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Microsoft Interview experience | Set 114 (2.5 Years Experienced for SDE2)

- Difficulty Level :\nHard
- Last Updated :\n20 Dec, 2018

1st Round :- (1 hr)

1. There is a graph where each node represents a city and it contains specific no. of people. A tournament is going on and each match is playing in one city. All city\xe2\x80\x99s people gather to watch match. Traffic department wants to manage how many people travel through city x if match is playing in city y for each x. City x and y can be any city.
   Code & edge case
   Soln :- DFS with optimization O(n)
2. Torch problem : There is a bridge and N no. people takes (a1,a2,\xe2\x80\x94an) time to cross it and there are K torch and at any time x no of people can pass the bridge and it takes maximum of x people to cross it. Minimum time required to cross it.
   Devise algo and write down code
   Solution :- Sort array take x min pass it from one end to another. Bring min among them to one side send x maximum to other side and again bring 2nd min from other side again send x max follow it in cyclic way If all x min reached to one end again send x min to another side. DS used Dequeue.

2nd Round :- (1hr)

1. Program to calculate x^y in log(y) .
   There focus is on all edge case he want me to write down all test case and validate my code.
2. Design bus booking system:- Each row has x seat. If customer wants K seats if you have K consecutive seats available, reserve them. Otherwise give seats from any row.
   Focus on DS & code
   Solution :- Create adjacency list like 1 seat available in which row. 2 seats available in which row and so on and do the operation for each reserve call

3rd Round :- (1.5hr)

1. Change characters of strings to another set of characters in place. You can increase length of string one time.
   ab->bc
   cd->ki
   Focus on Code & Edge case
2. An array is increasing upto a number and then decreasing find the the pivot number.
   All edge case & program. Your program should handle all edge case.
   I propose if it contain duplicate Or if whole array is large it can\xe2\x80\x99t fit into memory and their solution.
   They wanted to see about edge case being handled.
3. E-commerce architecture related to my past experience. I had taken marker and explained it on white board. It will give you more advantage .

4th Round :-(1hr)

1. String matching problem one string contains wildcard characters. Code & edge case & recursive diagram. All test case and validate it .

2. [Maximum length of Sub-array contain increasing then decreasing](#) . Code & Edge case

5th Round :- Engineering Manager (45 min)

1. Design a crawler to fetch code from n system and merge it
   Speak aloud what are you thinking about..
2. Class design, Operation, Entity
   Solution : Like Github with version & Conflict & Backup & Job
   Engineering Manager really impressed with my Scalable design approach

6th Round :- Hiring Manager (1hr)

1. There are n no of pages and when a user visits page x it is writing in a log file. Recommend
   each user a page from his past experience .
   Solution : Treat page as a node and weight is how many times he visited from page x to page y.
   Maintain map of user and adjacency list and do the operation.
   Code & edge case & Most important they try to create some hostile environment to judge you
   how much you are fit for any environment & But if you tackle it they are very friendly.

   Tips : Ask questions if you have any confusion .

Thanks to GeeksForGeeks. Whole process took around 1 month .

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