```java
import java.util.Scanner;

class Product {
    int productId;
  String name;
     float price;

    public Product(int productId, String name, float price) {
        this.productId = Math.abs(productId);
        this.name = name;
        this.price = Math.abs(price);
    }

    // Setters and getters for productId, name, and price
    public void setProductId(int productId){
        this.productId=productId;
    }
    public void setName(String name){
        this.name=name;
    }
    public void setPrice(float price){
        this.price=price;
    }
    public int getProductId() {
        return productId;
    }

    public String getName() {
        return name;
    }

    public float getPrice() {
        return price;
    }
}

```

```
36
37  class ElectronicProduct extends Product {
38      private String brand;
39      private int warrantyPeriod;
40
41      public ElectronicProduct(int productId,
    String name, float price, String brand, int
    warrantyPeriod) {
42          super(productId, name, price);
43          this.brand = brand;
44          this.warrantyPeriod = Math.
    abs(warrantyPeriod);
45      }
46
47      // Setters and getters for brand and
    warrantyPeriod
48      public void set_warrantyPeriod(int
    warrantyPeriod ){
49          this.warrantyPeriod=warrantyPeriod;
50      }
51      public void set_brand(String  brand ){
52          this.brand=brand ;
53      }
54      public int get_warrantyPeriod(){
55          return warrantyPeriod;
56      }
57      public String get_brand(){
58          return brand;
59      }
60  }
61
```

```
61
62  class ClothingProduct extends Product {
63  private    String size;
64  private    String fabric;
65
66      public ClothingProduct(int productId,
    String name, float price, String size, String
    fabric) {
67          super(productId, name, price);
68          this.size = size;
69          this.fabric = fabric;
70      }
71
72      // Setters and getters for size and fabric
73      public void set_size(String size){
74          this.size=size;
75      }
76      public void set_fabric(String fabric){
77          this.fabric =fabric;
78      }
79      public String get_size(){
80          return size;
81      }
82      public String get_fabric(){
83          return fabric ;
84      }
85  }
```

```
87  class BookProduct extends Product {
88      String author;
89      String publisher;
90
91      public BookProduct(int productId,
    String name, float price, String author,
    String publisher) {
92          super(productId, name, price);
93          this.author = author;
94          this.publisher = publisher;
95      }
96
97      // Setters and getters for author and
    publisher
98      public void set_author(String author){
99          this.author=author;
100     }
101     public void set_publisher(String
    publisher){
102         this.publisher=publisher;
103     }
104     public String get_author(){
105         return author;
106     }
107     public String get_publisher(){
108         return publisher;
109     }
110 }
```

```
112 class Customer {
113   private   int customerId;
114 private    String name;
115   private  String address;
116
117     public Customer(int customerId, String
    name, String address) {
118         this.customerId = customerId;
119         this.name = name;
120         this.address = address;
121     }
122
123     // Setters and getters for customerId,
    name, and address
124     public void set_customerId(int
    customerId){
125         this.customerId=customerId;
126     }
127     public void set_name(String name){
128         this.name=name;
129 }
130 public void set_address(String address){
131     this.address=address;
132 }
133 public int get_customerId(){
134     return customerId;
135 }
136 public String get_name(){
137     return name;
138 }
139 public String get_address(){
140     return address;
141 }
142 }
```

```java
class Cart {
  private   int customerId;
  private   int nProducts;
 private    Product[] products;
 private   float totalPrice;

    public Cart(int customerId, int
nProducts) {
        this.customerId = customerId;
        this.nProducts = Math.
abs(nProducts);
        this.products = new
Product[nProducts];
        this.totalPrice = 0.0f;//To make the
initial value °=0
    }
//يتم اضافة products لل array عن طريق
index ال
  public void addProduct(Product product,
int index) {
        products[index] = product;
        totalPrice += product.getPrice();
    }
//
    public void removeProduct(int index) {
        //بروح للمنتج عن طريق ال index و
بطرح و بجيب سعر المنتج عن طريق
getprice ال و بطرح productprice من
totalprice
        //بعد ما عملنا remove بنخلي ال
index فاضي ب null
    if (index >= 0 && index < products.
length && products[index] != null) {
        totalPrice -= products[index].
getPrice();
        products[index] = null;
    } else {
        System.out.println("Invalid index or
product does not exist!");
    }
}
//place order method
public Order placeOrder(int orderId){
    Order order=new Order(customerId,
orderId,products,totalPrice);
    return order;
}

    public float calculatePrice() {
        return totalPrice;
    }

    public Product[] getProducts() {
        return products;
    }
}
```

```
186
187 class Order {
188   private  int customerId;
189 private    int orderId;
190 private   Product[] products;
191   private  float totalPrice;
192
193    public Order(int customerId, int orderId
    Product[] products, float totalPrice) {
194        this.customerId = customerId;
195        this.orderId = orderId;
196        this.products = products;
197        this.totalPrice = totalPrice;
198    }
199
200    public void printOrderInfo() {
201        System.out.println("Order Id: " +
    orderId);
202        System.out.println("Customer Id: " +
    customerId);
203        System.out.println("Products:");
204        for (Product product : products) {
205            if (product != null) {
206                System.out.println(product.
    getName() + " - $" + product.getPrice());
207            }
208        }
209        System.out.println("Total price: $" +
    totalPrice);
210    }
211 }
212
```

```java
public class EcommerceSystem {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        // Customer input
        System.out.println("Welcome to the E-commerce System!");
        System.out.println("Please enter your id:");
        int customerId = scanner.nextInt();
        scanner.nextLine(); // Consume newline
        System.out.println("Please enter your name:");
        String customerName = scanner.nextLine();
        System.out.println("Please enter your address:");
        String customerAddress = scanner.nextLine();
//creatingg the objects to demonstrate the usage of the classes

        // Creating customer
        Customer customer = new Customer(customerId, customerName, customerAddress);

        // Creating products
        ElectronicProduct smartPhone = new ElectronicProduct(1, "Smartphone", 599.9f, "Samsung", 1);
        ClothingProduct tShirt = new ClothingProduct(2, "T-shirt", 19.99f, "large", "Cotton");
        BookProduct oop = new BookProduct(3, "OOP", 39.99f, "O'Reilly", "X Publications");

        // Creating shopping cart
        System.out.println("How many products would you like to add to your cart?");
        int nProducts = scanner.nextInt();
        Cart cart = new Cart(customerId, nProducts);

        // Adding products to cart
        for (int i = 0; i < nProducts; i++) {
            System.out.println("Which product would you like to add? 1-smartPhone 2-T_shirt 3-oop");
            int choice = scanner.nextInt();
            switch (choice) {
                case 1:
                    cart.addProduct(smartPhone, i);
                    break;
                case 2:
                    cart.addProduct(tShirt,i);
                    break;
                case 3:
                    cart.addProduct(oop, i);
                    break;
                default:
                    System.out.println("Invalid choice!");
            }
        }

        // Calculate total price
        float totalPrice = cart.calculatePrice();
        System.out.println("Your total is $" + totalPrice + ". Would you like to place the order? 1-yes 2-No");

        int orderChoice = scanner.nextInt();
        //لقراءة اختيار المستخدم لو اهيختار 
انه هيطلب الطلب و هيحطه في ال cart لو 
لا يضغط ٢
        if (orderChoice == 1) {
            // Place order
            Order order = new Order(customerId, 1, cart.getProducts(), totalPrice);
            System.out.println("Here's your order summary:");
            order.printOrderInfo();
        } else {
            System.out.println("Order not placed.");
        }
    }
}
```

```
Welcome to the E-commerce System!
Please enter your id:
20231
Please enter your name:
Rana
Please enter your address:
Alexandria
How many products would you like 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 $679.87. Would you like to place the order? 1-
yes 2-No
1
Here's your order summary:
Order Id: 1
Customer Id: 20231
Products:
T-shirt - $19.99
OOP - $39.99
T-shirt - $19.99
Smartphone - $599.9
Total price: $679.87

[Program finished]
```