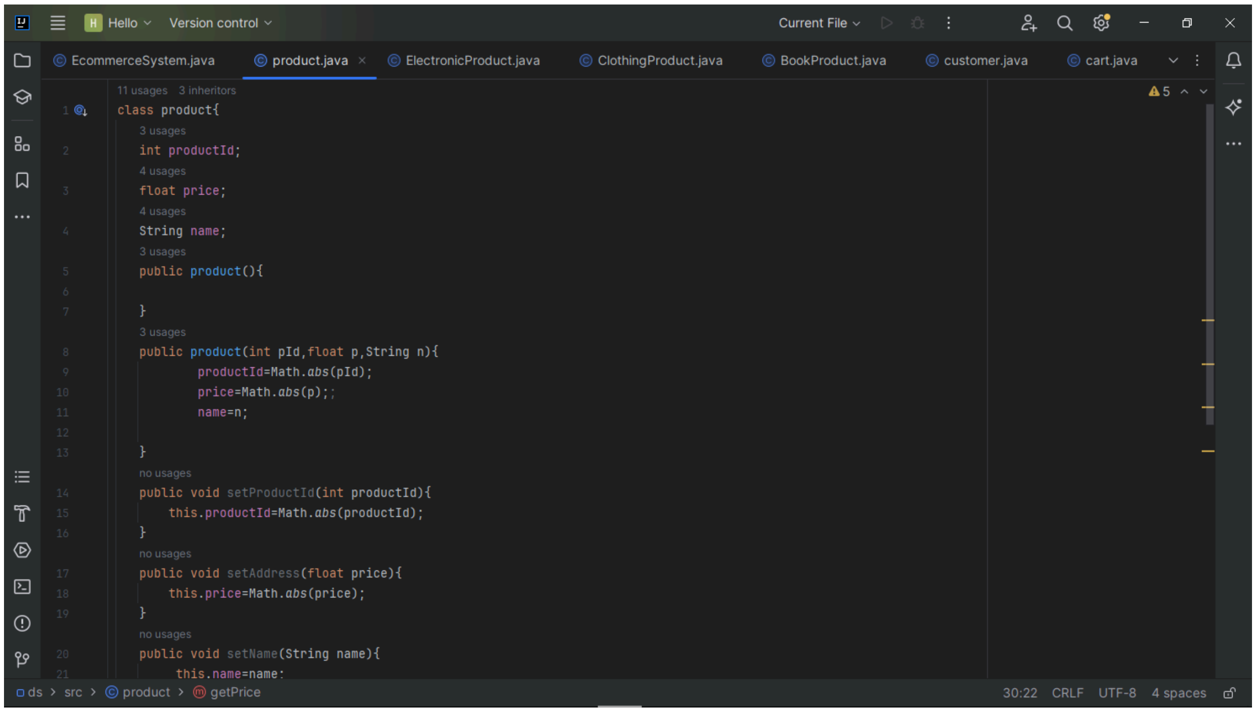
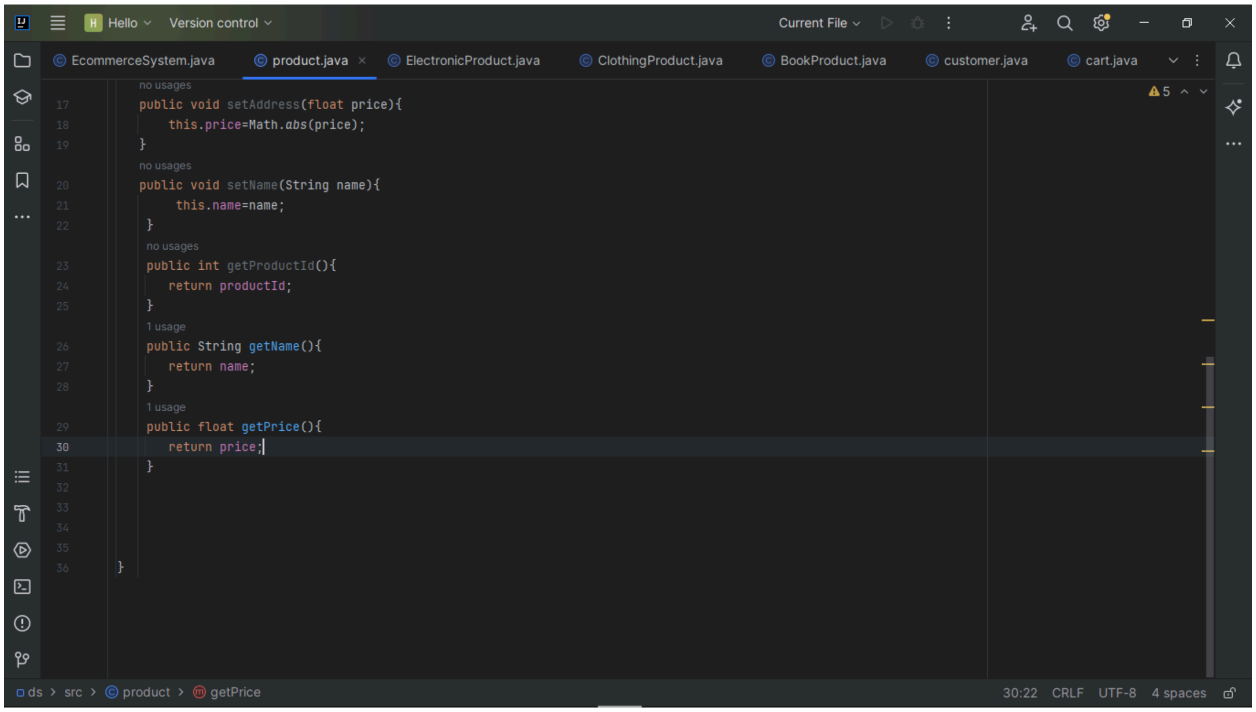
<u>Product class:</u>

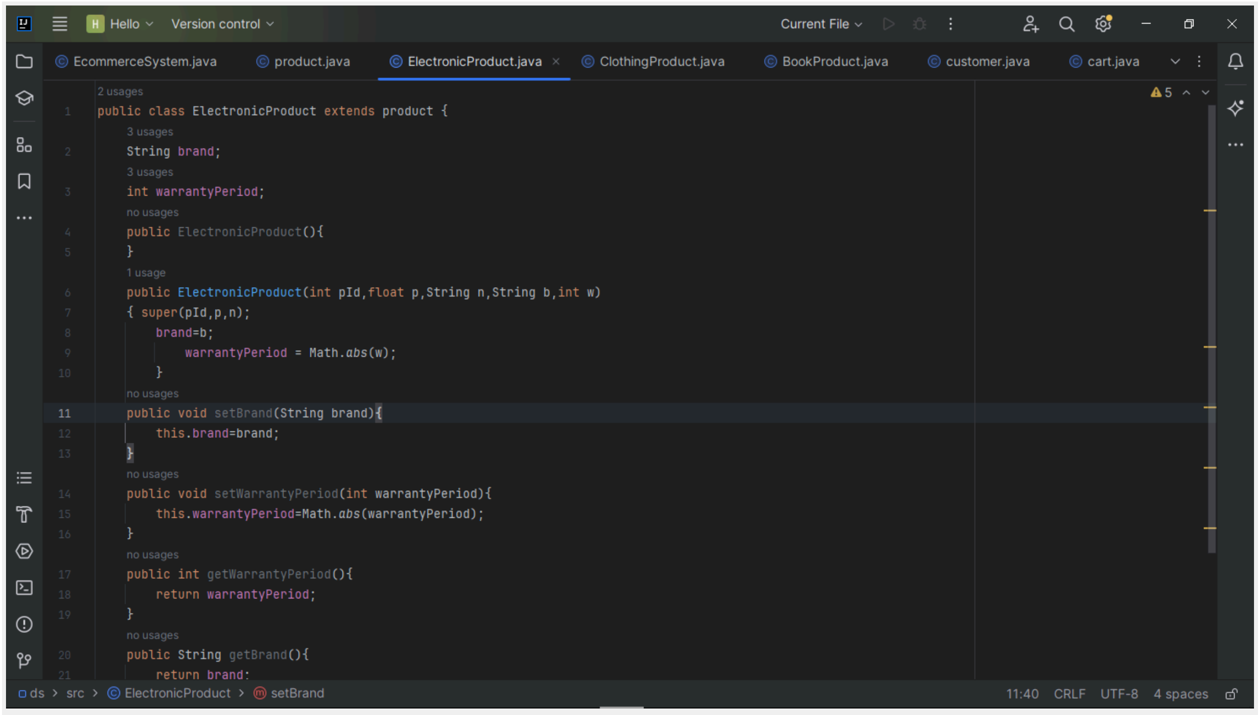


```java
class product{
    int productId;
    float price;
    String name;
    public product(){

    }
    public product(int pId,float p,String n){
            productId=Math.abs(pId);
            price=Math.abs(p);;
            name=n;

    }
    public void setProductId(int productId){
        this.productId=Math.abs(productId);
    }
    public void setAddress(float price){
        this.price=Math.abs(price);
    }
    public void setName(String name){
         this.name=name;
```

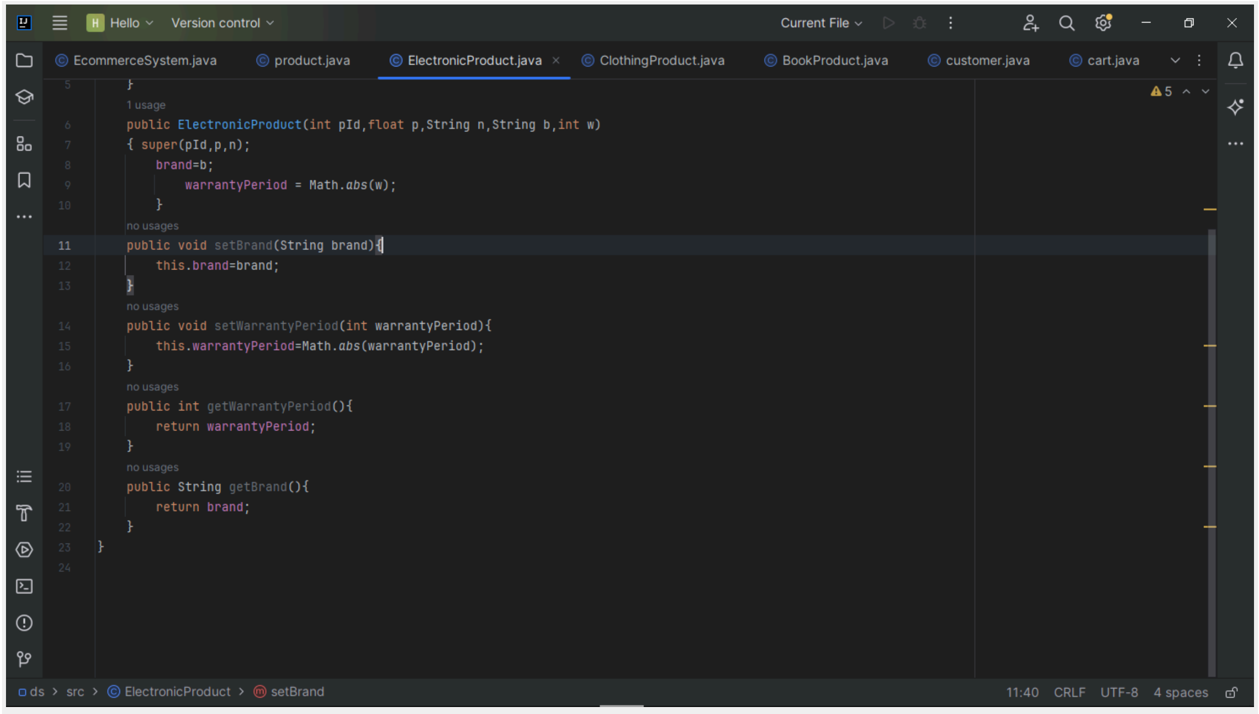


```java
    public void setAddress(float price){
        this.price=Math.abs(price);
    }
    public void setName(String name){
         this.name=name;
     }
     public int getProductId(){
        return productId;
     }
     public String getName(){
        return name;
     }
     public float getPrice(){
        return price;
     }




}
```

ElectronicProduct class:

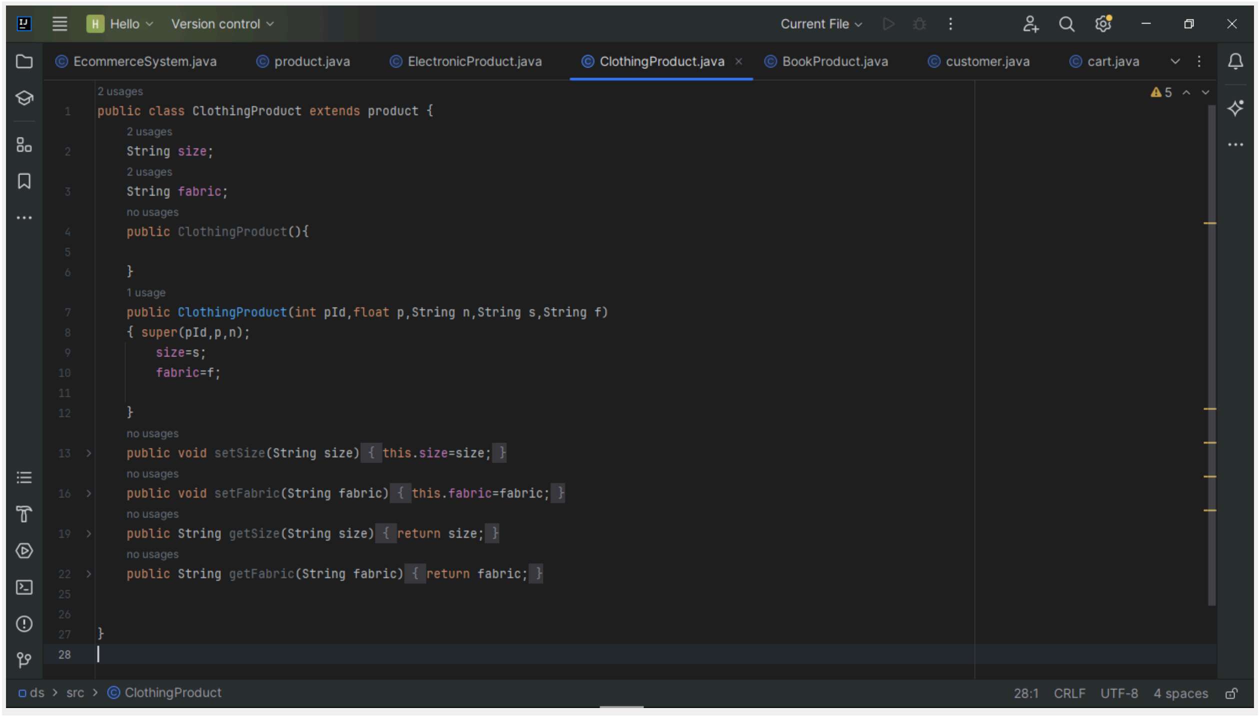


```java
public class ElectronicProduct extends product {
    String brand;
    int warrantyPeriod;
    public ElectronicProduct(){
    }
    public ElectronicProduct(int pId,float p,String n,String b,int w)
    { super(pId,p,n);
        brand=b;
            warrantyPeriod = Math.abs(w);
        }
    public void setBrand(String brand){
        this.brand=brand;
    }
    public void setWarrantyPeriod(int warrantyPeriod){
        this.warrantyPeriod=Math.abs(warrantyPeriod);
    }
    public int getWarrantyPeriod(){
        return warrantyPeriod;
    }
    public String getBrand(){
        return brand;
```



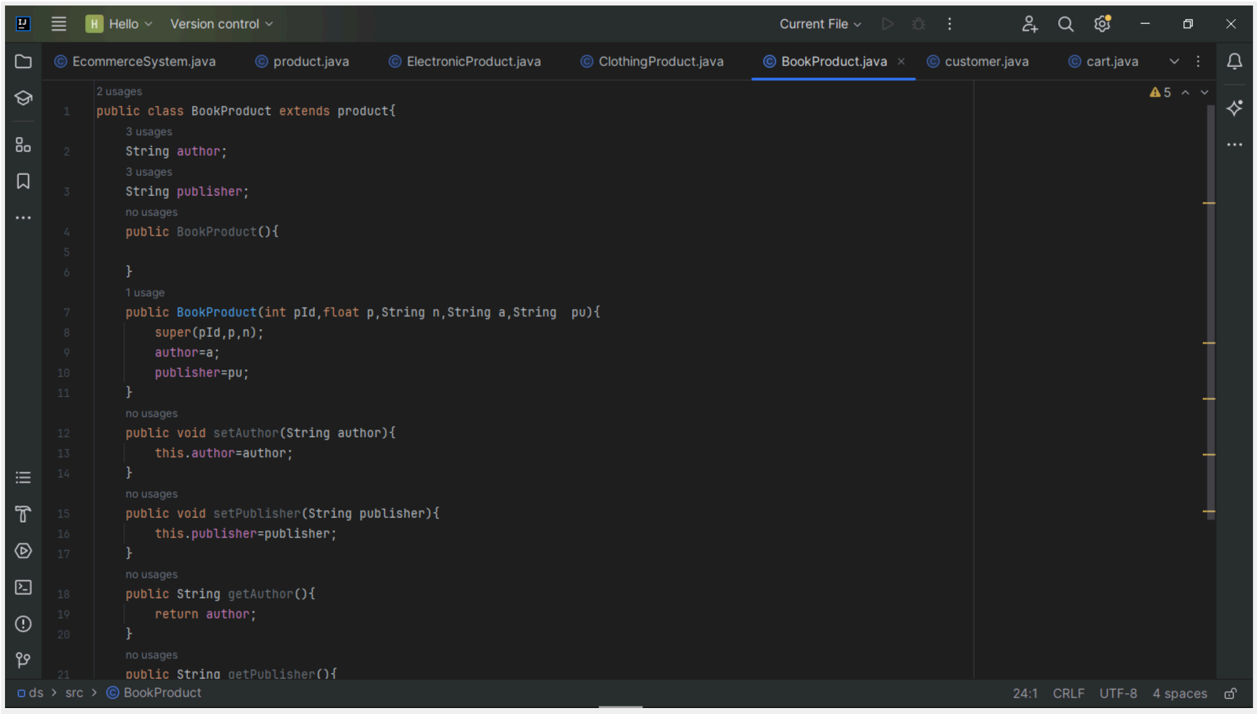
```java
    }
    public ElectronicProduct(int pId,float p,String n,String b,int w)
    { super(pId,p,n);
        brand=b;
            warrantyPeriod = Math.abs(w);
        }
    public void setBrand(String brand){
        this.brand=brand;
    }
    public void setWarrantyPeriod(int warrantyPeriod){
        this.warrantyPeriod=Math.abs(warrantyPeriod);
    }
    public int getWarrantyPeriod(){
        return warrantyPeriod;
    }
    public String getBrand(){
        return brand;
    }
}
```

ClothingProduct class:

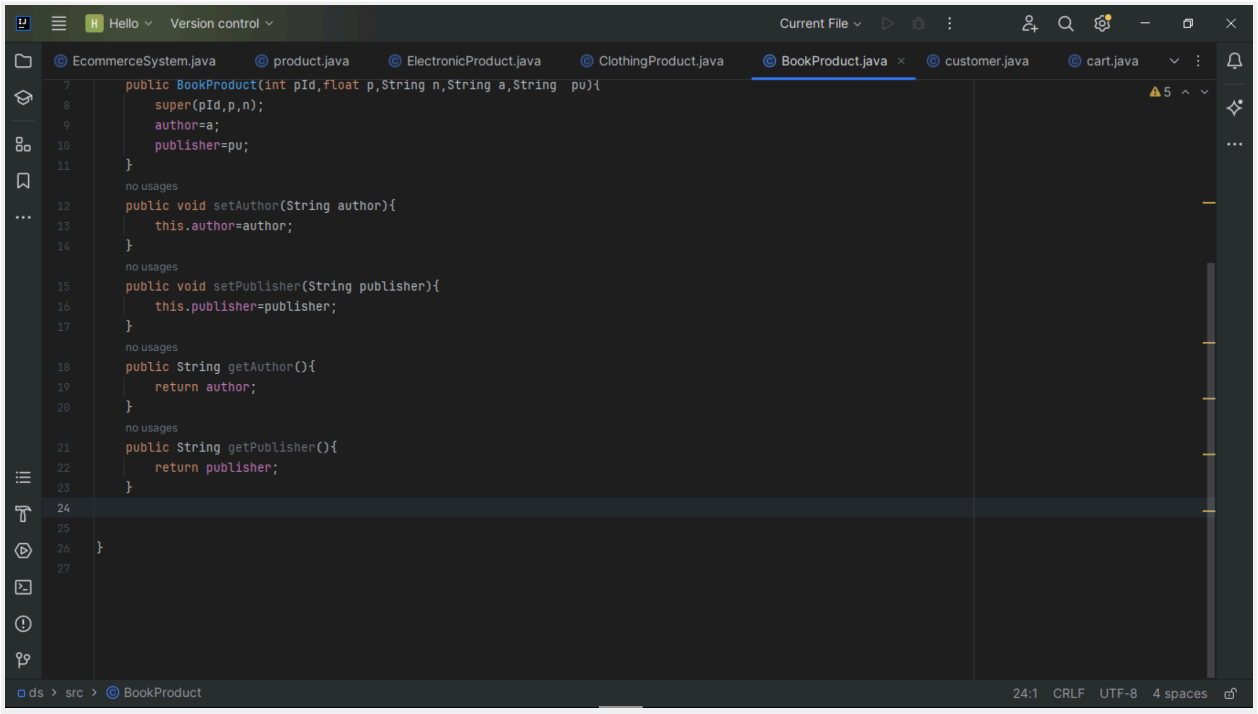


```java
public class ClothingProduct extends product {
    String size;
    String fabric;
    public ClothingProduct(){

    }
    public ClothingProduct(int pId,float p,String n,String s,String f)
    { super(pId,p,n);
        size=s;
        fabric=f;

    }
    public void setSize(String size) { this.size=size; }
    public void setFabric(String fabric) { this.fabric=fabric; }
    public String getSize(String size) { return size; }
    public String getFabric(String fabric) { return fabric; }


}
```

BookProduct class:

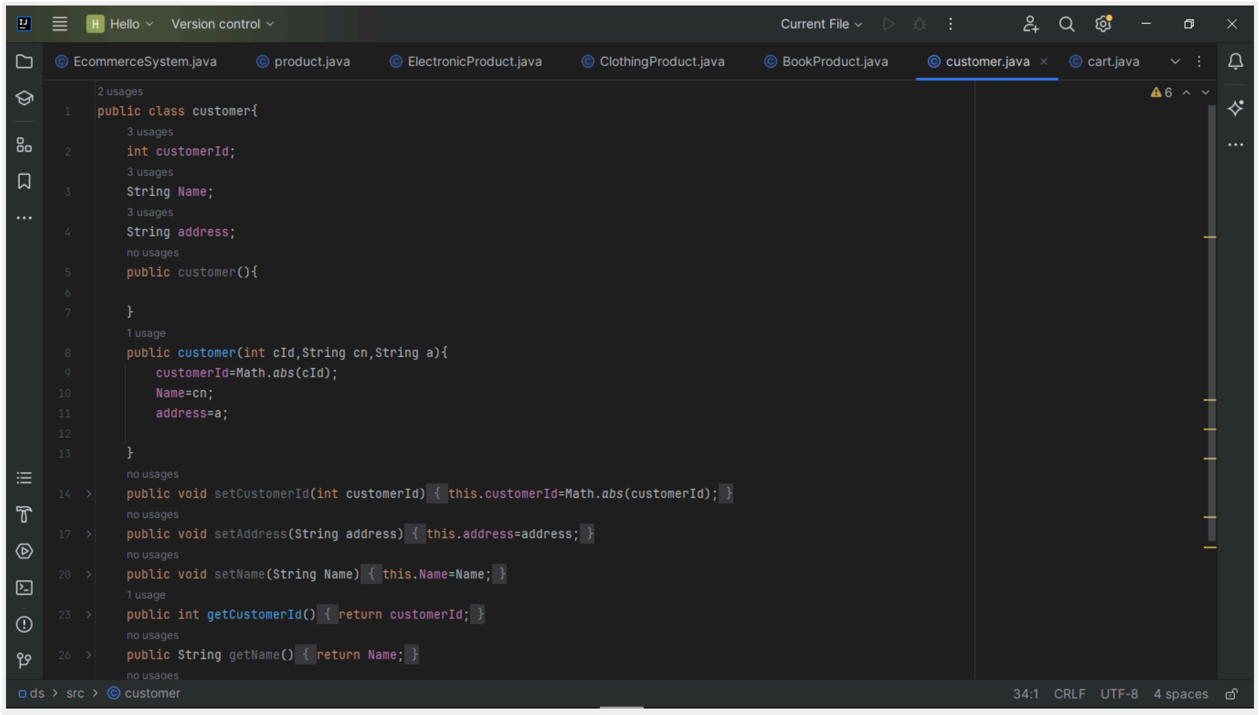


```
public class BookProduct extends product{
    String author;
    String publisher;
    public BookProduct(){

    }
    public BookProduct(int pId,float p,String n,String a,String  pu){
        super(pId,p,n);
        author=a;
        publisher=pu;
    }
    public void setAuthor(String author){
        this.author=author;
    }
    public void setPublisher(String publisher){
        this.publisher=publisher;
    }
    public String getAuthor(){
        return author;
    }
    public String getPublisher(){
```

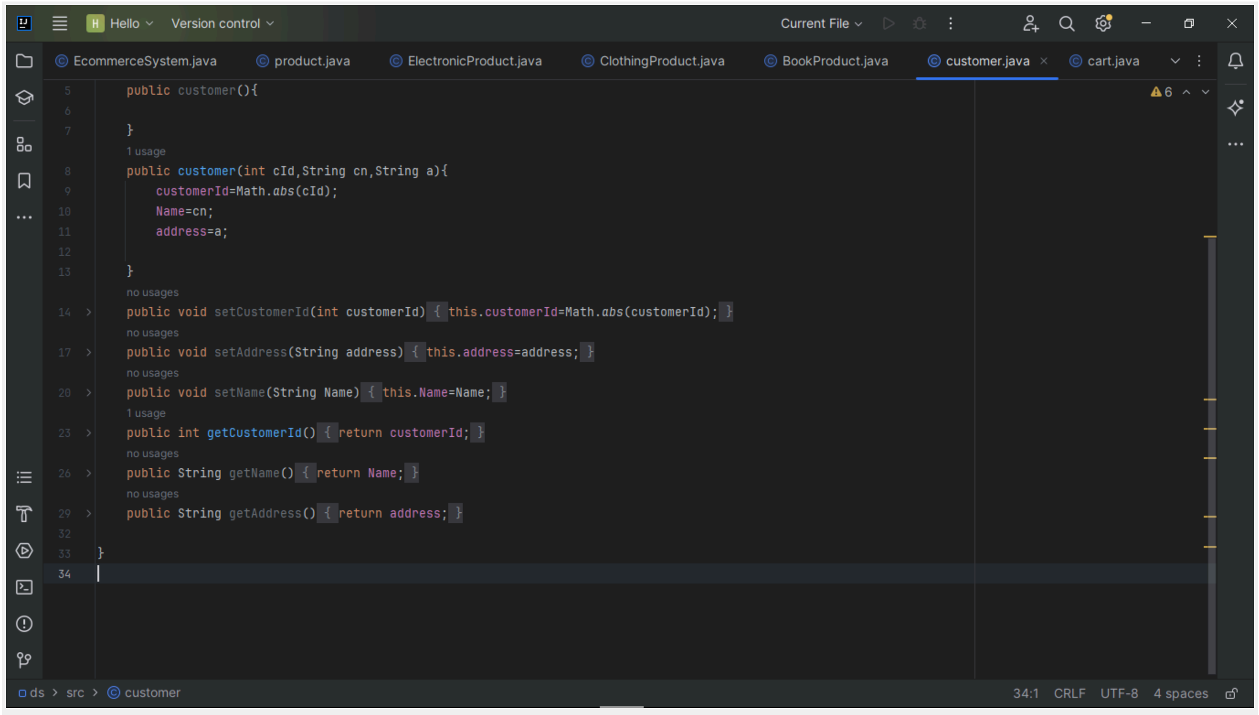


```
    public BookProduct(int pId,float p,String n,String a,String  pu){
        super(pId,p,n);
        author=a;
        publisher=pu;
    }
    public void setAuthor(String author){
        this.author=author;
    }
    public void setPublisher(String publisher){
        this.publisher=publisher;
    }
    public String getAuthor(){
        return author;
    }
    public String getPublisher(){
        return publisher;
    }


}
```

Customer class:

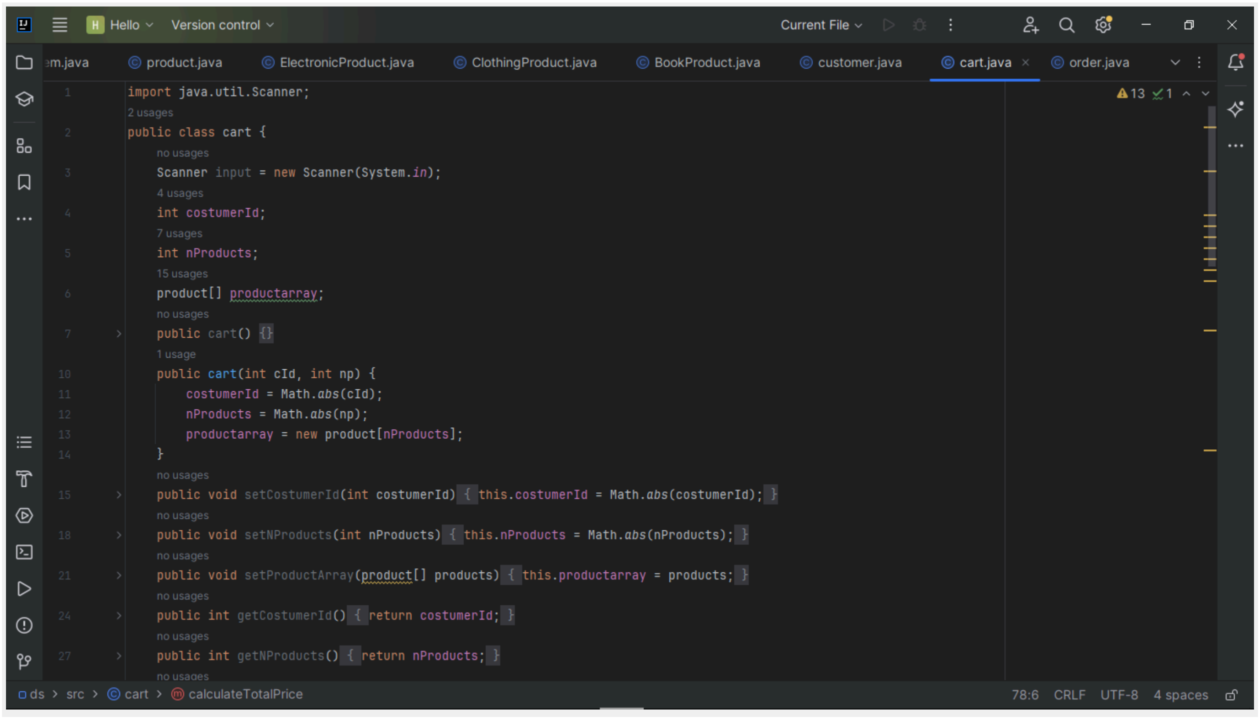


```java
2 usages
public class customer{
    3 usages
    int customerId;
    3 usages
    String Name;
    3 usages
    String address;
    no usages
    public customer(){

    }
    1 usage
    public customer(int cId,String cn,String a){
        customerId=Math.abs(cId);
        Name=cn;
        address=a;

    }
    no usages
    public void setCustomerId(int customerId) { this.customerId=Math.abs(customerId); }
    no usages
    public void setAddress(String address) { this.address=address; }
    no usages
    public void setName(String Name) { this.Name=Name; }
    1 usage
    public int getCustomerId() { return customerId; }
    no usages
    public String getName() { return Name; }
    no usages
```

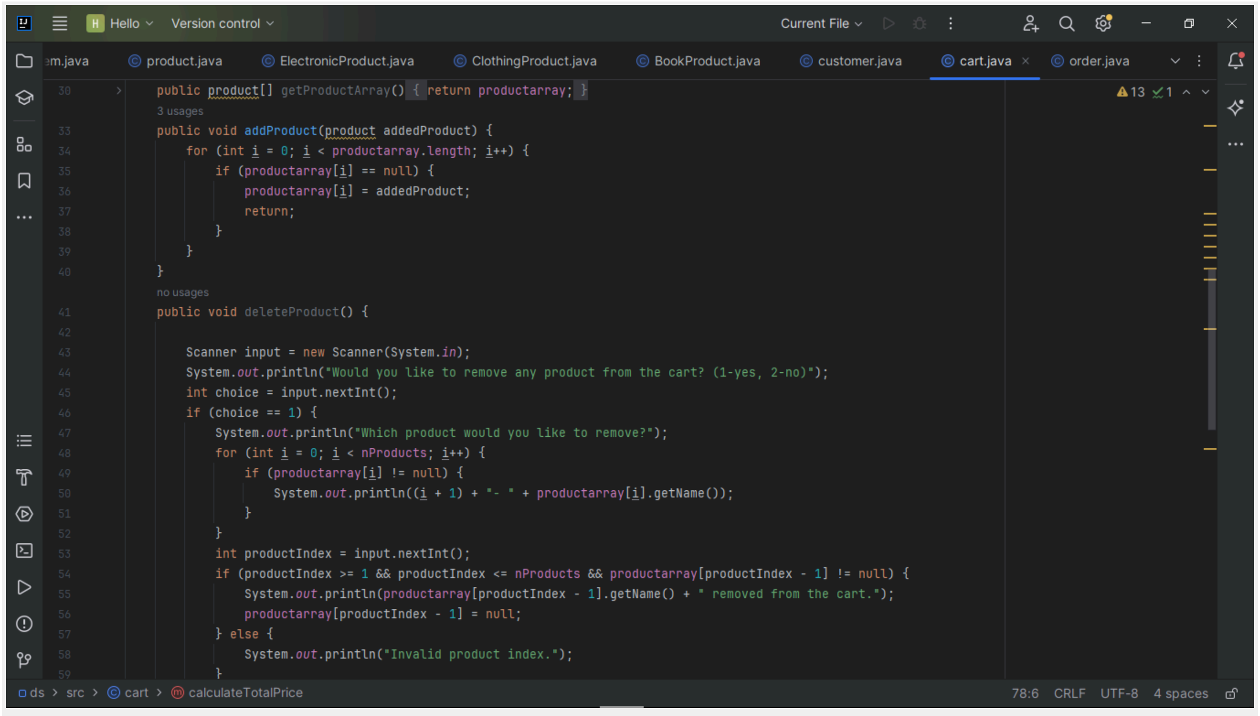


```java
    public customer(){

    }
    1 usage
    public customer(int cId,String cn,String a){
        customerId=Math.abs(cId);
        Name=cn;
        address=a;

    }
    no usages
    public void setCustomerId(int customerId) { this.customerId=Math.abs(customerId); }
    no usages
    public void setAddress(String address) { this.address=address; }
    no usages
    public void setName(String Name) { this.Name=Name; }
    1 usage
    public int getCustomerId() { return customerId; }
    no usages
    public String getName() { return Name; }
    no usages
    public String getAddress() { return address; }

}

```

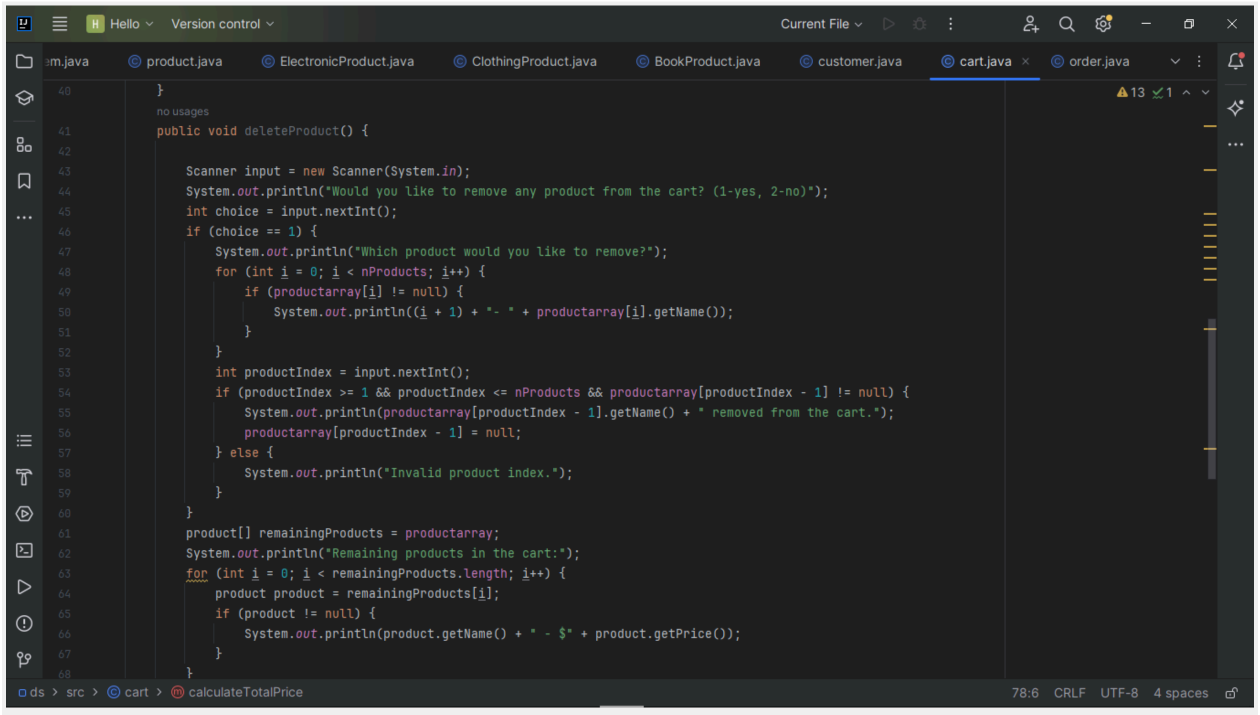
Cart class:



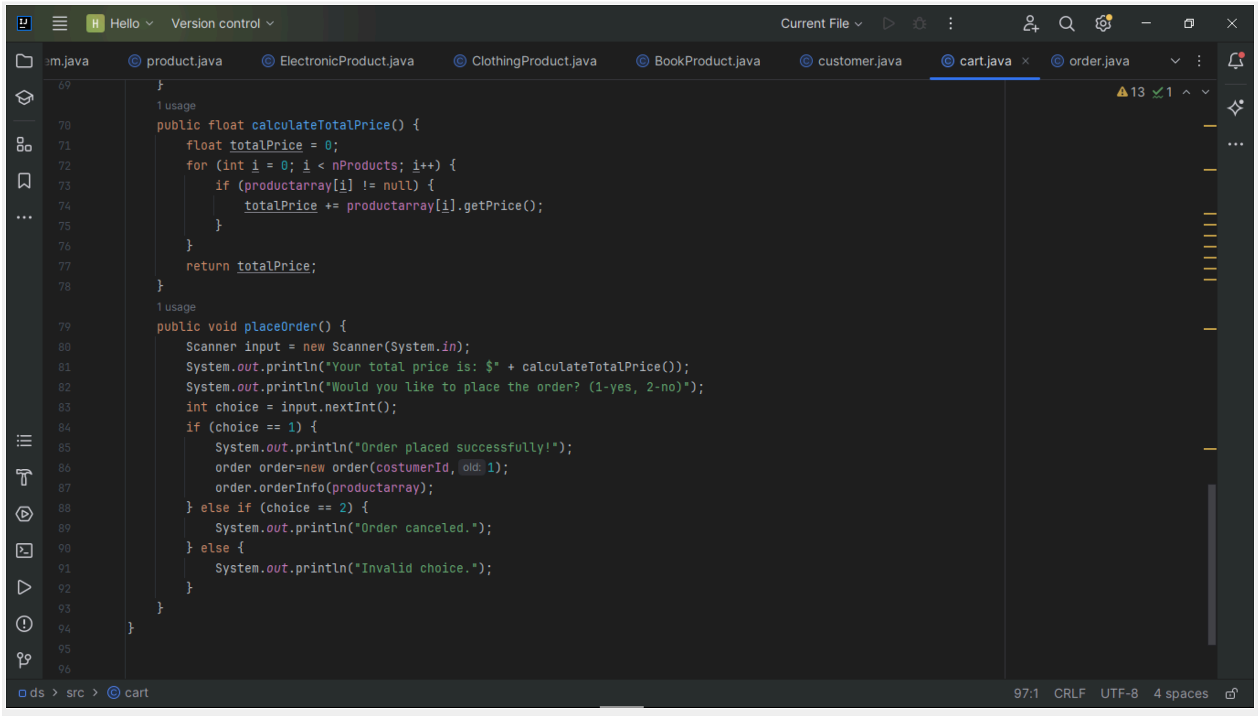
```java
import java.util.Scanner;
public class cart {
    Scanner input = new Scanner(System.in);
    int costumerId;
    int nProducts;
    product[] productarray;
    public cart() {}
    public cart(int cId, int np) {
        costumerId = Math.abs(cId);
        nProducts = Math.abs(np);
        productarray = new product[nProducts];
    }
    public void setCostumerId(int costumerId) { this.costumerId = Math.abs(costumerId); }
    public void setNProducts(int nProducts) { this.nProducts = Math.abs(nProducts); }
    public void setProductArray(product[] products) { this.productarray = products; }
    public int getCostumerId() { return costumerId; }
    public int getNProducts() { return nProducts; }
```



```java
    public product[] getProductArray() { return productarray; }
    public void addProduct(product addedProduct) {
        for (int i = 0; i < productarray.length; i++) {
            if (productarray[i] == null) {
                productarray[i] = addedProduct;
                return;
            }
        }
    }
    public void deleteProduct() {

        Scanner input = new Scanner(System.in);
        System.out.println("Would you like to remove any product from the cart? (1-yes, 2-no)");
        int choice = input.nextInt();
        if (choice == 1) {
            System.out.println("Which product would you like to remove?");
            for (int i = 0; i < nProducts; i++) {
                if (productarray[i] != null) {
                    System.out.println((i + 1) + "- " + productarray[i].getName());
                }
            }
            int productIndex = input.nextInt();
            if (productIndex >= 1 && productIndex <= nProducts && productarray[productIndex - 1] != null) {
                System.out.println(productarray[productIndex - 1].getName() + " removed from the cart.");
                productarray[productIndex - 1] = null;
            } else {
                System.out.println("Invalid product index.");
            }
```

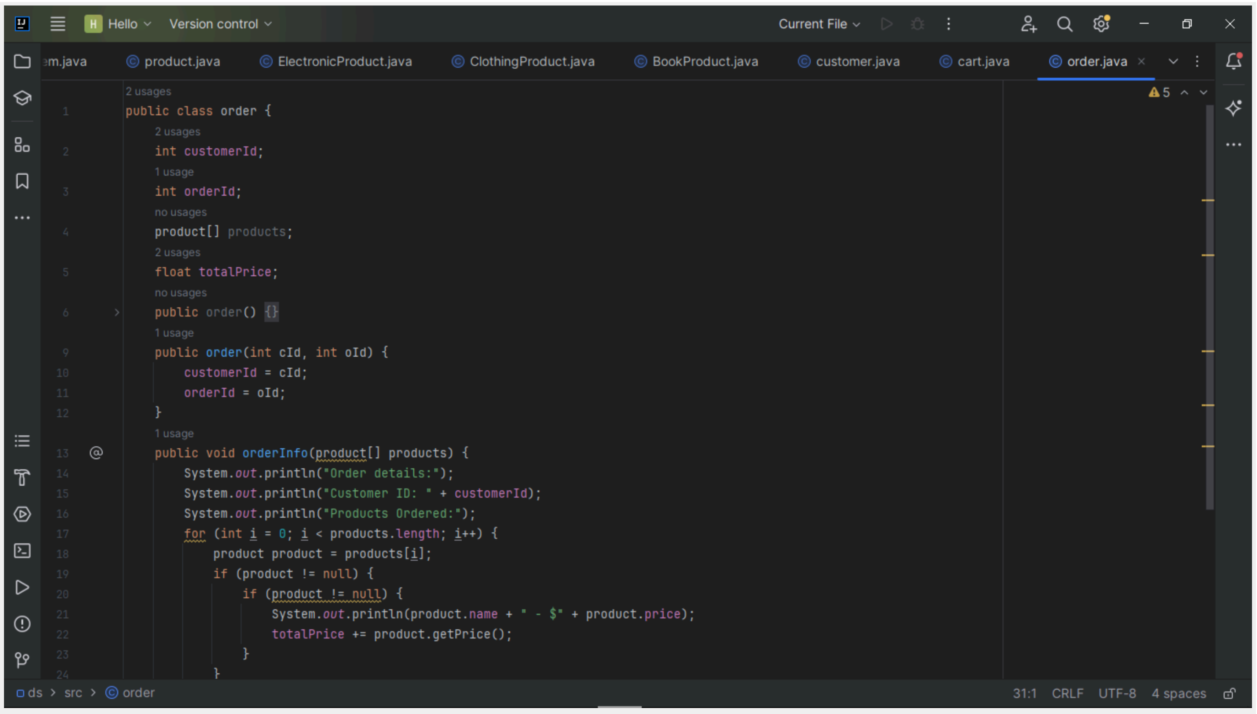


```java
    }
    no usages
    public void deleteProduct() {

        Scanner input = new Scanner(System.in);
        System.out.println("Would you like to remove any product from the cart? (1-yes, 2-no)");
        int choice = input.nextInt();
        if (choice == 1) {
            System.out.println("Which product would you like to remove?");
            for (int i = 0; i < nProducts; i++) {
                if (productarray[i] != null) {
                    System.out.println((i + 1) + "- " + productarray[i].getName());
                }
            }
            int productIndex = input.nextInt();
            if (productIndex >= 1 && productIndex <= nProducts && productarray[productIndex - 1] != null) {
                System.out.println(productarray[productIndex - 1].getName() + " removed from the cart.");
                productarray[productIndex - 1] = null;
            } else {
                System.out.println("Invalid product index.");
            }
        }
        product[] remainingProducts = productarray;
        System.out.println("Remaining products in the cart:");
        for (int i = 0; i < remainingProducts.length; i++) {
            product product = remainingProducts[i];
            if (product != null) {
                System.out.println(product.getName() + " - $" + product.getPrice());
            }
        }
```

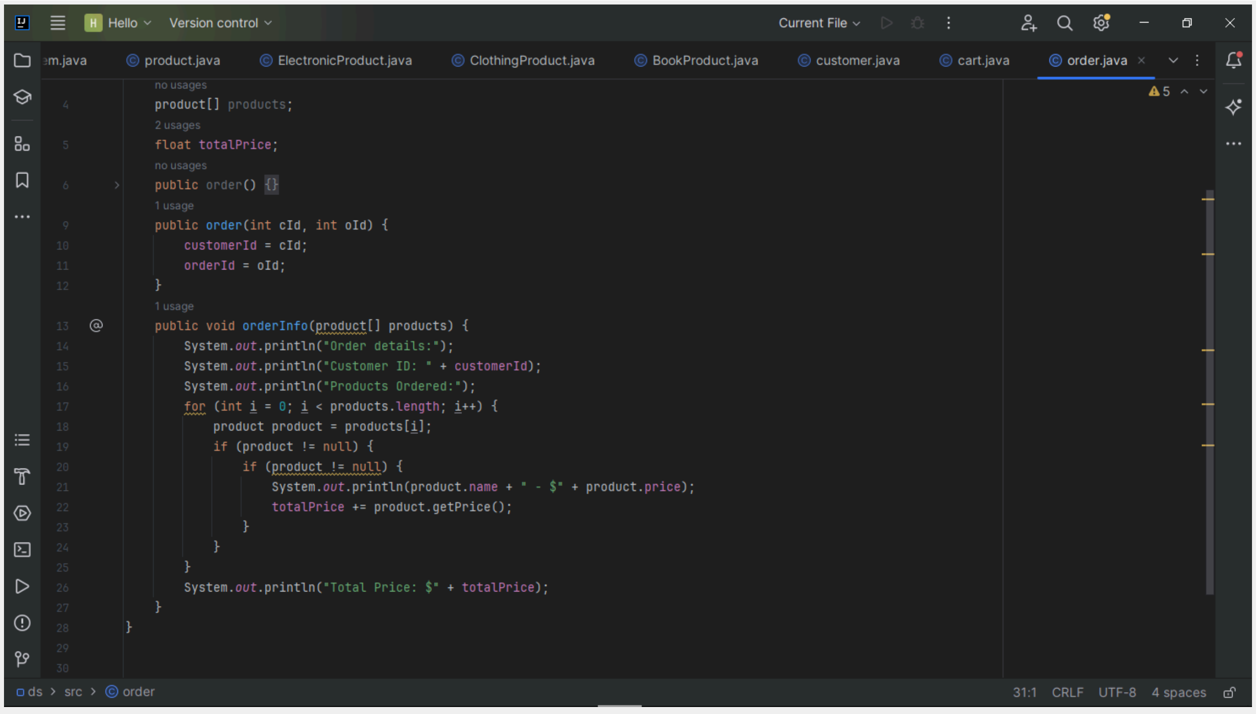


```java
    }
    1 usage
    public float calculateTotalPrice() {
        float totalPrice = 0;
        for (int i = 0; i < nProducts; i++) {
            if (productarray[i] != null) {
                totalPrice += productarray[i].getPrice();
            }
        }
        return totalPrice;
    }
    1 usage
    public void placeOrder() {
        Scanner input = new Scanner(System.in);
        System.out.println("Your total price is: $" + calculateTotalPrice());
        System.out.println("Would you like to place the order? (1-yes, 2-no)");
        int choice = input.nextInt();
        if (choice == 1) {
            System.out.println("Order placed successfully!");
            order order=new order(costumerId, old: 1);
            order.orderInfo(productarray);
        } else if (choice == 2) {
            System.out.println("Order canceled.");
        } else {
            System.out.println("Invalid choice.");
        }
    }
}
```

Order class:

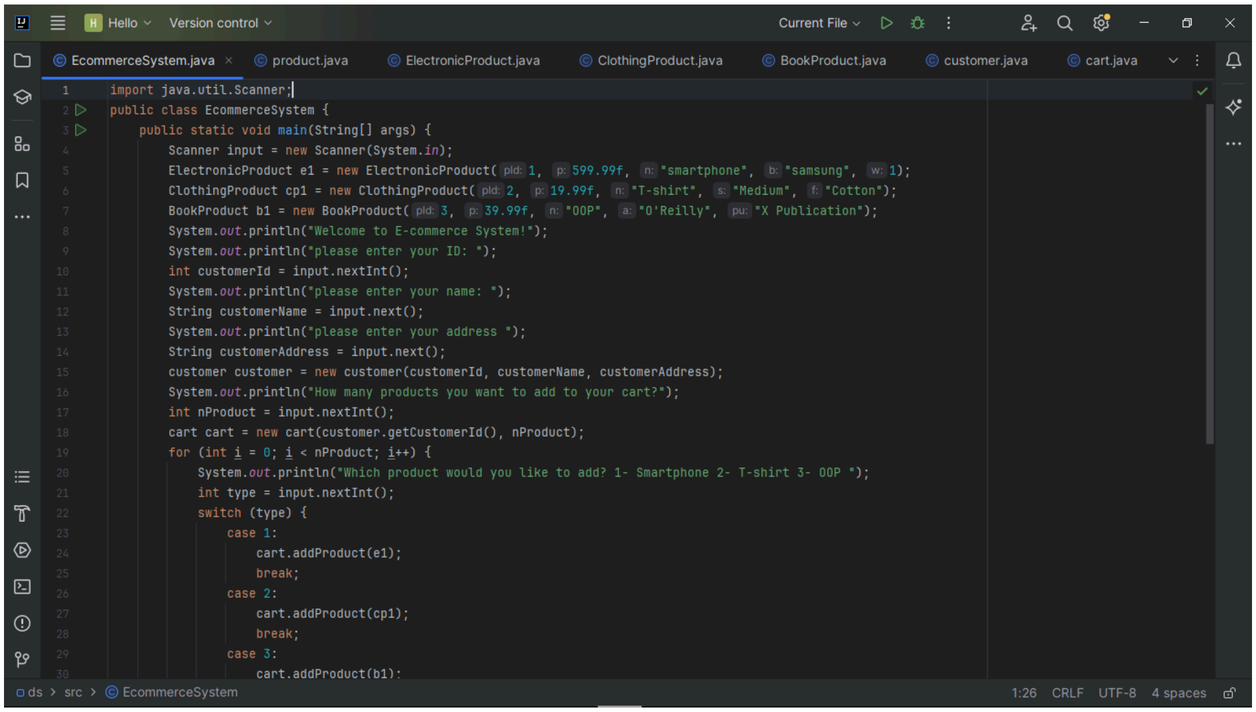


```
2 usages
public class order {
    2 usages
    int customerId;
    1 usage
    int orderId;
    no usages
    product[] products;
    2 usages
    float totalPrice;
    no usages
    public order() {}
    1 usage
    public order(int cId, int oId) {
        customerId = cId;
        orderId = oId;
    }
    1 usage
    public void orderInfo(product[] products) {
        System.out.println("Order details:");
        System.out.println("Customer ID: " + customerId);
        System.out.println("Products Ordered:");
        for (int i = 0; i < products.length; i++) {
            product product = products[i];
            if (product != null) {
                if (product != null) {
                    System.out.println(product.name + " - $" + product.price);
                    totalPrice += product.getPrice();
                }
            }
```

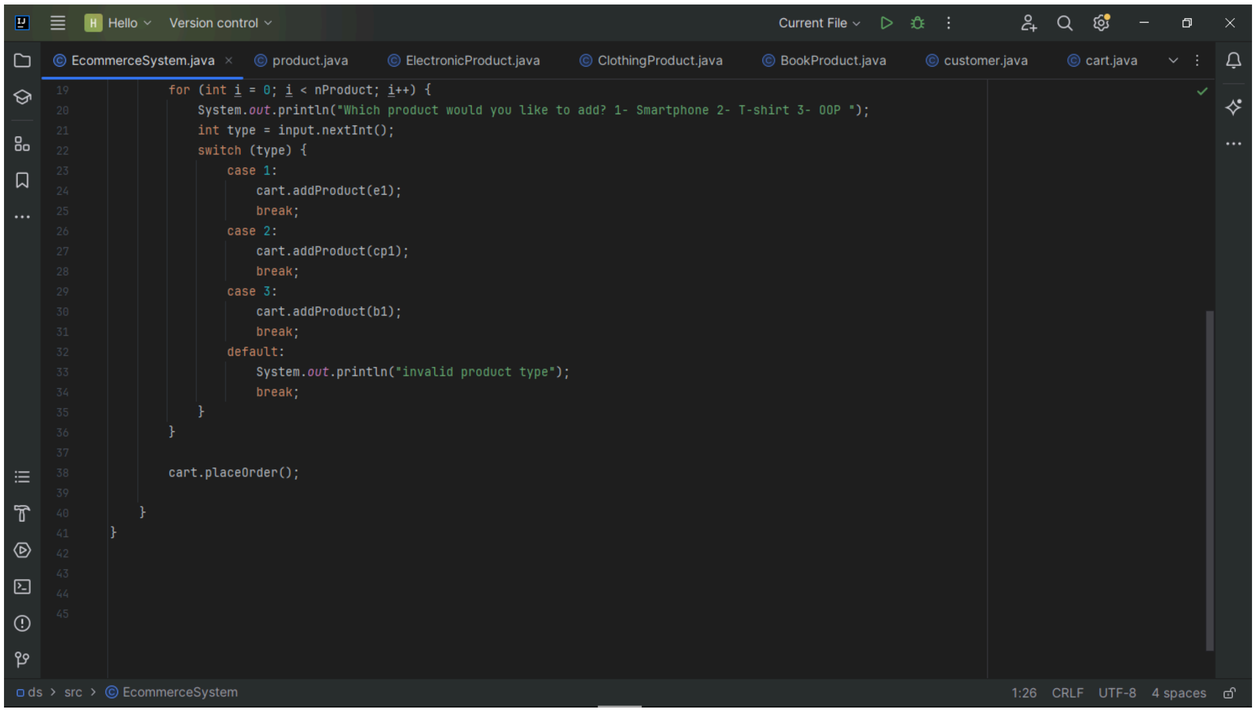


```
    no usages
    product[] products;
    2 usages
    float totalPrice;
    no usages
    public order() {}
    1 usage
    public order(int cId, int oId) {
        customerId = cId;
        orderId = oId;
    }
    1 usage
    public void orderInfo(product[] products) {
        System.out.println("Order details:");
        System.out.println("Customer ID: " + customerId);
        System.out.println("Products Ordered:");
        for (int i = 0; i < products.length; i++) {
            product product = products[i];
            if (product != null) {
                if (product != null) {
                    System.out.println(product.name + " - $" + product.price);
                    totalPrice += product.getPrice();
                }
            }
        }
        System.out.println("Total Price: $" + totalPrice);
    }
}
```

EcommerceSystem class:

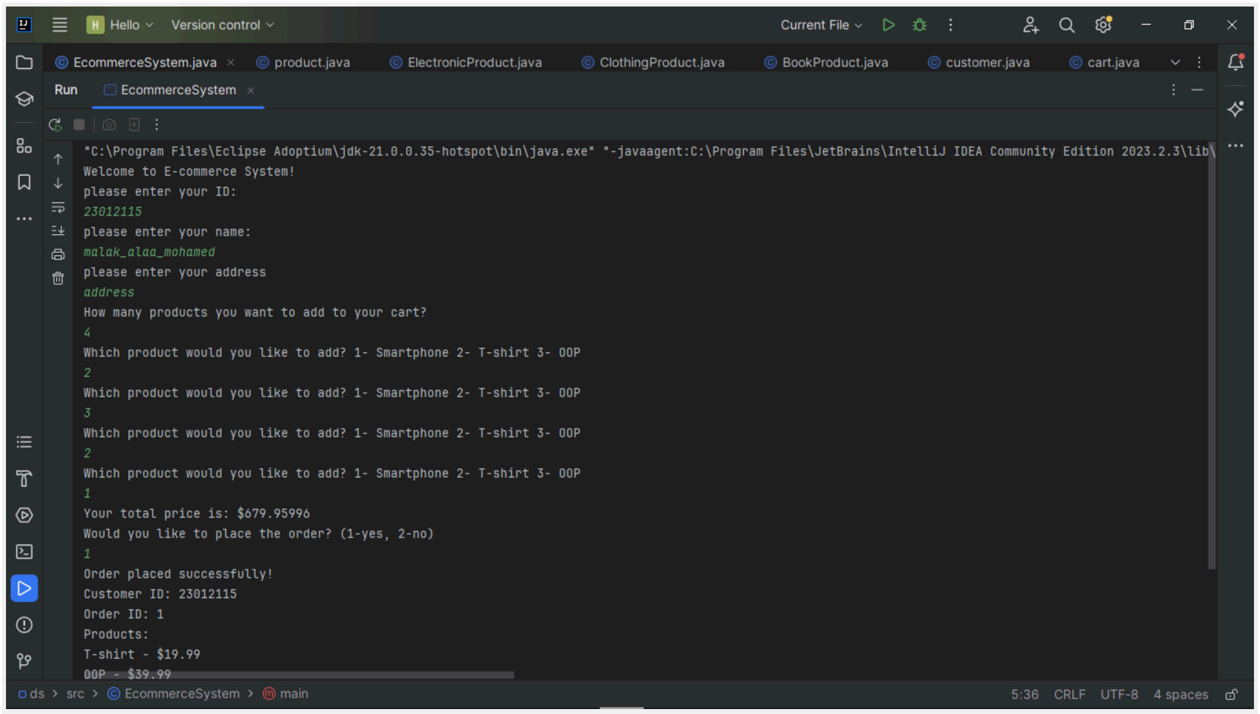


```java
import java.util.Scanner;
public class EcommerceSystem {
    public static void main(String[] args) {
        Scanner input = new Scanner(System.in);
        ElectronicProduct e1 = new ElectronicProduct( pId: 1,  p: 599.99f,  n: "smartphone",  b: "samsung",  w: 1);
        ClothingProduct cp1 = new ClothingProduct( pId: 2,  p: 19.99f,  n: "T-shirt",  s: "Medium",  f: "Cotton");
        BookProduct b1 = new BookProduct( pId: 3,  p: 39.99f,  n: "OOP",  a: "O'Reilly",  pu: "X Publication");
        System.out.println("Welcome to E-commerce System!");
        System.out.println("please enter your ID: ");
        int customerId = input.nextInt();
        System.out.println("please enter your name: ");
        String customerName = input.next();
        System.out.println("please enter your address ");
        String customerAddress = input.next();
        customer customer = new customer(customerId, customerName, customerAddress);
        System.out.println("How many products you want to add to your cart?");
        int nProduct = input.nextInt();
        cart cart = new cart(customer.getCustomerId(), nProduct);
        for (int i = 0; i < nProduct; i++) {
            System.out.println("Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP ");
            int type = input.nextInt();
            switch (type) {
                case 1:
                    cart.addProduct(e1);
                    break;
                case 2:
                    cart.addProduct(cp1);
                    break;
                case 3:
                    cart.addProduct(b1);
```

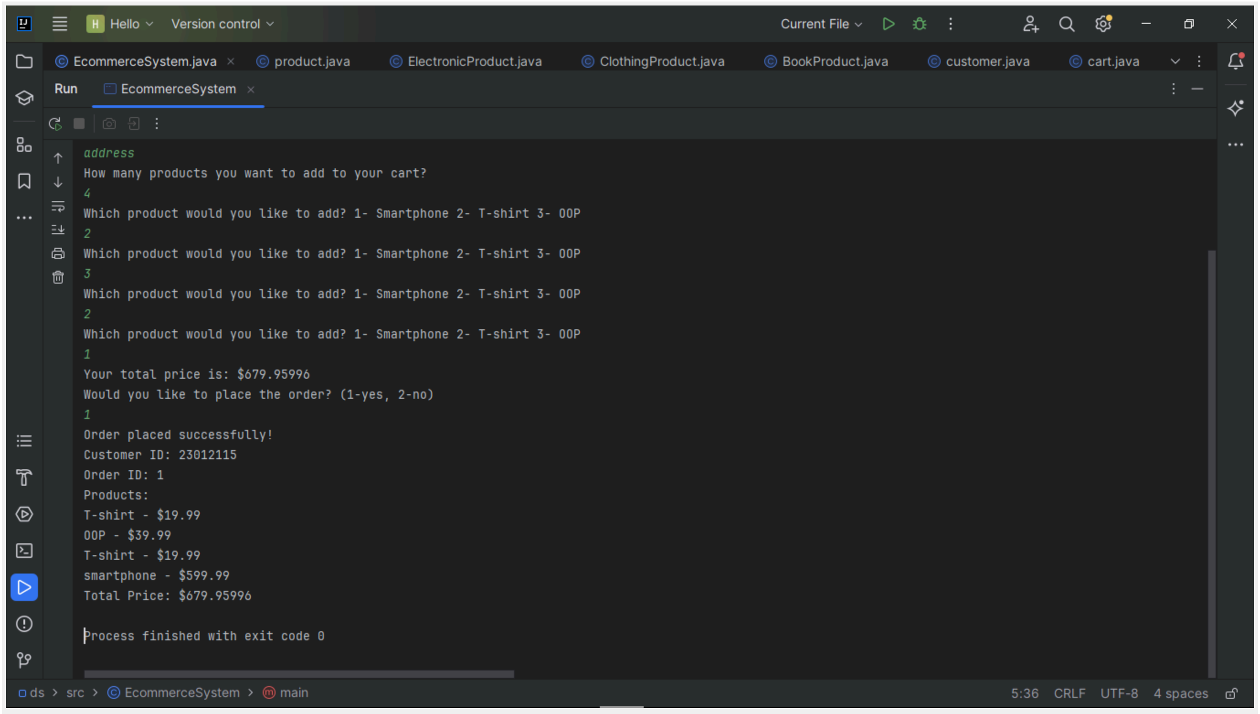


```java
        for (int i = 0; i < nProduct; i++) {
            System.out.println("Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP ");
            int type = input.nextInt();
            switch (type) {
                case 1:
                    cart.addProduct(e1);
                    break;
                case 2:
                    cart.addProduct(cp1);
                    break;
                case 3:
                    cart.addProduct(b1);
                    break;
                default:
                    System.out.println("invalid product type");
                    break;
            }
        }

        cart.placeOrder();

    }
}
```

Output :



```
"C:\Program Files\Eclipse Adoptium\jdk-21.0.0.35-hotspot\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA Community Edition 2023.2.3\lib\
Welcome to E-commerce System!
please enter your ID:
23012115
please enter your name:
malak_alaa_mohamed
please enter your address
address
How many products you want to add to your cart?
4
Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP
2
Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP
3
Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP
2
Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP
1
Your total price is: $679.95996
Would you like to place the order? (1-yes, 2-no)
1
Order placed successfully!
Customer ID: 23012115
Order ID: 1
Products:
T-shirt - $19.99
OOP - $39.99
```



```
address
How many products you want to add to your cart?
4
Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP
2
Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP
3
Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP
2
Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP
1
Your total price is: $679.95996
Would you like to place the order? (1-yes, 2-no)
1
Order placed successfully!
Customer ID: 23012115
Order ID: 1
Products:
T-shirt - $19.99
OOP - $39.99
T-shirt - $19.99
smartphone - $599.99
Total Price: $679.95996

Process finished with exit code 0
```