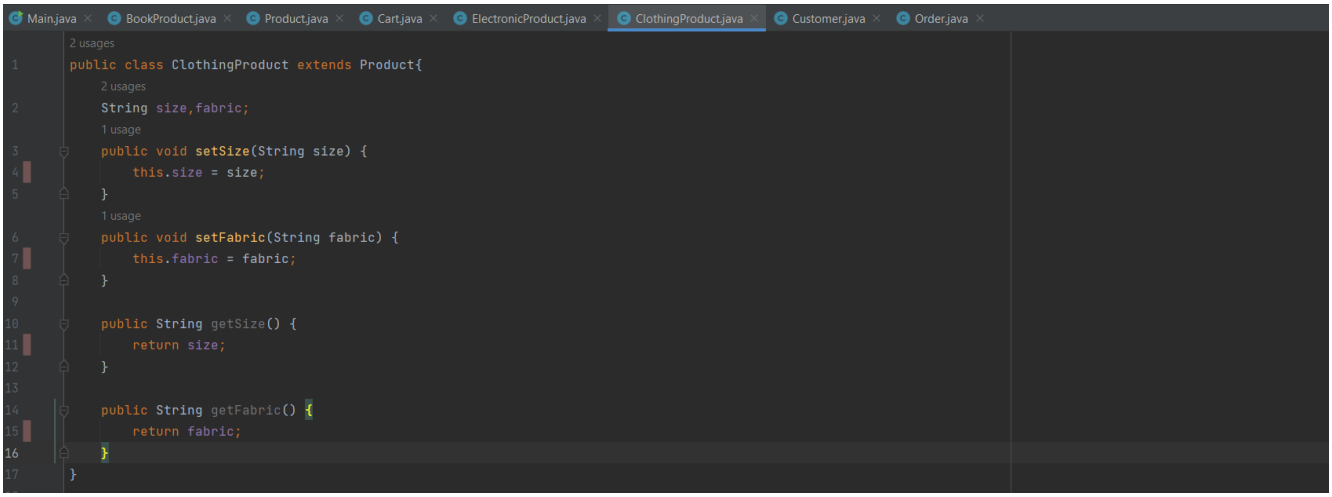
```
ages  3 inheritors
lic class Product {
2 usages
int productId;
  2 usages
  String name;
  2 usages
  double price;
3 usages
public void setProductId(int productId) { this.productId = Math.abs(productId); }
3 usages
public void setName(String name) { this.name = name; }
3 usages
public void setPrice(double price) { this.price = Math.abs(price); }

public int getProductId() { return productId; }
1 usage
public String getName() { return name; }
2 usages
public double getPrice() {
    return price;
}
```

Class ElectronicProduct



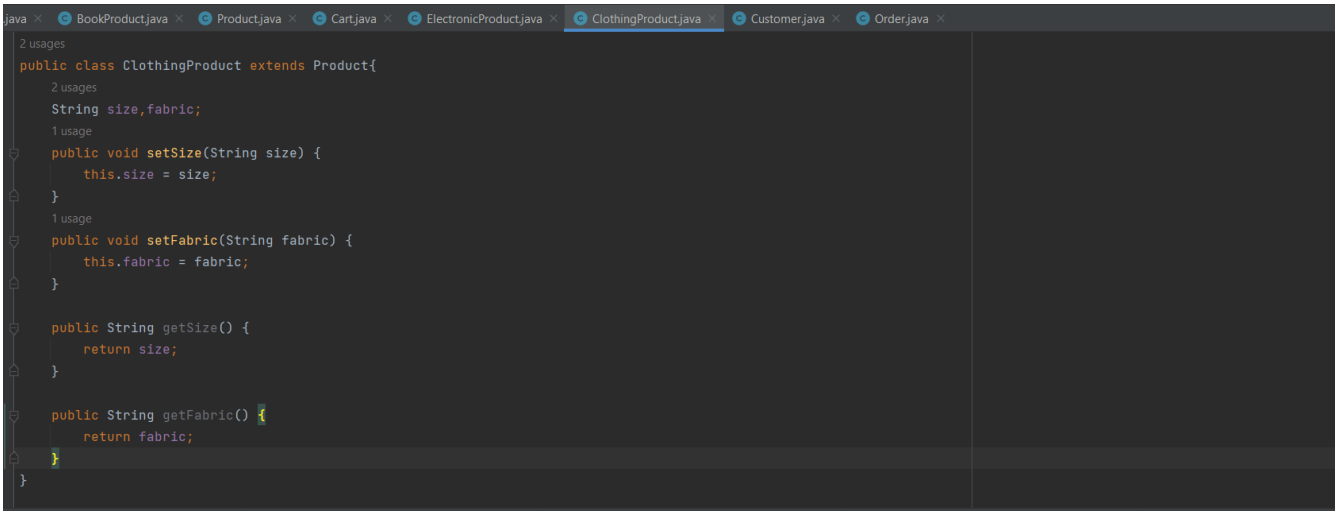
```java
public class ElectronicProduct extends Product{
    String brand;
    int warrantyPeriod;
    public void setBrand(String brand) {
        this.brand = brand;
    }
    public void setWarrantyPeriod(int warrantyPeriod) {
        this.warrantyPeriod = Math.abs(warrantyPeriod);
    }
    public String getBrand() {
        return brand;
    }
    public int getWarrantyPeriod() {
        return warrantyPeriod;
    }
}
```

Class ClothingProduct



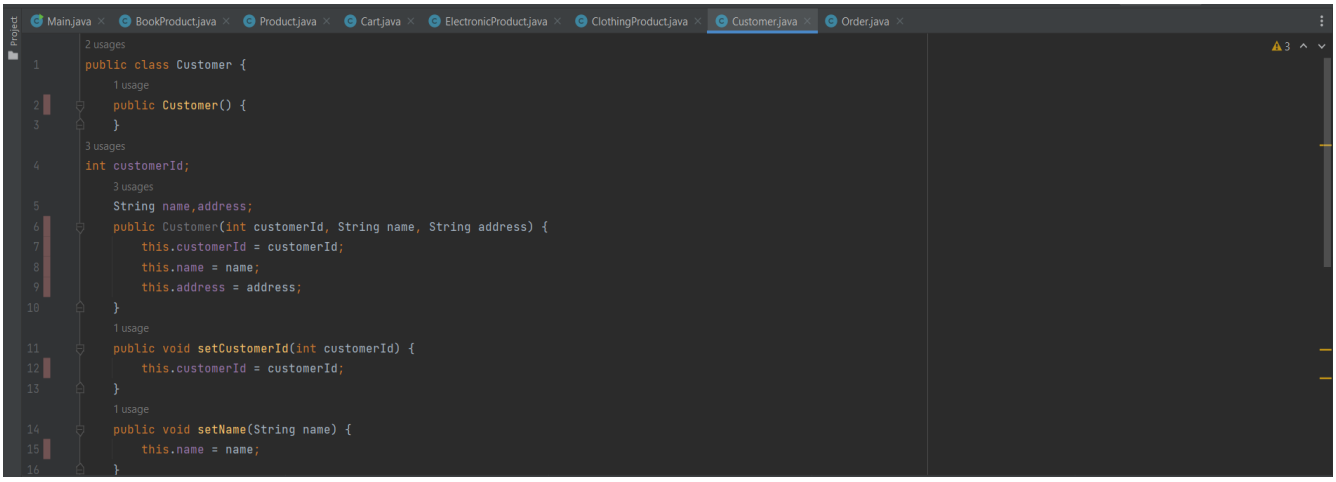
```java
public class ClothingProduct extends Product{
    String size,fabric;
    public void setSize(String size) {
        this.size = size;
    }
    public void setFabric(String fabric) {
        this.fabric = fabric;
    }

    public String getSize() {
        return size;
    }

    public String getFabric() {
        return fabric;
    }
}
```

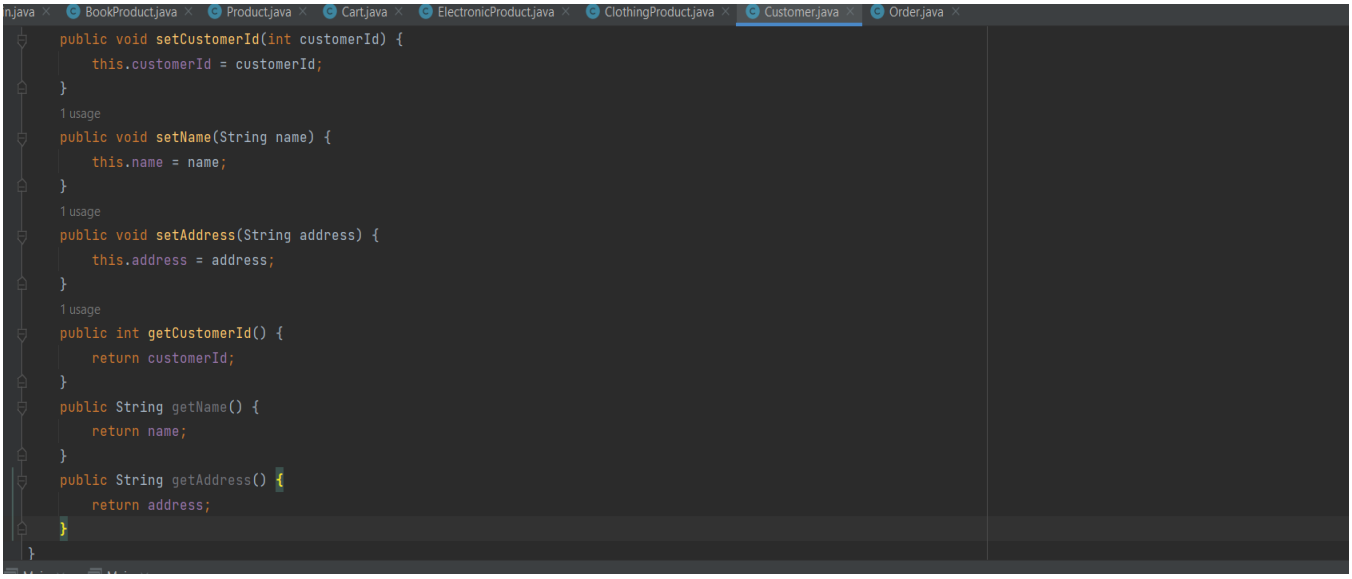
Class BookProduct



```java
public class ClothingProduct extends Product{
    String size,fabric;
    public void setSize(String size) {
        this.size = size;
    }
    public void setFabric(String fabric) {
        this.fabric = fabric;
    }

    public String getSize() {
        return size;
    }

    public String getFabric() {
        return fabric;
    }
}
```

Class Customer





Class Cart

```java
public class Cart {
    2 usages
    int customerId;
    3 usages
    int nProducts;
     8 usages
     Product[] products;
    public void setCustomerId(int customerId) {
        this.customerId = Math.abs(customerId);
    }
    public int getCustomerId() {
        return customerId;
    }
    1 usage
    public void setNProducts(int nProducts) {
        this.nProducts = Math.abs(nProducts);
        this.products = new Product[this.nProducts];
    }
    public int getNProducts() {
        return nProducts;
    }
```

```java
    public void setProducts(Product[] products) {
        this.products = products;
    }
    1 usage
    public Product[] getProducts() {
        return products;
    }
    3 usages
    public void AddProduct(Product product,int index){
        if(index>=0 && index<products.length ){
            products[index] = product;
        }
        else{
            System.out.println("Invalid Index");
        }
    }
    public void removeProduct(int index) {
        if (index >= 0 && index < products.length) {
            products[index] = null;
        }
    }
```

```java
        }
    }
    public void removeProduct(int index) {
        if (index >= 0 && index < products.length) {
            products[index] = null;
        }
    }
    2 usages
    public double CalculatePrice(){
        double price = 0;
        for (Product product : products)
            if (product != null)
                price += product.getPrice();
        return price;
    }
    public void placeOrder() { System.out.println("Order placed successfully."); }
}
```

Class Order

```java
import javax.swing.*;
2 usages
public class Order {
    2 usages
    int customerId;
    2 usages
    int orderId;
    4 usages
    Product[] products;
    2 usages
    double totalPrice;
    String orderDetails;
    1 usage
    public void setProducts(Product[] products) {
        this.products = products;
    }
    1 usage
    public Order(int customerId, int orderId, double totalPrice) {
        this.orderId = Math.abs(orderId);
        this.customerId = Math.abs(customerId);
        this.totalPrice = Math.abs(totalPrice);
```

```java
1 usage
public Order(int customerId, int orderId, double totalPrice) {
    this.orderId = Math.abs(orderId);
    this.customerId = Math.abs(customerId);
    this.totalPrice = Math.abs(totalPrice);
}
1 usage
public void OrderInfo() {
    String message = "Here's your order summary:\n"+            "Order ID: " + orderId + "\n" +
            "Customer ID: " + customerId + "\n" +            "Products:\n";
    for (int i = 0; i < products.length; i++) {
        message += products[i].getName() + " - $" + products[i].getPrice() + "\n";
    }
    message += "\nTotal Price: $" + totalPrice;
    JOptionPane.showMessageDialog( parentComponent: null, message);
    }
}
```

With gui

Java Swing(JoptionPane)

Main Class

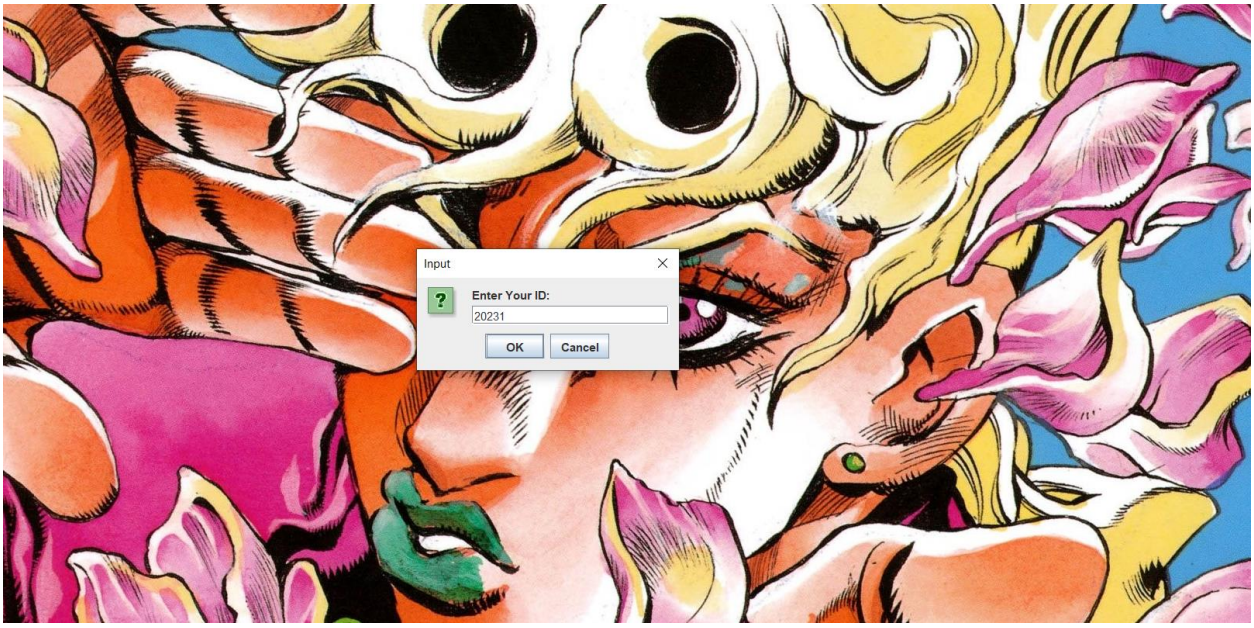
```java
import javax.swing.*;
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);

        ElectronicProduct e1 = new ElectronicProduct();
        e1.setName("smartphone");
        e1.setProductId(1);
        e1.setPrice(599.99);
        e1.setBrand("Samsung");
        e1.setWarrantyPeriod(1);
        ClothingProduct c1 = new ClothingProduct();
        c1.setName("T-shirt");
        c1.setProductId(2);
        c1.setPrice(19.99);
        c1.setSize("Medium");
        c1.setFabric("Fabric");
        BookProduct b1 = new BookProduct();
        b1.setName("OOP");
        b1.setProductId(3);
```

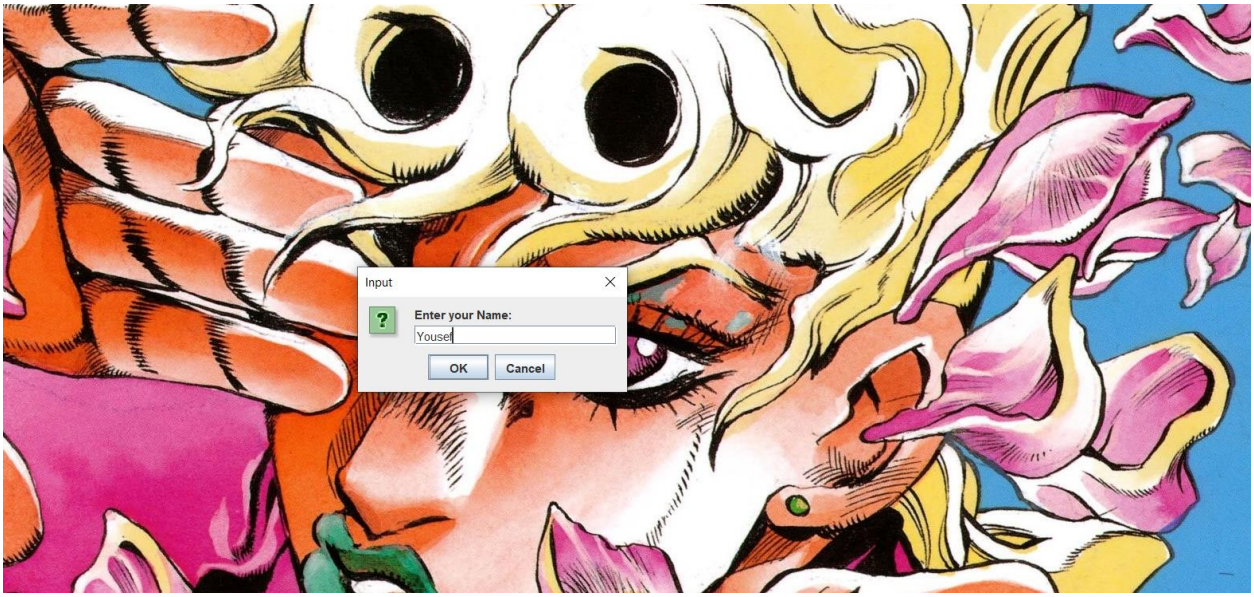
```java
        b1.setPrice(39.99);
        b1.setAuthor("O'Reilly");
        b1.setPublisher("X Publications");
        Customer c2 = new Customer();

        int id =Integer.parseInt(JOptionPane.showInputDialog("Enter Your ID: "));
        c2.setCustomerId(id);

        String name = JOptionPane.showInputDialog("Enter your Name:");
        c2.setName(name);

        String address = JOptionPane.showInputDialog("Enter your Address:");
        c2.setAddress(address);
        Cart cart1 = new Cart();

        int nproducts = Integer.parseInt(JOptionPane.showInputDialog("How many products you want to add to your cart?"));
        cart1.setNProducts(nproducts);
        int x;
        for(int i =0;i<nproducts;i++){

            switch(x =Integer.parseInt(JOptionPane.showInputDialog("Which Product would you like to add ? 1- Smartphone 2- T-shirt 3- OOP"))){
                case 1:
```

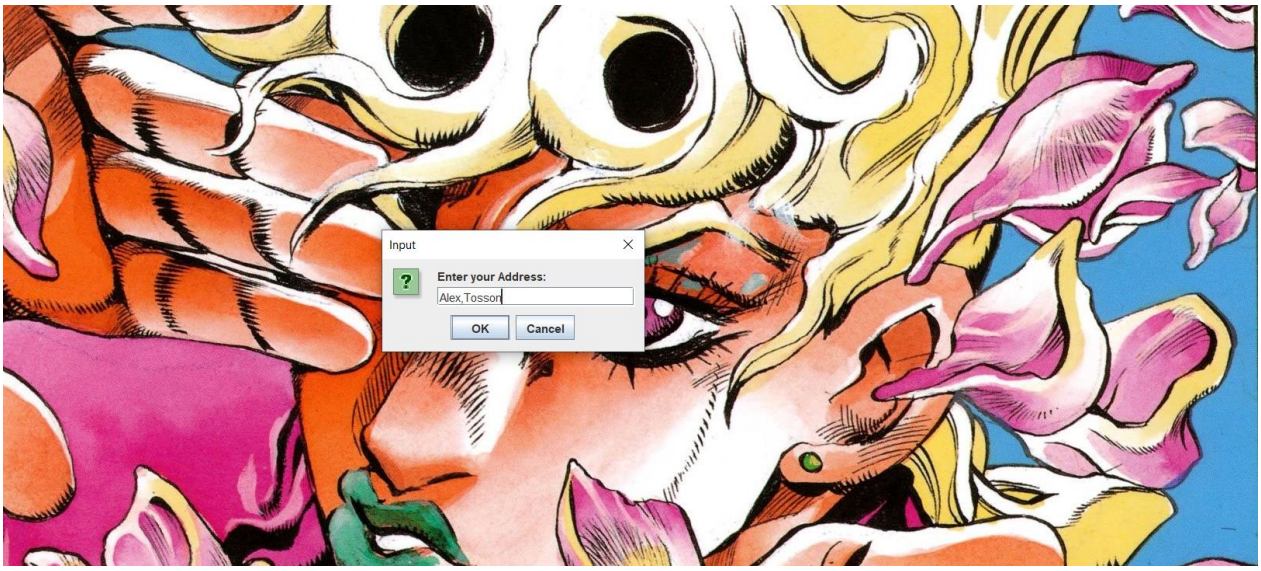
```java
                case 1:
                    cart1.AddProduct(e1,i);
                    break;
                case 2:

                    cart1.AddProduct(c1,i);
                    break;
                case 3:
                    cart1.AddProduct(b1,i);
                    break;
                default:
                    System.out.println("Invalid");
                    break;

            }

        }


        Order o1 = new Order(c2.getCustomerId(), orderId: 1,cart1.CalculatePrice());
        o1.setProducts(cart1.getProducts());
```

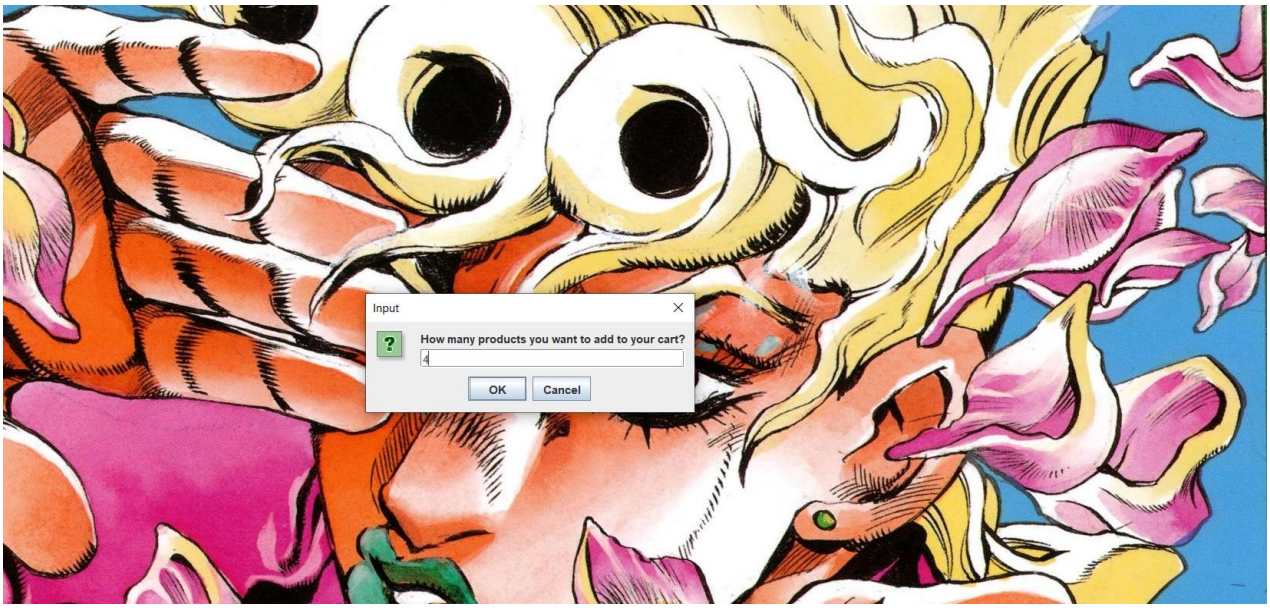
```
    Order o1 = new Order(c2.getCustomerId(), orderId: 1,cart1.CalculatePrice());
    o1.setProducts(cart1.getProducts());


    int accept = Integer.parseInt(JOptionPane.showInputDialog("Your order total is"+cart1.CalculatePrice()+"Would You like to place order ?  1-Yes    2- No"));
    switch (accept){
        case 1:
        o1.OrderInfo();
        break;
        case 2:
            JOptionPane.showMessageDialog( parentComponent: null, message: "Thank you!!");
            break;
    }



}


    }
```

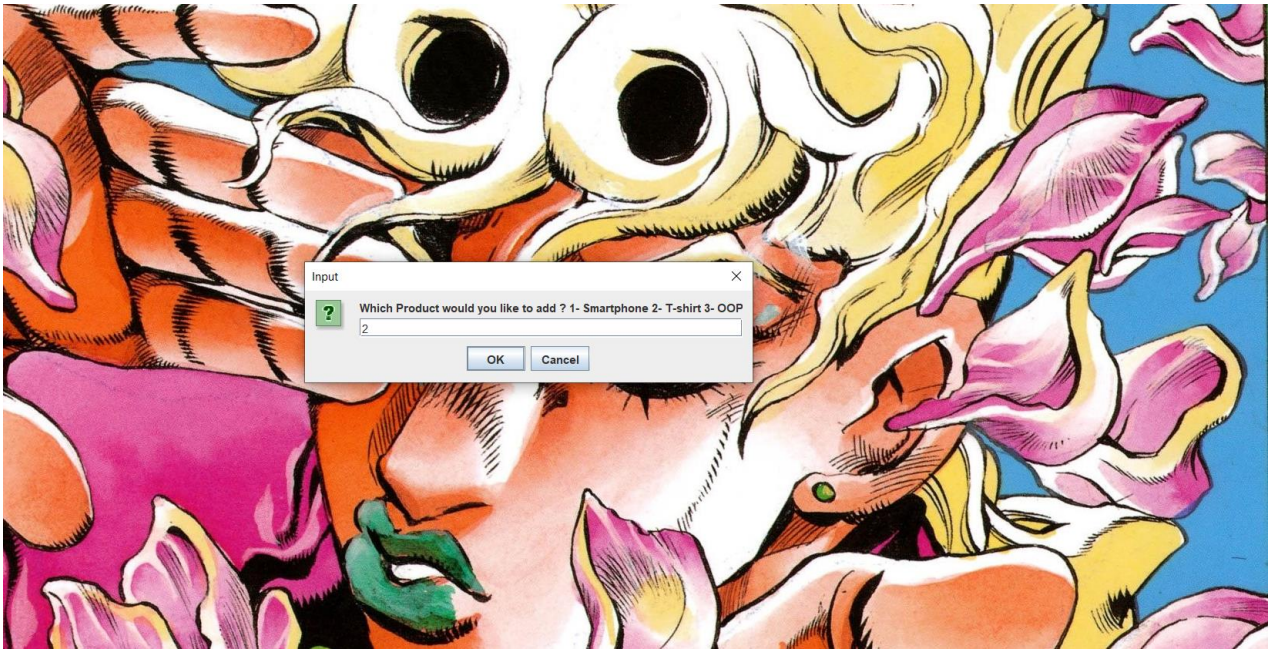
OUTPUT

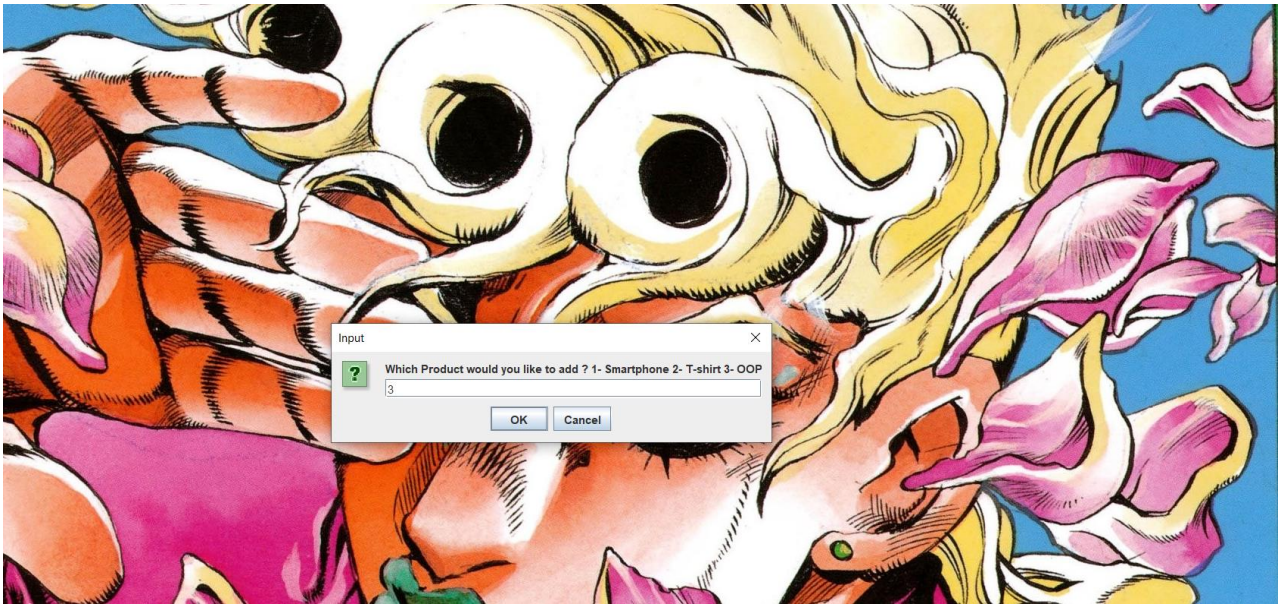


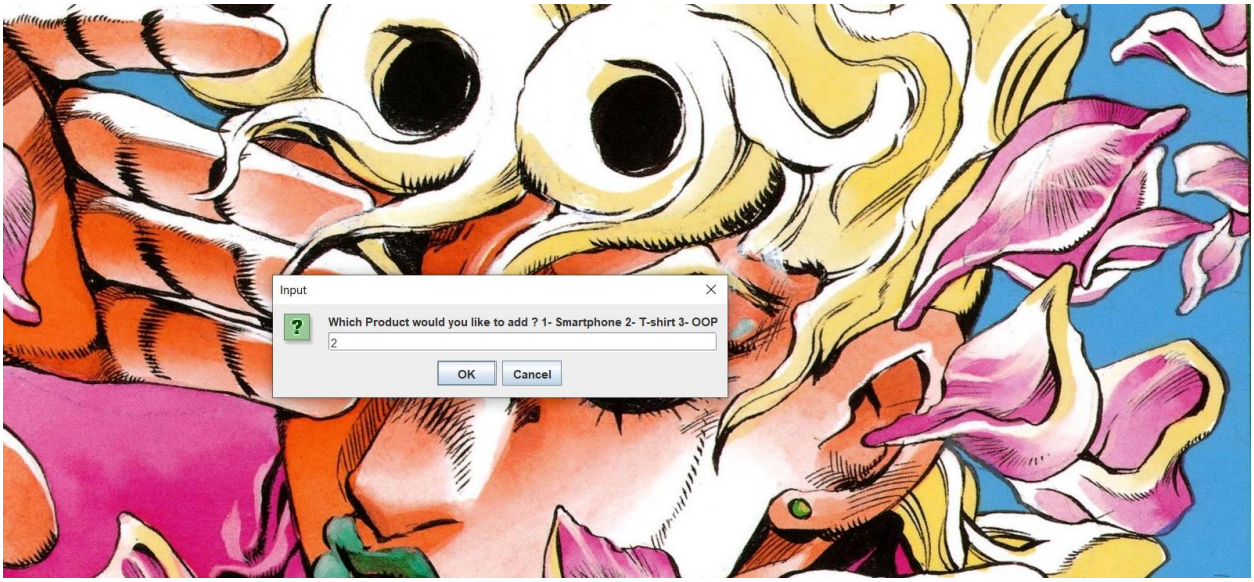

Input
Enter your Name:
Youse
OK
Cancel

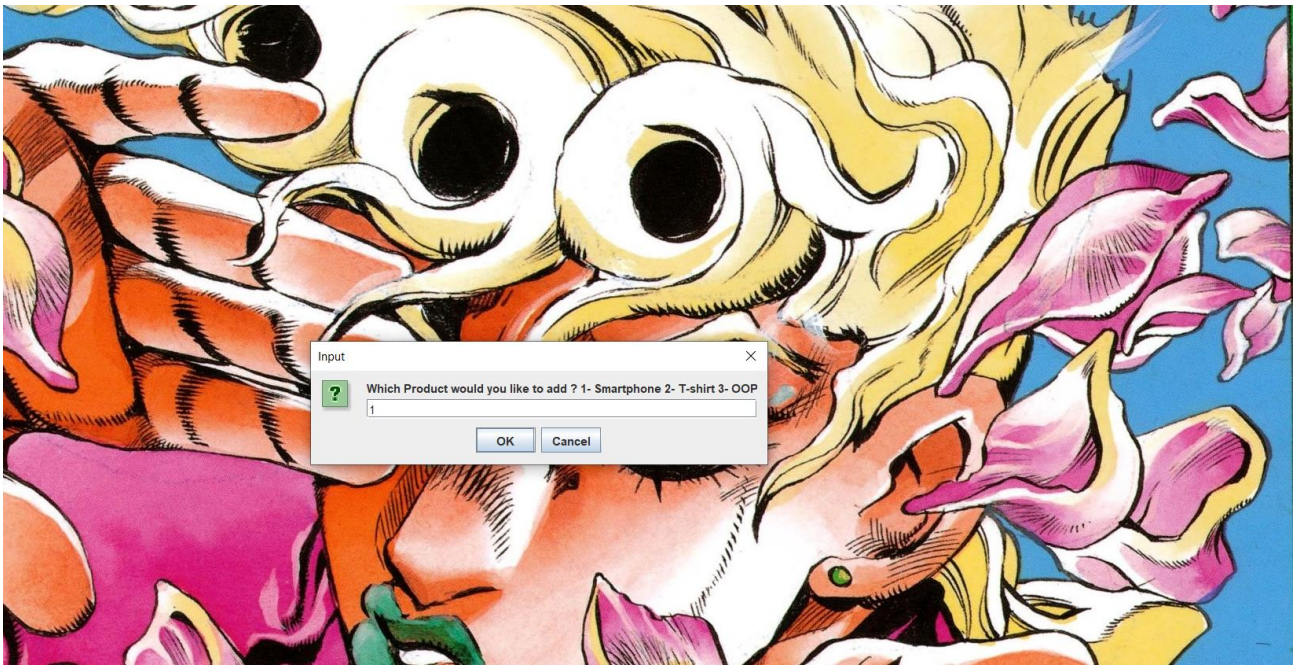

Input
Enter your Address:
Alex,Tosson
OK
Cancel

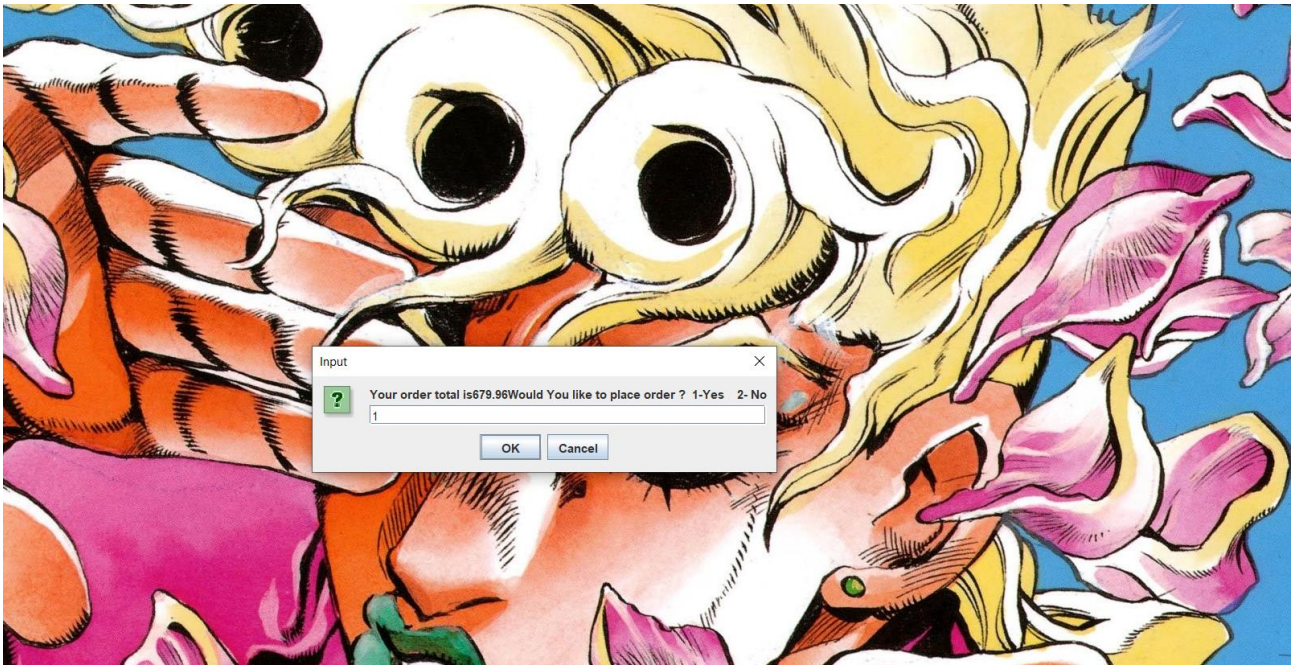

Input
How many products you want to add to your cart?
4
OK
Cancel

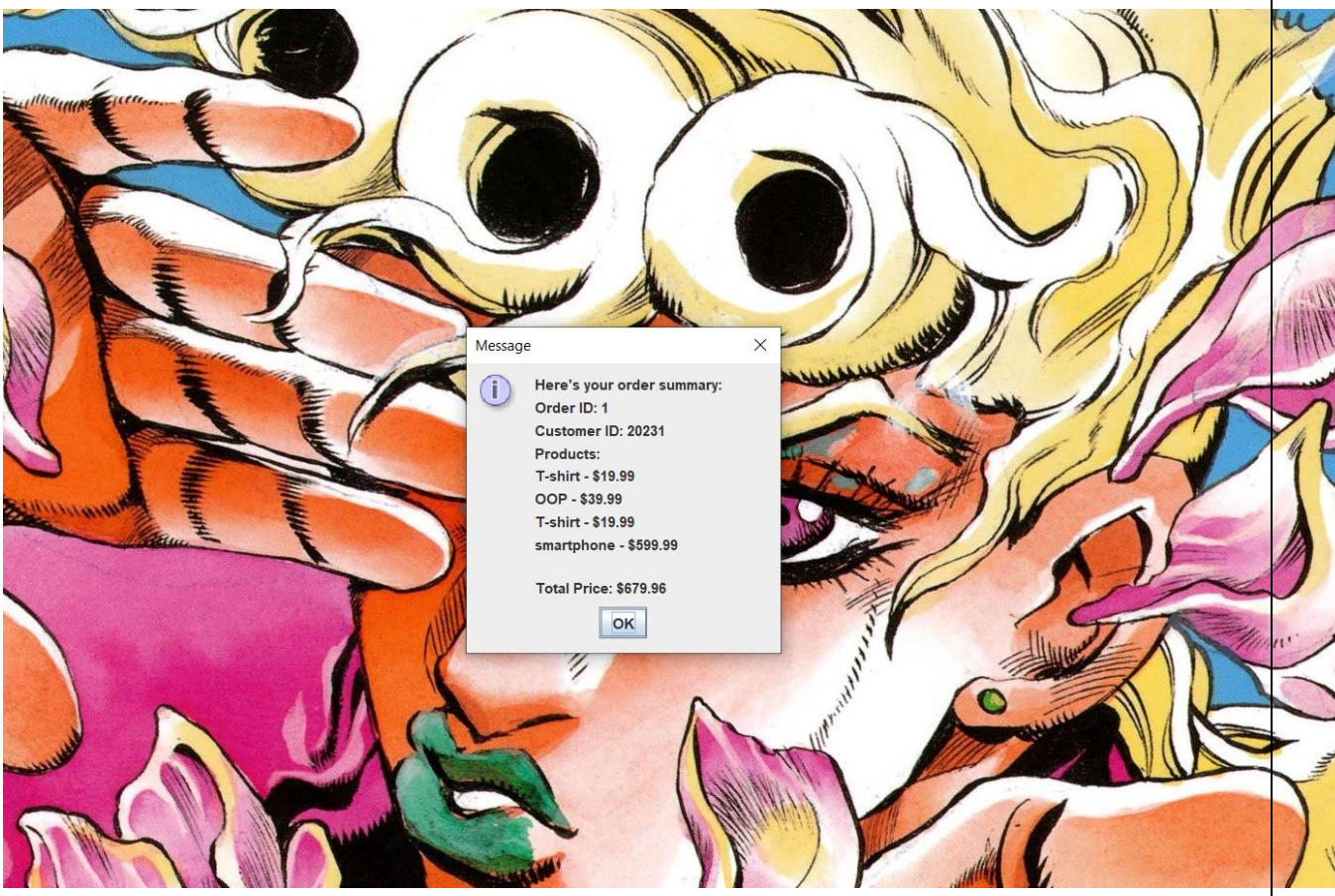

Input
Which Product would you like to add ? 1- Smartphone 2- T-shirt 3- OOP
2
OK
Cancel


Input
Which Product would you like to add ? 1- Smartphone 2- T-shirt 3- OOP
3
OK
Cancel


Input
Which Product would you like to add ? 1- Smartphone 2- T-shirt 3- OOP
2
OK
Cancel


Input
Which Product would you like to add ? 1- Smartphone 2- T-shirt 3- OOP
1
OK
Cancel


Input
Your order total is679.96Would You like to place order ? 1-Yes 2- No
1
OK
Cancel


Message
Here's your order summary:
Order ID: 1
Customer ID: 20231
Products:
T-shirt - $19.99
OOP - $39.99
T-shirt - $19.99
smartphone - $599.99
Total Price: $679.96
OK