Exercise 7: Financial Forecasting

* **Time Complexity:**
* The time complexity of the recursive calculateFutureValue method is O(n), where n is the number of years. This is because the function makes one recursive call for each year, resulting in a linear number of calls.
* **Optimization:**
* **Memoization:** To avoid excessive computation and redundant calculations, memoization can be used. Memoization involves storing the results of previous computations so that they can be reused in future calls, reducing the number of calculations.
* **Iterative Approach:** An iterative approach can often be more efficient than recursion for problems like this, as it avoids the overhead of recursive calls and potential stack overflow issues. An iterative approach calculates the future value in a single pass with O(n) time complexity and constant space complexity.