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Amazon Interview Experience | Set 201 (On-Campus for SDE-1)

- Difficulty Level :\nEasy
- Last Updated :\n28 Jun, 2019

Aptitude Round: (1:30 hours)
20 MCQs
MCQs on processes, maths aptitude, \xc2\xa0and algorithms etc . Few output questions on pointers.

2 Coding questions: (\xc2\xa0on hackerRank)

- Given 2 strings, check if any one of them has any anagram of the other string, as a substring of it.
- Graph question : (not mentioned directly as graph, but was implied). basically Needed to find the shortest path between two given vertices in the graph.

Interview:
Round 1:

- BST to Doubly Linked List (Geeks question){code it}
- for Doubly Linked List to BST conversion,\xc2\xa0give an algorithm and prove\xc2\xa0its complexity using\xc2\xa0recurrence\xc2\xa0relations. \xc2\xa0=> O(nlogn)
- On a number line from negative infinite to positive infinite, if you start from 0, you can either jump back or front. but every jump length is 1 more than the previous jump. Given a number on the number line, can we reach it using any combination of jumps. If yes, print the minimum length path. Hint:\xc2\xa0Solved using Queue storing all possibilities, something similar to BFS. and BFS search wud always give shortest path.

Round 2:

- Given an array of Integers, find the Maximum length subarray with sum equal to zero.\xc2\xa0 Solved by constructing Prefix sum array for the given array. In prefix sum array, any number repeating more than once, implies subarray between those indices is 0, so store length of this subarray, check for other repeated values too. (careful coding required to eliminate bugs) Additionally had used a HashMap(java) to do this solution time efficiently. {code it}
- Return largest BST from a BT (geeks question)\xc2\xa0{code it}

Round 3:

- Tell me About your Internship project. (It dealt with Performance bench-marking for embedded Systems (SoC) with respect to latency and bandwidth \xc2\xa0done at \xc2\xa0Samsung R&D B\xe2\x80\x99lore).
- Given a 2-D matrix of zeroes and ones, any row/column containing a single 1 is made completely 1. (available on geeks) I told him I know the space and time\xc2\xa0optimized\xc2\xa0solution to it (as provided by geeks). Asked me to code it\xe2\x80\xa6 had some bugs, took some time to debug a particular corner case.{code it}\xc2\xa0
- He Modified above question, providing conditions -> if there are no\xc2\xa0limitations on the\xc2\xa0space used, and if\xc2\xa0accessing each cell has a cost attached to it, how would you do the same problem in least cost.\xc2\xa0

- Given a tree with three pointers in every node, left, right and next, connect all the nodes at the same level in a spiral fashion. eg root\xe2\x80\x99s next points to right child which in turn points to roots left child which in turn points to level 2\xe2\x80\x99s 1st left child \xe2\x80\xa6 and so on\xe2\x80\xa6 any node could have 0,1 or 2 children.(geeks)

Round 4:

- Given the function : int func(int n) { if(n==1) return 1; return n* func(n-1)*func(n-2) +\xc2\xa0func(n-1)*func(n-2) + func(n-1); } \xc2\xa0// What is its space complexity.
- Given a\xc2\xa0\xc2\xa0in-coming stream of numbers (either 0, 1 or 2), Design a Finite state machine\xc2\xa0which tells me if the number formed by the input stream so far, is divisible by 3. \xc2\xa0eg stream state is \xe2\x80\x9c012\xe2\x80\x9d return true, coz 12 is divisible by 3.. for \xe2\x80\x9c0111\xe2\x80\x9d return false\xe2\x80\xa6 \xc2\xa0\xc2\xa0{ Design the FSM }
- Proposition logic question with 5 statements given, determine their truth.\xc2\xa0(Solved using common sense, but wanted me to prove it mathematically)
- Given an int represented in Big Endian form, convert into into Little Endian, where the number of bytes taken up by int is not provided.\xc2\xa0 Ex: if int is of 4 bytes and input integer n= A B C D , => o/p = D C B A => n2 \xe2\x80\xa6 where the alphabets represent a byte. return n2.\xc2\xa0 Involved Bit manipulation. { Code it}
- The one thing you regret from the past 3 years in college.

Round 5:

- Introduce yourself.
- Given an n-ary tree, traverse it in level order, printing a particular element in each level(that particular number is returned by function \xe2\x80\x9cfunc1(int level)\xe2\x80\x9d. Gave an O(N) time and O(N) space complex solution, followed by\xc2\xa0an O(N) time and O(1) space complex solution. {code it}
- Advantages/Disadvantages of a static variable inside a class in java.
- Performance implications of the static variable inside a function in C.

Selected as a full time employee.\xc2\xa0

Tips:

- Have a loud thinking, the interviewer helps you if you get struck. Ask ALOT of questions. At least he will know what you are thinking or where you are going wrong at.
- Write neat code,\xe2\x80\x9dtake your time\xc2\xa0\xe2\x80\xa6..as much as you like\xe2\x80\x9d.
- Make sure the interviewer has approved the algorithm before you start coding. Discuss full algorithm before you code. He may ask you to think in a more optimized manner.
- Study \xe2\x80\x9cgeeksforgeeks.org\xe2\x80\x9d well, especially the tree sections, and dont mug up the code, its no use, you will not remember when needed, instead, understand why every minute detail of the code. This will take u further.
- Study basics of every computer related subject taught in class. No need to be experts, but having an idea helps.
- Mostly it is about data structures and algorithms. Make sure you are comfortable with them.
- Side note: Help others and just do good. Neither hard work nor luck pays. Its all about your destiny. Dont get worked up about these things. Life has more purpose.
- \xc2\xa0\xe2\x80\x9cKarmaane vadhi karaste ma faleshu kadhachanam..\xe2\x80\x9d \xe2\x80\x93 Gita

above line means \xe2\x80\x9cKeep doing good deeds, dont expect rewards..\xe2\x80\x9d\xc2\xa0

\xe2\x80\x9cNasrum Minallaahi Wa Fathun Qareeb\xe2\x80\x9d \xc2\xa0\xe2\x80\x93 The Holy Qura\xe2\x80\x99an

Above line means, \xe2\x80\x9cWhen comes the help of Allah, Victory is near\xe2\x80\x9d

Best of luck \xc2\xa0\xf0\x9f\x99\x82 \xc2\xa0

Thank You geeksforgeeks teams.. Thanx a ton \xf0\x9f\x99\x82 \xc2\xa0

And thanx to my parents, and friends who helped me alot.

\xc2\xa0

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All Practice Problems for Amazon !

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