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Amazon Interview Experience | Set 243 (2.5 Years Experience)

- Difficulty Level :\nMedium
- Last Updated :\n25 Jun, 2020

Coding round (1 hour):
1.\xc2\xa0Spirally traversing a matrix
2.\xc2\xa0Add two numbers represented by linked lists
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Face to Face Round 1 (Technical ~ 1 hour)
1. Introduce yourself and give me a brief about what projects are you doing currently?
2. What was the challenge you have faced in your current project?
3.\xc2\xa0Given a running stream of integers. I need to find the median of the running stream. I gave \xc2\xa0 solution using heaps. He was interested in the approach using tree, after a hint i was able to solve it using tree. He was convinced by my approach
4.\xc2\xa0Design a data structure in which the operations like insert , delete and finding minimum element should be done in O(1) time complexity. I told him that i have already done this question so he was just interested in logic.
5.\xc2\xa0Given n non-negative integers representing an 2-D elevation map where the width of each bar is 1, i need to compute how much water it is able to trap after raining.

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Input: arr[] = [0, 1, 0, 2, 1, 0, 1, 3, 2, 1, 2, 1]\r\nOutput: 6\r\n       | \r\n   |   || |\r\n_|_||_||||||\r\nTrap "1
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Face to Face Round 2 (Technical ~ 1 hour 10 min)
1.\xc2\xa0Introduce yourself and tell me the most challenging project you have done in your career. Lots of discussion on project part and challenges i have faced.
2. Given an unsorted array which contains unique numbers from 0 to 999 and size of array is 1000. At one of the index the element has been replaced by some other element. I need to find the original element. Only logic was required.
3. An infix expression is given and i need to evaluate this expression. I told him that this is standard question, so he just asked me the logic and ask me to convert the infix expression to post fix expression.
4. An binary tree is given. He asked me to serialize and deserialize the given binary tree. I gave him the approach using pre order traversal and store the elements in array and using another array which will store whether a node element is leaf node or internal node. He was convinced with the approach.\xc2\xa0Then he asked me to write the code for the same logic.
5. Discussion on what data structure i will use to implement recommendation engine. e.g. if someone buy mobile from Amazon, it should recommend the ear phones, power bank etc. It was a good discussion.

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Face to Face Round 3 (Bar Raiser ~ 1 hour 30 min)
1. Trapping rain water question was asked again. I did not tell him that i had already done this question in my first interview round. Eventually he came to know that i had done this question already. So he asked me another question.
2. Given a 2-D plane and number of points are given on that 2-D plane which are represented by its (x,y) co-ordinates. So i need to find the maximum number of points which can be lie on a single line.
Answer : I gave the solution using hashing, i calculate the slope using any two points, now one by one checks the slope with other points if slope matches i will increase the count for that particular slope in hash map. Now i will traverse the hash map and find the maximum. Time complexity\xc2\xa0$O(n^2)$.
Then discussion happens on what if slope comes out to be something that can even not be stored in type \xe2\x80\x9clong double\xe2\x80\x9d, what to do then.
3. LRU cache implementation. I told him that i knew the answer already. So he asked me a different question.
4. Given an array of integers. I need to modify the array so that each index of array contains product of all elements except for the its own index element. Twist is that i need to do it without using division(/) operator. I was able to solve it with a little hint.
5. Given a post order traversal of a binary search tree. He asked me to write a clean code to create a BST using the given post order traversal and return the root of the BST.
6. Given a stream of characters which can contain only alphabets [a-z]. I need to find the whether there is a duplicate element present or not and accordingly return true or false. He was interested in the worst case time complexity.

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Telephonic Round 4 (Hiring Manager ~ 1 hour)
1. Introduce yourself and give me a brief career background of yours.
2. Why you have left your previous company?
3. Why you are leaving your current company so early?
4. Why Amazon?
5. What is the most challenging thing you have done in your entire career? Give me the implementation details, what was the situation and how have you handled it?
6. Tell me a situation when you have suggested your manager a better idea of solving a problem and he has to go back and used your idea and done the things again.
7. Tell me a situation when your manager has disagreed to your ideas and why?
8. Given a sorted and rotated array. I need to find the search the given element in this array. Expected time complexity was O(log n).

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TIPS
1. Practice to write the code using pen and paper.
2. Keep trying to solve the problem, they will definitely give you hints wherever you stuck and you can capitalize on those hints to solve the problems.
3. Be honest with the interviewer.

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Amazon people were friendly all during the process.
A Big thanks to geeksforgeeks for making everything easy.

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All Practice Problems for Amazon !

My Personal Notes\n*arrow_drop_up*

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