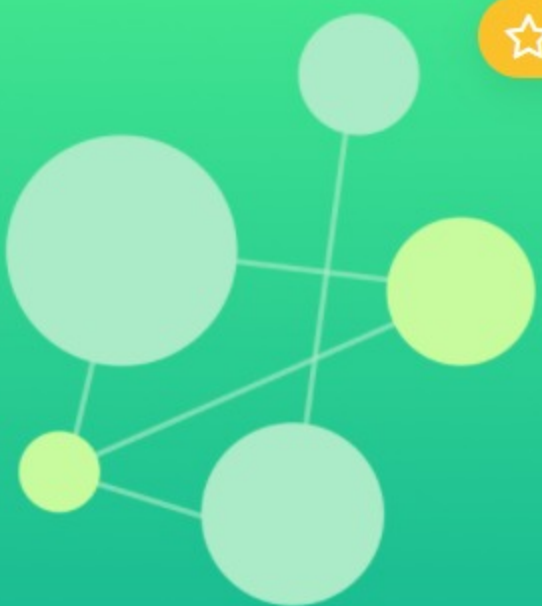◀ Back to Explore

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Detailed Explanation of
Dynamic Programming

Overview
In this explore card, we're going to go over the basics of DP, provide you with a

✓ Intro to Dynamic Programming

○ Strategic Approach to DP

○ Common Patterns in DP

○ Common Patterns Continued

○ DP for Paths in a Matrix

○ More Practice Problems
That's the end of the Dynamic Programming 1 explore card. Whether you were a

💬 Discuss
16 topics - share ideas and ask questions about this card

Introduction

[f] [t] [in]

In this explore card, we're going to go over the basics of **DP**, provide you with a framework for solving DP problems, learn about common patterns, and walk through many examples.

No prior knowledge of DP is required for this card, but you will need a solid understanding of recursion, a basic understanding of what greedy algorithms are, and general knowledge such as big O and hash tables. If you aren't familiar with recursion yet, check out the recursion explore card first.

Intro to Dynamic Programming	✓
☑ A What is Dynamic Programming?	☑ A Top-down and Bottom-up
☑ A When to Use DP	☑ A Chapter 1 Quiz

Strategic Approach to DP	○
☑ A Framework for DP Problems	☑ A Example 198. House Robber
☑ House Robber	☑ Min Cost Climbing Stairs
☑ N-th Tribonacci Number	☐ Delete and Earn
☑ A Multidimensional DP	☑ A Top-down to Bottom-up
☑ A Example 1770. Maximum Score f...	☐ Maximum Score from Performin...
☑ Longest Common Subsequence	☑ Maximal Square
☑ A Time and Space Complexity	☑ A Chapter 2 quiz

Common Patterns in DP	○
☑ A Iteration in the recurrence relation	☑ A Example 1335. Minimum Difficul...
☐ Minimum Difficulty of a Job Sch...	☑ Coin Change
☑ A Example 139. Word Break	☐ Word Break
☑ Longest Increasing Subsequence	☑ A State Transition by Inaction
☑ A Example 188. Best Time to Buy a...	☑ Best Time to Buy and Sell Stock IV
☑ Best Time to Buy and Sell Stock ...	

Common Patterns Continued	○
☑ A State Reduction	☑ Min Cost Climbing Stairs
☑ A Counting DP	☐ Paint Fence 🔓
☑ Coin Change 2	☑ Decode Ways
☑ A Kadane's Algorithm	☑ Best Time to Buy and Sell Stock
☑ Maximum Sum Circular Subarray	☑ A Chapter 4 Quiz

DP for Paths in a Matrix	○
☑ A Pathing Problems	☑ A Example 62. Unique Paths
☐ Unique Paths	☐ Unique Paths II
☐ Minimum Path Sum	☐ Minimum Falling Path Sum

More Practice Problems	○
☐ Best Time to Buy and Sell Stock ...	☐ Paint House 🔓
☐ Paint House II 🔓	☐ Paint House III
☐ Count Vowels Permutation	☐ Maximum Length of Repeated S...
☐ Number of Dice Rolls With Targe...	☐ Domino and Tromino Tiling
☑ Minimum Cost For Tickets	☐ Interleaving String