```
package com.itbulls.learnit.javacore.oop.classes;
import java.math.BigDecimal;
import java.math.RoundingMode;
import java.util.Arrays;
public class Cart {
       private static final int DEFAULT_CART_CAPACITY = 10;
       private static final int MONEY_SCALE = 2;
       private static final double DEFAULT_TAX_RATE = 0.15;
       private static final String DEFAULT_TAX_TYPE = "incomeTax";
       private static final double DEAFULT_DISCOUNT_RATE = 0;
       private static final String DEFAULT_DISCOUNT_NAME = "zeroDiscount";
       private static int cartCounter;
       private int id;
       private int userId;
       private BigDecimal totalNetPrice;
                                                       // without taxes
       private BigDecimal totalGrossPrice;
                                               // with taxes
       private BigDecimal totalTax;
       private Tax tax;
       private Product[] products;
       private int indexToAddNewProduct;
       private Discount discount;
       static {
               System.out.println("Cart.class is uploaded into JVM");
       }
```

```
{
        cartCounter++;
        userId = 1;
        tax = new Tax(DEFAULT_TAX_TYPE, DEFAULT_TAX_RATE);
        discount = new Discount(DEFAULT_DISCOUNT_NAME, DEAFULT_DISCOUNT_RATE);
}
public Cart() {
}
public Cart(int id, int userId) {
       this.id = id;
        this.userId = userId;
}
public void addProduct(Product product) {
        if (product == null) {
               return;
       }
        if (products == null) {
               products = new Product[DEFAULT_CART_CAPACITY];
       }
        if (products.length < indexToAddNewProduct + 1) {</pre>
                products = Arrays.copyOf(products, products.length << 1);</pre>
       }
        products[indexToAddNewProduct++] = product;
        calculateTotalNetPrice();
        calculateTotalGrossPrice();
}
private BigDecimal calculateTotalNetPrice() {
```

```
this.totalNetPrice = BigDecimal.valueOf(Arrays.stream(this.products)
                               .mapToDouble(product -> product != null ?
product.getPrice().doubleValue():0)
                               .sum()).setScale(MONEY_SCALE, RoundingMode.HALF_UP);
               return this.totalNetPrice;
       }
       private BigDecimal calculateTotalGrossPrice() {
               if (this.totalNetPrice.doubleValue() < 0) {
                       calculateTotalNetPrice();
               }
               BigDecimal orderDiscount = this.totalNetPrice
                               .multiply(BigDecimal.valueOf(discount.getDiscountRate()))
                               .setScale(MONEY_SCALE, RoundingMode.HALF_UP);
               this.totalTax = this.totalNetPrice.multiply(BigDecimal.valueOf(tax.getTaxRate()))
                               .setScale(MONEY_SCALE, RoundingMode.HALF_UP);
               this.totalGrossPrice = this.totalNetPrice.add(this.totalTax).subtract(orderDiscount);
               return this.totalGrossPrice;
       }
       public int getId() {
               return id;
       }
       public void setId(int id) {
               if (id < 0) {
                       return;
               }
               this.id = id;
       }
```

```
public int getUserId() {
                return userId;
        }
        public void setUserId(int userId) {
                this.userId = userId;
        }
//
        public Product[] getProducts() {
//
                return products;
//
        }
        public Product[] getProducts() {
                return Arrays.copyOf(products, products.length);
        }
        public int getIndexOfLastProductAdded() {
                return indexToAddNewProduct;
        }
        public static int getCartCounter() {
                return cartCounter;
        }
        public BigDecimal getTotalNetPrice() {
                return totalNetPrice;
        }
        public BigDecimal getTotalGrossPrice() {
                return totalGrossPrice;
        }
```

```
public BigDecimal getTotalTax() {
                return totalTax;
        }
        public Discount getDiscount() {
                return discount;
        }
        public void setDiscount(Discount discount) {
                this.discount = discount;
        }
        public void setTax(Tax tax) {
                this.tax = tax;
        }
        @Override
        public String toString() {
                return "Cart [id=" + id + ", userId=" + userId + ", totalNetPrice="
                                + totalNetPrice + ", totalGrossPrice=" + totalGrossPrice + ",
totalTax="
                                + totalTax + ", products=" + Arrays.toString(products)
                                + ", indexOfLastProductAdded=" + indexToAddNewProduct + "]";
        }
        public class Discount {
                private String discountName;
                private double discountRate;
                public Discount(String discountName, double discountRate) {
```

```
this.discountName = discountName;
               this.discountRate = discountRate;
       }
        public String getDiscountName() {
               return discountName;
       }
        public void setDiscountName(String discountName) {
               this.discountName = discountName;
       }
        public double getDiscountRate() {
               return discountRate;
       }
        public void setDiscountRate(double discountRate) {
               this.discountRate = discountRate;
       }
public static class Tax {
        private String taxType;
        private double taxRate;
        public Tax(String taxType, double taxRate) {
               this.taxType = taxType;
               this.taxRate = taxRate;
       }
        public String getTaxType() {
```

}

}