**Exercise 7: Financial Forecasting**

**Problem Statement:**

You are developing a financial forecasting tool that predicts future values based on past data.

**Code:**

**1.RECURSIVE method:**

**public class FinancialForecasting {  
  
 public static double forecast(double currentValue, double growthRate, int years) {  
 if (years == 0) {  
 return currentValue;  
 }  
 return forecast(currentValue \* (1 + growthRate), growthRate, years - 1);  
 }  
  
 public static void main(String[] args) {  
 double futureValue = forecast(1000, 0.05, 5);  
 System.out.println("Predicted future value: $" + futureValue);  
 }  
}**

**2. ITERATIVE method:**

**public static double forecastIterative(double currentValue, double growthRate, int years) {  
 for (int i = 0; i < years; i++) {  
 currentValue \*= (1 + growthRate);  
 }  
 return currentValue;  
}**

**Output of the code:**

**A screen shot of a computer

AI-generated content may be incorrect.**

**Analysis of both the methods:**

| **Approach** | **Time Complexity** | **Space Complexity** |
| --- | --- | --- |
| **Recursive** | **O(n)** | **O(n)** |
| **Iterative** | **O(n)** | **O(1)** |

**Comparing both the methods the more efficient method is ITERATIVE method.**