using System;

public class FinancialForecasting{

public static double ForecastRecursive(double initialValue, double growthRate, int years) {

if (years == 0) return initialValue;

return ForecastRecursive(initialValue, growthRate, years - 1) \* (1 + growthRate);}

public static double ForecastMemo(double initialValue, double growthRate, int years, double[] memo){

if (years == 0) return initialValue;

if (memo[years] != 0) return memo[years];

memo[years] = ForecastMemo(initialValue, growthRate, years - 1, memo) \* (1 + growthRate); return memo[years];}

public static void Main(string[] args) {

double initialValue = 10000;

double growthRate = 0.1;

int years = 5;

double recursiveResult = ForecastRecursive(initialValue, growthRate, years);

Console.WriteLine("Recursive Forecast for " + years + " years: " + recursiveResult);

double[] memo = new double[years + 1];

double optimizedResult = ForecastMemo(initialValue, growthRate, years, memo);

Console.WriteLine("Optimized Recursive Forecast: " + optimizedResult);

}

}

