```java
public abstract class Product {
    int productId;

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

    public void setProductId(int productId) {
        this.productId = productId;
    }

    public String getName() {
        return name;
    }

    public void setName(String name) {
        this.name = name;
    }

    public float getPrice() {
        return price;
    }

    public void setPrice(float price) {
        this.price = price;
    }
}
```

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

    public ElectronicProduct(int productId, String name, float 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;
```

```java
    }

    public void setWarrantyPeriod(int warrantyPeriod) {
        this.warrantyPeriod = warrantyPeriod;
    }
}
```

```java
public class ClothingProduct extends Product{
    String size;

    String fabric;

    public ClothingProduct(int productId, String name, float 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;
    }
}
```

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

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

    public String getAuthor() {
        return author;
    }

    public void setAuthor(String author) {
        this.author = author;
    }
```

```java
    public String getPublisher() {
        return publisher;
    }

    public void setPublisher(String publisher) {
        this.publisher = publisher;
    }
}


public class Customer {
    private int customerId;
    private String name;
    private String 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;
    }
}


public class Cart {
    private int customerId;
    private int itemsCount=0;
    int nProducts;
    Product[] products;
    Customer customer;

    public Cart(int customerId,int nProducts){
        this.customerId = customerId;
        this.nProducts = nProducts;
        products = new Product[nProducts];
    }
    public void addProduct(Product product){
        if(itemsCount == nProducts)
            System.out.println("cart is full");

        else{
```

```java
            itemsCount++;
            products[itemsCount-1] = product;
        }
    }
    public void removeProduct(Product product){
        int productIndex=-1;

        for(int i=0;i<products.length;i++){
            if(products[i] == product){
                productIndex = i;
            }
        }
        if(productIndex == -1){
            System.out.println("product not found");
        }
        else{
            while (productIndex < itemsCount-1){
                products[productIndex]=products[productIndex+1];
                productIndex++;
            }
            products[productIndex]=null;
            itemsCount--;
        }
    }
    public float calculatePrice(Product[] products){
        float sum = 0;
        for(int i=0;i<products.length;i++){
            sum= sum + products[i].getPrice();
        }
        return sum;
    }
    public Order placeOrder(){
        Order order = new Order(this);
        return order;
    }
    public int getCustomerId() {
        return customerId;
    }

    public void setCustomerId(int customerId) {
        this.customerId = customerId;
    }

    public int getnProducts() {
        return nProducts;
    }

    public void setnProducts(int nProducts) {
        if(nProducts < itemsCount)
            System.out.println("can not change to smaller cart");
        else{
            this.nProducts = nProducts;
            Product[] products1 = new Product[nProducts];
            for(int i=0; i<itemsCount;i++){
                products1[i] = products[i];
            }
            products = products1;
```

```java
        }
    }

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

    public void setProducts(Product[] products) {
        this.products = products;
    }
}
```

```java
public class Order{
    public static int orderCount;
    private int orderId;
    private int customerId;
    private float totalPrice;
    private Product[] products;


    public Order(Cart cart) {
        orderCount++;
        this.orderId=orderCount;
        this.customerId=cart.getCustomerId();
        this.products= cart.getProducts();
        this.totalPrice = cart.calculatePrice(cart.products);
    }
    public void printOrderInfo(){
        System.out.println("Here's your order's summary:");
        System.out.println("Order ID: "+orderId);
        System.out.println("Customer ID: "+customerId);
        System.out.println("Products:");
        for (int i = 0; i < products.length; i++) {
            System.out.println(products[i].name+" - "+products[i].price);
        }
        System.out.println("Total price:"+totalPrice);
        System.out.println("Thank you for your service");
    }
}
```

```java
import java.util.Scanner;

public class EcommerceSystem {
    public static void main(String[] args) {
        ElectronicProduct phone = new
ElectronicProduct(1,"smartphone",599.9f,"Samsung",1);
        ClothingProduct shirt = new ClothingProduct(2,"T-
shirt",19.99f,"Medium","Cotton");
        BookProduct book = new BookProduct(3,"OOP",39.99f,"O'Reilly","X
Publications");
        Customer me = new Customer();
        Scanner input = new Scanner(System.in);
        System.out.println("Welcome to E-Commerce System!");
        System.out.println("Please enter your id");
        int id = input.nextInt();
```

```java
        me.setCustomerId(id);
        System.out.println("Please enter your name");
        String name = input.next();
        me.setName(name);
        System.out.println("Please enter your address");
        String address = input.next();
        me.setAddress(address);
        System.out.println("How many products do you want to add to your
cart?");
        int nproducts = input.nextInt();
        Cart shoppingCart = new Cart(me.getCustomerId(),nproducts);
        for(int i=0;i<shoppingCart.getnProducts();i++){
            System.out.print("which product would you like to add?");
            System.out.print("1- Smartphone 2- T-Shirt 3- OOP");
            int answer = input.nextInt();
            if (answer ==phone.getProductId())
                shoppingCart.addProduct(phone);
            else if (answer == shirt.getProductId())
                shoppingCart.addProduct(shirt);
            else
                shoppingCart.addProduct(book);
        }
        System.out.println("your total
is"+shoppingCart.calculatePrice(shoppingCart.products));
        System.out.println("Would you like to place the order? 1- Yes 2-
No");
        int answer = input.nextInt();
        if ( answer == 1){
            Order order =shoppingCart.placeOrder();
            order.printOrderInfo();
        }
        else
            System.out.println("Thank you for your service.");
    }
}
```

```
Welcome to E-Commerce System!
Please enter your id
23012015
Please enter your name
reem
Please enter your address
alex
How many products do you want to add to your cart?
4
which product would you like to add?1- Smartphone 2- T-Shirt 3- OOP2
which product would you like to add?1- Smartphone 2- T-Shirt 3- OOP3
which product would you like to add?1- Smartphone 2- T-Shirt 3- OOP2
which product would you like to add?1- Smartphone 2- T-Shirt 3- OOP1
your total is679.87
Would you like to place the order? 1- Yes 2- No
1
Here's your order's summary:
Order ID: 1
Customer ID: 23012015
Products:
T-shirt - 19.99
OOP - 39.99
T-shirt - 19.99
smartphone - 599.9
Total price:679.87
Thank you for your service

Process finished with exit code 0
```