```java
package e_commerce_system;
public class Product {
   protected int productId;
   protected  String name;
   protected float price;

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

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

    public String getBrand() {
        return brand;
    }
    public void setBrand(String brand) {
        this.brand = brand;
    }
    public int getWarrantyPeriod() {
        return Math.abs(a: warrantyPeriod);
    }
    public void setWarrantyPeriod(int warrantyPeriod) {
        this.warrantyPeriod = warrantyPeriod;
    }
    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 Math.abs(a: price);
    }
    public void setPrice(float price) {
        this.price = price;
    }
    public ElectronicProduct(int productId, String name, float price) {
        super(productId, name, price);
    }
    public ElectronicProduct(String brand, int warrantyPeriod, int productId, String name, float price) {
        super(productId, name, price);
        this.brand = brand;
        this.warrantyPeriod =warrantyPeriod;
    }
}
```

```java
package e_commerce_system;
public class ClothingProduct extends Product {
    private String size;
    private String 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;
    }
    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 Math.abs(a: price);
    }
    public void setPrice(float price) {
        this.price = price;
    }
    public ClothingProduct(String size, String fabric, int productId, String name, float price) {
        super(productId, name, price);
        this.size = size;
        this.fabric = fabric;
    }
    public ClothingProduct(int productId, String name, float price) {
        super(productId, name, price);
    }
}
```

```java
package e_commerce_system;
public class BookProduct extends Product {
    private String author;
    private String 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;
    }
    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 Math.abs( a: price);
    }
    public void setPrice(float price) {
        this.price = price;
    }
    public BookProduct(String author, String publisher, int productId, String name, float price) {
        super(productId, name, price);
        this.author = author;
        this.publisher = publisher;
    }
    public BookProduct(int productId, String name, float price) {
        super(productId, name, price);
    }
}
```

```java

package e_commerce_system;
public class Customer {

    private int customerId;
    private String name ;
    private String address;

    public int getCustomerId() {
        return Math.abs( a: 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 Customer() {
    }

    public Customer(int customerId, String name, String address) {
        this.customerId =customerId;
        this.name = name;
        this.address = address;
    }
}

```

```java
package e_commerce_system;
public class Cart {
    private int CustomeerID;
    private int nProducts;
    private Product[]products;

    public int getCustomeerID() {
        return Math.abs(x:CustomeerID);
    }
    public void setCustomeerID(int CustomeerID) {
        this.CustomeerID = CustomeerID;
    }
    public int getnProducts() {
        return Math.abs(x:nProducts);
    }
    public void setnProducts(int nProducts) {
        this.nProducts = nProducts;
    }
    public Product[] getProducts() {
        return products;
    }
    public void setProducts(Product[] products) {
        this.products = products;
    }
    public Cart() {
    }
    public Cart(int CustomeerID, int nProducts) {
        this.CustomeerID =(CustomeerID);
        this.nProducts =(nProducts);
        this.products =new Product [nProducts];
    }
    public void addProduct(Product product,int index){
        if(index>=0 && index < products.length){
            products[index]=product;
        }
    }
    public void removeProduct(int index){
        if(index>=0 && index < products.length){
            products[index]=null;
        }
    }
    public void placeOrder(){
        Order order=new Order(customerId: CustomeerID,orderId:1,products,totalPrice: calculatePrice());
        order.printOrderinfo();
    }
    public float calculatePrice(){
       float totalPrice = 0.0f;
        for (Product product :products) {
            if (product != null) {
                totalPrice += product.getPrice();
            }
        }
        return totalPrice;
    }
}
```

```java
package e_commerce_system;
public class Order {
    private int customerId;
    private int orderId;
    private Product[]products;
    private float totalPrice;
    public int getCustomerId() {
        return Math.abs(x:customerId);
    }
    public void setCustomerId(int customerId) {
        this.customerId = customerId;
    }
    public int getOrderId() {
        return Math.abs(x:orderId);
    }
    public void setOrderId(int orderId) {
        this.orderId = orderId;
    }
    public Product[] getProducts() {
        return products;
    }
    public void setProducts(Product[] products) {
        this.products = products;
    }
    public float getTotalPrice() {
        return Math.abs(x:totalPrice);
    }
    public void setTotalPrice(float totalPrice) {
        this.totalPrice = totalPrice;
    }
    public Order(int customerId, int orderId, Product[] products, float totalPrice) {
        this.customerId = customerId;
        this.orderId = orderId;
        this.products = products;
        this.totalPrice = totalPrice;
    }
    public Order() {
    }
        public void printOrderinfo(){
        System.out.println("customer Id: "+customerId);
        System.out.println("Order Id: "+orderId);
        System.out.println(x:"Products: ");
        for(Product product:products){
            if(product!=null){
                System.out.println("Name: "+product.getName()+ " price:"+product.getPrice());
        }  }
        System.out.println("total price: "+calculatetotalPrice());
}
    private double calculatetotalPrice(){
       double totalPrice = 0;
        for (Product product :products) {
            if (product != null) {
                totalPrice += product.getPrice();
            }}
        return totalPrice; }}
```

```java
package e_commerce_system;
import java.util.Scanner;
public class E_Commerce_System {
    public static void main(String[] args) {
        Scanner input = new Scanner(source: System.in);

        System.out.println(x: "welcome to the E-commerce system! ");

        ElectronicProduct E1=new ElectronicProduct(brand: "sumsung",warrantyPeriod: 1,productId: 1,name: "smartphone",price: 599.99f);
        ClothingProduct C1=new ClothingProduct(size: "medium",fabric: "cotton",productId: 2,name: "T-shirt",price: 19.99f);
        BookProduct B1=new BookProduct(author: "O'Reilly",publisher: "X Publications",productId: 3,name: "OOP",price: 39.99f);

           System.out.print(s: "please enter your ID: ");
            int customerid=input.nextInt();
           System.out.print(s: "please enter your name: ");
            String name=input.nextLine();
            input.nextLine();
           System.out.print(s: "please enter your addres: ");
            String address=input.nextLine();
        Customer customer=new Customer(customerId: customerid,name,address);

           System.out.println(x: "How many products do you want to add to your cart?");
            int numOfProduct=input.nextInt();
        Cart r1=new Cart(CustomeerID: customerid,nProducts: numOfProduct);

        int productID=0;
for(int i=0;i<numOfProduct;i++){
   System.out.println(x: "which product would you like to add? 1-smartphone 2-T-shirt 3-OOP");
            productID=input.nextInt();
        switch(productID){
            case 1:
                r1.addProduct(product: E1,index: i);
                break;
            case 2:
                r1.addProduct(product: C1,index: i);
                break;
            case 3:
                r1.addProduct(product: B1,index: i);
                break;
            default:
                System.out.println(x: "invalid Product ID");
        }
    }
            System.out.print("your total is: "+r1.calculatePrice()+"$");
            System.out.println(x: "would you like to place the order? 1-yes 2-No");
                int yourAnswer=input.nextInt();

                if(yourAnswer==1){
                   System.out.println(x: "Here's your order summary:");
                   r1.placeOrder();

                }
                else{
                    System.out.println(x: "thank you ");
             r1.removeProduct(index: productID);
                }
```

Output:

```
run:
welcome to the E-commerce system!
please enter your ID: 23011611
please enter your name: yassmin ashraf
please enter your addres: 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-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 summary:
customer Id: 23011611
Order Id: 1
Products:
Name: T-shirt price:19.99
Name: OOP price:39.99
Name: T-shirt price:19.99
Name: smartphone price:599.99
total price: 679.9599914550781
BUILD SUCCESSFUL (total time: 18 seconds)
```