**Exercise-7 Financial Forecasting**

**Understanding Recursive Algorithms:**

**Recursion:**

**Definition**: Recursion is a method where a function calls itself to solve smaller instances of the same problem.

* Recursion can simplify the code for problems that can be broken down into smaller, similar sub-problems. Examples include factorial calculation, Fibonacci series, and tree traversal.

**Analysis:**

**Time Complexity:**

* O(n), where n is the number of years. This is because the function makes a single recursive call for each year.

**Optimization:**

* **Memoization**: To optimize the recursive solution and avoid excessive computation, especially if calculating future values for the same input multiple times, we can use memoization.
* Memoization stores the results of expensive function calls and returns the cached result when the same inputs occur again.