MICROSOFT

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Round 1: Aptitude
15 questions on C, C++, General tech, Quants in 30 minutes.

Round 2: Coding
Write 2 functions(not entire programs) in C language on cocubes.com platform
Q.1 Find an element in a rotated sorted array in O(log n) time.
        For ex. Find 4 in 7 8 9 1 2 4 5
A binary search technique could also do it in O(log n). They wanted an optimized binary sort and so I felt, the question wasn't clear enough. Didn't attempt it and told the interviewer the reason.
Q.2 With a parent pointer in every node of a binary tree, find the inorder successor of a given node.
Solved only the second, but I ensured it could work on all boundary cases.
Results of round 2 were declared on the day Microsoft visited the campus.

Round 3: Tech Interview (Another code-round for some people before this)
Started with my experience in the earlier rounds and asked me to explain on white-board, how I would have attempted the first question in round 2.
Asked me my interests, and I mentioned Data structures. Questions on trees followed:
1. How would you find least common ancestor of two nodes in a binary tree?
I said you could use two stacks, push nodes as you traverse and then compare when you are popping. He asked me to explain on the whiteboard. I did, but realised there was a problem, I looked at him and he was there, smiling as wide as he could. I asked for 2 minutes, and then gave him a better approach with a stack and a hash table. He seemed satisfied.
To get an idea, you could see :
http://www.geeksforgeeks.org/lowest-common-ancestor-binary-tree-set-1/
2. How would you optimize it for a binary search tree?
3. How would you identify two nodes that have been swapped in a binary search tree?
4.Find a string in a 2D character matrix in any order(horizontal/vertical/diagonal).
(Had a long long discussion on this. Asked me to write code, but he got bored before I could fill up a page.)
Tip: Keep talking while you are solving a problem/writing code. This keeps him informed of your progress and if you are lucky, you might receive some help.
He repeatedly had been asking me stand up and sit to explain everything on the board. So eat adequately on any interview day.

Round 4: HR Interview
Asked me to write a function for reversing characters in a string and left the room.
I wrote 4 lines of code to swap characters from ends.
A vague question it was, he returned and explained what he wanted later. It was his fault but I politely apologized for not understanding the question.
Remember: The boss is always right!

He wanted the string to be reversed alphabetically. So if it was "adecb", it should become "edcba".

I wrote code. He had a 2-second glance at it, and then asked for an explanation.

Asked me to explain my projects.

Then a few HR questions about family, achievements, why Microsoft, future plans, etc

Round 5: Creative Interview

A happy two hour discussion-cum-interview on designing another Facebook, all data structures, algorithms that can be used and features, optimisations that could be added.

I asked him a few conceptual questions related to his subjects of interest and he answered delightfully. He gave me his email ID to contact him for more knowledge and for a second I missed my heartbeat, coz that might mean he won't meet again. But results were announced and there he was, shaking my hands with a gleaming smile.

Overall, it was a great experience interacting with them. Seemed to be a nice bunch of interesting people, looking for intellectual conversations with students.

Stay calm. Stay happy. Cheers!