Top Graph Problems

Math Interview Problems

String Problems Difficulty Level

Array Problems Summary

Merge Intervals Example

Fast and Slow Pointers

Matrix Pattern Problems

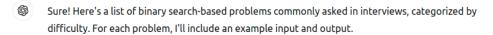
Two Pointers Problems

Binary Search based top 15 problem commonly asked in interview questions.

give input and output of the problem.

list 5 easy, 5 medium, 5 hard difficulty problems.

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Easy

1. Binary Search in a Sorted Array

- Problem: Given a sorted array and a target value, return the index of the target value using binary search.
- Input: `[1, 2, 3, 4, 5]`, target = `3`
- Output: `2`

2. Find the First Occurrence of a Target Value

- Problem: Given a sorted array and a target value, find the first occurrence of the target
 value.
- Input: `[1, 2, 4, 4, 4, 5]`, target = `4`
- Output: `2`

3. Find the Last Occurrence of a Target Value

- Problem: Given a sorted array and a target value, find the last occurrence of the target
 value.
- Input: `[1, 2, 4, 4, 4, 5]`, target = `4`
- Output: `4`

4. Find the Position to Insert a Target Value

- Problem: Given a sorted array and a target value, find the position at which the target
 value should be inserted.
- Input: `[1, 3, 5, 6]`, target = `5`
- Output: `2`

5. Search Insert Position in Sorted Array

- Problem: Given a sorted array and a target value, return the index where the target should be inserted in order.
- Input: `[1, 3, 5, 6]`, target = `2`
- Output: `1`

Medium

1. Rotated Sorted Array Search

- Problem: Given a rotated sorted array and a target value, find the index of the target
 value.
- Input: `[4, 5, 6, 7, 0, 1, 2]`, | jet = `0`
- Output: `4`

2. Find Minimum in Rotated Sorted Array

- Problem: Given a rotated sorted array, find the minimum element in the array.
- Input: `[4, 5, 6, 7, 0, 1, 2]`
- Output: `0`

3. Find Peak Element

- . Problem: Given an array, find a peak element where the element is greater than its neighbors.
- Input: `[1, 3, 5, 6, 4, 2]`
- Output: `2` (index of `5`)

4. Search in 2D Matrix

- Problem: Given a 2D matrix where each row and column is sorted, search for a target
- Input: `[[1, 4, 7, 11], [2, 5, 8, 12], [3, 6, 9, 16]] `, target = `5`
- · Output: `true`

5. Square Root of a Number

- Problem: Compute the square root of a non-negative integer `x` using binary search.
- Input: `8`
- Output: `2` (integer part of the square root)

Hard

1. Find the Kth Smallest Element in a Sorted Matrix

- Problem: Given a `n x n` matrix where each row and column is sorted, find the `k`-th smallest element.
- Input: `[[1, 5, 9], [10, 11, 13], [12, 13, 15]]`,k=`8`
- Output: `13`

2. Median of Two Sorted Arrays



- Problem: Given two sorted arrays, find the median of the combined sorted array.
- Input: `[1, 3]`, `[2]`
- Output: `2.0`

3. Find the Smallest Good Base

- Problem: Given a number `n`, find the smallest base `k` such that `n` can be represented as $k^m + k^m + k^m + k^0 = 1$.
- Input: `13`
- Output: `3` (smallest base)

4. Find the Number of Distinct Islands

- . Problem: Given a grid, find the number of distinct islands. An island is considered distinct if it has a different shape.
- Input: `[[1, 1, 0, 0, 0], [0, 1, 0, 0, 1], [0, 0, 0, 1, 1], [0, 0, 0, 0], [0, 0, 0, 0, 0]]
- Output: `2`

5. Find Minimum in Rotated Sorted Array II

- · Problem: Similar to the previous minimum problem but with duplicate elements allowed.
- Input: `[2, 2, 2, 0, 1, 2]`
- Output: `0`

These problems will help you get comfortable with various binary search techniques and variations!

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Is this conversation helpful so far? 🕜 🗸 🗴

Upgrade plan



Chatter i can make mistakes. Check important mro.