**Exercise 7: Financial Forecasting**

public class Main {

public static double futureValueRecursive(double presentValue, double growthRate, int years) {

if (years == 0) return presentValue;

return futureValueRecursive(presentValue, growthRate, years - 1) \* (1 + growthRate);

}

public static double futureValueIterative(double presentValue, double growthRate, int years) {

double futureValue = presentValue;

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

futureValue \*= (1 + growthRate);

}

return futureValue;

}

public static void main(String[] args) {

double presentValue = 1000.0;

double growthRate = 0.05;

int years = 5;

double fvRecursive = futureValueRecursive(presentValue, growthRate, years);

double fvIterative = futureValueIterative(presentValue, growthRate, years);

System.out.printf("Recursive Future Value after %d years: %.2f%n", years, fvRecursive);

System.out.printf("Iterative Future Value after %d years: %.2f%n", years, fvIterative);

}

}

Output:

