The first programming 2 project

The Product class

```java
package e.commercesystem;
public class Product {
    protected int productId;
    protected String name;
    protected float price;
    public void setproductId(int productId){
        this.productId=Math.abs(a: productId);
    }
    public int getproductId(){
        return productId;
    }
    public void setname(String name){
        this.name=name;
    }
    public String getname(){
        return name;
    }
    public void setprice(float price){
        this.price=Math.abs(a: price);
    }
    public float getprice(){
        return price;
    }

}
```

The Electronic product

```java
package e.commercesystem;
public class Electronic_Product extends Product {
    String brand;
    int warranty_period;
    public void setbrand(String brand){
        this.brand=brand;
    }
    public String getbrand(){
        return brand;
    }
    public void setwarranty_period(int warranty_period){
        this.warranty_period=Math.abs(a: warranty_period);
    }
    public int getwarranty_period (){
        return warranty_period;
    }

}
```

The Clothing Product class

```java
package e.commercesystem;
public class Clothing_Product extends Product {
    String size;
    String fabric;
    public void setsize(String size){
        this.size=size;
    }
    public String getsize(){
        return size;
    }
    public void setfabric(String fabric){
        this.fabric=fabric;
    }
    public String getfabric(){
        return fabric;
    }

}
```

The Book Product class

```java
package e.commercesystem;
public class Book_Product extends Product {
    String author;
    String publisher;
    public void setauthor(String author){
        this.author=author;
    }
    public String getauthor(){
        return author;
    }
    public void setpublisher(String publisher){
        this.publisher=publisher;
    }
    public String getpublisher(){
        return publisher;
    }

}
```

The Customer class

```java
package e.commercesystem;
public class Customer {
    int customer_Id;
    String name;
    String address;
    public void setcustomer_Id(int customer_Id){
        this.customer_Id=Math.abs(a: customer_Id);
    }
    public int getcustomer_Id (){
        return customer_Id;
    }
    public void setname (String name){
        this.name=name;
    }
    public String getname (){
        return name;
    }
    public void setaddress (String address){
        this.address=address;
    }
    public String getaddress (){
        return address;
    }
}
```

The Cart class

```java
package e.commercesystem;
public class Cart {
    int customerId;
    int nProducts;
    Product [] products ;
    int productcount=0;
    public void setcustomerId (int customerId){
        this.customerId=Math.abs(a: customerId);
    }
    public int getcustomerId (){
        return customerId;
    }
    public void setnProducts (int nProducts){
        this.nProducts=Math.abs(a: nProducts);
        this.products=new Product[this.nProducts];
    }
    public int getnProducts (){
        return nProducts;
    }
    public void setproducts (Product [] products){
        this.products=products;
    }
    public Product [] getproducts (){
        return products;
    }
    public void addProduct (Product product){
```

```
31          if (productcount <nProducts){
32              products [productcount]=product;
33              productcount ++;}
34          else{
35              System.out.println(x: "The cart is full. you cannot add more products");
36          }
37      }
38      public void removeProduct (Product product){
39          for (int i=0 ; i<nProducts ; i++){
40              if (products[i]==product){
41                  products[i]=null;
42              }
43              else{
44                  System.out.println(x: "This product isnot in the cart");
45              }
46          }
47      }
48      public float calculatePrice (){
49          float total_price =0;
50          for (int i=0 ; i<nProducts ; i++){
51              total_price+=products[i].getprice();
52          }
53          return total_price;
54      }
55      public void placeOrder (){
56          System.out.println(x: "Here's your order's summary");
57      }
58
59  }
```

The Order class

```
5   package e.commercesystem;
6   public class Order {
7       public void printOrderInfo (int customerId , int orderId , Product [] products , float total_price){
8           System.out.println("Order ID : "+Math.abs(a: orderId));
9           System.out.println("Customer ID : "+customerId);
10          System.out.println(x: "Products : ");
11          for (int i=0 ; i<products.length ; i++ ){
12              if (products[i]!=null){
13                  System.out.println(products[i].getname()+"- $"+products[i].getprice());
14              }
15          }
16          System.out.println("Total price : $"+total_price);
17      }
18  }
```

The Ecommerce System main class

```java
5    package e.commercesystem;
6    import java.util.Scanner;
7    public class ECommerceSystem {
8        public static void main(String[] args) {
9            System.out.println(x: "Welcome to the E-commerce System!");
10           Scanner input=new Scanner(source: System.in);
11           Electronic_Product product1=new Electronic_Product();
12           product1.setname (name: "smartphone");
13           product1.setproductId(productId: 1);
14           product1.setprice(price: 599.99f);
15           product1.setbrand(brand: "Samsung");
16           product1.setwarranty_period(warranty_period:1);
17           Clothing_Product product2=new Clothing_Product();
18           product2.setname(name: "T-shirt");
19           product2.setproductId(productId: 2);
20           product2.setprice(price: 19.99f);
21           product2.setsize(size: "Medium");
22           product2.setfabric(fabric: "Cotton");
23           Book_Product product3 =new Book_Product();
24           product3.setname(name: "OOP");
25           product3.setproductId(productId: 3);
26           product3.setprice(price: 39.99f);
27           product3.setauthor(author: "O'Reilly");
28           product3.setpublisher(publisher: "X Publications");
29           Customer data=new Customer();
30           System.out.println(x: "Please enter your id");
31           int id =input.nextInt();
32           input.nextLine();
33           data.setcustomer_Id(customer_Id:id);
34           System.out.println(x: "Please enter your name");
35           String Name=input.nextLine();
36           data.setname(name: Name);
37           System.out.println(x: "Please enter your address");
38           String Address=input.nextLine();
39           data.setaddress(address:Address);
40           Cart productcart=new Cart();
41           Order order=new Order();
42           productcart.setcustomerId(customerId: id);
43           System.out.println(x: "How many products you want to add to your cart");
44           int num=input.nextInt();
45           productcart.setnProducts(nProducts: num);
46           for (int i=0; i<num ; i++){
47               System.out.println(x: "Which product would you like to add? 1-Smartphone 2-T-shirt 3-OOP ");
48               int choice=input.nextInt();
49               switch(choice){
50                   case 1:
51                       productcart.addProduct(product:product1);
52                       break;
53                   case 2:
54                       productcart.addProduct(product:product2);
55                       break;
56                   case 3:
57                       productcart.addProduct(product:product3);
58                       break;
59                   default:
60                       System.out.println(x: "Invalid choice please choose from product 1 or 2 or 3");
61                       i--;
62               }
```

```java
63              }
64          System.out.println("Your total is $"+productcart.calculatePrice()+". Would you like to place the order? 1- Yes  2- No");
65          int PlaceOrderChoice=input.nextInt();
66          if (PlaceOrderChoice==1){
67              productcart.placeOrder();
68              order.printOrderInfo(customerId: data.getcustomer_Id(),orderId:1 , products: productcart.getproducts(),total_price:productcart.calculatePrice());
69          }
70          else if (PlaceOrderChoice==2){
71              System.out.println(x: "Do you want to remove any item from the cart? 1-Yes  2-No");
72              int y=input.nextInt();
73              if (y==1){
74                  System.out.println(x: "How many products you want to remove?");
75                  int d=input.nextInt();
76                  for(int i=0; i<d; i++){
77                      System.out.println(x: "choose the product you want to remove 1-Smartphone  2-T-shirt  3-OOP");
78                      int x=input.nextInt();
79                      switch (x){
80                          case 1:
81                              productcart.removeProduct(product:product1);
82                              break;
83                          case 2:
84                              productcart.removeProduct(product:product2);
85                              break;
86                          case 3:
87                              productcart.removeProduct(product:product3);
88                              break;
89                          default:
90                              System.out.println(x: "Invalid index");
91                  }
92              }
```

```java
93              System.out.println(x: "The products After the removing");
94              Product[]products=productcart.getproducts();
95              for(int j=0 ; j<products.length ; j++){
96                  if (products[j] != null){
97                      System.out.println(products[j].getname()+"-"+products[j].getprice());}
98                  }
99              }
100             else if (y==2){
101                 System.out.println(x: "Thank you for shopping with us");
102             }
103             else{
104                 System.out.println(x: "Invalid choice please try again");
105             }
106         }
107     }
108 }
```

The output of the project by the test case

Output - E-CommerceSystem (run) ×

```
run:
Welcome to the E-commerce System!
Please enter your id
23011082
Please enter your name
Salma Farag Gaber Abbass Ibrahim
Please enter your address
Alexandria
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 is $679.95996. Would you like to place the order? 1- Yes  2- No
1
Here's your order's summary
Order ID : 1
Customer ID : 23011082
Products :
T-shirt- $19.99
OOP- $39.99
T-shirt- $19.99
smartphone- $599.99
Total price : $679.95996
BUILD SUCCESSFUL (total time: 1 minute 39 seconds)
```