

HARSHIT SINGH

Interviewer- room 1

Q) Given a binary tree such that the level order traversal of the tree yields a sorted array. Find a target value in the binary tree. (vv. imp)

Q) Construct a data structure which can perform the following operations

- 1) INSERT X
- 2) PRINT

INSERT X will insert x into your data structure.

When PRINT function is called ith time then ith max value is printed.

Q) Given a function F5 which prints a number from 1 to 5 equally probably. Make F7 using F5

A- Make F25 by mapping 1,1→ to 1

1,2→2 and so on, now when we have F25, we can make F21 by repeating the function until output is <

Yash Gautam

Round1

- 1) Discussion on project
- 2) Given a string s, char c and int m. You can replace the string s char upto m times. You have to find the length of consecutive char c length in string s after replacement.
  - a) find for q queries in each query value of c and m will change.
  - b) no of queries is around  $10^8$ .
- 3) Rapid fire round on OOPS/ C++ Concept.
  - a) Inline function and why we use it.
  - b) template in c++;
  - c) operator overloading, function overloading,

Round 2

Question related to project

- 1) <https://leetcode.com/problems/sliding-window-maximum/>
- 2) Given a binary tree, you have to put camera on some nodes. One camera on a node will cover that node as well its adjacent node. Find the minimum number of camera to be placed to cover the tree completely.
- 3) The input is a stream of integers. U need to design a Data Structure which supports the following operations all in O(1) time complexity
  - a) insert
  - b) search
  - c) delete
  - d) get a random number (must be in the data structure already) all with equal probability

Sudeep Paul

Round1

- 1) There are four classes, A, B , C, D.

Four arrays are given which represent the intelligence value of students in respective classes.

Find the number of ways of choosing a set of 4 students (one student from each class) such that their sum of intelligence values is strictly greater than k

- 2) Given n people arranged in a circle. Initially sword is with person 1. Person 1 kills person 2, passes the sword to person 3 . Now person 3 kills person 4, passes the sword to person 5 and so on... This keeps on going until a single person remains in the game

Find the winner of the game

- 3) Given a  $n \times m$  grid. Each cell of the grid contains one of the four arrows ( up, down , left , right). From any cell, you can move only in the direction of its arrow, however you can also change the direction of the arrow, which will cost you Rs 1

Find the minimum cost required to reach  $(n,m)$ th cell starting from  $(1,1)$ th cell.

- 4) Design a chess game using OOPs Projects....

Round 2

- 1) Given a m-ary tree, where each node is either an industrial city, or a tourism city. The root node will always be the main city. Beauty of the tree is the sum of the tour values of all the industrial cities

TOUR VALUE = number of tourism cities encountered in the shortest path from industrial city to the main city( i.e root node)

Assign each node(city) of the tree as Industrial/Tourism (except the root node) such that beauty of the tree is maximum

- 2) There are n ships and m weights. Distribute these m weights among n ships such that the difference between the maximum and minimum weight assigned to ships is minimum.

(You can assign any number of weights to a ship)

In other words, assign the weights     equally among ships as much as u can

3) Rapid fire on C++ language basics, OOPs and projects

Astha:

Round 1:

Q1 : Given a function F5 which prints a number from 1 to 5 equally probably. Make F7 using F5

Then ask me about random function..

Then some questions related to vector

Project discussion

Oops : difference between struct and class

C++ compiler steps

Primitive data type

Allocate memory in c++.