**Financial Forecasting**

* **Understand Recursive Algorithms**
* **Explain the concept of recursion and how it can simplify certain problems.**

Recursion is a technique where a function calls itself to solve smaller instances of the same problem. It simplifies complex problems by breaking them down into simpler, more manageable sub-problems. This often leads to clearer and more elegant solutions, particularly for tasks that have repetitive or nested structures, like tree traversals or factorial calculations.

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

The time complexity of the my recursive program, with memoization in place, is This linear time complexity is due to the fact that each period is computed once and stored, and subsequent lookups are performed in constant time .

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

Memoization in the provided code enhances the efficiency of the recursive method by storing the results of previously computed values in a HashMap. This strategy prevents the need to recalculate the future value for the same number of periods repeatedly, thereby reducing the number of recursive calls and avoiding unnecessary computations.