

Product class

```
package ecommerce;

public class Product {

    protected int productId;

    protected String name;

    protected double price;

    public Product(int productId, String name, double price) {

        this.productId = Math.abs(productId);

        this.name = name;

        this.price = Math.abs(price);

    }

    public int getProductId() {

        return productId;

    }

    public String getName() {

        return name;

    }

    public double getPrice() {

        return price;

    }

    public void setProductId(int productId) {

        this.productId = Math.abs(productId);

    }

    public void setName(String name) {

        this.name = name;

    }

    public void setPrice(double price) {

        this.price = Math.abs(price);

    }

}
```

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

Clothing product

```
package ecommerce;
```

```
public class ClothingProduct extends Product{
```

```
    private String size;
```

```
    private String fabric;
```

```
    public ClothingProduct(int productId, String name, double price, String size, String fabric) {
```

```
        super(productId, name, price);
```

```
        this.size = size;
```

```
        this.fabric = fabric;
```

```
    }
```

```
    public String getSize() {
```

```
        return size;
```

```
    }
```

```
    public String getFabric() {
```

```
        return fabric;
```

```
    }
```

```
    public void setSize(String size) {
```

```
        this.size = size;
```

```
    }
```

```
    public void setFabric(String fabric) {
```

```
        this.fabric = fabric;
```

```
    }
```

```
}
```

```
package ecommerce;
public class ClothingProduct extends Product{
    private String size;
    private String fabric;
    public ClothingProduct(int productId, String name, double price, String size, String fabric) {
        super(productId, name, price);
        this.size = size;
        this.fabric = fabric;
    }
    public String getSize() {
        return size;
    }
    public String getFabric() {
        return fabric;
    }
    public void setSize(String size) {
        this.size = size;
    }
    public void setFabric(String fabric) {
        this.fabric = fabric;
    }
}
```

Electronic product

```
package ecommerce;

public class ElectronicProduct extends Product{

    private String brand;

    private int warrantyPeriod;

    public ElectronicProduct(int productId, String name, double 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;

    }

    public void setWarrantyPeriod(int warrantyPeriod) {

        this.warrantyPeriod = warrantyPeriod;

    }

}
```

```
1 package ecommerce;
2 public class ElectronicProduct extends Product{
3     private String brand;
4     private int warrantyPeriod;
5     public ElectronicProduct(int productId, String name, double price, String brand, int warrantyPeriod) {
6         super(productId, name, price);
7         this.brand = brand;
8         this.warrantyPeriod = Math.abs(warrantyPeriod);
9     }
10    public String getBrand() {
11        return brand;
12    }
13    public void setBrand(String brand) {
14        this.brand = brand;
15    }
16    public int getWarrantyPeriod() {
17        return warrantyPeriod;
18    }
19    public void setWarrantyPeriod(int warrantyPeriod) {
20        this.warrantyPeriod = warrantyPeriod;
21    }
22 }
```

Book product

```
package ecommerce;
```

```
public class BookProduct extends Product {
```

```
    private String author;
```

```
    private String publisher;
```

```
    public BookProduct(int productId, String name, double price, String author, String publisher) {
```

```
        super(productId, name, price);
```

```
        this.author = author;
```

```
        this.publisher = publisher;
```

```
    }
```

```
    public String getAuthor() {
```

```
        return author;
```

```
    }
```

```
    public String getPublisher() {
```

```
        return publisher;
```

```
    }
```

```
    public void setAuthor(String author) {
```

```
        this.author = author;
```

```
    }
```

```
    public void setPublisher(String publisher) {
```

```
        this.publisher = publisher;
```

```
    }
```

```
}
```

```
1 package ecommerce;
2 public class BookProduct extends Product {
3     private String author;
4     private String publisher;
5     public BookProduct(int productId, String name, double price, String author, String publisher) {
6         super(productId, name, price);
7         this.author = author;
8         this.publisher = publisher;
9     }
10    public String getAuthor() {
11        return author;
12    }
13    public String getPublisher() {
14        return publisher;
15    }
16    public void setAuthor(String author) {
17        this.author = author;
18    }
19    public void setPublisher(String publisher) {
20        this.publisher = publisher;
21    }
22 }
23
```

Order class

```
package ecommerce;
```

```
public class Order {
```

```
    private int customerId;
```

```
    private int orderId;
```

```
    private Product[] products;
```

```
    private double totalPrice;
```

```
    public Order(int customerId, Product[]  
products,double totalPrice) {
```

```
        this.customerId = Math.abs(customerId);
```

```
        this.orderId = 1;    this.products = products;
```

```
        this.totalPrice = Math.abs(totalPrice);
```

```
    }
```

```
    public void printOrderInfo() {
```

```
        System.out.println("Customer ID: " + customerId);
```

```
        System.out.println("Order ID: " + orderId);
```

```
        System.out.println("Products:");
```

```
        for (Product product : products) {
```

```
            System.out.println( product.getName()+" - $" +product.getPrice());
```

```
        }
```

```
        System.out.println("Total Price: $" + totalPrice);
```

```
    }
```

```
}
```

```
package ecommerce;  
public class Order {  
    private int customerId;  
    private int orderId;  
    private Product[] products;  
    private double totalPrice;  
    public Order(int customerId, Product[] products,double totalPrice) {  
        this.customerId = Math.abs(a: customerId);  
        this.orderId = 1;  
        this.products = products;  
        this.totalPrice = Math.abs(a: totalPrice);  
    }  
    public void printOrderInfo() {  
        System.out.println("Customer ID: " + customerId);  
        System.out.println("Order ID: " + orderId);  
        System.out.println(a: "Products:");  
        for (Product product : products) {  
            System.out.println( product.getName()+" - $" +product.getPrice());  
        }  
        System.out.println("Total Price: $" + totalPrice);  
    }  
}
```

Cart class

```
package ecommerce;

public class Cart {

    private int customerId;

    private int nProducts;

    private Product[] products;

    public Cart(int customerId,int nProducts,Product [] products) {

        this.customerId = Math.abs(customerId);

        this.nProducts = 0;

        products = new Product[nProducts]; // initialize only

    }

    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;

    }

    public void addProduct(Product product ){

        for(int i=0;i<nProducts;i++){

            if(products[i]==null){

                products[i]=product;

                break;

            }

        }

    }

    public void removeProduct(Product product){

        for(int i=0;i<nProducts;i++){
```

```
1 package ecommerce;
2 public class Cart {
3     private int customerId;
4     private int nProducts;
5     private Product[] products;
6     public Cart(int customerId,int nProducts,Product [] products) {
7         this.customerId = Math.abs(customerId);
8         this.nProducts = 0;
9         products = new Product[nProducts]; // initialize only
10    }
11    public int getCustomerId() {
12        return customerId;
13    }
14    public void setCustomerId(int CustomerId){
15        this.customerId=CustomerId;
16    }
17    public int getnProducts() {
18        return nProducts;
19    }
20    public void setnProducts(int nProducts) {
21        this.nProducts = nProducts;
22    }
23    public Product[] getProducts() {
24        return products;
25    }
26    public void setProducts(Product[] products) {
27        this.products = products;
28    }
29    public void addProduct(Product product ){
30        for(int i=0;i<nProducts;i++){
31            if(products[i]==null){
32                products[i]=product;
33                break;
34            }
35        }
36        this.nProducts = nProducts;
37    }
38    public Product[] getProducts() {
39        return products;
40    }
41    public void setProducts(Product[] products) {
42        this.products = products;
43    }
44    public void addProduct(Product product ){
45        for(int i=0;i<nProducts;i++){
46            if(products[i]==null){
47                products[i]=product;
48                break;
49            }
50        }
51    }
52    public void removeProduct(Product product){
53        for(int i=0;i<nProducts;i++){
54            if(products[i]==product){
55                products[i]=null;
56                break;
57            }
58        }
59    }
60    public double calculatePrice() {
61        double totalPrice = 0;
62        for (int i = 0; i < nProducts; i++) {
63            if(products[i]!=null){
64                totalPrice += products[i].getPrice();
65            }
66        }
67        return totalPrice;
68    }
69    public Order placeOrder() {
70        return new Order(customerId, products ,totalPrice: calculatePrice());
71    }
72 }
```

```
        if(products[i]==product){
products[i]=null;
break;
    }}
    public double calculatePrice() {
        double totalPrice = 0;
        for (int i = 0; i < nProducts; i++) {
            if(products[i]!=null)
                totalPrice += products[i].getPrice();
        }
        return totalPrice;
    }
    public Order placeOrder() {
        return new Order(customerId, products ,calculatePrice());
    }
}
```

Customer class

```
package ecommerce;

public class Customer {

    private int customerId;

    private String name;

    private String address;

    public Customer(int customerId, String name, String address) {

        this.customerId = Math.abs(customerId);

        this.name = name;

        this.address = address;

    }

    public int getCustomerId() {

        return customerId;

    }

    public String getName() {

        return name;

    }

    public String getAddress() {

        return address;

    }

    public void setCustomerId(int customerId) {

        this.customerId = Math.abs(customerId);

    }

    public void setName(String name) {

        this.name = name;

    }

    public void setAddress(String address) {

        this.address = address;

    }

}
```

```
package ecommerce;

public class Customer {
    private int customerId;
    private String name;
    private String address;
    public Customer(int customerId, String name, String address) {
        this.customerId = Math.abs(customerId);
        this.name = name;
        this.address = address;
    }
    public int getCustomerId() {
        return customerId;
    }
    public String getName() {
        return name;
    }
    public String getAddress() {
        return address;
    }
    public void setCustomerId(int customerId) {
        this.customerId = Math.abs(customerId);
    }
    public void setName(String name) {
        this.name = name;
    }
    public void setAddress(String address) {
        this.address = address;
    }
}
```


Test class and output

```
package ecommerce;

import java.util.Scanner;

public class Ecommerce {

    public static void main(String[] args) {

        Scanner input=new Scanner(System.in);

        ElectronicProduct p1=new
ElectronicProduct(1,"smartphone",599.9,"samsung",1);

        ClothingProduct p2=new ClothingProduct(2,"t-
shirt",19.99,"medium", "cotton");

        BookProduct p3=new BookProduct(3,"OOP",39.99,"O'reilly", "X publications");

        System.out.println("enter your ID: ");

        int customerId=input.nextInt();

        System.out.println("enter your name: ");

        String name=input.next();

        System.out.println("enter your address: ");

        String address=input.next();

        Customer customer=new Customer(customerId,name,address);

        System.out.println("how many products do you want ?");

        int nproduct=input.nextInt();

        Product []products=new Product[nproduct];

        Cart C=new Cart(customerId,nproduct, products);

        double total=0;

        for(int i=0;i<nproduct;i++){

            Product product;

            System.out.println("which product would you like to add ? 1- smartphone 2- T-shirt 3- OOP ");

            int answer=input.nextInt();

            switch(answer){

                case 1:

                    products[i]=p1;

                    C.addProduct(products[i]);

                    C.calculatePrice();

                    break;

                case 2:

                    products[i]=p2;
```

```
Output - Ecommerce (run)
enter your ID:
23011159
enter your name:
malkmohamedahmedfarghly
enter your address:
address
how many products do you want ?
3
which product would you like to add ? 1- smartphone 2- T-shirt 3- OOP
1
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
your total is: 659.88
would you to place the order? 1- yes 2- no
1
Customer ID: 23011159
Order ID: 1
Products:
smartphone - $599.9
t-shirt - $19.99
OOP - $39.99
Total Price: $659.88
```

```

        C.addProduct(products[i]);

        C.calculatePrice();

        break;

    case 3:

        products[i]=p3;

        C.addProduct(products[i]);

        p3.getPrice();

        break;

    default:

        System.out.println("unavailable product");

        break;

}

total+=products[i].getPrice();

C.addProduct(products[i]);

C.calculatePrice();

}

System.out.println("your total is: "+total);

Order o=new Order(customerId,products,total);

System.out.println("would you to place the order? 1- yes 2- no");

int response=input.nextInt();

if(response==1){

    C.placeOrder();

o.printOrderInfo();

}else{

    System.out.println("thank you");

}

}

```

```

import java.util.Scanner;

public class Commerce {

    public static void main(String[] args) {
        Scanner input=new Scanner(System.in);
        ElectronicProduct p1=new ElectronicProduct(1,"name","smartphone",price 599,brand:"samsung",weight=0.0001);
        ClothingProduct p2=new ClothingProduct(2,"name","t-shirt",price 19,brand:"adidas",size:"medium");
        BookProduct p3=new BookProduct(3,"name","oop",price 19.99,author:"D.railly",publisher:"X publications");
        System.out.println("enter your id: ");
        int customerId=input.nextInt();
        System.out.println("enter your name: ");
        String name=input.next();
        System.out.println("enter your address: ");
        String address=input.next();
        Customer customer=new Customer(customerId,name,address);
        System.out.println("how many products do you want?");
        int nProduct=input.nextInt();
        Product[] products=new Product[nProduct];
        Cart o=new Cart(customerId,products);
        double total=0;
        for(int i=0;i<nProduct;i++){
            Product product;
            System.out.println("which product would you like to add? 1- smartphone 2- t-shirt 3- oop ");
            int response=input.nextInt();
            switch(response){
                case 1:
                    product=p1;
                    o.addProduct(products[i]);
                    C.calculatePrice();
                    break;
                case 2:
                    product=p2;
                    o.addProduct(products[i]);
                    C.calculatePrice();
                    break;
                case 3:
                    product=p3;
                    o.addProduct(products[i]);
                    C.calculatePrice();
                    break;
                default:
                    System.out.println("unavailable product");
                    break;
            }
            total+=products[i].getPrice();
            C.addProduct(products[i]);
            C.calculatePrice();
        }
        System.out.println("your total is: "+total);
        Order o=new Order(customerId,products,total);
        System.out.println("would you to place the order? 1- yes 2- no");
        int response=input.nextInt();
        if(response==1){
            C.placeOrder();
            o.printOrderInfo();
        }else{
            System.out.println("thank you");
        }
    }
}

```

```

        case 2:
            products[i]=p2;
            C.addProduct(products[i]);
            C.calculatePrice();
            break;
        case 3:
            products[i]=p3;
            C.addProduct(products[i]);
            p3.getPrice();
            break;
        default:
            System.out.println("unavailable product");
            break;
    }
    total+=products[i].getPrice();
    C.addProduct(products[i]);
    C.calculatePrice();
}
System.out.println("your total is: "+total);
Order o=new Order(customerId,products,total);
System.out.println("would you to place the order? 1- yes 2- no");
int response=input.nextInt();
if(response==1){
    C.placeOrder();
    o.printOrderInfo();
}else{
    System.out.println("thank you");
}
}

```