**Exercise 7: Financial Forecasting**

**What is recursion?**

* Recursion is when a function calls itself to solve smaller instances of the same problem.
* Every recursive function has:
  + Base case → stops recursion.
  + Recursive case → reduces the problem to a smaller one.

**How recursion simplifies problems**

* Breaks complex problems into simpler subproblems.
* Avoids manually writing repetitive logic.

**Code:**

public class FinancialForecasting {

    public static double forecast(double currentValue, double rate, int periods) {

        if (periods == 0) {

            return currentValue;

        }

        return forecast(currentValue \* (1 + rate), rate, periods - 1);

    }

    public static void main(String[] args) {

        double presentValue = 1000.0;

        double growthRate = 0.05;

        int periods = 10;

        double futureValue = forecast(presentValue, growthRate, periods);

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

    }

}

**Output:**

