**Exercise 7: Financial Forecasting**

**1. Understanding Recursive Algorithms**

**Recursion** is a method where the solution to a problem depends on solutions to smaller instances of the same problem. Recursive algorithms simplify certain problems by breaking them down into more manageable sub-problems, often leading to more elegant and readable code.

**4. Analysis**

**Time Complexity**

The time complexity of the recursive algorithm is O(n)O(n)O(n), where nnn is the number of years. This is because the function makes a single recursive call for each year, leading to a linear number of function calls.

**Optimization**

To optimize the recursive solution and avoid excessive computation, you can consider:

1. **Memoization:** Store the results of previous calculations to avoid redundant work. However, in this specific problem, memoization may not provide a significant advantage because each recursive call depends only on the previous year's result.
2. **Iterative Approach:** Use an iterative approach to avoid the overhead of recursive calls and potential stack overflow issues for very large inputs.