DATA STRUCTURE ALGORITHM QUESTIONS

Just simplified my experience here…

Hope it goona help you all…

Save this pdf and thanks me later

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Microsoft Interview process

Online Assessment Round

Online assessment is the process of conducting a test online to gauge the participants' learning and mastery over a particular subject.

3 question have been asked and 75 min allotted.
Difficulty level is Medium
All problems should be done in order to get a call for technical interview rounds

Data Structures and Algorithms Rounds (3 Rounds)

The candidate is asked DS/Algo problems where production ready code might be expected from the candidate. It is not out of the realm of possibility to face minor behavioural questions here as well. The problems range from easy to hard but they are not the sole deciding factor for the final offer. Leadership principles also come into play here. The interviews are conducted on Amazon Chime.

The main focus of these technical rounds are to check problem solving ability of a candidate.
Be prepared it well

HR Round (1 Round)

This is when they ask computer science theory and behavioural questions to the candidate. The questions may enquire about the candidate’s experience at previous companies and conflicts the candidate might have faced with colleagues/managers.

Should prepare all HR questions

Previously Asked Questions

Easy Level

- Delete middle of linked list
- Intersection of two Sorted Linked Lists
- Length of the longest substring without repeating characters
- Level order traversal in spiral form
- Lowest Common Ancestor in a Binary Tree | Set 1
- Boundary Traversal of binary tree
- Breadth First Traversal or BFS for a Graph
- Check if binary representation of a number is palindrome
- Construct Tree from given Inorder and Preorder traversals
- Maximum width of a binary tree
- Merge two sorted linked lists such that merged list is in reverse order
- Merge two sorted linked lists
- Mobile Numeric Keypad Problem

- Number of buildings facing the sun
- Pairwise swap elements of a given linked list
- Print all Jumping Numbers smaller than or equal to a given value
- Print all subarrays with 0 sum
- Print nodes at k distance from root
- Implement Queue using Stacks
- Design a stack that supports getMin() in O(1) time and O(1) extra space
- Diameter of a Binary Tree
- Find next greater number with same set of digits
- Find N'th item in a set formed by sum of two arrays
- Find the element that appears once
- Binary representation of a given number
- Find max in struct array
- Find if two rectangles overlap
- Calculate the difficulty of a sentence
- Check if a linked list is Circular Linked List
- Converting Decimal Number lying between 1 to 3999 to Roman Numerals
- Count distinct elements in every window of size k
- Count all possible paths from top left to bottom right of a mXn matrix

- Evaluate a boolean expression represented as string
- Find common elements in three sorted arrays
- Find the number closest to n and divisible by m
- Find position of the only set bit
- Find the Missing Number
- Inplace rotate square matrix by 90 degrees | Set 1
- k largest(or smallest) elements in an array | added Min Heap method
- Level Order Tree Traversal
- Merge Sort
- Run Length Encoding
- Sort all even numbers in ascending order and then sort all odd numbers in descending order
- Square root of an integer
- URLify a given string (Replace spaces is %20)
- Find the middle of a given linked list in C and Java
- Write an Efficient Function to Convert a Binary Tree into its Mirror Tree
- Find the row with maximum number of 1s
- Find the two non-repeating elements in an array of repeating elements
- Function to check if a singly linked list is palindrome
- Generate n-bit Gray Codes

- Given only a pointer/reference to a node to be deleted in a singly lin
- How to determine if a binary tree is height-balanced?
- Remove all duplicates from a given string
- Remove every k-th node of the linked list
- Reverse Level Order Traversal
- Reverse words in a given string
- Root to leaf path sum equal to a given number
- Search a Word in a 2D Grid of characters
- Search an element in a sorted and rotated array
- Sort a linked list of 0s, 1s and 2s
- Sort an array of 0s, 1s and 2s
- Sorted insert for circular linked list
- Stock Buy Sell to Maximize Profit
- The Celebrity Problem
- Tree Isomorphism Problem
- Two elements whose sum is closest to zero
- Union and Intersection of two Linked Lists
- Given an a
- Write a function to reverse a linked list

- Write Code to Determine if Two Trees are Identical

Medium Level

- Find four elements that sum to a given value | Set 2 (O(n^2Logn) Solution)
- Find next greater number with same set of digits
- Find the number of islands | Set 1 (Using DFS)
- Flattening a Linked List
- Find Recurring Sequence in a Fraction
- Two nodes of a BST are swapped, correct the BST
- Implement a Phone Directory
- Implement LRU Cache
- Manacher's Algorithm - Linear Time Longest Palindromic Substring - Part 1
- Median in a stream of integers (running integers)
- Travelling Salesman Problem | Set 1 (Naive and Dynamic Programming)
- How to design a tiny URL or URL shortener?
- K'th Smallest/Largest Element in Unsorted Array | Set 2 (Expected Linear Time)
- Largest Rectangular Area in a Histogram | Set 2
- Largest Sum Contiguous Subarray
- Length of longest palindrome list in a linked list using O(1) extra space

- Dynamic Programming | Set 29 (Longest Common Substring)
- Longest Even Length Substring such that Sum of First and Second Half is same
- Maximum size rectangle binary sub-matrix with all 1s
- Merge k sorted arrays | Set 1
- Merge two BSTs with limited extra space
- Minimum steps to reach a destination
- Multiply Large Numbers represented as Strings
- Placements | QA | Progressions
- Print all nodes that are at distance k from a leaf node
- Printing brackets in Matrix Chain Multiplication Problem
- Reverse a Linked List in groups of given size
- Validity of a given Tic-Tac-Toe board configuration
- Given an a
- Write a function to get the intersection point of two Linked Lists.
- Write an Efficient Method to Check if a Number is Multiple of 3
- Backtracking | Set 7 (Sudoku)
- A program to check if a binary tree is BST or not
- Boggle | Set 2 (Using Trie)
- Check if a binary tree is subtree of another binary tree | Set 2

- Dynamic Programming | Set 33 (Find if a string is interleaved of two other stri
- Clone a linked list with next and random pointer | Set 2
- Combinational Sum
- Connect nodes at same level
- Construct Binary Tree from given Parent Array representation
- Program to convert a given number to words
- Count number of binary strings without consecutive 1's
- Detect and Remove Loop in a Linked List
- Detect Cycle in a Directed Graph
- Dynamic Programming | Set 22 (Box Stacking Problem)
- Dynamic Programming | Set 8 (Matrix Chain Multiplication)
- Factorial of a large number
- Find the first circular tour that visits all petrol pumps
- Find all distinct subsets of a given set
- Find Excel column name from a given column number
- Find the first non-repeating character from a stream of characters
- Dynamic Programming | Set 37 (Boolean Parenthesization Problem)
- Sort an array according to the order defined by another array
- Topological Sorting

- Trapping Rain Water

Tips for Microsoft Interview Preparation

Gauge Your Plans - Microsoft is a deeply diverse company that deals with several different technologies. It is necessary as a candidate to go through the entirety of the company's businesses, what they do and figure where one fits, and where one sees themselves going forward. Understanding how things work on the inside can help come up with the right answers during the interviews.

Focus On Specifics - From how you have solved certain problems in a previous project to answering how you deal with working in a team, be specific about your experiences. This gives the interviewers a closer view into who you are as a person and how likely you are to be a good fit.

Know Beyond Microsoft - While it is a good idea to know what is happening inside Microsoft, it is important to know what is happening in the larger technology scene as well. Having a good understanding of newer areas with potential or even existing competitors can give you the edge when answering about what you want to do inside the company.

Be Thorough with Data Structures and Algorithms - At Amazon, there is always an appreciation for great problem solvers. If you want to have a good impression of the interviewers, the best way is to prove that you have worked a lot on developing your logic structures and solving algorithmic problems. A good understanding of Data Structures and Algorithms and having one or two good projects always earn you brownie points with Amazon.

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