

# Theory Answers & Outputs

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## Data structures and Algorithms

### Exercise 7: Financial Forecasting

Recursion solves problems by calling the function itself with smaller inputs. It simplifies problems with repetitive structure like compound growth.

Time Complexity:  $O(n)$ , where  $n$  is the number of years.

Optimization: Use memoization or an iterative approach to improve speed and avoid stack overflow.

Conclusion: Recursion makes implementation easy, but must be optimized for real-world forecasting over large periods.

#### OUTPUT

```
PS C:\Users\KIIT\Downloads\CSharp_DesignPatterns_Exercises (1)\6364375_week1\FinancialForecasting> dotnet run
>>
Future value after 5 years: 1276.28
❖ PS C:\Users\KIIT\Downloads\CSharp_DesignPatterns_Exercises (1)\6364375_week1\FinancialForecasting> |
```