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## Product class

```
public class product {
    int productid;
    String name;
    float price;
    product(int productid, String name, float price){
        this.productid = productid;
        this.name = name;
        this.price = price;
        this.price = CheckPrice(price);
        this.productid = CheckProductID(productid);
    }
    product(){}
    public void setName(String name) {
        this.name = name;
    }

    public String getName() {
        return name;
    }

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

    public float getPrice() {
        return price;
    }

    public void setProductid(int productid) {
        this.productid = productid;
    }

    public int getProductid() {
        return productid;
    }
    public int CheckProductID(int productid){
        if (productid<0){
            productid = Math.abs(productid);
        }
        return productid;
    }
    public float CheckPrice(float price){
        if(price<0){
            price = Math.abs(price);
        }
        return price;
    }
}
```

## electronic product

```
public class ElectronicProduct extends product {
    String brand;
    int WarrantyPeriod;
    ElectronicProduct(String brand, int WarrantyPeriod, int productid, float
price, String name ){
        super(productid, name, price);
        this.brand=brand;
        this.WarrantyPeriod=WarrantyPeriod;
        this.WarrantyPeriod = CheckWarrantyPeriod(WarrantyPeriod);
    }

    public void setBrand(String brand) {
        this.brand = brand;
    }

    public String getBrand() {
        return brand;
    }

    public void setWarrantyPeriod(int warrantyPeriod) {
        WarrantyPeriod = warrantyPeriod;
    }

    public int getWarrantyPeriod() {
        return WarrantyPeriod;
    }
    public int CheckWarrantyPeriod(int WarrantyPeriod){
        if(WarrantyPeriod<0){
            WarrantyPeriod= Math.abs(WarrantyPeriod);
        }
        return WarrantyPeriod;
    }
}
```

## Clothing product

```
public class ClothingProduct extends product {
    String size;
    String fabric;
    ClothingProduct(String size, String fabric, int productid, float price,
String name){
        super(productid, name, price);
        this.size = size;
        this.fabric = fabric;
    }

    public void setFabric(String fabric) {
        this.fabric = fabric;
    }

    public String getFabric() {
        return fabric;
    }

    public void setSize(String size) {
        this.size = size;
    }

    public String getSize() {
        return size;
    }
}
```

## Book product

```
public class BookProduct extends product {
    String author;
    String publisher;
    BookProduct(String author, String publisher, int productid, float price,
String name){
        super(productid, name, price);
        this.author=author;
        this.publisher=publisher;
    }

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

    public String getAuthor() {
        return author;
    }

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

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

## Customer

```
import java.util.Scanner;
public class Customer {
    int CustomerID;
    String name;
    String address;
    Scanner scanner = new Scanner(System.in);
    Customer(int CustomerID, String name, String address){
        this.CustomerID=CustomerID;
        this.name=name;
        this.address=address;
    }
    public int checkCustomerID(int CustomerID){
        if(CustomerID<0){
            CustomerID = Math.abs(CustomerID);
        }
        return CustomerID;
    }
    public void setName(String name) {
        this.name = name;
    }

    public String getName() {
        return name;
    }

    public void setAddress(String address) {
        this.address = address;
    }

    public String getAddress() {
        return address;
    }

    public void setCustomerID(int CustomerID) {
        this.CustomerID = CustomerID;
    }

    public int getCustomerID() {
        return CustomerID;
    }
}
```

## cart

```
public class Cart {
    int customerID;
    int nProducts;
    product[] products;
    float totalPrice;
    public Cart(int customerID, int nProducts) {
        this.customerID = customerID;
        this.nProducts = nProducts;
        this.products = new product[nProducts]; //initialized with the size
nProducts
    }

    public void setCustomerID(int customerID) {
        this.customerID = customerID;
    }

    public int getCustomerID() {
        return customerID;
    }

    public void setnProducts(int nProducts) {
        this.nProducts = nProducts;
    }

    public int getnProducts() {
        return nProducts;
    }

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

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

    public void addProduct(product product, int index) {
        if (index >= 0 && index < products.length) {
            products[index] = product;
            if (index >= nProducts) {
                nProducts = index + 1; // Adjust nProducts if the index is
beyond the current count
            }
        }
    }

    public void removeProduct(int index) {
        if (index >= 0 && index < nProducts) {
            for (int i = index; i < nProducts - 1; i++) {
                products[i] = products[i + 1];
            }
            // Making the last element as null is removing it from the list
        }
    }
}
```

```
        products[nProducts - 1] = null;
        // then lowering the count to effectively remove it
        nProducts--;
    }
}

public void calculatePrice() {
    totalPrice = 0;
    for (product product : products) {
        if (product != null) {
            totalPrice += product.getPrice();
        }
    }
}

public Order placeOrder() {
    calculatePrice();
    return new Order(customerID, products, totalPrice);
}
}
```

## Order

```
public class Order {
    private int customerID;
    private int orderID;
    private product[] products;
    private float totalPrice;

    public Order(int customerID, product[] products, float totalPrice) {
        this.customerID = Math.abs(customerID);
        this.products = products;
        this.totalPrice = calculateTotalPrice();
        this.orderID = (int) (Math.random() * 1000);
    }

    public void setCustomerID(int customerID) {
        this.customerID = customerID;
    }

    public int getCustomerID() {
        return customerID;
    }

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

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

    public void setOrderID(int orderID) {
        this.orderID = orderID;
    }

    public int getOrderID() {
        return orderID;
    }

    public float getTotalPrice() {
        return totalPrice;
    }

    public void setTotalPrice(float totalPrice) {
        this.totalPrice = totalPrice;
    }

    public String getOrderInfo() {
        System.out.println("Here is Your Order");
        System.out.println("Order ID: " + orderID);
        System.out.println("Customer ID: " + customerID);
        System.out.println("Products: ");
        for (product product : products) {
            if (product != null) {
                System.out.println("- " + product.getName() + " $" +
```



```
product.getPrice());
    }
}
System.out.println("Total Price: $" + totalPrice);
return null;
}

private float calculateTotalPrice() {
    float totalPrice = 0;
    for (product product : products) {
        if (product != null) {
            totalPrice += product.getPrice();
        }
    }
    return totalPrice;
}
}
```

## EcommerceSystem

```
import java.util.Scanner;

public class EcommerceSystem {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.println("Welcome to the E-Commerce System!");
        ElectronicProduct electronicProduct = new
ElectronicProduct("Samsung", 1, 1, 599.9f, "smartphone");
        ClothingProduct clothingProduct = new ClothingProduct("Medium",
"Cotton", 2, 19.99f, "T-Shirt");
        BookProduct bookProduct = new BookProduct("O'Reilly", "X
Publications", 3, 39.99f, "OOP");

        System.out.println("Enter your customer ID: ");
        int customerId = Math.abs(scanner.nextInt());
        System.out.println("Enter your name: ");
        String customerName = scanner.nextLine();
        scanner.nextLine();
        System.out.println("Enter your address: ");
        String customerAddress = scanner.nextLine();
        Customer customer = new Customer(customerId, customerName,
customerAddress);
        Customer Customer = new Customer(0, "", ""); // Initializing it with
default values

        System.out.println("How many products do you want to order?");
        int nProducts = scanner.nextInt();
        Cart cart = new Cart(customer.getCustomerID(), nProducts);

        for (int i = 0; i < nProducts; i++) {
            System.out.println("Which product would you like to add? (1:
Electronic, 2: Clothing, 3: Book):");
            int productType = scanner.nextInt();
            scanner.nextLine(); // Consume newline
            switch (productType) {
                case 1:
                    cart.addProduct(electronicProduct, i);
                    break;
                case 2:
                    cart.addProduct(clothingProduct, i);
                    break;
                case 3:
                    cart.addProduct(bookProduct, i);
                    break;
                default:
                    System.out.println("Invalid product type.");
            }
        }

        System.out.println("Would you like to place the order? 1- Yes 2-
```

```

No");
    int choice = scanner.nextInt();
    if (choice == 1) {
        System.out.println("Here is your orders summary:");

        Order order = cart.placeOrder();
        order.getOrderInfo();
    } else if (choice == 2) {
        System.out.println("Order placement cancelled.");
    } else {
        System.out.println("Invalid choice.");
    }
}
}
}

```

## output

```

"C:\Program Files\Java\jdk-21\bin\java.exe" "-javaagent:D:\IntelliJ IDEA Community Edition 2024.1\lib\idea_rt.jar=36350:D:\IntelliJ IDEA Community Edition 2024.1\bin"
Welcome to the E-Commerce System!
Enter your customer ID:
20231
Enter your name:
Student Name
Enter your address:
address
How many products do you want to order?
4
Which product would you like to add? (1: Electronic, 2: Clothing, 3: Book):
2
Which product would you like to add? (1: Electronic, 2: Clothing, 3: Book):
3
Which product would you like to add? (1: Electronic, 2: Clothing, 3: Book):
2
Which product would you like to add? (1: Electronic, 2: Clothing, 3: Book):
1
Would you like to place the order? 1- Yes 2- No
1
Here is your orders summary:
Here is Your Order
Order ID: 594
Customer ID: 20231
Products:
- T-Shirt $19.99
- OOP $39.99
- T-Shirt $19.99
- smartphone $599.9
Total Price: $679.87

Process finished with exit code 0

```

