**07-Financial Forecasting :**

Recursion - recursion is a programming technique where a function calls itself directly or indirectly to solve a problem.

key idea- breaking a bigger problem in to smaller sub problems of same type

**Real Life example:**

To calculate the value of an investment over years with a constant growth rate:

Year 0: ₹1000

Growth rate: 10%

Year 1: ₹1000 × 1.1 = ₹1100

Year 2: ₹1100 × 1.1 = ₹1210

And so on...

**Creating a recursive method -**

Future value = Present value x (1 + Growth Rate)^n;

Time complexity :

for 'n' years , the recursive function makes n recursive calls.

so time complexity: O(n);

**optimization:**

Using Iteration or Memoization.

Memoization is storing already computed results to avoid repeated work.

With optimization:

Time complexity: O(n)

Space complexity: O(1)