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Microsoft IDC Interview Experience | Set 83 (On-Campus)

- Difficulty Level :\nMedium
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I recently got placed in Microsoft IDC .Here\xe2\x80\x99s my Interview Experience \xf0\x9f\x99\x82

The first two rounds were conducted by Cocubes.com in our campus. The other rounds were onsite. Microsoft was declared a dream company in our campus, students of streams CSE/ECE/MCA/MTech were eligible to sit.It had come for both Internship and Full time Positions.

Round 1 : Technical Aptitude

The first round consisted of 15 questions to be done in 30 mins.
The MCQs were based on C.C++,Java and some Operating System questions. Around 200+ from our college sat for this round.

Round 2 : Online Coding Round

After the first round around 100 (consisting of the internship students as well) students were shortlisted for the second round.This round had two coding questions to be done in 90 mins. Everyone got different sets of questions. The questions I got were :

1. Given two arrays were digits of one array represent a number,maximize the number by replacing it with elements of second array.
   eg:
   arr = {3,1,4,5,6}
   rep = {1,9,5,2,3}

   after replacement
   arr = {9,5,4,5,6}
   one digit of rep can be used to replace only once.
   For this almost everyone who got this question used a brute force method.But I had used a different approach .I constructed a max heap of rep array.And ran a loop checking if the max element of rep was greater than the element in arr and then replaced it in arr and deleted the same from the maxheap.

2. Given a matrix ,where each cell represents a value of strength.The value could be positive negative or zero. At each cell the strength value is added.You have to reach from point (0,0) to point (m-1,n-1) if at any point the strength becomes zero or negative then you cant proceed further.Find the minimum strength required before starting to reach the end of the matrix.
   eg . {{ 1,-3,0},
   {-2,1,-1}} Ans: 2 ((2+1+(-2)+1+(-1)=1 path taken)
   I gave a DP solution but was unable to pass a few test cases in this question.

After this round around 15 students were shortlisted (including me \xf0\x9f\x98\x80) . After some days we got these results and then we received an invitation for On-site interview at MSIDC, Hyderabad

Round 3 : Written coding round

Around 30 students consisting of students from other colleges as well were called On-site. This was a written round.Everyone was given around 45 mins and 1 question.

1. Given the root to a binary tree, a value n and k.Find the sum of nodes at distance k from node with value n. This is similar to this question on geeks ->https://www.geeksforgeeks.org/print-nodes-distance-k-given-node-binary-tree/
   I was able to do this quite quickly \xf0\x9f\x98\x80 I even explained my answer to the HR and he asked me to write different types of test cases to exhaustively check if my code works on all of them.

After this round around 14 people were shortlisted.

Round 4 : Technical Interview
This was a personal interview round .The interviewer asked me about myself and the projects I have done so far.We briefly discussed those projects.
Then he gave me two questions to solve :

1. Find and element in a rotated array https://www.geeksforgeeks.org/search-an-element-in-a-sorted-and-pivoted-array/
2. Given two linked lists both represent a number. Create a linked list that contains its sum
   Same as ->https://www.geeksforgeeks.org/sum-of-two-linked-lists/

These were fairly easy questions . I knew the solutions and explained it to the interviewer.He asked a few questions on them , seemed satisfied.Asked me if I had any questions for him . Well one thing I realized after giving interviews was when they ask the candidate for any questions then you should always ask something , shows that you are interested. So I asked him about the different technologies that a new SDE would work on and things like that. I had a pretty good discussion with him he told me many things from his end too.
I made it to the next round then \xf0\x9f\x98\x80

Round 5: Technical Interview

This round was about Design questions . If you go through the previous interview sets , you will notice that Microsoft does asks Design questions to test the candidates ability to solve a real life problem. Everyone got different questions in their personal interview. The question I got was :

1. You have to design a Text Editor like notepad . You are concerned about the following functionalities \xe2\x80\x93 insert, delete, and search.You can assume the other functionalities of the text editor like save , display of text,etc are handled by some other developer. You just have to suggest what kind of data structures you would use to carry out the concerned functionalities efficiently

   \xe2\x80\x93 He told me to take my time and give the solution. I gave him a solution of considering the text as a linked list of words . Where each node in the linked list contained the word string and an index .And for every node in the linked list I will have Trie structure. I used trie for efficient search.What I suggested was that I use the trie whenever the user enters a word and insert it into the trie and the leaf of that word will contain the index of that word plus the pointer to that node in the linked list . If suppose the trie already has the word then i increase the word count in the leaf and the leaf will contain a vector that has the list of indexes where the word has occurred and the list of pointers where the word is present in the list.I wrote the code and explained how it can handle all corner cases . We discussed the solution and he asked me certain questions on different test cases . My approach handled them well. He seemed satisfied . He added to the question that the search query could contain words or phrases . So my use of indexes could handle the phrase search \xf0\x9f\x99\x82 . I also suggested that instead of Trie data structure we could use a Ternary Search Tree as that would be more space efficient.

I was a bit doubtful about this round but I made through \xf0\x9f\x98\x80 After this round only few

students made through to the final round .

Round 6: HR+Technical Interview

The interviewer was quite experienced and very pleasant. He asked me how my previous rounds went.He was going through my performance review from the previous rounds. He took a glance though my CV and asked me about the projects I did. He saw that I had interned at IITB so he asked me a lot on that project. He also asked me some basic HR questions like Why should Microsoft hire you ? Where do you see yourself in the next 5 years ?.He was very impressed with my academic record and my AIEEE rank. Asked me how I handled my 12th board exams and entrances.He made it very comfortable and was almost chatting and getting to know about me.

1. Then he asked me about the question given to me in the previous round i.e Text Editor . I gave him a brief explanation on my approach . He then gave me another question based on Text Editor. He asked me how could I retrieve K most Frequent words from the text efficiently. Thankfully I was just going through this question just before this round \xf0\x9f\x98\x80 . I suggested the solution using Trie and Min Heap.
Similar to -> https://www.geeksforgeeks.org/find-the-k-most-frequent-words-from-a-file/
He asked me to write the code for the same. I wrote it down and explained it to him.
2. The next question he gave me was :- Given a binary search tree , print the path which has the sum equal to k and has minimum hops. i.e if there are multiple paths with the sum equal to k then print the path with minimum number of nodes.
First I gave him the brute force approach . Similar to ->https://www.geeksforgeeks.org/root-to-leaf-path-sum-equal-to-a-given-number/
But I knew it wasnt using the fact that we have a Binary Search tree . So the interviewer gave me some hints \xe2\x80\x93 like what is main criteria of a BST . I immediately figured out that the minimum path will always be on the right side of the node because it has the larger value. I told him the solution he seemed satisfied..

He then asked if I has any questions for him . So I asked him about where I can improve myself , he said I didnt need any improvement I am doing very well and that I should jus keep doing what I am doing \xf0\x9f\x98\x80 That certainly made my day \xf0\x9f\x99\x82 I asked a couple more questions about Microsoft and then left.

Finally after a week the results came I received the mail that I had been shortlisted for a Full Time Position \xf0\x9f\x98\x80

Tips :

- Have a good grasp on Data Structures. Solve as many problems possible from Geeks4Geeks
- Be confident in the interview . Have a smiling face and be adaptable to the question . The interviewer can anytime change or twist the question just to confuse you.
- The interviewers are very helpful , if you feel stuck communicate with them ..explain your approach they will give you hints.
- When the interviewer gives the question listen to it carefully do not immediately rush to writing the code .. ask him about the different criteria and restrictions pertaining to the question.
- Check your code with all possible test cases and list them.
- Lastly , even if you arent able to get the right solution then just explain your approach . Recruiters analyse how you tackle the problem not necessary that you have to have the accurate solution.

Thanks to geeksforgeeks it really helped me through my placement prep. The wide range of questions on Data Structures certainly helped a lot.

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