**Exercise 7: Financial Forecasting**

**Understand Recursive Algorithms:**

* + Explain the concept of recursion and how it can simplify certain problems.

Ans-

Recursion is when a method calls itself to solve smaller versions of a problem. It simplifies problems that have repetitive structure, like compound interest or future projections.

We used the formula:

FutureValue(n) = FutureValue(n−1) × (1+growthRate)

Where base case:

FutureValue(0)=currentValue

The function calculates the future value of an investment over a number of years based on a fixed annual growth rate.

**Analysis:**

* + Discuss the time complexity of your recursive algorithm.
  + Explain how to optimize the recursive solution to avoid excessive computation.

Ans-

Time Complexity: O(n)

Optimization Idea: Use iteration or memorization to avoid recomputing subproblems