Detailed Explanation of

Dynamic Programming

Overview

The content on this card is exclusive to our premium users. If you like the content after previewing the first chapter for free, please subscribe to LeetCode premium here. 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

Discuss

1472 topics - share ideas and ask questions about this card

(/discuss/explore/dynamic-programming)

Introduction

The content on this card is exclusive to our premium users. If you like the content after previewing the first chapter for free, please subscribe to LeetCode premium here (https://leetcode.com/subscribe/?ref=ex_dp).

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 (https://leetcode.com/explore/learn/card/recursion-i/) first.

Intro to Dynamic Programming

- [ ] What is Dynamic Programming?
- [ ] Top-down and Bottom-up
- [ ] When to Use DP
- [ ] Chapter 1 Quiz

Strategic Approach to DP

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

Common Patterns in DP

- [ ] Iteration in the recurrence relation

- [ ] Example 1335. Minimum Difficul...
- [ ] Minimum Difficulty of a Job Sch...
- [ ] Coin Change
- [ ] Example 139. Word Break
- [ ] Word Break
- [x] Longest Increasing Subsequence
- [ ] State Transition by Inaction
- [ ] 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

- [ ] State Reduction
- [ ] Min Cost Climbing Stairs
- [ ] Counting DP
- [ ] Paint Fence
- [ ] Coin Change 2
- [ ] Decode Ways
- [ ] Kadane's Algorithm
- [ ] Best Time to Buy and Sell Stock
- [ ] Maximum Sum Circular Subarray
- [ ] Chapter 4 Quiz

DP for Paths in a Matrix

- [ ] Pathing Problems
- [ ] 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