**Exercise 7: Financial Forecasting**

**1. Understand Recursive Algorithms**

**1.1 Explain the Concept of Recursion and How It Can Simplify Certain Problems**

* **Recursion**:
  + A function calls itself to solve a problem by breaking it into smaller sub-problems.
  + Simplifies problems with a natural hierarchical structure, making code more readable and manageable.

**4. Analysis**

**4.1 Discuss the Time Complexity of Your Recursive Algorithm**

* **Time Complexity**: O(n), where n is the number of years. Each recursive call involves a constant amount of work and there are n calls.

**4.2 Explain How to Optimize the Recursive Solution to Avoid Excessive Computation**

* **Optimization Techniques**:
  + **Iterative Approach**: Can be more efficient as it avoids the overhead of recursive calls and stack space.
  + **Memoization**: Useful in more complex recursive problems to store results of sub-problems, but not needed here.