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Amazon Interview Experience | Set 291 (On-Campus for SDE1)

- Difficulty Level :[Hard](#)
- Last Updated :[05 Jul, 2019](#)

Amazon visited our campus for SDE_1. The entire interview procedure was divided into a coding round and a set of 4 face to face interview.

Online coding round:

It was a 90 minutes test with 22 questions(20 MCQs + 2 coding) set hosted on HackerRank.

Coding questions:

1. [Reverse words in a string.](#)

Example: Let the input string be "like this program very much". The function should change the string to "much very program this like".

2. [Largest length of subarray with given sum.](#)

MCQs consisted of OS, Geometry, Basic Maths, C, Recursion and such topics.

Whoever solved atleast two questions were chosen for the interviews.

F2F 1(Technical):

He asked me about my Summer Internship Project at Microsoft India Development Centre, Hyderabad and asked me about several technologies involved in it and why I had used certain things.

Then he moved on to two technical questions.

1. [Given a sorted and pivoted array, find an element given to you.](#)

I had given him a $O(\log n)$ solution with pivot finding and then doing binary search in either halves. But it was a $O(\log n) + O(\log n)$, so he asked me to modify it to a one $O(\log n)$ question. After giving him the solution, he asked me to write production level code considering all corner test cases.

2. Given a BST which consists of marks of students in a class. It is found that all even ranked students have cheated, so we reduce k marks from their score. Modify the BST to make the change of marks without considering that after this operation, the BST might not remain a BST anymore.

I gave him a modified inorder traversal so that elements are sorted and solved it using a counter variable. He asked me to modify it to using neither a static counter variable nor a pointer passed to the recursive calls. For both questions, he also asked me the time and space complexity.

F2F 2(Technical):

He asked a very brief idea about my Summer Internship again. Then he asked me 2 questions again.

1. [Given a k sized window in an array, find max element in each window.](#)

<https://www.geeksforgeeks.org/maximum-of-all-subarrays-of-size-k/>

I discussed a lot with him as to which data structure could be used and finally came up with a Queue solution. I was asked to code it again considering all the corner cases.

2. [Implement a queue using stacks with the operations](#) (Enqueue, Dequeue, IsEmpty, Size).

While I was telling him the solution, he even asked me whether I would prefer Arrays or Linked List implementation when I make a normal queue.

(Space and time complexity for both)

F2F 3(Technical):

He also asked me a brief introduction to my Summer Internship Project.

He began with the pros of cons of arrays and linked lists. Then a question on arrays:

1. [Given an array with all even elements present even number of times except one which is present odd number of times. Find that element.](#)

I started with XOR solution, but he told me the OS doesn't support XOR. So, I gave him a HashMap solution. He went on asking me to optimize further. So at the end I had a space complexity of $O(k)$ where k = number of unique elements.

Asked me the Space and Time complexity of the most optimized solution.

2. Given four types of array

a) Increasing(1,2,3,4) b) Decreasing(4,3,2,1) c) Increasing-decreasing(1,2,3,4,7,6,5) d) Decreasing-increasing(5,4,3,2,1,6,7,8)

Find the type of array in $O(1)$ and then find the maximum element in the array.

Except case c, max element is $O(1)$. For c, I gave binary search solution. he asked me to write the code considering the corner cases.

F2F 4(Bar raiser):

He asked me what my favorite subject was. I told DS, so he asked me from DS.

1. Write a class of circular queue using array implementation with Enqueue and Dequeue member functions.

2. [Given a binary matrix\(filled with 0 and 1 only\) where 0 depicts water and 1 depicts land. We can traverse either up or down or left or right. Given a source and destination, find if we can reach the destination.](#)

He then modified it to finding the path followed and then the minimum path possible.

(Code wasn't required)

3. Given a series of operations to build a project along with the time taken by each operation. Some operations are dependent on previous operations. Find the minimum number of days needed to finish the operation.

I wasn't very sure of the solution I was thinking, so he said it was okay and concluded the interview.

Tips:

1. Keep sharing your idea with the interviewer, he would help you a lot.
2. Don't give up, you might come up with a brilliant idea with a little more thinking.

And do remember:

If it doesn't end well then it probably hasn't ended yet

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