# Amazon Placement Drive

Date : 27th August, 2018

## About

Amazon—a place where builders can build. It hires the world's brightest minds and offer them an environment in which they can invent and innovate to improve the experience for our customers. They want employees who will help share and shape our mission to be Earth's most customer-centric company.

## Job Description

**Profile :** Software Development Engineer (SLI for 2019 Batch and Summer Intern for 2020 Batch)
This job requires you to hit the ground running. Your ability to learn quickly and work on disparate and overlapping tasks will define your success.
Great candidates for this position possess a sound understanding of computer science and a passion to make a profound impact for our authors and readers. You will have the opportunity to apply this passion by leveraging your technical skills in areas such as algorithms, object-oriented design, distributed systems, and more. You also have the opportunity to collaborate with diverse business and technical partners to shape our technology. You will be the voice of publishers, driving technological innovation to create an unparalleled content ingestion experience.

## Eligibility

B. Tech : CSE | CCE | ECE
6.5 CGPA & above only (with no active backlog)

## Procedure

1. Online Test
2. Pre Placement Talk
3. Technical Interview Round (2)

## Result

No. of SLI Selections : 7
Candidates :**Shubham Kothari, Harsh Bhambhani, Anurag Sharma, Sumit Dhull, Anmol Ratnam, Daivat Vaishnani, Manan Agarwal**

No. of Summer Intern Selections : 5
Candidates :**Yash Aggarwal, Vishesh Sharma, Sugnay, Akshay Jangid,Raghav Laddha**

## Feedback by company

There was a difference between the students. Few are very good others require more parctice in DS, algorithms and problem soliving skills. In other elite institutes, ratio of students having good coding knowledge is better. Try to solve different problems on coding platforms which will give you confidence in topics and don't simply solve questions which are common. Try solving mixed problems.

# Interview Experience 1

**By:- Daivat Vaishnani ( SLI )**

**Round 1:** Online Test (Duration : 1 hours 30 minutes)
It had around 20 Multiple Choice Questions related to fundamentals of Computer
Science and 2 Programming questions.
The Programming questions were :
1) Find the length of the smallest substring consisting maximum number ofdistinct elements.
(https://www.geeksforgeeks.org/length-smallest-sub-string-consisting-maximum-distinct-characters/)
2) Find number of ways to denominate a given amount using coins of 3, 5 and
10. Similar problem-(https://www.geeksforgeeks.org/count-number-ways-reach-given-score-game/)
Around 30 students were selected for the second round.

**Round 2:** 1st F2F Round (Duration : 50-55 minutes)
Started off with the usual "Tell me something about yourself." The Interviewer was very friendly. He asked me
about several types of Tree-based Data Structures and their properties. (T's, BT's, BST's, AVLT's, etc.)
He asked me to write a function that takes the Root Node of a Tree as an input, returns 1 if the tree is a BST and 0
otherwise. I gave him a linear approach with O(n) time-complexity and O(log(n)) or O(height
of the tree) extra stack-space complexity. He was satisfied with it.He gave me an array consisting of only 0's, 1's and
2's and asked me to sort it. I gave him the counting sort approach with O(n) time-complexity and O(1) extra space.
He asked me if I could do it in one pass. I tried for some time and with the help of few hints I was able to code-out a
segregative approach. Related Articles
(http://users.monash.edu/~lloyd/tildeAlgDS/Sort/Flag/)
He gave me a weird array of size N where N-1 elements occur K times. The remaining one element occurs only 1
time. Find that one element which occurs only 1 time.I gave him a hashing based solution with time and extra-space
complexity of O(n). He then asked me how std::unordered_map and std::map are implemented underneath. I
briefed him about them. He then asked me if I could do the problem
in O(n) time and O(1) extra-space. He told me to think in terms of bits. Then by taking some examples I was able to
arrive at the solution. An example where K = 3
(https://www.geeksforgeeks.org/find-the-element-that-appears-once/)
He then asked me some questions related to Gujarat (my native place). How good is food, tourist places, traveling
and all. This discussion went on for 10 minutes. Then he asked me about some good places to eat in Jaipur (my
college was in Jaipur).

**Round 3:** 2nd F2F Round (Duration : 50-55 minutes)
The usual "Tell me something about yourself." I told him I was the best Counter-Strike player of the Batch and he
was intrigued. He asked if I knew how the game worked. I was able to give him satisfactory information.
He asked me to brief him about my previous round, what were my approaches to the questions.
He asked me about the basic idea of Dynamic Programming. He asked me about my thoughts on "Where? and
How? are Graphs useful in tackling real world problems."
He asked me whether I know about Segment Trees and Fenwick Trees or Binary-Indexed Trees and about their
implementations. He didn't ask me to code them. He gave me an Graph in the form of Adjacency Matrix and a
separate array A for values of the nodes. He told me to transform the array A according to the following
transformation : The new node values should be equal to the sum of product of the sum of odd-value nodes and
the sum of even value-nodes in the subgraph of that node and the node-value itself.
i.e. (new_node_val = old_node_val + PRODUCT(SUM(odd_node_value nodes in the subgraph), SUM(even_node_value
nodes in the subgraph)))
A gave him a simple DFS approach. He told me that I was the first one who gave
me the solution and was satisfied. He told me that we want to answer Q queries (Q <= 1e4). In each query, we will
be given a number N (N <= 1e4) and we have to return 1 if N can be expressed as sum of powers of numbers less
than X (X <= N). Also anything power 1 is not allowed (Otherwise there's no point in solving as N can always be
expressed as $N^1$). E.g for N = 242 and X = 7 : return 1 (as 242 = $1^2$ + $3^2$ + $6^3$ + $2^4$). He gave me a hint to see
how many numbers in total can you can use to express N. Total Numbers = ($2^2$, $2^3$,...... $2^{\log 2(N)}$), $3^2$, $3^3$ ,......,
$3^{\log 3(N)}$),......,$X^2$, $X^3$,......., $X^{\log X(N)}$)). This turned out to be very few.
At this point I was able to reduce the problem to finding a subset with a given sum (here N). I gave him DP solution
and he was satisfied. Related Articles (https://www.geeksforgeeks.org/subset-sum-problem-dp-25/)
Around 7 people were selected and I was glad I could make it. It turned out to be great
experience from my side. The Interviewers were very friendly and helpful.

# Interview Experience 2

**By:- Harsh Bambhani ( SLI )**

**Round 1 (online):** The online round consisted of 2 coding problems and around 20 MCQ's
Problem 1 : https://www.geeksforgeeks.org/count-number-ways-reach-given-score-game/
In the above mentioned link they have considered that order does matter but in the online round they had specified that order does not matter .
Problem 2 : https://www.geeksforgeeks.org/length-smallest-sub-string-consisting-maximum-distinct-characters/
31 students were shortlisted for further rounds.
Advice : The problems that are asked in online round are not that tough, anyone with little
bit of practice can clear it with ease . So keep practicing ⬜

**Round 2 ( F2F-1....100 mins ) :**
The interviewer was cool and he made sure that I was comfortable and then he started.
He just had a look on my Resume and then started giving me problems
Problem 1: Given M and N.Calculate the number of ways to form M digit number such that value at any digit can be at most N and value at current digit is at least twice the value at previous digit(The condition should be satisfied at every digit index, for example if M=3 and N=9 then 136 is a valid number and 135 is invalid) He said that N can be anything and the final number can contain more than M digits if you are thinking in decimal number system.Basically he wanted to say that don't restrict yourself to decimal number system consider a ideal number system with maximum digit value N. Hint-Dynamic Programming.
Problem 2: Given a number N ($1<=N<=10^5$) . Find out if N can be expressed in terms of $a1^{n1}$ + $a2^{n2}$ + $a3^{n3}$ + ....... + $ak^{nk}$ ( a1, a2, a3...ak are bases and are >1 and n1, n2, n3.....nk are exponents and are >0) if yes count such sequences
Hint – precompute all the powers and then apply dynamic programming
Problem 3 : Given N points in 1-D plane (x -axis) with their co-ordinates and M boxes.Place M boxes (every box should be placed on one of the N points ) in such a way that the minimum distance out of distances of every pair of adjacent boxes get maximized ( i.e make minimum distance as large as possible )
Hint-Binary search on answer

I was able to solve all the above 3 problems but i found them very difficult . It took quite a bit of time and scratching of head to solve them. Interviewer was always supporting and he was motivating me to solve problem and he kept on giving me hints through out the interview.
**Advice-** Be confident and take your time and keep on telling interviewer about what you are
thinking and what your thought process is .He is more keen to see your thought process rather
than your final solution.

**Round 3(F2F-2 ..... 50-60 mins):**
The interviewer was very chill .He just told me to assume as if I am giving an interview to one of my close friend.Then he started the interview

Problem 1 : https://www.geeksforgeeks.org/shuffle-a-given-array/
Problem 2 : https://www.geeksforgeeks.org/find-next-greater-number-set-digits/
Problem 3 : https://www.geeksforgeeks.org/wildcard-pattern-matching/

Then he shifted his focus towards computer science fundamentals . He asked me to explain normalization in DBMS and all the normal forms also. After this he asked me to explain how and why hashing is done ( a small discussion on it ) then he asked me about Map and some STL function on about how they are implemented in c++
i.e internal working and a little code explanation of them

In this round the interviewer was more sort of interested in my approach not the solution and he didn't expected me to solve all the problems just was motivating me to approach nicely.
Round 3 over . Now comes the best part . I was given SLI ( 6 months intern )at Amazon India and my happiness was sky high.
Final Advice – Practice makes a man perfect.Keep on practicing and your hard work will always
be rewarded.You just have to be patient and confident.

# Interview Experience 3

**By:- Manan Agarwal ( SLI )**

**Round 1 (online round)**
There were 2 coding questions and 20 mcqs of variable marks such as 4, 6 and 2 and no negative marking.

Question 1- Coin change problem
https://www.geeksforgeeks.org/coin-change-dp-7/
Question 2- Given a string, find minimum length substring with maximum distinct characters
Here, We can put a binary search on the length of substring, So the complexity will be O(nlogn) since for every length in binary search, we will traverse the whole array.
30 students were shortlisted

**Round 2: Tech Round**
I was asked 3 questions
Question 1-Given a binary tree print all the internal nodes (by internal I mean removing top, bottom ,left and right view of the binary tree).
I removed the top and bottom view of the tree and then print out rest of the nodes using vertical order traversal.
Question 2-https://www.geeksforgeeks.org/expression-evaluation/
Question 3-I was asked how to implement Auto-Complete feature. I told my approach using trie.
https://www.geeksforgeeks.org/auto-complete-feature-using-trie/

**Round 3:Tech Round**
I was asked 2 questions
Question 1-Given a string formed of four characters A,B,C,D. Print all the substrings of length 10 which have repeated at least twice.
Question 2-Compute the next permutation
https://www.geeksforgeeks.org/find-the-next-lexicographically-greater-word-than-a-given-word/

# Interview Experience 4

**By:- Akshay Jangid ( Summer Intern )**

**Qualification Round:-** 20 Mcq + 2 programming questions. MCQ questions were majorly based on c, pointers, output of the following code, basic data structures.
Programming Que 1:- Given A String s, u Need to print minimum size Substring with maximum Unique Characters.
Sol:- Just do it with Sliding Window Technique.
Programming Que 2:- Given A number N, u Need to print Total Number of valid ways to Represent given sum using value 3,5,10.
Ex:- 13 can be represented as :- 10+3, 5+5+3, so ans=2;
Sol:- Although I could not test my solution as Server were very slow at the end, and most of the students could not submit their solutions but this question is already present on geeks for geeks.

around 25 Students got selected for next Rounds.

**Round 1:-** It was a one to one Interview. I was Very Nervous. The person Taking my interview was very calm, cool and talked with me in a very nice way. he introduced himself and his work, also he made me very comfortable which made me little less nervous. He started With Basic Question like:-
Q. on What Data Struct the map is based upon?
Q. Difference between unordered and ordered map?
Q. Query time complexity of ordered and unordered map?
Q. Whats use of hashing and how it is good?
Q. Any algo I know which is based on hashing?(Rabin-Karp Algo)
Coding Question 1:- Given Two Strings, I need to tell whether they are anagrams of each other or not.
Sol:- (Anagram= permutation of each other)just keep the frequency of each Alphabet in both strings and at last check whether there is same frequency of all alphabets in
both strings.
Coding Question 2:- Given a number N, tell all valid number of parenthesis sequences. then he asked me to write code to print all valid parenthesis sequences for given n.
He Gave me some hints in between for Corner cases which I missed. Finally, I did code it. then he asked to Show the dry Run. Then he asked my Approach if I had to do it for T test cases. Basically DP Memorization. He just asked Approach. that concluded My round 1.

8-9 Students were Selected for round 2, Luckily me too was Selected.

**Round 2:-** It was again an one to one Interview. We Started with a basic Introduction of Each other. Then he Asked What Answered MY Fav Courses in between DBMS, DATA_Structures and Algo, and OS. I Chose os and DAA.
First 45 min:- He started with From Basic Concepts of os. He asked me various Questions like:-
Q. what is a process?
Q. how is process brought in ram?
Q. Some Scheduling Algo and There Comparison for various Scenarios.
Q. What Is cache, its Scheduling algo, Thrashing, paging, demand PAging.and
various such Questions.
Second 45:- HE asked me My fav Data Structure. I Answered with bit-tree, Segment tree.
He asked me to write down the entire code for LCA of 3 nodes using segment tree. In middle, he asked Some Question about some steps, like why did I write that line of code etc.
He asked me can I optimize this, to which I answered we can use the Sparse index. by which he was Satisfied.
We continued With Discussion over some High-level concepts but he just asked them to check my level of interest in DAA and were not necessary for anyone preparing for it.
At last, i asked him about his job and his college Experience of getting selected at
Amazon. He Shared his Memories And Experiences. That Ended my Interview.

5 Students were Finally Selected.

# Interview Experience 5

**By:- Vishesh Sharma ( Summer Intern )**

**Online Round :-**
20 MCQs
2 Coding Questions
1. Given a number n and an infinite supply of coins with denominations 3, 5 and 10.
Find the number of ways n can be generated using given coins.
2. Given a string. Find the smallest substring such that it contains maximum distinct characters.

**First Round :-**
Almost 30 students were selected for Round 1.
Interviewer was quite friendly, interacted with me a bit. He asked me about my projects in little detail, and some question like why a particular framework was used or what can be done to improve this and then straightway came to the DS question as follows :-
1) Given a link list with a pointer to first node. Starting from first node reverse k groups of
link list (iterative &amp; recursion). He asked me to mention the ambiguities in the question (there were 2). I told him and then he asked me to write the code after i was finished with the logic.
2) Given an array which represents height of buildings. If we pour water onto it what is the maximum level water can attain between any two buildings.
I told him the O(N) approach and then he asked me to code it and after that Round 1 was over.

**Note:-** Try to write code in such a way that if written on system it should run for each and every edge case. It's better if all cases are sorted out on your side before you show it to interviewer.

**Second Round :-**
Almost 9 students were selected for Round 2.
This time interviewer directly came to algorithms.
1. Given an array (size n) which denotes n coordinate points on x axis. You have to place m coins such that minimum distance between any two coins is maximized.
2. Given standard 0/1 knapsack problem. Print all the coins which you will take to maximize the cost satisfying the constraint that knapsack should not be overfilled.

# Interview Experience 6

**By:- Yash Aggarwal ( Summer Intern )**

**Round 1 (Online round 20 MCQ's and 2 coding questions)**
MCQ's were mostly on data structures, time complexities and C,C++ outputs. The 2 coding question were
1) Given a number N with an infinite supply of coins with denomination 3, 5, 10. In how many ways you can generate N with the given coins where order doesn't matter. The solution to above question can be found at (https://www.geeksforgeeks.org/coin-change-dp-7/)
2) The 2nd question was
(https://www.geeksforgeeks.org/length-smallest-sub-string-consisting-maximum-distinct-characters/)

**Round 2 (F2F)**
1) Tell me something about yourself.
2) Then they asked me about my project.
3) Then they asked me to implement a coding question on the paper. (Balance Parenthesis question)
The link to that question is
(https://www.geeksforgeeks.org/check-for-balanced-parentheses-in-an-expression/)
4) Then they asked me to implement another question to find the longest substring of parenthesis which is balanced.
The link to the question
(https://www.geeksforgeeks.org/length-of-the-longest-valid-substring/).
Then He asked me if I had any questions.

**Round 3 (F2F) (After lunch)**
1) First of all they asked me about my project and asked me to explain the Relational tables that I have used in my project. Then he asked me to write a SQL query (in which Group By Clause was used).

2)Then he asked me that which data structure will I use if I had to search a word in a dictionary I can compromise in space but not on time. (Searching must be O(length of the string) ) (Ans is Trie).

3)Then he asked me to implement search and insert a string in the Trie. He also asked me to implement the function which can generate all the strings that starts with prefix abc in my dictionary. I had to code the entire thing on the paper.

4)Then my last question was to return the size of largest subtree of binary tree that is a binary search

# Question Bank

## SLI

**Round 1**

1. Given an array of positive numbers and negative numbers, if we pick a value, we cannot pick its adjacent value. How to find maximum sum ?

2. Find largest balanced parenthesis in a string.

3. Given 'n', find if $n = a^x + b^y + c^z + ......$ $(x>1, y>1, z>1.....)$

4. Find distance between two nodes in a binary tree.

5. Find the number of zeros in given string, where the string contains 0's and 1's.

6. Given a stack, we have to find maximum element each time, while we can do push and pop operations only.

7. Basics from AVL Tree.

8. Print all the internal nodes of a tree (Note : Internal nodes as explained by interviewer in this case were the nodes that lies in the inner part of tree i.e they are neither the leaf node nor the boundary nodes.)

9. O(1) approach to print all strings starting with 'snap' in a dictionary.

10. Following expression is given input as string. Evaluate it : 13*5(6+2/6)(3*5)

11. Check if the given binary tree is BST or not.

12. Time complexities of various algorithms.

13. There is a series of buckets filled or may be not with water. If you choose a bucket, you cannot choose bucket adjacent to it. How to find max water.

14. How to find Lowest Common Ancestor (LCA) in binary tree.

15. You have to implement a stock buy and sell project. In 'N' days you have to perform 'K' trades. Implement this using min-heap.

16. Given 'N' is number and 'M' are the number of digits. How many sequence can we form with the given condition that : arr[i+1] >= arr[i] * 2

17. Tell if and how 'N' can be expressed as summation, given the condition that : $a^n + b^n + c^n +.......$ For n >= 3.

18. Maximize the minimum distance such that the 'M' bogies can be placed at given 'N' points.

19. Explain hash maps and its implementation using java.

20. String encoded =
k[encoding]
||
Decoder
||
K * string
Eg : 3[a] = aaa
2[bc] = bcbc

21. Which Data Structure is used in hash-map, map, unordered-map ? and explain its implementation.

22. Linked list is given. Two pointers are given. Perform the following:
i) Remove odd posn nodes b/w the two ptrs.
ii) Then, reverse the sublist b/w two pointers.

23. Basic conceptual questions from Database.

24. Given a BT, find out maximum BST availiable.

25. Given an array with 1's and 0's. Find the maximum number of 1's column in 2D array.

26. Explain BST and the function to check BST.

27. Given 'N', find the number of possible BST's with element as 1-N ?

28. All elements in array appears twice except one. Find that element.

29. 'N' queens problem (Backtracking).

30. Delete a Node in BST.

31. Hashing, Hash function and describe difference of collision handling with open addressing vs chaining.
32. Given a stack, element is pushed and it must always tell the greatest element in the stack.
33. For each node in binary tree, we have to update values like : (odd-sum + even-sum) + value_itself. Note that odd sum is the sum of all the odd nodes in its subtree and even sum is the sum of all the even nodes in its subtree.
34. Compute next permutation of string. (In dictionary order)
35. Compute number of substring of length 10 that occur more than once.
36. Table normalisation from DBMS.
37. How to add the data in some order from three separate linked list to one linked list ?
38. Find the path between two nodes in a acyclic undirected graph and return the array showing all the nodes between these two nodes.
39. Given a string of 0's and 1's in ascending order. Find the number of ones in the string using o(logn) complexity.
40. Significance of using hashing over arrays.
41. Produce mirror image of binary tree.
42. You have to start from (0,0) and reach (n-1,m-1) in an array given bomb in some cell. Give the count of possible ways. Sample array[3x4] is like :

S 0 0 0
0 1 1 0
0 0 0 E

43. Find master node in a graph where master node is node that is connected to every other node.
44. Given a number, find the number of ways in which it can be represented as a sum of perfect bonus.
45. You are given an integer array and an array containing the index upto which you can add the numbers of array. Find the max sum that you can create.
46. Given a directed graph, find the weight of the root node. Weight of Node = (Sum of all children having even value) x (Sum of all children having odd value)
47. Sort an array containing only 0's,1's and 2's.
48. Given a binary tree, give BST having max nodes in it.
49. Given a 2D array, find possible path for mouse.
50. Find top 4 maximum values in an array.
51. Find path having maximum nodes in Binary Tree.
52. Celebrity Problem : In a party of N people, only one person is known to everyone. Such a person may be present in the party, if yes, (s)he doesn't know anyone in the party. We can only ask questions like "does A know B? ". Find the stranger (celebrity) in minimum number of questions.
53. To find water stored over each cell, where each cell's height is given.
54. Check whether a number can be represented a sum of powers of different number. Given power > 1.
Ex : 25 = 2
4 + 3
2

55. Two numbers are given in separate linked lists. Delete first from second and store it in a third linked list.
56. OOPS and DBMS concept.

**Round 2 :**
1. Given 'N', find number of ways to represent in power of numbers.
Note that power > 1.
Ex: 5 = 1^2 + 2^2
2. Consider you are given with 100 boxes and you have 10 friends. Find the number of ways to assign it.
3. Now, along with 100 boxes and 10 friends, now you have their preference list as well. Find number of ways to assign it.
4. Find next bigger number using same digit N = 138625
5. Explain Hash Table and it's complexity.
6. Random shuffle of array in constant memory space.
7. Code the next permutation in C++.
8. Regular Expression Matching.
9. Normalisation in DBMS.
10. STL in C++ discussion
11. Given a graph convert each of its node to the product of sum of odd and even nodes in its subgraph + itsvalue.
12. Given a number N<= 10^4 and Q queries Q<=10^4. Can the number N be expressed as sum of powers of numbers less than it.
13. Say we have dictionary containing valid words. Given a string without spaces generate sentences containing valid words. Dictionary is given and search for word in dictionary is O(1). Example : Input : 'ILOVEMANGOES' Output : 'I LOVE MANGOES'
'I LOVE MAN GOES'

14. Given a string of 4 characters ACTG, find all strings of 10 characters that repeat more than once.
15. Clone a graph which actually turned out to be ternary tree.
16. We have a system which has a capacity of having 10 websites. Here the insertion of new website should be in O(1) along with deletion O(1). Also if 11th website is inserted the one which is least recently used is poped out, also in O(1).
17. Print the following given linked list in sorted order.
3 -> 5 -> 1 -> 6
| | |
10 13 8
| | |
11 7 4

# Summer Intern

1) Given an array of elements, elements are in range 1 to N find missing element.
2) Given a string S and string t
a. Reverse the string
b. Append B at last
c. you have to connect s to t.
3) There is an array n and each element is existing twice in array except one, find element which is existing only once.
4) There is a string having brackets, find whether the string brackets are complete. i.e. there is opening and closing bracket of each type.
5) Given n test cases for each test case given number n. Show all valid parentheses equations for given n.
6) Implement binary search tree (what is time and space complexity).
7) Given an array of any n elements, find element if we have unlimited space.
8) what is hash map, Hash Function, Hash table.
9) Given n nodes, each node pointing to other node. finding a nodeto which all node point and if it exists then it should point to no body.
10) Mirroring  BST
11) longest substring of Balanced parentheses.
12) find maximum number of 1's in a row in a n *n matrix of (0,1) values only.
13) In an unsorted array of 0's and 1's sort the array in 1 traversal.
14) In an unsorted array find the first missing positive number (3,2,0,4, -1, -3) =>1.
15) Given a link list , reverse k group.
16) In an unsorted array (denoting buildings) find maximum level of water if pour over those buildings.
17) In an unsorted array find the biggest no on both the sides of array.
18) Given n points on a plane, and k points cover r points such that you get more distance between two points.
19) Given a sorted array but rotated, we have to search for a value.
20) Given two linked list and sum two list and put in 3 rd list.
21) How are maps implemented in c++ .
22) Decode an encoded string 5[3[a]2[b]]. (aaa...... (15 times) bbb................ (10 times)).
23) Given binary tree (all nodes distinct) and an integer find whether a pair of node exist in tree such that their sum is x.
24) Given N points in line and M boxes such that M &lt;= N , place boxes on the points such that min. distance b/w any two boxes is minimised.
25) How will you keep track of which weight you selected in knapsack?
26) Find the k'th value of node at n'th level if your tree is like that
a) if the root is 0 then left child is 0and right 1.
b) if root is 1 then left child is 1 and right 0. Complexity required O(n).
27) Given array with (0 ,1, 2's) sort all the elements in O (n) Eg-0 1 2 0 1 2 0 1 2.
28) Given an array find first missing + ve no.
29) We are given a function which tells if one node points to other or not. We have to find if there is a node from 1 to n which does not point to any other node and all other nodes point to thisnode.
30) We are given a binary tree and a number n and we have to find if there are two numbers in binary tree which sum upto n.
31) Bottom view of binary tree
32) Rat in maze problem.
33) Given a 2d matrix of n*m dimension that contains 0&1 in sorted order in a row. Find row width with max no of 1's.
34) Git related questions. (merge n commits into one, branch change and all.)
35) Given a string of lower case alphabet .Form another string find if the new string is permutation of old one. Do it in O (1) time

36) Implement insertion sort using linked list.
37) Apply spiral traversal to binary tree.
38) Given a linked list delete the middle element and reverse the sub string.
39) Print interior nodes in level order traversal in a binary tree.
40) Given a number , find if sum of node from root to a leaf is equal to that number.
41) Given string "()(())())()" find the length of longest valid substring.
42) Given array { -1,0,2,1,4,7}. Find the missing positive number without extra space.
43) Basic Operating systems process explanation.
44) Given two linked list each representing a number .Find the subtraction of two linked list where each node represent digit of the number.
45) Find product of next greater and next smaller element for each value in array.
46) Find no of sequences which can be made with maximum element as n sequence is of exact in length also the array elements or sequence elements must be mo.