

Microsoft Internship Experiences

Name *

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Group Fly Round

It wasn't actually a group fly round, as seniors told and I read on several portals. 2 coding questions were given, we had to write optimized solution on paper, in one hour (which was sufficient time)

1. Longest substring which is a palindrome.

e.g. : Input : feabcdcbalko

Output : abcdcba

I was not getting the $O(n^2)$ solution. For the sake of answering, I wrote $O(n^3)$ solution, which shouldn't be acceptable at all. But it got accepted, so atleast you should write some neat and clean code, if you dont know the optimized solution.

For this question you should read :

<https://www.geeksforgeeks.org/longest-palindrome-substring-set-1/>

<https://www.geeksforgeeks.org/longest-palindromic-substring-set-2/>

2. Print Spiral order of a $m \times n$ matrix.

e.g. Input :

1 2 3 4

5 6 7 8

9 10 11 12

Output :

1 2 3 4 8 12 11 10 9 5 6 7

I took 4 variables: row_beg, row_end, col_beg, col_end, and in a while loop print the four directions, right, down, left, up, and changed those 4 variables accordingly, not a very good solution but acceptable. You can use your creativity.

One solution:

<https://www.geeksforgeeks.org/print-a-given-matrix-in-spiral-form/>

For this specific round you cant be sure about what should be the correct way to get shortlist. Just write neat and clean solution with corner cases handled. You can first write a sudo code on rough paper then on fair paper.

Interview - 1

Interviewer : What is your name?

Me : Anurag Chaturvedi

Interviewer : Hi, my name is Megha

Me : Hello

Interviewer : What are your strengths?

I told her about my strengths, she was scanning my resume, but she was only pretending, may be she was waiting for samosa and chai, because she didnt notice that I had work experience and later she got surprised when I told her.

Interviewer : You have a string, how will you find a longest substring with no repetition of characters.

I took my time and told her my approach before writing the code, she got convinced and told me to write the code.

I will suggest, if you are not so sure then also tell her your approach, they will help you. Then I wrote the code, she took her time to understand it. (Dont rush, explain your code patiently)

Interviewer : What is the time complexity?

I explained.

Interviewer : How will you allocate memory to 3 D array?

I wrote the code and explained her pointer concept.

I wrote something like this : (which was correct)

```
int *** arr = new int ** [X];

    for (int i = 0; i < X; i++)
    {
        A[i] = new int * [Y];

        for (int j = 0; j < Y; j++)
            A[i][j] = new int[Z];
    }
```

Interviewer : Disadvantages of recursion?

I told her about stack overflow and all.

Interviewer : Difference between read only variables and static variables.

I told her whatever I knew about constants and static variables.

Interview - 2

He asked my name, then asked for resume.

Then he asked whether I have worked on Multi-threaded environment.

I said, I worked on Torrent like project in OS, but didnt mention it in resume. Then asked me to explain it. Then he asked what were the challenges I faced and how I resolved them. Then he asked about Semaphores. I answered, I was sure in that so I emphasized on words like, "critical section" "race condition" etc. Then he asked few more questions on same topic, which was my intention.

Then he gave coding question. You have a tree and each node has an extra pointer which needs to point to the right sibling.

I took some time and then told him about my approach, then he asked me to write the code. I wrote the code* and explained him, he was satisfied.

Then he gave another coding question. You have n points, a point means x and y coordinate. You need find a line (either vertical or horizontal) on which maximum points will lie. I told him that I will maintain count for every x point and y point, whichever will be the maximum will be the answer. He asked about space and time complexity, I said both will be $O(n)$. He said trade off between space and time complexity. I told one $O(n^2)$ solution with constant extra space. He was not happy. Then after some time he said, okay no problem, I have got your good feedback, so leave it, but I insisted and after 2 mins I told him $O(n \log n)$ solution with constant extra space. He asked few questions and said, yes thats what I want.

Interview - 3

Interview - 4

Remarks

My both interview rounds were good, but may be that was what I thought. Or as Harshit sir said, it depends on luck, it may or may be not your day.

In your opinion, how one should prepare for Microsoft?

Strings, Linked List and Trees should be on priority. They dont ask DP. Standard problems on Geeks will be sufficient.

<https://www.geeksforgeeks.org/must-coding-questions-company-wise/?fbclid=IwAR29FCVEgkEdRB5mT8w4ksXvwfOFriSgkinUvcoUzR5SsoDXbD7Fc4HfiGw#microsoft>

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