**Exercise 7: Financial Forecasting**

**Step 1: Understand Recursive Algorithms**

**Concept of Recursion**

* **Description:** A recursion is a method where a function calls itself to solve smaller instances of the same problem.
* **Advantages:**
  + **Simplifies Complex Problems:** Recursion can make complex problems easier to understand and solve by breaking them into smaller, similar problems.
  + **Elegant Solutions:** Often results in more elegant and concise code compared to iterative solutions.

**Time Complexity**

* **Time Complexity:** O(n) - The recursive method calls itself n times, where n is the number of years. Each call performs a constant amount of work.

**Optimization**

* **Avoid Excessive Computation:** Use memoization or dynamic programming to store previously computed values and avoid redundant calculations.
* **Example Optimization:** Using a loop to replace recursion can also improve performance by avoiding the overhead of recursive calls.