

Exercise 7: Financial Forecasting

Scenario:

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

//FinancialForecast.java

```
import java.util.Scanner;

public class FinancialForecast {

    // Recursive Method
    public static double forecastRecursive(double
presentValue, double growthRate, int years) {
        if (years == 0) {
            return presentValue;
        }
        return forecastRecursive(presentValue,
growthRate, years - 1) * (1 + growthRate);
    }

    // Iterative Method
    public static double forecastIterative(double
presentValue, double growthRate, int years) {
        double futureValue = presentValue;
        for (int i = 1; i <= years; i++) {
            futureValue *= (1 + growthRate);
        }
        return futureValue;
    }

    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
```

```
        System.out.println("Financial Forecasting Tool");

        System.out.print("Enter Present Value (Rs.): ");
        double presentValue = scanner.nextDouble();

        System.out.print("Enter Annual Growth Rate (%):
");

        double ratePercent = scanner.nextDouble();
        double growthRate = ratePercent / 100.0;

        System.out.print("Enter Number of Years: ");
        int years = scanner.nextInt();

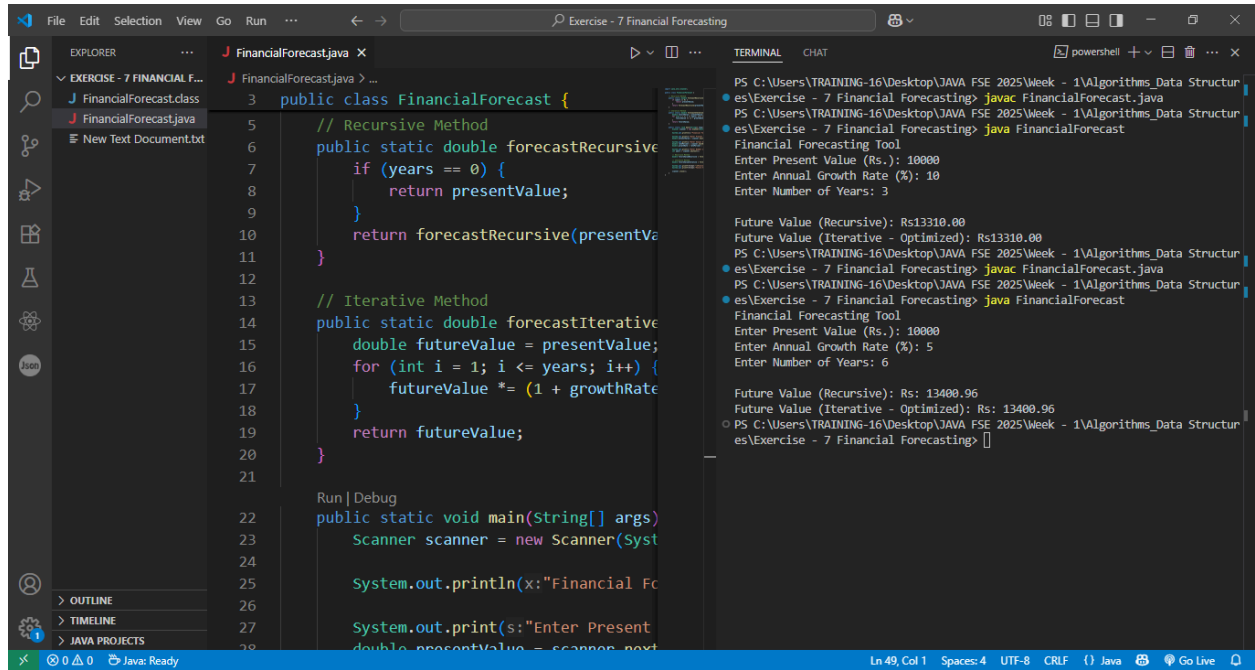
        // Recursive Method
        double futureValueRecursive =
forecastRecursive(presentValue, growthRate, years);

        // Iterative Method
        double futureValueIterative =
forecastIterative(presentValue, growthRate, years);

        System.out.printf("\nFuture Value (Recursive):
Rs: %.2f\n", futureValueRecursive);
        System.out.printf("Future Value (Iterative -
Optimized): Rs: %.2f\n", futureValueIterative);

        scanner.close();
    }
}
```

Output:



The screenshot displays an IDE window titled "Exercise - 7 Financial Forecasting". The Explorer pane on the left shows a project named "EXERCISE - 7 FINANCIAL F..." containing files "FinancialForecast.class" and "FinancialForecast.java". The main editor shows the source code for "FinancialForecast.java".

```
3 public class FinancialForecast {
4
5     // Recursive Method
6     public static double forecastRecursive
7     {
8         if (years == 0) {
9             return presentValue;
10        }
11        return forecastRecursive(presentVa
12    }
13
14    // Iterative Method
15    public static double forecastIterative
16    {
17        double futureValue = presentValue;
18        for (int i = 1; i <= years; i++) {
19            futureValue *= (1 + growthRate
20        }
21        return futureValue;
22    }
23
24    Run | Debug
25    public static void main(String[] args)
26    {
27        Scanner scanner = new Scanner(Syst
28
29        System.out.println(x:"Financial Fc
30
31        System.out.print(s:"Enter Present
32        double presentValue = scanner.next
```

The TERMINAL pane on the right shows the execution of the program. It displays the command prompt path, the command to compile and run the program, and the user input for the program's execution. The output shows the future value calculated using both recursive and iterative methods.

```
PS C:\Users\TRAINING-16\Desktop\JAVA FSE 2025\Week - 1\Algorithms_Data Structur
es\Exercise - 7 Financial Forecasting> javac FinancialForecast.java
PS C:\Users\TRAINING-16\Desktop\JAVA FSE 2025\Week - 1\Algorithms_Data Structur
es\Exercise - 7 Financial Forecasting> java FinancialForecast
Financial Forecasting Tool
Enter Present Value (Rs.): 10000
Enter Annual Growth Rate (%): 10
Enter Number of Years: 3

Future Value (Recursive): Rs13310.00
Future Value (Iterative - Optimized): Rs13310.00
PS C:\Users\TRAINING-16\Desktop\JAVA FSE 2025\Week - 1\Algorithms_Data Structur
es\Exercise - 7 Financial Forecasting> javac FinancialForecast.java
PS C:\Users\TRAINING-16\Desktop\JAVA FSE 2025\Week - 1\Algorithms_Data Structur
es\Exercise - 7 Financial Forecasting> java FinancialForecast
Financial Forecasting Tool
Enter Present Value (Rs.): 10000
Enter Annual Growth Rate (%): 5
Enter Number of Years: 6

Future Value (Recursive): Rs: 13400.96
Future Value (Iterative - Optimized): Rs: 13400.96
PS C:\Users\TRAINING-16\Desktop\JAVA FSE 2025\Week - 1\Algorithms_Data Structur
es\Exercise - 7 Financial Forecasting>
```

The status bar at the bottom indicates the current line and column (Ln 49, Col 1), the number of spaces (4), the encoding (UTF-8), the line ending (CRLF), the language (Java), and the Go Live button.