**Exercise 7: Financial Forecasting**

**Scenario:**

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

**Recursion:**

Recursion is a programming technique where a function calls itself to solve a problem.  
It breaks down complex problems into simpler subproblems.

The time complexity of this recursive approach to code the future forecast is O(n). Because we are decreasing year to one on each recursive call upto year becomes zero, thus it takes O(n) time like the n number of years.

The space complexity is also O(n) because of the stack memory usage for recursion.

**Optimized approach:**

The optimized approach for this future forecasting might be iterative code. As it does not take any extra spaces and it is a straight forward approach to solve this.

Code:

Public static double Forecast(double p, int year, double r){

double f = p;

for(int i=0;i<=year;i++){

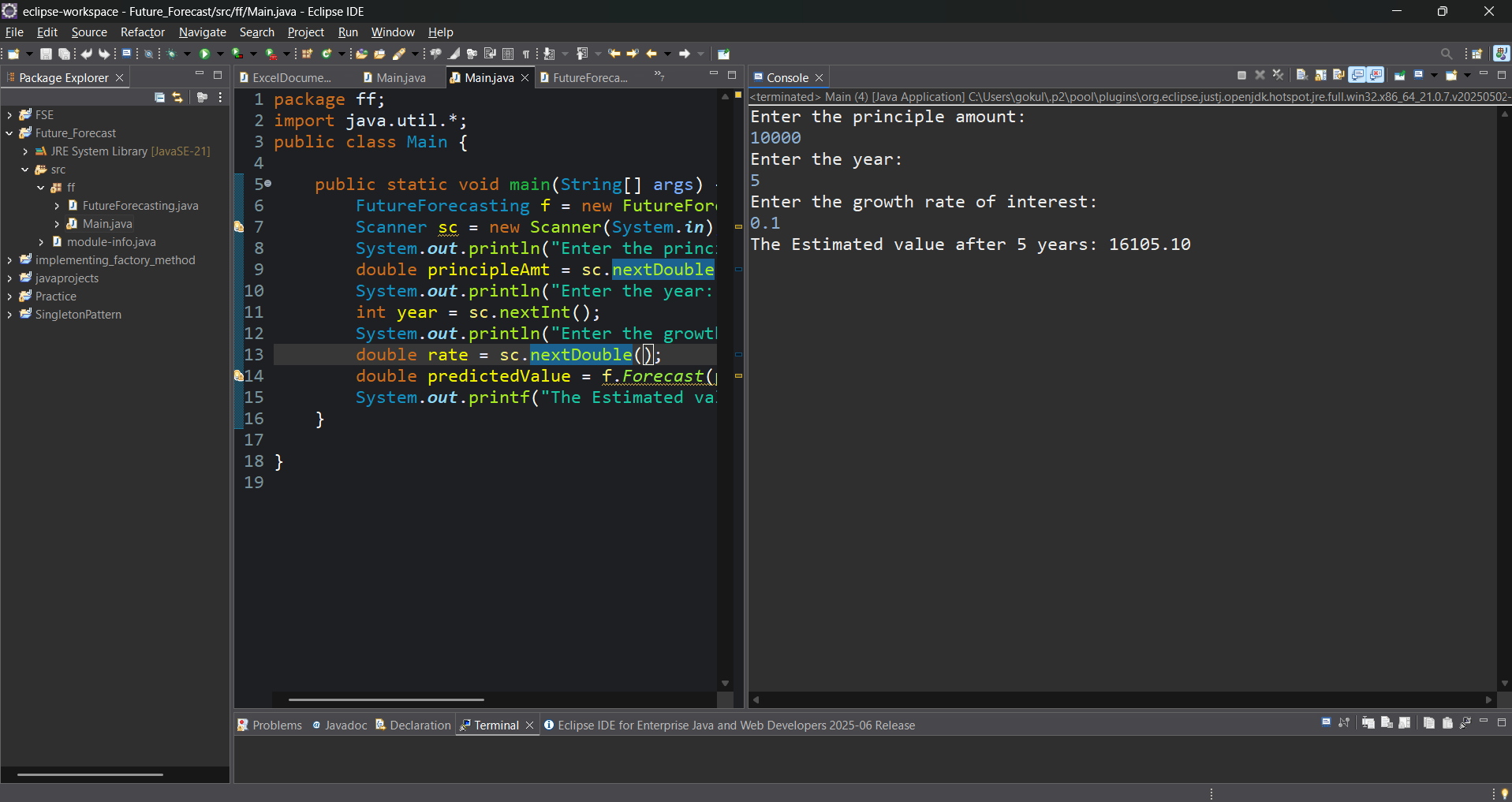
f \*=(1+r);

}

return f;

}

**Output:**

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