**Algorithms Data Structures**

**Exercise 7: Financial Forecasting**

**SCENARIO:**

You are developing a financial forecasting tool that predicts future values based on past data.

**SOURCE CODE :**

**FinancialForecast.java**

package com.forecasting.tool;

public class FinancialForecast {

public static double calculateFutureValue(double presentValue, double growthRate, int years) {

if (years == 0) {

return presentValue;

}

return (1 + growthRate) \* *calculateFutureValue*(presentValue, growthRate, years - 1);

}

public static double calculateFutureValueIterative(double presentValue, double growthRate, int years) {

double futureValue = presentValue;

for (int i = 0; i < years; i++) {

futureValue \*= (1 + growthRate);

}

return futureValue;

}

public static void main(String[] args) {

double presentValue = 10000;

double annualGrowthRate = 0.08;

int years = 5;

double futureValueRecursive = *calculateFutureValue*(presentValue, annualGrowthRate, years);

double futureValueIterative = *calculateFutureValueIterative*(presentValue, annualGrowthRate, years);

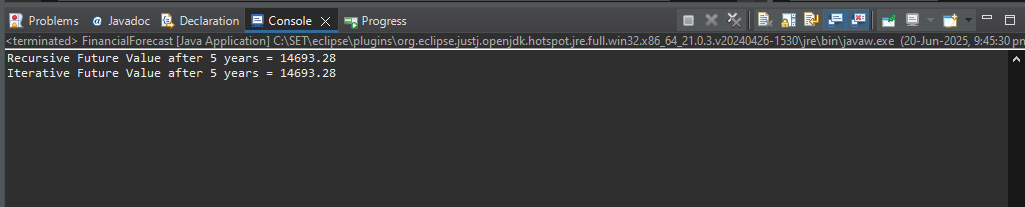
System.*out*.printf("Recursive Future Value after %d years = %.2f\n", years, futureValueRecursive);

System.*out*.printf("Iterative Future Value after %d years = %.2f\n", years, futureValueIterative);

}

}

**OUTPUT :**

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