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| Exercise 7: Financial Forecasting |

import java.util.Scanner;

public class FinancialForecast {

    public static double futureValueRecursive(double initialAmount, double growthRate, int periods) {

        if (periods == 0) {

            return initialAmount;

        }

        return futureValueRecursive(initialAmount, growthRate, periods - 1) \* (1 + growthRate);

    }

    public static double futureValueIterative(double initialAmount, double growthRate, int periods) {

        double futureValue = initialAmount;

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

            futureValue \*= (1 + growthRate);

        }

        return futureValue;

    }

    public static double futureValueMath(double initialAmount, double growthRate, int periods) {

        return initialAmount \* Math.pow(1 + growthRate, periods);

    }

    public static void main(String[] args) {

        Scanner scanner = new Scanner(System.in);

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

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

        System.out.print("Enter the initial amount : ₹");

        double initialAmount = scanner.nextDouble();

        System.out.print("Enter the annual growth rate : ");

        double growthRate = scanner.nextDouble();

        System.out.print("Enter the number of periods (years): ");

        int periods = scanner.nextInt();

        System.out.println("\nCalculating future values...");

        double recursiveResult = futureValueRecursive(initialAmount, growthRate, periods);

        double iterativeResult = futureValueIterative(initialAmount, growthRate, periods);

        double mathResult = futureValueMath(initialAmount, growthRate, periods);

        System.out.println("\nFuture Value Summary:");

        System.out.printf("Recursive Method       : ₹%.2f%n", recursiveResult);

        System.out.printf("Iterative Method       : ₹%.2f%n", iterativeResult);

        System.out.printf("Mathematical Formula   : ₹%.2f%n", mathResult);

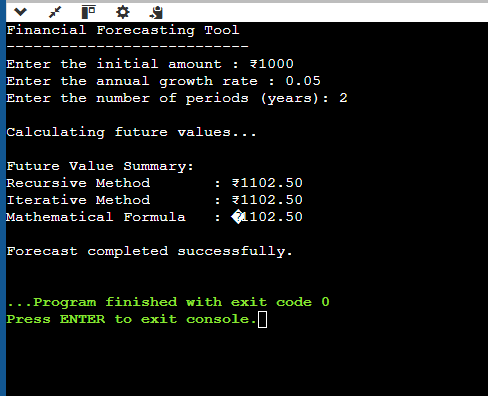
        System.out.println("\nForecast completed successfully.");

        scanner.close();

    }

}

**OUTPUT:**

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