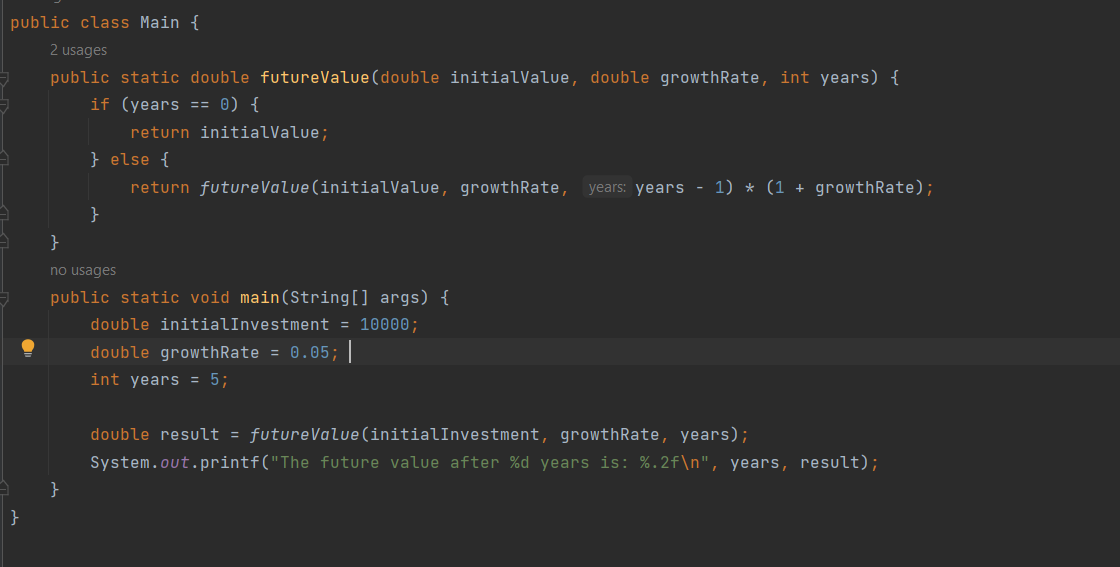
**Exercise 7: Financial Forecasting**

**Scenario:**

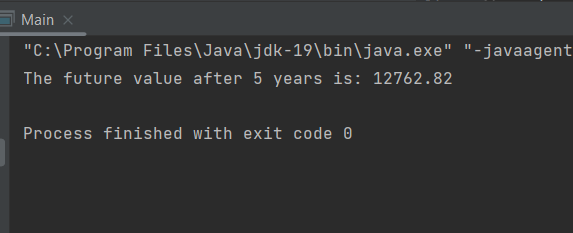
You are developing a financial forecasting tool that predicts future values based on past data.

**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.



**Output:**



**Conclusion**: Recursive calls can become inefficient or cause stack overflow for large n. Hence a simple iterative approach is more efficient in Java as it is simpler.

|  |  |  |
| --- | --- | --- |
| **Feature** | **Recursive** | **Iterative** |
| Code clarity | Elegant | Simple |
| Performance | O(n) time, O(n) space | O(n) time, O (1) space |