**Explanation:**

What is Recursion?

Recursion is a programming technique where a function calls itself to solve smaller subproblems of the original problem. It continues calling itself with simpler inputs until it reaches a base case that stops further calls. Financial forecasting often involves repetitive, time-based calculations for example, projecting future value based on compounding interest or year-over-year growth. These repetitive calculations naturally fit a recursive pattern.

**Analysis:**

Time Complexity: O(n)

* The function makes one recursive call per year, so for n years, it performs n calls.
* Thus, time complexity is linear, or O(n).

Space Complexity: O(n)

* Each recursive call is placed on the call stack.
* For n years, the recursion goes n levels deep → stack depth = n.

To optimize your recursive financial forecasting algorithm, your goal is to:

* Reduce space usage (avoid recursive stack growth),
* Improve speed (if possible),
* Make it scalable for large time spans (years).

Convert Recursion to Iteration