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Microsoft Interview Experience for SDE-1 (Hyderabad)

- Difficulty Level :\nHard
- Last Updated :\n28 Mar, 2022

I have around 1.5 years of experience and received a call from a recruiter through LinkedIn.

Round 1 (Difficulty Level \xe2\x80\x93 Medium): Codility test of 90minutes comprising 3 coding questions.

- **First question:** Minimum number of parentheses required to make the string a valid parenthesis.
  This question is expected to be solved in a single traversal else it gives TLE.
- **Second question:** Smallest substring occurring only once in a given string
  https://www.geeksforgeeks.org/smallest-substring-occurring-only-once-in-a-given-string/
- **Third question:** Related to matrix and DP, was hard and time-consuming
- Required to solve 50% to reach the next round

Round 2: (Technical Interview Round-1) Difficulty Level \xe2\x80\x93 Medium: The interviewer has provided a codility link and asked me to solve a single problem.

- **Question**: Given a BST, find two incorrectly placed nodes in the tree.\xc2\xa0
  \xc2\xa0**Note** \xe2\x80\x93 First solve it using a brute force approach and then provide an optimized solution. I solved it using simple inorder traversal and have given the required output.
- The interviewer was very friendly and helped me whenever I got stuck.

Round 3: (Difficulty Level \xe2\x80\x93 Hard): The interviewer has given a codility link with two problems and asked me to solve them.

- **First Question:\xc2\xa0** https://www.geeksforgeeks.org/program-generate-possible-valid-ip-addresses-given-string/
- **Second Question:** Given 2 cities A and B and given an array of pairs (costA, costB) where costA = cost of moving people to city A and costB = cost of moving people to city B. Write a program to move 2N people into both cities A and B such that N people are in A and N people are in B and the cost is minimum.
  Approach: I sorted the array based on the difference in the cost of both cities. Sorting can be done using a comparator interface in Java.

Round 4: (Difficulty Level \xe2\x80\x93 Medium): This round was taken by the project manager.

- Asked to design a tiny URL system, considering my years of experience, the interviewer has helped me with the basic design problem of getting the requirements and calculating the throughput.
  https://www.geeksforgeeks.org/system-design-url-shortening-service/
  \xc2\xa0

Round 5: (Difficulty Level \xe2\x80\x93 Hard): This round was taken by Software Engineering Manager. Provided a codility link with 1 problem to solve

- **Question:** Given 2 values N, Sprint all combinations of N numbers such that their sum is S.
  Example: Input \xe2\x80\x93 N=2, S=6\xc2\xa0
  Output : [0,6],[1,5],[2,4],[3,3],[4,2],[5,1],[6,0].
- The problem could have been simple if N = 2, but \xc2\xa0N varies and repetitions are allowed

and all combinations are allowed. I solved it using a recursion approach where one number is kept constant and started filling other numbers such that sum equals S.

Round 6: AA round (Difficulty Level \xe2\x80\x93 Medium): This is the final round called AA (As Appropriate) . The interviewer has given a codility link with 1 problem to solve.

- **Question:** Given an array of 2N numbers, rearrange the array such that even numbers are in even indexes and odd numbers are in odd indexes. No extra space to be used.
- Solved it using a single traversal, and the interviewer has tested the code against multiple test cases and all corner cases\xc2\xa0

Suggestion: Primary focus in Microsoft is on problem-solving and system design skills. Practicing LeetCode and Microsoft tagged questions on gfg helps a lot.

- \xc2\xa0https://www.geeksforgeeks.org/microsoft-interview-preparation/

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