

Product class

```
package com.ecs.youssefamr.e.commerce_system;

public class Product {
    private int productId;
    private String Name;
    private float price;

    public Product(){
        productId = 0;
        Name = null;
        price = 0.0f;
    }

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

    public int getID() {
        return productId;
    }

    public String getName() {
        return Name;
    }

    public float getPrice() {
        return price;
    }
}
```

```
public void setID(int ID) {  
    this.productId = Math.abs(ID);  
}  
  
public void setName(String Name) {  
    this.Name = Name;  
}  
  
public void setPrice(float price) {  
    this.price = Math.abs(price);  
}
```

Book Product class

```
package com.ecs.youssefamr.e.commerce_system;

public class BookProduct extends Product {

    private String author,publisher;

    public BookProduct() {
        super();
        this.author = null;
        this.publisher = null;
    }

    public BookProduct(int id , String name , float price, String author, String publisher) {
        super(id,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;  
}  
}
```

Clothing product class

```
package com.ecs.youssefamr.e.commerce_system;

public class ClothingProduct extends Product {
    private String size, fabric;

    public ClothingProduct() {
        super();
        this.size = null;
        this.fabric = null;
    }

    public ClothingProduct(int id, String name, float price, String size, String fabric) {
        super(id,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 class

```
package com.ecs.youssefamr.e.commerce_system;

public class ElectronicProduct extends Product{
    private String brand;
    private int warrantyPeriod;

    public ElectronicProduct() {
        super();
        this.brand = null;
        this.warrantyPeriod = 0;
    }

    public ElectronicProduct(int id, String name, float price, String brand, int warrantyPeriod) {
        super(id,name,price);
        this.brand = brand;
        this.warrantyPeriod = Math.abs(warrantyPeriod);
    }

    public String getBrand() {
        return brand;
    }

    public int getWarrantyPeriod() {
        return warrantyPeriod;
    }

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

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


Cart Class

```
package com.ecs.youssefamr.e.commerce_system;

import java.util.ArrayList;

public class Cart {

    private int customerId, nProducts;
    private ArrayList<Product> products;

    public Cart() {
        this.customerId = 0;
        this.nProducts = 0;
        this.products = new ArrayList<Product>(0);
    }

    public Cart(int customerId, int nProducts, ArrayList<Product> products) {
        this.customerId = Math.abs(customerId);
        this.nProducts = Math.abs(nProducts);
        this.products = products;
    }

    public void addProduct(Product product){
        products.add(product);
    }

    public void removeProduct(Product product){
        products.remove(product);
    }
}
```

```
public float calculatePrice(){  
    float p = 0.0f;  
    for (int i = 0; i < products.size(); i++) {  
        p += products.get(i).getPrice();  
    }  
    return p;  
}
```

```
public Order placeOrder(){  
    Order order = new Order(getCustomerId(), l, calculatePrice(), products);  
    return order;  
}
```

```
public int getCustomerId() {  
    return customerId;  
}
```

```
public int getnProducts() {  
    return nProducts;  
}
```

```
public ArrayList<Product> getProducts() {  
    return products;  
}
```

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

```
public void setnProducts(int nProducts) {  
    this.nProducts = Math.abs(nProducts);  
}  
  
public void setProducts(ArrayList<Product> products) {  
    this.products = products;  
}  
}
```

Customer class

```
package com.ecs.youssefamr.e.commerce_system;

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

    public Customer() {
        this.customerId = 0;
        this.name = null;
        this.address = null;
    }

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

    public int getId() {
        return customerId;
    }

    public String getName() {
        return name;
    }

    public String getAddress() {
        return address;
    }
}
```

```
public void setId(int id) {  
    this.customerId = Math.abs(id);  
}  
  
public void setName(String name) {  
    this.name = name;  
}  
  
public void setAddress(String address) {  
    this.address = address;  
}  
}
```

Order class

```
package com.ecs.youssefamr.e.commerce_system;

import java.util.ArrayList;

public class Order {

    private int customerId, orderId;

    private float totalPrice;

    private ArrayList<Product> products = new ArrayList<Product>(1);

    public Order() {

        this.customerId = 0;

        this.orderId = 0;

        this.totalPrice = 0;

        this.products = null;

    }

    public Order(int customerId, int orderId, float totalPrice, ArrayList<Product> products) {

        this.customerId = Math.abs(customerId);

        this.orderId = Math.abs(orderId);

        this.totalPrice = Math.abs(totalPrice);

        this.products = products;

    }

    public void printOrderInfo(){

        System.out.println("Order ID: " + orderId + "\nCustomer ID: " + customerId

        + "\nProducts: ");

        printProducts();

    }

}
```

```
private void printProducts(){  
    for (int i = 0; i < products.size(); i++) {  
        System.out.println(products.get(i).getName() + " - $"  
            + products.get(i).getPrice());  
    }  
    System.out.println("\nTotal Price: $" + totalPrice);  
}
```

```
public int getCustomerId() {  
    return customerId;  
}
```

```
public int getOrderId() {  
    return orderId;  
}
```

```
public float getTotalPrice() {  
    return totalPrice;  
}
```

```
public ArrayList<Product> getProducts() {  
    return products;  
}
```

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

```
public void setOrderId(int orderId) {  
    this.orderId = orderId;  
}
```

```
public void setTotalPrice(float totalPrice) {  
    this.totalPrice = totalPrice;  
}  
  
public void setProducts(ArrayList<Product> products) {  
    this.products = products;  
}  
}
```


Test program

```
package com.ecs.youssefamr.e.commerce_system;

import java.util.Scanner;

public class EcommerceSystem {

    public static void main(String[] args) {

        Cart cart = new Cart();

        ElectronicProduct EP = new ElectronicProduct(1, "smartphone", 599.99f, "Samsung", 1);
        ClothingProduct CP = new ClothingProduct(2, "T-shirt", 19.99f, "Medium", "Cotton");
        BookProduct BP = new BookProduct(3, "OOP", 39.99f, "O'Reilly", "X Publications");
        Customer customer = new Customer();

        Scanner input = new Scanner(System.in);

        System.out.println("Welcome to the E-Commerce System!");
        customer = SetCustomer(customer);
        cart = setCart(cart, customer);

        int c;
        for (int i = 0; i < cart.getnProducts(); i++) {
            System.out.println("Which product would you like to add ?"
                + " 1- " + EP.getName() + " 2- " + CP.getName() + " 3- " + BP.getName());
            while (true) {
                try {
                    c = input.nextInt();
                    break;
                } catch (Exception e) {
                    System.out.println("invalid input");
                }
            }
        }
    }
}
```

```
switch(c){  
    case 1:  
        cart.addProduct(EP);  
        break;  
  
    case 2:  
        cart.addProduct(CP);  
        break;  
  
    case 3:  
        cart.addProduct(BP);  
        break;  
  
    default:  
        System.out.println("invalid input");  
        i--;  
        break;  
}  
}  
System.out.println("Your total is $" + cart.calculatePrice() +  
    ". Would you like to place the order? 1- Yes 2- No");  
while (true) {  
    try {  
        c = input.nextInt();  
        break;  
    } catch (Exception e) {  
        System.out.println("invalid input");  
    }  
}
```

```
switch(c){  
    case 1:  
        Order order = cart.placeOrder();  
        order.printOrderInfo();  
    case 2:  
        System.out.println("\nthinks for using my E-Commerce System. \Wo^");  
        break;  
    }  
}
```

```
static Customer SetCustomer(Customer customer){  
    while (true) {  
        try {  
            Scanner input = new Scanner(System.in);  
            System.out.println("Please enter your id");  
            customer.setId(input.nextInt());  
            System.out.println("Please enter your name");  
            customer.setName(input.next());  
            System.out.println("Please enter you address");  
            customer.setAddress(input.next());  
            break;  
        } catch (Exception e) {  
            System.out.println("invalid input");  
        }  
    }  
    return customer;  
}
```

```
static Cart setCart(Cart cart, Customer customer){
    cart.setCustomerId(customer.getId());
    while (true) {
        try {
            Scanner input = new Scanner(System.in);
            System.out.println("How many products you want to add to your cart?");
            cart.setnProducts(input.nextInt());
            break;
        } catch (Exception e) {
            System.out.println("invalid input");
        }
    }
    return cart;
}
```

Test screen shots

```
Welcome to the E-Commerce System!  
Please enter your id  
23011648
```

id input field

```
Please enter your name  
YoussefAmr
```

name input field

```
Please enter you address  
address
```

address input field

```
How many products you want to add to your cart?  
3
```

products number input field

```
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
```

selecting products

```
Your total is $659.97. Would you like to place the order? 1- Yes 2- No  
1
```

confirm purchase

```
Order ID: 1  
Customer ID: 23011648  
Products:  
smartphone - $599.99  
T-shirt - $19.99  
OOP - $39.99
```

```
Total Price: $659.97
```

```
thinks for using my E-Commerce System. ^o^/
```

print final bill

```
Your total is $659.97. Would you like to place the order? 1- Yes 2- No  
2
```

```
thinks for using my E-Commerce System. ^o^/
```

disconfirm purchase

Youssef Amr