**Step 1: Understand Recursive Algorithms:**

* Explain the concept of recursion and how it can simplify certain problems.

**Ans:**

**Recursion** is a technique where a method calls itself to solve a smaller part of the same problem. It simplifies problems like mathematical computations, tree traversals, and forecasting patterns.

**It can simplify certain problems by:**

* breaking down a big problem into smaller, identical problems.
* making the code cleaner and shorter.

**Step 4: Analysis:**

* Discuss the time complexity of your recursive algorithm.
* Explain how to optimize the recursive solution to avoid excessive computation.

**Ans:**

**Time Complexity:**

The recursive function makes **one call per year** until it reaches year 0.

* **Time Complexity**: O(n)

where n is the number of years.

**Optimization:**

Even though the current method is simple, we can optimize it by using **Iteration** instead of **Recursion.**

Here, instead of calling the method again and again, we can just use a simple for loop to multiply the value each year. This avoids the cost of repeated function calls and thus making the program faster.