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```
1 package ecommerce;
2
3 public class BookProduct extends Product{
4     private String author;
5     private String publisher;
6
7     public BookProduct(String author, String publisher, int productId, String name, double price) {
8         super(productId, name, price);
9         this.author = author;
10        this.publisher = publisher;
11    }
12
13    public String getAuthor() {
14        return author;
15    }
16
17    public void setAuthor(String author) {
18        this.author = author;
19    }
20
21    public String getPublisher() {
22        return publisher;
23    }
24
25    public void setPublisher(String publisher) {
```

```
14        return author;
15    }
16
17    public void setAuthor(String author) {
18        this.author = author;
19    }
20
21    public String getPublisher() {
22        return publisher;
23    }
24
25    public void setPublisher(String publisher) {
26        this.publisher = publisher;
27    }
28 }
29
```

```

1 package ecommerce;
2
3 public class Cart {
4     private int customerId;
5     private int nProduct;
6     private Product[] products;
7
8     public Cart(int customerId, int nProduct) {
9         if (customerId < 0) customerId = Math.abs(a: customerId);
10        if (nProduct < 0) nProduct = Math.abs(a: nProduct);
11        this.customerId = customerId;
12        this.nProduct = nProduct;
13        this.products = new Product[nProduct];
14    }
15
16    public int getCustomerId() {
17        return customerId;
18    }
19
20    public void setCustomerId(int customerId) {
21        if (customerId < 0) customerId = Math.abs(a: customerId);
22        this.customerId = customerId;
23    }
24
25    public int getnProduct() {

```

```

25    public int getnProduct() {
26        return nProduct;
27    }
28
29    public void setnProduct(int nProduct) {
30        if (nProduct < 0) nProduct = Math.abs(a: nProduct);
31        this.nProduct = nProduct;
32    }
33
34    public Product[] getProducts() {
35        return products;
36    }
37
38    public void setProducts(Product[] products) {
39        this.products = products;
40    }
41
42
43
44    // functions
45    public void addProduct(Product product) {
46        for (int i = 0; i < this.products.length; i++)
47            if (this.products[i] == null) {
48                this.products[i] = product;
49            }

```

```

49         return;
50     }
51 }
52
53 public void removeProduct(int productId) {
54     if (this.products[this.nProduct - 1] != null) this.products[this.nProduct - 1] = null;
55     for (int i = 0; i < this.products.length; i++) {
56         if (this.products[i] != null && this.products[i].getProductId() == productId) {
57             this.products[i] = null;
58             return;
59         }
60     }
61 }
62
63 public double calculatePrice() {
64     double total = 0;
65     for (int i = 0; i < this.products.length; i++) {
66         if (this.products[i] != null) total += this.products[i].getPrice();
67     }
68     return total;
69 }
70
71 public Order placeOrder() {
72     return new Order( customerId: this.customerId, orderId: 1, products: this.products, totalPrice: this.calculatePrice());

```

```

// Next we create the customer
System.out.println(x: "Welcome to the E-Commerce System!");
System.out.print(s: "Please enter your id: ");
int id = input.nextInt();
input.nextLine(); // Read the rest of line to not affect the scanner when reading the name on the next line
System.out.print(s: "Please enter your name: ");
String name = input.nextLine();
System.out.print(s: "Please enter your address: ");
String address = input.nextLine();

Customer customer1 = new Customer( customerId: id, name, address);

// Creating a cart
System.out.print(s: "How many products do you wish to purchase? ");
int nProducts = Math.abs(s: input.nextInt());

Cart cart = new Cart( customerId: customer1.getCustomerId(), nProducts);

```

```
1 package ecommerce;
2 public class ClothingProduct extends Product{
3
4     private String size;
5     private String fabric;
6
7     public ClothingProduct(String size, String fabric, int productId, String name, double price) {
8         super(productId, name, price);
9         this.size = size;
10        this.fabric = fabric;
11    }
12
13
14
15    public String getSize() {
16        return size;
17    }
18
19    public void setSize(String size) {
20        this.size = size;
21    }
22
23    public String getFabric() {
24        return fabric;
25    }
```

```
15    public String getSize() {
16        return size;
17    }
18
19    public void setSize(String size) {
20        this.size = size;
21    }
22
23    public String getFabric() {
24        return fabric;
25    }
26
27    public void setFabric(String fabric) {
28        this.fabric = fabric;
29    }
30 }
31
```

```

1 package ecommerce;
2
3 public class Customer {
4
5     private int customerId;
6     private String name;
7     private String address;
8
9     public Customer(int customerId, String name, String address) {
10         if (customerId < 0) customerId = Math.abs(a:customerId);
11         this.customerId = customerId;
12         this.name = name;
13         this.address = address;
14     }
15
16     public int getCustomerId() {
17         return customerId;
18     }
19
20     public void setCustomerId(int customerId) {
21         if (customerId < 0) customerId = Math.abs(a:customerId);
22         this.customerId = customerId;
23     }
24

```

```

25     public String getName() {
26         return name;
27     }
28
29     public void setName(String name) {
30         this.name = name;
31     }
32
33     public String getAddress() {
34         return address;
35     }
36
37     public void setAddress(String address) {
38         this.address = address;
39     }
40 }
41

```

```

1 package ecommerce;
2
3 import java.util.Scanner;
4
5 public class EcommerceSystem {
6
7     public static void main(String[] args) {
8         Scanner sc = new Scanner(System.in);
9
10         ElectronicProduct elotronic = new ElectronicProduct(brand:"smartphone", warrantyPeriod:1, productId:1, n
11         ClothingProduct cloth = new ClothingProduct(size:"Medium", fabric:"Cotton", productId:2, name:"T-shirt
12         BookProduct book = new BookProduct(author:"O'Rilly ", publisher:"X Publications", productId:3, name:"OOF
13
14         System.out.println(x:"Welcome to the E-Commerce System!");
15         System.out.println(x:"Please enter your id: ");
16
17         int id = sc.nextInt();
18         System.out.println(x:"please enter your name : ");
19         String name = sc.next();
20         System.out.println(x:"please enter your address : ");
21         String address = sc.nextLine();
22         sc.nextLine();
23

```

```

22     sc.nextLine();
23
24     Customer customer = new Customer( customerId:id, name, address:address);
25
26     System.out.print( "Enter number of products : ");
27     int productNumber = sc.nextInt();
28
29     Cart cart = new Cart( customerId:customer.getCustomerId(), nProduct:productNumber);
30     boolean running = true ;
31     while (running) {
32         System.out.println( "Add (a) or Remove (r) or Place order (p) or exit (e) : ");
33         char choice = sc.next().toLowerCase().charAt( index:0);
34         switch (choice) {
35             case 'a' -> {
36                 System.out.println( "Enter product id : ");
37                 System.out.println( "1: add electronic \n 2: cloth \n 3: book ");
38                 int proId = sc.nextInt();
39                 switch (proId) {
40                     case 1 -> {
41                         cart.addProduct( product:elotronic);
42                     }
43                     case 2 -> {
44                         cart.addProduct( product:cloth);
45

```

```

43                     case 2 -> {
44                         cart.addProduct( product:cloth);
45                     }
46                     case 3 -> {
47                         cart.addProduct( product:book);
48                     }
49                     default -> System.out.println( "we have only 1 - 3 product");
50                 }
51             }
52             case 'r' -> {
53                 System.out.println( "Enter product id : ");
54                 int proId = sc.nextInt();
55                 cart.removeProduct( productId:id);
56             }
57
58             case 'p' -> {
59                 cart.placeOrder().printOrderInfo();
60             }
61             case 'e' -> {
62                 running = false ;
63             }
64             default -> System.out.println( "Enter only a, r , p or e ");
65         }
66     }

```

```

1 package ecommerce;
2
3 public class Order {
4
5     private int customerId;
6     private int orderId;
7     private Product[] products;
8     private double totalPrice;
9
10    public Order(int customerId, int orderId, Product[] products, double totalPrice) {
11        if (customerId < 0) customerId = Math.abs(a:customerId);
12        if (orderId < 0) orderId = Math.abs(a:orderId);
13        if (totalPrice < 0) totalPrice = Math.abs(a:totalPrice);
14        this.customerId = customerId;
15        this.orderId = orderId;
16        this.products = products;
17        this.totalPrice = totalPrice;
18    }
19
20
21    public void printOrderInfo() {
22        System.out.println(" ");
23        System.out.println("Customer id : " + this.customerId);
24        System.out.println("order id : " + this.orderId);

```

```

21    public void printOrderInfo() {
22        System.out.println(" ");
23        System.out.println("Customer id : " + this.customerId);
24        System.out.println("order id : " + this.orderId);
25        System.out.println("products : ");
26        for (int i = 0; i < products.length; i++) {
27            System.out.println((i + 1) + " " + this.products[i]);
28        }
29        System.out.println("total price : " + this.totalPrice);
30    }
31
32 }
33

```

```

1 package ecommerce;
2
3 public class Product {
4     private int productId;
5     private String name;
6     private double price;
7
8     public Product(int productId, String name, double price) {
9         if (productId < 0) productId = Math.abs(a:productId);
10        if (price < 0) price = Math.abs(a:price);
11        this.productId = productId;
12        this.name = name;
13        this.price = price;
14    }
15
16    public int getProductId() {
17        return productId;
18    }
19
20    public void setProductId(int productId) {
21        if (productId < 0) productId = Math.abs(a:productId);
22        this.productId = productId;
23    }

```

```
23     }
24
25     public String getName() {
26         return name;
27     }
28
29     public void setName(String name) {
30         this.name = name;
31     }
32
33     public double getPrice() {
34         return price;
35     }
36
37     public void setPrice(double price) {
38         if (price < 0) price = Math.abs(price);
39         this.price = price;
40     }
41 }
```

```
40     }
41
42     @Override
43     public String toString() {
44         return "product id : " + this.productId + "\tproduct name : " + this.name + "\tproduct price : " + this.price;
45     }
46
47 }
48 }
```