Main:

```java
import java.util.Scanner;
public class Main {
    public static void main(String[] args) {
        Scanner in=new Scanner(System.in);
        ElectronicProduct p1=new ElectronicProduct( ProductId: 1, name: "smartphone", price: 599.9F, brand: "samsaung", warrantyPeriod: 1);
        ClothingProduct p2=new ClothingProduct( ProductId: 2, name: "T-shirt", price: 19.99F, size: "Medium", fabric: "cotton");
        BookProduct p3=new BookProduct( ProductId: 3, name: "OOP", price: 39.99F, author: "O'Reilly", publisher: "X publications");
        System.out.println("Welcome to Ecommerce System");
        Customer c1=new Customer();
        System.out.println("please enter your name");
        String name= in.next();
        String s= in.nextLine();
        c1.setName(name);
        System.out.println("please enter yor id");
        int id=in.nextInt();
        c1.setCustomerId(id);
        System.out.println("please enter your address");
        String address= in.next();
         s= in.nextLine();
        c1.setAddress(address);
        System.out.println("how many products you want to add?");
        int nProducts = in.nextInt();
        Cart cart=new Cart(nProducts);
        Order o1=new Order(nProducts);
        o1.setCustomerId(id);
        for (int i=0;i<nProducts;i++){
            System.out.println("which product would you like to add? 1-smartphone 2-T-shirt 3-OOP");
            int choice=in.nextInt();
            switch (choice){
                case 1:
                    cart.addProduct(p1,i);
                    o1.setProduct(p1,i);
                    break;
                case 2:
                    cart.addProduct(p2,i);
                    o1.setProduct(p2,i);
                    break;
                case 3:
                    cart.addProduct(p3,i);
                    o1.setProduct(p3,i);
                    break;
                default:
                    System.out.println("please choose among given choices");
            }
        }
        System.out.println("your total is "+cart.calculatePrice()+" Would you like to place order? 1-Yes 2-No");
        int choice2=in.nextInt();
        cart.placeOrder(choice2);

        if (choice2==1){
            System.out.println("here is your order summary:\n");
            o1.orderInfo();
        }
```

OUTPUT:

```
please enter your name
hania mohamed
please enter yor id
23011604
please enter your address
sidi gaber
how many products you want to add?
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 679.87 Would you like to place order? 1-Yes 2-No
1
order is placed
here is your order summary:

order id: 1
customer id: 23011604
products:

T-shirt- $19.99
OOP- $39.99
T-shirt- $19.99
smartphone- $599.9
total is 679.87
```

Product class:

```java
public class Product {
    3 usages
    protected int ProductId;
    protected String name;
    3 usages
    protected float price;
public Product(int ProductId,String name,float price){
    this.price=price;
    this.ProductId=ProductId;
    this.name=name;

}
    public void setName(String name) { this.name = name; }

    public String getName() { return name; }

    no usages
    public void setPrice(float price) { this.price = Math.abs(price); }
    3 usages
    public float getPrice() { return price; }

    no usages
    public void setProductId(int productId) { ProductId = Math.abs(productId); }

    no usages
    public int getProductId() { return ProductId; }
}
```

Electroniic product:

```java
public class ElectronicProduct extends Product{
    3 usages
    private String brand;
    3 usages
    private int warrantyPeriod;
    1 usage
    public ElectronicProduct(int ProductId,String name,float price,String brand,int warrantyPeriod){
        super(ProductId,name,price);
        this.brand=brand;
        this.warrantyPeriod=warrantyPeriod;
    }

    no usages
    public int getWarrantyPeriod() {
        return warrantyPeriod;
    }

    no usages
    public void setWarrantyPeriod(int warrantyPeriod) {
        this.warrantyPeriod = warrantyPeriod;
    }

    no usages
    public String getBrand() {
        return brand;
    }

    no usages
    public void setBrand(String brand) {
        this.brand = brand;
    }
}
```

Clothing product:

```java
2 usages
public class ClothingProduct extends Product{
    3 usages
    private String size;
    3 usages
    private String fabric;
    1 usage
    public ClothingProduct(int ProductId,String name,float price,String size,String fabric){
        super(ProductId,name,price);
        this.fabric=fabric;
        this.size=size;
    }

    no usages
    public void setFabric(String fabric) { this.fabric = fabric; }

    no usages
    public String getFabric() { return fabric; }

    no usages
    public void setSize(String size) { this.size = size; }

    no usages
    public String getSize() { return size; }
}
```

Book product:

```java
public class BookProduct extends Product {
    3 usages
    private String author;
    3 usages
    private String publisher;
1 usage
public BookProduct(int ProductId,String name,float price,String author,String publisher)
{super(ProductId,name,price);
    this.author=author;
    this.publisher=publisher;
}
    no usages
    public void setAuthor(String author) {
        this.author = author;
    }

    no usages
    public String getAuthor() { return author; }

    no usages
    public void setPublisher(String publisher) { this.publisher = publisher; }

    no usages
    public String getPublisher() { return publisher; }
}
```

Customer:

```java
2 usages
public class Customer {
    2 usages
    private int customerId;
    2 usages
    private String name;
    2 usages
    private String address;

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

    no usages
    public int getCustomerId() { return customerId; }

    public void setName(String name) {
        this.name = name;
    }
    public String getName() { return name; }

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

    no usages
    public String getAddress() { return address; }
}
```

Cart:

```java
public class Cart  {

    1 usage
    protected int orderID;
    3 usages
    protected int nProducts;
    9 usages
    protected Product[] products;
    1 usage
    public Cart(int nProducts){
        this.nProducts=Math.abs(nProducts);
        this.products=new Product[nProducts];
    }

    no usages
    public void setnProducts(int nProducts) { this.nProducts=Math.abs(nProducts); }

    no usages
    public int getnProducts() { return nProducts; }
    3 usages
    public void addProduct(Product newProduct,int index) {
        if(index>=0&&index<products.length){
            this.products[index]=newProduct;
        }
    }
```

```
    no usages
    public void removeProduct(Product productToRemove){
        int newSize=products.length;
        for (int i=0;i<products.length;i++){
            if (products[i]==productToRemove){
                newSize--;
            } else if (i < newSize) {
                products[i] = products[i + 1];
            }
        }
    }
    3 usages
    public float calculatePrice(){
        float totalPrice=0;
        for (Product product : products) {
            totalPrice += product.getPrice();
        }
        return totalPrice;
    }
    1 usage
    public void placeOrder(int choice){
        if (choice==1){
            orderID++;
            System.out.println("order is placed");
        } else if (choice==2) {
            System.out.println("order is not placed");
            System.out.println("Total is:"+calculatePrice());
        }

    }
}
```

Order:

```java
public class Order {
    2 usages
    private int customerId;
    2 usages
    private int orderId=0;
    2 usages
    int nProducts;
    4 usages
    protected Product[] products;
    2 usages
    private float totalPrice=0;
    1 usage
    public Order(int nProducts){
        this.nProducts=nProducts;
        this.products=new Product[nProducts];
    }
    no usages
    public void setnProducts(int nProducts) { this.nProducts = nProducts; }
    3 usages
    public void setProduct(Product newProduct,int index) {
        if (index >= 0 && index < products.length) {
            this.products[index] = newProduct;
            totalPrice+=newProduct.getPrice();
        }}
        1 usage
        public void setCustomerId ( int customerId) { this.customerId = Math.abs(customerId); }
        1 usage
```

```java
    1 usage
    public void orderInfo() {
        orderId++;
        System.out.println("order id: " + orderId);
        System.out.println("customer id: " + customerId + "\nproducts:\n");
        for (Product product : products) {
            System.out.println(product.getName() + "- $" + product.getPrice());
        }
        System.out.println("total is " + totalPrice);
    }
}
```