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Microsoft Interview | Set 32 (On-Campus for Internship)

- Difficulty Level :\nMedium
- Last Updated :\n13 Aug, 2014

Recently Microsoft conducted an on-campus interview at my college. It consisted of 5 rounds which were all on-campus. They were as follows:

Round 1(online)(30 minutes):
Consisted of 15 mcqs mostly related to c/c++ and probability. It was fairly easy and very few people were eliminated.

Round 2(online)(1 hour):
We had to write two programs in this round.

1.A sorted list of strings interspersed with NULL in random indices is given. Return the position of a given search string. Return -1 if string not present.
ex:\xe2\x80\x9da\xe2\x80\x9d,
\xe2\x80\x9cb\xe2\x80\x9d,\xe2\x80\x9d\xe2\x80\x9d,\xe2\x80\x9d\xe2\x80\x9d,\xe2\x80\x9dc\xe2\x80\x9d,\xe2\x80\x9d\xe2\x80\x9d\xe2\x80\xa6. find
\xe2\x80\x9cb\xe2\x80\x9d . o/p: 2

Just a simple linear search will suffice.

2. Given an array of integers where all the elements occur odd number of times except 3 elements which occur even number of times, find the 3 elements.

A brute force solution is fine. You may also use a hashmap.

The above two rounds were hosted by cocubes.com.

Round 3(Group fly round)(30 minutes) :

Groups of 5 were made amongst the remaining candidates. Each group was assigned an interviewer and we were given a problem to solve.

Write a program to rotate a square matrix 90 degrees clockwise using constant space.

Round 4(F2F)(90 minutes):
The interviewer asked a lot of questions about my projects. Spent about 30 minutes on questions related to NLP and machine learning. Asked me about SVMs, neural nets, back propagation etc.

Then he moved on to programming questions. I was asked to program a regular expression(regex) matcher. Given a pattern string and an input string return true if the two match. The regex special characters like * and ? had to be taken into consideration. Basically if there is a \xe2\x80\x98?\xe2\x80\x99 in the pattern string any character in the input string can take its place. Same goes for \xe2\x80\x98*\xe2\x80\x99 but in this case any number of characters can replace it in the input string.

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\r\nExample: a*b matches acdb\r\n         a?b matches acb\r\n         a*b does not match bca\r\n         a?b does not m
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The rest of the interview involved making modifications to this program. For example, modify the program so that it returns true on a partial match, i.e. even if the pattern is present inside the input string.

Round 5(F2F):
This round started with questions like why do you want to work for microsoft? Tell something about yourself etc.
Then came the final round of technical questions.
I was asked to write 2 programs and answer some theoretical questions.
1. Given a MxN matrix of 0s and 1s convert all rows and columns to 0 which have at least one 0 in them. You can use O(m) space.
2. Given a matrix of characters and an input string, return true if the string is present in the matrix.

```
\r\ninput string = ABCDE\r\nMatrix =  A    T   G\r\n          B   E    H\r\n          C   D    V
```

Output: string is present.

Some final questions:
1. Some questions about b trees. Don\xe2\x80\x99t remember the exact questions.
2. Describe an algorithm to balance a binary search tree.
3. Describe another algorithm for the same.

This was the final round.

I would like to thank the geeksforgeeks team for providing us with such a fantastic platform.

Hope this helps at least some of you.

Thank you.

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All Practice Problems for Microsoft !

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