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Amazon Interview Experience | 6-months Internship (Off-Campus)

- Difficulty Level :\nEasy
- Last Updated :\n03 Nov, 2021

I applied for the 6 months internship through referral at the end of November. I thought if you apply through a referral it takes only 1-2 days to get back from HR but after 2-3 days, when no one contacted me I thought I am not going to hear back from them. But after two weeks, I got the mail about the online coding round.\xc2\xa0

Round 1: Online Coding Round\xc2\xa0
There were 2 coding questions and 28 MCQ.\xc2\xa0
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1. Infix to Postfix conversion
2. Very easy string manipulation problem\xc2\xa0
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I was able to solve both of them.\xc2\xa0

After two days, they told me about the onsite interview and that I had to go to the Amazon Bangalore office.\xc2\xa0
On the day of the interview, I went to the office. There were about 70-80 other students.\xc2\xa0

Round 2: Technical Interview\xc2\xa0
This was 60 minutes round and 2 coding questions were asked. I solved one completely and one partially. My interviewer was cool and friendly. Although he was not smiling a lot, he made me feel like we are having a discussion about the question. He started with the usual About you question and then directly jumped to the coding questions.\xc2\xa0
Q1. You are on the ground stair and you have to reach \xe2\x80\x98Nth\xe2\x80\x99 stair. At any stair, you can take at most \xe2\x80\x98K\xe2\x80\x99 steps. Find the total number of ways you can reach the Nth stair.\xc2\xa0*int countWays(int N, int K)*\xc2\xa0
He explained to me the question, then explained it through a sample test case. And then asked me to first explain the approach and if he is satisfied with the approach, then only I can code. He told me that he will also note things down on his laptop.\xc2\xa0
Firstly, I gave him the recursive brute force solution(Because that\xe2\x80\x99s what CTCI says). Then he asked me to optimize it. Then I gave him the DP-approach with time complexity O(N*K) and space complexity O(N). Then he asked me to further optimize it. I used another variable to store the sum of last K stairs and increase its value for ith stair and decrease for (i-k)th stair. Now my time complexity was O(N) and space complexity was O(N). I thought that now I can code, but he again asked me to optimize the space. Then I gave him O(K) space queue solution. Now he was satisfied with the approach and asked me to code it. Again he explained to me what he is expecting while writing the code. (Readable, modular, indented, meaningful variable name).Then I wrote the code, he checked it and was satisfied.\xc2\xa0
Q2.\xc2\xa0Smallest string with swaps \xe2\x80\x93 http://https//leetcode.com/problems/smallest-string-with-swaps/\xc2\xa0
It was difficult for me to come up with the brute force solution and I told him. Then he gave me some hints, and with his help, I came up with a brute force solution. After that, we had some discussion that whether the brute force solution will always give the correct solution. After that, he asked me to optimize it, which I was trying but he told me that time is up and if I have any questions. I just asked him about the role of the intern and which team is hiring the intern.\xc2\xa0

After 15 minutes, they told me that I am moving the next round.\xc2\xa0

Round 3: Technical Interview\xc2\xa0
It was also 60 minutes round and 3 coding questions were asked. First, he asked me to give a brief introduction. Then he asked me about my internship and my projects. Then he told me what he is expecting from me in this round. He told me that he will ask 2-3 questions, depending on the time, and I need to explain to him the logic first, and then code. Also, follow good coding practices. He told me that he will I cannot overwrite writing the code, and that he will write the exact code on his machine(not sure if he really did that, but he was typing something on his laptop).\xc2\xa0
Q1. Trapping rainwater problem\xc2\xa0
Firstly, gave him the brute force solution O(N^2). He told me to optimize it. Then gave him the leftMax and rightMax array approach. He said I can code now. While writing the code, I made sure to keep it clean, made it as modular as I can, use the descriptive variable name. He looked at my code, asked me a few questions, and then moved to the second question.\xc2\xa0
Q2.\xc2\xa0https://www.geeksforgeeks.org/dynamic-programming-building-bridges/\xc2\xa0Since I\xe2\x80\x99ve already done this question, I told him that I just need to find the LIS in the array. He told me how I would do that. I gave him O(N^2) approach. He said it is okay and asked me to code.\xc2\xa0
Q3. It was an easy question. He asked me there is a land, and there is a lake inside. I need to find the size of the lake. I told him that I can use 1 for land, 0 for water, and then apply DFS when I encounter any 0. Then he asked questions on DFS and how I will do that. I explained to him my approach and then he asked me to write the pseudo-code for it.\xc2\xa0
Then he asked if I have any questions. I asked him some questions.\xc2\xa0

Then after about 20 min, HR called him and congratulated me.\xc2\xa0

Advice for interview\xc2\xa0
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1. No matter how much time is left, make sure your code follows good practices. I remember a time when I thought I will write code super fast and then explain to him the code, but it doesn\xe2\x80\x99t work like that. They will keep the paper where you wrote the code, and then later review it in case they have any doubt on you. So make sure, what you write is clearly understandable. Your code, your logic, your diagram, your test cases.
2. Make sure you are having discussions and not an interview. Make sure to explain your approach and your answers to his/her questions in a way that makes it look like a discussion. How? Explain things like you know things, don\xe2\x80\x99t just guess, explain why you are thinking recursive solution.
3. Always look up on the internet the answers to your questions. The next interviewer might ask you.

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