**Exercise 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.

Answer:

Forecast.java:

**package** finance;

**public** **class** forecast {

**public** **double** calc(**double** presVal,**double** rate,**int** period) {

**if**(period==0) {

**return** presVal;

}**else** {

**double** val=presVal\*(1+rate);

**return** calc(val,rate,period-1);

}

}

}

FinanceForecast.java:

**package** finance;

**public** **class** FinanceForecast {

**public** **static** **void** main(String[] args) {

forecast fc=**new** forecast();

**double** initVal=10000.00;

**double** rate=0.08;

**int** time=3;

**double** fval=fc.calc(initVal, rate, time);

System.***out***.println("Prediction: "+fval);

}

}

Output Screenshot:

