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**TASK 7 : Financial Forecasting**

**Scenario:**

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

**Steps:**

1. **Understand Recursive Algorithms:**
   * Explain the concept of recursion and how it can simplify certain problems.
2. **Setup:**
   * Create a method to calculate the future value using a recursive approach.
3. **Implementation:**
   * Implement a recursive algorithm to predict future values based on past growth rates.
4. **Analysis:**
   * Discuss the time complexity of your recursive algorithm.
   * Explain how to optimize the recursive solution to avoid excessive computation.

**CODE :**

public class FinancialForecast {

    public static double predictFutureValue(double currentValue, double growthRate, int years) {

        if (years == 0) return currentValue;

        return predictFutureValue(currentValue \* (1 + growthRate), growthRate, years - 1);

    }

    public static void main(String[] args) {

        double currentValue = 10000;

        double annualGrowthRate = 0.10;

        int years = 5;

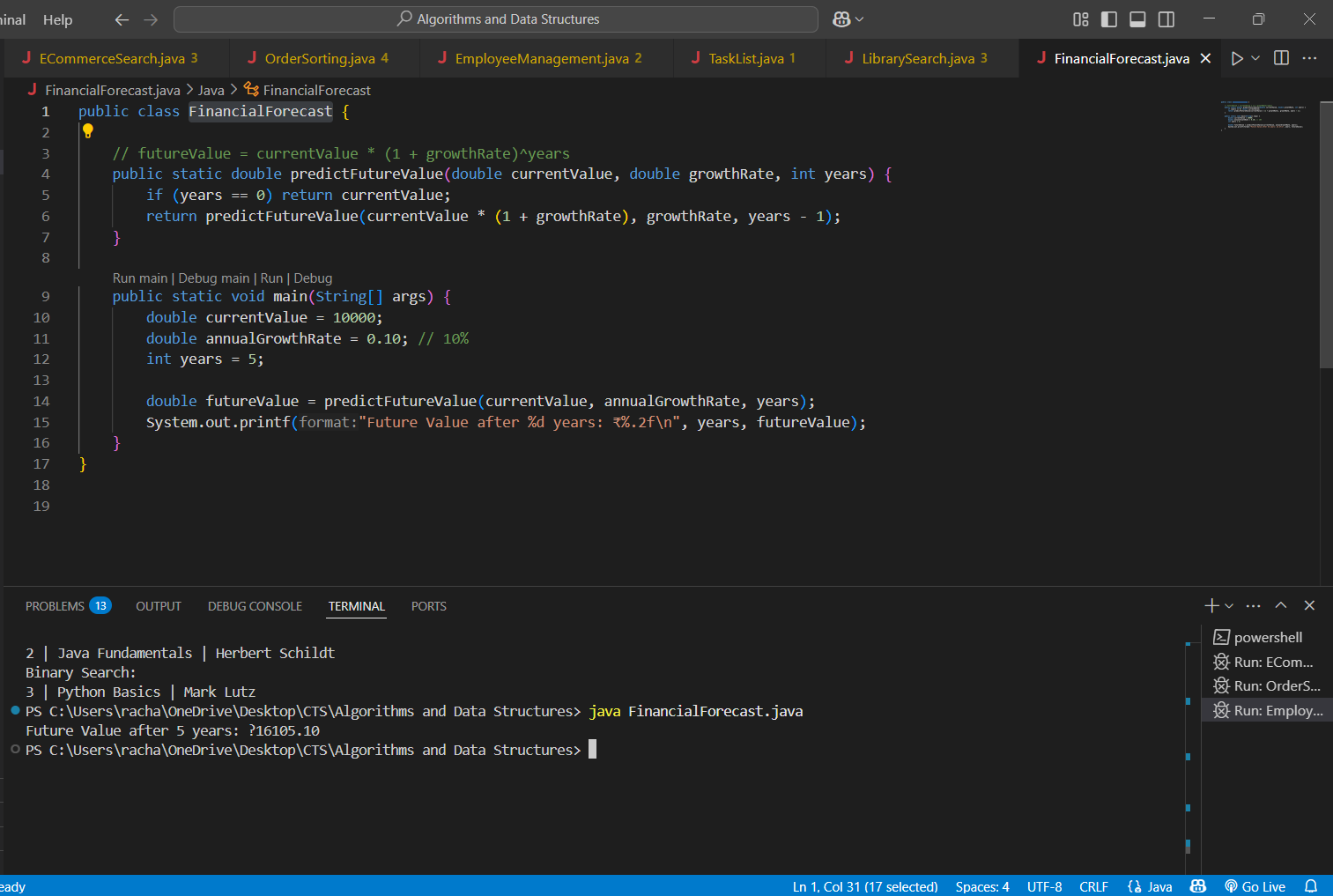
        double futureValue = predictFutureValue(currentValue, annualGrowthRate, years);

        System.out.printf("Future Value after %d years: ₹%.2f\n", years, futureValue);

    }

}

**OUTPUT :**

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