

Microsoft Internship Experiences

Name *

Akanksha Agarwal

Group Fly Round

In this round two coding questions were given and we were supposed to solve them on paper. All of us were divided into groups of 7-8 and assigned a mentor who we could ask doubts. My mentor did not insist on discussing approach for the questions while some others did. They expected proper code with optimized approach to be written on paper in 1 hour.

1st question : Find the number of palindrome sub-strings in a given string.

2nd question: Traverse a 2D matrix in a spiral starting from the top leftmost element of the matrix.

I was already aware of the 1st question since it is one of the previous year questions asked by Microsoft and so I wrote the code correctly in less time.

For the 2nd question I had written the wrong code in the beginning. One of the people from Microsoft suggested me to dry run some test cases if I am done with writing code and that is when I saw the mistake in the code for the 2nd question.

So I re-wrote the code in another 15 minutes by which the time was over.

Interview - 1

The interviewer asked me 2 coding questions and about my B.Tech project. This round lasted about 40-45 minutes.

1st question : When a file is being downloaded how is the progress of the file downloaded tracked? For eg. with time the progress shows 15% then 40% and so on. How would you code this? He expected me to write proper code for the same on paper. We had a long discussion about this question and I asked him lots of questions. I wrote the code and he was satisfied.

2nd question : Write code to print all combinations of a string. For eg. if the string is abcd the output should be a,b,c,d,ab,ac,ad,bc,bd and so on. I gave him an approach which was a bit complex and he suggested me to think more about it. He gave me a hint by asking how many combinations are possible for a string to which I said $2^n - 1$ where n is the length of the string. From that we can use binary representation of number from 1 to 2^n to print alphabets at positions where there is 1 in the representation. He gave me time to write proper code for the same on paper. I did write the code and he seemed satisfied.

Then he asked me about my B.Tech project which was related to prediction and classification. I explained to him and that was the last question.

Interview - 2

The interviewer asked 2 coding questions. He expected me to write the proper code for both of them on paper.

1st question : There is an array of n players each having some ranking/score. The ranking may not be unique. Write code to make a team of k players from these n players such that all have unique ranking. The code should output the indices of these players included in the team from the original array.

For this question I gave him multiple approaches. He asked for better space complexity and time complexity both. Some of my solutions had good time complexity while bad space complexity. So hashing was the correct approach. I wrote code using C++ maps where the key was the ranking of a player and its corresponding value was the index of the player with that rank such that only one player for a rank is present in the map.

2nd question : We have a string of digits and an integer k. For k iterations we modify the string in such a way for every digit we must write its number of occurrences in the string next to it. For eg. given string is '1233'. For k=3, 1233->112132 (in 1233, 1 is 1 time, 2 is 1 time and 3 is 2 times) ->132231 (in 112132 1 is 3 time, 2 is 2 time and 3 is 1 time) -> 122232 (in 132231 1 is 2 times, 2 is 2 times and 3 is 2 times). I wrote the code for the same and he checked and discussed my approach. I had not handled one test case and so I corrected and he said it's correct.

That was the end of 2nd round. It lasted about 20-30 minutes.

Interview - 3

This was the last round. While none of the other interviewers asked for my resume, she did. She commented that everybody had done the same projects since the same projects were mentioned in the resumes of people before me. So she asked about my B.Tech project and I explained it to her. She also asked if I had done something unique/different in the terminal based file explorer project which no one else had done. I explained her about the project a bit and told her how editing of input is not possible in non-canonical mode which I tried to implement which less people had done. She seemed satisfied by my explanation. Then she asked me a coding question which was to join node in a graph at the same level without extra space. She expected me to write the code for it on paper and gave me time for it. I took some time and in the end explained the code. She insisted that this code will not run for all test cases. I told her that it would. We traced it and she could not find a condition that would fail. She still felt it would fail at some condition but let me go since she could not find a problem in the code there.

Interview - 4

Remarks

The interviewers were really nice and made me feel comfortable. They seemed patient and interested in actually talking and discussing approaches. Also we should not try to give the most efficient approach in one go because probably it will be wrong. When they ask a question, listen to them carefully and ask questions if you don't understand the question. Start from the simplest approach and convey it to them. They'll let you know what kind of answer they are looking for (better time complexity, space complexity etc) and steer you in that direction.

In your opinion, how one should prepare for Microsoft?

For the group fly round referring the previous year questions was really helpful and we should start from that. For the interviews I suggest understand the basic data structures and their applications. Questions are not that difficult in general and they don't expect you to give 100% correct answer. They are just interested in why you answer with a specific approach and if it can be better.

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