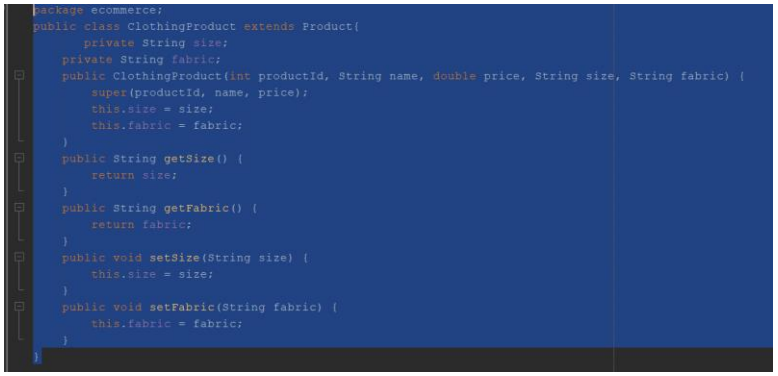
Product class

```
package ecommerce;
public class Product {
        protected int productId;
    protected String name;
    protected double price;
    public Product(int productId, String name, double price) {
        this.productId = Math.abs(productId);
        this.name = name;
        this.price = Math.abs(price);
    }
       public int getProductId() {
        return productId;
    }
    public String getName() {
        return name;
    }
    public double getPrice() {
        return price;
    }
    public void setProductId(int productId) {
        this.productId = Math.abs(productId);
    }
    public void setName(String name) {
        this.name = name;
    }
    public void setPrice(double price) {
        this.price = Math.abs(price);
    }
}
```

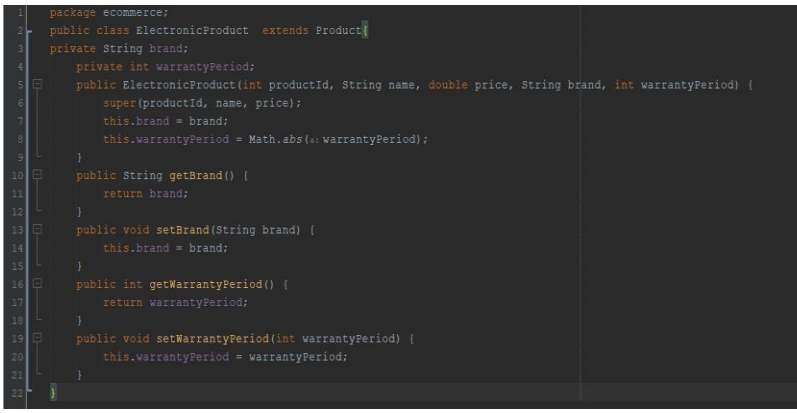
Clothing product



```
package ecommerce;
public class ClothingProduct extends Product{
      private String size;
    private String fabric;
    public ClothingProduct(int productId, String name, double price, String size, String fabric) {
        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;
    }
}
```

Electronic product

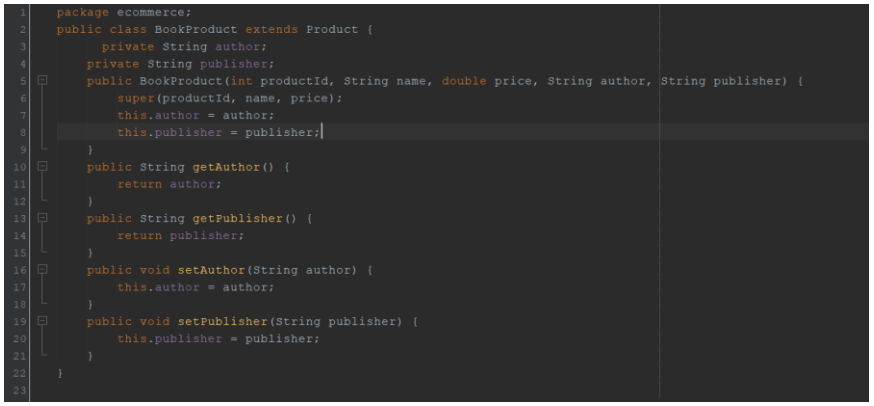


```
package ecommerce;
public class ElectronicProduct  extends Product{
private String brand;
    private int warrantyPeriod;
    public ElectronicProduct(int productId, String name, double price, String brand, int warrantyPeriod) {
        super(productId, name, price);
        this.brand = brand;
        this.warrantyPeriod = Math.abs(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;
    }
}
```

```
package ecommerce;

public class ElectronicProduct  extends Product{

private String brand;

   private int warrantyPeriod;

   public ElectronicProduct(int productId, String name, double price, String brand, int warrantyPeriod) {

      super(productId, name, price);

      this.brand = brand;

      this.warrantyPeriod = Math.abs(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;

   }

}
```

Book product

```
package ecommerce;

public class BookProduct extends Product {

    private String author;

    private String publisher;

    public BookProduct(int productId, String name,
double 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;

    }

}
```



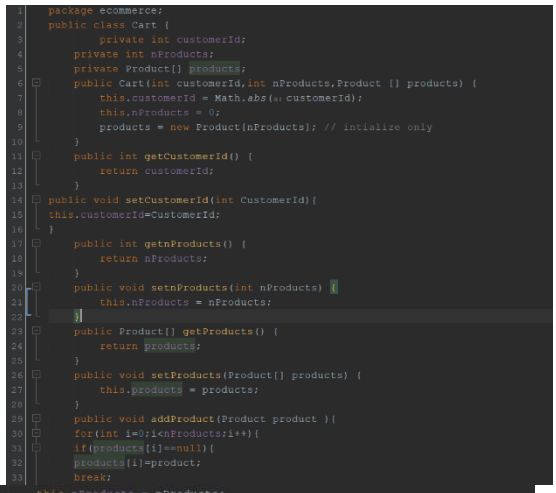
Order class

```
package ecommerce;
public class Order {
    private int customerId;
    private int orderId;
    private Product[] products;
    private double totalPrice;
    public Order(int customerId,  Product[] products,double totalPrice) {
        this.customerId = Math.abs(customerId);
        this.orderId = 1;
        this.products = products;
        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 (Product product : products) {
            System.out.println(  product.getName()+"  - $"+product.getPrice());
        }
        System.out.println("Total Price: $" + totalPrice);
    }
}
```

```
package ecommerce;

public class Order {

    private int customerId;

   private int orderId;

   private Product[] products;

   private double totalPrice;

   public Order(int customerId,  Product[] products,double totalPrice) {

      this.customerId = Math.abs(customerId);

      this.orderId = 1;        this.products = products;

      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 (Product product : products) {

         System.out.println(  product.getName()+"  - $"+product.getPrice());

      }

      System.out.println("Total Price: $" + totalPrice);

   }

}
```

Cart class

```
package ecommerce;

public class Cart {

    private int customerId;

   private int nProducts;

   private Product[] products;

   public Cart(int customerId,int nProducts,Product [] products) {

      this.customerId = Math.abs(customerId);

      this.nProducts = 0;

      products = new Product[nProducts]; // intialize only

   }

   public int getCustomerId() {

      return customerId;

   }

public void setCustomerId(int CustomerId){

this.customerId=CustomerId;

}

   public int getnProducts() {

      return 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<nProducts;i++){

   if(products[i]==null){

   products[i]=product;

   break;

 }}}

   public void removeProduct(Product product){

   for(int i=0;i<nProducts;i++){
```



```
package ecommerce;
public class Cart {
        private int customerId;
    private int nProducts;
    private Product[] products;
    public Cart(int customerId,int nProducts,Product [] products) {
        this.customerId = Math.abs(customerId);
        this.nProducts = 0;
        products = new Product[nProducts]; // intialize only
    }
    public int getCustomerId() {
        return customerId;
    }
public void setCustomerId(int CustomerId){
this.customerId=CustomerId;
}
    public int getnProducts() {
        return 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<nProducts;i++){
    if(products[i]==null){
    products[i]=product;
    break;
    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<nProducts;i++){
if(products[i]==null){
products[i]=product;
break;
}}}
public void removeProduct(Product product){
for(int i=0;i<nProducts;i++){
    if(products[i]==product){
products[i]=null;
break;
    }}}
public double calculatePrice() {
    double totalPrice = 0;
    for (int i = 0; i < nProducts; i++) {
        if(products[i]!=null)
        totalPrice += products[i].getPrice();
}
return totalPrice;
}
 public Order placeOrder() {
    return new Order(customerId, products ,totalPrice: calculatePrice());
}
}
```

```
      if(products[i]==product){
    products[i]=null;
    break;
      }}}
    public double calculatePrice() {
      double totalPrice = 0;
      for (int i = 0; i < nProducts; i++) {
        if(products[i]!=null)
        totalPrice += products[i].getPrice();
    }
    return totalPrice;
    }
     public Order placeOrder() {
      return new Order(customerId, products ,calculatePrice());
    }
  }
```

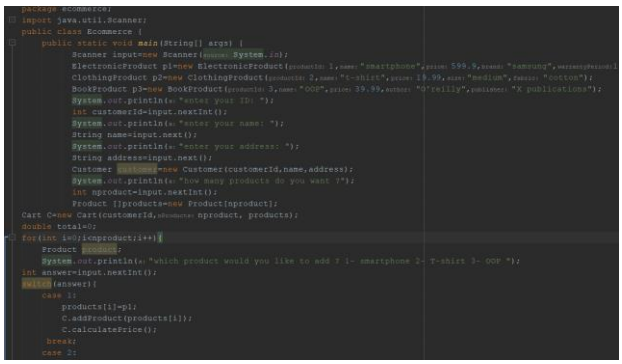
Customer class

```
package ecommerce;

public class Customer {

    private int customerId;

    private String name;

    private String address;

    public Customer(int customerId, String name, String address) {

        this.customerId = Math.abs(customerId);

        this.name = name;

        this.address = address;

    }

    public int getCustomerId() {

        return customerId;

    }

    public String getName() {

        return name;

    }

    public String getAddress() {

        return address;

    }

    public void setCustomerId(int customerId) {

        this.customerId = Math.abs(customerId);

    }

    public void setName(String name) {

        this.name = name;

    }

    public void setAddress(String address) {

        this.address = address;

    }

}
```

Test class and output

```
package ecommerce;

import java.util.Scanner;

public class Ecommerce {

   public static void main(String[] args) {

        Scanner input=new Scanner(System.in);

        ElectronicProduct p1=new
ElectronicProduct(1,"smartphone",599.9,"samsung",1);

        ClothingProduct p2=new ClothingProduct(2,"t-
shirt",19.99,"medium","cotton");

        BookProduct p3=new BookProduct(3,"OOP",39.99,"O'reilly","X publications");

        System.out.println("enter your ID: ");

        int customerId=input.nextInt();

        System.out.println("enter your name: ");

        String name=input.next();

        System.out.println("enter your address: ");

        String address=input.next();

        Customer customer=new Customer(customerId,name,address);

        System.out.println("how many products do you want ?");

        int nproduct=input.nextInt();

        Product []products=new Product[nproduct];

Cart C=new Cart(customerId,nproduct, products);

double total=0;

for(int i=0;i<nproduct;i++){

   Product product;

   System.out.println("which product would you like to add ? 1- smartphone 2- T-shirt 3- OOP ");

int answer=input.nextInt();

switch(answer){

   case 1:

      products[i]=p1;

      C.addProduct(products[i]);

      C.calculatePrice();

    break;

   case 2:

      products[i]=p2;
```

```
Output - Ecommerce (run)
enter your ID:
23011159
enter your name:
malkmohamedahmedfarghly
enter your address:
address
how many products do you want ?
3
which product would you like to add ? 1- smartphone 2- T-shirt 3- OOP
1
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
your total is: 659.88
would you to place the order? 1- yes 2- no
1
Customer ID: 23011159
Order ID: 1
Products:
smartphone  - $599.9
t-shirt  - $19.99
OOP  - $39.99
Total Price: $659.88
```



```
    C.addProduct(products[i]);
    C.calculatePrice();
    break;
  case 3:
    products[i]=p3;
    C.addProduct(products[i]);
    p3.getPrice();
    break;
  default:
    System.out.println("unavilable product");
    break;
}
total+=products[i].getPrice();
C.addProduct(products[i]);
C.calculatePrice();
}
System.out.println("your total is: "+total);
  Order o=new Order(customerId,products,total);
  System.out.println("would you to place the order? 1- yes 2- no");
  int response=input.nextInt();
  if(response==1){
    C.placeOrder();
o.printOrderInfo();
  }else{
      System.out.println("thank you");}
  }
  }
```