Interviewer name - Vikram
Q1. Mirror of a binary tree
Q2. Print bfs or dfs order of a given tree.
Q3. Print all the permutations of a string in sorted order.
Q4. Do you know any type of sorting algorithm? Implement it.

Interviewer name - Anmol Kansal
Q1. Given a level order and inorder traversal construct the tree and find the root
Q2. Find the intersection of two linked lists
Q3. Sort a string of alphabets
Q4. find the subarray with xor equal to given value
Q5. Pillars of OOPs and one line description
Q6. Asked about the projects
Q7. Topological sort using bfs (kahn's algo)/dfs
Q8. Hashing/unordered map how to break collisions
Q9. Pigeon hole principle and application
// Didnt ask me to implement any question was satisfied with the i

Interviewer name - Praveen (Not sure)
Q1. Given N houses in horizontal line, and an array representing the money in each house. You have to rob the maximum amount of money such that robbing a house restricts you from robbing adjacent houses.
- Dynamic Programming

Q2. Follow up for the above one, instead of being horizontally placed they are circularly placed.

Q3. Given N doors, all closed initially. iterating N times, each time multiples of i are toggled (Close -> Open, Open -> Close) (i : 1 to N). How many doors will be open at the end?
- Odd factored Numbers (i.e. Squares)drt

Q4. Implement Square root function (finding floor in case of non perfect Squares).

Atul Kumar
Interviewer's name - chinmay

Special Queue:
Design a queue that supports the following operations with the given time complexity:
1. enqueue - `O(1)`
2. clone - `O(1)`
3. print - `O(n)`

Q1.enqueue(1)

Q1.enqueue(2)

Q1.enqueue(3)

Q2 = Q1.clone

Q1.enqueue(4)

Q2.enqueue(5)

Q1.print()-> 1,2,3,4

Q2.print()-> 1,2,3,5

2. Project Discussion

Interviewer's name - Praneth
Q1. Given an array club the elements in that array such that odds come to one side and even comes to the other.

Q2. Given root node and two random nodes . Find the LCA.

OOPS Problem.
Difference between runtime and compile time polymorphism.
What is difference between function overloading and function overriding?.

Interviewer - Dinesh Shukla
Q1. linear vs non linear data structure
Q2. average runtime complexity of merge, bubble and quick sort
Q3. working of quicksort
Q4. mainly about project
Q5. how does logistic regression work
Q6. Coding question: find the kth largest element in a matrix with sorted row and column
(must have space complexity better than O(n^2)

Interviewer - mayank jindal

Q1.implement the maximum sum of a path in a binary tree.
Find time and space complexity

Q2.find minimum sum path in grid using dijkstra

Interviewer Name - Forgot, some bearded man, maybe Tejas or something.
Q1. DFS
Q2. Some problem about DFS from both start and end points.
Q3. Game theory problem - you and opponent can choose any number from 1 to 10, you want to reach 100 as the final sum. Find optimal strategy for player 1.
Q4. How would you implement Nokia Snake Game? List the required functions.

Interviewer Name: Amit
Q1. Pillars of OOPs
Q2. Difference between information hiding, abstraction and encapsulation
Q3. Sorting and Searching algorithms
Q4. Given an array create a max heap, you know the next element is greater than the current root, is it possible to heapify in less than O(logn) time complexity.

ShivanshJ
Interviewer name:
Q1) Asked about project (Interviewer was in ML team so he was interested in ML projects)
Q2) Given an array having positive and negative elements rearrange that to make all negative elements towards left and positive elements towards right such that the relative order of positive and negative elements remains the same, in O(1) space and O(n) time.
Q3) given a linked list, detect a loop in the linked list (tortoise and hare algo)
Q4) Given a binary search tree, rearrange it to make it a perfect binary search tree in O(1) space.

Interviewer - Prabhat Gupta
Q1.OOPs -> Polymorphism and abstraction.
Q2.Regarding Project
Q3.Given a binary matrix containing only zeros and ones. Find the area of the largest rectangle containing only ones.

Interviewer - Kaushal

2 DSA questions only.

1st -> Maths and implementation array problem

2nd -> Graph (BFS traversal related)
Destroy the edges of city with maximum connections and find minimum time need to destroy full graph

Interviewer: Pratik
1st) about resume projects
2) simple knapsack, along with memory optimization
3) how to represent json files as objects in c++/etc.
4) maximize sum of usefulness of k objects if consecutive objects should have distance less than or equal to d

Q)HARSHIT SINGH

1. You need to implement a data structure which would store a real number. It should be able to perform the following mathematical operations:
    a. add(x): add x to the stored number.
    b. sub(x): sub x from the stored number.
    c. mul(x): multiply x to the stored number.
    d. div(x): divide the stored number by x.

    It should also be able to perform the following operations:

    e. undo(): undo the last mathematical operation.
    f. redo(): redo the last operation which was undone (using undo())

    Please note that redo() can only be performed when the previous operation was undo() or redo() (and there is an operation which can be redone). Also, consecutive undo/redo operations are permitted.

    Example:

```
Number number(0);   // initial value is 0
number.add(5);      // now 5
number.sub(3);      // now 2
number.mul(5);      // now 10
number.div(2);      // now 5
number.undo();      // now 10 - undo operation div(5)
number.undo();      // now 2 - undo operation mul(5)
number.redo();      // now 10 - redo operation mul(5)
number.add(100);    // now 110
number.undo();      // now 10 - undo operation add(100)
number.undo();      // now 2 - undo operation mul(5)
```

ANS- 2 Stacks

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GAURAV GARG

INTERVIEWER NAME:

1.FIND THE NEXT GREATER ELEMENT IN AN ARRAY FOR EVERY ELEMENT PRESENT IN IT?! * USING STACK

2. GRAPHS / TREES : ARTICULATION OR CRITICAL POINTS IN A GRAPH (How to find Point of failures in a graph ie. If we remove those nodes, the graph becomes disjoint.) *(using visited nodes and looping concept)

2nd Round

Given an array of integers like, 3,30,34,9,5

Create the largest number

As string “9534330”

Given array of strings in camelCase [“HomeWork”, “MacBook”, “MacBookAir”]

Given query string [“MB”]

Print all possible

[“MacBook”, “MacBookAir”, ..]

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Mayank Kumar

Interviewer: Abhinav Bollam

Q1. Ram is a money lender. He moves across cities to lend money and take money. He can move from a city only if he finally has some positive money(>0) left with him. When he visits a city, he either lends money and collects money. We need to find the minimum amount of money he needs to have so that he can move from City A(initial destination) to B (final destination).

Initial case:
ConsiderEach city is connected to 2 or 1 other cities as in Directed Acyclic graph. All the paths start from city A and end at City B.

What should be the minimum amount of money he should have so that
1) He can move along any path City A(initial) to City I (final) mentioned in graph.
2) He can't move out of a city if the money left with him <=0
3) Ram has to reach destination with minimum initial money at City A.

Note: we need greater than 0 points in each city.

Initial test case:

The connections b/w cities are such that

1) A-> B, and A-> D
2) B-> C and B-> E

City A (-2)	City B (-3)	City C(3)
City D (-5)	City E (-10)	City F (1)
City G (10)	City H (30)	City I (-5)

Answer:
7 is the minimum to reach your destination.

Q2. A balanced string is given.
If () are together, their value is 10,
If [] are together, their value is 20,
If {} are together, their value is 30.

If two strings are nested, their values are multiplied

For eg: [({}{})] = (30+30)*20*10 = 12000

Q3. In a continuous stream of data, how will you find the mean, median, mode (didn't ask me to write any code, just the logic)?

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Interviewer: Priyanshu

SubProblemA:

Define a function funcA(M,L,R).
where M is a binary matrix, L and R are integers.
return true if there is a subrectangle of dimensions LxR or RxL containing all ones, otherwise false.

SubProblemB:

Define a function funcB(M,L,R,Q).
where M is a binary matrix, L and R are integers, and Q is a query set.
Q is of the format: {{r,c,T}}
Q asks you to update M[r][c] to 1 at time T, independent of its earlier state.
Return Tmin, the minimum time at which we get to see a subrectangle of dimensions LxR or RxL with all ones.

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Mihir Sahu:

Q1) Search for an element in a sorted grid. (Sorted by rows and columns, first element of each row is greater than or equal to last element in previous row) or say it doesn't exist

Project discussion

Interviewer's name: forgot (female)

Q. Implement queue using 2 stack
Q.
https://www.geeksforgeeks.org/check-for-balanced-parentheses-in-an-expression/

Interviewer (Male) : Rahil
Q. Find the structure of a binary tree using the given level order and inorder traversal of the tree.
Q. Difference between merge sort and heap sort.
Q. Difference between map and an unordered map in Cpp.
Q. You are given an array of numbers, find the elements which exist strictly for more than n/3 times in the array.

HR Round-
Why do you want to join sprinklr?
What was your project and how it is going to impact the real world?
How is your family?
How you have been doing uptill now?(basically what have you experienced in the college etc)?
What are your strength?(Weakness nahi pucha)

Interviewer : Mayank Jindhal
Q1) Find maximum path in a binary tree where the nodes can have neg values as well,
N <=10^6
q2)Find Min path in a grid:

i) Binary grid with cells having 0 as obstacle
ii) Cells have some values, the ones with -1 as value are obstacles, plus the while moving from one cell to other the cost is value of cell from which we are going.

Round 2 : Interviewer : Vinayak Trivedi
Almost sorted array. Each element i, after sorting, it moves at max +-k positions from its original position.
Sort such array in better than O(nlogn) time.

2,3,1,4
1,2,3,4 -> almost sorted with k = 2
Solution : https://www.geeksforgeeks.org/nearly-sorted-algorithm/

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Mayank Kumar

Interviewer: Kelay Shah

Q1. You have airline checkin counters at the airport. Assume there can be infinite counters. We will add counters as and when we need to. Each counter has a line in front, each line has the same maximum capacity.
The counters are arranged in order and numbered chronologically starting from 0.

To design a data structure for this with the following methods:

1. addPerson(string personId) -- to add the person in the leftmost counter line which has space.
2. removeLastPerson() -- to remove (and return) the last person from the rightmost non-empty line.
3. removePersonFromLine(int counterNumber) -- to remove (and return) the last person from the given counter number.

Eg
max capacity - 2
addPerson('p1'), addPerson('p2'), addPerson('p3'), addPerson('p4'), addPerson('p5')

0 1 2
p1 p3 p5
p2 p4

removePersonFromLine(0) -- will return p2

0 1 2
p1 p3 p5
  p4

addPerson('p6'), addPerson('p7')

0 1 2
p1 p3 p5
p6 p4 p7

removePersonFromLine(1) -- will return p4, addPerson(‘p8’)

0 1 2
p1 p3 p5
p6 p8 p7

removeLastPerson() -- will return p7

0 1 2
p1 p3 p5
p6 p8

Q2. Given an array of integers and a number K, for each sub-array of size K find the minimum element of all such sub-arrays.

Ex
Arr = [1,2,5,4,6,3]
K = 2
First subarray = [1, 2] ans = 1
Second Subarray = [2, 5] ans = 2
Third Subarray = [5, 4] ans = 4

…..
And so on.
Return an array for such integers.

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Dhruvan Kadavala

Round 1.
Q) 1. Given a binary tree, you have to encode it in the form of an array and after encoding, you have to decode it to the same binary tree that we have before.

--> we can use two types of array : rLR and LrR
r = root
L = left part of root
R = right part of root

Q) 2. There is a class and info about students is given. You have to arrange a trip for students with only 2 buses available. The given info is about students that if they are not friends then they can't sit in the same bus together. You have to assign bus numbers (1 or 2) to each student or say it is not possible with 2 buses.

Input :
n q
a1 b1
a2 b2
…
…
aq bq

n - No of students
q - info about students, such that student ai & bi are not friends

--> The statement seems big but it is nothing but a question of bipartite graphs.

Follow up : If it is not possible to organise a trip with 2 buses then you have to tell the min number of buses required to arrange the trip with the given condition in the statement.
This is an NP-Hard problem. (Interviewer just asked me to explain the approach.)

Round 2.
Brief Project discussion (about 10-12 mins)

Got some open ended questions like we have data storage centres in india and we want to expand so where you will try to establish new centres.
My answer focuses on maximising the reach, so establish centres in the area where no centres were available till now. … (taking bigger radius of circular area with no centres)
Then he gives me different conditions like frequency of users in the region and changes the geographical shape of India to circle, square etc.
(Above discussion goes for 6-7 mins;)

Q) 1. Given a hierarchical corporate system in a company, where each employee is answerable to only one manager & CEO of the company is not answerable to anyone.

Statement was very long but it reduces to making a tree and applying dp such that no 2 adjacent nodes are chosen.

Q) 2. Given N X M matrix and a number is present in each cell which is either 0 or 1. You have to count no of squares such that all cells' square submatrix contains 1 only.

Hint : We can solve this problem with dp.

HR Round :
How is your college life going on?
Impact of covid on your college life? (which mode you prefer online or offline)
Proud moment of your life
What does Sprinklr do ?