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Microsoft Interview Experience (SDE II)

- Difficulty Level :\nHard
- Last Updated :\n15 Aug, 2018

Round 1:

First round was machine test that comprised 3 questions.

1. Given an array of numbers in range (0 \xe2\x80\x93 49) and queries having start index and end index, find maximum element for each query. (I used square root decomposition).
2. Given N natural numbers, 1 is missing, find the number. Then, the interviewer expanded the problem to find 2 or more missing numbers.
3. Given a continuous stream of strings, find top 10 largest strings at any instant. Following link will be helpful.

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Round 2:

This round was based on HLD (high level design).

1. Design a search engine. Handle the cases of Auto-Correction and Text-Prediction (like modern search engines). Explain\xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 (Tries + DFS + String Handling). Then, we discussed about Search Engines and how user experience can be\xc2\xa0 improved.

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Round 3:

This round was based on my projects at Delhivery.

1. Discussion on Green Threads and how are they different from kernel level threads. Explain using multithreading and\xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 multitasking. Which one performs better. (I used green threads in I/O intensive tasks.)

2. Design an authentication using AWS services like Api gateway and lambda.

3.\xc2\xa0Then, he asked me about my Google Summer of Code project and my contributions to open-source and we had a very\xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0healthy discussion.

Round 4:

This round was taken by a senior manager.

1.\xc2\xa0Given an array of integers of size n. An element at index i is called peak element if arr[i \xe2\x80\x93 1] < arr[i] > arr[i + 1] for i in range 1\xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 to n \xe2\x80\x93 1 OR arr[i] > arr[i + 1] for i = 0 OR arr[i] > arr[i \xe2\x80\x93 1] for i = n \xe2\x80\x93 1; Find all peak elements in an array in less than O(n)\xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0

\xc2\xa0 time complexity.

2.\xc2\xa0You are given many files of 6 GB, each having stream of integers. You have space of 4 GB left in your main memory (mainly to\xc2\xa0 \xc2\xa0 \xc2\xa0 \xc2\xa0 swap out, swap in). You have to store sorted sequence of integers in all file in a other output file. How will you do that?

Then we had discussion on Red black trees, sharding, redis internals, concept of single threaded applications and event loop .etc.

Round 5:

This round was based on Behavioral Skills taken by HR team.

They asked several situational based questions like if there is some tussle between you and your manager regarding some implementation, how did you tackle that. Was your manager convinced.

After 1 month I got a call from HR that I have been selected.

My Personal Notes\narrow_drop_up

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