import java.util.ArrayList;

import java.util.Scanner;

class Product {

    private String name;

    private double price;

    private int quantity;

    private double taxRate; // Tax rate in percent

    private double gstRate; // GST rate in percent

    private double discountRate; // Discount rate in percent

    public Product(String name, double price, int quantity, double taxRate, double gstRate, double discountRate) {

        this.name = name;

        this.price = price;

        this.quantity = quantity;

        this.taxRate = taxRate;

        this.gstRate = gstRate;

        this.discountRate = discountRate;

    }

    public String getName() {

        return name;

    }

    public double getPrice() {

        return price;

    }

    public int getQuantity() {

        return quantity;

    }

    public double getTaxRate() {

        return taxRate;

    }

    public double getGstRate() {

        return gstRate;

    }

    public double getDiscountRate() {

        return discountRate;

    }

    public void setQuantity(int quantity) {

        this.quantity = quantity;

    }

    public double calculateTax() {

        return price \* (taxRate / 100);

    }

    public double calculateGst() {

        return (price + calculateTax()) \* (gstRate / 100);

    }

    public double calculateTotalPrice() {

        double totalPrice = price + calculateTax() + calculateGst();

        return totalPrice - (totalPrice \* (discountRate / 100));

    }

    @Override

    public String toString() {

        return "Product: " + name + ", Price: $" + price + ", Quantity: " + quantity +

                ", Tax Rate: " + taxRate + "%, GST Rate: " + gstRate + "%, Discount Rate: " + discountRate + "%";

    }

}

public class productseles {

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

    private static Scanner scanner = new Scanner(System.in);

    public static void main(String[] args) {

        products.add(new Product("Laptop", 1000, 10, 5, 10, 0));

        products.add(new Product("Phone", 500, 20, 5, 10, 0));

        boolean exit = false;

        while (!exit) {

            System.out.println("\nProduct Sales Management System");

            System.out.println("1. Add Product");

            System.out.println("2. Display Products");

            System.out.println("3. Manage Sales");

            System.out.println("4. Exit");

            System.out.print("Enter your choice: ");

            int choice = scanner.nextInt();

            scanner.nextLine();

            switch (choice) {

                case 1:

                    addProduct();

                    break;

                case 2:

                    displayProducts();

                    break;

                case 3:

                    manageSales();

                    break;

                case 4:

                    exit = true;

                    System.out.println("Exiting...");

                    break;

                default:

                    System.out.println("Invalid choice. Please try again.");

            }

        }

        scanner.close();

    }

    private static void addProduct() {

        System.out.print("Enter product name: ");

        String name = scanner.nextLine();

        System.out.print("Enter price: $");

        double price = scanner.nextDouble();

        System.out.print("Enter quantity: ");

        int quantity = scanner.nextInt();

        System.out.print("Enter tax rate (%): ");

        double taxRate = scanner.nextDouble();

        System.out.print("Enter GST rate (%): ");

        double gstRate = scanner.nextDouble();

        System.out.print("Enter discount rate (%): ");

        double discountRate = scanner.nextDouble();

        Product product = new Product(name, price, quantity, taxRate, gstRate, discountRate);

        products.add(product);

        System.out.println("Product added successfully.");

    }

    private static void displayProducts() {

        System.out.println("\nProducts List:");

        // Display pre-existing products

        System.out.println("Pre-existing products:");

        System.out.println("1. Chocolate, Price: $5.00, Quantity: 50, Tax Rate: 5%, GST Rate: 10%, Discount Rate: 0%");

        System.out.println("2. Cake, Price: $20.00, Quantity: 20, Tax Rate: 5%, GST Rate: 10%, Discount Rate: 0%");

        System.out.println("Shop Products:");

        for (Product product : products) {

            System.out.println(product);

        }

    }

    private static void manageSales() {

        displayProducts();

        System.out.print("Enter the index of the product to manage sales: ");

        int index = scanner.nextInt();

        scanner.nextLine(); // Consume newline character

        if (index >= 0 && index < products.size()) {

            Product product = products.get(index);

            System.out.println("Product details:");

            System.out.println(product);

            System.out.print("Enter quantity sold: ");

            int quantitySold = scanner.nextInt();

            scanner.nextLine(); // Consume newline character

            if (product.getQuantity() >= quantitySold) {

                product.setQuantity(product.getQuantity() - quantitySold);

                double totalPrice = product.calculateTotalPrice() \* quantitySold;

                System.out.println("Total price (after tax, GST, and discount) for " + quantitySold +

                        " units: $" + totalPrice);

            } else {

                System.out.println("Insufficient quantity available.");

            }

        } else {

            System.out.println("Invalid product index.");

        }

    }

}