**Week-1\_Financial Forecasting**

**Scenario:**

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

**Steps:**

1. **Understand Recursive Algorithms:**
   * Explain the concept of recursion and how it can simplify certain problems.
2. **Setup:**
   * Create a method to calculate the future value using a recursive approach.
3. **Implementation:**
   * Implement a recursive algorithm to predict future values based on past growth rates.
4. **Analysis:**
   * Discuss the time complexity of your recursive algorithm.
   * Explain how to optimize the recursive solution to avoid excessive computation.

Program.cs

**using System;**

**class Program**

**{**

**static void Main()**

**{**

**Console.Write("Enter the initial amount: ");**

**double initialAmount = double.Parse(Console.ReadLine());**

**Console.Write("Enter annual growth rate: ");**

**double growthRate = double.Parse(Console.ReadLine());**

**Console.Write("Enter number of years to forecast: ");**

**int years = int.Parse(Console.ReadLine());**

**double futureValue = CalculateFutureValue(initialAmount, growthRate, years);**

**Console.WriteLine($"\n Future value after {years} years: Rupees/{futureValue:F2}");**

**}**

**static double CalculateFutureValue(double amount, double rate, int years)**

**{**

**if (years == 0)**

**return amount;**

**return CalculateFutureValue(amount, rate, years - 1) \* (1 + rate);**

**}**

**}**

**OUTPUT:**

