

## Microsoft Interview Experience | Set 140 (On-Campus For Internship)

- Difficulty Level : [Expert](#)
- Last Updated : 18 Dec, 2018

**Written Test:** 75 minutes online round (Cocubes) in which 3 simple questions were asked. A pool of questions was there and each person will get random questions in each difficulty level. CGPA cutoff was 7. Nearly, 45 people appeared for the test.

- Given an array of penalties, an array of car numbers and also the date. Output the total fine which will be collected on the given date. (Fine is collected from odd-numbered cars on even dates and vice versa). (2 marks).

Input: Car numbers = {2375, 7682, 2325, 2352} penalties = {250, 500, 350, 200} Date = 12 Ans = 600

- [Find the length of the longest proper prefix which is also a suffix.](#) (3 marks).
- [Count BST subtrees that lie in a given range.](#) (5 marks).

After submitting, more rigorous test cases were run. Extra marks are awarded for time and space optimized solutions. 14 people were selected for the next round.

Suggestion: Check each and every edge case and try to avoid  $O(N^2)$  solutions.

**Group fly round:** It was a pool interview. Around 50 students were selected from different colleges. Each group was assigned a mentor and consisted of 6-7 members. He asked 3 questions which were very easy.

- [Find the missing number in the array](#)
- [Given a linked list. Find if it is palindrome or not.](#)  $O(1)$  space.
- [Convert the number to words.](#) ( $0 \leq n \leq 99,99,999$ ).

Input: 5708 = five thousand seven hundred eight.

We have to write the code (complete code) on the paper and the mentor will come to see our approach. The mentors are really helpful and encouraging. They demanded the code with  $O(N)$  time and  $O(1)$  extra space. 50% of the students are eliminated after this round.

Suggestion: Try to talk to the mentor and discuss your approach with him. Be very fast in this round as everyone will be equally good (Try to complete writing the code first).

### Round 1 (Technical 1h 30min):

The interviewer was a senior guy in Microsoft. He said he has 19 years of experience. He directly started with a question.

- [Given two linked lists. Return True if all the elements in the first list are present in the second list.](#)

Input: L1: 1->2->3 L2: 2->4->1->5->3 Ans: True

First, I told to use hashmap and to store and compare. Then he said no to use extra space. Then I said to traverse the two lists and delete the node from the second list whenever you find a match. He was satisfied with the approach and asked me to write it.

- [Given a sorted rotated array and an element. Return the index of the element.](#) I said  $O(n)$  approach first. Then I said to use binary search to find the pivot and then search the element. He asked if I can do it in one pass binary search. After discussing the approach he asked me to write the code.

Suggestion: Take your time. Write neat and proper code. Do rough work on another page. Only if you are sure then start writing the code.

### Round 2 (Technical 1h 30min):

The interviewer was very friendly and jovial. He asked me to introduce myself and meanwhile, he was looking at my cv. He said he will ask one question and I should write the code within 5 minutes.

- [Print the level order traversal line by line. I used a queue to solve the problem.](#) He was very much satisfied with my code. So, he asked me a simple question next.
- [Given an array and the number. Find two elements whose sum is equal to the given number.](#) First I said  $O(N^2)$  solution. He asked me to optimize. Then I said to use the hashmap. He was satisfied and asked me to write the code. He asked how hashmap is implemented and what is the process inside it.
- He asked for my favorite language. Then he asked me questions on polymorphism and how it is implemented.

This round was very easy. The interviewer just sees your confidence and approach to the problem. While writing the code, don't be silent try to talk to the interviewer and tell him your approach.

### Round 3 (Technical + HR 1h 30min):

This was the toughest interview. The interviewer was very strict and smart. He saw my projects and asked me to explain one project on machine learning. I started saying but he intervened and said I will ask you only one question. You can answer it and go.

- You are given with a string with scrambled characters and the dictionary. Find all possible valid words which can be formed from the given string. I said to use Trie to store the dictionary and perform DFS to search in it. Then he said not to do unnecessary traversals. Then I asked him in what complexity he wants. He said the best I can do. Then I told him to hash all the occurrences of the characters in each string in the dictionary. He asked me to prove that the hash function is collision free. I tried for a long time and he said it's okay.

Since I couldn't answer, he asked me few more questions on HR. Finally, he was satisfied with my answers and asked me if I had any questions. I asked him some questions about his role and my work in the internship.

Suggestion: Don't be tensed if you didn't get an answer. They will just see how you approach the problem and how can you handle the stress. Keep thinking and asking questions and try to interact with your interviewer with a smile on your face. Don't walk off immediately, ask some questions in return.

The interview experience was really good. Interviewers were so friendly and smart. They will give you hints if you are stuck. Geeksforgeeks helped me a lot in preparing for the interview. Almost all the questions were already available on GeeksforGeeks.

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