NAME: Rana Mohamed Gamal Abdel Hay Mahfouz **ID:** 23010083

The Ecommerce Project:

Product Class:

```
1
2   package javaapplication156;
3
4   public class Product {
5       int productId;
6       String name;
7       float price;
8       public Product(int productId, String name, float price) {
9           this.productId = Math.abs(a: productId);
10          this.name = name;
11          this.price = Math.abs(a: price);
12      }
13      public int getProductId() {
14          return productId;
15      }
16      public void setProductId(int productId) {
17          this.productId = productId;
18      }
19      public String getName() {
20          return name;
21      }
22      public void setName(String name) {
23          this.name = name;
24      }
25      public float getPrice() {
26          return price;
27      }
28      public void setPrice(float price) {
29          this.price = price;
30      }
31  }
32
```

NAME: Rana Mohamed Gamal Abdel Hay Mahfouz **ID:** 23010083

ElectronicProduct Class:

```java

package javaapplication156;

public class ElectronicProduct extends Product{
    String brand;
    int warrantyPeriod;

    public ElectronicProduct(String brand, int warrantyPeriod, int productId, String name, float price) {
        super(productId, name, price);
        this.brand = brand;
        this.warrantyPeriod = Math.abs(a: 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;
    }

}

```

NAME: Rana Mohamed Gamal Abdel Hay Mahfouz **ID:** 23010083

ClothingProduct Class:

```java

package javaapplication156;

public class ClothingProduct extends Product{
    String size;
    String fabric;

    public ClothingProduct(String size, String fabric, int productId, String name, float price) {
        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;
    }

}

```

NAME: Rana Mohamed Gamal Abdel Hay Mahfouz **ID:** 23010083

BookProduct Class:

```java

package javaapplication156;

public class BookProduct extends Product{
    String author;
    String publisher;

    public BookProduct(String author, String publisher, int productId, String name, float price) {
        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;
    }

}

```

NAME: Rana Mohamed Gamal Abdel Hay Mahfouz **ID:** 23010083

Customer Class:

```java

package javaapplication156;

public class Customer {
    int customerId;
    String name;
    String address;
    public Customer(int customerId, String name, String address) {
        this.customerId = Math.abs(a: customerId);
        this.name = name;
        this.address = address;
    }

    public int getCustomerId() {
        return customerId;
    }
    public void setCustomerId(int customerId) {
        this.customerId = customerId;
    }
    public String getName() {
        return name;
    }
    public void setName(String name) {
        this.name = name;
    }
    public String getAddress() {
        return address;
    }
    public void setAddress(String address) {
        this.address = address;
    }
}

```

NAME: Rana Mohamed Gamal Abdel Hay Mahfouz **ID:** 23010083

Cart Class:

```java

package javaapplication156;

public class Cart {
    int customerId;
    int nProducts;
    Product[] products;

    public Cart(int customerId, int nProducts) {
        this.customerId = Math.abs(a: customerId);
        this.nProducts = Math.abs(a: nProducts);
        this.products = new Product[nProducts];
    }
    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;
    }

    int count =0;
    public void addProduct(Product productToAdd){
    products[count] = productToAdd;
    count++;
    }
```

NAME: Rana Mohamed Gamal Abdel Hay Mahfouz **ID:** 23010083

```
38
39      public void removeProduct(int productId){
40          for(int i=0;i<nProducts;i++){
41              if(products[i].getProductId() == productId){
42                  products[i] = products[nProducts-1];
43                  products[nProducts-1] = null;
44                  nProducts--;
45              }
46          }
47
48      }
49
50      float totalPrice=0;
51      public float calculatePrice(){
52          for(int i=0;i<nProducts;i++){
53              totalPrice += products[i].getPrice();
54          }
55          return totalPrice;
56      }
57
58      public Order placeOrder(){
59          if(nProducts > 0){
60          //float totalPrice = calculatePrice();
            int orderId = (int) (Math.random()*1000);
62          // int orderId = 500;
63          Order newOrder = new Order(customerId, orderId: 1, products, totalPrice);
64          newOrder.printOrderInfo();
65          return newOrder;
66          }
67          else{
68              System.out.println(x: "No products in the cart to place an order.");
69              return null;
70          }
71      }
72  }
73
```

NAME: Rana Mohamed Gamal Abdel Hay Mahfouz **ID:** 23010083

Order Class:

```java

package javaapplication156;

public class Order {
    int customerId;
    int orderId;
    Product [] products;
    float totalPrice;

    public Order(int customerId, int orderId, Product[] products, float totalPrice) {
        this.customerId = Math.abs(a: customerId);
        this.orderId = Math.abs(a: orderId);
        this.products = products;
        this.totalPrice = Math.abs(a: totalPrice);
    }

    public void printOrderInfo(){
        System.out.println(x: "Here's your order's summary:");
        System.out.println("Order ID: "+ orderId);
        System.out.println("Customer ID: "+ customerId);
        System.out.println(x: "Products: ");
        for(Product productToAdd : products){ //productToAdd is the current product to add
            System.out.println(productToAdd.getName() +" - $"+ productToAdd.getPrice());
        }
        System.out.println("Total Price: $"+ totalPrice);
    }
}

```

NAME: Rana Mohamed Gamal Abdel Hay Mahfouz **ID:** 23010083

Ecommerce Test Case:

```java
package javaapplication156;
import java.util.Scanner;
public class EcommerceSystem {

    public static void main(String[] args) {
     Scanner cs = new Scanner (source:System.in);
     ElectronicProduct e = new ElectronicProduct(brand: "Samsung",warrantyPeriod: 1,productId:1,name: "smartphone",price: 599.99f);
     ClothingProduct cl = new ClothingProduct(size: "Medium",fabric:"Cotton",productId:2,name: "T-shirt",price: 19.99f );
     BookProduct b = new BookProduct(author:"O'Reilly",publisher:"X Publications",productId:3,name: "OOP",price: 39.99f);
        System.out.println(x: "Welcome to the E-Commerce System!");
        System.out.println(x: "Please enter your id");
        int customerId = cs.nextInt();
        System.out.println(x: "Please enter your name");
        String name = cs.next();
        System.out.println(x: "Please enter your address");
        String address = cs.next();
        Customer c = new Customer(customerId , name, address);
        System.out.println(x: "How many products you want to add to the cart?");
        int nProducts = cs.nextInt();
         Cart cart = new Cart(customerId, nProducts);
         for(int i=0;i<nProducts;i++){
             System.out.println(x: "Which product would you like to add? 1- Smartphone 2- T-shirt 3- OOP");
             int productId = cs.nextInt();
             switch(productId){
                 case 1 :
                     cart.addProduct(productToAdd: e);
                     break;
                 case 2 :
                     cart.addProduct(productToAdd: cl);
                     break;
                 case 3 :
                     cart.addProduct(productToAdd: b);
                     break;
                 default :
                     System.out.println(x: "Invalid input!");
             }
         }
        // float total = cart.calculatePrice();
         System.out.print("Your total is $" + cart.calculatePrice() +".  ");
         System.out.println(x: "Would you like to place the order? 1- Yes 2- No");
         int choice = cs.nextInt();
         if(choice == 1){
             cart.placeOrder();

         }
         else{
             System.out.println(x: "The order is not placed!");
         }
    }

}
```

NAME: Rana Mohamed Gamal Abdel Hay Mahfouz **ID:** 23010083

The Output: