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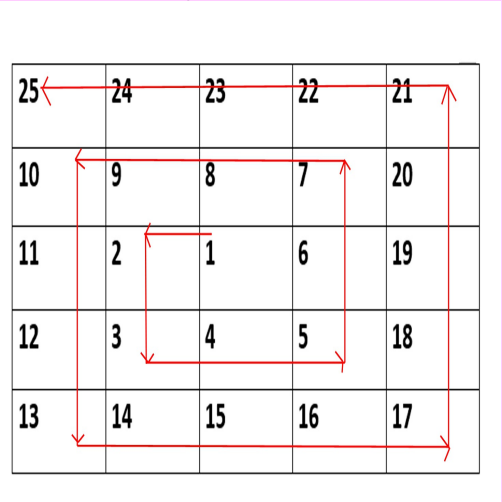
Microsoft Interview experience | Set 107 (On-Campus for Internship)

- Difficulty Level :\nHard
- Last Updated :\n08 Feb, 2018

Round 1: Coding
Q.1 A 5*5 matrix of spiral order is



Now for an N*N spiral matrix filled similar to one given above, find element present at [R,C] position where R=row\xe2\x80\x99s number, C=column\xe2\x80\x99s number.
Constraint: You can\xe2\x80\x99t create matrix itself. Print number without creating matrix explicitly.

Q2. Given a string S and two indexes i & j, modify the string in a pattern such that:
characters from [0 to i] index are now at back of the string.
characters from [j till end of string] are in front of string.
e.g. S = \xe2\x80\x9cabcdef\xe2\x80\x9d and i=1, j=3.
Output should be: \xe2\x80\x9cdefcab\xe2\x80\x9d
Constraint: Constant Space.

Q3. https://leetcode.com/problems/simplify-path/

Round 2: Group Flyer
Q1. Given an array of positive integers, sort the array in a manner such that when all the elements of new array are concatenated in a string, the number formed is maximum.
e.g. input: [12,9,32]
output: [32,9,12]

Q2. In a native language alphabets are in this order:
a b d c k l g h ng q r
given two string str1 and str2, find which one is larger among the 2. (larger means rankwise more e.g. if \xe2\x80\x9cda\xe2\x80\x9d and \xe2\x80\x9cc\xe2\x80\x9d are given then \xe2\x80\x9cda\xe2\x80\x9d > \xe2\x80\x9cc\xe2\x80\x9d as d comes first).
write this function:

```
\r\n   bool compare(char* str1, char* str2);\r\nreturn 1, if str1 > str2.\r\nreturn -1, if str2 > str1\r\nreturn 0, oth
```

Interviews: We needed to write our code on a paper.

First F2F round:

Q. https://leetcode.com/problems/letter-combinations-of-a-phone-number/
I did it using recursion and then he asked me to think about iterative approach. One que of DBMS, I told him I am from ECE and haven\xe2\x80\x99t studied DBMS. Then he asked what courses I have done from CSE dept. I told him OOP, DS, Architecture, Network.
Finally he asked if I have any questions. I asked about diff b/w MSIDC and MSIT.
Second F2F Round:

Q1. https://www.geeksforgeeks.org/find-longest-path-directed-acyclic-graph/
He gave me this que and asked to solve it in 45 minutes. First he asked about approach. I told him the approach and procedure how I am going to code it.

Then he changed the question I don\xe2\x80\x99t know why and next ques was:
Q2. In a degree \xe2\x80\x98N\xe2\x80\x99 tree. Find LCA of 2 given nodes. All elements are unique in tree.
First I gave him a general solution. He didn\xe2\x80\x99t seem convinced because of space complexity and told me to think more. I answered approach in which we can store path from root node to given nodes and match the path. He was convinced then and told me to wait for 5 minutes before 3rd round.

3rd F2F Round:
He asked me about myself. Then he asked what part I like most in DS. I said trees, linked list.

Q1. Given 2 numbers \xe2\x80\x98N\xe2\x80\x99 and \xe2\x80\x98M\xe2\x80\x99 where \xe2\x80\x98N\xe2\x80\x99 > \xe2\x80\x98M\xe2\x80\x99 and last a range of indexs [i,j] between (1,32) which denotes indexes in binary representation of \xe2\x80\x98N\xe2\x80\x99, change all the bits in this range to bits of number \xe2\x80\x98M\xe2\x80\x99. Also (j-i) is equal to most significant bit of \xe2\x80\x98M\xe2\x80\x99
e.g. N=9 :: (binary) 000000\xe2\x80\xa60001001
and M=2 :: (binary) 000000\xe2\x80\xa60000010
and (i=1,j=2) implies 1 to 2 bits of N has to be changed such that they are equal to M\xe2\x80\x99s bits.
expected output: 10 :: (binary) 000000\xe2\x80\xa60001010
where (\xe2\x80\xa6) = 19 zeros
First I didn\xe2\x80\x99t get it but then he explained with above example.
Answered it in O(32) in second go.

Q2. Populate next pointer in a binary tree in O(1) space.

Connect nodes at same level using constant extra space

Q3. Something about Deadlock. I asked about the subject and He said OS. I told him I haven\xe2\x80\x99t studied this. He calmly said \xe2\x80\x9cOhh Okay no problem\xe2\x80\x9d \xf0\x9f\x98\x9b

Finally someone from their team told me \xe2\x80\x9cWe are done for the day, You can leave\xe2\x80\x9d \xf0\x9f\x98\x9b

Total 11 students were selected.

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All Practice Problems for Microsoft !

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