**Exercise 7: Financial Forecasting Theory**

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

**Ans-> Recursion**: A method where the solution to a problem depends on solutions to smaller instances of the same problem. A recursive function calls itself with modified parameters.

Recursion simplifies problems by breaking them down into smaller, more manageable sub-problems. This can make the code more readable and easier to understand.

1. **Discuss the time complexity of your recursive algorithm.**

**Ans->** O(n) - The algorithm calls itself n times, where n is the number of periods. Each call performs a constant amount of work.

1. **Explain how to optimize the recursive solution to avoid excessive computation.**

**Ans-> Memoization**: To avoid excessive computation, store the results of previous calculations in a memo. This ensures that each sub-problem is solved only once, improving efficiency.

**OUTPUT OF THE PREDICTED FUTURE VALUES BASED ON PAST GROWTH RATE-**

