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

        Custmoer custmoer1 = new Custmoer( name: "Nada Fayez", address: "Alex", customerID: 23011585);
        Electronic_product device1=new Electronic_product( productID: 1, name: "smart phone", price: 599.9, warrantyPeriod: 1, brand: "samsung");
        Clothing_product clothes=new Clothing_product( productID: 2, name: "t-shirt", price: 19.99, size: "medium", fabric: "cotton");
        Book_product book1=new Book_product( productID: 3, name: "harry potter", price: 39.99, author: "JK rowling", publisher: "X Publications");

        JOptionPane.showMessageDialog( parentComponent: null, message: "welcome to E-commerce system!");

        // Integer.parseInt( JOptionPane.showInputDialog("enter your ID"));   #to sum up I put it in the constractor
        JOptionPane.showMessageDialog( parentComponent: null, message: " ID "+(custmoer1.getCustomerID()));

        //JOptionPane.showInputDialog("enter your name");
        JOptionPane.showMessageDialog( parentComponent: null, message: "Name: "+(custmoer1.getName()));

        //JOptionPane.showInputDialog("enter your address");
        JOptionPane.showMessageDialog( parentComponent: null, message: "Address is "+(custmoer1.getAddress()));

        int nproducts = Integer.parseInt( JOptionPane.showInputDialog ("How many products you want to add to your cart?"));
```
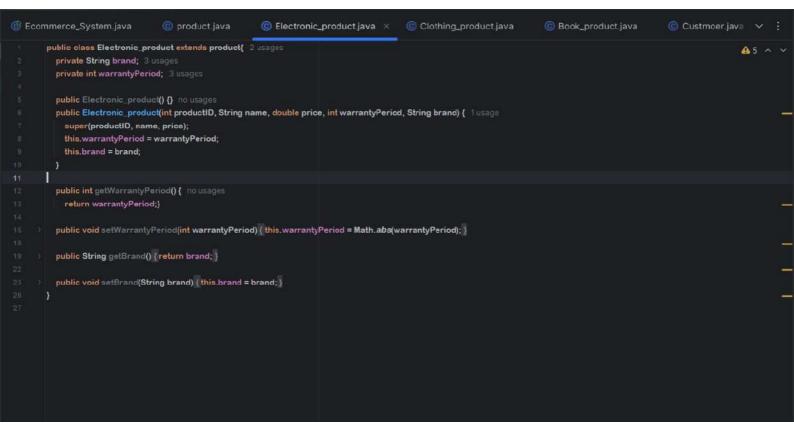
```java
public class Ecommerce_System {
    public static void main(String[] args) {

        cart cart1=new cart( );
        cart1.setNproducts(nproducts);
        product[ ] p=new product[cart1.getNproducts()];
        cart1.setProuducts(p);
        cart1.setCustomerID(custmoer1.getCustomerID());

for(int j=0;j<nproducts;j++){
    int choice= Integer.parseInt( JOptionPane.showInputDialog  ("which product you want to add to your cart? 1-smart phone, 2-t-shirt, 3-harry potter book"));
    //int choice=input.nextInt();
    switch (choice){
        case 1:
            cart1.getProuducts()[j]=device1;
        //cart1.Add_product(j,device1);        #another solution by add method
            break;
        case 2:
            cart1.getProuducts()[j]=clothes;
        // cart1.Add_product(j,clothes);
            break;
        case 3:
            cart1.getProuducts()[j]=book1;
        // cart1.Add_product(j,book1);
            break;
        default:
            JOptionPane.showMessageDialog( parentComponent: null, message: "invalid");
    }}
```
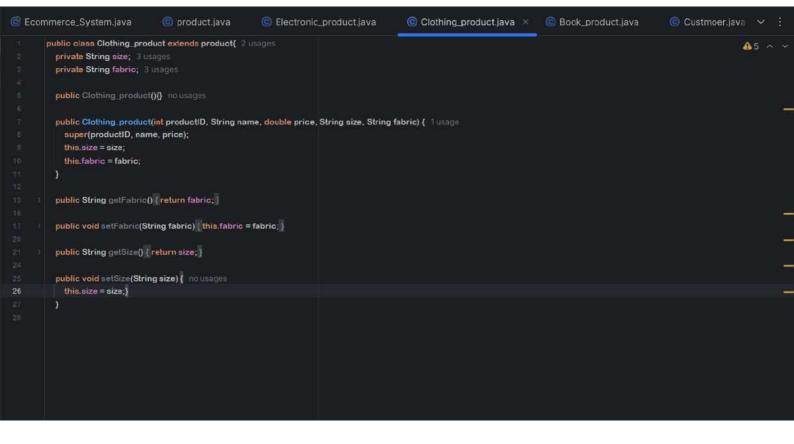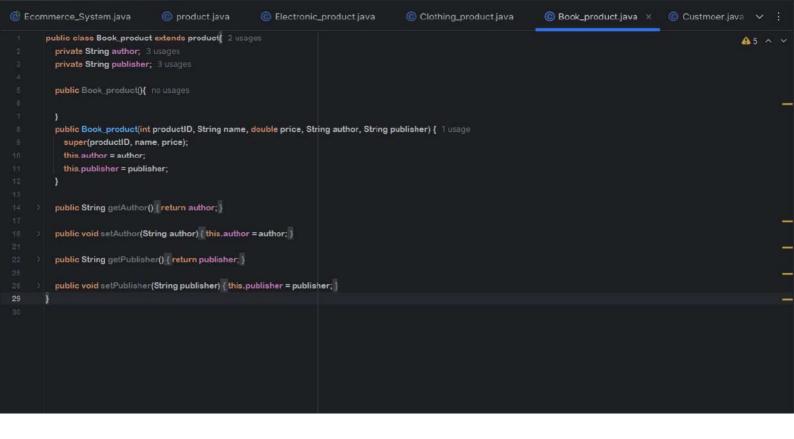
```java
34    switch (choice){
35      case 1:
36        cart1.getProuducts()[j]=device1;
37        //cart1.Add_product(j,device1);      #another solution by add method
38        break;
39      case 2:
40        cart1.getProuducts()[j]=clothes;
41        // cart1.Add_product(j,clothes);
42        break;
43      case 3:
44        cart1.getProuducts()[j]=book1;
45        //  cart1.Add_product(j,book1);
46        break;
47      default:
48        JOptionPane.showMessageDialog( parentComponent: null, message: "invalid");
49    }}
50      JOptionPane.showMessageDialog ( parentComponent: null, message: "your total is"+ cart1.calculatePrice());
51 int num= Integer.parseInt( JOptionPane.showInputDialog("Would you like to place the order? 1- yes , 2-No"));
52       cart1.place_order(num);
53    }}
```
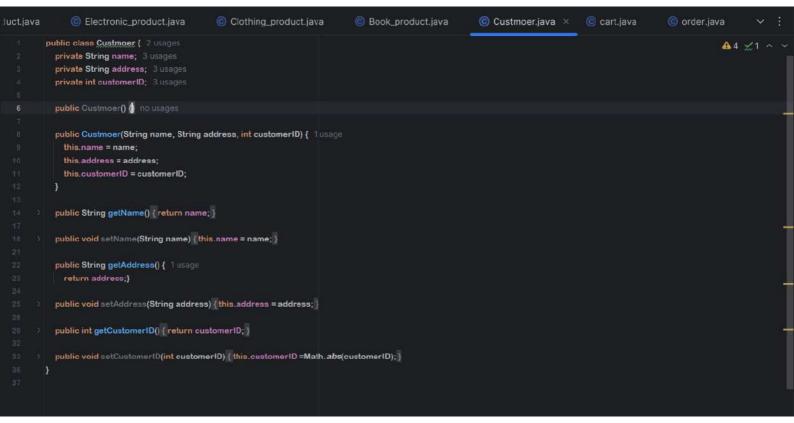
```java
import java.awt.geom.Arc2D;

public class product { 15 usages   3 inheritors
    protected int productID;  3 usages
    protected  String name;  3 usages
    protected double price;  3 usages

    public product() {  3 usages
    }

    public product(int productID, String name, double price) {  3 usages
        this.productID = productID;
        this.name = name;
        this.price = price;
    }

    public int getProductID() { return productID; }

    public void setProductID(int productID) { this.productID =Math.abs(productID) ; }

    public  String getName() { return name; }

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

    public double getPrice() { return price; }

    public void setPrice(double price) { this.price =Math.abs(price); }
}
```

```java
public class Electronic_product extends product{  2 usages
    private String brand;  3 usages
    private int warrantyPeriod;  3 usages

    public Electronic_product() {}  no usages
    public Electronic_product(int productID, String name, double price, int warrantyPeriod, String brand) {  1 usage
        super(productID, name, price);
        this.warrantyPeriod = warrantyPeriod;
        this.brand = brand;
    }

    public int getWarrantyPeriod() {  no usages
        return warrantyPeriod;}

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

    public String getBrand() { return brand; }

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

```java
public class Clothing_product extends product{  2 usages
    private String size;  3 usages
    private String fabric;  3 usages

    public Clothing_product(){}  no usages

    public Clothing_product(int productID, String name, double price, String size, String fabric) {  1 usage
        super(productID, name, price);
        this.size = size;
        this.fabric = fabric;
    }

    public String getFabric() { return fabric; }

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

    public String getSize() { return size; }

    public void setSize(String size) {  no usages
        this.size = size;}
    }
```

```java
public class Book_product extends product{  2 usages
    private String author;  3 usages
    private String publisher;  3 usages

    public Book_product(){  no usages

    }
    public Book_product(int productID, String name, double price, String author, String publisher) {  1 usage
        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
public class Custmoer {  2 usages
    private String name;  3 usages
    private String address;  3 usages
    private int customerID;  3 usages

    public Custmoer() {  no usages

    public Custmoer(String name, String address, int customerID) {  1 usage
        this.name = name;
        this.address = address;
        this.customerID = customerID;
    }

    public String getName() { return name; }

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

    public String getAddress() {  1 usage
        return address;}

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

    public int getCustomerID() { return customerID; }

    public void setCustomerID(int customerID) { this.customerID = Math.abs(customerID); }
}
```

```java
import javax.swing.JOptionPane;
public class cart {  2 usages
    private int CustomerID;  3 usages
    private int nproducts;  3 usages
    private product[] products;  6 usages

    public cart() {  1 usage
    }
    public void setProuducts(product[] prouducts) {  1 usage
        this.products=new product[nproducts];
    }

    public product[] getProuducts() { return products; }

    public int getCustomerID() { return CustomerID; }

    public void setCustomerID(int customerID) { this.CustomerID =Math.abs(CustomerID); }

    public int getNproducts() { return nproducts; }

    public void setNproducts(int nproducts) {  1 usage

        this.nproducts = Math.abs(nproducts);
    }
```

```java
    public class cart {  2 usages
34     public double calculatePrice() {  2 usages
35        double total_price=0;
36         for(product i:products){
37          if(i !=null){
38            total_price+= i.getPrice();
39         }}
40         return total_price; }
41
42     public void Add_product(int i,product product){  no usages
43        products[i]=product;
44       }
45
46     public void Remove_product(int i,product product){  no usages
47        products[i]=null;
48       }
49
50     public void place_order(int num){  1 usage
51      order o1=new order( customerID: 23011585, orderID: 1,calculatePrice(),products);
52      switch (num){
53       case 1:
54          JOptionPane.showMessageDialog( parentComponent: null, ("Here's your order summary:"));
55      o1.printOrderInfo();
56      break;
57      case 2:
58          JOptionPane.showMessageDialog( parentComponent: null, ("ok thank you"));
59      break;
60     }}
61      }
```

```java
import javax.swing.JOptionPane;
public class order {  2 usages
    private int customerID;  2 usages
    private int orderID;  2 usages
    private double totalPrice;  2 usages
    private  product [] prouducts;  2 usages

    public order() {}  no usages

    public order(int customerID, int orderID, double totalPrice, product[] prouducts) {  1 usage
        this.customerID = customerID;
        this.orderID = orderID;
        this.totalPrice = totalPrice;
        this.prouducts = prouducts;}

    public void printOrderInfo() {  1 usage
        JOptionPane.showMessageDialog( parentComponent: null, ("customer ID is:  " + customerID));
        JOptionPane.showMessageDialog( parentComponent: null, ("order ID is:  " + orderID));
        for(product i:prouducts){
        JOptionPane.showMessageDialog( parentComponent: null,    (i.getName() + " is  " + i.getPrice() + " $"));
        }
        JOptionPane.showMessageDialog( parentComponent: null, ("total price is:  " + totalPrice));
    }}
```