1. **DATA STRUCTURES AND ALGORITHMS**

**E-commerce Platform Search Engine**

ECommerceEx.java

import java.util.\*;

public class ECommerceEx {

public static void main(String[] args) {

String[] names = {

"Apple iPhone 15", "Samsung Galaxy S24",

"Nike Running Shoes", "Adidas Sports Shoes", "Fastrack Smartwatch"

};

String[] categories = {

"Electronics", "Electronics", "Footwear", "Footwear", "Accessories"

};

double[] prices = { 79999.99, 68999.00, 5499.99, 4999.50, 2499.00 };

Scanner sc = new Scanner(System.in);

System.out.println("Welcome to E-Commerce Product Search");

System.out.println("1. Search by Name\n2. Search by Category");

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

int option = sc.nextInt();

sc.nextLine();

System.out.print("Enter search keyword: ");

String keyword = sc.nextLine().toLowerCase();

boolean found = false;

for (int i = 0; i < names.length; i++) {

String name = names[i].toLowerCase();

String category = categories[i].toLowerCase();

if ((option == 1 && name.contains(keyword)) ||

(option == 2 && category.contains(keyword))) {

System.out.printf("Product: %s | Category: %s | Price: RS.%.2f\n",

names[i], categories[i], prices[i]);

found = true;

}

}

if (!found) {

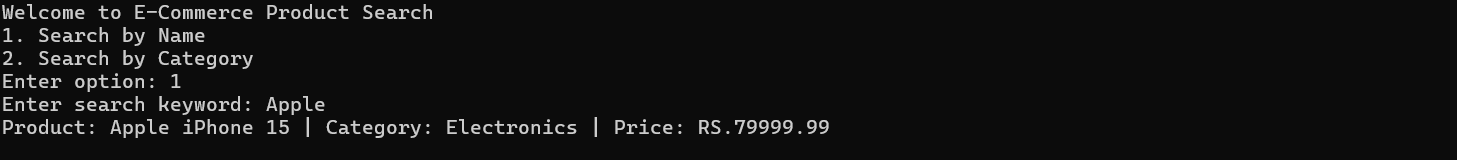
System.out.println("No products found.");

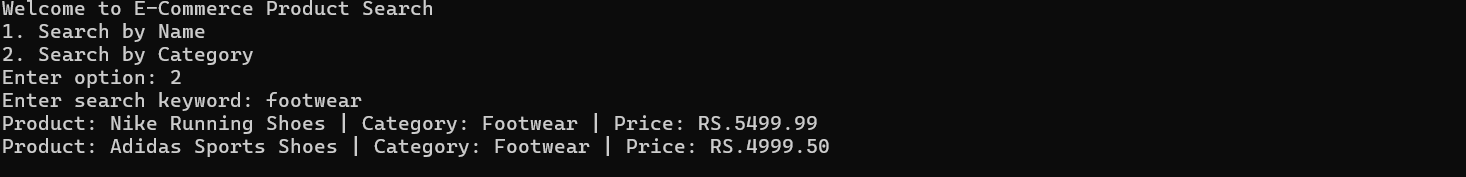
}

}

}

OUTPUT:





**Financial Forecasting**

FinancialForecastingExx.java

import java.util.\*;

class FinancialData {

private double monthlyIncome;

private double monthlyExpense;

private double incomeGrowthRate;

private double expenseGrowthRate;

public FinancialData(double income, double expense, double incomeGrowth, double expenseGrowth) {

this.monthlyIncome = income;

this.monthlyExpense = expense;

this.incomeGrowthRate = incomeGrowth;

this.expenseGrowthRate = expenseGrowth;

}

public void forecast(int months) {

double income = monthlyIncome;

double expense = monthlyExpense;

double savings = 0;

System.out.println("\nMonth | Income | Expense | Net Savings | Total Savings");

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

for (int i = 1; i <= months; i++) {

double net = income - expense;

savings += net;

System.out.printf("%5d | %10.2f | %10.2f | %11.2f | %13.2f\n",

i, income, expense, net, savings);

income += income \* (incomeGrowthRate / 100);

expense += expense \* (expenseGrowthRate / 100);

}

System.out.printf("\nEstimated savings after %d months: Rp.%.2f\n", months, savings);

}

}

public class FinancialForecastingExx {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

System.out.println("Financial Forecasting Example");

System.out.print("Enter current monthly income (₹): ");

double income = sc.nextDouble();

System.out.print("Enter current monthly expenses (₹): ");

double expense = sc.nextDouble();

System.out.print("Enter expected monthly income growth rate (%): ");

double incomeGrowth = sc.nextDouble();

System.out.print("Enter expected monthly expense growth rate (%): ");

double expenseGrowth = sc.nextDouble();

System.out.print("Enter number of months to forecast: ");

int months = sc.nextInt();

FinancialData data = new FinancialData(income, expense, incomeGrowth, expenseGrowth);

data.forecast(months);

}

}

OUTPUT:

