

Interview Experiences

1. Amazon Interview | Set 1

Please find the details of my amazon interviews below.

Date of Interviews: 22nd August 2012

No of Rounds: 1 Written + 4 PI

Type of Interviews: Campus Interview for freshers

Written Test (Time): 90 Minutes

20 Objective Questions: Aptitude and basic C objective problems.

2 Subjective Questions:

- I. To find if there is any root to leaf path with specified sum in a binary tree.
- II. Some question based on sorting.

Interview Round 1(60-70 Minutes):

Technical Interview

Question 1: Check if a character link list is palindrome or not.

Question 2: A sorted array has been rotated r times to the left. Find r in least possible time.

Question 3: Clone a singly link list whose nodes contain, apart from next pointers, an extra pointer to any random node. The random pointer of a node N could be after N, before N or the node N itself.

Interview Round 2(50-60 Minutes):

Technical Interview

Question 1: There is a big file of words which is dynamically changing. We are continuously adding some words into it. How would you keep track of top 10 trending words at each moment?

Question 2: Write code for minHeapify() operation.

Question 3: Design a data structure for the following operations:

- I. Enqueue
- II. Dequeue
- III. Delete a given number(if it is present in the queue, else do nothing)
- IV. isNumberPresent

All these operations should take O(1) time.

Question 4: Write a function that returns the length of the longest leaf-to-leaf path in a binary tree.

Interview Round 3(60-70 Minutes):

Technical Interview

Question 1: There is a binary tree of size N. All nodes are numbered between 1-N(inclusive). There is a $N \times N$ integer matrix $\text{Arr}[N][N]$, all elements are initialized to zero. So for all the nodes A and B, put $\text{Arr}[A][B] = 1$ if A is an ancestor of B (**NOT** just the immediate ancestor).

Question 2: Find an element in a sorted rotated integer array.

Question 3: There is a $N \times N$ integer matrix $\text{Arr}[N][N]$. From the row r and column c, we can go to any of the following three indices:

- I. $\text{Arr}[r+1][c-1]$ (valid only if $c-1 \geq 0$)
- II. $\text{Arr}[r+1][c]$
- III. $\text{Arr}[r+1][c+1]$ (valid only if $c+1 \leq N-1$)

So if we start at any column index on row 0, what is the largest sum of any of the paths till row N-1.

Interview Round 4(40-50 Minutes):

Bar Raiser Round

Interviewer asked HR Questions Initially, then a sort of puzzle.

Two robots land with their parachutes on an infinite one-dimensional number line. They both release their parachutes as soon as they land and start moving. They are allowed only to make use of the following functions.

- I. moveLeft() // robot moves to left by 1 unit in 1 unit time
- II. moveRight() // robot moves to right by 1 unit in 1 unit time
- III. noOperation() // robot does not move and takes 1 unit time
- IV. onTopOfParachute() // returns true if the robot is standing on top of either of the parachute, else false
- V. didWeMeet() // returns true if the robot meets to the other robot, else false

Write a function in order to make the robots meet each other. Robots will be executing the same copy of this function.

HIRED!! 😊

Tips / Advice:

- I. Each time you write a code, check for the edge cases.
- II. Do not assume anything. Keep asking questions if there are any doubts.

This article is compiled by **Akash Nawani**. Many Many congratulations to Akash for his selection in Amazon. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

2. Amazon Interview | Set 2

Please find the details of my amazon interviews below.

Date of Interviews: 26th July 2012

No of Rounds: 1 online exam + 4 PI

Type of Interviews: Campus Interview for freshers

Online test(Time): 90 Minutes

20 Objective Questions: Aptitude and basic C objective problems.

2 Subjective Questions:

- I. Given a linked list containing character in each node, segregate its nodes in such a way that all nodes containing a vowel are moved to the end of the linked list. We will have to maintain the order.
- II. Parenthesis checker.

Interview Round 1(30-40 Minutes):

Technical Interview

Question 1: You are given a linked list and a parameter k. You will have to swap values in a certain fashion, swap value of node 1 with node k, then node (k+1) with node 2k and go on doing this in the similar fashion

Question 2: For the above question, do it without swapping the values. If you want a swap to occur between two nodes, then you will have to move the nodes itself.

Interview Round 2(50-60 Minutes):

Technical Interview

Question 1: You are given many slabs each with a length and a breadth. A slab i can be put on slab j if both dimensions of i are less than that of j. In this similar manner, you can keep on putting slabs on each other. Find the maximum stack possible which you can create out of the given slabs.

Question 2: The above question was raised to 3 dimensions.

Question 3: The above question was then raised to k dimensions.

Questions : Then there were many questions asked on compilers and dynamic memory allocation.

Interview Round 3(50-60 Minutes):

Technical Interview

Question 1: You are given pairs of numbers. In a pair the first number is smaller with respect to the second number. Suppose you have two sets (a, b) and (c, d), the second set can follow the first set if $b < c$. So you can form a long chain in the similar fashion. Find the longest chain which can be formed.

Question 2: Find the longest increasing subsequence in $O(n \log n)$. Proof and full code was required.

Question 3: You are given a linked list and an integer k. Reverse every consecutive k nodes of the given linked list.

Question 4: You are given an array. For every element you have to replace it with the closest number on the right side which is greater than the element itself.

Interview Round 4:

The team was highly impressed so they cancelled my 4th round 😊 for others who appeared for the 4th round, it was atleast an hour long.

HIRED!! 😊

This article is compiled by **Jinendra Baid**. Many Many congratulations to Jinendra for his selection in Amazon. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

3. Amazon Interview | Set 3

Please find the details of my Amazon interviews below.

Date of Interviews: 26th July 2012

No of Rounds: 1 online exam + 4 PI

Type of Interviews: Campus Interview for freshers

Online test(Time): 90 Minutes

20 Objective Questions: Aptitude and basic C objective problems.

2 Subjective Questions:

- I. Given a linked list containing character in each node, segregate its nodes in such a way that all nodes containing a vowel are moved to the end of the linked list. We will have to maintain the order.
- II. Parenthesis checker.

Interview Round 1(50 mins)

Question 1: You are given two linked lists whose nodes contain a digit as data member. Both lists represent a number. You have to add them and return the resultant list.

Input: 9->9->3->4->5 and 8->9->1 (represent 99345 and 891)

Output: 1->0->0->2->3->6

My Solution: Reverse the linked lists. Create the new sum list which is reversed. Finally reverse the resultant list.

Question 2: Interviewer asked to solve the above question without changing the original lists.

My Solution: Count number of nodes in both lists. If equal then simply add two lists recursively. If not then advance a temp ptr which is a pointer to head of larger list by diff of nodes and then add the list pointed by temp and list 2. Make sure to keep track of carry. Add recursively. Propagate the carry in remaining elements of larger list. Was asked to code. Coded it.

Interview Round 2(60 mins)

Question 1: Delete nth node from end of a linked list in a single scan.

Question 2: In a linked list, in addition to the next ptr, a random ptr is also present. Clone the linked list.

Did it in $O(n)$ but by modifying the linked list and then restoring it. Was asked to do it without making any modifications in the original list. Did that in $O(n^2)$

Question 3: Two nodes of a BST are given. Print the path from 1st node to the 2nd node. You are also provided the parent pointers in addition to normal left and right pointers.

Interview Round 3(1 hour)

Question 1: An array of n integers is there in which the range of elements is n , i.e., the difference between maximum and minimum number is n . Find the repeating numbers.

Question 2: An extension of Question 1. Was asked to find number of times each number is repeated.

Question 3: There are n frames of m data element each. The data element in each frame is arranged in increasing order. You are provided $m \times n$ space in which you have to arrange all data in increasing order.

My 1st solution was to use merge sort. He modified the question as only $O(n)$ space is there and you need to send data in increasing order as fast as you can.

My 2nd solution was to use min heap and construct it with the 1st element of all n frames. Min heap also contains extra field which signifies the frame number of data elements. This data structure can do the needful.

Interview Round 4(1 hour)

Question 1: Replace each element of an array with its greatest next integer in $O(n)$.

I couldn't do it. I tried but it didn't click. Not expected when you are in your last round.

Question 2: Reverse every k nodes of a linked list.

Well did that but was not finally selected..... 😞

This article is compiled by **Vinay Khetan**. We will be soon publishing Vinay's Yahoo and Microsoft interviews as separate posts. Vinay was selected in Microsoft. Many Many congratulations to Vinay for his selection.

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4. Yahoo Interview | Set 1

Following are the details of my Yahoo interviews.

Date of Interviews: 28th July 2012

No of Rounds: 1 aptitude test, 1 lab test, 2 technical rounds and 2 HR rounds.

Type of Interviews: Campus Interview for freshers

Aptitude Test(60 mins)

25 questions were there. Questions mainly consisted of c outputs, greedy algorithms, graphs, puzzle, probability, complex function name etc.

Few questions were like, number of possible graphs with n vertices, questions related to invertex and outvertex of graph, outputs where comma is used as an operator etc.

There was not negative marking.

Lab Test(150 mins)

Lab test involved coding the given problems in c or c++ or java and running it in linux environment. It consisted of 2 sections in which 1st section was comparatively harder than 2nd section. You are expected to atleast attempt one question from each section to qualify. The more questions you attempt, more you score but you have to attempt from both sections.

Section – 1

Question 1: It was based on file and directory structure. Cannot recall what was the

exact question.

Question 2: 9 mobiles are given whose name, cost and 3 other features were provided on scale of 9. You have to treat cost as 1 dimension and three other features as another dimension(their respective weightage was given). When the user enters a name of mobile, the name of another 3 mobiles should be displayed based on how similar they are to given mobile on the basis of dimension 1 and dimension 2 of the mobile.

Section – 2

Question 1: Given a circular linked list, you have to split the linked list into two another circular linked list. If it contains $2n+1$ nodes, then first list should contain $n+1$ nodes and second list should contain n nodes.

Question 2: You have to count the number of first contiguous 0s of an array. The size of array is not given.

After the completion of given time, they asked us to explain our code. They were looking for clarity of code, whether it was giving right output and they checked for corner cases also.

Technical Round- I

The interviewer asked me to solve a few questions from the set of 25 questions that were there in the aptitude test.

He further asked my favourite subject and began to ask questions from there. He then asked questions from OS, DBMS and networking.

Technical Round- II

Here also 2-3 questions of the aptitude test were asked. He asked which subjects I like. I mentioned data structure, networking and DBMS.

To my surprise, he started asking me questions from OS. The questions were not quite hard. They were based on semaphores, synchronization, virtual memory, paging, faulting, and deadlock. It was just that I was not well prepared in OS. That round went pretty average and that was end of it.

The guys who qualified for the next 2 HR rounds were all hired. In the HR round, questions such as personal strengths, weakness etc were asked. It was a bit casual.

Tough Luck again.... 😞

This article is compiled by Vinay Khetan. We will be soon publishing Vinay's Microsoft interviews as a separate post. Vinay was selected in Microsoft. Many Many congratulations to Vinay for his selection.

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5. Microsoft Interview | Set 1

Following are the details of my Microsoft interviews.

Date of Interviews: 30th July, 31st July and 3rd August, 2012

No of Rounds: 1 aptitude test, 1 coding round and 4 PIs

Type of Interviews: Campus Interview for freshers

Aptitude Test(60 mins) (30-7-12)

It was an online test. It consisted of 50 questions, of which 30 were aptitude based and 20 were technical.

30 aptitude based questions consisted of speed-time based, probability, etc.

20 technical question included C outputs, flowchart, finding correct code for prime no, Fibonacci no, etc.

Coding Round(60 mins)(31-7-12)

Three questions were there

Question 1: You have to rotate an $n \times n$ array right by 90 degree.

Question 2: Given a linked list containing 0s, 1s or 2s. Sort it.

Question 3: Two elements of BST are swapped by mistake. You have to restore the tree without changing its structure.

Note that you don't have to write a function only, as happens in Amazon. Instead you are expected to write it from scratch along with main function and all the helping functions.

My advice: Screw the instruction, write the function you are expected to write for all the three questions, then go for helping functions and main function.

Personal Interview(3-8-12)

Round 1(40 mins):

A binary tree is given. You have to check whether left node data is greater than right node data for all nodes.

My Query: What if either one of the left or right subtree is not present.

Clarification: You can then assume max possible value for left data, if absent and min value for right node data.

I was asked to dry run my code for a tree. Also test cases were asked to check my code.

Round 2(80 mins):

Question 1: To find Inorder successor of a node in a binary tree, provided you have

parent pointer.

Question 2: To find Inorder successor of a node in a binary tree, provided you do not have parent pointer. Test cases for both of them were asked.

Question 3: Given a linked list a random ptr also exists. Clone the original linked list. Also give the test cases.

Question 4: Construct a data structure which can push, pop and find minimum in O(1) time. Was asked to code it. Test cases were also asked and was asked to ensure that it works for duplicate elements also.

Round 3(80 mins):

Question 1: A file consists of numerous words in it. You have to print the 10 most frequent words. Data structures to be used were asked and was asked to finally code it.

Question 2: Test cases were asked for a railway portal.

Question 3: A function was there which accepts a number k and a linked list and deletes every kth node of that list. A function to test the correctness of the above function was expected to be coded.

Question 4: An extension of Question 3. What if function accepted an array of numbers instead of just one number and deleted multiples of array elements.

Round 4(40 mins):

This round was easiest of all.

Question 1: Write a modified strcmp function which ignores cases and returns -1 if s1 < s2, 0 if s1 = s2, else returns 1. Test cases were asked, as usual.

Question 2: Write a function which checks whether the tree is height balanced or not. Give test cases also.

To my great relief, this time I was hired.....finally.....😊

This article is compiled by **Vinay Khetan**. Many Many congratulations to Vinay for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

6. Yahoo Interview | Set 2

First of all a big thanks to the geeksforgeeks team. It has been the biggest help in my preparation. Till 5th july i could not write a simple program of tree traversal. But just the arrays, linked list, tree, string, DP and backtracking tabs of g4g helped me reach the interview rounds of Amazon (i was eliminated though) and getting placed at Yahoo. Following is the list of my interview questions.

Date of Interviews: 28th July 2012

No of Rounds: 1 aptitude test, 1 lab test, 4 interview rounds

Type of Interviews: Campus Interview for freshers

Aptitude Test (1 hour)

25 MCQs with no negative marking. 2/3 questions on probability.

Others were related to output of recursive programs and string related codes. Then there were questions based on graphs, OS and networking.

Lab test (2.5hours almost)

The lab test had two sections each comprising of 2 questions. Attempting one from both sections was must to qualify but there was no restriction on attempting more. Section 2 was very easy.

Section 1:

Question 1- Given a file system tree like the one given below, write a program to: a) represent it in memory, and b) find the size of all files in any given path. For example:

```
Input: /etc/vpnc
Output: 114
Input: /etc
Output: 188
Root->/etc->/etc/sysconf->networks 23 bytes
        eth0 32 bytes
        eth1 19bytes
/etc/vpnc->
        Prf1 12bytes
        Prf2 102 bytes
/home->/home/user1->
        F1 99bytes
        F2 33bytes
/home/user2->
        F4 332
/home->
        F4 211
```

Question 2: Given below is a list of smart phones with price and a set of features (app,style,speed) rated in a scale of 0 to 9. You might want to normalize the price on a scale 0-9 where 9 is the maximum price of all phones in the list. Write a program that will take a phone as input and output the three most similar phones. For comparing phones use price and a weighted score of all features as distinct dimensions.

Input- nokia lumia

Output: galaxy note, galaxy sII, iphone 4s

Product	Price	App	Style	Speed
Nokia lumia	32000	7	8	7
Galaxy S II	29000	9	7	6
HTC One	18000	9	6	5
Xperia Mini	13000	7	6	5
Xperia Pro	18500	7	7	7
Black Berry Bold	26500	6	6	7
Nokia N8	19000	5	6	5
Galaxy Note	33000	9	8	7
Iphone 4s	36000	9	9	8

Use the following weights to rank each feature:

App-0.3

Style-0.3

Speed-0.4

My solution:- I calculated the weighted average of the 3 features and assumed them to be a point on x-axis. Scaled down the prices by a factor of 1000 and assumed it to be y-axis. Now whenever an input was given I simply found out the 3 closest points from the given phone's co-ordinates.

Section 2:

Q3. Split a perfect circular linked list (where the last node's next pointer points the first node) in two equal parts (if the total no. of nodes is odd, say $2m+1$, then the first half should contain $m+1$ nodes).

Q4. Suppose we have an array whose length is not known. The content of the array is such that the first of the entries are 0s and the rest are all 1s. Write a function which will take this array as a parameter and return the number of 0s.

When the coding was over, they came over and checked the codes, output and were marking on code clarity, coding style and output.

Interview round 1: (30-35mins)

Initially I was asked 2/3 questions from the aptitude test we appeared in the morning and had to explain how I reached that particular answer.

He took an intro then enquired about favorite subjects and almost the entire interview was based on OS (memory management, scheduling everything was asked).

One good question was **implementing a LRU cache**. I was not supposed to code it but had to give the entire idea.

Then there were several questions on C/JAVA.

Then he asked a question on networking and I clearly answered I don't know anything other than the name of layers. So he asked me to speak a line about all of them.

Interview round 2: (30 mins)

In this round too the interviewer started with a question on networking and once again I told him the same answer. Then he asked me questions from data structure. One of them was difference between merge sort and quick sort. Which one would you prefer and why? Do you really need the auxiliary space in merge sort?

Then questions were asked from DBMS' file storage.

Interview round 3: (15 mins)

This interview was quite casual. Questions like which yahoo product do you use? What are its shortcomings? (Well I just gave him a whole list of flaws of yahoo messenger 😊 :P)

The next question was to give an idea of a product I would like to make.

Interview round 4: (15 mins)

This was an HR round. Basically personal questions were asked. One question that was disturbing was what would be that 1 company given an option you would flunk yahoo. Initially I was bit diplomatic and answered " I always wanted to get in any one of amazon, Microsoft, adobe or yahoo (the big 4 who come to my college). And I have been eliminated from amazon 2 days ago". Then honestly answered him but if I really have an option I will choose MS. 😊

After some time got the result. I was hired. 😊

This article is compiled by **Saket Saurav Pathak**. Many Many congratulations to Saket for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

7. Yahoo Interview | Set 3

Hi, I am Saurav Biswas, from IIT Kharagpur, currently doing my PhD in Machine Learning in Germany. I got hired at Yahoo SDC, India, in December (3rd to be precise) last year, through campus interviews. I was offered a position for Senior Software Engineer.

Interview consisted of a written test comprising of 25 objective questions, a coding round and then three technical and an HR round.

Here is the list of interviews in chronological order :

Round 1 : Written test

The round comprised of 25 objective questions from basic Algorithms , Data Structures , OS , Networking , databases and a few math puzzles. From this round, 20 people were selected for the next coding round . This written round was held sometime in the middle of November .

Round 2 : Coding

We were given an hour, and the problem was something like given a set of 2 dimensional pairs of points (floats/doubles) find out the two nearest points, for each point. I used recursive divide and conquer approach to solve it in $O(n\lg n)$ time. Later I was told to generalize the code for n points (pseudo code) after my algo passed the test cases successfully .

From the coding round around 10 people were selected for the PI round of technical interviews .

Technical Interviews :

Round 1 :

I was posed a few questions on linked lists which I easily answered . The last question was that suppose you have implemented a search engine , you want to find if a URL typed by you is present in the cache of URLs that you have , more or less you have to give an optimized algo for it . I had read about suffix trees , the night before (my good luck) and I managed to code the problem with relative ease . The interviewer was satisfied and I qualified for the second Technical Interview .

Round 2 :

This time , the interviewer posed a math puzzle . I don't remember it exactly , but it was something that the problem when framed mathematically would yield you an inequality in two variables , and you had to solve for the two unknowns . Initially I was in a fix , but the interviewer was kind enough to suggest me that i solve it heuristically . I started with base cases and proceeded up and finally the solution converged after a few iterations . The interviewer was satisfied . He then talked about what I would like to work on if I got an offer from Yahoo . Coming from a machine learning background , I was interested in working on the Yahoo Search Engine and he said he would definitely look into it . I was through that round .

Round 3 :

This time , the interviewer focused on Networking , OS and OOP concepts . I was asked

to code the multiple Producer / Consumer problem , which I did . Then he asked a few questions on OOP , like difference between overloading and Overriding , virtual and friend functions and so forth . There was also a question on Iterators in JAVA . I had a strong grasp on OOP so I answered them . Finally he said he would like to ask me a question from Networking . He told me to explain the Leaky Bucket Algorithm . I didn't know about it , so I said maybe he could ask me something else . So he asked me about TCP Three Way handshake . I did so more or less well .

Final Round : HR

The HR Interview was casual , asking me about personal interests , hobbies (I told I played the guitar) and what I would bring to if offered a job in Yahoo . She also asked me if I had any other companies in hand . I had none so I said I would like to go with the offer if I got it .

So finally I was hired in the position of a Senior Software Engineer . But I got a PhD offer from Germany in Machine Learning , so I declined the offer later in June .

As a note of advise to fellow aspirants , I would say that please read up Cormen and Tennenbaum for Algo / DS . I personally would like to thank g4g for their wonderful collection which is also a must . It helped me a lot too . Also people tend to screw up questions from OS/ Networking so keep basics like Synchronization, Process handling , Deadlocks , Memory management , TCP/IP clear . Read basic stuff for databases like primary keys , normalization and that should be it . Refer to xkcd for standard math puzzles .

Best of luck to all.

This article is compiled by **Saurav Biswas**. Many Many congratulations to Saurav for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

8. Microsoft Interview | Set 2

Please find the details of my Microsoft Interview below.

Date Of Interview: 3rd August,2012

No. of Rounds: 2 online exams + 4 rounds of PI

Type of Interview: Campus Interview for freshers

1st Online Test: Time 1 hour

30 MCQs on basic Mathematical and Logical problems and 20 MCQs on C programming.

2nd Online Test: Time 1 hour

3 programs were to be written. They wanted full length program, not just the functions.

Language: C/C++

1. Given the head pointer of a linked list, each node having data value only 0/1/2, properly sort the linked list and return the head pointer.
2. Given a picture with pixels arranged in an $N \times N$ matrix, right rotate the picture by 90 degree.
3. Two of the nodes of a BST are swapped. Correct the BST.

Interview Round 1: Time 30-40 minutes.

1. Given a Binary tree, where each node has also its parent pointer pointing to its parent, apart from two usual child pointers. Write the function for inorder successor. Discuss all possible test cases for this function and whether your function can handle all those test cases.
2. How can you check whether a binary tree is BST or not, in the most space optimised manner.

Interview Round 2: Time 30-40 minutes.

1. Given two sorted linked list, create a third list which contains only those elements of first list, which are not common with second list. Do this with $O(n)$ time. Discuss all possible test cases for this function and whether your function can handle all those test cases.

Interview Round 3: Time 30-40 minutes.

1. If your friend writes a text editor software and gives it to you for testing, what are the tests you will perform on the software to ensure it meets the basic requirements of a naive user?
2. Given two linked lists, how do you check whether the two lists intersect at some node with $O(n)$ time? Discuss all possible test cases for this function and whether your function can handle all those test cases.

Interview Round 4: Time 30-40 minutes.

1. Given an array of unsorted integers, find all the pairs of numbers which sum to a given N . Discuss all possible test cases for this function and whether your function can handle

all those test cases.

2. Given three points a, b and c, write a function to find what type of triangle they construct or whether a triangle can be made at all. Discuss all possible test cases for this function and whether your function can handle all those test cases.

HIREDD!! 😊

This article is compiled by **Shreyasee Nandy**. Many Many congratulations to Shreyasee.

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9. Microsoft Interview | Set 3

I would like to thank GEEKSFORGEEKS team that they made my confidence level high when it comes to coding. I finished my interview today, hope this could be of help to others.

Date Of Interview: 25th Aug, 3rd Sept, and 4th Sept 2012

No. of Rounds: 2 online exams + 6 rounds of PI

Type of Interview: Campus Interview for fresher's

25-08-2012:

Online test conducted by some PARIKSHA LITE company (outsourced)

TEST 1: There were 15 questions to be done in 30 min. 6-7 of them were basic calculations and program output easy ones.

TEST 2:

A) There were 3 questions to be coded for IDC test:

....1) Check whether a linked list is a palindrome or not

....2) Whether a given sting is a new arrangement of main string (eg COXX is XXOC but not XOC)

....3) Convert a given sorted dynamic linked list to balanced binary search tree.

B) There were 4 question in MSIT test:

....1) Write merging two arrays code or pseudo code.

....2) Reverse a string of characters.

-3) Print binary representation of a given number.
....4) Given a control tower for aeroplane how will you make sure it does not fail.
(Basically designing question)

03-09-2012:

Round1:

Q1) A thread waiting at while(1) and thread waiting at wait(wrt), what is the difference?

Q2) Output of following C program.

```
#include < stdlib.h >
#include < stdio.h >
int main()
{
    unsigned int a, b, c;
    a = rand();
    b = rand();
    c = a + b;
    if( c < a || c < b)
    {
        printf("correct");
    }
    else
    {
        printf("error");
    }
}
```

Q3) Write code to find Nth node from the last of a linked lists, and write test cases for the same.

Round2:

Q1) Write code to implement a command called 'tail -5 filename' in unix file using file pointers and also write test cases (HINT using fread and fseek command)

Q2) Write pseudo code to implement LRU in real time OS.

Round3:

Q1) Write code to convert given number into words (eg 1234 as input should output one thousand two hundred and thirty four)

Q2) Write test cases for the same question mentioned above.

Round4:

Q1) Write anagrams code when you are given an isWord() function in the fastest possible ways and also write test cases for that. After this the HR asked me to come on

next day

04-09-2012

Round5:

Q1) Design a database schema for college elections and how will you make sure at database end that one user can vote for one person standing for one post only.

Q2) Write code to detect deadlocks and prevent deadlocks and implement as two separate functions.

Q3) Write Singleton pattern code and state places with usage of keyword static and virtual.

Q4) given two processes one that updates a database in 2 min and other in 5 min. Together they take 7 min. Design a method that can reduce this to minimum possible.

Q5) Write code to count number of nodes of a tree, find depth of a tree, find width of the tree.

Round6:

Q1) Design a class diagram for students registering for a sport and competition being held based on which you can decide which guy wins or loses.

Rest were sort of HR questions like why microsoft, your strengths etc but in the end she said we will send your feedback to the campus placement cell, Thank you. 😊

This article is compiled by **Ankush Choudhary**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

10. Amazon Interview | Set 4

Please find the details of my Amazon interviews below.

Date of Interviews: 1 Sept 2012

No of Rounds: 4

Type of Interviews: Walk-in for 1 yr experienced

Round 1:

Question 1:- Given a 2D array containing only 0/1's and each row is in sorted order.

Find the row which contains maximum number of 1s.

I was asked to code. Algo which I told was I will search position of first 1 in 1st row using binary search. And mark it. Now note that position check in 2nd row. If there is 1 for that position already found in 1st row, then binary search from 0 to that position else move to row number 3. Similarly continue further.

Round 2:-

Question 1:- Given a Binary tree and two nodes. Need to find the minimum ancestor, no parent nodes given.

Each time when I told answer, they modified question little bit or removed some extra storage which I was taking.

Question 2:- Given a Binary tree and two nodes. Need to find smallest path between them

Round 3:-

Question 1:- Given an array of infinite size containing 0/1 only and in sorted order, find position of first one.

My answer: first check whether 1 is present at 100th position or not if there, do binary search between 0 and 100 else check 1 is there at 200th position, and similarly continue further.

Question 2:- Given life time of different elephants find period when maximum number of elephants lived. ex [5, 10], [6, 15], [2, 7] etc. year in which max no elephants exists.

Other questions were regarding Operating system like virtual memory etc.

Round 4:-

It was HR round. Questions related to project. Questions like why I should Hire you etc were asked.

Result is still on wait.

This article is compiled by **Naveen Kumar Singh**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

11. Adobe Interview | Set 1

Following are the details of Adobe Interview.

Round 1

1. How will you implement a stack using a priority queue. Push and pop should be in $O(1)$.
2. Three mislabeled jars problem.

Round 2

1. How does stack look in function calls? Given a recursive function call, how will the stack look like?
2. When does stack (process stack) overflow? What are the remedies?
3. What are balanced BSTs. Then he randomly gave me various numbers and asked me to create a BST. And to balance it.
4. Advantages of linked list over arrays. And arrays over linked list.
5. How are vectors implemented internally in the library. This question revolved around dynamic implementation of arrays. Then discussed the amortized time of the operations using dynamic implementation of arrays.

Round 3

1. There was a question in written round that there is a global static variable 'lock' initially set to 0 and there was a code segment given.

```
while(lock);  
lock = 1;  
//Critical section  
lock = 0;
```

Does this solve critical section problem. I answered that it will solve in uni processor system but not in multiprocessor system. Then he asked me to explain my answer. After a long discussion we came to a conclusion that this wont even solve in uni processor system. Then he asked me the solution to solve this. I did that using testandset instruction.

2. When a function is called in thread, what variables can be accessed from it. There was a long discussion on this too. I went in the wrong direction but corrected myself later. Stack variables are copied but heap variables are same.

Round 4

1. What data structures will you use to implement a text editor. Size of editor can be changed and you also need to save the styling information for all the text like italic, bold etc.

Round 5

HR Round: Normal HR questions.

Source: Adobe Interview Questions 2013 Batch

Thanks to Suresh for sharing Adobe Interview Questions. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

12. Microsoft Interview | Set 4

Hi, this is Ishita Gupta. I have been one of the lucky hires of Microsoft this year through oncampus. So wanted to share my experience as well as the questions asked for other aspirants to benefit from.

Written round was conducted online. It was a one hour test, with 30 aptitude questions and 20 technical (based on C, C++, Algorithms, flowcharts, logic, pseudocodes). After being selected in 1st written, there was another written. It was of one hour, and there were 4 questions:

1. Replace all spaces (" ") in a string with \0 – write function for this.
2. Give method for finding out if a tree is binary or not – I wrote algorithm for it.
3. Give a method to merge two sorted arrays A and B, provided A has enough space to accommodate B at the end.
4. The problem of late landing of aeroplane due to fog and traffic was presented. They tend to burn up their fuel while waiting for landing. So a instant solution and a long term solution to the problem was asked. This was kind of subjective writing.

Both the writings were done on 14th Aug. Results of the 2nd written was given out on 4t Sept, when they actually came to our campus.

I had 3 rounds of interview.

1st interview:

Started asking what all subjects I know in CSE (as I am from M. Tech ECE, and this time they allowed us too). I told him C, basics of C++, socket programming, little of SQL etc. He asked me what is the approach of C Programming called. (Procedural). Then asked for C++. Then wanted me to explain him the disadvantages of Procedural programming. Then went onto class, object, relations between objects, inheritance, abstraction, encapsulation. Asked me to give an example from the interview room to describe these concepts. (I chose fan!). Then he went to concepts of memory – stack, heap. Static and dynamic memory allocation, static variable and local variable memory allocation. Difference in memory allocation for struct & class and class & object.

Then he "changed gears" and asked me to write a program to reverse a string.

Then he asked me malloc, new. Then he shifted to DBMS or rather SQL, as I mentioned

I know SQL only and do not remember basics of DBMS. He asked me the types of languages in SQL (DML, DDL) and then asked to write queries to get distinct entries from a column and then to get only the non-distinct entries from that column. Then he asked me to give solutions to the problem of timeout and overload on irctc server during tatkal reservation. It went on for an hour. I came out all exhausted!

2nd interview:

After getting shortlisted in 1st interview, 2nd interview started off with concepts of C and C++ as well as OOPS.

Was asked to write a program to find out the duplicates in a string in the most efficient way with least complexity.

Was asked for basic concepts of Cloud Computing. This interview lasted for 40 mins or maybe a bit more.

3rd interview:

This was the last round, and it was HR surprisingly! Questions asked were:

.....Passion

.....Tools for success

.....Discussion of technologies that I have learnt on my own

.....As student of ECE, why MSIT and not Telecom

.....Won't I get bored at MSIT?!

.....Any questions for the panel

This interview also extended for around 40 mins.

Results were declared 5 hours later, with everyone's interview being over. And God gifted me with MSIT job! 😊

Many Many congratulations to **Ishita**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

13. Amazon Interview | Set 5

I've attended the Amazon interview in Hyderabad, This was kindle team, I got rejected but I'd like to share the experience, thought of giving back something to geeksforgeeks, which was a great reference for me.

Written test

Very straight forward

- Given a linked list, sort without extra space.

I wrote merge sort

2. Methods to serialize & deserialize a tree ,must complete the below 2 methods. File serialize (node *root) & node * deserialize(File f)

Cleared the written test, I was told this after 1:30 Hrs.

First round

1. Find diameter of a tree, I've seen the question here, But i didn't recollect.. So solved my self..in some primitive way which made me write code with difficulty.

2. Find a lowest common Ancestor, The variation was the tree was just a Binary Tree, Not BST, It was interesting to solve as i know only BST variation.

Second round

1. Given an array randomize it,

2. Write all possible permutations of a array of size z.

3. Given a 2-D array of 0s and 1s, find islands in it. An Island is 1s together. E.g (below there is U shaped island)

0100001

0100001

0100001

0100001

0111111

4. Write a method to check if a tree is BST or not. I wrote some stupid mistake in this code, probably that gave away my interview.

Third round

1. So many HR like questions. Why Amazon, Why u want to leave, Why u dont want to stay, what did you do to stay back, biggest challenge, worst mistake, etc etc.. blabbered something.

2. Write a method that will test a function which merges 2 sorted linked lists.

3. Design a system, which can convert books from one format to another

Fourth Round

Only one design question: Design a email client.

After 4 days and lot of anticipation, I got a mail saying I got rejected, Was wondering what they exactly look for.

Source: [Amazon Chennai Interview in Hyderabad](#)

Thanks to muzicisgod for sharing Amazon Interview Questions. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

14. Microsoft Interview | Set 5

Hi everyone, I would like to share my experience with MicroSoft, as i have been the lucky hire.

Date: 27th August 2012

No. of Rounds: 2 Written(online) + 4 rounds of PI(all Algo/Technical)

Type of Interview: Campus Interview for freshers

Written (online)

Objective(60 minutes) + Subjective(60 minutes)

Objective: Aptitude + Reasoning(30 questions) and technical(20 questions, C/C++ programs, flow chart, identify correct function)

Subjective: 3 coding question(No in-build compiler in Web-Browser, simply you have to write your working code as a function/functions)

1) A number is given say n, find the minimum number which is greater than n and has same no. of set bits in it.

2) Binary search tree to Doubly linked list conversion(prefer in-place conversion)

3) Find the second maximum no. in an array

Personal Interviews (4 rounds)

Round 1: (40-50 mins)

1) Details about the project that i have listed in my resume, asked various question related to those projects.

2) details about q1 and q2 which is asked in the Subjective round, how you solve the problem and ask to write the same code I have written in Test and explain it.

3) question from OS:

....**i)** You have 10 GB of RAM, and you load multiples instances of a program of size 1 GB(let's say more than 10 instances), then what will happen, how the OS handle this situation and up to what extends?

....**ii)** producer – consumer problem

Round 2: (20-30 mins)

1) You have given a number N, print all balanced parenthesis expression which can be generate using N pairs of open and close braces. For ex. for N=3, ((())), ()(), ()(), ()()

First i gave him a brute force solution(generate all possible combination and check for valid expression),then he ask me for optimized code and I was able to do it after little mess-up.also ask for complexity of my code.

2) You have given a adjacency matrix of a graph, find the number of connected component set of the graph.

Round 3: (35-45 mins)

1) A string str and two character a and b are given to a function, find out the minimum distance between these two given characters in the str. first I gave him a bruce force solution($O(n^2)$) then he ask to optimize it ($O(n)$) and finally somehow i was able to do it.

2) You have n processes and m available resources, explain each step of OS in the execution of those process along with which data structure will be suitable at a condition, which scheduling algorithm will suit best, also in case of preemptive scheduling, waiting queue etc.. its take a long time to explain him. but finally he is satisfied with my answers.

3) Write a modified strcmp function which ignores cases and returns -1 if $s1 < s2$, 0 if $s1 = s2$, else returns 1.

4) iterative inorder traversal.

Round 4: (40-45 mins)

1) Give a schema for college student database management(tables, attributes and relationships), ask me to normalize it up to 3NF.

2) Some queries based upon schema:

Find the maximum score of each student in his/her last semesters math subject.(it also be possible that some student got year back and not promoted, handle all the cases).

I tried it hard, gave him 2-3 wrong answers, but not able to do it(as i'm not very good in DBMS).. but he was satisfied with given schema.

3) He ask me about favorite programming language, and why I like that language..

4) You have given a range in Integer(a to b), find all the prime number between a and b.

.....**i)** first i gave him the simple solution(check every no. whether it is prime or not).

.....**ii)** then he asked about Sieve and to implement it, and which one is better(first approach or sieve)

5) what is most challenging moment in your B.Tech life. ?

6) Why do you want to join MicroSoft.?

7) Some question on my hobbies.

8) do you have any question for me.?

i asked 2-3 questions related to job profile(SDE/SDET) that they are offering,current projects and areas.

Finally...end of PIs and After 10-15 minutes, To my great relief, this time I was hired... 😊

Many Many congratulations to **Ajeet Kumar**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

15. Microsoft Interview | Set 6

I am a guy from CSE dept, IIT-BHU and currently in 4th year. I am placed in microsoft now and all the credit goes to geeksforgeeks for sharpening and improving my coding skills. Thanks a lot guys for such a wonderful site. Below is my interview experience, if its of any help to my fellow job seekers.

Written Round 1 :

50 multiple choice questions in 60 mins time. Had 2 sections – Aptitude and Programming Ability.

Written Round 2 : 3 coding questions in 1 hour.

1. Swap every consecutive odd and even positioned bit in a number.

Ex:- 10101011010101 = 0101011101010

2. Given a binary search tree . Convert it into a doubly linked list in place (no extra space) such that prev points to left child and next points to right child.

3. Given a linked list that contains 0,1 and 2 . Sort this linked such that it contains 0s first, then 1s and then 2s in O(n) time. Ex:- 2->2->1->0->0->2->1->1->0 = 0->0->0->1->1->2->2->2

PI round 1 (Technical):

1. About urself, most challenging project of all you have done and about ur internship.

2. Remove from string s1, all the characters that are present in string s2.

S1="abcde" s2="xyazbx" Ans. S1= "cde"

3. Reverse alternate k nodes in an linked list.

Ex:- 1->2->3->4->5->6->7->8 if k=2; then return 2->1->3->4->6->5->7->8

- Always ask some questions to the interviewer at the end. That's a good gesture.
- Write test cases for the programs above and see if ur program covers all the test cases or not.

PI round 2 (Program manager)

- Design a tic-tac-toe game for multiplayer on a smartphone.
- Design a vending machine for blind and deaf.

PI round 3 (Technical)

- Add numbers from 1 to n^2 into a $n \times n$ matrix spirally.

1	2	3	4	5
16	17	18	19	6
15	24	25	20	7
14	23	22	21	8
13	12	11	10	9

- Remove duplicates from a string in place. Ex-microsoft -> microsoft
- Some question on recursive functions using memoization technique for optimization.

PI round 4 (Testing)

- Given a func :: int *strcmp(char *s1,char *s2);
Write test cases to check functionality and security issues and even automate the generation of test cases.
- Given a func :: int typeOfTriangle(int side1,int side2,int side3); (func gives a number for the type of triangle)
Write test cases to check functionality and security issues and even automate the generation of test cases.
- WAP to reverse words in a sentence.
I am a good boy -> boy good a am i

- WAP to get the next higher palindrome of a given number.

123 -> 131 1232 -> 1331

PS – Functional issues are test cases that check the functionality of the program and Security issues are the ones where the program may crash.

PI round 5 (Technical)

- WAP to check if a binary tree is a BST or not.
- WAP to find Least Common Ancestor of two nodes in a BST.
- Reverse every two nodes in a linked iteratively and recursively.

PS- Whenever u write a program be sure to cover all the corner cases and write it in a

proper indented way. As interviewers ask to write testcases for the program u have written and then check if ur program covers all the test cases.

All the best fellas !!!

Many Many congratulations to **Pritam Kumar Das**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

16. Amazon Interview | Set 6

Following are my interview details for senior software engineer in 2010. Thought of sharing it, if it helps anybody

Telephonic Interview 1

- 1) Write your own power function in C/C++. Time complexity of your code, optimizations.
- 2) Given two strings, write a function to remove all characters in one string which are present in other string

Telephonic Interview 2

- 1) Construct a tree from ancestor matrix. The main thing he wanted to check was use of binary search.
- 2) Find the k maximum selling items at amazon site at the end of day. Given a file which has count all sold items. Use of min heap was expected.

Face to Face 1

- 1) Given a Binary Search Tree, in-place convert it to DLL.
- 2) Find the next greater element for every element in array.

Face to Face 2

- 1) Median of two sorted arrays.
- 2) Given an XML file, how will you store it in memory. Use of tree was expected.
There were some more questions that I don't remember.

Face to Face 3

- 1) Given a Binary Tree, check if every node is sum of all of its children.
- 2) Given any Binary Tree, convert it to a tree where every node is sum of all of its children.
- 3) Given an array, find three numbers a, b and c such that $a^2 + b^2 = c^2$

That is all I remember now.

Thanks to **Vivek** for sharing Amazon Interview Questions. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks

17. Amazon Interview | Set 7

Hi my name is Anandhakumar. P. I am a 2012 pass out from college of engineering guindy. I recently underwent offcampus interview with Amazon, Chennai, India for the post of SDE. I love geeksforgeeks and i will call it as the best site to prepare for coding interviews. Here goes my interview experience. Hope this is useful to someone and someone gets benefitted by it.

Written test [1 hr 15 min duration]

Three questions were asked.

1) Check whether a tree is balanced.

2) Reverse k nodes in a linked list.

eg 1->2->3->4->5->6->7->8->9->10->11 [k=3]

answer must be [3->2->1->6->5->4->9->8->7->11->10]

3) arr1 – 4, 5, 6, __, __, __

arr2 – 1, 2, 3

arr1 has enough free space to hold elements of arr2. Merge array 2 with arr1 in a sorted manner.

Cleared this round. I felt it easy as i was preparing for it for more than 2 months and geeksforgeeks helped me greatly.

1st face-to-face interview [1 hr 15 min]

Short description about myself

[2 min alone. Just told my name and my most important project for which i won ipad 2]

1) An array of size n is given. The array contains digits from 0 to 9. I had to generate the maximum number using the digits in the array such that it is divisible by 2, 3 and 5

eg: 1 array = 18760, output must be: 8160

eg: 2 array = 7776, output must be: "no number can be formed"

[discussion went for more than 35 minutes. Every time i gave a solution, he was adding the constraints and finally i did it. he was ok with it.]

2) least common ancestor in a binary tree [Note : not binary search tree] [30+ minutes]

I explained him with several methods and finally he was ok with and asked me to write the code for and i did it. he checked my code for different test cases and finally he was ok with it ..

Not even 5 minutes break i was asked to get ready for next face to face interview .

2nd face to face interview [1 hr 20 min]

Short description about myself [2 min alone. just told mmy name and my most important project for which i won ipad 2. dont tell too much. they just wanted to know a little about u . inshort ur name and college.]

1) zig zag traversal of a binary tree. [35+ min].

Man i have studied this in geeksforgeeks and wrote him the code using recursion, which was working perfectly. But he told me to use reduce the complexity by using any data structures. I told him a logic using a stack and a queue. Another logic using 2 stacks . But he wanted me to use only one data structures. I tried using a single queue and he helped me a little and finally he was ok with it .

2) A $n \times n$ matrix is given which is containing elements in which each row alone is sorted. column is not sorted. I have to convert it into a single dimensional array which will hold all the elements of the array in a sorted manner.

I told him many logics . actually he kept on adding constraints with whatever logic i told him. Finally he gave me a hint and asked to use minheap property and finally he was ok with it. I solved this question using lots of help with him. man i was in interview for continuously more than 3 hours.

I am waiting for my result for next round. I will update if i go through the next rounds. Overall it was a great experience with amazon and people in amazon are very smart minded.

Hope this is helpful to someone!

Thanks to **Anandha Kumar** for sharing Amazon Interview experience. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

18. Microsoft Interview | Set 7

Recently I attended Microsoft Campus Interview and got selected. Below is my Interview Experience and I just wanna share it to GeeksforGeeks viewers.

1st Round:

Online Aptitude test:

Aptitude, logical questions and subjective Questions

2nd Round:

Online test

In this round we are asked to type the code in notepad and send (no compilers)

3rd Round:

It started with introduce yourself and he introduced himself to me. Then he asked me about my project and it went to some stuffs related with memory. He asked me how a program is stored in memory

1) Write a program for beautification (proper indentation) of a program file in an IDE.

ex:

```
int main() {
if(i<10){if(i>10)
printf("Hi");else{};
}else{}
return 0;
}
```

You are provided with getToken() which returns a token

ex: if(i>10) is a token

int main() is a token

{,} are tokens

so output should be

```
int main()
{
    if(i<10)
    {
        if(i>10)
            printf("hi");
        else
        {
        }
    }
    else
    {
    }
    return 0;
}
```

void beautify(char* inputfile,char* outputfile)

Give some testcases for the above program

2) Write a program to find the diameter of a binary tree and then he wanted to extend it for m-ary tree.

4th Round:

1) You are provided with a string which contains single byte as well as two byte characters. If a character is single byte char, it's MSB is 0, if it's a 2 byte char, it's MSB is 1. Write a program to check whether the given string is palindrome or not.

Test cases for above program.

2) Write a program to print the n-nodes from tail of the linked list.

Test cases for above program.

5th Round:

1) Write a program to Validate an IPv4 Address.

Write test cases for above program.

2) Write a program to find all the possible paths from a starting point to dest point in a maze(2-D array).

```
ex: 1 0 1 0  
    1 1 1 1  
    0 1 0 1  
    0 0 1 1
```

If there is a block it's represented by 0.

If there is a path it's represented by 1.

6th Round:(Final Round)

Write a code for printing last n lines in a file (refer man page of tail command in linux).

The file size may vary, it may be 1MB or it may be 100 GB.

Give top 10 test cases for the above program

Many Many congratulations to **Muniraj G.** If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

19. Microsoft Interview | Set 8

This about my experience of MS interview, which happened last day

Division: Microsoft Bing R&D

Rounds: Total 4 rounds (All face to face)

Location: Hyderabad.

Tech Round 1

1. Find the middle point of the linked list
2. Check whether loop exists or not in Linked List
3. How to calculate the size of the linked list
4. Given an unsorted array, how to divide them into two equal arrays whose difference of sum is minimum

-> First I proposed sorting and then distributing them to two buckets. She's fine with that. However she doesn't want to sort the array and asked if i can solve in $O(n)$ time

Tech Round 2.

1. Given an array, rotate the elements of an array within $O(n)$ time and with $O(1)$ space
- > This is the worst round for me. Made silly mistake. I felt very bad after coming out. couldn't get an idea of continuous swapping

Tech Round 3

1. Given a sorted array, find the pair of elements whose sum can be equal or close to given sum
2. Given an array [a1b2c3d4] convert to [abcd1234] with $O(1)$ space and $O(n)$ time

Director Round 4

1. Given Linked list, write heapify and delete methods.
 2. Given two sorted arrays of any length, find out the median of them if they are sorted into single array.
- > Lost here. I couldn't find good solution. I think it's my bad luck 😞 If i could have crossed this question, I would have been in MS by now.

Anyways, it's a nice experience overall. First time I entered into MS campus and first interview with them. Learned lot. Needs to improve and get into that by next time 😊 They will give little hints and try to use them and make solution out of it.

Thanks to **Nitin Gurram** for sharing Microsoft Interview Questions. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks

I have recently been through the recruitment process of ADOBE. I didn't get through (I got the reply today), but I sincerely hope that my experience will help some of you in your endeavors.

Round 0: Written Test - I was called for a written test. The test was 3 hours long. It had four sections – Quantitative, Analytic, Data Structures and Algorithms, and Core Java & J2EE fundamentals

The questions were simple. The paper had a time limit for each of the individual sections but somehow the HR collected the answer sheets (and the question papers) all together at the end of 3 hours.

There was no negative marking but they had a different weight-age for questions in each section

Quantitative: 30 multiple choice questions. Time limit: 45 minutes

Analytical: 3-4 Analytical Puzzles followed by 4-5 follow up questions (multiple choice). Time limit: 15 minutes

Data Structures & Algorithm: 10 questions (not multiple choice) to be answered with a brief explanation. Questions like 24ABC in base 6 would be what in a base 7 system. Write a program to find the missing number in an array of size N-1 which had jumbled up numbers ranging from 1 to N. I hope you get the idea.

Core JAVA & J2EE – The Core JAVA section had general questions on JAVA. They stressed a lot on threads.

I dint know much about J2EE but the whole paper had just 6 questions on it, so missing them didn't cost me much.

Almost a week later the HR informed me that I had done really well in the test and that I have to come to the ADOBE office for the first set of interviews.

Interview 1

1) He gave me a custom PERSON object. This object had some properties like name, surname, age etc. He asked me to write a function which can return the size of this object. He asked me to write a generic code that will work with any object. The object may have inbuilt data types like in the PERSON object or it may have another custom object inside it such as a FAMILYBACKGROUND object. He gave me a few functions from the JAVA API which can tell you about the contents of an object. He asked me to write a helper function that can return the size of default data types like int, float etc.

2) He gave me a sorted but rotated array and asked me to find the pivot.

Interview 2

1) He gave me a sorted but rotated array and asked me to search an element inside it without finding the pivot. Complexity of the solution should still remain O(Log n)

2) Find the mean and median of the elements which are dynamically added at runtime.

3) I have a list of N teams T1, T2, T3 ... Tn. Each of these teams has played a match against every other team. I have a function displayResult(Team T1, Team T2), it returns the team which won the match between any two given teams T1 and T2.

I have to write the teams in an order such the (n-1)th team (in the order) had lost to the nth team which in turn had lost to (n+1)th team..

For example if in a particular order, the teams appeared as T1, T2, T3, T4 ... then team T1 had lost to T2, T2 had lost to T3, and T3 had lost to T4... It may be possible that T3 lost to T1 .. but that need not be taken into consideration while writing the order. Only the neighboring elements should be such that the element on the left has lost to the element on the right.

How will you write the teams in this order? Write a code for it

Make all the necessary assumptions you need to solve the problem.

4) Print an order of all the knight moves such that it fills up an 8 by 8 chess board. The moves should be such that no block that has been stepped on is visited again.

After a few days, the HR informs me that I have qualified for the next round. Only this time my interview will be taken by some of the senior executives at ADOBE.

Interview 3

1) General discussion about the work done in projects, internships etc.

2) What is reflection? How does JVM find the right class to instantiate an object?

3) Draw a Pascal triangle. Write a code to print the elements of an N level Pascal triangle using a 1 dimensional array.

Interview 4

1) Generate all possible combinations (of r elements) inside an array of size N

E.g. arr [] = {2,8,14} All possible combinations of r=2 will be {2,8}, {8,14}, {14,2}

2) Why are string objects immutable in java? How are Strings structurally designed in java?

3) When should one use merge sort and when should one use quick sort?

HR

General questions like if selected which office would I like to work for? Where do I see myself 5 years from now? etc etc...

I stumbled on the interview questions in the fourth round (Probably why I wasn't selected).

Please post if someone has answers to them.

Best of luck.

Source: <http://www.geeksforgeeks.org/forum/topic/adobe-interview-8th-september-28th-september-2012>

Thanks to ganglu for sharing interview experience. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

21. Microsoft Interview | Set 9

I am Amit Dhaka. Following is my experience of MS IDC intern interview.

Date of Written: 9th September, 2012.

Date of Interview: 15 October, 2012.

No. of Rounds: 2 online exams + 4 rounds of PI

Type of Interview: Campus Interview.

1st Online Test: Time 1/2 hour

10 MCQs on basic Mathematical and Logical problems (mostly on P&C) and 5 MCQs on C programming.

2nd Online Test: Time 1 hour

3 programs were to be written.

- Given a no. in form of base 4, you have to convert into base 2. The no. is given as a String. Do it in place.
- Given a sorted circular linked list. You have to insert an element in it.
- Two BST's are given. You have to print common nodes that are present in both of them.

Interview Round 1: Time 40-50 minutes.

- Given a string, you have remove duplicates from it in O(n) time and O(1) space. String can have ASCII characters. Try to use minimum extra space.
- Given a binary tree, check if it is balanced or not.

Interview Round 2: Time 25-30 minutes.

- Given two sorted arrays you have to merge them into single array.
- Given an array, find all the pairs of elements whose sum is k.
- Given an array, find a sub-array in which all pairs have their sum greater than k.

Interview Round 3: Time 30-40 minutes.

I was asked to tell something about myself. I spoke only a minute then he started asking problems.

1. Given an array, find the maximum contiguous sub-array with the maximum sum.

My query was can the array have negative values. He said yes.

2. Given two BST's, find the least common ancestor.

3. Traverse a binary tree in a Zig-Zag order.

Interview Round 4: Time 30-40 minutes.

First he asked me if I have any queries for him. I asked 3 questions as asking questions is a good gesture. You can ask that what kind of work will you be getting. Then he started with the problems.

1. Given a sorted array and it has been rotated unknown times. You have to find minimum element of the array. I did in $O(\log n)$.

2. He asked about the test cases for spell checker of MS Word.

Then he asked questions related to my resume. My advice will be that you don't write anything by which you can be doubted. Be confident about what you have done. If there is one thing you are good at then it is enough.

I was lucky, and got the intern!!

Many Many congratulations to **Amit Dhaka**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks

22. [TopTalent.in] Interview with Arun Dobriyal who landed a job at Facebook, Palo Alto

In conversation with Arun Dobriyal, a Computer Science graduate from IIT, Kharagpur who was recently hired by Facebook for a whopping pay package of 1.3 Crores, much higher than the 77 lakhs being quoted in newspapers. In clear and concise words, Arun gave us quite a few nuggets of knowledge that many students, aiming for similar achievements in life, will find really valuable.

A long and hectic day of exams and interviews, concluded really well for him when he was informed that he has been selected. Words cannot do justice to his joy at that moment and thus, when asked about his reaction to the news, he says that his happiness knew no bounds. Since the previous statistics on Facebook's recruitment were quite dreary, his expectations were quite low this year. Therefore, his pleasure in being one of the lucky four this year from his college is perhaps quite obvious. At the end of the day, this feat can be attributed to his amazing knowledge and persistence.

His account of that day proves how thorough the company is in choosing only the best and most deserving. An online exam was conducted to select 25 students out of over

200 students who had applied. There were two software engineers and a HR person from the Facebook's Palo Alto office to manage and conduct the whole process. The 25 were subjected to an offline coding exam consisting of just two questions, only to select about 10 students. The shortlisted students then underwent a round of individual interviews. He was the first one to face a conference call interview with a few people from California, which also consisted of two on-the-spot coding type questions. If this wasn't enough, there were three more rounds of interviews to conclude the hiring process. But in the end, he and three others passed with flying colours and, of course, hefty pays.

Arun, with his vast experience and wide range of accomplishments, has lots of advice for the future graduates. In one of his most important points, he clearly implied how trivial a résumé is. It's a formality and a minor part of the process. It's all about exceedingly strong fundamentals.

When asked about what giants like Facebook are looking for in students, he answers with supreme proficiency in algorithmic programming and data structures. It is algorithmic programming and not system programming that has gained a lot of importance. Of course, qualities like good communication skills and other soft skills are a given for any such high-profile offer.

One of the most important qualities that set you apart from your peers is how good you're at using algorithms to solve any given problem instantaneously. Exceptionally strong foundation in the subject is pivotal to your success. Although the programming language is the candidate's choice, being very good at one language is a very valuable asset. In his opinion, it's a must. His repeated emphasis on fundamentals illustrates the fact that they are a must to perform effectively, be it in the interview or at the company itself.

To those who've a long way ahead before sitting on an interview chair, his advice was loud and clear – Try to gain as much experience as possible. Internships at start-ups and corporate companies, in both India and abroad, are the best opportunities to do so.

That companies like Facebook visit just a few colleges every year, only to recruit a handful of people shows how competitive the recruitment market is. Although talent from all over the country wishes to connect with companies like Facebook, not all of them are able to find the right opportunities.

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23. [TopTalent.in] Rushabh Agrawal from BITS Pilani talks about his Google interview experience

Google is consistently chosen as the best workplace in the world and engineers all around the world would simply love to be a part of this amazing and innovative organization. Rushabh Agrawal, a Computer Science graduate from BITS Pilani, recently got recruited by this dream organization in Mountain View, California Office and we, at [TopTalent.in](#) got an opportunity to talk to him. He speaks about his personal reactions (read jubilation), the recruitment process and gives out useful tips & suggestions for all aspirants.

First question that anybody would ask – How did it all happen?

The campus placement season at BITS Pilani kicked off with the Google written test on 10th August. He had almost forgotten about it because nobody heard from them for quite some time. But on August 28th, five of the numerous applicants got calls for interviews at the Bengaluru office of Google. And by 6th September they were in India's silicon city for their interviews. I'm sure he would agree with me when I say it was all worth it. After all, 2 of the 5 lucky candidates (Rushabh Agrawal and Kunal Lad) actually got selected for Google's Mountain View office.

When asked about his reaction to the good news, he clearly demonstrated the fact that it will remain an unforgettable day for him. "It was in the afternoon and I had just come back from lunch in the hostel mess; still hungry, given the food that day." And that was when he saw an email informing him of his selection. He remembers the moment clearly, "I spent the next 10 minutes going through the email trying to come to terms with what was written in the email." Within 10 minutes he received a call from the Google HR person to personally inform him about his selection and that was when the joyous feeling finally seeped in. While she went on to describe the package details and terms of joining, Rushabh was too jubilant to care about all that she was saying! His friends and 'wingies' were already shouting and cheering around him within minutes – all this while the HR lady was speaking to him. He declares that the feeling still remains like a too-good-to-be-true thing.

On whether the selection process is different from the usual campus placement processes.

We've heard of those brain teasers and super-tough questions from Google's interview. Rushabh disagrees and says the process is more or less similar to companies like Microsoft, Amazon etc. Only difference was in length of the placement process. Usually, when companies come for campus placement, the process gets over within a day, on the campus itself. But Google almost took a month.

There was an initial screening test followed by a series of interviews. All interviews they had at Google were technical and each interviewer tested a different domain of knowledge and thinking. There was an open ended discussion as well, in one of the rounds. Rushabh also had a couple of publications in his kitty and a couple of interviewers discussed about them as well. A very interesting point is that during the

complete interview process, there were no eliminations after each interview. All of them went through the same number of interviews. During the interview, the interviewers constantly took down observations/opinions. In his opinion, at the end of the entire process, all the points are tallied to select the candidates. He cheerfully tells us that apart from the interview they got to enjoy the lunch at Google and were put up in a really awesome place for the night.

On the kind of skill-set companies like Google, are looking for in candidates.

He informs us an in a matter-of-fact way that knowledge of Data Structures and Algorithms are a must, along with decent coding skills. In addition, knowledge of Computer Networks and Object Oriented Programming (OOP) can come in handy as well. Knowing anything else is a bonus. Like in anything else, practice (solving problems in this case) helps a lot. Interviewers generally evaluate a candidate based on his/her response (thinking process, approach) to unknown problems. So they look for problem solving skills as well, in addition to experience. It is a fact that companies like Google look for highly intelligent people. And the resume, along with the interview process, gives them ample opportunities to evaluate a candidate's intelligence.

On how to create a perfect technical resume which would stand out.

Companies like Google don't care about the candidates' non-technical achievements. So don't clutter your resume by mentioning those. Keep your resume short and crisp. No point explaining everything as they do not "study" your resume (His was a 1 page document). During the interview, the interviewer may glance through it and on finding something interesting, would like to talk about it. This will start a discussion and the conversation, which is now in your hands, offers a good chance to impress the interviewer. Write your resume accordingly (such that it evokes enough curiosity in the mind of the interviewer). Also, you'll obviously want to talk about some of your projects/publications more than the rest. So highlight your work accordingly. Now there's some really specific and useful advice, right?

Interested people would obviously want to know how much preparation goes into winning such great offers. He gives an honest response and says "I didn't prepare for Google specifically apart from going through some of the Google interview questions available online, a couple of days before the interview." According to him, the questions in general are similar to what one would encounter in interviews for Microsoft, Amazon or any other similar company.

"Preparing for placements in general over the summers, worked out good enough for me", he says (practice is the key, evidently) This type of preparation is only to channelize one's thought process for the problems posed during interviews, which are different in nature to what one would otherwise encounter. An important point to note is that the range of questions asked in interviews is not very broad. So the preparation basically familiarizes you with common tricks and stuff that would come into use frequently. Knowing them won't necessarily impress the interviewer but not knowing them would take you a notch below the rest of your competitors. Beyond that, whatever you

have done so far – publications, projects, coding experience, etc will come into play. You basically use all the knowledge gained and skills acquired in the past few years.

To conclude we asked Rushabh to give some advice to all the students out there who're aspiring for similar job offers. To start with, he clarifies that that the interviews at Google are not very different from those at Microsoft or Amazon, contrary to popular opinion. He, personally, did not find them "extra difficult" (and he says this on behalf of all 5 who gave the interviews from BPPC)

Also, during the interview, you are not judged by simply your success in reaching the most optimal solution. You are judged on your thought process and failure to reach the final solution is not the end of it, which is important.

For the 1st and 2nd year students, (and many of them have asked him "the recipe" to get a job at Google), a lot coding practice and a very good knowledge of Data-structures and Algorithms to get a job like this is a good way to go forward but not the only way. He, himself, didn't possess a great coding profile but his profile was based more on projects and publications, in things like Machine Learning, rather than algorithms. "What I feel is that you must try to gain as much knowledge and skills as you can. You never know what will come handy." The candidate's intelligence and problem solving ability would take care of the rest. You basically pursue whatever interests you or excites you. There is no long term preparation for getting a particular job and thinking in terms of that would not only restrict you but, also, is too short-sighted an aim to have.

Of course, every aspirant has to spend small amounts of time preparing explicitly for interviews. It's just a great exercise to streamline the thought process. Like any other interview process, a lot depends on factors beyond one's control. As they say, the rest depends on the day.

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24. Amazon Interview | Set 8

I recently interviewed with amazon for the position of SDE1 in their TRMS team. The interview procedure was unimaginable rigorous.

Here are the details

Round 0: Written Round

Interviewstreet Test – 2 questions to be done in 2 hours

Q1: Calculate the expression $(2+3)*5$.. The question just said this .. I guess we had to make our own assumptions to solve the problem

Q2: Two trees can be called isomorphic if they have similar structure and the only difference amongst them can be is, that their child nodes may or may not be swapped..

for example

—4

—2—6

-1-3-5-7

and

—4

—6—2

-1-3-7-5

are isomorphic .. the trees are similar and a few nodes have their left and right child swapped...

Given two trees determine if they are isomorphic...

The interviewstreet people marked the solution to my first question wrong even when it worked fine.. When I told the HR about the situation, she got it checked with some of the amazon guys and they were ok with it.

I cleared the written test.

Telephonic Interview 1

Q1: Find the Kth largest integer in a Binary Search Tree. When I told her the solution like the one given on geeks for geeks, she asked me to do it using recursion.

Q2: Given an array of positive integers, find the max no that can be formed by any permutation of the arrangement. I told her a logic. She then asked me to write just the comparison function to choose one number to put before the other.

When I gave the interviewer straight answers, she twisted the question more.. Probably they wanted to see how i think and approach a problem.

Telephonic Interview 2

Q1: A binary search tree is given with its two nodes interchanged. I had to find both the

nodes.

Q2: Identify all the pythagorian triplets in the given array.

I cleared this round. The HR told me I had to come over to Bangalore for in-person interviews. (all the travel arrangements were made by amazon itself)

Personal Interview 1

Q1: Find the sum of continuous subarray within a one-dimensional array of numbers which has the largest sum .. I didnt know a solution (kadane's algorithm), but somehow I was able to work it out in the interviews ..the interviewer liked my way of approaching and did help a little

Q2: How can you best implement queues using stacks. What would be the time complexity?

was able to do this one quickly.

Personal Interview 2

Q1: Find non-unique characters in a given string. I told her one $O(n^2)$ [brute force], one $O(n \log n)$ [sort and then compare adjacent elements], and one $O(n)$ [store the character count in an array] approach. She then asked me to do it in $O(n)$ without using array.

Clueless, she finally told me she wanted me to use BIT Vector. I wasnt well converse with Bit Vectors and I told her so.. She still asked me think more. Finally she told me a solution using the same which was impossible to think in the interview alone, especially when one didnt know what BIT Vectors were. She agreed when I stated the point and accepted my previous $O(n)$ solution and we proceeded to the next question.

Q2: Given an array of integers, populate another array with the product of the elements of the first array except for the current index element.

Here when I gave her a $O(n)$ solution [find product and divide it with current element to get the number for this index position], she asked me to do it without the divide operator. Gave her a $O(n^2)$ solution. But I couldn't think better. Finally just when she began to tell me an $O(n)$ approach, I remembered the geeksforgeeks solution to the problem and gave it to her. Probably she didn't consider it. (don't know for sure)

Personal Interview 3

This interview was with the hiring manager at Amazon. He first asked me a couple of HR questions like Why Amazon? Why should we hire you? Projects, internships etc ..? How would you handle a disagreement with your team mates? Etcetc ...

Then he asked me a programming question.

Q: He drew a circle on the board and marked a few points on it. Named them X1, X2,

X3 ..

Then he said these are gas stations, and you have to find the correct gas station from where a car should begin to loop in the circle such that it never runs out of gas before completing a round. He then sat on the table.

(Sorry, but I will have to describe it in detail to tell you how it was put out to me.. and off-course to bring in more clarity to the question itself..)

Unclear about what I had to do exactly and what information was available, I asked him back a few questions.

Why will car run out of gas after fuelling from lets say the first gas station?

He said each gas station has limited amount of gas (lets say X1) and after fueling from this station it can run out of gas even before reaching the next station (anything could happen, it may be able to cross the next gas station but run out later before completing the round..). So I have to find a gas station the car should start the loop from such that it never runs out of gas before completing the loop.

So can the car refuel at the next available gas station, if its able to make up to it?

Yes

Do we have the information about the amount of gas required to reach from one petrol pump to another?

Yes

I made an assumption that the car tank was huge enough to fill as much gas as possible.

And then I drew two arrays, one holding the amount of gas each station had, and other the amount of gas needed to go from this station to the next station..

Fuel Available: X1, X2, X3, X4, X5

Fuel Required to reach next station: Y1, Y2, Y3, Y4, Y5

He said ok, and asked me to go ahead.

I then took the difference (Y1-X1), (Y2-X2) ..and stored it in an array.. and then suddenly it hit me that this became a simple problem of finding the maximum sum of a continuous subarray within an array (circular). He liked my approach and asked me to program it. Did it and showed him a dry run of the code I had written. He was ok with it.

(I felt good after the interview because in there I didn't stumble at all ..)

Personal Interview 4

Q1: We have a huge file with braces '(' [just one type..] Find if they are balanced .. (stacks wouldn't work here because you will probably run out of memory storing the

stack ..) When I gave him another solution, he asked me to do it using parallel processes. I told him to elaborate more.. (to be honest I wasn't familiar with parallel processes) .. Finally I told him so ..and he asked me to think about it still ..

We discussed it for about 20 minutes. Not reaching anywhere he moved on to ask me the next question.

Q2: Find the smallest substring which contains all the characters of the main string. Again I dint have a solution to this. I gave him a $O(n^2)$ approach. He asked me to think further because the way I was approaching it was the way to go about it and I can make use of the last sub-solution obtained to improve my complexity. Couldn't think of anything, we finally moved on to the third question.

Q3: given the numerator and denominator of a fraction, find the quotient and the remainder without using divide and mod ('/', '%') operators. This was simple. I did it. He then asked to write the invariant of my solution which was $\text{denominator} * \text{quotient} + \text{remainder} = \text{numerator}$.

He then asked me to think about the cases when either or both of numerator and denominator were negative. We were almost out of time so he didn't give me time to think and concluded the interview. He wanted me write an invariant that was true regardless of the input. Now that I think of it, I should have said $|\text{denominator}| * \text{quotient} + \text{remainder} = |\text{numerator}|$

Flew back home in the night.

2 Days later the HR informed me that I didn't make it in. 😞

This was probably the most difficult of all the interviews I have ever had.

Hope it helps some of you ..

Thanks to **ganglu** for sharing Amazon Interview experience. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

25. Amazon Interview | Set 9

How did it start?

I completed and submitted the 4 programs at the link:

<https://amazon.interviewstreet.com/challenges/dashboard/#problems>

Later on I came to know that the recruitment through this link is over. So I contacted a few of HR persons at Amazon, and I got a new link for online programming test.

Online Programming Round: (5 methods, 2 hours)

- 1)** A sentence is given which contains lowercase English letters and spaces. It may contain multiple spaces. Get first letter of every word and return the result as a string. The result should not contain any space. Complete the following method:

```
static String getFirstLetterWord(String text) { }
```

- 2)** Given an array. Iterate it for the given number of times. And then return the summation of the resultant elements.

Ex: Array is { 1,2,5,6}, N=2

After 1st iteration: {2-1, 5-2, 6-5}={1,3,1}

After 2nd : {3-1, 1-3}={2,-2}

Sum is 2 + (-2) = 0

If only one element remains in the array, the element remains the same after applying the iteration. Complete the method.

```
static int iterateSequence(Vector<Integer> a, int N) { }
```

- 3)** Find Nth largest element in the BST. Complete the method.

```
static int nLargeBST(Node root, int N) {}
```

Given that

```
class Node
{
    Node left, right;
    int data;
    Node(int newData)
    {
        left = right = null;
        data = newData;
    }
}
```

- 4)** Swap adjacent nodes in the linked list. Change the links, not the data. Complete the method.

Ex:1, 2, 3, 4

o/P: 2, 1, 4, 3

ex: 1,2,3,4,5

op: 2, 1, 4, 3, 5

```
class Node {  
    Node next;  
    int val;  
}  
  
static Node swapAdjacentNodes(Node head) {}
```

5) Find length of the Longest-Increasing-Subsequence.

e.g.1.

i/p: 1, 2, 3

o/p: 3

explanation: the sequence is increasing

e.g.2

i/p: 4,5,6,7,8,1,2,1,2,3,5,4,6,7,8,9,0,6,7

o/p: 8

xp: 1,2,3,4,6,7,8,9

e.g.3

i/p: 1,2,9,4,5,10,7,8

o/p: 6

xp: 1,2,4,5,7,8

e.g.4

i/p: 20, 3,22, 5,50, 34, 49, 91,110

o/p:6

xp: 20,22,34,49,91,110

OR

3,5,34,49,91,110

Complete the method.

```
static int lengthLIS(Vector<Integer> sequence) {}
```

Telephonic Interview 1:

- 1) A M x N matrix, filled with 0s and followed by 1s. Find the row which contains minimum number of 0s. E.g.

0 0000 1

0 0 1 111

0 00 1 11

The answer is 2nd row. (Row index: 1)

2) Find whether given two strings are anagrams of each other.

3) Given an array of size N, move the first d elements to its last.

e.g. {1, 2, 3, 4, 5}, d=2

- output: {3, 4, 5, 1, 2}

Telephonic Interview 2:

1) Given a BST, find the node which contains the value which is equal to (or lowest greater than) the input value.

2) Kadane's algorithm for 1 dimensional array.

3) Given a point P and other N points in two dimensional space, find K points out of the N points which are nearer to P.

Face-to-face Interview 1: (Hyderabad, Date: November 08, 2012)

1) Given a Singly Linked List which contains integers, bring odd values in the beginning and even values at the end. The relative order of odd values, and that of even values should be maintained as it is.

e.g. 34, 45, 78, 10, 33, 5

- o/p: 45, 33, 5, 34, 78, 10

2) Given N sets of integers, remove some sets so that the remaining all sets are disjoint with one another. Find the optimal solution so that the number of sets remaining at the end is maximum.

Face-to-face Interview 2 (with a manager):

1) Given an array of size N, a window of size W slides over it by increment of slide S. If the window reaches to the end, we should stop there. Find a formula in form of N, S, W so that we can find the number of valid windows. Write a program to find minimum in every window and print it. Optimize it.

e.g. {1,2,3,4,5}, W=2, S=1

first window: {1,2} min=1

second window(increment by S=1): {2,3}, min=2

...

last window: {4,5}, min=4

The array might not be sorted. I have taken sorted array for simplicity.

Face-to-face Interview 3:

- 1)** Trim the Given BST by given min and max values. It means remove the nodes which have values less than min or greater than max. Write iterative and recursive – both the solutions.
- 2)** Given an array of strings, find the string which is made up of maximum number of other strings contained in the same array.

e.g. "rat", "cat", "abc", "xyz", "abxyz", "ratcatabc", "xyzcatratabc"

Answer: "xyzcatratabc"

"abxyz" contains 2 other strings,
"ratcatabc" contains 3 other strings,
"xyzcatratabc" contains 4 other strings

- 3)** Find integer value of \sqrt{N} . Do not use any library functions or any mathematical solution.

Face-to-face Interview 4 (with the manager of the unit of opening):

- 1)** Given a 2-dimensional array of integers, find the value 1 in the array, and set all those rows, and columns to 1, which contains one of the values as 1.
- 2)** Suppose you are working in companies like naukri.com. You need to collect email Ids and contact numbers of all the Software Engineers aged between 25 to 40, in India. How will you do that?
- 3)** Suppose a person of the age of your grandfather works on computer. He knows little about the computer. And he complains that it was working fine, but for last 2 days, it has become very slow. How will you solve it? What could be the reasons?
- 4)** Design an IVR system for a Restaurant in which customers can book their tables for lunch and/or dinner. Advance booking for 2 or 7 days/as you wish. After the request from user, respond to him that you will confirm the request within 5 minutes. Check availability and send SMS confirming the same. If the SMS is delivered then assume that the customer is genuine. If the SMS is not delivered properly, discard the user request, as it is not genuine.
 - i) How can you take names and email Ids of the customers during the process?
 - ii) What can you do for repeat customers? How will you identify the repeat

customers?

iii) If there is request for a team size greater than the table size, what will you do? E.g. request for 10 persons when table sizes are 6, 4 and 2.

All the Best!

Thanks to **Hitesh** for sharing Amazon Interview experience. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

26. Amazon Interview | Set 9 (Answers)

This post is about answers to the questions asked in [Amazon Interview | Set 9](#). It contains links to some of the solutions available on the geeksforgeeks. I have also written my answers which I replied in the interview. I hope it would help the readers.

Online Programming Round: (5 methods, 2 hours)

- 3) <http://www.geeksforgeeks.org/archives/10379>
- 5) <http://www.geeksforgeeks.org/archives/12832>

Telephonic Interview 1:

- 1) <http://www.geeksforgeeks.org/archives/24272>
- 2) <http://www.geeksforgeeks.org/archives/18752>
- 3) <http://www.geeksforgeeks.org/archives/2398>

Telephonic Interview 2:

- 3) Find the distance of every other point from P. Then use of max-heap of size K.
<http://www.geeksforgeeks.org/archives/2392>

Face-to-face Interview 1: (Hyderabad, Date: November 08, 2012)

- 2) I gave the following solution (with the help of the interviewer):

1. For every set, find out the number of sets it has intersection with. Also maintain those set indices.
2. Remove the set which has maximum number of intersection. And update the remaining numbers.
3. Repeat step 2 till we have any set which has intersection with any other set. At the end, we will have the solution. (Still not sure about optimality).

We can relate the solution with graphs: Remove some nodes so that remaining all the nodes are isolated nodes.

Searching: To make searching efficient, we can build trie data structure using bits for every set. So that we can find the intersections faster.

Face-to-face Interview 2 (with a manager):

- 1) I tried for some time. Then the interviewer gave me the formula. The number is $1 + \text{ceil}((N-W)/S)$ in all the cases.

For second part of question, simple solution is to find min in every window. But we can optimize so that we can utilize previous results/previous min.

Bit optimal: I created a min-heap of W elements. But the heap contained indices of the array elements, not the values inside the array itself. The indices were stored in heap as per their values in the array. Then for a new window, search the heap linearly (heap was in form of array), replace the old indices (which are no longer in the new window) with the new indices, and adjust that index in the heap. After adjusting all the new indices, we will have new min for the new window at the root. (Not sure whether the complexity brought in to the solution is worth!)

Face-to-face Interview 3:

- 2) I gave a solution based on trie data structure using characters of the string. But he suggested to build trie based on the string itself. However, I was not able to think in that way.
- 3) Linear search. Binary search.

Face-to-face Interview 4 (with the manager of the unit of opening):

- 2) I said, we can organize an online coding competition. People would register and we will have the details. He replied, it's too expensive. Then I said, we can postpone the competition!

All the Best!

Thanks to **Hitesh** for sharing his answers. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

27. Amazon Interview | Set 10

Recently I got interviewed at Amazon Hyderabad. I just wanted to share my experience. Hope someone gets little help from this.

1. Telephonic

a. In Binary Tree node, extra pointer `->next` is given in the structure of node. Make linked list at each level.

I did it with using Queue made of doubly linked list. Time complexity $O(n)$, space $O(n)$. I was asked to write code as well on collabedit site.

b. Equilibrium point in array, `equiPoint` = ith index where $\text{Sum}(\text{Left array}) = \text{Sum}(\text{right Array})$.

Did it $O(n)$ time complexity and $O(1)$ space. I was asked to code it as well.

2. Telephoinc

a. Find each pair in BST, which adds up to given number k.

Explained different methods for it and he asked me to code for one.

I did it as follow.

```
void findPairs(node *start, int k)
{
    if(start == NULL)
        return;
    findPair(start->left, k);
    if(k - start->data > start->data)
    {
        if(search(start->right, k - start->data)) // this search is normal BST search.
            printf("(%.d, %.d), ", start->data, k - start->data);
        findpair(start->right, k);
    }
}
```

b. There were few other simple questions. I don't remember know.

1. Onsite: with Hiring Manager.

a. About Project, cross questioning, etc.

b. Two files containing large number, one in each. You have only fopen(), int read(fp), fclose(), fwrite(). Add these two numbers and write in third file with the help of given functions only.

Explained him the logic and he was okay with it.

c. Write sql query for getting direct and indirect reportees of a given employee. Lets say Employee table(emplId, ManagerId).

wrote it and he verified it and it was okay. Recursive query, CTE.

d. Oops concepts, asked to explain Static keyword with all possible example.

Explained, variable, methods, classes one by one with Static keyword.

2. Onsite: with Developer.

a. Print encoding for an Array.

Rules: consider BST made from given array. Let say number x is present in the BST and to reach x, If you go right print 1, if left then 0.

Now you are given an index i in the array A (so $x = A[i]$) and print the encoding without constructing BST to reach x

and without space with least time complexity.

I was not able to do it on the spot but after this interview, I got some free time and solved it and handed over papers to the interviewers. I liked this problem. It was little interesting.

b. Find triplets in array so that $a+b+c = k$, k is given number along with array.

c. Then moved to finding all possible pair set in an array. Mind the term SET. Take care of duplicates as well.

Reduce time complexity as much as you can.

3. Onsite: with Developer.

a. Given array, find all possible sets of elements which add up to a given integer K.

I coded it with just 4-5 lines in just couple of secs. It took little time to make him understand the solution.

I was given an input of 6 numbers in an array and asked to run my solution till the end. It was recursive and he asked me to keep on writing, writing, writing, till he got that okay, it will work fine.

b. I was asked couple of questions which I already knew and I told him and we moved on to next questions. I don't remember what he asked.

c. If tree is BST or not. Coded it.

4. Onsite: with One Manager and Senior SE.

a. Discussion on my current Project. Quite a good discussion. It took quite a good time.

They asked me what more enhancements I can think of for features, I made in my project.

I explained few different things that I could think on the spot and they liked it.

b. Linked list with a "mad" pointer along with "next" pointer in it, mad can point anywhere(can be null as well). Return clone of given such linked list.

I already knew the best approach for this. Then he asked me to think something else. I mentioned Hash. He was okay with it and we moved on.

c. Replace the elements in an array with the next following greater number of it from right side of the element.

I told him I already know this and I asked if he wants me to explain the algo. He said so and I explained. Then we moved on.

d. Reverse each K nodes in linked list.

e.g. 1->2->3->4->5->6->7- given

output 3->2->1->6->5->4->7-

e. Two strings S and S1. Remove all chars from S which are present in S1.

Explained them all possible methods for this what I could think of(with space, without space). Finally, they were looking for BitMap solution. I explained that as well before one mentioned it.

f. Design a Chess game.

Gave different classes and their relations, some procedures, then cross questioning and I was able to give all answers which he mentioned quite reasonable.

They were okay with the design.

In the whole interview process I was asked like 8-10 questions which I already knew and I mentioned the interviewers same. I was told why you read so much.

Overall, it was quite a good experience for me. I liked the way interviewers were interacting. They were very supportive and friendly as well.

Unfortunately, I was not selected. 😞 I have no idea what they were looking for.

Thanks to **Vinay** for sharing Amazon Interview experience. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

28. Amazon Interview | Set 11

I would like to thank geeksforgeeks team for the excellent website. I got placed in amazon because of your website. I would like to share my experience and the interview questions.

1 round was online written technical test

There were 20 MCQ and 2 programming questions. Each correct answer carried 1 mark and -0.25 for a wrong answer. Programming questions were:

—Write a program to find the difference between the sum of nodes at odd height and the sum of nodes at even height

—Given an array of integers representing coin values and the sum required. find the number of coins required to get the sum

4 technical rounds

Various programming questions related to data structures were asked. Each round was an elimination round. Questions asked were

- Write a program to traverse the tree in spiral form in $O(n)$ time.(Hint:use two stacks)
- Program to implement atoi function
- Program to swap the kth node from end and kth node from front
- Program to find loops in linked list
- Find the maximum length palindrome in a string
- Difference between process and thread
- Advantages and disadvantages of thread and process
- Test cases for checking binary tree
- Test case for atoi function
- Test cases for finding loops in the single linked list

Each technical round was for 60-90 minute duration. There was no HR round 😊

This article is compiled by **Supreeth**. Many Many congratulations to Supreeth. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

29. Oracle Interview | Set 1

I attended the Oracle Server Technology interview at Banglore. They started with a PPT followed by a written test. Then two rounds of technical interview and then HR. Finally result got declared after a week and got selected thank you geeks for geeks.

You are expected to write a algorithm/pseudo code followed by actual code in c/c++/java.

Q1. A tree is given, send it on a network. You can assume send() and receive() functions are available.

Q2. A compressed string is stored in an array of sufficient length. Write a program and its complexity to un-compress the string. i.e. a3b6c4 à aaabbbbbcccc

Q3. A media player selects songs from a database contains huge number of songs. Create a shuffle function such that it selects a song randomly but it does not repeat the songs. You can assume random function rand() is available.

Solution 1.

- a) Read the string in inorder and transfer it using send() and receive() function.
- b) Read the string in preorder and transfer it using send() and receive() function.
- c) At the receiving end inorder and preorder both are available so tree can be reconstructed.

Solution 2.

- a) First read all the frequencies and add them up as total_freq.
- b) Start filling of array from index total_freq.
- c) Repeat a character by the frequency given.

Solution 3.

- a) Enumerate the songs, Assign a specific number to each song.
- b) Write a map function which maps() the output of random() function to the size of song database (size).
- c) Play the song whose number is output of map function.
- d) Now scale up the sequence number of that song such that it moves out of range of map() function, i.e. seq_no= seq_no + size; (so that next time it can't be repeated until all songs have been played once).
- e) Once all songs have been played, again scale down their sequence number.

This article is compiled by **Shailendra Verma**. Many Many congratulations to Shailendra Verma. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

30. Adobe Interview | Set 3

Following is Adobe (**Testing**) experience.

1st round:

- What do u know about adobe..
- Changes u want to make in adobe reader (as i said adobe reader is my fav)

- Why testing and y not developing
- Your interest (as my fav sub was os)
- What is the difference between win 8 and win 7
- What is the diff between thread and process
- When u open a new tab in browser, the new tab is a thread or process(questions related)
- Test case for bottle
- Test case for stapler
- Program to check syntax of string

Puzzles:

- Cut round cake into 8 equal pieces u can use knife only 3 times
- 8 marbles puzzle(very famous)
- Given a crescent moon shape. Cut it into 7 parts with 2 cuts at max.

2nd round:

- Program to print last nth element of linked list in single traversal
- Program to create mirror image of binary tree
- Rope puzzle(famous)
- Difference between static and dynamic linking in terms of binary code.
- Given n people in a room. Each one shakes hands with only those people who are known to him. You have to prove that there will be at-least two people among them, having same number of shake hands.

3rd round:

- HR, normal n frank

4th round :

Puzzles:

- 25 horses puzzles(famous)
- Hour glass puzzle(famous)
- You have to assemble a computer, with minimum cost. check if it is running the boot strap program.

Many Many congratulations to **Saumya Varshneya**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

31. [TopTalent.in] How Flipkart gets the best out of their applicants

Flipkart is certainly one of the most amazing companies to work for in recent times. The

startup environment, great people and the enthusiasm really gets to you. As it takes new strides to becoming a giant in the ecommerce space with new products every month (like ebooks recently), it needs highly qualified professionals to sustain this growth. Here is how it's like to interview with Flipkart for a software engineering role.

Going through the rounds

Flipkart, like most companies, had multiple rounds of interviews. First in the list was an online round in which the candidates had to attempt 30 Multiple Choice Questions and 2 programs to do in 90 minutes. Major topics that most of the questions were based on were the general concepts of Aptitude, C Language, Object Oriented Programming, Data Structures, Operating Systems and Databases.

This was followed by another written round in which they asked a programming question. Applicants had to face three rounds of technical interviews. These concentrated heavily on general algorithm designing. The problems given primarily tested Recursion Techniques, Greedy Techniques and Dynamic Approach to design an efficient algorithm.

Best part? They kept guiding the candidate if he/she got lost anywhere in the process.

Flipkart recruiters mainly tested on how we think when solving a problem. It's not that you should know a lot of things, but you should be able to apply whatever you know. At many occasions hints and directions like "Think like this....." and then find a better solution were provided. They want to get the best out of you during the interview, so just go across different problems and try to apply your knowledge of algorithms into different applications.

The written round tests the basics and the interviews test how he/she applies different techniques and methods to develop an efficient algorithm for a problem. They mainly focus on your thinking process, so I would suggest keep speaking your ideas continuously during your interview. If you go wrong they will guide you.

Advice and Tips

One should be clear in the basics of any preferable language. He/she should be able to think and apply the knowledge of one concept in another situation. No one will ask anything straight from the book. All Books can give you so much – standard algorithms and standard problems. From there on, it's the candidate's skill that will decide his performance. It is you who has to decide given a problem which method will be most feasible and fastest.

So the advice would be to see different problems on greedy techniques and dynamic programming using recursion. And try to understand why a particular technique was used and why other techniques would have given poor results. This will help in thinking wide when you come across a problem.

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32. Amazon Interview | Set 12

I am very thankful to geeksforgeeks team for such a great site. I got offer from Amazon.

Written Test

It was online test on interviewstreet.

20 MCQs- basics of C & C++, OS and some aptitude question

There were 4 technical rounds each for 40-60 minutes, no HR round.

1st Round

Given two numbers and a binary tree, all elements in binary tree are distinct, write code to determine the shortest distance between the two nodes. (unit distance between two adjacent nodes). Nodes don't have parent pointer.

2nd Round

1. <http://www.geeksforgeeks.org/archives/3758>

2. There are some glasses with equal volume 1 litre. The glasses kept as follows

1			
2	3		
4	5	6	
7	8	9	10

You can put water to only top glass. If you put more than 1 litre water to 1st glass, water overflow and fill equally both 2nd and 3rd glass. Glass 5 will get water from both 2nd glass and 3rd glass and so on..

If you have X litre of water and you put that water in top glass, so tell me how much water contained by jth glass in ith row.

Example. If you will put 2 litre on top.

1st – 1 litre

2nd – 1/2 litre

3rd – 1/2 litre

3rd Round

1. <http://www.geeksforgeeks.org/archives/3042>

2. Liked list is given as below (with elements as 1, 2 and 3), sort this in one pass.

3->2->2->1->2->3->1

4th Round

1. An expression is given.

[] can enclosed [], {} and ()

{} can enclosed {}, ()

() can enclosed only ()

Check that brackets in the expression are valid or not according to enclosing condition and opening closing condition.

Follow UP:

Two arrays are given.

One array contains symbols and second one contains expressions. Symbol array contains opening symbol at even index and closing symbols at odd index just after opening symbol. Index is starting from 0. Opening symbol at index i can only contain symbols from i to $2n-1$. If there n pairs of symbols.

Now check that expression in the expression array is valid or not.

2. There are m sorted arrays of each size n. You have another array B of size $m \times n$. Fill the array B from the m arrays in sorted order. Give the optimal solution.

I liked the way interviewers were interacting. They were very supportive and friendly as well.

This article is compiled by **Viswas**. Many Many congratulations to Viswas. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

33. Microsoft Interview | Set 10

Written Test

It was online test which contains 20 MCQs on C & C++.

The coding round had two questions.

Given some text lines in one string, each line is separated by '\n' character. Print the last

ten lines. If number of lines is less than 10 then print all lines. Do the level order traversal of complete binary tree. Given

```
1
2     3
4   5   6   7
```

Print it as

```
1
2 3
4 5 6 7
```

Technical Round 1

First he asked me to tell him about any project which I have worked on. Given an array of integers. Find consecutive elements in array which has maximum sum. I know the solution to this problem so I told him quickly. Next he modified the question and asked me to find consecutive elements in array that have sum equals to zero. Taking some time, I told the answer to this question also. Next he modified question again and asked me to find consecutive elements in array that have sum close to zero, given that there is no sub array with sum equals to zero. Also write test cases for it.

Technical Round 2

Given a linked list. How will I detect whether the list has cycle? Also write test cases for it. He then asked me whether I have some knowledge of graphics programming. He asked me how I will implement 'floodfill' for graphics application. Write code and test cases for it.

Technical Round 3

Given a 2D array and a key value. Search this key value in array and turn all elements in row and column of this key to zero. Given a sorted array of size n. Each element in array is unique and lies from 1 to n+1. Find the missing element. Write code and test cases for the same. How will I keep track of number of visitors visited my web page?

Technical/HR Round 4

Given a string. Find a character with most number of occurrences. Write code and test case for same. Why I want to join Microsoft? What's the most challenging task I did in my graduation life?

HIRE 😊

I would like to thanks geeksforgeeks team for this wonderful site which helped me a lot and without which I would not be able to crack this interview.

This article is compiled by **Akash Gupta**. Many Many congratulations to Akash Gupta. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

34. Groupon Interview | Set 1 (SDE Profile – Fresher)

Hey Guys, I am sharing my experience with Groupon.

First Round (Skype Interview)(one to one)(55 Mins)

They gave me a simple problem just to check my coding skills and my approach. You have a robot in a grid, it can move in forward direction and can change its facing towards north, south, east n west and you are given a command sequence. So what will be the final position of the robot

Example

Grid(100*500)

Robot Position – (5,3)

Sequence — {N,S,M,M,E,W,E,S,M,S,M} North, East, West, South, Move forward

Problem is easy, but they want it on shared editor which will give them chance to ask so many questions whatever you are writing or if u r doing undo operation. They asked me for the perfect code for all boundary cases. I did it well.

So that's all in first round then they ask me some HR question.

Second Round (Again Skype Interview) (Two to one)(48 Mins)

Again they asked a single problem which is very popular level order traversal, but again the major part is shared editor,

I quickly told them my approach, they said ok. Now they make changes in the question. You will have to print it level by level with line break. So I gave them one another method which works in O(n) but they told me to make changes to the first approach. I made changes to the solution, they were satisfied with it, then told me to code it. Again they asked me questions in the code. At last they were very satisfied with the code, I was able to make quick changes according to them or if I have missed something

Face to Face interview

Third Round(45 Mins)

He started with general discussion then HR, Then he gave me a problem.

1) You have a binary tree on client machine, how will u send this info to server and how will you again maintain the tree over the server. I thought few mins, tell him my approach, he was asking for easier way. Then finally I told him my approach. He was satisfied and told me to write the code how and what info will u send and how will u again maintain it on the server, I write both the codes and He was very satisfied with my code.

Fourth Round (40 Mins)

1) Find the min and max in an array in minimum no of operations with complexity. I told him approach, he told me to code it and he was satisfied with it

2) You are given a graph and an algorithm that can find the shortest path b/w any two nodes

Now you have to find the second shortest path between same two nodes. I thought few mins and tell him my approach, he was satisfied and told me to code it.

Now I was not expecting any tech round but....

Fifth Round (1.15 Hour)

She asked me lots of question from OS, DS, OOPS

1) Project description and what was my role

2) Threading, semaphore, Process, Locking Unlocking

3) OOPs basic questions- Polymorphism(runtime, compile time) virtual, vtable, some more questions.

DS questions:

4) Connect nodes at same level, then code for that, then test cases

5) Some questions based on complexity and which will be the better

6) Which sort will u prefer for linked list and why?

7) In a grid, you are given a position, and every location has some value. find the shortest length so that you can touch to any boundary of the grid. I code it then she asked me to optimize it, I did that also.

8) Some other questions but I don't remember now.

Finally hired by Groupon. Special thanks to GeeksForGeeks team, really amazing site for DS questions. That's all for the Groupon. Overall it's not difficult if you are good in DS. Most of the questions are very popular and you had already prepared. They are focusing on your approach and your coding skills.

ALL THE VERY BEST.....:)

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

35. Microsoft Interview | Set 11

Company – STB team, Microsoft IDC.

Location – Hyderabad.

First interview

1. A quick introduction.

2. Few questions on multi-threading like –

...a. What is race condition?

...b. What is critical section?

3. Write a code to find out longest substring without any repetition of characters with $O(n)$ complexity.

Ex.

String – abcdefghaxyzpbn

Output string – bcdefghaxyzp

4. Two linked lists are merged at one point. Find the merging node.

Second Interview

1. A quick introduction

2. Few project related questions mentioned in resume.

3. If you have huge log file, you need to print last ‘n’ lines from the log file. Write a code for it assuming regular file read operations.

He was also expecting that the page hit is minimum.

I had provided a solution which would read the file one by one and then will store it in a ‘n’ size circular linked list.

4. If you have a $m \times n$ floor, find out a ‘k’ size square tile which will take care of filling the complete floor without breaking of tile.

Use GCD logic.

Third interview

1. A quick introduction and he also asked what was asked in previous interviews.

2. We have a $m \times n$ matrix, every element in row is in increasing order and every element in column is in increasing order. Find out a position of element ‘k’ from the matrix with $O(m+n)$ complexity. Write a code for it.

3. We have a ‘n’ steps and a ball which take either 1 step at a time or 2 steps at a time.

Find out the number of possible ways it covers exactly 'n' steps.

This article is compiled by **Girish**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

36. Qualcomm Interview | Set 1

Company : Qualcomm

Position: Summer Intern(Software)

Written Test

It was an online MCQ test. Time limit was one hour. There were around 55 question. It consists of three sections:

1) Aptitude Questions

Pretty simple.

2) Programming ability :

Patience is required to solve the questions. They were easy. Most of them had 3 to 4 nested loops.

3) Third section had questions from OS, CA, C++, DBMS. Most of them were from OS.

Technical PI (around 1.5 hr):

There was only one Technical Round

1) He asked me about my projects and made me write the pseudo code and flow chart for two projects. He wanted the perfect flow charts with the correct symbols used.

2) Priority Inversion (what, where and why)

3) Volatile Qualifier

4) Difference between static and global variable storage class

5) Questions on Storage classes

6) Toggle only second bit of a 8 bit char(both from right and left). Write one line code.

7) Coupling in C++ and Cohesion. Required combination(low/high).

8) All OOP concepts in C++. How they are implemented in C++.

- 9) How will you make a computer.(explanation of the components of computer).
- 10) Operating System uses(detailed explanation.)
- 11) How Application Software uses OS.
- 12) Drivers
- 13) CPU scheduling algorithms (one of my projects was on this). What and where each one of them should and shouldn't be used. Advantages and disadvantages, if priority is considered in each one of them. If already considered how it is affecting.
- 14) Binary and Linear search.
- 15) Three switch puzzle.
- 16) Merge Sort and Quick Sort.
- 17) How will you improve any of your algorithm:discussed on space and time complexities.

This all I remember.

HR Round (30 minutes):

- 1) Introduction
- 2) She asked me about my projects, how you can enhance them, how they are useful to me.
- 3) Weakness, anything interesting thing about you that you can tell me.Examples for them.
- 4) Some points which you remember from the presentation.
- 5) Why Qualcomm, why you for Qualcomm?
- 6) What do you like more while working in a project , conceptualizing e.t.c and why?
- 7) Do you have any problem going out of station?

Selected.

This article is compiled by **Tapasweni Pathak**. Many Many congratulations to Tapasweni. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

37. Amazon Interview | Set 13

Round 1 (Telephonic)

Q1. For a given number, find the next greatest number which is just greater than previous one and made up of same digits.

Q2. Find immediate ancestor of a given Node

Q3. Clone the linked list having an extra random pointer in nodes which is pointing random node in the list.

Round 2 (F2F)

Q1 In a binary tree, a random pointer is given in each node. If this pointer pointing other than any successor of the node then set it as NULL. Otherwise let it remain untouched. Write code.

Q2. You will be given the number of pairs of parenthesis. Find out the total possible valid unique combinations and there should not be any duplicity. Write code

Round 3 (F2F)

Project and some questions related to it.

Q1 Given an in-order traversal of a special binary tree having property that the node is always greater than its left and right child. Construct the tree and write code.

Q2 Find top 10 trending words inserted by users in sites like twitter. Only algorithm.

Q3 write an efficient code to find the first occurrence of 1 in a sorted binary array. (2 minutes only)

Round 4 (Telephonic)

Q1. Remove duplicated from a string in $O(n)$ without using hash.

Q2. Find the first occurrence of 1 in a sorted infinite binary tree.

Round 5 (F2F)

Amazon has many visitors to its site. And it tracks what pages the customers visited, etc and other stuff.

Make an efficient data structure for storing 3 days of information of all those customers who have visited site exactly two different days and searched more than 3 unique pages of the site in those 2 days.

So whoever visited site exactly two days out of these three days and visited more than 3 unique pages should be in the contact list.

After final round got a regret mail after 3 days that I was Not selected.

This article is compiled by **Ramendra**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

38. Strand Life Sciences Interview | Set 1

Name – Saurav Kumar Singh

Course – Dual Degree (Computer Science & Engineering) IIT Delhi

Company- Strand Life Sciences

Visiting place- IIT Delhi

Date- 2nd December 2012 (second placement day)

Posting – Bangalore

2 Rounds

173 students participated in first round.

Round 1 (Written Test – 1 Hour)

1) question based on conditional probability

2) To prove that $1 + 3 + 5 + \dots + 2n-1 = n^2$, without using induction

3) Nut – Bolt problem- there are n nuts and n bolts and we have to match every nut bolt pair efficiently. two bolts or two nuts can't be compared. But for one bolt and one nut it can be said that bolt is undersize or oversize or exact fit for the nut. ($O(n\log n)$ solution expected)

4) Given the design of physical square root calculator. Give the explanation how does it work. (I can give more details of this question if you want)

5) There are two vessels of capacities "a" and "b" respectively. We have infinite water supply. Give efficient algorithm to make exactly 1 liter of water in one of the vessel. You can throw all the water from any vessel any point of time.

6) Given 3 rubber bands and you have to entangle these bands in such a way that if you cut any of the 3 bands, other two rubber bands get free. Draw diagram for 3 bands. Also give methodology for "n" rubber bands.

I scored 87/100 in first round and was one among the 5 shortlisted students from 173 students participated in first round.

Round 2 (personal interview – 2 hour)

- 1) There are n points in 2-D space. Give an efficient algorithm to output all the quadruples which form square.

first i gave crude solution of $O(n^4)$ to check all the quadruples whether they form square or not. then i modified my solution to check for 3 points whether they can form the square of not and if they can form they make sure that 4th point exist or not. To check the existence of 4th point i suggested Hashing. Then they asked the next question

- 2) How is HashMap implement in java internally. Means what hash function does java use internally. Both in case of integers and in case of other objects. I answered this question correctly (HashCode)

3) for the first question they asked me to use binary search to search for the 4th point. Asked me about the comparator to sort the points. Finally i gave $O(n^2 \log n)$ solution to first question. because we need to consider only 2 points and check for other 2 points using binary search.

- 4) Asked to code every thing for first question from scratch to check my coding skills

5) Given a statement with space omitted (e.g. “thisisatest” for “this is a test”). You are given a function isWord(String input) which check whether a word is correct dictionary word or not. You have to print all the valid statement which can be formed from given string with space omitted.

Initially I gave recursive solution for the problem which was correct. They asked me to given dynamic programming solution for the question. Finally i gave a dynamic program for the same.

- 6) why dynamic programming is preferred over recursive solution?

- 7) Asked me about my final project which is in area of approximation algorithm. Also asked me about my future plans.

Finally I got an offer from Strand Life Sciences 😊 on the same day after 20 minutes.

Many Many congratulations to **Saurav Kumar Singh**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

39. Facebook Interview | Set 1

I am a final year student of IIT Guwahati and the first phase of placements has just finished at our college. I was recruited by Directi but not before three grueling rounds of interview. I was also shortlisted by Microsoft, Facebook and Goldman Sachs as well but got rejected after the first round of interview from all the three companies :(. I will be posting questions relating to all the companies I was interviewed by as well as some interview preparation advice (which should be particularly useful for students sitting for on-campus placements). Following are Facebook interview questions

Online Coding round:

It boiled down to finding all possible simple paths (paths without cycles) between two vertices in a graph.

Round 1:

- 1) Given a string, check if it is a palindrome by ignoring spaces. E.g. race car would be a palindrome.
- 2) Given two very large strings, consisting of only digits, multiply the two strings and return the result as a string.

This article is compiled by **Vikram Goyal**. Many Many congratulations to Vikram for his selection in Directi. We will be soon publishing other interview experiences as separate posts. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

40. Microsoft Interview | 12

Online Test:

MCQs: Mostly comprise the following types: find the output, definitions of basic C/C++ concepts.

Coding questions:

- 1) Given a very large string, print the last ten lines.
- 2) Do a level order traversal of a binary tree.

Interview Round 1:

1) Find the output:

```
void print()
{
    char str[20] = "hello world\0";
    int i=0;
    while (str[i]!='\0')
    {
        printf("%c", str[i]);
        i++;
        str[i] = str[i-1];
    }
}
```

There was a very detailed discussion on this question for nearly twenty minutes. I think I kind of screwed this one. Basically, I had to explain how and why does a segmentation fault occurs.

2) Suppose a linked list contains list of documents containing a particular word. You are given two such linked lists and you have to print names of all documents that contain both these words. [I gave an algorithm based on the assumption that the list contains document names in sorted order]. I was also asked to write the code regarding this. This operation can be classified as (A and B), where A and B are the words and they have lists associated with them. He then moved on to more complicated cases such as (A and B or C and (not D)). Brackets may or may not be presented. I was only asked to give an algorithm corresponding to this.

3) What are the steps that occur when you send an E-Mail. A detailed discussion was done regarding this wherein we also discussed about the layers of the OSI model, the protocol used for sending E-Mail, the layer to which it belongs to.

This article is compiled by **Vikram Goyal**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

41. Goldman Sachs Interview | Set 1

Written test:

It comprised three papers that were held back to back and took approximately three hours. The first two papers were subjective.

....First one tested us on the concepts of probability. I don't quite remember the questions but one of them asked us to find the Eigen values for a given matrix
....Second one tested our coding skills. Few of the questions I can recollect:

Given a set of numbers, find the pairs whose sum is divisible by k.

Given a number find the next largest palindrome number (e.g. if number is 100 then the next largest palindrome is 101).

....The third paper tested our knowledge of computer science subjects. It was mainly focused on Networks and required us to know the basics of TCP/IP, time to live (TTL) etc.

Interview Round:

- 1)** Tell me about yourself. (This was totally unexpected!)
- 2)** Find the probability that three points chosen on a circle lie on the same semi-circle.
- 3)** In a matrix a saddle point is defined as the point such that, it has the maximum value in a corresponding row and the minimum value in the corresponding column. Given a NXN matrix find the maximum possible saddle points.
- 4)** Given that you toss a fair coin, what is the expected number of tosses required before you get n consecutive heads?

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42. Directi Interview | Set 1

Written Round:

- 1)** Given a binary tree, such that each node contains a number. Find the maximum possible sum in going from one leaf node to another.
- 2)** Suppose you have some guests arriving at a party. For each guest, you are given the arrival and departure time. When a guest arrives he is given a wine glass and when he leaves he returns that wine glass (it becomes available to be given to another guest). Find the minimum number of wine glasses needed to serve all the guests. The arrival and departure team can only be between 1800 to 2359 hours.

Interview

Round 1:

- 1)** Suppose you have strings like A, B..., Z, AA, AB,AZ and so on. This is similar to the way the columns of excel are named. Given a number you have to find the corresponding string. (e.g. 27 would map to AA). I had to give the algorithm and write

the pseudo code for this.

- 2)** Given n biased coins, with each coin giving heads with probability P_i , find the probability that on tossing the n coins I will obtain exactly k heads. I had to write the formula for this (i.e. the expression that would give us $P(n, k)$).
- 3)** Given n positive real numbers, find whether there exists a triplet among this set such that, the sum of the triplet is in the range (1, 2). Do it in linear time and $O(1)$ space.

Round 2:

- 1)** Suppose we have three positive integers A, B, C. We randomly choose an integer a in the range [0,A] and an integer b in the range [0,B]. Find the probability that $a + b \leq C$.
- 2)** Repeat the above problem for the case when A, B, C are three positive real numbers.
- 3)** Given a regular expression and a string (that apart from characters only contains *). Find whether the string satisfies the regular expression. Once the initial solution was given, a good amount of time was spent in considering all possible edge cases and tweaking the algorithm to solve those edge cases.

Round 3: Telephonic Interview

The length and breadth of my knowledge regarding Databases, networks and data structures was tested. Some of the questions asked were:

What are relationships? How are they represented in a database?

What is indexing? Explain it with an example.

What is a hash table?

What is an IP address?

What is a MAC address?

If a MAC address exists why do we need an IP address?

Give the use cases of binary tree?

What is the advantage of an M-ary tree over binary tree?

Given the different prices of a stock over a time period, find the maximum profit that a person can make by buying and selling the stock within the given time period. The number of such entries can run into millions, so time complexity is important. E.g. the prices are 70, 60, 100, 150, 110. The maximum possible profit in this case is (150-60=90).

This was the end of the telephonic interview. Probably he was in two minds after this because I was called again after 10 minutes, and two quick questions were asked:

How can I contribute to Directi?

What exactly did I do in my internship and how did I benefit my team?

The response to these two questions sealed the deal and I was ‘hired’ by Directi.

Interview advice:

- . College students spend majority of their time doing problems related to data structures and algorithms. However most of students ignore the other core CS subjects. You MUST devote equal time to these subjects, because almost all companies require you to possess a solid understanding of the basic fundamentals of Operating Systems, Databases, Networks, Classes (depending on the profile they are hiring you for).
- . The way you express yourself is really important. If you are unable to express yourself clearly or lack enthusiasm organizations would see that as a potential red flag. If you are weak in English, practice speaking in front of a mirror (believe me, it helps) or still better give mock interviews to your friends.
- . Think out aloud. Whatever idea comes to your mind, share it with the interviewer. Always start by giving a brute force solution to the problem (it helps the interviewer know that you have understood the problem).
- . Don’t give up on a problem until the last moment. Keep on discussing things with the interviewer; he will give you hints if you are on the right path.
- . Keep solving problems on GeeksforGeeks!

This article is compiled by Vikram Goyal. Many Many congratulations to Vikram for his selection in Directi. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

43. Amazon Interview | Set 14

Team : Transportation

Location : Hyderabad

Round 1 (Online Test)

Q1. Find the kth largest value in a BST

Q2. Swap the alternate nodes in a singly linked list(not the data);

Q3. Minimum no of coins required to get the given sum. Coins are given in a sorted array.

Q4. A file contains data as follows(Student name, marks in 3 subjects)

Shrikanth 20 50 60

Kiran 30 80 90

Find the student who has maximum average score

Q5. Find out given two trees are isomorphic or not

Round 2 (Telephonic Round)

Q1. Print the level order of binary tree such that each level should print in a different line

Q2. Push() and Pop() methods of stack are given. Write a function to get the minimum of stack in O(1) time

Project related questions

Round 3 (F2F with Dev Manager)

Q1. Connect nodes at same level in a binary tree(may not be a complete binary tree) without using recursion

Q2. Sort the linked list which contains only 1,2,3 numbers in a single pass

Round 4 (F2F with developers)

Q1. Design a snake and ladder game

Q2. Given a linked list contains even and odd numbers. separate the list into two lists contains odd/even numbers.

Q3. Given a 2D matrix which contains 0's and 1's. Given two points of matrix whose value is 1. Find the path(with only 1's) between the given points

Round 5 (F2F with Senior Manager)

Project related questions

Challenging tasks done so far

Q1. Given a large file which contains m rows and n columns. Given a column no, sort the column in such a way that corresponding rows also sorted

Round 6 (F2F with Developers)

Q1. Print all pairs(sets) of prime numbers (p,q) such that $p \cdot q \leq n$, where n is given number

Q2. Given a binary tree, if parent is 0, then left child is 0 and right child is 1. if parent is 1, then left child is 1 and right child is 0. Root of the tree is 0. Find the kth node value which is present at Nth level

Q3. Longest monotonically increasing sequence in $O(N \log N)$

I couldn't make it. Hope it helps someone else.

This article is compiled by **Shrikanth**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

44. Amazon Interview | Set 15

For the position SDE I.

I had an online test through interviewstreet and following were the questions:

<http://www.geeksforgeeks.org/archives/9999>

<http://www.geeksforgeeks.org/archives/8615>

<http://geeksforgeeks.org/forum/topic/microsoft-interview-question-for-software-engineerdeveloper-about-arrays-10>

<http://www.geeksforgeeks.org/archives/1155>

F2F Interview :

1. Generate all valid permutations using '(' and ')'. Valid permutation is the general definition of valid sequence of the opening and closing brackets.

I told him a solution where we would generate a combination using a recursive solution and prune the cases where a valid combination is no longer possible. The solution was fine and not that difficult. But the interviewer was very interested in knowing if I can calculate the complexity of the solution. He gave me some hints but it was just not striking me. I told him my approximate answer. We moved on.

2. Create an ancestor matrix for a tree.

The solution would seem simple. But since the matrix is $N \times N$, the interviewer wanted some tricks to reduce the complexity of the write operation on the matrix.

I told him a solution where you can initialize the matrix with all zeros and only write 1 for the ancestor cell using a modified recursive solution and linkedlist.

He was fine with the solution

F2F 2:

1. Find the maximum weight node in a tree if each node is the sum of the weights all the

nodes under it. Obviously tree nodes can have negative weights.

2. Kadane's algo

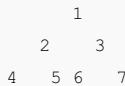
F2F 3:

1. Find the diameter of a tree.

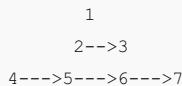
2. Link every node of a level to the next node at the same level

eg:

Tree is:



would become:



3. Find the first subarray which has a zero sum in an array

F2F 4:

Detailed discussion on projects I did in college and about my interests.

This article is compiled by **girlforce**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

45. Amazon Interview | Set 16

I recently appeared for amazon which came to our campus. Here is my experience.

Shortlisting Round.

There were 20 MCQ and 2 programming questions. Each correct answer carried 1 mark and -0.25 for a wrong answer. Programming questions were:

- Given a number with the number of digits in the range of 10-50, find the next higher permutation of the number. If such a number doesn't exist, return -1.
- Given an array of strings, you need to find the longest running sequence of a character among all possible permutations of the strings in the array.

INPUT:

ab

ba

aac

OUTPUT:

a,3

Then there were 4 rounds of interview.

T1

- a. Given link list segregate odd elements first and even elements afterwards.
- b. Given a BST of memory sizes. Find best fit for a memory block of size M.

T2.

- a. Given 2 sorted arrays of size m and n+m(with n elements) , merge them into the latter..
- b. Given a character array find the first element that repeats itself.

T3.

- a. Given a binary tree connect all nodes in a level through link list.
- b. Some question related to share market which boiled down to find maximum difference between two elements such that second element appears after the first one.
- c. What is thrashing ?
- d. Real world application of heaps?
- e. Minimum spanning tree and topological sort .

T4.

Around half an hour HR then

Given a function node* inplacemergesort(node* n1, node* n2) which takes 2 linked lists as input and performs in-place merge sort and returns the final list. How will you test it and make sure it does what it claims.

I was hired 😊 .

The interviewers were very friendly, patient and looked for optimal solution to each question .

I am very thankful to geeksforgeeks for such a great site and the way its maintained. It really helped me a lot for my preparation. Keep up the good work guys 😊

Thanks.

This article is compiled by **Ayush**. Many Many congratulations to Ayush for his selection in Amazon. If you like GeeksforGeeks and would like to contribute, you can also write an

article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

46. Software Engineering Lab, Samsung Interview | Set 1

We recently had SEL, Samsung for Campus Recruitment.

Round 1: GSAT(Global Samsung Aptitude Test):

The test had 2 sections.

The first section had 80-90% of the questions on Data Interpretation and rest on Quant.

The second had all the questions on Logical Reasoning.

Round 2: Technical Written Test

It had questions on C++, OS, Programming languages, some other computer science general questions.

Based upon the total from the above 2 rounds, students were shortlisted for the next round.

Round 3: Algorithm Written Round

Question 1: Construct 2 stacks using a single array. Extend the same code for 3 stacks.

Question 2: Given a string, say “GEEKS FOR GEEKS”, print it in reverse manner eliminating the repeated characters. I know the question is easy. But, they wanted high amount of optimization both space and time wise.

Technical Round 1:

- i) The above two questions were discussed. I didn't look for some optimization, which interviewer pointed out.
- ii) He asked about the language I was not comfortable with, I replied with C. Then the next question, Write a function in C to reverse a string in-place. Luckily, I scraped through successfully.
- iii) There were questions on OS a C++ like what is deadlock, virtual functions, pure virtual functions, real time OS.

Technical + HR Round 2:

- i) He too discussed the Algorithm Written Round.
- ii) He asked me to design a class on “Staplers”. Did it good.
- iii) Then there were some general HR questions. About my roles and responsibilities at the college, hobbies, etc.

After a long day wait, I was hired as a R&D Engineer. 😊

First interviewer was friendly and second interviewer always wanted me to trick out. It was a good experience.

I thank GeeksforGeeks for giving me a great platform for algorithm practice.

This article is compiled by **Chirag Gupta**. Many Many congratulations to Chirag for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

47. Directi Interview | Set 2

There was 1 online coding round, followed by interviews.

Online coding round was on Codechef.

1st question Sandeep and Pali want to go on holiday. Their parents have given them a list of cities they can visit. A list may contain a city more than once. Both of them want to go to places of their parents choice. As they want to travel together, they have to agree upon a common route. No one wants to change the order of the cities on his list or add other cities. Therefore they have no choice but to remove some cities from the list. Of course the common route is to involve as much sight-seeing in cities as possible. There are exactly 26 cities in the region. Therefore they are encoded on the lists as lower case letters from 'a' to 'z'.

Input:

1
abcabcaa
acbaca

Output:

5
[question is similar to LCS]

Interview Round 1

He asked me two questions

1. You are given two array, first array contain integer which represent heights of persons and second array contain how many persons in front of him are standing who are greater than him in term of height and forming a queue. Ex

A: 3 2 1

B: 0 1 1

It means in front of person of height 3 there is no person standing, person of height 2 there is one person in front of him who has greater height then he, similar to person of

height 1. Your task to arrange them

Ouput should be.

3 1 2

2. You are given an array of integers and an integer k of window size, you need to find minimum value in this window.

Ex. A: 1 2 3 4 5 6 and k = 3

Then output will be: 1 2 3 4

This question is similar to [Maximum of all subarrays of size k](#)

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48. [TopTalent.in] Nitin Gangahar on the Many Benefits of Competition Programming

Nitin Gangahar has long list of achievements to his name and an amazing placement offer by, arguably, the best company in the world (no prizes for guessing this – it's Google) is just one of them. Also, he has been a part of some really interesting research at the University of British Columbia and he is, at present, a research assistant at the well-known Chennai Mathematical Institute (CMI). We, at [TopTalent.in](#), spoke to Nitin Gangahar and here are some exclusive nuggets of knowledge from our conversation!



Team TopTalent.in: We wouldn't be exaggerating when we say that programming has been a big thing in your life. How and when did you start with programming? Can you list out some resources for beginners?

Nitin: I personally started programming when I was in school. Python was my first official language, though I had seen some code in other languages before that. It depends a lot on when you start finding it fun – don't do it if it doesn't seem fun initially. High School is a good time to start learning if you are interested. A lot of my friends

didn't know about programming till they came to their sophomore year in university and they are much better programmers than me. So, it doesn't matter much when you start off this path.

Following are some useful websites to get started:

- topcoder.com – for solving interesting problem
- cplusplus.com – for c++ reference
- gamedev.net – for game development

In this context, I would also like to mention this really inspiring article, one of my personal favourites – [Teach Yourself Programming in 10 years](#) by Peter Norvig.

Team TopTalent.in: Is it important to know multiple languages like C / C++ / Java / Python / Perl or knowing problem solving concepts?

Nitin: Knowing more languages which work on different paradigms always helps a lot. Eric S. Raymond was my childhood hero and he once mentioned in this article titled “How to be a Hacker” (<http://www.catb.org/esr/faqs/hacker-howto.html>) – It's best, actually, to learn all five of Python, C/C++, Java, Perl, and LISP. Besides being the most important hacking languages, they represent very different approaches to programming, and each will educate you in valuable ways.

Learning a programming language can take years, provided you want to know the ways to exploit the uniqueness of the language really well. Getting comfortable with the syntax is just the beginning. Nevertheless, Problem solving concepts are something that each programmer should be well-used to. For instance, I believe that a good programmer wouldn't face any problem when asked to code a breadth-first search or come up with a simple recursive equation for a problem.

Team TopTalent.in: What is competition programming? Can you name some you took part in?

Nitin: Competition programming is more about people than about it being an activity. It's just about a group of people who like to challenge others with problems based on programming and math, and expect others to come up with the solutions. It's really a fun thing to do, especially if you love solving puzzles and love solving problems using a computer.

My team mates and I were aiming to go for the World Finals of ACM-ICPC (International Collegiate Programming Contest), which is one competition that is close to all the people who pick up competition programming at the university level. At the school level we have, IOI (International Olympiad in Informatics). TopCoder is a website which is open to all age groups and both professionals & students are active on it. In addition there is Sphere Online Judge and Project Euler, which own good collection of problems.

For starters, ICPC is a good aim to fix. Your skill set rises, for sure, when you are solving problems on such a regular basis, and hence, it helps you to solve interview

questions as well. However, one must keep in mind that the prime motivation for doing competitions must not be to win jobs because it would be like drawing fixed boundaries around one's skills.

Team TopTalent.in: What are the benefits of programming in teams? Do you advise a study group for this?

Nitin: Team programming helps you to learn a lot. My team mates – Ravi and Manu – taught me a lot over the past 2 years. Manu always possessed a different style of thinking, which helped Ravi and me learn a lot, especially to develop different problem solving approaches for different kinds of problems. Ravi taught me how to convert an unknown problem into smaller known problems and how to apply the training he gained from other places to a new problem. Team programming always helps you to think of a problem in way different from any approach you would've followed in solitude.

It would be great to see more ICPC teams from Indian universities. We started a Google Group for our students so that they can share and learn. These days, it is decently active but there is a huge scope of improvement. Study groups might drift a little away from the core objectives as people will want to do things differently. In my opinion, small and focused teams would be better off vis-à-vis study groups.

Team TopTalent.in: What steps should campus students take in enhancing the college coding scene?

Nitin: Forming teams would be a good first step. Local competitions are another great initiative. IIIT-Hyderabad has been really active in organizing local competitions and the number of teams at ICPC Regionals from there keeps increasing each year. It's really amazing to see them grow. An online group for university students would be another good start.

Team TopTalent.in: What are your tips for creating a perfect 1 page resume?

Nitin: This may sound corny, but the best way to come up with a perfect 1 page resume is to work hard during your undergrad years and pursue actively what you like to do. More often than not, it might just get mundane and boring, but then learning and excellence should drive you to continue. If you can proactively do that, and work for enough number of competitions/projects, you might not win a lot of prizes and tonnes of goodies, but in the end you would have learnt enough to fill up one page on a resume.

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49. TransBit Interview | Set 1

Procedure: 1 written test, 1 paper coding round, 2 technical + HR round.

1st Written Test: This was really a good written test including C/C++, OS , aptitude, DS and Algo.

2nd Written Test: There were 7 coding question in 45 min 😊

1. You are given two strings like where first string is like “a?b\$c+ “, here A? means either A comes zero time or more than one time B\$ means either B comes one time or not occur C+ means either C comes zero time or more than one time. The second string is a normal string, check whether the second string follows the first string pattern.
2. You are given a M x N matrix of non-negative integer, you need to find a square K x K matrix such that sum is maximum in that square matrix. ($0 \leq K \leq M, N$)
3. WA procedure to delete Kth node from front and from end. (when you delete from front then in reaming you need to delete from end).
4. How will you design Tic-Tac game?
5. You are given random() function which return a random number from 1 to 5 now you need generate random number using these function from 1 to 7 with having equal probability of occurring of numbers b/w 1 to 7 .

Rest I forget 😊

I was the topper of this written test.

1st interview Round

They start asking me some general question like about myself, area of interest. About my project in detail, they also told me to write a parallel sorting procedure [bec. my project was on parallel computing]

1. Design parking slot.
2. Design Library (books management), which DS will you use?
3. You are given a matrix of integers and your task to find an element which is maximum in the row and minimum in column.
4. Discussion on 2nd written test questions.
5. Discussion on Cloud computing and how will implement it.
6. Where you use cloud computing in daily life.

7. What you know about java. How much time will you take to learn java? How java is better than C++, where java is appropriate as compare to C++ and where C++ is more appropriate than java. Write a sample code in java to perform task (question no. 3)

Rest I forgot, there were two more questions on Real life application.

2nd Interview Round

This was coding round with one more candidate (he was my classmate). Following question need to be code

1. You are given a matrix such that it is sorted in row as well in column. You need to find an element "k" in it with minimum complexity.
2. A sorted, rotated array was given and need to find an element in it (he was surprised when I wrote that code in single scan in $O(\log n)$ time complexity).

Hurray, I got Placed. 😊

This article is compiled by **Nitin Gupta**. Many Many congratulations to Nitin for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks

50. Microsoft Interview | 13

Microsoft has mainly 2 written test followed by 2/3 interview including HR round.

1st Online Written Test: This written test was easy, only C/C++ (easy questions) and some of OS and Microprocessor question were there, Total count was 20.

2nd Online Test: In Second round, there were two problem to code (they provide us editor, Pariksha Lite)

1. WAP to print last 10 lines of given string. If string has less than 10 lines then print whole string, lines are separated by '\n' . [Ans. There are two app. (i) Top to down (ii) Bottom to up (this is efficient)]
2. A Binary Tree is given, print nodes value, level by level separated by '\n' [Ans. Level Order Traversal]

1st Face to face Interview

My interview was good, following problem were asked me to do.

1. WAP to print the first unique character in a given string, make sure your program should run for all corner cases as well. {Ans. It is easy, use hashing with counting}

method, time and space complexity is $O(n)$ and $O(1)$ }

Then he told me how you will test your program followed by the test case.

2. You are given a square grid of $n \times n$, you need to print the circle form by it in clockwise direction. for example

12

45

then output : 1254

123

456

789

then output: 2684

[Ans. It is easy to code using two successive loops. Have a look a similar question "Print element of matrix in Spiral Form", Refer Geeksforgeeks]

3. Some question on new technology and you interest.

2nd face to face interview

Some questions on my project like what you have done, why you choose this project, how you will enhance your project etc.

Then he asked me some puzzles and aptitude question.

1. You are given a jar in which there are 99 % black balls and 1% white balls, draw some black balls out from jar such that there left 98% black and 2% white. How many black balls you drawn?

[Ans. Let there are total N balls so, black(b) = $99N/100$ and white(w) = $N/100$ after drawing 'x' balls the percentage of white get increase to 2% so $N/100 = 2*(N-x)/100 \Rightarrow x = N/2$, so draw half black balls].

2. At 10:30 what is the angle between hour and minute needle. [you can do it]

3. Puzzle: you have two eggs and 100 story building; find the top floor from which both of the eggs get break.

4. WAP to word by word reverse a given string. Ex. Given string is "Hey hi how ru ?". then print "? Ru how hi hey". Test your program for corner cases. Write test cases for your code and what happens if the given string is too long without separated by space that cannot be accommodate in given memory . [easy to answer]

5. Convert Singly and Doubly sorted linked list to BST and optimize it.

[Can be solved in $O(n\log(n))$ and $O(n)$]

3rd Face to face Interview (Final round)

This round was combination of HR round and technical round.

He started with some general questions like about me, what is your area of interest followed by what's your aim, why you want to join Microsoft etc. Then he asked me in which area you are passionate, I told him DS, Algo, C/C++ and OS. Then he asked me

which operating system do you like / know about, after that, he asked me some question related to it. (around 5 question, and they were really tough one). He also asked me about Windows server edition (some deep questions). Then he gave following DS, Algo questions.

1. Wap to find paths from root to any leaf such that sum is equal to given sum.
{ans. It is easy to do, use logic of root to leaf path}. Rest I forgot..

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51. Symantec Interview | Set 1

Interview Type: Campus Placement

Procedure: 1 written test followed by 2-3 interview round.

Written test: It was online, consist 20 questions of C/C++, Data structure , Algorithms , Operating system, Unix network programming, Networking and aptitude.

1st Interview

This interview was tricky; he asked my following questions.

1. Tell me about yourself.
2. Tell me about your project.
3. Design classes for File and folder structure and write procedures.
4. Do you know java?
5. What is interface? How will you design it, advantages and disadvantages and all
6. Real life example of Circular Linked List, Linked List, Circular Queue and Binary Tree.

Some aptitude questions like

- (i) how much water have you drink from birth.
- (ii) How far Haridwar from Roorkee, how much time it will take if I go by bus and by walk.
- (iii) Why Chapatti are round, why moon is spherical, why shape of bread is rectangular etc.

They were testing my bluffing knowledge and sharpness of my mind and how you bluff accurately.

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52. Nvidia Interview | Set 1

Following is my interview experience for NVIDIA internship.

I faced three telephonic rounds in my room.

Round 1:

Round 1 was a combination of HR and Technical.

In this round, I was asked about myself and about my Project. The interviewer was all the time asking about my project during 20 min (because my project was related to NVIDIA), and in last 15 minutes, he asked me simple questions on C/C++.

Question 1 You are given two Vectors of number, how will you get Dot product? [Dot product of vectors :)]

Question 2: How will you allocate dynamic memory for two dimensional array 😊

Question 3 : Do you Know ASM Language (I said very little). So he asked me to do Question 1 in ASM (I have told him basic logic that how can we do it in ASM)

Now he asked me, if Numbers in Vectors are n=16 bit long then the resultant Number of bits?

[Ans: $3n-2$ where n is number of bits in numbers]

Round 2:

1. Difference between Macro and Function 😊 [he required a deep knowledge of it, so I answered in terms of Compile time execution, run time execution, Stacks and Instruction pointer (Program Counter)]

2. Write a function to calculate Compound Interest with restriction. [I told him sorry sir I forgot formula of it, so he gave me formula for compound interest, $t = P \cdot (1 + (r/n)^{nt})$]

3. You have a silver rod of 7 inches, now a person visit your home and ask for 1 inch of rod every day in a week. How much minimum number of cuts required in a Week? [Ans. Is in power of Two 1,2,4 (can you find why? Try ok)]

Tip:- Questions Like this, always have ans in "Power of Two" 😊

4. A program in CUDA C (Project).
5. How many number of Zero's are there in 100!, and how will you calculate it?
[Easy one: Divide by 5 again and again and add all them] so he asked me how I come to know, so I explained.

Round 3:

This round was totally based on my project and two aptitude question asked to me at last

1. You have given a number such that

$N = 1! + 2! + \dots + 58!$ now what is the remainder after dividing it by 56?

[Ans. apply 56 divisible method (break 56 in two co-prime number 7 and 8) then divide by them and calculate it]

2. You have Given a Cuboid Cake and a little child comes and cuts a little cuboid piece of cake , Now your task is to divide the remaining Cake in One shot in two equal Parts [first I gave him 2 wrong ans. he said me 'try again' and at last, I have him a correct ans.
Answer:- Cut the cake with line joining the mid-point of that rectangle and cake.

Finally I asked two questions related to the new release of Architecture Kepler. The interviewer was cool guy.

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53. Adobe Interview | Set 4

Date Of Interview: 3rd December 2012

No. of Rounds: 1 Written exam + 4 rounds of PI

Type of Interview: Campus Interview for freshers

Written Round

The written round consisted of three sections 45 min each. The first was an objective type which consisted of 30 MCQs on basic Mathematical and Logical problems. Then there were 2 subjective papers each consisting of 10 questions. One was based on C programming and the other on basic engineering concepts.

Interview Round 1

Model a datastructure for a DFA that takes an event as parameter and performs a desired action.

Write a code that efficiently counts the total Set Bits in a number.

Write a code that efficiently calculates X power n where x and n are integers.

Write a code that efficiently calculates the n th term of Fibonacci series (He wanted a logn solution).

Interview Round 2

What is Synchronization? What is Mutex? Reader Writer Problem

There are 25 horses and a track which can race 5 horses at a time. Find the top 5 horses in minimum number of races. Assuming best horse always wins.

Write a function to check if a singly linked list is a palindrome.

Interview Round 3

What do you know about Volatile keyword explain with an example code.

Declare an array of function pointers that return a pointer to a func that in turn return a pointer to a char array.

Given a Roman notation of a number convert it into its decimal number. Write a function to do this.

Given a string, find the length of the longest substring with distinct characters.

What is Paging and why is it used?

Interview Round 4

HR Round: Normal HR questions

HIRED!! 😊

Many Many congratulations to **Saransh**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

54. [TopTalent.in] Exclusive Interview with Ravi Kiran from BITS, Pilani who got placed in Google, Microsoft and Facebook



Even if we were to search around the world, it would be a truly difficult job to find someone like Ravi Kiran. As a Computer Science Graduate of BITS Pilani – Pilani Campus, he successfully bagged job offers from an astounding three companies – all being some of the best and most admired companies in the world – Google, Facebook and Microsoft. We, at [TopTalent.in](#), managed to talk to this amazingly humble genius, who hails from Hyderabad.

And before we forget, Ravi has also agreed to share his resume with our users so as to help them with their preparation. So don't forget to [grab a copy](#) by logging in. Here is the exclusive interview in its original form.

Team TopTalent.in: What were the similarities and differences between Google, Microsoft and Facebook Interviews?

Ravi: All three of them share the prestige of being some of the best tech companies in the world. As you would expect, their interviews are designed to ensure the recruitment of top talent. An obvious similarity amongst their interview processes (for undergraduates, at least) is them being vastly algorithmic in nature.

There are multiple interview rounds in each recruitment process. For Microsoft there were 4 while Facebook conducted 3. For Google, I was a previous intern and, hence, faced just 2 rounds. Another noticeable thing was the presence of design questions in one of the rounds by both Microsoft & Google. However, by no means, can this be a generalization to the interview process of any of the companies. At the end of the day, this only reflects how each of them is aiming to assess a candidate's potential to the greatest amount in the shortest period of time.

Team TopTalent.in: How did you choose between Google, Facebook and Microsoft?

Ravi: The more thought I put in the decision making process, the more confused I got. One of the major things I believed was that none of them was going to be a bad decision, so it was always safe to pick any one of them and not go wrong. Ultimately I chose Google, since I liked it as a company. I must confess that it was mostly a gut-feeling based decision.

Team TopTalent.in: What is the kind of skill-set that companies like these, are looking for in candidates?

Ravi: Even though I'll keep one of the companies in mind, that is Google, to answer the questions further on, I can safely say that this answer of mine applies vastly to the three of them. The skill-set sought out is that a candidate must be creative, so as to come up with smarter and newer solutions to problems, which are algorithmically very strong and don't waste time solving already solved ones. The candidates are supposed to be, obviously, good at programming so that they can give shape to their ideas in the form of real code.

Team TopTalent.in: What should one keep in mind while creating a resume for these tech companies?

Ravi: There are a lot of good references on "What makes a very good resume?" I had searched the same, and stuck to whatever made the most sense. I highly recommend a 1-page crisp resume, so that it's easier to make an impression when someone glances at it for about 3 seconds (I'm guessing that the time spent by a higher-up person on a single resume is nearly that)

In addition, it's very important to make the resume highlight qualities and projects that provide enough reason to believe why you would make the perfect candidate for the job. Prior programming experience and other achievements would be useful to mention, to further your chances of making a good impression.

Team TopTalent.in: Your advice to all the students out there who're aspiring for job offers similar to yours?

Ravi: I think it's important to enjoy the field of work, and apply to only the companies that align with one's interests. In the long run, it would be hard to work in case the work doesn't go with your interests, even if the company is as nice as three mentioned above. I had never aimed to get into any of these companies, and it has only been a consequence of the activities that I was actively interested in (like competition programming, random problem/puzzle solving, etc) and thoroughly enjoyed.

Team TopTalent.in: What's the difference between the work allotted in the Indian Office and the US Office?

Ravi: I will speak about this question with respect to Google, since I have an experience in both the offices. The work isn't really any different across the offices. If you have a good project idea, you're always welcome to begin on it, and take it forward irrespective of which office you are from. I myself have had the chance to intern with a very good team back in Bangalore. Work in MTV is going really great too. That being said, the US office has more diverse project choices to offer, merely owing to its larger size.

Team TopTalent.in: How can freshers/pass outs apply to these tech giants off campus? What's the process involved?

Ravi: Applying off campus is usually a simple process in these days. Most of the companies have websites for application process, wherein one can just submit his/her resume, and expect to be shortlisted. It is important to highlight the efforts of other companies that are providing interview opportunities, through performance in online programming contests.

HR personnel of almost all companies are on a constant lookout for talented programmers, and students performing well in the online programming contests have great potential. A good chunk of people also get an interview call through the employee referral route.

Team TopTalent.in: And lastly, what are you working on at Google and how has the experience been so far?

Ravi: I work in the Search Infrastructure team at Google, and the journey has been great so far. Google's a fun place to work for, and they ensure to provide one of the best work conditions possible for an employee. It is very surprising how they provide so many amenities – for having fun and indulging in non-work related activities and interests – but at the same time manage to provide some really challenging work.

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55. Amazon Interview | Set 17

Online Written round :

5 programming questions. You have to answer within 2 hours.

1. Swap two nodes in a linked list
2. Find kth smallest element in a binary search tree
3. Longest increasing subsequence in an array
4. One DP program

Face to face interviews:

1st round :

1. Find whether given tree is BST or not
2. Boundary traversal of a tree
3. Print the border nodes of the tree

2nd round:

1. There are n number of points in a two dimensional plane. Find two nearest points
2. There are n number of points in a two dimensional plane . Given a point find k nearest points to it.

3rd round:

1. Given a matrix with random numbers in it , If a location has 1, make all the elements of that row and column as 1
2. Given a matrix, find whether you can form the given number in

4th round:

1. Write a program to list all the possible words from the given set of data in the same order. (eg : given word : nokiamobile O/P : nokia mobile : given word : samsung O/P : 1. SAMSUNG 2.SAM SUNG(considering sam as a word))
2. Given two trees , find whether they are from same set of dataset or not.
3. Thread pool implementation.

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56. Works Applications Co., Ltd. Japan Interview | Set 1

At 8:30 AM on 17th Dec., I heard my name from the recruiter, and that was the starting of a long technical interview. I was the first one to be called for the interview. The interview was a live-coding interview, where I needed to code on Eclipse, and that coding practice was to be seen by the recruiter on the other computer connected with mine. To mention, Recruiter was very nice in nature, and very fresh (as it was the first interview, that day) at that time. He started asking me about my programming and technical interests. I told him that I love to do programming in C and Java, ad DS and OS are my favorite subjects. Then he asked me, the very first code, it was just a modification to be made to the programming assignment which I had submitted during the All India IT Talent Contest. Then he asked for one more modification. Modifications were to add two more functions of finding least 10% elements at any time in the Data-Structure and to reverse the Data-Structure at any time. Then, he given me a fresh program to check, whether a given string is a sub-string of another given string. Firstly I suggested normal $O(m*n)$ solution and then he told me to optimize it. Thanks to geeksforgeeks that I studied, KMP algorithm of pattern matching there and re-modified the code to $O(m+n)$ complexity. The he asked me a problem about segregating zeroes and ones in an array. Then one problem was related to reduction of strings (consisting of a, b & c) & by replacing two chars with the third one. Then he asked me a program on

finding longest monotonically increasing sub-sequence in an array. Again thanks to geeksforgeeks that I solved it in the normal fashion followed by the Dynamic Programming solution. Then he asked me to print all such sub-sequences possible, not only the first one. Then he asked me for making changes to the code, considering the fact that input-values are Hexadecimal string not the Decimal values. I was not known to any predefined functions capable of converting Hexadecimal string to Decimal value. So I wrote my own HexToDec and DecToHex functions, and thus completed all the changes suggested by the recruiter. Finally due to my good performance in the interview, recruiter was very happy regarding this. He congratulated me for this & wished me best of luck for the next round.

Next round of interview was more about the basics of CSE. He asked me many questions from OS (semaphores, process, deadlock, virtual memory etc.), one question about B Tree and B+ Tree and some questions from multi-tier & client-server architectures. This round also went nicely. Then there was an aptitude test consisting of questions from Logical Reasoning, Data Interpretation, Probability, P&C and simple Quantitative Maths. It was an average test, so I attempted almost all questions. Generally all the people who reach to this round, clear it, as only some people clear those tough technical interviews.

Finally I reached to the HR interview, where interviewer asked me many questions about my areas of interest, thinking behind relocation to some other country, family background and about my teaching interest to The Enlightenment club members of NIT Agartala. Finally, after considering performance in each round, She offered me a position of R&D Engineer at Works Applications Co., Ltd. I thank her for offering such a lucrative offer. Then, she told me more about the company and its working environment through her presentation.

I thank Works Applications Co., Ltd., geeksforgeeks, T&P Cell, my parents, my didi, my teachers, my department, my institute NIT Agartala & my dear friends for all their guidance and blessings so that I could get such a nice placement. At the end I should say that “where there’s a will there’s a way”.

Thanks for your time!

This article is compiled by **Saurabh Jain**. Many Many congratulations to Saurabh for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

57. Microsoft Interview | 14

My name is Ravi Chandra. Today I have attended Microsoft interview in Bangalore. I

was referred by a consultant. Interviews were conducted for various positions in various teams in Hyderabad development center.

I was not able to clear the first round. But let me share the question I faced to the readers of geeksforgeeks.

Question:

All the phones stores contacts in some way. Primitive phones has less memory and less processing power. So design a data structure which stores the contacts. This should use as less memory as possible and support the algorithm to run efficiently. Basic operations on this data structure is given a number, how to lookup contact name and vice versa.

Initially I gave a hashmap solution. But he said hashmap operations are costly because of collisions etc... and asked me to provide a better solution. I proposed a linear search. But he wants a better search algorithm.

Unfortunately the better answer struck me when I came out of the interview room.

That solution is like this. Assume each contact record has unique index value. Let us maintain two sorted arrays of indices one based on phone numbers and one based on names. So the space used is less and search runs in $O(\log n)$.

Here are some thoughts by moderators:

Since the phone is of limited features, the number of contacts are also limited, typically 500 to 1000 contacts. And the contact length will be limited, assume it is 64 characters.

A phone contains atleast two types of memory, flash and RAM. Flash stores software and persistent data. RAM is used for processing.

*There are various data structures to implement efficient searching. Quantitatively, as per our hypothetical feature phone of 1000 contacts, each of 64 characters long, we need [1000 * 64 * Nodesize] for the trie (an approximation). It is in the order of few kilo bytes. Where as we usually have RAM of few mega bytes.*

If trie seems to be costly to the planned RAM, we can use ternary trie or compressed trie. Or even we can use radix based searching as someone pointed.

Since RAM is costly, we can allocate fixed size (say 1000) continuous blocks in flash memory to store these contacts. All we need is a dynamic search feature to access these contacts. Trie can be built in RAM whenever the user initiates search feature. Or even, since the data is constant, trie can be stored statically inside flash memory itself. During contacts update, bring that trie to RAM when search feature is called.

Note that a contact means set of data, not just phone number. It also include person name, contact number (one or more), group, assigned speed dial number, picture, etc... Be data centric while designing data structures. In the current case, search is simple feature wrapped over this data structure. Every end of successful search in our

trie data structure will point to matched contact structure stored in the flash memory.

It is purely hypothetical thinking. Actual implementation will be even more complex based on required features. I hope it will be enough for interview discussion. Get sufficient details of question from the interviewer before jumping to answer. If you are on right track, the interviewer will help with some hints.

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58. Amazon Interview | Set 18

Amazon visited our campus on 16,17 and 18 Dec.

WRITTEN ROUND(1.5 hrs)

20 MCQ + 2 CODE

MCQ- mainly Aptitude, C-output questions, OS- unix related and DBMS

CODE-

- ...1) Binary complement of a number.
- ...2) Easy question related to bets

42 out of around 200 students were shortlisted after this round..

ROUND 1:

Around 15 min discussion on my image processing project

Finding an element in rotated sorted array..

12 students were shortlisted after this round

ROUND 2:

1) Convert postfix to infix in which the result must be having minimum number of braces i.e apply braces whenever necessary.

2) Given a binary tree print the sum of elements on same axis (for all axis).

Elements on same axis are for e.g.: root, root->right->left, root->left->right

3) Design hash table with following operations you are given with a good hashing function..:

insert() -O(1)

find()-O(1)

delete()-O(1)

traverse()-O(n)..(where n is the number of elements in hash not the size of hash)

4) Given an array find a sub-array with sum=0

5)

```
for(i=0;i<n;i++)
    for(j=0;j<n;j++)
        cout<<a[i][j];

for(i=0;i<n;i++)
    for(j=0;j<n;j++)
        cout<<a[i][j];
```

out of these 2 which one will be better

I was asked to write the complete code for all the questions.

6 students were shortlisted after this round

ROUND 3:

1) Given memory in the form of chunks if one process is reading any chunk, then any other process is not allowed to write but it can read, if write lock is on, then any other process is not allowed to read or write, now process can have lock on any number of chunks (continues) and other process requesting read or write can even request for memory that does not have the same starting address as the process who has locked the continues chunk memory.

Now we have to design a DS for representing memory and then design isRead() and isWrite() which will return Boolean values true-if read/write can be performed vice versa.

2) Permutation of a string with and without repetition of characters.

3) Given an array of numbers if we start deleting numbers from end of array, then we have to tell the maximum element of the array after deletion in O(1).

I was asked to code all the questions.

4 students were shortlisted after this round.

ROUND 4:

1) Around half hour discussion on my intern project which was with an e-commerce company.

2) Given a linked list with one extra arbit pointer we I was asked to make copy of linked list..

<http://www.geeksforgeeks.org/a-linked-list-with-next-and-arbit-pointer/>

he asked me to write the full code for method 1 in the above link.

In the end 3 students were hired and I was one of them.. 😊

I am very thankful to geeksforgeeks It really helped me a lot for my preparation. Keep up the good work guys

This article is compiled by **Sahil**. Many Many congratulations to Sahil for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and

mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

59. Amazon Interview | Set 19

I recently had a set of interviews with Amazon.com and listing below the questions. The day had around 15-20 of us at their office and the whole process took close to 12 hrs.

Hope, people can reap benefit from it. 😊

1st Round: Online Written round.

a. Determine if a matrix is a cross-matrix.

A cross-matrix is a one in which all the diagonal elements are same and not repeated anywhere else.

b. Print the level-order in reverse order, i.e. from Bottom to top.

c. One more easy question, which I don't remember now.

2nd Round: F2F- Developer

a. Kadane's Algo.

However, it was hidden behind a good problem set.

Interviewer wanted to identify whether I can recognize the same.

I did not remember it instantly but was able to prove it by solving.

b. Linked-list intersection point.

Again, had to decipher the above from a different problem set.

[A tree with only parent pointer, how to find LCA?]

Was able to easily identify the same and we quickly moved onto other things.

3rd Round : Hiring Manager

a. Design a stack which can perform findMax in O(1).

Had read the answer once in some book and duly told him have heard it.

He verified and we moved on.

b. Set of stocks for each day have been given. Need to find the days on which I buy and sell share to earn max profit, alongwith finding the max profit.

Had to write the code, which I was able to do well.

He was impressed and I felt I had a good chance.

4th Round : Developer

a. Find top k searched elements from a continuous stream of data.

I remember we needed to use Min Heap but his constraint was using a continuous stream.

Finally was able to do it with his help.

b. Some design question based upon his team's problems.

Had to use a queue and a hashmap to solve it.

He was very much interested in whether I could identify the complexities correctly.

5th Round : Manager – Different Team

- a. Given a linked-list and 2 integers k & m. Reverse the linked-list till k elements and then traverse till m elements and repeat.

Write production quality code.

I am not sure what happened and why I fell off on such an easy question, but you just can do something like that in the last round.

- b. An array of elements have been given. Find for each element, first max element to its right.

Was able to do it well, however lost it on complexity analysis.

- c. Boundary traversal of a tree. Write the code.

Wrote the code, however he was not able to check the same as took a lot of time.

Before this round, I had good hope of getting selected, but no one can give such a bad last interview and get selected and hence after 2 weeks got a rejection mail.

This article is compiled by **Mohit**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

60. [TopTalent.in] Interview with Sujeet Gholap, placed in Microsoft, Google, Samsung, Goldman Sachs & Tower Research



It's not every day that you come across a person who has achieved so much in life at a very young age which others can only dream of achieving in their entire lifetime. His simplicity and positive attitude speak volumes for his recent success after facing some tough times. This is the story of Sujeet Gholap, a IIT Madras grad who received record breaking 6 offers from some of the best companies in the world namely Google, Microsoft, Samsung (US), Samsung (IN), Goldman Sachs and Tower Research. We at [TopTalent.in](#) had a chance to interact with Sujeet about his success, preparation, interviews and some hardships. This interview is an excellent example of how a small town boy can achieve greatness and how you can do it too.

Also, Sujeet has agreed to share his stellar resume with our users which can help you with your resume and preparation. So, don't forget to [download](#) his resume by logging

in.

Team TopTalent: Can you tell us a bit about your background before joining IIT Madras?

Sujeet: Sure. I hail from a small town called Kallam from Osmanabad district of Maharashtra. I studied in a local school in Marathi medium till 10th standard. I always thought people from cities would do much better than me as I studied every subject in Marathi. My mom and dad teach at a local college there. I am currently pursuing my B.Tech in Computer Science and Engineering at IIT Madras. In IITJEE 2009, I secured an all India rank of 184

Team TopTalent: Can you give us a brief account of your interview experience for these companies?

Sujeet: All my interviews (except a couple) were technical interviews. Almost in each one, I had to tell what I did during my internships at Yahoo! and Facebook, what projects I have worked on. Many questions followed a similar monotone : arrays of integers, do something with them, biased coins and their tosses, trees and recursive algorithms, writing code on paper and explaining it to the interviewer, solving mathematical and logical puzzles etc. Interviews varied from very easy to very challenging. Some interviewers were impressed by JEE rank and CGPA while some did not give it even a second glance. Some interviewers were interested in the projects I did and asked detailed questions about it, while some were just interested in whether I can solve the problem they have given me.

Team TopTalent: So, how did it feel when you landed six massive offers on that day?

Sujeet: It felt nice and gave an ego boost when people referred to me as “the guy with six offers”. People I barely knew, smiling at me and congratulating me! I was on an all-time-high. Jumping around and laughing all the time. It was such a kick that the next day, although it was a normal and fine day, as it was down compared to previous day’s high, I was actually a bit gloomy!

Team TopTalent: What was going through your mind when you had to choose one out of those 6 offers?

Sujeet: I was supposed to finalize on a company by afternoon and I was in the state of utter confusion. Whether to take Google, which is the dream job of most of the programmers or to take Samsung, whose software division is nascent and where my contribution and impact would be much larger, visible and maybe even play a key part in company’s direction or to take Goldman Sachs, the challenging job which I always wanted to get a taste of or to go with Tower Research, the highest paying Indian job (twice as high as the second highest) which also involves inviting challenges and lots of programming. I was realizing that it wasn’t really a good idea after all to go for so many options. I was wondering whether I would have been better off without a choice, as all

these companies were such that I would have accepted the offer without giving it any thought at all had it been the only offer. I finally decided to go with Google.

(Wasn't really a surprise for us. Google seems to be the first choice for most Indian programmers)

Team TopTalent: How did you prepare for these interviews? What suggestions can you give to our users who might have similar interviews lined up?

Sujeet: I was lucky that I had discussed about similar questions before, and hence was able to make it through the interviews. I was quite attentive in class which really helped me a lot. Any questions which were not algorithm intensive questions and were more or less straight knowledge based, I could just recall the answer straight from the class when the professor taught that particular topic! Being friends with the right people and forming a peer group with a common interest is something which was critical to my success. I used to solve coding challenges with Arijit who had a very good Topcoder Rank. I would think about how I would solve those problem, if I get it, I would call him up and discuss the answer and ask for more.

In terms of suggestions, I would say be an active member of topcoder, keep solving programming problems in other places too if you want like spoj, usaco. I wish I had taken these things seriously and honed my algorithmic programming skills. Be thorough with Introduction to Algorithms by CLRS and do problems on one of the above mentioned sites.

This article is powered by [TopTalent.in](#) - A high end Job portal for students and alumni of Premier Colleges in India. Sign up now for free exclusive access to top notch jobs in India and abroad. Get in touch with them via [facebook](#), [twitter](#) or [linkedin](#). If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks

61. Amazon Interview | Set 20

Recently got interviewed with amazon Hyderabad for SDE1.

Written

1) Given a BST, along with left and right pointer for a node, it has forward and backward pointers, convert the tree into Doubly linked list using these extra pointers.

2) A = {5, 3, 8, 9, 16}

After one iteration A = {3-5,8-3,9-8,16-9} = {-2,5,1,7}

After second iteration A = {5-(-2),1-5,7-1} sum = 7 + (-4) + 6 = 9

Given an array, return sum after n iterations

3) Write a function which compress string AAACCCBBD to A3C3B2D and other function to generate from the compressed.

First f2f

- 1) Check given BT is BST
- 2) The cost of a stock on each day is given in an array, find the max profit that you can make by buying and selling in those days
- 3) In matrix A[m][n] each row is sorted and each column is sorted, write a function which checks whether a number exists in this matrix or not.
- 4) Given a string, find the longest sub sequence which contains only unique characters.

Second -f2f

- 1) Convert a BT into SUM BT(each node values = sum of left and right node)
- 2) "I get thousands of emails daily", find all anagrams in each email and print the count of all anagrams in each email.

My solution was using a trie and a hash function to increase the counter at each node in the trie.

Hash function will return the given word in a sorted manner, he asked me to code which was tedious but gave a rough draft.

Initial set up cost would be big but the same trie can be used for any email by making all counters to zero.

Third f2f

- 1) He talked almost for 45 min regarding my project and asked how we implement it. I was also working on web services in my current company, so they were more interested in asking questions there and want to know how well I implemented there.
- 2) A design question of chess int board[8][8] each value in the matrix represents a character. 1-9 number represents all whites and 11-19 represents all blacks.
Given a pawn at (x,y) print all possible moves. Assume whites are index 0 and blacks are at index 7.

Fourth f2f

- 1) There is ternary tree in two dimension space(one plane). Print all elements that are visible from right side of the plane(if you see along y axis plane)
eg) In the following answer would be (1) (5) (8)

_____ (1) _____
_____ (2)-(3)-(4)-(5) _____
_____ (6)-(7)-(8) _____

- 2) Print these elements in a zig zag order, first level1 and then level n, level 2 and level n-1 and so on.

In simpler words print rightmost ending element in each level of a ternary tree.

My approach was take two queues, enqueue root in Q1 and while dequeuing enqueue its children in Q2, while shuffling elements from one queue to another store the last element in doubly linked list.

While printing, use this double linked list, remove from head and then tail, till it becomes empty.

Fifth f2f

1) Find jth element in ith row of a pascal triangle

```
1  
1 1  
1 2 1  
1 3 3 1
```

1 4 6 4 1... and so on. pascal(4,2) should return 6.

```
pascal(int i , int j){  
    if(i<0 || j<0) return 0;  
    if(i==0 &&j==0) return 1;  
    if(i==0 && j!=0) return 0;  
    return pascal(i-1,j-1)+pascal(i-1,j);  
}
```

complexity is bad and I am not grouping the solution once calculated of sub problems

2) Implement your own hash function with keys as strings and values is of type Object initially I told BST with insertion deletion of order $\log(n)$, then he told me to think and answer then I told self balancing BST and he asked me to implement,

3) Evaluate a mathematical expression $2*3+(5-6/2)$, something like this, with operator priority.

Each f2f interview will be of 50-60 min. In each f2f round they will ask reason for change, and about your current project. You should answer perfectly regarding your current project and don't blabber something and all, they will ask good questions in the current project as well.

These questions might take up more than 15-20 min and in the rest of the time you have to answer 2 question in DS for minimum and code them as well.

If you answer you will get one more question which is an advantage 😊

First he will explain the question and gives you sometime.

You need to explain the solution first, if he likes it, then he will ask you to write production code and takes the paper.

Each interview is not like a level in amazon, they won't share feedback neither with you nor with other interviewers.

After the interview process is done all those who took your interview will sit and judge

(That's what HR told me 😊)

All the interviewers were friendly, finally I got a call from HR saying that I was selected 😊

Thanks to Geek4Geeks 😊

This article is compiled by **Bharath jhadey**. Many Many congratulations to Bharath for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

62. Amazon Interview | Set 21

Recently I have gone through 10 rounds of interviews of my dream company Amazon for SDE1 and I got selected. My only resource and library for preparation was GeeksforGeeks, which is the best website for tech preparation, if you aim for big shots like Amazon, Microsoft, etc. I was not too confident to attend interviews. The interview experiences blog gave me courage and coding experience to crack all rounds. Please do follow this site for every update, and suggest your friends to follow if they try for job change and if they aim for big companies.

I am sharing my interview experience, which will help others.

Total rounds : 10

1 online written test + 4 telephonic + 5 F2F screening rounds.

In F2F rounds, for every problem complete executable code + algorithm will be expected.

In all rounds , best solution will be expected (with less complexity)

Online Written Test:

1. Find maximum frequent numbers in an array. If there are more numbers with maximum frequency, they display all numbers in ascending order. Ascending order is important.

2. Two numbers represented as linked lists. (Bigger than integers). Return a linked list which is the product of the given two linked lists.

1->2->3->Null (123)

2->3-Null (23)

O/P: 2->8->2->9->Null

1st Phone Screening (45min):

1. Find a linked list has circle in it, If it has loop, find origin of the loop.

2. In Linked list, Node has two pointers, one points to next node, other points to arbitrary

node in the linked list. Write a function to return a new list which is clone of the given linked list.

3. An array is sorted and rotated by k times. Find an element in an array. (efficient and logarithmic time solution is expected)

2nd Phone Screening(45min):

1. Two strings s1,s2 are given as input. Remove characters present in s1 which are there in s2.

2. How to find number of subsets in a set.

3. Searching an element in 2D matrix which is sorted in row wise and column wise.

1 2 3 4

2 3 4 5

3 4 5 6

4 5 6 7

5 6 7 8 Find an element in it.

4. Difference between merge sort and quick sort. How do you improve quicksort (think about in selecting pivot element).

5. Give a scenario for quick sort in worst case.

6. How to store a set in memory, what ADTs do we use and what are tradeoffs for each ADT.

3rd Phone Screening(35min):

1. N-Petrol bunk problem: There are n petrol bunks located in a circle. We have a truck which runs 1 km per 1 liter (mileage 1kmpl). Two arrays are given. The distances between petrol bunks are given in one array. Other array contains the no of liters available at each petrol bunk. We have to find the starting point such that if we start at that point , you we would able to visit entire circle without running out of fuel. Initially truck has no fuel.

2. Reverse linked list in groups of size k.

I/P: 1->2->3->4->5->6->7->8->Null k = 3

O/P: 3->2->1->6->5->4->8->7->Null

4th Round(35min):

1. Algorithm to construct a tree given Pre and In order traversals.

2. Inorder successor of a tree.

3. Threaded binary tree(inorder without recursion)

F2F Round 1 (with Hiring manager 60+ min):

1. Tell me about yourself and Projects you worked.
2. About the most critical situation in the project you went through. How you did it. (he needs complete explanation of the scenario)
3. If he gives the same scenario as an interview question, how will you improve code quality and its complexity.
4. About SDLC you followed. Which one do you like and why.
5. Do you have any questions to ask (very important one- ask something about projects they work, etc. Good sign)

F2F Round 2 (with Developer 60 min):

1. Tell me about yourself.
2. Zigzag traversal of binary tree. (more optimal solution is expected from you). Complete code should be written and they will check later.
3. A robot is there in 2D space, which can move to its left direction. You are given with an array which are moves of robot, which starts from origin(0,0). Find the rectangle covered by it.
I/P: { 2,3,4,5,6,1,3,5,5} starts at (0,0)
O/P: rectangle points: (-4,4) to (4,-2)
4. Casual discussion about hiring process.

F2F Round 3 (with Developer 50min):

1. Data structure which does insertion, deleting latest item, find min, find max in O(1) time. (Gave hash, 2-D, linked list, many .. He impressed lot here)
2. Vertical sum of a tree. (Column wise sum – can find same one in geeksforgeeks)
3. Find n-th digit in the continues sorted stream of data.
I/P: {1,2,3,4,5,6,7,8,9,1,0,1,1,1,2,1,3,1,4,1,5,1,6,1,7,1,8..... infinite} n =28
O/P: 28th digit
Complexity analysis of all the above.

F2F Round 4 (with Developer 45 min):

1. Print matrix spirally.

1 2 3 4 5
6 7 8 9 10
11 12 13 14 15
16 17 18 19 20

21 22 23 24 25

O/P: 1 2 3 4 5 10 15 20 25 24 23 22 21 16 11 6 6 8 9 14 19 18 17 12 13 18

2. Write a function to check syntax of opening and closing braces whether they are proper or not.
3. Same question if you have k types of braces (' ' ' ' { ,.... K types) All are of same priority.
4. Same question if you have k types of braces (' ' ' ' { ,.... K types) All are of diff priority.
5. Print all valid combinations of k number of pairs of braces.
6. Return count of above combinations without using algorithm for printing them.
7. Memoization –do you know about it. Explain me.

F2F Round5 (Bar Raiser round) 60min:

1. Leader ship principles followed by Amazon
2. About project.
3. Why you are leaving prev company, What will stop you there.
4. Set of strings are given in a dictionary order. The problem here is order is not as our alphabetical. It may be different. C may come before a,b, x may come before d,c. etc. You will have to find the order of characters by using given input. (topological sort – complete code is required to write)
5. Binary search tree into Sorted doubly linked list (Expected Inplace algorithm)

Things to keep in mind:

1. For every problem, give one simple solution first (may have more time complexity) and think for optimal solution.
2. Write a code in clear manner. It should be understandable without your explanation.
3. In a position to tell complexity for code you are going to write.
4. First tell the algorithm or approach and proceed with writing code.
5. Do not hesitate to ask for clarification. They will impress.

That's all from my side. Best of luck.

Thanks again for GeeksforGeeks, a lovable website for techies.

This article is compiled by **Ranganath**. Many Many congratulations to Ranganath for his

selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

63. Microsoft Interview | 15

I recently had interview with Microsoft and i have been selected.

I am really thankful to geeksforgeeks site which provides preparation material for technical interviews at one place. And credit of my selection also goes to my friend “Ankit Tripathi” who helped me a lot in my preparation.

I have attached my interview experience file with this mail.

Written Test: 30 MCQs based on Algorithms & logical aptitude and 2 coding problems.

Telephonic Interview: All questions related to your resume & projects and some behavioral questions.

Round 1:

Ques1. Write code for run -length encoding of a given string in-place (without using any extra memory).

Sample Input:aaaaaaaaabcccccc

Output: a10bc6

Ques2. Write code for a function which converts a given integer to a string. (Use only one for-loop).Check for all the boundary cases.

Ques3. Suppose you are going to organize a party from 9:00 am to 20:00 pm. You have invited ‘n’ number of guests for the party. You are given the arrival time and the departure time of all guests. Every time a new guest arrives, you give him a glass of wine and when he leaves, you take the glass back. If someone has left and returned the glass, you can give the same glass to a new guest who has just arrived.

Based on the given schedule for guests, determine the minimum number of glasses required for the party. A guest can come or leave at any time, but you are given the fixed schedule. Write code for the given problem.

Round 2:

Some questions related to resume and subjects studied in the curriculum.

Ques1. How can we do a Tree Traversal without using a stack (not even the stack for recursion). Write code for an in-order traversal without using stack. What would be the changes in the function if we want to do a pre-order or post-order traversal?

Ques2. Write code for finding loop in the singly linked list and fixing it.

Ques3. Given a linked list with two pointers, one is next pointer and another is a random pointer which can point to any node in the list (forward, backward or itself), you have to make a copy of this list without tempering the original list. Write the code for the same in $O(n)$ time complexity.

Round 3:

Ques1. Give different possible approaches for Checking whether two strings are anagrams (with and without using hash tables). What are the possible advantages and drawbacks of each approach? Write code for the approach which involves first sorting the two strings and then matching character by character ($O(n\log n)$ approach). Which sorting you will use and why? Write test cases also.

Ques2. Write code for counting the number of inversions in an array in the minimum time possible. What could be different possible approaches?

Ques3. Given two huge numbers represented as linked list, write a function to add them and return a number in the same format.

Ex: 950 represented as 9->5->0->NULL

150 represented as 1->5->0->NULL

then, the output should be 1->1->0->0->NULL

Ques4. We have 'n' people in a party, out of whom only one can be a celebrity. And he may or may not be present in the party. A celebrity is known to everyone but he does not know anyone. All other person may or may not know each other. If a person 'A' knows 'B', it does not implies that 'B' also knows 'A'. You can ask only one question to someone 'Do you know this ('X') person?' and he can only reply in YES or NO. Your job is to find the celebrity in minimum number of questions.

Round 4:

First he asked general questions from resume.

Ques1. Write code for finding the least common ancestor of two given nodes in a binary tree. (both recursive and iterative approach).

Ques2. Which data-structure you will use for implementing the 'malloc' and 'free' functions? (You have been given with a pointer which points to a large chunk of memory).Write full codes for implementing these two functions.

Each face-to-face round duration was approximately 1 hour. Results were declared after 4 days of interviews. Every interview was an eliminating round. Questions were not very hard but they were very keen on accuracy and efficiency of code (it should run on all possible input cases).

This article is compiled by **Monika Bisla**. Many Many congratulations to Monika for her selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

64. D E Shaw Interview | Set 1

Total 3 rounds. 1st written followed by 2 face to face and every round was ELIMINATION one.

1st Round: Written (1hr)

3 sections. 20 min each.

1st section: 20 aptitude questions and was really hard. Avg no of questions solved is 4.

2nd section: 20 (C++ & Java) oops related questions and other output questions too. (level was good. G-Facts)

In C++: mainly Virtual functions, virtual destructor, copy constructor, initialiser list, virtual inheritance questions, inner classes etc.

In java: mainly inner classes, Base reference and Child object concept, overriding questions etc.

3rd section: Write running code for following problem:

Find 2 nos in a sorted array whose DIFFERENCE is given no K.

Out of 99, 22 students got selected. They were mainly from IITs, IIITs, NITs, Amazon, Microsoft, ADB etc.

2nd Round: Face to Face (1hr)

Rapid fire questions 😊 Mainly from OOPs concept of C++, Data Structures & Algorithms, O.S

Started with simple question and moved in depth.

(1) What is dangling reference?

(2) Moved on to what happens when we access it.?

(3) How to handle it? I said we can use reference count or std::auto_ptr to avoid dangling reference. He was happy with auto_ptr smart pointer concept.

(4) Then what happens when another auto_ptr assigns previously assigned auto_ptr (i.e when we use assignment operator in auto_ptr)? I said only one auto_ptr can hold object, so old auto_ptr will point to NULL.

(5) Now, what happens when Old auto_ptr tries to access object (i.e NULL). I said runtime exception and program may crash.

(6) Name the type of exception. I said may be segmentation fault.

More questions like:

(7) Simple question. In exception handling, there is “return 1” written in try block and “return 5” written in final block. Which value will be returned from function and why?

(8) Create your own Heap overflow, Stack overflow. How will you handle them?

(9) How virtual functions internally works. Explained in detail working of Virtual Table with

multiple inheritance concepts too.

(10) What is pure virtual function and what is its use?

(11) What is virtual destructor and why do we use it? Few discussions on it.

(12) What is Iterator? Write a code to implement an iterator for a given Stack Class.

And many more OOPS questions which as I said was asked rapidly.

Now **D.S & Algorithms** were simple like:

(1) Students are sitting in a class room in row wise order. They have been given their exam marks. Now a teacher comes and starts with 1st row 1st student and asks there marks till last row last students linearly. At any point of time highest mark upto now was to be told and after saying highest mark that student should leave class. Next time, higest marks was to be told in remaining ones. So basically insertion and deletion was there.

I gave solution using MAX heap with insertion logn and deletion logn.

Or self balancing BST with insertion logn and deletion logn.

(2) Largest BST in Binary Tree. Implemented this with $O(n)$ time complexity.

(3) Implement phone dictionary. Gave solution using trie with hashing. Few discussions on it, but was happy at the end.

This round went excellent according to me.

Out of 22, 5 students were able to go to 3rd round.

3rd Round: Face to Face. Mainly tried to confuse everyone 😊 It was fun. (1:15 hr)

Mainly related to my present work. As I was working in java field, using Spring & Hibernate, so they asked me few basic questions of Spring & Hibernate. Not in depth.

They focused on Java, O.S & D.S & Algo.

Java:

(1) Can static method be overridden? Why?

I knew the answer so explained in detail.

(2) This is good one.

```
class Employee
{
    int age;
    String name;
    Date DOB;
}
```

In another class a function was written like:

```
Object myFun(Employee obj, String attribute)
{
    //return proper attribute value without using conditions like If-Else, ternary //
    // conditional operators like && etc.
}
```

Now if i call:

```
myFun(obj, "name");
```

then this function should return name of Employee from object "obj" which was passed as parameter. So based on name of attribute value, it should return that object's attribute value.

D.S & Algo were simple:

(3) Given sorted array. All are repeated twice except one. Find that.

Normally people will XOR and get result in O(n). Challenge comes in using sorting property to get in log(n).

(4) Sequentially Sorted Array. All present exactly once. One number was missing from sequence and was replaced with any random number. Find both missing & random numbers. This was just to confuse people who try to use sorting property without realising that searching in sorted array will not always result in log(n) solution.

More twist on this question like, all repeated exactly twice except for one which is present once and its 2nd occurrence is replaced with any random numbers.

And 2 more modifications. Overall, it was simple and required little thinking.

(5) Rotate a square matrix by 90 degree with O(1) extra space. This was interesting.

Solution given in "Cracking The Code Interview" book.

Operating System:

(6) What is Zombie process? Write code to create Zombie process.

(7) What is Orphan process? Write code in C to create Orphan process too.

(8) One query. Given a table having attributes stud_name, English, phy, chem., maths. Write a query to display the name of student in descending order of their aggregate marks.

(9) What is IPC? (Asked from my friend).

(10) There are N points in space. Find whether two given points are connected or not.

This is a graph question. Modified Floyd Warshall's Algorithm will work. Other good algorithms are also available in GeeksForGeeks. (Asked from my friend)

Results declared after 3-4 days. Out of 5 students, 2 of them got selected finally. I was one of the lucky guys. 😊

Special Thanks to you GeeksForGeeks team. I am following this site since 1 year. This is my favorite Geek Site. Now I got very good offer from D. E. SHAW. The way you have organized your site is awesome. The algorithms you provide are neat, efficient & easy to grasp. Though whole GeeksForGeeks content is very good, but I would recommend other Geeks to specially follow GeeksForGeeks algorithms & G-Facts.

This article is compiled by **Shahnawaz**. Many Many congratulations to Shahnawaz for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

65. [TopTalent.in] In Conversation With Nithin On What It Takes To Get Into Goldman Sachs



Goldman Sachs is well known for their lengthy interview process. There's no denying it. GS interview process is really, really tough but it's certainly not impossible as applicants have proved it in the past and so has Nithin who hails from Bangalore and is studying at NITK Surathkal. He got an offer from Goldman Sachs for a position based in India. He spoke candidly with TopTalent.in on how he got his dream job at Goldman Sachs and what helped him win this unique opportunity many would die for. When asked about how he felt after knowing that he was one of the two lucky candidates who were selected, a humble Nithin responds, "I was really excited and was bursting with joy. It was a "Eureka" moment for me. The feeling was just fabulous!" The interview acts as a filter to determine if you have the necessary skills for the job, if you are motivated enough to do the job day in and day out, to figure out if you will thrive in the company's culture and if the company is a good fit for you. It's best to first figure out why you want to get into this company by questioning yourself about all these aspects. As Nithin mentions, "Unlike other companies, there was no aptitude test. Candidates were shortlisted based on their Resume and CGPA. CGPA does matter but generally they were looking for spikes or an X factor in a resume. Top 10-15 from each of the circuit branches (Electronics/Communication, Computer Sciences/Information Technology) were selected for the interview process."

GS interviews are quite grilling and highly technical and the interviewers get the best out of you. "There were 6 rounds of interviews, 5 were technical and 1 was an HR interview. The questions were mostly focused on algorithms and concepts of probability", he recalls. As we have heard GS has a consensus based hiring process in which all team members would interview you and you get selected only if all of them vote positively on you. Successfully navigating through 6 rounds of interviews is highly commendable indeed. So what made Nithin tick through all these rounds and what can others learn from his experience? Well, he puts it straight, "A good knowledge in data structures, design and analysis of algorithms and probability (also Mathematics in general) is very much needed. Also, the ability to communicate thoughts and ideas, in a clear, concise manner, is an indispensable skill that'll be useful in all interviews."

Preparing for your GS interview requires knowing your resume inside out, determining your key selling points and practicing your about yourself pitch. But what's the X-Factor GS always talks about? Nithin believes that more than arriving at the right solution, it is the approach you take that really matters to them. He Says, " I brought up different concepts to solve the questions and I think that really helped me get through. I just never gave up on any problem. Always, put your maximum effort and keep in mind that the

interviewers do not always expect you to come up with a perfect answer."

So, how much preparation should one put in and what would be his suggestion to others who are aiming at achieving a similar feat? In his words, the plan seems simple and straight, "I started off with revising the concepts I had learnt through the courses which I had taken in the past few semesters. Also, I had taken a couple of online courses during the summer and it really helped. I strongly suggest everyone to take the Algorithm Courses from – Coursera, Udacity and MIT Video Lectures. Apart from revising the concepts, I solved problems from 'Cracking the Coding Interview' and CodeChef. It really helped me streamline my thought process for the problems posed during the interviews." As Nithin plans to join Goldman Sachs in their Strategies Division, we wish him all the best for this opportunity to work with some of the smartest people in the world.

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66. Microsoft Interview | 16

I was interviewed for Microsoft App-Ex Team. I was selected. I am really thankful to GeeksForGeeks site which provides preparation material for technical interviews organised so well at one place. I am fan of you guys 😊

Round1:-

- a) Implement your own atoi() function(To convert string to integer) cover all the cases including negative integer.
- b) LCA for Binary Tree. Write code for it.
- c) WAP to Print last n lines of a big log file.

Round2:-

- a) You are given an array containing only 3 type of characters let say a,b,c write a program to sort the array having these. Eg abcaacbbaaaaccc sort it. I gave standard 3 flag solution then he asked you are complicating it you can use other method then I gave counting method. He asked me to compare the complexity of both methods. then discuss leads to while calculating complexity we compare number of iteration only or total calculation in the program.

then he asked if we have let say k type of character then which method is good the count one or three flag one.

b) Implement T9 dictionary. how T9 works is : let say if I press 223 it should give all the possible valid words in suggestion Eg bad,cad,aad etc. give datastructure to store valid words etc.

Round3:-

This round was with hiring manager

- a) Write code for merge two sorted LinkedList Inplace.

Then He gave a problem related to his team. In weather app, you have a number of weather stations, give datastructure and all to find the nearest weather station from a city.

Then He gave the brief about what his team work and all .

Round4:-

This was with GM of App-Ex team India.

- a) It was a design question. You are given a list of components you have to write design for rendering those components in container. Layout can be left aligned, right aligned, center aligned. Your design should be extendable means if new layout comes you should modify your code as least as possible. Use concept of OOPS.

This article is compiled by **Vishal Gupta**. Many Many congratulations to Vishal for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

67. Amazon Interview | Set 22

I was recently interviewed for SDE1 position in Amazon Bangalore. 1 online coding test followed by 5 rounds of F2F onsite interviews.

Online Coding Test (4 Problems, 2 hours) From Interviewstreet

All below problems had multiple test cases for which the code was validated against.

1. Code for converting floating point decimal number to binary numbers. If the number cannot be converted, state so.

2. Given an integer array A of size n. Given an integer k < n. Construct an array B, such that

$B[i] = \min\{A[i], A[i+1], A[i+2], A[i+3], \dots, A[i+k]\}$

Solve in time complexity better than $O(nk)$.

Hint: use min Heaps

3. A singly linked list. Can have a loop. Detect it and find the size of list.
4. A singly linked list and a number 'K', swap the Kth node from the start with the Kth node from the last. Check all the edge cases.
Sample Input: 1->2->3->4->5->6->7->8 and K = 3
Sample Output : 1->2->6->4->5->3->7->8

Sample Input: 1->2->3->4->5->6->7->8 and K = 10
Sample Output: print error "LIST IS OF LESSER SIZE".

Face to face: Round 1(Technical, 1 hour):

1. Given a binary search tree. Find two numbers in the tree whose sum is k. If there are no such elements, state so. Assume that the tree is balanced.
 $O(n)$ solution with $O(\log n)$ space was expected. Solved using two stacks. Code was required.
2. Copy a linked list with next and random pointer. Not allowed to modify the given list at any time. Only read privilege on the given list.

Face to face: Round 2(Technical, 1 hour):

1. Given a matrix $m \times n$ containing integers. Find a $k \times k$ submatrix which has the largest sum.
Solved using prefix sum matrix.
2. Given an n-ary tree. Traverse it in zig-zag manner. Code was required.
Solved using a Queue and a dummy node for level info.

Face to face: Round 3(Technical, 1 hour 20 minutes):

1. Given N buckets each of capacity 1L numbered from 1 to N. Buckets are arranged in a form of a 2D Pyramid shown below.



No each bucket is resting on 2 buckets. I will add water in the top bucket(number 1), after filling the bucket completely access of water will spill to the left and right bucket. Need to write a function which will return water in nth bucket after I will add x L of water in bucket number 1.

float getWaterInBucket(float x, int n);

2. Given an $m \times n$ matrix. Each entry is a room. Rooms containing "L" are locked. No one can enter a locked room. Rooms with "G" are guarded rooms. Distance of a room from a Guard is defined as the minimum number of rooms that are encountered for the Guard to reach that room (Guard can move in all allowed 4 directions at max). Find the room that is farthest from all guards. Expected time was $O(mn)$. (Hint: BFS)

L				L
		G		
	L			
		G		
G				L

Face to face: Round 4(Manager, 1 hour 20 minutes):

1. Tell me about yourself.
2. Why do you wish to move out of current job?
3. Explain in detail the current project. Intention was to understand whether I had good depth of knowledge of the project and team I was working in.(Nearly 30-40 minutes of discussion)
4. How big is the team & what is your role?
5. Proudest project that I have worked in my current company. Details.
6. Any instances where you are not satisfied with what you did?
7. Any instances that you felt the need for improvement in some areas, which could have helped you technically and professionally. Any negative feedbacks.
8. What happens when you type in a URL on browser?
9. Given a binary tree with parent pointer only. Given pointers to two nodes in the tree, find the LCS(Least Common Ancestor). Quality Code was required with proper handling of boundary cases.
10. Object oriented design of 'Snake and Ladder Game'. Was asked to propose classes, inheritance and reasoning behind it.

Face to face: Round 5(Manager, 1 hour 10 minutes):

1. Tell me about yourself. It starts with a basic intro round, where your communication skills are judged.
2. Why changing the job?
3. Explain in detail the current project. In depth information.
4. Given a binary tree. Tell if all the leaves are at the same level. Code was required with proper handling of boundary cases.
5. Discussed how the stock market works. Reached to:
Design a data structure for storing the stock prices of various stocks. Make design such that update (new entry addition) of prices can be done efficiently. Also, it should be efficient to answer the queries like, "Maximum/minimum of stock prices of stocks s1, s2, s3 in the month of November 2012 etc."

Four days later I was informed that I was selected 😊

Following materials I used for preparation.

1. GeeksforGeeks

- 2. Careercup**
- 3. Introduction to Algorithms**(Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest, and Clifford Stein)
- 4. Algorithm Design** [Jon Kleinberg, Éva Tardos]

This article is compiled by **Shredder Woods**. Many Many congratulations to Shredder for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

68. [TopTalent.in] Rapid Fire Interview With Trisha Roy About Her Job Offers from Nomura and IOC



Nomura and Indian Oil Corporation are two completely different companies with completely different profiles and still Trisha Roy, a chemical engineering graduate from BIT Mesra managed to land job offers from both of them. Nomura hires recent graduates from some of the top colleges like St. Stephen's, BITS Mesra, IITs, NITs etc. Nomura has a strong presence in India and offers a wide range of financial products and services. Nomura normally looks for analyst profiles in investment banking but from engineering colleges it's usually for a technical profile either to create software to help other analyst make smarter trading decisions or testing profiles to improve upon already existing software. In an interview with [TopTalent.in](#), Trisha sheds some light on the Nomura Recruitment Process and what you should do to avail such an opportunity (apart from using [TopTalent](#) :D).

1. TopTalent.in : What was the reaction when you first got selected and how did your parents react?

Trisha : Well, considering that I already had a job, I was happy and satisfied, but not ecstatic altogether. My parents however, were very glad. My basic emotion at the moment was contentment.

2. TopTalent.in : Can you describe the hiring process in brief?

Trisha : The hiring process consisted of a written aptitude test, followed by three interviews, two technical and one HR. The written test consisted of a quantitative section, a verbal ability section, and a section on Logical Reasoning. The first technical interview comprised of puzzles, basic questions on finance, some problems on programming and some questions about internships. The HR round was fairly simple and predictable. The second technical interview primarily revolved around a slightly

complex programming problem.

3. TopTalent.in : Which was the toughest question and how did you answer it?

Trisha : I was asked to write a code/algorithim for a chess game in the last interview, and not being a Computer Science or Information Technology student, I was initially a little reluctant in going ahead with the problem. However, I started simplifying the problem to a code for a single King and a single Pawn, concentrating on protecting the king from all directions. The interviewer too helped me along the way by giving certain hints and directions, and eventually, over the pleasant interaction which lasted about twenty minutes, we had before us a well written algorithm for the question.

4. TopTalent.in : What according to you was the company looking for in candidates?

Trisha : I think the primary thing they were looking for was smartness and strong analytical skills. They wanted people who, when faced with tricky and perplexing situations, can do better than giving up right away. They wanted street smart and confident people, who had the inherent ability to quickly and efficiently develop decent programming logic.

5. TopTalent.in : What tips you can give which might help other freshers applying similar jobs?

Trisha : I will suggest that future aspirants practice solving some mathematical puzzles before appearing for the interview. They should appear very confident and composed throughout the entire process.

6. TopTalent.in : What was that one thing which you think might have helped you over others?

Trisha : I believe my confidence might have worked in my favor the most. Moreover, I am usually very good with puzzles and analytical questions, which I think was apparent, and might have played a vital role in my selection.

7. TopTalent.in : Working at Nomura is going to be very challenging. What are your expectations?

Trisha : As far as I am concerned, I would get bored without challenges. Hence, I look forward to a very competitive yet healthy work culture at Nomura, that enables me to acquire sufficient domain knowledge in the field of analytics, business and finance.

8. TopTalent.in : Given that you have two offers now (Nomura and Indian Oil) which company are you planning to join and why?

Trisha : Though I am still consulting some seniors on the matter and have not made my final choice yet, still I think I will probably join Nomura. That is so because considering my future aim of doing an MBA in finance, I believe my work-experience in Nomura will

give me an edge over IOCL during the time of admissions.

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69. Amazon Interview | Set 23

I was recently interviewed for SDE1 position in Amazon Bangalore. 1 online coding test followed by 5 rounds of F2F onsite interviews.

Online Coding Test (4 Problems, 2 hours) From Interviewstreet

All below problems had multiple test cases for which the code was validated against.

1. Code for converting floating point decimal number to binary numbers. If the number cannot be converted, state so.
2. Given an integer array A of size n. Given an integer k < n. Construct an array B, such that

$B[i] = \min\{A[i], A[i+1], A[i+2], A[i+3], \dots, A[i+k]\}$

Solve in time complexity better than $O(nk)$.

Hint: use min Heaps

3. A singly linked list. Can have a loop. Detect it and find the size of list.
4. A singly linked list and a number 'K', swap the Kth node from the start with the Kth node from the last. Check all the edge cases.

Sample Input: 1->2->3->4->5->6->7->8 and K = 3

Sample Output : 1->2->6->4->5->3->7->8

Sample Input: 1->2->3->4->5->6->7->8 and K = 10

Sample Output: print error "LIST IS OF LESSER SIZE".

Face to face: Round 1(Technical, 1 hour):

1. Given a K sorted array. Sort it with minimum time complexity.
 $O(nlogk)$ solution was expected. Code was required.
2. Given a file with many product name of a company. You have to find out unique name in the file. Suppose mobile,laptop,notepad,desktop,pen,mobile,pen .. etc is given we have to print laptop,notepad,desktop. Pen and mobile should be remove due to duplicity.

Code was required.I gave $O(n)$ time complexity solution for it using 1 hash table and Doubly Link List.

Face to face: Round 2(Technical, 1 hour):

1. Given a Sorted array with one missing number. I have to find

first missing number. Code was required. I gave solution with $O(\log n)$ time complexity.

2. Give a Building with n floor. A person can take 1 step or 2 step to climb. Find the number of ways to reach n th floor. Code was required

Face to face: Round 3(Technical, 1 hour 20 minutes):

1. Given an Sorted Array with duplicates I have to find first index of any duplicates. Suppose 12222333355578999 first Index of 2 in 1. Code was required. I gave $O(\log n)$ Solution.
2. Given an binary tree. Traverse it in zig-zag manner. Code was required. Solved using a 2 stack.
3. In a snake ladder game without snake and ladder :). If some one is playing then we have to find probability to win the game of any player. Condition of winning is if you are on 96 and 5 comes in dice then you loose the game and If you are at 96 and 4 comes then only you will win the game. But you cant use dice more than Y time.

I gave $O(XY)$ Solution through DP. Where X is sum.

Interviewer was very happy after that.

Face to face: Round 4(Manager, 1 hour 20 minutes):

1. Tell me about yourself.
2. Why do you wish to move out of current job?
3. Explain in detail the current project. Intention was to understand whether I had good depth of knowledge of the project and team I was working in.
4. How big is the team & what is your role?
5. Proudest project that I have worked in my current company. Details.
6. Any instances where you are not satisfied with what you did?
7. Any instances that you felt the need for improvement in some areas, which could have helped you technically and professionally. Any negative feedbacks.
9. Write the code to store Binary Search Tree in Doubly Link list. Code was required.
10. Petrol and distance problem given in Geeks for Geeks. <http://www.geeksforgeeks.org/find-a-tour-that-visits-all-stations/>

Face to face: Round 5(Manager, 1 hour 10 minutes):

1. Tell me about yourself. It starts with a basic intro round, where your communication skills are judged.
2. Why changing the job?
3. Explain in detail the current project. In depth information.
4. What will you do if your module is dependent on some one else and you are stuck due to him. I told him to that I will create stub (Template of desire data using edge case conditions)

5. Write the full code of finding a Name and phone in simple phone(In which abc all come on 1 using pressing speed and time duration) using sub string of name. I gave 2 solution 1 using suffix tree and 2 using hash table and KMP Algorithm. He told me to write full code of this problem using hash table and KMP Algorithm. I wrote the full and Manager was satisfied with my answer.

Three days later I was informed that I was not selected. With below mail :-

Thanks for your interest in Amazon. We appreciate you sparing time towards discussions with us. After the detailed discussions with you and internal discussions thereafter, we regret that we do not have a suitable opening at present that does justice to your aspirations and capabilities. Hence we would not be able to take it forward at this juncture.

With your permission, we will retain your details in our database and would get in touch with you, should there be a suitable opening in future.

Wish you all the best in your endeavors.

I am still not able to find the correct reason behind it. And Now I am frustrated.

This article is compiled by anonymous user. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

70. Microsoft Interview | 17

Recently i was interviewed for Build Team Engg. role in Microsoft hyderabad. I was selected.

I am really thankful to GeeksForGeeks site which gave me motivation and will to prepare for the company, with the help of material on the site only I got selected.

Written:-

3 D.S questions

Q1 – Rotate an array by K.

Q2 – Reverse a link list. If you are able to reverse a link list than reverse the K node's of link list.

Q3 – Find the pair of values in the array whose sum is equal to K.

First Round of interview –

Was asked to come up to an optimal solution for all the above three questions in the written.

Second Round -

Some general discussion about my projects and some curriculum subjects.

Q – Two numbers are stored in link list, need to add those two number.

I was also asked to write the test case which breaks the code.

Q - how does the telephone directory search of nokia phone works. If i give a name it should get me the contact number and vice versa.

Third round –

Some general discussion on the projects.

Q - I was asked how search of windows work and asked to give a good indexing scheme for that.

Fourth Round –

Some general HR question like 1. why this company? 2. Why leaving your old company?

Q1 – Given an array which contains a number in majority (i.e. A number occurs more than 50% times in the array) need to find it.

Q2 – Given an array which is rotated N times(N is unknown),I need to search a number in it.

In each and every question they were looking for an efficient solution and if I was getting stuck somewhere they were also giving hints.

This article is compiled by Love Gupta . Many Many congratulations to Love for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

71. Microsoft Interview | 18

Following is my experience of MS **intern** interview (location Hyderabad).

No. of Rounds: 3 rounds of PI

Microsoft short-listed candidates based on their Resume and there was no written test. Complete process included 3 interview rounds

Interview Round 1: Time 1 Hr. (Bing Team)

- 1.** Implement a stack having **findMiddle** operation as well, which returns middle element of stack on O(1) time.
- 2.** Given notes of different denominations (1,2,5,10) , WAP to find in how many ways can you make an amount 'x' ?

Interview Round 2: Time 1 Hr.. (Apex Team)

1. Given an array of size n, having numbers from 1..n , with one number missing and one occurring twice. Find the 2 numbers
2. Given a number having only one '1' and all other '0's in its binary representation, find position of bit which is '1'.
3. Code for Iterative in-order Traversal of a tree.
4. Questions from OS (Physical Memory , Virtual Memory, Interrupts, message passing , etc.)

Interview Round 3: Time 15 Mins (Apex Team)

1. Code to remove alternate duplicate characters from given string.
2. Some HR like questions (Why do you see yourself 5 yrs. down the line)

I was lucky, and got the intern!!

This article is compiled by Nitin Khandelwal. Many Many congratulations to Nitin for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

72. GS Labs Interview | Set 1

I had GS Labs Pune interview on 6th Apr 2013. They called me in the morning 9am. It was good Saturday morning. Reached on time.

1st Round:

1. About Project
2. Some c/c++ program

2nd Round:

1. C++ concepts
2. Diff between makefile and bash script
3. Design program

3rd round:

Design and OS concepts

4th round: Manager Round. More about resume

5th round: HR, more about joining date and policies.

It was almost a whole day process.

Good experience.

This article is compiled by Shantibhushan Sale. Many Many congratulations to

Shantibhushan for his selection. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

73. Amazon Interview | Set 24

Hello Guys, I had 6 rounds(written + telephonic+ 4f2f interviews) in hyderabad centre of Amazon.

I was 90% sure that I would clear the interview but I got rejected. The only reason I felt I was rejected was that the interview process was immature. The interviewer interviewing was a guy with 1yr of work ex expecting solution in the manner he wanted, which was pretty unexpected from a technology giant like amazon.

Every round of Amazon would have basic question like what you do etc. But all that is just formality, it doesn't count since one interviewer stopped me in between and said we have less time lets talk about problem solving(Which was again not expected from technology giant)

Also, for those writing written this month, the written round would have the same questions as I have listed below. So please solve this, before going for written

Anyways, these were my questions:

Written(Interview street) – 3 Questions:

- a) General code for coin denomination problem where the input was an array containing the coin denomination and the sum we want.
- b) Rectangle overlap problem(Can be found in geeksforgeeks)
- c) String Matching Problem(Wrote KMP)

Telephonic Interview:

- a) Convert BST in place into doubly linked list
- b) Given a Binary Tree is it a BST

If you miss one edge case, you are out of the interview. This is what they check and nothing else. They don't check your logic, they only see if you write proper code. So always start with brute force and write proper code.

F2f interview(1st round) – Very easy

- a) Given a number is it divisible by 3 and 5
 - Only catch here were the edge cases and nothing else
- b) angle between hour hand and minute hand
- c) Reverse bits in a binary
- d) Get the kth node from end of linked list

F2f interview(round2)

- a) It was basically on writing multi-threading code(Write multi-threaded code for Enqueue of Queue using linked list)
- b) Asked about basic complexities in Queue, hash and tree
- c) Window Problem(In an array, find the minimum of the set in a given window). There are many solutions using hash, brute force. But the dequeue answer is what he was expecting.

I gave the deque answer

Any other answer to this problem was a reject

F2F Interview(Round -3)

- a) Given a doubly linked linked, delete the occurrences of duplicate element from it. (One miss of edge case and out again)
(for eg) If you write, `temp->prev->next = temp->next` without actually adding the condition, if(`temp->prev`) then `temp->prev->next = temp->next`
- b) Given a matrix with ordered rows and columns(Rows are sorted 0's followed by 1's). Find the row with maximum 0?s(linear time)

I answered it

- c) DataStructure with Insert O(1), Deletion O(1) Search O(1) and ReturnAnyElement O(1)

Again answered this using augment of hash and doubly linked list

- d) Given a tree with negative and positive numbers, return the root with maximum sum in its sub-tree

F2f interview(round-4)

- a) It was basically a design interview where I was told to some OOPS design
- b) Given a stream of 0's and 1's(You Tube). Find the first occurrence of 1 in it. Then the question was changed to a string instead of a stream.

Finally, after giving 100% it was reject. So according to my experience, if you dont give 100% you are out or else it is ur luck that you get through amazon's process.

Moreover, currently they have started exploring candidates by sending two interviewers which actually means that the one is new to interviewing and other is experienced. Hence, basically they are playing with interviewers.

If you want the answers for questions, please comment I will post it.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

74. HCL Interview | Set 1

I recently had interview at HCL Bangalore.

They said it was scheduled interview and called at 10:00 AM. When I reached there were around 100 candidates waiting. They asked to wait in a room. I had to wait for 5 hours before my turn come. In between they asked we can have lunch at the cafeteria. Food at the cafeteria was very bad. I was sleeping sleepy after having that food ;):

Then met interviewer. He was taking interview of 6 candidates at the same time. He gave 4 set of programs to every candidate and asked to solve that.

- 1) Find the Merge point of two linked lists.
- 2) Swap two bits of integer.
- 3) Reverse individual words of the sentence.
- 4) Reverse string without using temp string.

He didn't ask about the project exp. Over all it was a bad experience at HCL Bangalore. Sitting idle for 5 hr was horrible.

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75. [TopTalent.in] Google, Facebook, Amazon, Walmart &

PocketGems, All Fighting For Prasoon Mishra



Meet Prasoon, he was just your average guy who studied at IIIT-Hyderabad but today Prasoon Mishra is one of the most well-known names across engineering colleges across India. Last week we got a request from one of our readers that he and his friends want us to Interview Prasoon and today here we are fulfilling their wish.

This really tells us how much people are waiting in anticipation for his interview. So, we went a step ahead, we not only would like to present his interview but we also have his resume for you to download.

So [click here](#) to download his resume by logging in. Here is the much awaited interview of Prasoon Misra as he shares his thoughts about his interview experience.

TopTalent: Firstly, how do you feel when so many world class companies are trying to woo you?

Prasoon: I am greatly overwhelmed! I never imagined such a scenario, so I am delighted that so many companies considered me worthy of an offer. It feels good to know that I did things right. And, it's always a treat to see your hard work rewarded.

All these companies are highly reputable and they are very selective in their hiring, but a lot of engineers get hired from across the world. So, it's important to keep things in perspective and not get carried away. I can join just one company, so all these offers are equivalent to just one good offer. And hence, at the end of the day, I see it as a good job opportunity.

TopTalent: Which company are you planning to join and how did you make that decision?

Prasoon: Yes, that was a very tough call. It was extremely confusing. They are all top tech companies, and each had a lot to offer in terms of the role, work and responsibility. Google, given their array of products – it's a crime for an engineer to decline their offer. Walmart & PocketGems have quality work and good growth opportunities. Amazon also offered a very good profile. But, I chose Facebook because I feel that it is a better cultural fit for me at this stage. Even after their IPO, they are trying to preserve their startup culture, and continues to offer a lot of opportunities. That just nicked it in the end!

TopTalent: Can you give us a brief account of what you felt was the toughest interview?

Prasoon: Its hard to pin-point a single tough interview. Each company had its own style. Facebook & PocketGems had very intense and focused rounds, revolving around coding/algo and system-design. They were looking for speed and accuracy. At Google,

as can be expected, some really tough algo questions came up. I am unsure about the complete correctness of one of my solutions, even now. In another round, I was able to convince the interviewer that his solution had the same flaws as my solution. So, that was a confidence booster. Walmart though, was a bit unexpected. In a design round, my initial solution was built around a string algorithm. But, the interviewer pointed out some counter-cases. So, by relying on his hints and the counter-cases, some probabilistic techniques got incorporated into the system. At the end, the interviewer informed me that my final solution was a model in machine-learning. So, I feel that mathematical aptitude helps in more ways than just algorithm design.

TopTalent: What kind of skill-set companies are looking for in candidates?

Prasoon: Well, a strong understanding of data structures and algorithms, along with fast-and-accurate coding skills are the primary requirement. And companies pay particular attention to the quality of code -> neat, short & easy to understand.

Moreover, a good aptitude in Computer Science is also desired. The fundamentals of OS, DBMS, distributed systems, design patterns, etc, often get applied indirectly in the design rounds. In this regard, I feel that a basic understanding of common systems like search-engines, spell checkers, trends, etc, helps one greatly.

And, companies inherently dig for creativity. The above mentioned skills are just tools to come up with smart solutions.

TopTalent: Whats your advice to students who are aiming for similar placement offers as yours?

Prasoon: Do not get burdened by the hype surrounding these jobs. And after that, I think its extremely important to enjoy the subject and the process of preparation. In my opinion, there is an element of luck involved with interviews, and candidates must acknowledge it. Hence, they must not over-pressurize themselves. And, all wise proverbs about success strictly apply.

TopTalent: What should one keep in mind while preparing a resume?

Prasoon: One must understand that the resume is ones first impression. So, it's important to be precise and accurate in terms of what one wants to convey. A lot of tips are available on the internet, and one can pay heed to them. In terms of the content, I chose to write projects that had good depth, and discard the lighter ones. I feel that this enhances the strength of the resume.

Other than these, one must prepare oneself to have a detailed discussion on everything that is mentioned in the resume.

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76. Amazon Interview | Set 25

Hi, This is Pandu. About 1 month back I had attended Amazon Interview In hyderabad, it was total of 8 rounds which includes 2 telephonic and 6 face to face and the whole process was lasted about 25 days because of unavailability of all the interviewers. The whole was very painful for me as before and after attending interviews on each interviewing day, I had to spend with some tension & anxiety. I was interviewed for SDE 2 position

The following are the questions:(For all the algorithmic questions , working code is required, they would take those papers and discuss in their internal meeting after all the rounds)

Telephonic Round 1(with Lead developer):

Q1)Given a snake and ladder game, write a function that returns the minimum number of jumps to take top or destination position.

You can assume the die you throws results in always favor of you.

Telephonic Round 2(with SDE 1): (after 5 days of 1st telephonic)

Q1)Given an integer array and an integer value X, return two elements in that array such that sum of them equals to X.

– Here he asked about different ways to solve it and pros and cons of each solution.
(For Hash map solution , He was looking for getting solution in only one pass)

Q2)discussion about my project details and challenging task

Q3) suddenly you web application has become very slow on clicking particular URL.
How would you debug it and solve the problem

Face to Face round 1(with SDE 1): (after 4 days of 2nd telephonic. 3 faces to face rounds were taken on same day and lasted about 5 hours)

Q1) Given a sorted array and a number write a method that returns the number of occurrences of given number

Q2) You have given a dictionary of an alien language in which letters are same as English letters but their order is different.

Your task is sort the letters or give relationship b/w letters using that disctionary. note: the diction may conatain 1 to n words.

Face to Face Round 2(with SDE 2):

Q1) In our project we are using Java Spring framework. He asked to implement spring container.

Q2) Implement LRU caching. After that asked me two different cases (1) required element is already in cache , 2) required element in not in cache and cache is full)
Had to explain those two cases by walking through your code.

Q3) You are given a faulty binary search tree in which only 2 nodes are misplaced(swapped their positions with each other). write a method that takes root of that BST and return the root of the corrected binary tree.

Face to Face Round 3 (With Lead Developer) : (Design question)

Q1) Given an URL you need to analyze all the images(they may be in 1000's of number) and return the cumulative quality of images present in that url.
lets say: you can configure image quality as very good,good, average, poor..etc, so you have to return one value among them. The given URL may contain several other URLs and they also contain lot of images . you need to consider all of them. lot of questions like how to avoid visiting same url again,

how would you determine the quality of an image if you encounter an url that contains only an image..etc.

Q2) Design Elevator system. And then write an algorithm for that Design such that, the user request should be completed in $\log N$ time in a N story building with M elevators,
This round was lasted more than 2 hours.

Face to Face Round 4 (With Hiring Manager): (after 5 days of last 3 f2f rounds)

Q1)Discussion about my project details

Q2) Design Question: Design Clustered caching system for a web site like Amazon.com.

In which millions of web servers deployed over the globe and only one inventory Database system

Q3) Design question: Design only Train search functionality of IRCTC

Face to Face Round 5 (With Bar Raiser): (same day following Hiring manager interview)

Q1) Discussion about my project and Challenging task

Q2) Design Question: In an online teaching system, there are n number of teachers and each one teaches only one subject to any number of students.

And a student can join to any number of teachers to learn those subjects.

And each student can give one preference through which he can get updates about the subject or class timings etc.

Those preferences can be through SMS or twitter/facebook or email..etc.

Design above system and draw the diagram for above.

Q3) coding and algorithm: There is a N-ary tree in the 3d Space. and you are standing on right side of that tree . Print the only those nodes when you looked at that tree.

(which is like printing rightmost node in each level of that tree. He would not tell this, you have to conclude this by drawing a tree like that).

After writing the code for above one, he was asked me to print them in an order in which 1st one followed by last one followed by 2nd first one followed by 3rd last one..etc.)

Face to Face Round 6(some one who is in very high level, guess director to a technology):

(After 1 week of last interview)

Q1) Lots of discussion on my current project. Different behavioral questions were asked during the discussion.(about half n hour discussion)

Q2) Given a cube of size N. which was constructed by N^3 number of 1 unit smaller white cubes. Now you dipped that cube in a black color paint and taken out. after that how many cubes are still in white color. Prove your answer(by writing mathematical equations)

Q3) There are N bolts each of which different size and N nuts, they are also with different sizes. and each bolt fits with exactly 1 nut.

Give an algorithm that combines those N bolts and nuts into N pairs of Matched bolt and nut.

HR told me on last interview day that I would be notified by the result within two working days as already the whole process was delayed for so many days. I had waited for almost 1 week and send them mails & called them about my candidature but did not get any response. I was almost lost hope. But, Finally after 8 days of last interview, got a call that I was offered SDE1..(I guess, They were not completely satisfied by in design part but I did better in algos, problem solving and coding part and as a result I was offered SDE 1). In the end I rejected to join at Amazon as I got another competitive offer.

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77. Amazon Interview | Set 26

Hi, I am Mayur Kale,I was recently interviewed for SDE1 position for Amazon in our campus and got selected. Geeksforgeeks helped me lot. I prepared only from Geeksforgeeks.org. I am very thankful to Geeksforgeeks team.

Onw online coding test followed by 4 rounds of F2F interviews.

Online Coding Test (2 Problems,20 MCQs, 1:30 hours) From Interviewstreet

All problems had multiple test cases for which the code was validated against.

1. from input string we have to print character which occurs maximum number of times.

Face to face: Round 1(Technical, 1 hour):

- Given a boolean matrix mat[M][N] of size M X N, modify it such that if a matrix cell mat[i][j] is 1 (or true) then make all the cells of ith row and jth column as 1 (time complexity expected was O(M*N) and space O(1))

Solution: <http://www.geeksforgeeks.org/a-boolean-matrix-question/>

- Given binary tree, if we draw a line from root then we have to print all nodes on that line.

Code for both questions was required and some other discussion happened..

Face to face: Round 2(Technical, 1 hour):

- Given string we have insert %20 on each space and input string has enough memory to contain output string.

(time complexity expected was O(n) and space was O(1)).

- merge point of linked list.

(I told I know this question so he moved ahead..)

- Given binary search tree in array form and we have to check whether it is fully binary tree or not..

(I gave O(n^2) solution but He was expecting O(n) solution after some discussion I managed to give answer in O(n) complexity...)

- Given that integers are read from a data stream. We have to find k maximum elements from that stream...

(I gave solution of insertion sort, then come to heap)

code for all questions required and nice discussion was there...

He was very impressed with my answers...

Face to face: Round 3(Technical, 1 hour 20 minutes):

-He asked me to choose topic on which questions should ask..

I chose OS...

-some questions on paging and virtual memory.

-If we use 8 GB RAM for 32 bit machine what will happen?

It was nice question..

He was very impressed with answer.

-Some discussion on Networking(DHCP and DNS).

-Some discussion on Linker and Loader.

-Some discussion on JAVA.

-Some discussion on DBMS.

-one puzzle

A champagne pyramid is a pyramid made of champagne glasses , each of equal capacity say , n. The pyramid begins with one glass at the top level , two glasses at the second level , then three below that and so on up to infinite levels. A level x of the pyramid thus has x no. of champagne glasses.

A steady stream of champagne is poured down from the top level, which trickles down to the lower levels. What is the distribution of champagne in the glasses at a given level i.
(I told I know this puzzle then he moved ahead..)

-Give a Building with n floor. A person can take 1 step or 2 step to climb. Find the number of ways to reach nth floor. Code was required

Interviewer was very happy after that.

Face to face: Round 4(Technical, 1 hour 20 minutes):

It was like semi HR round.

1. Why Computer science?
2. Given an array of integers which is initially increasing and then decreasing, find the maximum value in the array.
<http://www.geeksforgeeks.org/find-the-maximum-element-in-an-array-which-is-first-increasing-and-then-decreasing/>
3. Modified k heavy path in binary tree problem.

In evening they told me result and I got selected in amazon. It was very nice experience for me.

This article is compiled by **Mayur Kale**. Many Many congratulations to him. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

78. Amazon Interview | Set 27

Hi, I was recently interviewed for SDE1 position for Amazon and got selected. I have 1.5 year experience in java. Geeksforgeeks helped me lot. I am very thankful to Geeksforgeeks team. Following were interview questions-

Two telephonic rounds followed by 5 F2F interviews.

Round 1 (Telephonic):

1. There is a dictionary already implemented. Write a method, which takes input String without space, to prints all subsets of the input string which is present in dictionary.

Example: Dictionary – a*

.....Input- aaabaa

.....Output- a,a,a,aa,aa,aaa,a,a,aa

2. There is a dictionary already implemented. Write a method , which takes input String without space, to replace the characters from the strings which are not present in dictionary with –

Example: Dictionary – a*

.....Input- aaabaa

.....Output- aaa_aa

Interviewer was cool. Did not code properly (lots of bugs were in code), but gave good approach for first question. For second question solution sent in a mail.

Round 2 (Telephonic):

1. Write a program to remove duplicates from array of prime numbers.

2. Write a program to return nearest elements from a binary search tree for input element.

This round was very good. Interviewer was very happy with my approach for both questions. Code did not have big bug.

Round 1 (F2F- Problem Solving and coding):

1. Tell me about yourself.

2. Write a program to find top 10 elements on an array of integers.

Don't remember much. Questions were easy. This round was very good. Interviewer was happy with solution.

3. Write a program to calculate a^b and store it in floating point representation.

Round 2 (F2F- Computer Fundamental):

1. Tell me about experience in past job.

2. OOPS concepts- Polymorphism, Inheritance, Encapsulation, Abstraction.

3. Aggregation and Composition.

4. Design patterns which you have implemented.

5. Write code to implement Singleton design pattern.

6. Design a system to implement options in Pack of cards.

7. Difference between Windows and Unix.

8. Threads, Synchronization, Deadlock.

9. Other subjects which you studied in your academics.

10. Most challenging work you ever faced.

11. Discussed about current project, role.

This round was fair enough. I was not able to discuss questions on subjects which I studied in academics.

Round 3 (F2F- Data Structures and Algorithms):

1. Tell me about yourself.

2. There is a 2d array. Write code to find the path with maximum sum. You can only traverse $i+1$ or $j+1$.if i is row number and j is column number.

I solved it using dynamic programming

3. In a binary tree find the least common ancestor for two nodes. (Write code)
4. Similar to 3rd question. Write a program to find least common ancestor in binary search tree.

This round was very good. Finished it only 40 mins.

Round 4 (F2F- Managerial round):

1. Tell me about yourself.
 2. Copy Linked list with orbit pointer.
 3. Write a code to find top hundred elements in a data set which cannot be loaded in RAM.
 4. Typical parenthesis checking problem.
 5. Most challenging work you ever faced.
 6. What will do if you get task which is ambiguous.
 7. At what extend you will be frustrated if you always get ambiguous problems.
 8. How many members in your team in current organization. What's your role?
- Questions on current project.

Interviewer was very cool and friendly.

Round 5 (F2F- Bar raiser round):

1. Tell me about yourself.
2. Discussed about current project.
3. Write a program to find number of inversions in an array.

Example- Array 2, 5, 3, 1, 10

Inversions (2,1) , (5,1), (3,1), (5,3)

Answer will be – 4

Gave solution of complexity $O(n\log n)$. Interviewer gave me hint for that.

Hint- Divide and conquer approach.

He asked me to write code which doesn't have any bug.

This article is compiled by **Neha Gupta**. Many Many congratulations to Neha. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

79. Amazon Interview | Set 28

Hi, I was recently interviewed for SDE1 position for Amazon, Hyderabad but was not able to make it through. Although I wasn't selected but it was a good experience and GeeksforGeeks has been very helpful.

Following were interview questions-

I had one written round and one telephonic round before 4 in-face interviews in Hyderabad.

Round 1 (Written):

There were four questions which had to be submitted in a time span of two hours.

Questions were:

1. Given a character string, display the characters that appear more than once in that string.
2. Rotate a matrix 90 degrees to right
3. Convert a BST to DLL.
4. Find kth largest element in a given BST.

Round 2 (Telephonic):

1. First question was to get two numbers from a BST whose sum was equal to k. I answered it using a preorder traversal to get a sorted array and then starting two index from both ends to find if two elements with sum as k exist or not. He then asked if it can be solved without using an array or extra space. I tried solving it by traversing from two ends of the tree in preorder and reverse preorder fashion and it took some time to code. Dry run of the code seemed to be right but I wasn't sure. Anyways the best way of not using extra space can be to convert tree to DLL (in space) and use the same technique as used on array.

2. For second question I was asked if I had heard the question before or not. Question was that a matrix is given with its rows and columns sorted and an element is to be searched in that matrix. I had heard the question before but had not solved it and told the same to the interviewer. After thinking for a while I could get an algo by starting at the rightmost element of the first row. If element is bigger we move down or else we move right. The solution was fine but he doubted that I had solved it earlier.

3. He asked to write a program of finding the square root of a number without using library functions. I had done it before and told him the same. I used Newton-Raphson method to get the solution but he wanted it through something on the lines of binary search. I almost got the solution but maybe I was running out of time so he dropped the question there only and asked me to dictate the solution of 2nd problem.

Two days later I got a call that I have cleared my telephonic round and have to be present in Hyderabad for further rounds (four). Arrangements done by Amazon and I appeared for the further rounds on 27/4/2013 in their Hyderabad office.

Onsite:

Round 1 (Technical):

1. First question was to find the vertical sum of a binary tree. I told him the solution using arrays/hash. Whenever we move left we decremented the index while moving right we incremented the index. The solution looked fine to him but he wasn't very comfortable with negative indexing. So he asked for another solution using doubly linked list. Initially I wasn't getting it but when he gave some hint I was able to solve it but it took some time to cover edge cases. With the final solution he looked convinced.

2. Next question was to have Stack operations of Push, Pop, and FindMax in O(1) time. I started doing this using only one index of max variable but then I realised I needed max index at all levels so gave him a solution using two stacks. One having the element and the other having the corresponding max index. He looked convinced with the solution.

Round 2 (Technical):

1. In second round there were two interviewers and coincidentally one of them was the same guy who took my telephonic interview. First question was related on how to chose the 'related' items list whenever a product is displayed on Amazon website. the problem was to find the least related product for a given product. Initially I answered using n-ary tree but told him that we would have duplicate entries. He asked for optimized solution so I suggested using adjancy-list but finally realized that it can be solved using graphs. They were convinced and asked to code. I solved it using a Queue so while traversing a matrix we pushed in the elements in the queue with their level of relation. They were convinced with the solution.

2. Second question was to delete an element from doubly linked list. I solved it but missed out on and edge case where the element to be deleted is not present in the list. I added that check later.

3. Third was that for a given BST invert the signs of the elements and finally have a new BST. It clicked my mind that after sign inversion it will be a mirror tree and gave the solution for the same.

Till this time feedback looked fine.

Round 3 (Technical-Managerial):

1. The next interviewer was senior guy and asked me about my work. Explained him in detail.

2. Later he asked me that for a given binary tree having three address fields i.e. left, right and bfs successor, left and right fields are filled and the successor field is to be filled. I solved it using level order traversal with a queue but he wanted solution without using extra space. I was taking time to solve it when he gave hint about keeping track of the parent. After this hint I was able to solve it with few conditions missing but with his intervention I was able to give a working code (as looked to him and me).

Round 4 (Technical-Managerial):

1. There were two interviewers. First question was tell me about yourself and your work.

2. Given a $m \times n$ matrix, we need to find the number of ways by which a bot can reach the $(m-1, n-1)$ block if bot can move only right and down while starting from $(0,0)$. I gave him a solution using DP. Build the recursion tree showing the final solution. He didn't ask to code but asked to finds the recurrence relation. I got stuck I don't know why. I guess this was the start of decline. he gave some hints and I was finally able to write it, still.

3. For a given binary tree and a key, prune the tree with all the paths (root to leaf) that have sum less than or equal to k. I was able to solve it with some hint. The solution

looked convincing.

Four days later I got a mail stating that "*Unfortunately, we are unable to take your candidature further, at the moment. However, your credentials are extremely impressive and we wish to retain your details on our active database. We shall get back to you as soon as another similar opportunity opens up.*"

This article is compiled by Rohit. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

80. Amazon Interview | Set 29

I am very much excited for sharing my experience for Amazon, i went through 6 rounds and really enjoyed a lot for facing all of them and i feels like in each round that GEEKSFORGEEKS is the one the best site which gave me lot of ideas for solving the problems, This is THE BEST site for coding for getting good questions and also for improving our skills and creating our base SOLID.

1st round >> ONLINE test

- 1) Convert a BST to Double Linked List
- 2) Count the number words words + spaces + special chars in a given string
- 3) Print kth Lasgest node of the given tree.
- 4) Write the complete code for rotating the given matrix.

Solved three successfully with all cases but for one some cases was missing because of network issue i was facing time problem.

2nd round >> Telephonic

- 1) Level order traversal (Both approach recursion && Queue)
- 2) In O(1) – getMin, getMax, getTop,push,pop
- 3) Find the least positive missing number in an array.
- 4) Print all permutations of the given string

For all i need to write the code, and i was feeling like i was doing fast and being on expectations of the interviewer, he was so happy with me.

3rd Round >> FACE TO FACE (It was nice, it went thru 1hr)

1) Write a code for inverting the values of BST and return the new tree's root

(In place i have to do this, first i have given solu. with O(n) space with O(n) complexity)

2) Finding the element in O(m+n), in a sorted matrix which is sorted in row as well as in column.

(I said i know this, so i just told the approach and we skip that !!)

3) Project questions, infact in all rounds it was there!!

4) Rope Puzzle :: 2 ropes are there and u need to find the 45 mins(Very generic Google Puzzle)

4th Round >> FACE TO FACE (It was Amazing, it went thru 1hr 30 mins)

1) Find a median in running stream of numbers.

2) Find a k best or max values in the running stream of numbers.

3) Project Questions !! i Love that !!

4) State machine questions !! Gaming Questions (Bcoz m a game developer)

Questions on garbage Collection, Virtual machine (Bcoz i did project on it)

Anyway i love all those part.

5) One very nice question, i need to calculate the area for rain drop which will be holded for bar graph(Its basically a very real world problem, i love to do that, even i did mistakes but they guys are really awesome they helped me out to get rid of my problems)

5th Round >> FACE TO FACE (It was Damm Amazing, it went thru 1hr 15 mins)

1) I need to write recursion function for a robot which has to move from one location to other location in a grid.

In recursion i took time to write the base cases, but finally with some hints i was able to make it.

2) I need to code for k-heavy path approach and also need to write its recursion.

There also i was continue taking to the interviewer and clearing my doubts and using the hints given by him. Finally i was able to code it and do the recursion also.

Every time i need to write the recursion in mathematical form and calculate the Complexity also like we have to do normally for detecting the complexity.

I love the mathematical part and coding, its in my blood !!

3) Project Question !! Scalable problems !! Dealing with N dimension study and mathematical problems, even covering my whole resume.

Finally he was very happy and said to me that you need to think proper then code or design, rest is awesome !!

6th Round >> FACE TO FACE (It was with the Hiring Manager,i guess, it went thru 45mins)

1) He asked me about my whole projects and lots of about my resume and my challenges faced till now, it was good to explain all those.

2) He asked me to design an approach which will search all the valid combinations of a given string.

I have given some approaches like implementing TRIE, and explained the pros and cons for it and also the complexity of it.

Then i modified it and explained the Other approach which is better than the above by using HASH MAP and INDEXING with buckets if valid words.

We had lots of discussion on it. and Finally he said we are looking for guys like you.

Finally i have the offer Letter From Amazon and He asked me for Coffee Or Cold Drink. I Have taken Coffee.

NICE EXPERIENCE !! I LOVED ALL THE INTERVIEWS AND ENJOYED A LOT !!

Finally a Gold Medalist 2yr Exp. guy who is doing a very nominal job, got a Right place to work which is AMAZON !!

Heartly Thanks To GeeksForGeeks Community And Their Coding Stuff Which is available in Site !!

This article is compiled by Pushpendra Mishra. Many Many congratulations to Pushpendra. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

81. [TopTalent.in] Interview with Rizwan Hudda Who Was offered The Highest Package In India By Tower Research



Tower Research Capital LLC is a financial services firm located in New York that specializes in quantitative trading and investment strategies. Founded in 1998, Tower develops proprietary trading algorithms by using rigorous statistical methodology to identify non-random patterns in the behavior of markets (Phew!). Hence for obvious reasons, Tower Research is staffed by employees who are highly proficient in Mathematics, Computer Programming, Physics, Law, Economics, Engineering, Finance. Tower Research recruits smart individuals mainly from premier institutes like the IITs with either of the above mentioned backgrounds.

We have interviewed some of the **most amazing people** in the past who have received job offers from world's best companies with salaries unheard of, but nothing beats Rizwan Hudda who graduated from BITS Pilani and IIT Kanpur and would be joining Tower Research's India office very soon for a salary of INR 44 LPA. That's right, you must have seen newspaper articles with US salaries converted into Rupees but this is nothing like that, which is exactly what makes Rizwan's achievement so unique. Just to put this in perspective, Microsoft for example offered 55 LPA (converted to Rupees) for engineers joining their Redmond office while 14 Lakhs for the same position from their India office. The rest we would leave for our intelligent audience to decipher. And not to forget, we are only taking into consideration all the offers made to engineering college grads just out of college.

As always Rizwan has also agreed to share his stellar resume with our users. So [click here](#) to download his resume by logging in. Read the candid interview with Rizwan Hudda as he talks about how he got the offer and how you can do it too.

TopTalent : What's it like to interview for the post of "Strategist" at Tower Research?

Rizwan: It was a unique experience, all the interviewers were very friendly. I was given different math puzzles to test my problem solving skills and math aptitude. I got hints when I was completely stuck, they would let me know if I was going in the correct direction, etc. I was asked lot of questions, all of them were of this format mainly: Design the most efficient algorithm for task X ? or formally prove mathematical claim Y?.

I really enjoyed the whole experience of giving the interviews. It was much more interesting compared to the regular SDE interviews because most of the questions asked in tower interviews were unknown to me before. I would say the interview process was super candidate-friendly.

TopTalent : Can you describe the hiring process and what exactly you would be working on?

Rizwan: There was a written test on campus a couple of days before the final interviews. On the day of final interviews, there were 3 interviews, candidates were

eliminated after each round. My job description would be to use Math/Stat/Algorithm skills to analyze the financial data, and design/test/ deploy high frequency trading strategies for the company. I am expecting it to be a challenging and interesting role.

TopTalent : What preparation did you put in to win this opportunity?

Rizwan: I practiced the math questions at gurmeet puzzles and CSE blog a week before the interview. They helped me get an idea of the kind of questions asked in the interviews, and build some confidence. Also, I am semi-active in competitive programming hence was in touch with algorithms/coding. I was one of the winners of the All india programming contest conducted by Tower research capital, I think that worked well in my favor.

TopTalent : What would be your suggestion to other aspirants who are aiming for something similar?

Rizwan: Well, first of all practice the questions from sites that I suggested. These are some really good sites and the questions are quite challenging. It's always good to keep solving such questions on a regular basis to be in the groove. Also, being attentive in class and revising your course work does help a lot. In particular discrete mathematics, algorithms text books are something worth looking at before going for the interview. Finally, participating in online competitions like SPOJ, Codechef etc has been extremely useful for me and I would urge others to participate in the same if you aren't doing it already. It really helps in understanding how competitive you can be and where do you stand among some really smart people.

TopTalent : How many coding competitions have you won till date?

Rizwan: I have always participated in a number of coding competitions from college techfests, company contests to competitive programming platforms. I have mentioned most of competitions that I have participated, in my resume. Some of the competitions that I have won include All India Programming contest O(log n) – Oct 2012, MNIT Code of the Day (10 day contest) – Oct 2012 and Yahoo HackU IITK (Team contest) – Aug 2012

PS: If you think there are others who have received similar packages in India, we would be glad to interview them. Please email us the details at admin [at] [toptalent \[dot\] in](http://toptalent.in)

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82. Amazon Interview | Set 30

I have attended the interview for Software Development Engineer position and got the offer from Amazon.

I spent a lot of time in GeeksforGeeks going through the precise and simple explanations of complex problems, which helped me to sharpen my mind. Really, its a great work by the geeks and I am happy that I am a part of it.

The following were the questions.

Round 1 : Write a program to solve the below problems. (Time 1.30 hrs)(Written Test)

1. Given a string in the form of a Linked List, check whether the string is palindrome or not. Don't use extra memory. Give the time complexity. The node structure is

```
Class Node {  
    Char data;  
    Node next;  
}
```

2. Given a Binary Search tree along with the parent pointer, find the next largest node for the given node. Give the time and space complexity. The node Structure is

```
class Node {  
    Int data;  
    Node left;  
    Node right;  
    Node parent;  
}
```

3. Given a sorted array which is rotated n number of times. Find out how many times the array is rotated. Time complexity should be less than O(n).

Round 2 : With Team Member

1. Tell me about yourself.

2. Explain your project.

3. Given a Binary tree, find the vertical sum.

....a. I gave a solution using hashmap. There were discussion about the problems (time and space complexity) in using hash map. Then due to its cons, he told me to use some other DS to solve the problem.

....b. Then I gave a solution using Array. There were discussion about how it can be used, time and space complexity and its pros and cons.

....c. Code using Array.

4. Given a matrix mxn, where all the rows were sorted, print the elements in the matrix in

a sorted order.

....a. I gave a solution with $O(m \times m \times n)$ time complexity.

....b. He wanted a solution in $O(mn \log(m))$ time complexity and gave a hint to use heap.

....c. Code for the same.

Round 3: With 3rd Level Manager (culture Fit)

1. Tell me about yourself.

2. Explain Your accomplishments.

3. What you are proud of yourself?

4. How you will handle the conflict with the team member?

5. Lot of behavior oriented questions.

6. Given a String, remove the duplicates in the string.

....a. Lot of variations from the same problem.

....b. Asked for a solution in different time and space complexities and the complications involved.

....c. I guess the communication skill might have been tested here.

7. Given a floating point number, write a program to convert it into a string. The number of digits after decimal point can be more than 1000.

Round 4 : With Manager

1. Can you tell me about yourself?

2. Explain the projects you worked on?

3. Given a Binary tree, connect all the leaf nodes in the form of a doubly linked list. Don't use extra space.

4. A scenario was given about two robots and its functionality. Write a program which will be running in both the robots which will perform the specified functionality.

5. Given an integer, find the next largest integer using the same digits as in the given integer. For example, if 12345 was given, the program should return 12354.

Round 5 :

1. Tell me about yourself.

2. Explain what you have done in your previous company.

3. As I have worked on a product and they told to explain the product

4. What are the developments you have done and what impact it will be having?

5. What will happen to your development, if the product is migrated?

- 6. Questions on threading.**
- 7. What is a thread safe code? Explain.**
- 8. What is a process and thread? Differences?**
- 9. Given a binary tree print the elements in a zig zag order.**

Thanks a lot for Geeks team.

This article is compiled by Muthukumar Subramaniam. Many Many congratulations to Muthukumar. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

83. Google Interview Experience for Technical Operations Specialist[Tools Team] Adwords, Hyderabad, India

My Google Interview Experience, [Hope this is helpful]

I am AnandhaKumar .P – 2012 IT pass out from College Of Engineering Guindy, Anna University.

As many of the enthusiastic 2012 engineering passed outs, i too applied for a job in Google jobs page. I know that its very difficult that a resume gets noticed by google. Suddenly one fine day i got a call from Google HR saying that they are interested in my profile and asked me if, i was ready to go with the interview process[Come on! who will say no for Google]. I was surprised.

I was asked to take a initial screen test [Online test].

Online Screen Test [2 hours]

I was asked to take the test at 8.30 pm. They fixed this test, a week back. Nobody will call you to remind you to take test. Nor the interviewer will call you. It is your responsibility to check ur mail without fail. On that day I was expecting a call from google from evening till 8.25 pm. None called me. I thought that they would have forgot that. I planned to do go out and have food. But suddenly my ipad gave a alert message and it was from gmail app [thanks for ipad, or else i would not have checked my mail in lap top]. It was from google recruiter. The mail stated that he has shared a doc with me and i must answer the questions in it. a google drive link was given. he mentioned that the test was for 2 hours. I was asked to type answers just below each of these questions.

Questions

- Given a source array of integers with possible duplicates and a target integer, write algorithm to find out 2 numbers in source array whose sum is equal to target integer.

<http://www.geeksforgeeks.org/write-a-c-program-that-given-a-set-a-of-n-numbers-and-another-number-x-determines-whether-or-not-there-exist-two-elements-in-s-whose-sum-is-exactly-x/>

- Say you have three tables WORK, USERS, MANAGERS

WORK

- work_id
- user_id
- how_much

USERS

- user_id
- team

MANAGERS

- manager_id
- team

If I am a manager, write a select statement to retrieve the work of all users who belong to my team. The mapping of user to team and team to manager are defined in the USERS and MANAGERS table.

- In a Chrome extension, which file contains the most important information of the extension like version, pattern matches, etc.
- There are three rooms, and there are Princess, Flowers and Snake in those rooms. The doors of all the rooms have incorrect nameplates. i.e., the nameplate for the princess' room is not Princess. Similarly, the nameplate for the Flowers' room is not Flowers. You need to find the room of the Princess without going to the room of Snake. How do you find?
- Which is faster: finding an item in a hashtable or in a sorted list? And Why?
- What are some of the most popular Data interchange formats when using APIs
- Name some popular APIs for each of these
Social
Commerce
Service(like a photo service etc)
- How would you change the format of all the phone numbers in 1000 static html pages?
- If you had an opportunity to design the Google Suggest system, please let us know

how you would approach it and how you would execute the plan in terms of settings up systems like(data stores or databases, indexing services etc)

10. How do you find out if a number is a power of 2? And how do you know if it is an odd number? Write code in the language of your choice.

Since i have prepared for tech interviews like amazon, i was able to do it good.

My sincere thanks to geeksforgeeks[You r doing a great Help]. My entire preparations are only from this site.

After a week i got a call from HR and informed that i cleared the first round .

Then after two days i was told that i will have a telephonic interview with one of the google developers from adwords team .

They scheduled a telephonic interview the next week

Telephonic interview[I screwed up here][Design Thinking Interview] [1 Hour]

There were two interviewers on phone. First they asked me to run through my resume.

Then the first question came

1) how will improve the **revenue** of the cafeteria of the office.

Lots of discussions went and i think, i really did that well.

2)[Actual question which i screwed up. Bad Time for me]

Number of users in 2010 for adwords, chrome, gmail, android and picassa are in the ratio of 6:9:14:13:8, and in 2011 we add 3 lakh more users. New ratio is 8:12:13:11:6. Number of picassa users in 2011= 1,44,000. Calculate number of adwords users in 2010.

A basic math question that, even a school student can solve. But in that tension i was not able to do it. I took some time and finally gave him a answer. I myself knew that it would be wrong. But interviewer said great lets move on to next question[just to boost up me – good person].

My actual job role revolves around developing tools for the the ad review team which will review the ad and reject illegal ones. So third question was related to that .

He told me that as i am from a tech background, i need to explain him technically wat will i do. He also said that he did not need the actual solution. They will just see the way i approach the problem. That an existing problem and they are open to suggestions.

3) In google adwords there are about 30 million ads from 42 lanuages . Wat will i do review the ads and reject ads that do not comply with specific rules .

Regarding the criteria under which google bans a ad as illegal – i discussed about different criteria .

Out of the criteria's i told , he asked me to consider only three criteria .

- a) Link not working
- b) Drug related ads
- c) trademarks[trademark used by the companies]

I gave lot of approaches like for link not working

a) designing a autobot which will automatically click ads link and check whether it is redirecting to correct page or not . Autobots are used by hackers to get money for the ads they posted . I suggested that by designing similar autobot we can validate the link.

b) to check drug related ads –

To detect the language we can first check the geographic location from which the ad is getting posted and can narrow down to some less choices from which we can detect the language

i suggested him that we can create a trie which some specific keywords (like cocaine) and do pattern matching with that and reject the add it contains any of the works in trie .

The interviewer gave me another constraint wat if there comes a ad “cocaine rehabilitation center” we should reject those kind of ads na . thats for a good cause . So i suggested him that i can maintain another set of trie which can contain those set of keywords.

Fist check trie1 if drug related keywords exist .

Next check trie 2 if other types of keyword exist.

- if keyword only present in trie1 [reject ad]
- if both tire return true [can reject . but its better that those ad's alone can be subjected to manual evaluation for rejection].

I used trie as it can do the pattern matches faster .

For trademarks also i discussed using similar datastructures and the interviewer was ok with my answer[i thought].

He said that “We are done with here . The HR will contact u later ” and asked any questions “i asked few questions about the work they do in google” . and finally i finishehd with “Hope u r enjoying in GOOGLE ! ” He said “Of course yeah !”

I thought that i did the first and third questions well but screwed the easy second question . i am sure that i will not get selected for the onsite interviews because of that . I told to myself ” dont worry yar ! u r not lucky enough to join google !”

a week after i got this mail as expected

Thank you for your interest in Google. We carefully reviewed your background and experience, and though we do not have a position that is a strong match with your

qualifications at this time, we will be keeping your resume active in our system. We will continue to use our database to match your profile with new opportunities and will reach out to you if we find an opening for which you may be qualified.

Thanks again for your interest in Google's careers and unique culture; we hope you will remain enthusiastic about our company."

I write here because when i got fixed for interview with google for the tech ops specialist role. I searched in net about the interview experience for that post. But i couldn't get it. all i got was the interview experiences for software engineer, adwords posts. SO i think that it will be helpful for someone in future.

This article is compiled by **AnandhaKumar**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

84. [TopTalent.in] Interview With Nandini from VNIT Who Bagged an Off Campus Job in Microsoft



It is not just intelligence but intelligence coupled with inherent confidence is what makes a person truly remarkable. It is these truly remarkable people who go that extra mile to achieve their dreams. Nandini Yeltiwar, a student of VNIT Nagpur, bagged a job in Microsoft India, not through campus placements but through the off-campus employee referral channel. She was happy to share her experience with **TopTalent** and gave us some interesting insight into how she landed a dream job in one of world's top software companies.

So here is her interview where she talks about the Microsoft interview process and how she landed a job there. Don't forget to [download her resume](#) by logging in to understand what makes her special.

TopTalent: Can you describe the hiring process in detail?

Nandini: We had applied off-campus through employee referral and we were initially shortlisted based on our resumes. The first two rounds were an aptitude test followed by a coding round test in which we were required to give syntactically correct code. The coding round had short basic coding problems. After each round some applicants were eliminated. People shortlisted from coding round had a phone interview which had mostly behavioral questions. They went through our resume and asked us questions on

internships. Some of us were even asked technical questions in this round. Those of us who cleared the phone interview were called to the Microsoft IDC campus in Hyderabad for the technical rounds of interviews. There were three rounds which focused on each of the different positions for freshers which are Software Development Engineer and Software Development Engineer in Test. The technical interviews mainly stressed on data structures and algorithms. One round was entirely focused on testing. For each proposed code we need design test cases and hence verify the code.

TopTalent: What skills according to you was the company looking for in candidates?

Nandini: The company looks for candidates who are strong in algorithms and programming and have good problem solving ability. They'll start off with simple problems and they'll keep adding more conditions to the problem. They require you to be good at optimizing the answer and modify the solution after each condition that is added. You need to be good in communicating your logic to the interviewer. In case of testing, they expect you to cover all boundary and special conditions.

TopTalent: What was that x-factor which might have helped you over others?

Nandini: My final year project was on testing a software produced by a company. I feel that this made me a good fit for the testing profile since I studied quite a lot about testing due to the project. Apart from this, I had practiced a lot of coding questions, available on Internet and through various books, before the interview which helped me in clearing technical interviews successfully. I had given quite a few interviews at campus before appearing for Microsoft, which helped in handling interviews well.

TopTalent: How important are resumes in the whole process?

Nandini: The initial screening was based on our resume. However, the resume is not very important once you start the interview process, though a striking resume always helps. It's alright if you do not have impressive internships and projects. They don't expect rocket science from freshers. They do ask questions on the projects and internships listed on the resume in the phone interview so be well versed with all the projects you mention. You need not have a lengthy resume mentioning every small thing you did, but a short one having the major things. Whatever you mention in the resume you need to know it well in order to answer any type of questions on it.

TopTalent: What tips you can give which might help others applying to similar jobs?

Nandini: I would recommend practice. Improve and practice coding problems, basic data structures and algorithms. During the interview there won't be any compiler or syntax highlighter, so be proficient in writing code on paper or a white-board. Always communicate your logic to the interviewer. Sometimes they may forgive stray syntax as long as your logic is sound. You will be asked some testing questions which you need to crack even if you aren't interested in the Testing profile. For such problems, develop test

cases based on the requirements of the software. During interview keep telling the interviewer the ideas or the way with which you are thinking to solve the problem, this is always appreciated and they can even help you in case you get diverted from the proper way of solving.

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85. Microsoft Interview | Set 19

I recently got interviewed for a position in Microsoft, following is my interview experience.

Round 1 (Telephonic):

Started with my introduction followed by my work in existing company.

- Given a circular doubly linked list, delete a given element. He was looking for all the corner cases

Round 2

- Given an integer array find largest sum of elements which is continuous (kadane algorithm), Later asked to make code changes to find the array also. Also asked to give test cases for the same.
- Given a design of an application, comment/recommend the changes to be done

Round 3:

- Given two linked lists check if they intersect??
- Test cases to test an ATM

Round 4:

- Find least common ancestors of a binary tree (I said I know this, he moved to next question)
- Check if one array is subset of other (discussed different methods like hashing, sorting), asked to write a sorting function also
- Design questions related to the team they were interviewing for.

Finally I got an offer from Microsoft, they are very pleased with my performance. All the interviewers are very friendly. Thanks a lot geeksforgeeks, with out your help this would not have been possible.

This article is compiled by Chandrakanth. Many Many congratulations to Chandrakanth for his selection. If you like GeeksforGeeks and would like to contribute, you can also

write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

86. Fab.com Pune Interview Experience

1) Started with telephonic interview –

- a) Find the occurrence of first 1 in an array and the array contains only 0s and 1s in sorted manner.
- b) Design a datastructure to get minimum path between computers and printers in a network. Printers are getting dynamically added to our model.

2) Onsite 2st round of interview

- a) Given numbers from 1 to n , find a and b such that $a \leq b^{*}10$ and $b \leq a^{*}10$. The set should contain numbers which are violating these conditions with each other. This was a nice question(Hint: Complexity of the answer is $O(\log n)$ to the base 10)
- b) Given an array such that the number next to a number is either +1 or -1. Given such a condition, find a given number is less than linear time. He told me to write the complete code.
- c) Given a function Know(A,B) If A knows B then the function returns true then false. Now in a given set of people a celebrity is one who is known by other people and he doesn't know any one. Given an array, find the number of celebrities and the celebrity in less than linear time.

Other questions were on my previous work. I really enjoyed this interview, because I hadn't heard even a single question in this set

3) Onsite 3nd round HR

Prepare thoroughly on why do you want to join Fab ? Who are the founders and what is the problem that fab.com is solving and how is it different from ebay etc Also, the acquisition of truesparrow by fab.

4) Onsite 4th round HR

- a) Discussed on design of NLQ Parser because that was my project and then design of callbacks in design of a generic tree data structure
- b) Given an algorithm print numbers divisible by 3,5 and 3&5. If I keep adding more prime numbers, how will you make your code maintainable ? Please write the complete code
- c) Given a circle with radius (r). Find all the points that lie in a circle and which are integers(Hint: $x^2 + y^2 = r^2$ and also use the property of x-symmetry, y-symmetry and mirror)

5) Final round by the co-founder(Nishith Shah)

a) Model an elevator – Very interesting and subjective question. Will give you 1 hour and will make u write the complete pseudo code.

I really liked their interview process because it was very much different from other big companies like Amazon, Adobe or Microsoft who actually tests your mugging skills. If you go without any preparation, still your logic will make you clear their interview. I did get an offer from fab.com.

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87. Goldman Sachs Interview Experience

Super Day Process

1st Round – Written test to be completed in 1hour 20 mins containing questions on C++, SQL and Aptitude questions. The questions were really tough and considering the level of questions one might feel that the company is really technically sound. But believe me as you read you are going to get shocked.(Hint: For Aptitude questions, Please do a reverse solving, because you get 30 mins for 15 apti questions)

2nd Round –

- 1) Given a matrix with row sorted and column sorted, find the number given
- 2) What is head and tail command in UNIX ? How does it work?
- 3) What is copy constructor ? Write its syntax ? Brief about virtual functions and real time use case of it.
- 4) Different storage class and scope of variables.

This round is the most funniest – Believe me the interviewer was the Vice-President of the company and he did not know the basics of Operating system. It was kind of very irritating to talk to such people in the interview. If their package wouldn't have been good, I would have made him realize the current era

3rd Round –

- 1) Lots of discussion on project.
- 2) Write a code to crash OS (After listening to this question, I was shocked ? What does he actually want ?) I tried to answer this. Then finally he says write calloc in an infinite loop (Now you all get and believe me this is a technical answer from the vice

president of technology division of GoldMan Sachs and in US they compare them with Google. LOL)

3) Discussion on threading framework.

This is not it. This was actually the super day where they filter people from the crowd.

Now the actual interview with the team starts.

4th Round –

- a) Implement a max stack using one stack(Hint: Use amortized analysis) and don't use two stacks to solve it(I solved using two stack and finally optimized space and he told me to write the complete code
- b) Question on Trie data structure – I don't remember the question but it was a direct question

5th Round-

- a) Find the number ABCD such that when multiplied by 4 gives DCBA.
- b) How would you implement const member function of C++ in C ?
- c) What is copy constructor ?
- d) There were many questions from C++ and design of my projects.
- e) Intersection of linked list

6th Round –

- a) Pirates and Gold Coin Puzzle
- b) Take the 4 men across the bridge and only 2 can cross(simple puzzle)
- c) Measure 90 and 50 kg of sugar using 7 and 2kg of weight and you can use the beam balance only thrice.
- d) Reverse a string code
- e) Again many questions on C++ in this round too

7th Round –

- a) Final Round by the manager of the team
- b) Asks the puzzle of heavy coin and told me to generalize the same. I solved the puzzle and generalized it.

Again the manager was the vice president, who dint know what a ceil function was since the generalized version of this puzzle was ceil(log n to the base 3)

Finally after so much rounds, he says will you join the support profile ? I was like what a support profile. I told him no and believe me my interview was 95% correct. So please be aware of GS, they call for C++ and they finally offer support role.

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88. Adobe Interview | Set 5

1st Round(Written Test)

Consists of three sections with each section 1 hour to solve. Hence the written round was for 3 hours. I really liked the written round since it consists of everything starting from writing code(LCA, GCD, Middle of Linked list), Number conversion, Reduction of Boolean functions, Prefix to Infix Expression and evaluation of expression algorithm and finally aptitude.

The written round consists of more or less everything one could imagine and it is far better than other companies like Amazon or Microsoft. But of course, Adobe does repeat questions .

Adobe's Interview Process was very good since in this month, I had given interviews of Amazon, Samsung, GoldMan Sachs and Fab which I have already shared with GeeksForGeeks. What I Like about their interview was their way of perception, they were judging people based on thoughts and not just bookish answer. In fact, one of the interviewer was rejecting people if you give a book answer.

2nd Round(Technical Round)

a) Heavy discussion on Merge Sort, Amortized Analysis of Heap Sort – Made me solve recursion etc

b) Made me write the complete code for dictionary of words(Trie data structure)

3rd Round(With Director)

This interview had only one question and it went on for atleast 1 hour. It was a OOPS Design question

a) Serialize and deserialize the object in an optimized way(I gave him the idea of Spill overflow etc). I actually took a deep dive by optimizing in bit level) . After the algorithm, he made me design a library such that if there are 100 clients to my lib, it should be

maintainable and flexible.

It was a subjective answer but since I have 2 years of Work ex in C++. I did give him a nice design.

4th Round(Technical)

- a) Design an LRU cache
- b) Write C program for tail command of Unix using dynamic behavior
- c) And then discussion started on my projects. It was again depth of C++ programming

5th Round(Puzzles)

- a) Only puzzles were there in this round. And all the puzzles could be found on net

6th Round(Technical)

- a) Implement a generic Object Oriented Stack
 - a. Considering algorithm wise I explained him repeated doubling and linked list implementation.
 - b. Design wise, templatized the answer with heavy use of virtual functions to make the code generic and maintainable over a period of 2 years. Debate on what should Pop return when we template it ?
- b) Reverse a string word by word in place without using the swap function. The string is not-editable. This question was tricky as he kept building the question with constraints. But I really enjoyed it

7th Round(HR)

Finally after many interviews I got through Adobe. I did have offers from other companies but Adobe was paying well. I thank Amazon for rejecting me else I wouldn't have even sat for Adobe 😊

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Recently I attended the Amazon walk-in and got selected for the position of SDE I.

Written test:

1. Write a code to convert tree to DDL(assume tree node contains pre, next pointers and set as null initially.)

2. WAP to encode and decode string.

aabbcccd <->a2b4c3d1

3. Find the sum of elements in after nth iteration for below operation on array.

original array	4 6 8 3 6	sum = 27
iteration1	-2 -2 5 -3	sum = -2 (a1= a2-a1)
iteration2:	0 -7 8	sum= 1
iteration3:	7 -15	sum =-8

Hiring Manager:

1. Find the nearest leaf node from given node in binary tree..

use post order traversal.. like LCA in binary tree

2. Find the first k largest numbers from large file size. Explain solution for

1. When we have space to store K elements in RAM

2. When we didn't have space to store K elements in RAM

Tech:

1. Design N-ary tree, to make sure that lock and unlock operations can be done with minimum complexity (height of tree)

a node can be locked when its ancestors or successor are not locked.

we can unlock a node at any time.

2. $a[] = \{a,b,c,d,e\}$ $b[] = \{f,g,h\}$ result should be = af+bg+ch+df+eg

Tech:

1. Find maximum product of subarray in given array of integers

2. Design T9 dictionary

Bar Riser:

1. Design a tree, in which a root can have unlimited children and write a code to print each level in separate level

2. Print the anagrams present in a huge file (each line in file contains one word and you didn't have any constraints like limited memory etc..) for a given string

use trie or hashmap

Like all Amazon interviews in GFG, here interviewer more concerned about edge cases and perf perf perfect code.

Thanks a lot GEEKS FOR GEEKS and my dear friends Ramesh, Purush, Jhaday for helping me in preparation.

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90. Amazon Interview | Set 32

I would like to contribute for GeeksForGeeks by sharing my experience of Amazon Interview process. This was for a SDE position in Hyderabad. I have almost 2 years of work experience in Samsung.

1st Round: Written

Test was on Interview Street Platform.

Qs-1) A function printMostFrequentWords, which takes in an array of strings, was given. It is required to print a list of all the letters that occurred with the highest frequency in each line of the array, followed by the frequency. The list of letters should be an alphabetical list of upper case letters followed by an alphabetical list of lower case letters.

Sample Test Cases:

Input #00:

When riding your bicycle backwards down a one-way street, if the wheel falls off a canoe, how many ball bearings does it take to fill

up a water buffalo?

Hello Howard.

Output #00:

e 6

al 7

a 3

Hlo 2

Qs-2) <http://www.geeksforgeeks.org/construct-a-special-tree-from-given-preorder-traversal/> –Variation of this one

Qs-3) <http://www.careercup.com/question?id=12998667>

Third case was a bit tricky.

Qs-4) Rotate an M*N matrix by 90 degrees. There was no function given in this case. Everything should be assumed by you only.

Qs-5) Delete the Kth Node from a linked list.

I solved 4 questions with all test cases while for another 1 only 10/15 test cases passed.

2nd Round: Telephonic

Qs-1) Spiral level order traversal of a tree. (Use two stacks)

Qs-2) A person can jump 1 or 2 steps. No of ways of reaching the top of n stairs. (Try for O(1) space.)

Qs-3) Find the longest substring in a string with exactly 2 unique characters. The substring should not contain more than two different chars.

So, aaaaabbaaa is a valid substring

Also, ccacccaccaca is a valid substring.

Need to write code for the 3rd qs.

Expected = $O(n)$

I answered all the 3 questions and was confident of receiving the call for onsite which I did.

F2F ROUND 1:

Qs-1) The question was to print a tree vertically. Please note it was not asked to get the sum at each vertical level. We have to print nodes at various vertical levels starting from the leftmost vertical level to the rightmost vertical level.

I suggested array of vector then a hashing. Finally I gave a solution based on DLL.

Code was written using DLL only.

Qs-2) Only approach was asked on how will you save a binary tree in a file(Not a BST)

There are no assumptions on Binary tree.

This round went well for me.

F2F ROUND 2:

Qs-1) First I was asked to design a Data structure with O(1) insertion and O(1) search. I told about hashing. Then he told me to get a random number from the current list of numbers which have been inserted into my Ds. So I maintained an array storing pointers to the hash table.(Assume no Collision, he told so).Then he said O(1) deletion also. I was stuck on this I was not able to make both deletion and getRandom in O(1).After Some Discussion he moved on.

Qs-2) He told there is a range, defined by a min val and a max val. In a given array I had to find all elements within the range. I told him its only possible in O(n).We have to look at each element. Then he told me to assume array as sorted. Then I used Binary search for finding indexes of ceil of min and floor of max to find the elements in the range.

This round went ok for me.2nd question i wrote proper code with all edge cases, but in first I got stuck a bit.

F2F ROUND 3:

Qs-1) In a binary tree, a complete path is defined as a path from root to a leaf. The sum of all nodes on that path is defined as the sum of that path. Given a number K, we have to remove (prune the tree) nodes from the tree which lie on a path having sum less than K.

Note: A node can be part of multiple paths. So we have to delete it only in case when all paths from it have sum less than K.

I was able to solve the problem and write correct working code for this.

(Hint : Think of a bottom up approach.)

Note: Values in tree can be -ve also.

Qs-2) A robot problem: No. of ways to reach from 0,0 to m,n in a m*n grid. I had to tell recursive function only. No code required.

This round went very good for me. The first question was a bit tricky but solving it raised my confidence.

F2F Round 4 with Hiring Manager:

Qs-1) This was mostly a HR Based round. A lot of questions about my previous work, my initiatives, challenges I faced and many other questions.

A simple question on matrix was also there. Fill rows and cols with ones if a 1 is present in that row or a col. Code also required.

Question based on shipment and orders etc. Eg: What all things to take care in b/w of order placed and item shipped. What all factors and things you will consider.

I was being interviewed for transportation team. So questions based on it.

Overall, the round went well

I returned to Bangalore that night.

Few days later, I got a call from HR saying I am very close and I need to appear for another round in Bangalore office.

F2f Round 5:

About half an hour Hr based discussion.

Then two Technical questions with code:

Qs-1) In a binary tree, return true if all leaves are at same level and return false if all leaves are not at the same level.

Qs-2) An array is given which is first increasing and then decreasing. Find the pivot element. Need to take care of all the edge cases.

This round went well for me. Mostly this round was on soft skills. I did well in coding questions and wrote proper code for both.

In the evening I got a call from HR that I was selected. 😊

I would like to thank GeeksForGeeks Team for being a great help for me.

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91. Amazon Interview | Set 33

I recently attended a walk-in for Software development Engineer (SDE- 1) at Amazon, Bangalore.

Here is my experience of Amazon interview.

As I was from the same city, there was no phone interview. I have listed down all questions that I remember.

Round 1: Data Structures, Algorithms and coding (1 hour)

Interviewer just started off with questions without introduction and stuff.

1) Given a singly linked list, swap every 2 nodes, for odd number of input; retain the last

node as it is.

Eg: Input: 5 13 15 18 20 11 6 7

Output: 13 5 18 15 11 20 7 6

I was asked to write the code straight-away.

Wrote the same, verified boundary cases and discussed.

2) Given a binary tree, find the number of pairs where sum of 2 nodes' values equal to k

Eg:

```
1  
2 3  
4 5 7
```

Say k=7, output =2 (2+5, 3+4)

Suggested an approach where I'd use inorder traversal of this,

Then interviewer asked me to solve the simplified problem, find k in sorted array instead of tree.

Got solution for this one, to have 2 pointers at each end, and traverse accordingly.

I was asked the approach for extending same to BST.

Then, I implemented the same for BST using stack.

Round 2: Data Structures, Algorithms and coding (1 hour)

1) Given input as k sorted arrays, generate a single sorted list as output.

Eg:

Array1: 1 5 8 9 11

Array2: 2 12 24 44

.

Arrayk: 3 15 79 115

Output: Array1: 1 2 3 5 8 9 11 12 15

Discussed the approach, and complexity, then wrote the code for the same.

2) Given a function isGreater, compare user defined objects and then return the object that is greater than all other objects.

Twist: obj1 > obj2 and obj2 > obj3 does not mean obj1>obj3

I asked for the use case for the same, as I was not convinced with the problem.

He gave an example of games/ 1 team winning another.

Discussed the approach and then wrote the code.

3) Given an input sentence, output the non repeated words in the sentence.

4) How are maps implemented?

Interviewer then clarified my questions about Amazon.

Both first and second rounds were at similar difficulty level.

If the interview feedback was bad for any of these, the candidate was eliminated. If at least 1 of these went well and other “not sure”, then too candidate is called for next rounds.

Round 3: Hiring Manager round (1 hour 40 minutes)

Discussed on my current roles and responsibilities

why do you want to join to Amazon?

What are your accomplishments in your role so far?

What are the things that you’re not good at and need to improve?

Serialization of Binary tree. Given 1 traversal is it possible to re-construct the binary tree.

Write code to reconstruct the tree given any 2 traversals.

I took in-order and post-order traversal, discussed the approach and wrote recursive solution.

Was then asked the approach for iterative.

Round 4: Culture Fit Round

This surprisingly had a data structure question first.

1) Given a n (large number) lists of customers who visited n webpages on n (large number) days, design a data structure to get customers who have visited the website on exactly “k” days and should have visited at least “m” distinct pages altogether.

Was then asked to improvise the solution as much as possible

2) Details on my previous project and job profile

3) Challenging situation faced

4) Why should we hire you?

Then, he answered some of my questions.

Round 5: Coding, Algorithm and data structures (Technical round with a senior developer)

Started with questions straight away

1) Least common ancestor of a binary tree (Solution and Code)

2) Given a 2 dimensional array sorted vertically and horizontally, search for an element and return true if the element is present. (Algorithm, Code and Complexity)

Example

11	16	25	38
45	49	52	57
51	54	59	66

3) Something on count sort.

4) Print binary tree in zig-zag order..

5) Gold box problem (Approach)

There are 'n' gold boxes placed in a row, each having different number of gold coins.

2 players play a game, where the motive is to collect the maximum number of gold coins. Each player can see how many coins are present in each box, but can get a box from either end only, on his turn.

Design a strategy such that Player1 wins (Assuming both players play smartly)

I got the hiring call after couple of days, after my last round of interview. They said feedback was very positive and they're happy to hire me.

Was so happy 😊😊 Thank you..

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92. [TopTalent.in] Interview with Manpreet Who Got Offers From Amazon, Hoppr, Browserstack, Reliance via TopTalent.in



Manpreet, a graduate from BITS Pilani, has an inspiring tale for all those who believe that campus placement is everything. After applying for companies like facebook and google and having hard luck with all of them, he continued his research as a short term scholar at Carnegie Mellon University. He then, after his research, registered with [TopTalent.in](#) and he now has offers from Hoppr, Browerstack, Reliance and Amazon. He finds it hard to select one. He finally narrowed it to Amazon with a lot of difficulty. Read on to see what Manpreet has to say about his journey so far.

TopTalent: Can you talk a bit about your background?

I am an Information Systems graduate from BITS Pilani,Pilani Campus. My work has been focused mainly in the Computer Vision Research. I worked in Central Electronics Engineering Research Institute Pilani. After graduating I continued my research as a short term scholar at Carnegie Mellon University. After coming back to India I worked to scale my brother's startup. On creating strong foundations for the company to grow, I had to move on with a job. Hence I prepared and applied to companies through TopTalent.

TopTalent: Can you describe the interview process for Hoppr, Browerstack,Reliance and Amazon?

Hoppr : The first round was an online round with questions on algorithms. I was asked to solve any one out of three questions in one and a half hour. Somehow I found the questions quite intuitive and I was able to solve all three questions in the same time and hence the interviewers got impressed and without taking any further rounds reverted on phone with an offer.

Browserstack : This was the most realistic interview I ever gave and that's why I would share some details. The first telephonic round was algorithms/OOP based. They were moderately tough, just the kind of questions which are expected. The second round was coding on collabedit platform. I was asked to write optimized code and scripts for problems. The interview didn't have any time bounds but the most distinctive part was that they took into account everything, from optimization of algorithm to its output. The third round was a face to face interview involving hacking around the platform. They allowed me to search online and gave me ample amount of time to solve the problem. Again just simulating the environment how one actually faces in real job. The last round was HR round with the Co-Founder of the company.

Reliance: There were two telephonic rounds related to product management. One round was focused on writing a rough business plan. The manager was an intelligent MIT graduate. He discussed at length with me about products reliance could launch to capture Indian market.

Amazon: The interview process was quite standard with 5 rounds. All of them were face to face with algorithms questions. The first two rounds were with senior developers. The last two rounds with the hiring managers were quite interesting because apart from my technical skills, I had to use a lot more skills gained in my brother's startup as well as research.

TopTalent: What was the toughest question you encountered and how did you tackle it?

The toughest question I encountered was by browserstack, which involved interacting with the browser through code. I had no experience with anything related to web development. They allowed me to use internet and gave me ample amount of time. I broke the problem into parts and solved step by step, found some snippets, found some

libraries, patched everything and to my surprise it worked. This question was asked to measure person's performance in a real job scenario where it's not all about coding skills but much more than that.

TopTalent: What advice would you give to others who are looking for similar opportunities?

I guess one should have perseverance and never lose hope. I had appeared last year for lot of companies like DeShaw, Google, Facebook, Flipkart and got rejected from all of them. That's way I was able to know about my weakness and started working on them. Hence my suggestion is try till you succeed. Registering with [TopTalent.in](#) paved my path to success. This saved me from the annoying spam of walk-in interviews for voice processing etc. I applied for multiple jobs on TopTalent and got call from more than half of them, which to my thinking is quite a good conversion rate.

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93. Amazon Interview | Set 34

First of all, a very very big thanks to whole team of geeks for geeks. It is because of them only that I was able to crack the interview process of amazon and get a job in my dream company.

No of Rounds: 1 MCQ round + 2 online test round + 4 PI

Type of Interviews: Campus Interview for freshers

MCQ round(Time) : 45 minutes 20 Objective Questions:

5 question on maths which included 3 on probability

Some c output questions easily available on [geeks quiz](#)

Questions on heap, hashing, time complexity of recursive functions

One sql query, one question on fcfs and round robin scheduling, page fault in demand paging, dining-philosopher problem, one on propositional logic, one based on Huffman code.

Online test 1 (Time): 45 Minutes

2 Questions:

- Given three linked lists, where each linked list represents a number, add the three lists and return the resultant list.

5->1->2->NULL
9->1->NULL
7->2->2->NULL
Output :: 1->3->2->5->NULL

2. Given an array and two numbers x and y, find minimum distance between two numbers x and y. assume that x and y always exist in array and it may be that x and y are same also...

Online test 2 (Time): 45 Minutes

1. Convert a given binary tree to sum tree.
2. Given an array consisting of both positive and negative numbers, 0 is considered as positive, rearrange the elements such that positive and negative numbers are placed alternatively, constraints are that it should be in-place and order of elements should not change.

Interview Round 1(75 Minutes):

Technical Interview

Asked to give a brief idea about my project.

Question 1: Given a linked list, reverse every k nodes of the linked list.

Question 2: given a matrix of size m * n, place k students in such a way so that cheating in an exam could be minimized.... Was asked to just explain the approach, no code required.

Question 3: suppose a online chat between customer and serviceman, serviceman wants to reply to customer as soon as possible...suppose text which is to be sent as reply takes 10 sec for being typed. How can he make typing faster ?

My answer was using autoprediction feature, by which he will need to type less number of characters, so typing will become faster..

Then question was extended to how to store the words for being used in prediction... I answered a trie data structure which allows prefix matching..

Then question was further extended to write a code to traverse all the words stored in dictionary in lexicographic order..

Interview Round 2(50-60 Minutes):

Technical Interview

First of all was asked to tell something about myself.

Then a detailed discussion about the project, conversation continued nearly for 20 minutes, he wanted me to explain him everything from the scratch.. I used genetic algorithm in my project..so he wanted to explain him the concept of genetic algorithm..

Then a coding question:: stable stock problem.

You are given prices of stock of a company at consecutive days in an array..write a code to find the maximum profit one can make by keeping a stock value for as long as possible..that value of a stock is called a stable stock value.

Example::

6 5 9 8 3

So maximum profit is 15, because stock of value 5 would be hold for 3 days. So max profit is 15.

The problem basically was a variation of finding index of next smaller element.

I solved it using the concept of largest rectangular area in a histogram where need to keep track of previous smaller will not be required.

Interview Round 3(60-75 Minutes): (Bar Raiser Round)

Technical Interview

Interviewer was very cool.. he first asked about me, did some casual talk to do away with my nervousness.

Infact, he told me that it looks like that you all have studied geeks for geeks very thoroughly so I am going to ask you a question that is not present in geeks for geeks. He challenged me it will be a question you have not heard of before. At the end of round, he showed me it was a question from top coder, but I had never heard of anything called top coder before.

Question 1: Given a string, find the longest sinusoidal sequence in it. If there are multiple such sequences of same maximum length, return the one which comes first in lexicographic order in a dictionary..

Sinusoidal means increasing then decreasing then increasing and so on.

Example ::

a r u n ::

a u n , a r n , r u n are three such sequences of length 3.... But, a r n is output since it comes first in lexicographic order.

Interviewer gave me hints that if I had to found the sequence in which all elements were increasing, then I answered LIS will give me the solution , this was the hint. So, basically, it was a variation of LIS. I answered it in $O(n^2)$ and $2n$ space....

Then was asked to do it in (n) space and $O(n)$.

Question 2: Suppose a student needs to implement a bst structure to solve a problem, but instead he used a linked list..... Then give an example of input sequence, in which his implementation works... new value will always be added at beginning of a linked list.. so.. Basically at each step after insertion , root of bst and head of link list should point to same node. I was asked to provide the sequence.

Interview Round 4(35 Minutes)

This round started of with some nontechnical questions.. what will I do in different

situations?

They seemed to have found out every detail of terms involved in my project..so, there was a detailed discussion on project... my project involved concepts of statistics, so he asked me questions regarding stats.... This discussion went nearly for half an hour.... In the end, he told me lets see whether your project could bring you to amazon....

After the 4th round, I nearly have to wait for 4 hours before the result were announced.

Finally, the interviewer said they were highly impressed by me and I was hired.

In total 7 students were selected among us.

Once again a big thanks to whole geeksforgeeks team.

This article is compiled by Arun Jain. Many Many congratulations to Arun. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

94. Amazon Interview | Set 35

On-campus, 1 MCQ round, 2 coding rounds, 4 face-to-face rounds.

MCQ round(45 min)

– 5 questions on mathematics, one was from probability, all easy 15 questions technical, from each-demand paging, dining-philosopher, humming codes, 3-4 C programs output, etc

1st Coding round–2 questions(45 min)

1. Given an array, find minimum distance between two given integers in the arrays. Note that the two given integers may be same.

2. Given three linked lists, each representing an integer, add them
eg

3-7-0-8

2-1

5-4-2

ans – 4-2-7-1

explanation- $3708 + 21 + 542 = 4271$

2nd coding round(45 min)

1. Given an array containing both positive and negative elements, arrange in such a manner — 1 positive number, then 1 negative, then 1 positive and so on. If number of negative numbers are more, extra numbers should be kept in end and vice versa. Note the order of negative and positive elements should be same in the modified array and you are not allowed to use any extra space

2. Given a binary tree, replace each node value by sum of its children value.

Face to Face rounds-

Round 1

1. Level order traversal and then level order traversal in spiral form. Only algo, no code

2. Given a dl representing the spiral level order traversal of a binary tree, convert it to a binary tree inplace. In Last level, nodes will be either to the right or left only. complete code in C

```
eg 1-2-3-4-5-6-7-8
o/p--
    1
     /   \
    3     2
   / \   / \
  4   5   6   7
      \
      8
```

3. Glass pyramid problem. Measure amount of water in j'th glass of i'th row.(algo+code)

Round 2-

very few technical questions

1. Given an array which is first increasing and then decreasing, how will you search an element?(only algo)

2. Convert a n-byte integer from little endian to big endian.(code was required)

3. Find k max elements from a large file.(only algos)

Round 3

no technical questions at all

Round 4

After some personal questions, the interviewer asked some technical questions as well

1. Suppose we receive requests for a page, but we want to ensure that max no of request per sec is 'x'. If there are more than x requests, what will you do?

We want a continuous flow. How will you do that?

2. Suppose in a system, some processes are already running. Now when an user will give new task(or process), he will give a list of processes his process is dependent upon. Some of those may be running, some may not be running right now. You have to ensure that there is no contention, i.e., If a process, Pj is dependent on process Pi, Pj should not execute along with Pi. How will you ensure that? Complete algorithm with code was required. The interviewer went on complicating the problem.

At last I used graph and 3 hashmaps to solve the problem. He was ok with it.

That's it. My last round completed and I was selected.

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95. Amazon Interview | Set 36

1 round (20 MCQ + 2 coding question)

3 face to face round, 1 telephonic interview.

1st coding question

Find the diameter of the tree.

2nd coding question

check the validity of sudoku.

1st face to face Round

Qs-1) In a binary tree, a complete path is defined as a path from root to a leaf. The sum of all nodes on that path is defined as the sum of that path. Given a number K, we have to remove (prune the tree) nodes from the tree which lie on a path having sum less than K. A node can be part of multiple paths. So we have to delete it only in case when all paths from it have sum less than K.

I was able to solve the problem with bottom up approach, and able to write a working code of it.

Q-2) Given an array of positive numbers, find the maximum sum of a subsequence with the constraint that no 2 numbers in the sequence should be adjacent in the array. So 3 2 7 10 should return 13 (sum of 3 and 10) or 3 2 5 10 7 should return 15 (sum of 3, 5 and

7).

I was able to give him a DP solution with a Parent array which stores the index of the parent of every element, I had put -1 for the first element, at the end I backtrack the array to find the all the elements.

2nd face to face Round

After some personal questions, the interviewer asked 1 coding question

Q-1)

n1 pairs of "{}" brackets

n2 pairs of "[]" brackets

n3 pairs of "()" brackets

I have to find the all valid combinations of all the pairs. I have to write the working code of it.

I gave him the solution with recursion and stack.

3rd face to face round

Interviewer asked some basics Questions on Design patterns, OOPS and OS, after the big Discussions of all the Questions he asked 1 coding questions.

1st Question

There is a string, in which all the spaces are removed, we have to find the original string with the help of a machine which takes input a word checks that it is valid or not.

Telephonic Interview

The Interviewer asked to give a brief idea about my project.

After some questions on my Project, the interviewer asked 2 coding question

Q-1) tree to doubly link list. O(n) and in-place solution is required.

Q-2) A array of N elements, we have to replace all the elements with nearest greater which is present on the right side of that elements. O(n) is required.

After 2 days, they inform me that I am selected for the job. 😊

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96. Yahoo Interview | Set 3

I would like to express my gratitude towards the GeeksforGeeks team, whose help saw me through to Amazon's interview rounds and getting placed at Yahoo.

Number of Rounds: 1 written, 1 coding and 4 interview rounds

Written Aptitude Round:

30 questions were given and time was 60 minutes. The questions had varying difficulty. Subjects included Mathematical Aptitude (5-6), Graphs, OOPs, OS, DBMS, Networking and C. Strong subject knowledge was required to clear this round and it was a very tough elimination round.

Coding Round : 2 hrs

This was 1 of the toughest coding rounds as the only language given was C and we needed to parse a XML file of the following format:

```
<ledger>
<person>
<name>Jai</name><location>Bangalore</location>
</person>
<entries>
<entry><day>1</day><credit>50</credit><debit>40</debit></entry>
....
```

multiple entries were there, and multiple people were there.

We were required to validate the XML file. Open and Close tags matching.

We were required to parse, maintain the max balance for each person, the longest span of days each person had the max balance, and report queries such as who had the overall max balance , his span and location. Span must contain the day numbers, not length.

Part marks were given, at least for 1 person output was expected.

I had implemented a Stack based incremental algorithm which checks as well as fills other data structures to answer the queries. I had modified the input a little to give it a proper structure so that i could use fscanf and sscanf pattern based input from the XML file. After the 2 hrs allocated we were told to explain our code and approach , the pros and cons of the approach, assumptions etc. My interviewer was happy with my approach.

Interview Round 1 – 1 hour:

Was asked several basic algorithm questions such as in-order is given, what more is needed for creating a tree, add multiple linked list represented decimal numbers etc. Then few Graphs related questions such as a hill is present, few taps are present, all connected to other taps above/below, find which tap will be the last one to get water from a spring on the top of the mountain. At first the graph was a tree structured then he

generalized it to graphs. Finally he asked me to implement an efficient Web Crawler with 100 seed URLs. Conditions were added ,define efficiency, how many threads will be needed, mutex/semaphores pros and cons, Data structure required,efficient query on them, Denial of Service avoidance etc. I had prior experience with both Web Crawling and Huge Graph Clustering techniques so was able to answer all questions asked. I would advice everyone to prepare multiple subjects thoroughly, at least OS, Networking and DBMS.

Interview Round 2 – 30 minutes:

It was basically a test of my OOPs knowledge, was told to approach the XML parsing in OO paradigm. Design a couple of classes, explained all the basic OO fundamentals were being followed. Interviewer continued to ask me to do better, no hints were provided, he was not completely satisfied but felt the design was sufficient.

HR-Semi Technical Interview Round 3 – 30 minutes:

All round questions were asked from background to future prospects, and I had an internship in IIT KGP, so was asked about the project and how my project could contribute to the real world. Do prepare your projects specially the motivation behind it.

HR Interview with Manager – 30 minutes :

Questions like how can you improve this Interview procedure, what challenges will you face when you join us, how can you make us better were asked.

After my final round, an hour later the results were announced. I and another one of my peers got HIRED 😊

This article is compiled by Pratyay Banerjee. Many Many congratulations to Pratyay. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

97. Morgan Stanley Interview | Set 1

Morgan Stanley campus placement for post IT analyst.

1st round – objective written test

10 questions on aptitude and analytics

30 questions on programming

10 questions on computer fundamentals

They had sectional cut-off and selected 20 students

2st round – coding written test

5 questions on coding basically on data structures

1. Write a function to find the mirror image of binary tree
2. WAP to find the character which occurred maximum times in the character array
3. Given a 2d matrix find an element in a matrix which is 0 and make the entire row and column to 0
4. Find the minimum element in the rotated array of integers
5. Find highest length substring such that there are equal number of 0's and 1's in array of 1's and 0's only

3rd round – Technical interview

1. He asked to tell something about me
2. Then he asked a questions on my projects and internship
3. Then he asked me to write a modified bubble sort
4. Asked me to design a structure for storing stock market details for every quote/ company and store it as a linked list and asked me to write a linked list function like insertion and initialization
5. Then he asked me to store the live data of particular company of every 5 minutes and the history should be of 10 days, so it's a huge amount of data so it's very inefficient to use linked list so suggested to use hash map or circular array as it of fix size of 10 days.
6. There were other simple questions on data structures and databases

4th round – Group Task/Discussion

The group was formed by 6 people. They provided some 8-10 pictures based on business ethics and then we have to form a story using this pictures in 15 minutes and after this time they provided again 6 pictures and we have to include it in our story. And then we have to tell the story in group in 2 minutes. Then they asked some questions and asked us to rate everyone else in the group.

5th round – technical interview

Most of the questions were on databases and operating systems. Then some are probability questions

1. If your friend is being pointed by a gun by his enemy, consider a barrel of 6 bullets but it has only 2 bullets which were consecutive too, then an enemy rotates the barrel and push into a gun then he fires the trigger but the shit was empty, then he gave a choice for 2 shot that do you want to rotate the barrel again(randomly) or continue in this position only, so we have to find both the probabilities and find which one is lesser so that we can save our friend
2. The other question was we have to print
10 – 60% of the time we execute the program
20 – 10% of --
15 – 30% of --

So we have to write a code so that when we execute the code for 100 times there will be 60 – 10's, 10 – 20's, 30 – 15's

Then asked me to draw tables for database of college for students, professors, time

table and courses.

6th round – HR interview

Before going for HR interview we have to fill the form which has some common questions and all things about you like books you read, hobbies, place where you want to work, about post grad.

Normal HR round was there and asked some common questions such as about me, my past, my grades, interests, hobbies, pros – cons, achievements.

Also about future plans like post grad and position after 5 years, then he given some puzzles to solve the 100 prisons and 100 prisoners question to toggle the doors

I really really thank geeksforgeeks for sharing very good questions for placement preparation.

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98. Morgan Stanley Interview | Set 2

Written Test:

10 aptitude and data interpretation questions, questions based on language of ur choice(C/C++/Java), questions on basic Computer skills.

I was able to do only 2-3 out of 10 apti questions...and almost all C questions and Computer skills questions.

Some questions:

Apti:

- 1) A person need to weigh 5 balls (weight<30kg) but the weighing machine can weigh only weight >30. So the person weigh two balls together (ie. Weigh all possible pairs)..the values of weight of all possible pairs were given and we need to find the lightest ball
- 2) Given 3 boxes with A having 2 white balls 3 blue balls, B having 1 white 4 blue and C having 4 white 1 blue. Find out the probability of picking 2 white and 1 blue if one ball is picked from each box
- 3) In how many ways can 4 balls be distributed in 3 distinct boxes when each box may have any number of balls. Also, 2 balls are identical
- 4) A simpler version of Einstein puzzle
- 5) Data Interpretation Questions –given two graphs interpret data.

C /Computer Skills:

All questions were easy. Mostly output based

- 1) `printf("%d",sizeof(""));`

- 2) Question on hashing and quadratic probing
- 3) Question on binary tree
- 4) Given base address of array, find array[5][6]
- 5) Question on number of comparisons in binary search
- 6) Questions on size of union /structure and there memory layout

Shortlisted 21 out of 256 students

Coding Round:

We had to write 4 codes on paper in 45 mins:

- 1) Given a dictionary, find all the words which are anagram of each other
 - 2) Given a sorted array and a number 'c' . find pair of numbers such that $a+b=c$
 - 3) Given a sorted array .remove duplicates from it
 - 4) Given a binary tree T1 with millions of node and another binary tree T2 with hundred of nodes.Find if T2 is subtree of T1.
- questions were easy, but time was less

Tech Interview:

- 1) which platforms u use?
- 2) tell some commands of linux
- 3) how to kill process
- 4) how to send some specific signal to a process using kill
- 5) how to see process created by specific user
- 6) how to check memory utilization of all set of process
- 7) how to check CPU utilization of processes(which is consuming highest)
- 8) questions about my Intern project
- 9) what u have done in android?
- 10)

```
while(1)
{
    void * a = malloc(1024*1024);
}
```

How many times this loop will run on a 2 gb ram and a 8 gb ram.

- 11) how 4gb process can run on 2 gb ram
- 12) why we use 8 gb ram if we can manage with 2 gb ram
- 13) given n servers and a scheduler which take messages and send it to one of n servers.
Also given the percentage in which the messages should be distributed among servers for load balancing. Give a algorithm on how will u decide the destination server of a message which has just arrived.
- 14) What functions are there in class automatically..write copy constructor signature.
Why reference is used as argument.
- 15) At last I asked him about Glass-Steagall Act which lead to birth of Morgan Stanley.
He explained me for 10-15 min

Group Activity

Divided into 2 groups and each group was given some set of pictures initially..Some pictures were specifically given to individuals and others were common. We as group had to come up with a story using those images.After 5 min some more pictures were given to us and we were asked to add those images also in our story. All the discussions we had in the group was heard by them.

At last, in 5 min we had to tell the story as a team with each person talking about the part of story in which his specific picture fits in.

The theme of story was also specified as “Business Ethics”

Tech Interview:

1) Design Reservation system(long discussion) :

I designed Database for it and did lot many changes in my initial design. We discussed different issues which made me changing my design at various places.

How will u manage situation where two person see same seat number available and proceed for reservation at same time. I told him about transaction and locking, he said from which point of reservation will u lock and allow only one transaction to proceed.

I gave all kinds of possible answers but he was unsatisfied, I gave analogy of transaction from ATM and transaction from Net banking at the same time..and he asked me to tell the answer as to how to handle this situation.

At the end when I was not able to come up with something really working (other than locking the attributes), he said that these problems are very complex and do not have simple solution, he just wanted to see my thinking and asked in if I know about observer pattern.

2) Tell about design patterns

3) Tell about observer pattern

4) 12 balls puzzle

5) Implement queue using two stacks with best case of both enqueue and dequeue in O(1)

6) SQL queries :

Given three tables Student(sid,...) ,Class(cid,...) and joining table Student_class(sid,cid)

Find all students names taking no class

I did it using "not exists" and subquery but he said subquery is not allowed

I told him that we can use “except” ,but he said no

Then he gave hint as join and I told him to do outer join and he was satisfied.

Query to find students taking more than one class

HR round:

1) Tell me about urself

2) Intern project

- 3) Project other than intern project
- 4) Asked about extra circular activities. What all those awards written in my resume actually means
- 5) Asked a question, explained the whole situation without paper and pen :
In short the question was how will u have distinct values of product names from the array of product class which contain product names as well as other attributes.
I told him to use Set, then he asked how it is implemented in java, I talked about hash set, he asked about specific function of class (whose hash set is made)
Which is called internally...which I did not know...and told him about simple hashing of strings and he was satisfied and told me the answer as hashCode function
He said how will u use threading in same problem and improve performance again I told me all kind of things like to have two thread which traverse the array in opposite direction(one from beginning and one from end) and maintain the set as global variable
He said what if there are multiple such arrays..
- 6) I asked him about the frameworks they use and he went on explaining for 15 mins (of which I could not get much) and said how come u did not had any question in ppt. He was enjoying a lot in telling me all kind of things and wanted people to ask more questions at ppt and show interest

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99. [TopTalent.in] Interview with Ellora Nath who got a Job Offer from eBay



Ellora Nath is certainly not your average woman. From being a board topper to a pageant contest winner she has done it all. She is also one among the very few people to be selected for ISB's Young Leaders Programme. If that wasn't enough she recently bagged an envious job offer from Ebay. In a candid interview with TopTalent she talked about the interview process and why she chose Ebay over other companies to kick start her career.

As usual, you might want to download her [resume](#) by logging in to understand what made her stand out and how you can do it too.

1. What makes eBay so special? Why did you decide to join eBay?

Ellora: When we sit for campus placements, the process is mostly dominated by the pressure of getting ‘a’ job, usually not ‘the’ job. When you choose ‘the’ job, it should be aligned with your interests; domain, work-life balance, location and so on. I took the plunge mainly because its a great fit. eBay is one of the best e-commerce companies globally and is hailed as a great place to work for. Besides, retail therapy has always proven good for us women, it excited me to be behind the scenes.

2. Can you describe the complete hiring process of Ebay?

Ellora: The process commenced with a written round. Some 40 odd questions and a design question. Shortlisting followed. I had 4 rounds after. Two technical rounds. Two techno-behavioral round if I might call it. They were taken by the Director and the Hiring Manager respectively. I escaped the HR but more often than not that is the norm. You can expect an HR round before the final yes.

3. What was the toughest question you encountered and how did you answer it?

Ellora: Well I wouldn’t say one question, but stress on the fact that it was a very comprehensive interview. I had some of Data Structures, Databases, Algorithms, Operating Systems, Linux commands, puzzles everything thrown at me. Questions spanned across domains and just surface level won’t cut it. I remember one where they gave me a scenario involving some transactions between the sellers and buyers. I had to elucidate my understanding of the databases involved and there were some complex SQLs for retrieving desired data.

4. What is the application process for companies like eBay?

Ellora: Campus placements and off campus drives. I got lucky with a call from the HR for the interview but one should hang out at their websites to find open positions. eBay has a very strong referral programme too. You could leverage that.

5. Can you talk about what resources did you refer before the interviews?

Ellora: Some DSA-OS-DB slides I had as a takeaway from college. Also websites like careercup and geeksforgeeks has good preparatory material. I had also gone through everything in my resume (projects, particular algorithms, slight technical details mentioned) before my interview with the hiring manager. That really helped.

6. What were some important factors according to you that made you stand out?

Ellora: I think it was just my day. I was well prepared. Having a job in hand ensured i wasn’t a nervous wreck. Mostly, know your stuff well and hold your ground in front of the panel.

7. Currently, what are you working on and how has been the experience till now?

Ellora: I am in the Buyer Experience Team at Ebay as a Product Development Engineer. My work is JAVA Based, we work on ebay specific technology stacks. Its

been an awesome one month. We have a swanky new office in Bangalore now and the employees are really well taken care of at ebay. You'll definitely start buying a lot more from ebay, post job. Good luck to everyone applying.

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100. Amazon Interview | Set 37

Interview Experience for placements at AMAZON.

It consists of 1 online round (20 MCQ + 2 coding question) and 4 F2F interviews.

Online Round 1:

20 MCQ 1 question each from OS, pigeon hole principle, probability, DBMS, networks, NP problem and other questions from C/C++ input output and logical question

22 from batch out of 300 students were selected for F2F interviews

Interview Round 1:

As they were short in time as it was 9 at night so they asked me single coding question.
Que 1: Given an array of n numbers with repetition of numbers. You need to find the max length of continuous sub array with at max 3 unique elements.

For eg

array: 1 2 3 1 4 3 4 1 2

ans: 6 (3 1 4 3 4 1)

Solution: Time complexity O(n)

Extra Space O(1)

Interview Round 2:

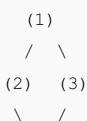
They asked me 3 questions but I am not remembering the 2nd one. Sorry for that

Que 1: You are given two binary trees. You need to tell that if one tree is rotated 90 degree and placed at bottom of that tree and each leaf nodes at max depth of two trees will meet each other or not.

for eg:

lets assume () as a node

Tree 1



```

(4, 5)
node 4 and 5 are overlapping
Tree 2
      (1)           (4)
     /   \         \
    (2)   (3)  => Rotated one   (2)   (3)
   /           \   /
  (4)           (1)

```

So it returns true as node 4, 5 of tree 1 is overlapping with node 4 of tree 2

Firstly I was asked to give algorithm then when i gave he asked me to code it

Solution: Time Complexity $O(n+m)$ (where n and m are nodes in tree 1 and tree 2 respectively). Space Complexity $O(n+m)$

Que 3:

Suppose u given normal deck of cards 4 suites and 13 cards of each suite in which one card is missing

you are picking a card one at a time and sees that card and putting it aside

Find the suite and number of missing card.

Then he said change the number of suites to K (very very large you cant add till k) and N numbers (again very large numbers)

Interview Round 3:

It was an easy round for me atleast but not for others

Que 1: Find the palindrome of a given number without using extra space

Que 2: 100 floors and 2 egg problem changed to 50 floors and 2 eggs

Que 3: You are given array of numbers which increasing first then decreasing. Find the greatest number.

eg: 1 2 3 4 5 4 3

answer: 5

Solution : Time Complexity $O(\log n)$

Space Complexity $O(1)$

Interview Round 4:

He asked me about my myself apart from coding and as I said "Hacking" so we discussed about hacking a lot.

He also asked me about my projects

Then he gave me a puzzle:

Assuming I have a chessboard (8X8)

a knight is placed at (x,y) and he moves N hops

Find the probability that he will be inside after N hops.

On a condition that if a knight moves outside then he will remain outside he cant come inside.

For eg. $(x,y)=(0,0)$

$n=2$

probability=(12/64)

4th round was type of HR as he wants to know about myself and how I do different things.

If I stuck in a position what will I do.

If your boss says that you have to do X and you are not satisfied with this then what will you do and how will you approach.

After that I waited for 3 hours and I got selected with 4 of my friends 😊

Hope this will help, I try the possible way to support you.

All the best for your placements 😊

This article is compiled by anomaly404. Many Many congratulations to him. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks

101. D E Shaw Interview | Set 2

Type : Off campus (Bangalore) (0-1 yr experience)

Role : Software Developer @ Hyderabad campus

Duration : 2 Days

Total Candidates : ~200

Split Up of Rounds

1) Online test (40 mins & 40 questions) | MCQ'S | .25 negative per question

Difficulty Level – Intermediate -> hard

20 Aptitude – Basic Quantitative Apt questions which they ask in CAT

20 Technical – C,C++ & JAVA related | Finding output | Basic Concepts | Finding bugs in the code

Approach – Need to be quick , if u have an idea make a guess , try to answer as many as possible

Number Remaining – ~100 students

2) Coding Round – 1 question | Give Algo/Code

Question – Find the next largest int of a given int such that it has same number of 1's in binary

Answer – google it

Question which my friend got – Find max product subarray

Number Remaining – ~60 students

3) Interview with 2 from DeShaw ~45 mins

Very Cool guys , should have no issues

Questions –

- 1) Basic Explanation of a few important projects
- 2) Please go through your resume thoroughly , get all minute details of your projects right as most
of the questions will be based out of your project concepts
- 3) Define Normalisation , explain advantages/disadvantages / Clustered Index /Non Clustered Indexing
- 4) Balancing of Btrees / AVL trees
- 5) Write algo to mirror a given Binary Tree
- 6) String Matching Algos | Write pseudocode for KMP algo etc
- 7) Puzzle : Given a 7mt long gold bar , need to cut and give to worker for 7 days (1 meter long)
|Max number of cuts allowed =3 | This is a standard puzzle

4) Interview with a different guy ~ 30 mins | I had not studied | Screwed this up

Questions –

- 1) Intro about me
- 2) Why leaving existing job n stuff ?
- 3) Puzzles (3) – Solving the standard Hourglass puzzle | Count 7 mins
 - The Hat puzzle ? who is wearing the black hat
 - Tower of Hanoi Modification
- 4) OS concepts – Threading | Deadlocks | Paging | etc
- 5) Databases Questions – Transactions | ACID | etc
- 6) Code the Algorithm – LIS modified ,
Get the peak point in stock market data ,
Max sub array sum in circular array
Few more basic algos
- 7) C++ /JAVA questions

5) HR round – I did not make this round

Total Candidates selected – I think 1 or 0

- Tips :1) Get all project details in your resume
- 2) Go through all concepts used in your projects (they will ask how to improve | why you used that method etc)
 - 3) Learn basic concepts of C++ /JAVA /OS /DB /Algos
 - 4) Questions won't be of any complicated topics
 - 5) Even if you don't get the complete solution | Your approach is valued

Hope this Helps !!!

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102. Cisco Interview | Set 1

The interview process consisted of 4 rounds.

Round 1: APTITUDE + C + ELECTRONICS MCQs (No negative marking)

The aptitude questions had a good mix of probability, speed and time, clocks, numbers, mixtures, time and work etc.

Tip: For clearing aptitude rounds, make sure you have great speed in solving quantitative aptitude. This is what differentiates you from the rest of the lot.

Maintain time in all your aptitude practice sessions.

The C questions were very conceptual. Unlike other companies, it did not have output tracing questions. It had questions on asymptotic complexity, recurrence relations and the like.

Tip: For clearing C questions, practice dry-running of complex codes, you'll be able to trace better during the test.

Solve as many questions as you can.

Make note of the new concepts that you come across every day- this will help during last minute revision.

The questions from Electronics were not so easy to crack for Computer Science students. However, if you brush through basic concepts before exam, it will be relatively easier to even guess the right answer: P

The questions revolved around logic gates, FET, thermal runaway, voltage-current characteristics of diode and the like.

Tip: Since there is no negative marking, make an intelligent guess and mark all questions even if you aren't very sure of the answers.

I was shortlisted among close to 40 others for the next round!

After you clear the written test, there will be a select few you need to compete with.

Make the most of this chance.

Round 2: Technical Interview (50 minutes)

I was interviewed at around 8 pm. Most of you will begin to feel tired even before your interview starts, but just hang in there and gather all your energy that you have. Keep your mind fresh.

This round went on for around 50 minutes for me. A few of the questions were:

- Write code to reverse a linked list recursively

After I wrote the code, the interviewer wrote a piece of code and tried telling me that his code was simpler, hence better – but I immediately found a flaw with his code (the headptr wasn't handled after reversal). He wasn't really expecting that out of me, so he stopped for a minute and added a couple of lines to make his code alright 😊

There I scored a brownie by using my presence of mind: D

- Write a code to Multiply a number by 7 without using * operator
- Write a code to Multiply a number by 8 without using * operator
- Write a code & pseudo code to find the minimum spanning tree
- RSA Algorithm (very intricate questions from here – what is the significance of $\phi(n)$ etc)
- Diffie Hellman Algorithm
- Trace route program implementation (Detailed questions about TTL), ping etc
- IP Headers
- Network Protocols
- Euclidean theorem
- Euler's totient function

A lot more questions were asked that covered OS, Networking, Data Structures, C, and C++

Round 3: Technical Interview (50 minutes)

This was again a technical pen and paper coding round. A few of the questions were:

- The interviewer asked me to write a code for the famous game Brainvita (Those who haven't played this game can look up <http://www.youtube.com/watch?v=GSWI4ZSq6q8> to understand about it)

This was a very lengthy program (handling all boundary cases) which required a very in-depth understanding of 2-D matrices.

- Big Endian to Little Endian Conversion

This required concepts of masking and bit-wise operators. After I came up with a code to do the same, I was asked to reduce the space complexity to O(1). 2 minutes of thinking and I managed to do crack it !

The interviewer applauded me for coming up with the most optimal solution possible for this that is used in the industry.

A few more questions on OS were asked and the interviewer was pretty satisfied with the answers.

Tips for writing code:

- > Remember to comment and indent your code even when you are writing the code on paper
- > Handle all boundary cases well
- > Keep your code legible- don't scribble. A neat code shows you are confident and clear about your code
- > Dry-run your code alongside before you ask your interviewer to review it
- > If you don't get the logic in the first shot, just THINK ALOUD and let your interviewer know how you approach to solve the problem
- > Even if you know the code from before-hand, don't show that to him, work it out in front of him such that you are doing it for the first time.
- > Ideally, you should start from the brute-force solution and then progress to optimizing the time and space complexity. This shows an in-depth understanding of complexity analysis.

Round 4: HR Interview (40 minutes approx.)

Here your communication skills will be put to test. I love public speaking and having been a Toastmaster for 3 years now, this was a cake walk for me. I thoroughly enjoyed this round though this was at 1 AM in the night (morning :P)

I was asked about my future plans, the leadership responsibilities I have held and my learning experience out of them.

This round was mostly based on resume – my accomplishments as a Toastmaster and how managed to stay on Rank 1 throughout my academic life etc. (Basically it was all about me)

Tips:

- Make sure you have actually done whatever is there on your resume
- Do NOT even give the slightest hint to the interviewer that you might be even remotely interested in further studies right now (I am assuming that since you are sitting for placements- you don't want to go for higher studies right now)
- Be prepared with 1 strength and 1 weakness of yours
- Know your hobbies and passion
- Showcase sense of humor and be at ease
- Speak confidently
- DO NOT be rude/ sarcastic with the interviewer. It might be a stress test , so just maintain your calm
- Read up about the company in detail to answer why XYZ company?
- Be prepared with questions to ask them when they ask you – Do you have any questions? (Sound intelligent and sensible – ask about your job responsibility/ work culture etc.)
- Follow the Pre-placement talk keenly (It helped me in my HR round)
- SMILE 😊

Recommended Preparation material:

- Your own Resume 😊 -Make sure you know every bit of it (including the Objective – which should be self-written)
- Company website

And finally, results were announced at around 2 AM—— but trust me it was totally worth the wait!

I hopped on board with CISCO and here my journey begins ...

Thanks a lot to geeksforgeeks ! 😊 It helped me a lot in my interview process !

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

MCQ Questions: 20 (+4, -1)

Subjective Question: 1

1) Given four matrices

$$P = 20 \times 10$$

$$Q = 10 \times 5$$

$$R = 5 \times 10$$

$$S = 10 \times 10$$

Find minimum no. of multiplication required for $P \times Q \times R \times S$?

- a) 4000
- b) 2500
- c) 3000
- d) None Of These

2) Two n-size arrays are given . n1 in decreasing order and n2 in increasing order. If c1 is time complexity for n1 using quicksort and c2 is time complexity for n2 using quicksort.

Then –

- a) $c_1 > c_2$
- b) $c_1 < c_2$
- c) $c_1 = c_2$
- d) None of these

3) If there is a N sorted array then what is time complexity of finding 2 no.s having sum less than 1000.

- a) $O(1)$
- b) $O(n^2)$
- c) $O(n)$
- d) $O(\log n)$

4) There are some processes . In which of the scheduling algo CPU utilization is minimum. If I/O burst time is 90ms and CPU burst time is 10ms.(question is very long to remember)

5)

```
int func(int x, int *y, int **z)
{
    int p, q;
    x += 2;
    p = *y++;
    q = **z++;
    q = **z++; //Not a repeated line.
}
void main()
{
    int a = 5, *b, **c;
```

```

b = &a;
c = &b;
printf("%d", a);
}

```

6) Find the least significant digit of $2^{3^{\text{google}}}$ where $\text{google} = 10^{100}$.

- a) 2
- b) 4
- c) 6
- d) 8

7) Let $w(n)$ and $A(n)$ denote respectively, the worst case and average case running time of an algorithm executed on an input of size n . which of the following is ALWAYS TRUE?

- a) $A(n) = \Omega(w(n))$
- b) $A(n) = \Theta(w(n))$
- c) $A(n) = O(w(n))$
- d) $A(n) = o(w(n))$

8) Consider a complete undirected graph with vertex set $\{0, 1, 2, 3, 4\}$. Entry W_{ij} in the matrix W below is the weight of the edge $\{i, j\}$.

0	1	8	1	4
1	0	12	4	9
8	12	0	7	3
1	4	7	0	2
4	9	3	2	0

What is the minimum possible weight of a spanning tree T in this graph such that vertex 0 is a leaf node in the tree T ?

- a) 7
- b) 8
- c) 9
- d) 10

9) In the graph given in question 8, what is the minimum possible weight of a path P from vertex 1 to vertex 2 in this graph such that P contains at most 3 edges?

- a) 7
- b) 8
- c) 9
- d) 10

10) A hash table of length 10 uses open addressing with hash function $h(k) = k \bmod 10$, and linear probing. After inserting 6 values into an empty hash table, the table is as shown below.

0	
---	--

1	
2	42
3	23
4	34
5	52
6	46
7	33
8	
9	

Which one of the following choices gives a possible order in which the key values could have been inserted in the table?

- a) 46, 42, 34, 52, 23, 33
- b) 34, 42, 23, 52, 33, 46
- c) 46, 34, 42, 23, 52, 33
- d) 42, 46, 33, 23, 34, 52

11) How many different insertion sequences of the key values using the same hash function of question 10 and linear probing will result in the hash table shown above?

- a) 10
- b) 20
- c) 30
- d) 40

12) The recurrence relation capturing the optimal time of the Tower of Hanoi problem with n discs is

- a) $T(n) = 2T(n - 2) + 2$
- b) $T(n) = 2T(n - 1) + n$
- c) $T(n) = 2T(n/2) + 1$
- d) $T(n) = 2T(n - 1) + 1$

13) Given three semaphores, S0, S1 and S2 initialized as S0=1, S1=0, S2=0 and processes P0, P1 and P2.

```
P0 : while(true)
P0, P1 and P2.
P0 : while(true)
{
    wait(S0);
    printf(" 0 ");
    Release(S1);
    Release(S2);
}
P1: while(true)
{
    Wait(S1);
```

```
    Release(S2);  
}  
P2: while(true)  
{  
    Wait(S2);  
    Release(S0);  
}
```

Find out how many times the process P0 executes printf statement.

- a) At least twice
- b) Exactly once
- c) Exactly twice
- d) Exactly thrice

14) Given the following program construct

```
{  
if ( a == b ) { S1; exit(); }  
else if ( c==d ) { S2; }  
else { S3; exit(); }  
S4;  
}
```

Given 4 test cases, find out which one among the following covers all the 4 statements

- T1: a, b, c and d are same.
 - T2: a, b, c and d are all distinct.
 - T3: a == b and c != d.
 - T4: a != b and c==d.
- a) T1, T2 & T3;
 - b) T1, T4.
 - c) T2, T4.
 - d) T1, T2 & T4.

15) Which of the following statements are true?

- I. Shortest remaining time first scheduling may cause starvation
 - II. Preemptive scheduling may cause starvation
 - III. Round robin is better than FCFS in terms of response time
- a) I only
 - b) I and III only
 - c) II and III only
 - d) I, II and III

16) Sequences of logical pages access :

1 2 3 2 4 1 3 2 4 1

Implemented Optimal, LRU, FIFO Page replacement techniques.

Then no. of page faults in :

- a) Optimal < LRU < FIFO

b) Optimal < FIFO < LRU

c) Optimal = FIFO

d) None

17) Find the no. of page faults for Optimal Page replacement technique in the given sequence of question no. 16.

a) 5

b) 6

c) 7

d) 8

18) Given a simple graph of 6 nodes (note- it's a simple graph) then tell which of the following is a set of valid graph degrees.

a) 4,4,1,1,1,1

b) 4,4,2,1,1,1

c) 4,4,2,2,1,1

d) None

19)

```
gcd(n,m)
{
    if (n%m == 0)
        return n;
    n = n%m;
    return gcd ( m, n);
}
```

What is the complexity of calculating gcd(n, m) in worst case?

a) O(lgn)

b) O(lgm)

c) O(lg(lgn))

d) O(lg(lgm))

20)

```
void f(char * x)
{
    x++;
    *x = 'a';
}

int main()
{
    char * str = "hello";
    f(str);
    cout << str;
    system("pause");
```

```
    return 0;  
}
```

- a) hello
- b) hallo
- c) allo
- d) empty string

SECTION B – Subjective Question

A knight's tour is a sequence of moves of a knight on a chessboard such that the knight visits every square exactly once. Find all the distinct tours of a knight placed on (x,y) of a NxN chessboard.

X,Y Knight can go to 8 positions (default rule). Write a running code.

These questions are contributed by **Harshit Gupta**. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

104. Amazon Interview | Set 38 (SDE-I)

1) (Telephonic round 1)

a. Print a matrix in spiral order (Code)

Soln: Solved it using recursion. Each recursive call was suppose to print boundary elements. On every recursive call, shifted the origin point and passed new size of matrix.

b. Given a pair of brace {}. Validate it. (Code)

Soln: using two variables (i.e open_count and close_count) and proceed further.

c. What if we have multiple types of braces? (Approach)

Soln: Using stack.

2) (Telephonic round 2)

a. Given list of songs. How would you shuffle it? (Code)

Soln: Gave various approaches from naive to optimal. The optimal one was similar to shuffling of array of ints.

b. Give list of words. Print all anagrams together. (Code)

Soln: Used Hashmap with key as "sort(str[i])" and value as List which is anagrams.

3) 3: In-house 1

There are various varieties of clothes (say shirt). Varieties are based on parameters like pattern, size, colour, etc.

a. What will be your input format so that it can store all values of all parameters?

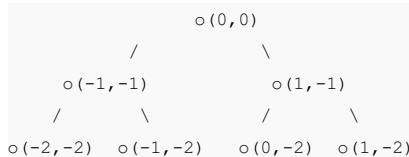
List<List<String>>. Each List<String> denotes values for a particular parameter

- b. Design a class for a shirt for the same requirement.
 - c. You have to return all different types of shirts that can be formed based on various combinations of input parameters. (Code)
 - d. Assuming you have all types of shirts available. Now there are various queries like:
 - i. Show all types of shirt having colour “red”,
 - ii. Show all types of shirt having size “small” and pattern “check” etc. etc.
- So how will you store I/P so that this requirement can be fulfilled efficiently?

4) In-house 2

- a. Given a Binary Tree. Assuming each node denotes some x,y coordinate. root node denotes (0,0). Write a code to display coordinate of all nodes.

case (i): Tree is complete and no node's x-coordinate is overlapping. (i.e all nodes will expand along x-axis so that no node overlaps). (Code)



Here we can see that many nodes are overlapping over x-coordinate.

case (ii): Tree is incomplete and no node's x-coordinate is overlapping. (Approach)

case (iii): Tree is incomplete and node's x-coordinate can overlap. (Approach)

- b. Design a DS to perform

Insert

Search

Delete

get Random

All in O(1).

Soln: Focus on Delete and get_Random. On further analysis, only get_Random was required to me modified. Only a bit of tweak will serve the purpose.

5) In-house 3

- a. Given array of ints. Assuming total no. of elements is even. Need to tell whether this array can be grouped in sets of pairs such that sum of each pair is divisible by K.

eg: 0,2,4,8,12,20,18,4 and k=4

so (0,8), (2,18), (4,20), (4,12) is one such set in which sum of each pair is divisible by k. (Code)

- b. There is a vertical rod. Discs of various radii are inserted in it. When we will try to take out any disc then 1st all the discs above it has to be taken out. Taking out a disc and putting it back is counted as one step.

Considering this, what will be the minimum no of steps in which these discs of various radius can be stored in sorted order in the rod.

Only minimum no of steps was required. “How to sort” was not required. (Approach)

c. Given array of ints. find $ar[i], ar[j]$ such that $j > i$ and $ar[j] - ar[i]$ is maximum. Famous problem. (Code)

6) (Semi Technical- Hiring Manager)

a. Normal HR questions. Why Amazon over your previous company, some areas where you want to improve, define dream job and similar other questions as per the discussions.

As per feedback: my answer for "Why Amazon over prev company" was not clear here.

b. Given two arrays of ints of size m and m+n in sorted order. merge it inplace. Famous problem. (Code)

c. Given string.

Qusn: Find the char occurring max no of times.

Soln: Simple one. Take auxiliary array of size 256 and maintain frequency of each char.

Scan auxiliary array and get the required char. $O(k+n)$ where $k=256$ here.

Counter Qusn: Why $O(k+n)$? Why can't it be $O(n)$ only?

Soln: At the time of maintaining freq of each, compare to get max freq char also. No need to travel aux array again. $O(n)$

Counter Qusn: What if memory size is only 100 bytes?

Soln: Detailed one.

Counter Qusn: Assuming updating freq of each char takes 1sec, so it will take N secs roughly. How can we improve it?

Soln: Use multi threading for parallel programming.

Counter qusn: Will there be any issue?

Soln: In case one acquires lock, other one that needs lock will go in waiting. This adds extra time and so can take more than N secs.

Counter Qusn: How to improve this?

Soln: Detailed one.

And many more such counter questions.

7) (Amazon Seattle. Semi HR. Analysis of thought process- BAR RAISER)

a. Again same question. Why Amazon over previous company?

This time I was prepared 😊

b. One +ve point and one -ve point from amazon india site.

c. Was prepared for this and already did some pre analysis on the site.

Many more such HR questions.

d. Analysis of thought process:

Assuming a new building is going to be constructed for IT official purpose. 75 floors.

You are builder. This building will be on lease for diff companies.

i. How many lifts you will add in that building?

ii. At which floor each lift will stop?

Note: At each step, I had to identify the required data after analysis and then only data for the same was provided.

Soln (i): (As it is totally based on thought process, so counter question from your side is good point)

1. No of Lifts are determined by many factors. Major factors are height of lift and no of persons working in that building.
 2. I was knowing height of building. To calculate no of persons, I asked size of each floor. It was 100 sq m each floor.
 3. Each floor will have cubicles and other rooms and passages. Assuming 70% of total area is used by cubicles.
 4. Each cubicle will have 4 persons. After calculation it came to be 40 employees per floor. So 3000 employee in whole building.
 5. Next analysis was: In most of the IT company, the in/out timing is flexible. Generally in time is b/w 9:00-11:00 and out is b/w 5:00-7:00.
 6. We have 2hrs of window in which all employee will use the lift. So no of lifts will depend on this factor also.
 7. After calculation, it came out to be approx 9 lifts (which was a good no according to him).
- Soln (ii): Now the qusn is at which floor each lift will stop.
8. AS we don't know how many companies will be there in this building at any time, so it is advisable to provide equal chance for employees on the basis of floor no. rather than on the basis of company.
 9. Best way would be to minimise the no. of stops of each lift.
 10. This can be done by giving each lift equal no of floors on which it will stop.
 11. It can simply be calculated as $75/9 = 9$ (round off).
 12. So 1st lift will have floor buttons b/w 1-9, 2nd will have b/w 10-18 and so on.
 13. This approach was best (according to him) for current scenario.
 14. Remember that each floor should get equal chance and we don't know how many companies will be there.

Tips: Geeksforgeeks, Careercup, Cracking the code Interview (Book) +++++.

Finally got offer in few days. 😊 Very satisfied.

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105. VMWare Interview | Set 1 (MTS-2)

VMWare interview for MTS-2 position.

I Telephonic round

1. Given an array of strings. Find the maximum prefix among all the strings.

Ans: First told about tries. Then went for trivial answer saying compare all the zeroth

indices then first indices.

2. Similar to kadane's algorithm
3. I forgot this Q.
4. Monty Hall puzzle.

Ans: Told the ans as 1/2 after taking 5 mins. Tried to prove using probabilites but could not able to.

I F2F round

1. Given an unsorted array, find the max j,i such that $j > i$ and $a[j] > a[i]$ in $O(N)$.

Ans: Told trivial solution in $O(n^2)$. Then used DP but still $O(n^2)$. Then told using sorting approach in $O(n^2)$.

Could not able to solve even after giving 45 mins of time as it is not trivial answer.

2. Given a rectangular cake and 3 persons have to share it. First person took a rectangular cut. How will you cut such that remaining two people will get the same amount?

Ans: First told horizontal cut where interviewer surprised with the answer and asked for different solution.

Then told cut along a line such that it touches center of mass of both the rectangles.

3. Asusual about current work and why VMWare.

II F2F round

1. Given k-sorted lists. How will you sort the list in to the new whole array?

Ans: Standard Q. Then asked about time complexity.

2. What if they are not sorted lists.

Ans: Sort the individual arrays first. Then told about heap solution which is not effective. But he is happy with the approaches

3. Lots of questions on C++. As I worked on C++ in current company.

.....a. What is the use of friend functions and classes? What are the advantages and disadvantages? Where do we use them?

.....b. What is virtual destructor?

.....c. Why virtual constructors do not exist ?

Forgot the remaining.

4. He is the same person who interviewed me for telephonic. So asked once again about Monty Hall Puzzle.

Ans: Proved this time with probabilites.

5. <http://www.allinterview.com/showanswers/15001.html>

Ans: Simple Question

III F2F round

1. About routing protocols.

2. How to counter count to infinity problem?

Ans: Told several approaches and he is expecting poission reverse which I could not tell.

IV F2F round

This is with the manager. This is like rapid fire where interviewer keeps on asking me questions which has either one or two line answers.

1. What are the protocols that you know in transport layer?
2. What is the difference between UDP and TCP?
3. What is the connection end point in TCP ?
4. What is the systemcall which creates a seperate connection? (Indirect question about Accept system call)
5. Which system call is used to poll among fds? (select or epoll_wait)
6. Why virtual functions?
7. If you already have a memory, how will use that memory to allocate a new buffer?
(placement new)
8. 2-D dynamic array allocation syntax?
9. Arp protocol and why it is used?
10. Why ICMP is used?
11. What are the protocols that you know at MAC layer ?
12. Virtual base classes and why it is used?

Some other questions which I forgot.

After one day HR interview was scheduled.

Typical HR questions. At that time only he told that they are going to give offer. Did not negotiate at all as they offered me decent.

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106. Fiberlink (maas360) Interview | Set 1

I was shortlisted for fiberlink interview. Following was my experience.

1. Online test, one question, 60 mins. Given an array with marks for 'n' students. (The size of array will be 'n'). Given the marks secured, you have to find out the rank of that student. Also note that array can duplicate marks(means same marks can be obtained by multiple students). The program should be time and space optimized.

Ans : Completed in 30 mins. Used an heap to get rank 1 and so on.

Onsite:

Round 1: Given a building with infinite number of floors. The number of rooms on each floor are 10,5,10,5.. and so on starting from the ground floor. The room number starts from 1 and keeps on increasing. Given a room number, find the floor on which room lies and the position of room from the left.

Very simple.

Other questions from previous projects.

Round 2: Computer fundamentals, dll, multi-threading, How debuggers work, TCP/IP.

Prob: Given a binary tree. Given a leaf node, you have to convert the binary tree in such a way that the leaf node becomes the root node.

Round 3: (With director)

Why you left the previous job and all.

Prob1: Given a queue. Every time an insertion or deletion happens, a new version of the queue is created. At any time, you have to print any older version of the queue with minimal time and space complexity.

Prob2: Given a telephone keypad.

1 2 3
4 5 6
7 8 9
* 0 #

You can start from any number other than '0'. You can move to the next number the way a chess bishop moves. You can go back to the same number. Any number should not contain * or #. Generate all possible six digit numbers.

Round 4 HR:

1. Why you left your job?
2. Current CTC, expected CTC.
3. How soon you can join?
4. What do you expect from this job.

Final verdict:

Disqualified !!! Surprising for me. Because I didn't miss even a single question. Was able to solve all of them. The only thing I feel that went wrong was when I asked about company workload, oncall stuffs and all. They got an impression that higher workload was a concern for me which was not the case actually. 😊

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107. Cisco Interview | Set 2

I recently got interviewed for a position in Cisco. The organization came to our college as part of their University recruitment program. The following is my interview experience. Hope this would help you !!

Round 1

This was aptitude + technical round. 20 question from aptitude and 30 questions technical. We were given 60 minutes to solve the question. NO NEGATIVE MARKING.

The aptitude question were relatively easy. There was a cat and tunnel problem. A question on Venn diagrams was calculation based, 4 different event on Venn diagram. Some questions on ratio and proportion, probability, and arrangement, time and work, time speed distance, number system. One can easily crack this section if one has practiced questions from any quantitative aptitude practice material.

The aptitude part was such that many were able to crack it, but the technical part was the actual make or break part. The questions were vary basic questions but from a wide variety of areas such as electronics – analog and digital. Questions on FET, BJT, MOS, K-map, microprocessor, networking etc, along with data structures, operating system, and algorithms were there. These questions touched the basic concepts of all the areas we had studied in our curriculum so far.

Some of the questions I still remember:

The data structure question was on inserting a node in middle of linked list, wherein we were given four options and we had to chose the correct code for the corresponding operations.

The algorithms question was based on time complexity. Say there is a program whose time complexity is $O(n^{2.5})$, then which of the following can't be true. Following this there were four statements, of which three said that the time would grow proportional to $\leq n^{2.5}$. And one said that in some cases it may grow with $n^{2.6}$, which was definitely incorrect due to the time complexity being specified on Big-O notation which gives the upper bound on running time of the program.

Question on simplify the expression, was easily doable with K-Map

Question on determining the min number of NAND gates required to represent an expression with an expression being given in SOP form.

Question on FET- which terminal of FET is forward biased and which is reversed ?
27 got shortlisted in this round.

Round 2

My first technical interview round- around 1 hour 15 min. The interviewer glanced at my resume. First question- tell me about yourself

Then he came onto the projects. He asked question on what I did in the project, how I did it and what all I gained from it.

Then some questions on networking basic-7 layers of networking, OSI architecture, difference between frame and packet, routing and switching.

Then he asked Kruskal minimum spanning tree algorithm and its application in networking. Then some question on bit magic- counting set bits in an integer, finding absolute value of integer, some questions on OOP- encapsulation, polymorphism. Then what is data encryption and its difference from encapsulation. Encapsulation in Java. Polymorphism in Java example.

Round 3

My second technical interview round- around 45 min Again the interviewer came onto projects. He asked me about cryptography, and data transmission, TCP, UDP.

Why TCP better than UDP? What is flow control and congestion control? How do networks ensure congestion control?

What is the difference between Router and Bridge and Gateway?

What is the difference between router and switch?

How does a network ensure that all the packet reach in correct order, which layer is responsible for it. If you were to do be made responsible for packet delivery in correct order how would you ensure without the help of any underlying layer. Explain AES, DES and triple DES(I was asked this because of my project on cryptography). How would you ensure that all your data AES-encrypted is not decrypted using any other mechanism for a software implementing all three mechanism mentioned above. I answered some way out but the interviewer kept on finding faults in each of the ways.

Finally he asked me draw my attention on Google, how does it encrypt mails using different schemes and how client server architecture works, and then I was able to get through to the authorization technique he was seeking for as the answer along with different port number and process id for different schemes. This earned me some brownie points. But in the entire interview, the interviewer kept on dis-agreeing to the answers so as to check one's confidence level.

Then he asked me to check if string is palindrome or not. Then a question on DP. Then a question on recursive programming. Then another on in-line functions-their internal implementation and difference from macros. Some question on OS- processes and

thread, what is the difference between them, concurrency and what is semaphore. What is starvation. What is masters theorem – explain the underlying cases. I managed to keep my calm till the end and answered many of the question correctly.

Round 4

My third technical interview round- around 30 min. The interviewer asked me about layers in OSI and IP architecture and complete details of application of each layer along with protocols used in them. Then he asked me about the NIC -how it works and the internal implementation. What happens when you connect a pc over a new network. What is CSMA-CD with example.

Quick sort-pivot selection. What is Counting sort. What is hashing. Explain all types pf hashing schemes. How does free determine how many numbers to de-allocate.

Question on determining the subnet mask over a large network consisting of several sub-networks with a specified IP range available to ISP.

Round 5

My last round -HR round general questions. How important Is this job fr you? What if you don't get it?

What are your other interest? I am the Microsoft student partner of my alma mater, so he asked what was the procedure. What all were the difficulties? What can you do if I make you the Cisco student partner. This was followed by my contribution in college events. What kind of expectation you have from this job and what would you gain, of which you have been deprived of so far. Tell me your one major quality and link it to recent event

I answered all the question, and he was satisfied with responses.

Finally, despite not being a computers-major student, HIRED 😊

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108. Morgan Stanley Interview | Set 3

Morgan Stanley interview experience

1st round: (90 minutes)

It was multiple choice questions round. It consists of 3 sections:

1. This section had computer fundamental questions which were easy. It had 10

questions.

2. This was language dependent section. You were allowed to choose any of C/C++/JAVA language and there were 30 questions in this section. The level of difficulty was moderate.

3. Last section had logical and mathematical aptitude questions. A total of 10 questions. So in total this round had 50 questions.

2nd round: (45 minutes)

This round had 4 questions for which we were supposed to write code on paper. Only 45 minutes were given for this round.it was not an elimination round but it was an important one. Questions were:

1. Exchange kth node from start and kth node from end of a singly linked list.

Example: if the linked list is

5->10->25->45->31->16->23->51 and k=3

Then linked should be converted to

5->10->16->45->31->25->23->51

Boundary cases had to be handled properly.

2. Given a number, you have to find next greater number which has same set of digits.

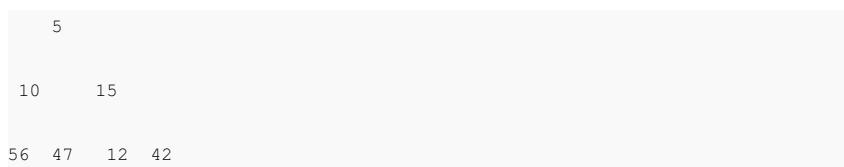
Example:

If given number is 4765 the output should be 5467.

3. Given a binary tree, you have to print level order traversal of the tree (left child then right child) but every next level has to be printed in next line.

Example:

If the given tree is



Then the output should be

5

10 15

56 47 12 42

4. You are given a sentence you have to reverse it word by word.

Example:

Input:

this is morganstanley interview question

output:

question interview stanleymorgan is this

Although the questions were not too difficult but due to the time constraints you have to check boundary cases and comments your code properly.

3rd round: (45 minutes- 1 hour)

This round was a technical interview as well as an elimination round. First of all he asked me about my recent projects and he asked me to tell in detail about my last project. I made him understand everything and discussed about several aspects about it. Then again he asked me if I have done any OOPs project. Since I had one so I told him about that and explained him the OOPs concepts used in that.

Then he moved on and asked me about my approach for 2nd question of coding round which I told him and after that I was told to write end to end code for that which I did.

Again he asked me to write code for the last problem of coding round and approach too.

After that he moved on and came to OOPs. The questions were based upon virtual functions, function overloading, function overriding, inheritance, abstract class etc.

4th round: (30 minutes)

This was a group task. We were 5 in a group and the panel had 5 persons as well. They had some 10 images with them; they distributed 5 out of them to us and then kept rest of 5 images on the desk. We were supposed to make assumptions about the picture given to us and the time given was 2 minutes, then they told us to come up with a story as a group, whose theme is business ethics, including those 5 pictures as well in 15 minutes. Basically they were checking your communication skills, body language and team work. Then before those 15 minutes were over he included some more 5 pictures into that and told us to make story now.

Then we were asked to tell about our contribution in the story.

5th round: (1.5 hours)

It was again a technical interview although it was very late in night I had a long interview. Again he started with my project, he took around 30 minutes with project related queries and he asked me several things future scopes, modifications etc. then he moved on with an algorithm question:

There is an array of ordered pairs(value, color) with sorted by value. You have to sort it based on color but relative order of values shouldn't be changed. I gave him a solution for that, then he modified the question that now the value part is not sorted and you have to sort it based on color first and then for same color based upon value. I gave him solution with array of linked list then he asked me about time complexity and all. He asked about sorting technique, why merge sort not quick sort. How can we make quick sort better. How to find median of an unsorted set of values, I told him about selection algorithm and about its time complexity as well.

Again he asked me an algorithm question:

You are given some process with burst time and some fixed memory. You have to accommodate as much process in memory as possible.

Example:

1 4

2 3

3 2

4 10

5 5

And fixed memory is 10

So I gave him answer with greedy approach, which includes 2,3,4 but he told me you can have 2,3,5 which will not waste memory at all. Then I came up with solution using knapsack algorithm. He was satisfied with that.

Afterwards he asked me some questions like

Suppose you are given a printer which has very less memory let say memory that can accommodate only 1mb at a time and you want to print a file with 100 pages each size 1mb how you will manage that. Then he extended the problem like if the printer is connected to a network and from each system if I give command to print 100 files how you will handle that. Spooling is done on printer side or system side. And he kept on extending the problem in different dimensions. Again he asked suppose we want to print only one file like poster which is very large say 500mb how you will handle these type of situation.

So this was most interesting and lengthy round of all and it was over in night around 11:30.

Round 6: (HR round 15 minutes)

Last round was an HR round which was not long for me but for others it was long too. He asked me where are from and will you have some problem in reallocating.

What did you learn coming to this college and what did you learn from your projects? Then he asked me if I want to ask him something. I asked him some doubts and that's all.

By the end of this it was already 12:30 in night. They told us to wait for results and we waited till night 2:30 but they couldn't come to a conclusion.

So next day morning they announced the result and I was one of four whom they hired from my college.

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109. Cisco Interview | Set 3

I recently got interviewed for a position in Cisco. The organization came to our college for on-campus recruitment.

First round:

The first round had 30 technical and 20 easy aptitude questions to be answered in an hour. It was intended to test how fast you can solve problems. Majority of the technical questions were from Electronics, Computer architecture, and some questions from C and data structure.

First Face to face interview:

The interviewer was really a nice person and she wanted to know where really you are good at. First, She handed me a C code snippets asked me to explain what the snippet does. Those were very easy.

Then she asked me to perform nibble wise swap in a byte of data. I considered it as a string and did normal swap of data. She wasn't happy and asked me to try some other method. Suddenly, I thought of doing it in bit-wise

```
num = num>> 4 | num<<4;
```

I understood that they want their problems to be solved using bit-wise operations.

She was very happy with the solution. Then,

- 1, given a string which represents a decimal number return its binary representation.
- 2, Set a particular bit in a number.

Then she inquired about my projects, hobbies, blah blah. The session ended with a logical puzzle. Some of my friends were asked to write socket programs, explain the characteristics of socket, binding.

Second face to face interview:

Luckily, the interviewer I got this time was even more friendly.

Given a flash memory where you can perform read or write only sector-wise (you can't read a particular byte/ word in a sector). Write a function to write a word to particular sector. The answer is very simple if you use bit-wise operation.

Then he asked what happens when a CPU is powered, how bootstrap works and interrupt vectors.

He too was very happy and the interview was very short when compared to others. My friends were interviewed for more than one and half hour.

Final HR round:

My friends who attended HR interview told me that it was 'stress' interview where interviewer tests your patience and see how you behave under pressure. About unfortunately I didn't undergo any pressure test. The interview was like 3-4 minutes, he asked general questions like "Why CISCO?", "How you see yourself in CISCO after 5 years".

Then results came, I was hired 😊

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110. Morgan Stanley Interview | Set 4

Written Test:

10 Aptitude

30 Programming

10 CS Fundamentals

There's negative marking, plus there's sectional cutoff, so you have to be very careful, and risky at the same time.

Written Test 2:

Programming round, 4 questions in 45 minutes

1. Get an array B such that $B[i]$ has the product of all numbers of A except $A[i]$

The solution is simple using left and right array

2. Spiral level order traversal

3. Longest Common Substring

4. Add two linked lists

22 people were shortlisted out of 97.

Technical Interview 1 :

The interviewer discussed the codes I wrote.

And some additional questions like queue using two stacks , complexity of BFS, worst case complexity of quick sort and when does the worst case occur.

One SQL query.

Out of 22, 10 were shortlisted.

After this, there was no elimination till the end.

Group Activity :

This can be the make or break round, as Morgan Stanley is all about personality and communication skills. In my case, we were divided into two groups of 5 and were given 10 11 pictures and were asked to link them and create a story. Your creativity matters here. Advice : Don't stay quiet, but talk sensibly.

Technical Interview 2:

1. Design a online e-commerce website like Amazon, Flipkart.

This question requires attention to detail.

2. Given an expression $5*3+10/2$, write a function to evaluate the expression. My solution was to make a tree and traverse in postorder.

Technical + HR :

The guy was the seniormost among the 8 recruiters.

He talked about my projects, what difficulties I faced, what can I improve more.

One question was..I was given data about students who had taken some subjects.

I had to make a data structure such that if I query for no of students in a subject or no of subjects a student has taken, the complexity should be less.

Rest was HR.

Finally, after 3 hours of discussion between the recruiters, I was selected 😊

A big thanks to GeeksforGeeks. This had been my bible for the summer.

One advice: Please don't mug up the questions from this website. Solve them on your own. It's the problem solving ability which is being tested, not your memory.

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111. Amazon Interview | Set 39 (SDE)

I recently attended the walk-in process for Amazon Off campus recruitment drive. This was for SDE position at Chennai. I would like to share my interview experience with Geeks for Geeks.

Written Round :

- a) Given a linked list and 2 integers M and N.. Keep M nodes and delete N nodes repetitively till the end of linkedlist.

- b) Given a BST , replace a node value with the sum of all the elements larger than the current node.

I could solve it with Reverse Inorder traversal and an int pointer to keep track of the sum.

- c) Given a BST and a value , check if the path sum from root to leaf equals the given value.

1st F2F round:

- a) Multiply two linked lists represented by numbers. Only one linked list must be used to do all additions and store the result i.e., intermediate additions should not be done with extra linked lists and finally computing the result.

- b) Given a BT check if there is a BST in it. If it exists print the largest BST in the BT.

- c) Given a large file with huge number of words group the anagrams of a word
hai how are you. iahohw done woh.
o/p:

hai ->iah

how ->woh ->ohw

done

are

2nd F2F round:

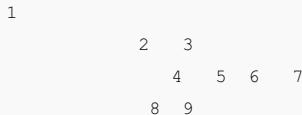
- a) Given a linked list , print the nth last node. He asked me to give the optimised solution for it.
solved using slow pointer.

- b) Find the LCA in Binary Tree

He asked me to optimise the code with bottom up approach and gave lots of boundary conditions

- c) Given a zigzag traversal construct a tree from it. Full working code was asked.

eg. 1 3 2 4 5 6 7 9 8



Solved it with double ended queue.

3rd F2F round :

- a) Given a chess board of finite length , start position of a knight , an end position.
->find whether the end position is reachable by the knight.
-> Number of minimum hops required to reach that position.
I came up with a BFS solution instantly . He posed several conditions in the same question as I have seen the question already.

- b) He changed the question to infinite length chess board and if given two knights in a chess board .find minimum hops required for them meet.

->gave a lot of space and time constraints.
->asked me to write the complete code without STL.

- c) if we encode A-1 , B-2 , C-3 , I send a word CAMP encoded as 311316. It can be decoded as 3 11 3 16 (CKCP) , 3 1 1 3 16(CAACP) , 3 1 1 3 1 6 , (CAACAF) . given a input encoded string find the no. ways it can be decoded. (ACODE prob. in Spoj)

311316 – 4

->Could n't come up with DP solution at first so gave a solution with recursion tree.
He asked me to optimise to avoid unnecessary computations.. Finally Solved it using DP.

4th F2F round (Bar Raiser Round):

The Round started with the projects I have done so far. Few basic questions in cloud computing. I have used Amazon Web Service (AWS) in one of my projects.

- a) Lots of questions on AWS . Why we used it when there are so many alternatives.

- b) When I convinced him with scalability issues, he posed questions on how AWS handle load Balancing and scalability issues .
- c) Obviously questions on Elastic Map Reduce and Elastic Block Storage. Questions piled up until I could explain every nook and corner in that project.
- d) Strengths and Weakness.
- e) Why Amazon and why do I leave my previous company within 2 months.
- f) Given a linked list with random pointers , clone the linked list.
Gave few solutions and he asked me to clone without manipulating the original linked list but with extra space. Came up with little tweaks using HashMap
Map< node * , node *> key is the node and value is the random ptr node.
- g) Find the ceil and floor of a value in a given BST without extra space.
if a BST contains 1 3 6 7 9 12
 - >if the given value is 8 floor is 7 and ceil is 9.
 - >if the given value is 9 both floor and ceil is 9.

P.S. Be cautious in explaining your projects.

5th F2F round: (Hiring Manager Round):

Few questions on projects and advantages of AWS.

- a) Asked me about the different inter process communication methods.
- b) Which method is faster and why. Then he asked me to explain about shared memory
- c) Asked to write the code to implement LRU cache.
- d) Then code for malloc implementation given an array.
- e) He asked me to write a thread safe code for the given scenario.
given two writer threads and two reader threads . give a mechanism to handle the writer and reader threads. The writer thread writes a value 1 2 3 4 in a queue or array and reader thread reads it and print the output as 1 , 2 ,3 ,4In the same order as given and only once...
 - >i handled it with a binary semaphore and a single queue for both reader and writer..
- f) conditions for a deadlock and he asked me to associate with the real life scenario. mutual exclusion and all the cases.
- g) Different types of scheduling and what type of scheduler does linux have and why.
- h) doeslinux have preemptive scheduling and few questions on virtual memory.
He just analysed my approach towards the problem and checked my basic understanding in OS concepts.

Finally got offer from Amazon after two days. I owe a great thanks to GeeksForGeeks. It helped me a lot to improve my data structure and problem solving skills. Hope this will help you. All the Best .

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112. Cisco Interview | Set 4

Cisco Interview Process:

Round 1:

50 MCQs

Duration: 1 hr

20 – Math Aptitude, 30 – Technical

Technical part included questions from Computer organization, Some problems from OS(finding logical address), Networks (problem on finding transmission latency), 8085 Microprocessor, 2-3 C++ (finding output/error), MOSFET, Direct Memory Access, etc. [I don't remember any question exactly. But the question paper was very tough!! I did the math well. But I wasn't sure of most answers in the technical part. Never expected to get selected!]

Round 2:

Face to face interview- Technical

Duration: 1 hr

There were questions from OS, Data structures, Aptitude, Networks, and some C questions.

Some questions that I still remember were:

1. Given a sorted array arr find the pairs of number that add up to x.

For eg: $a[1]=\{1,2,4,5,8,15,18,22\}$ x=20

Output: (2.18) . (5.15)

- ### 2. Given

`unsigned char c=1100 0010; (Note that it's a variable : not an array.)`

U need to reverse this and and return the result.

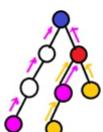
Answer: 0100 0011 (Stored in a variable. No arrays have to be used.)

3. How will you set a bit in a number?

Eq. int i=1110 0001. Set 6th bit.

Output: 1110 0101

4. Given a tree (not a BST), pointers to any 2 nodes in the tree, how will you find their least common ancestor?



In the above diagram, least common ancestor of the nodes in pink is the one in blue.

For the nodes in yellow, red is the LCA.

For Eg: You will be given the pointers to the nodes in pink. You need return the address of the node in blue.

Each node has the following structure:

```
struct node
{
    int data;
    struct node* left,*right;
    struct node* parent; // Pointer to the parent node
};
```

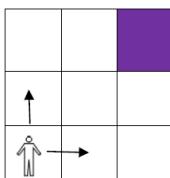
5. What is the difference between logical and physical addresses?

6. Some questions related to web designing.(As I had mentioned it in my areas of interest.)

7. What happens in the background when you type the URL www.google.com ? You need to answer it with respect to the 7 layers of OSI architecture.

8. Given an n x n grid,

Say n=3



You are standing in the left bottom corner. You need to reach the destination in the top right corner. You can move either in upward or east direction (as specified in the diagram). In how many possible combinations can you reach there? Your answer should be generic to any value of n.

[I did the technical round really well and the interviewer was happy with my performance.?]

Round 2:

Partial HR, Partial Technical

Duration: 45 minutes

Questions were mostly about my areas of interest, projects. As I kept explaining him about my projects he asked me to write some code snippets for those. And many questions were from OS, Networks like:

1. When does a process create a child process?
2. What happens in the background when fork() / pthread system call is used?
3. What are the different IPC mechanisms?
4. How does a pipe work? What happens when pipe symbol ‘|’ is used in command line?
5. What is compaction and what are its disadvantages?
6. What are the steps in establishing socket connection in client & server side?

He asked me how much I like network programming and whether I could do it in Linux.

Some questions that were purely HR were:

1. What are the 3 most valuable things you have learnt in your engineering college?
2. How will you convince your team member to accept your idea/suggestion?
3. What will you do if your team member always conflicts your ideas and reports you to the manager?
4. What kind of job do you wish for?
5. What will make you quit a job?
6. You prefer being in the Technical / Managerial side?
7. Other possible questions from my resume (Responsibilities undertaken, Achievements)

Round 3:

It was a complete HR.

Duration: 50 minutes

Questions were about me, my family, areas of interests, extra-curricular activities, other interests, projects. He was talking about Cisco for about 20 minutes.

That was all!

On the whole, clearing the written test was the toughest part. Technical – if you are really good at data structures and basics of networking, OS – it's easy to crack it !

I got my results by around 1:30 midnight! Hired 😊

Thank You sooo much GeeksforGeeks.

Without you this would not have been possible!!

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113. [TopTalent.in] Interview with Pradeep Verma from NIT Trichy who talks about his internship at Amazon



Pradeep Verma calls himself just one of those Indian kids but Amazon usually doesn't recruit every other kid out there. Pradeep did his internship at Amazon last summer and not surprisingly got a full time offer from the e-commerce giant thanks to his excellent performance. In an interview with [TopTalent.in](#) he talks about his internship experience and how it benefited him.

You can also download his [resume](#) to see his credentials and understand what made him standout.

1. Can you briefly describe your background?

I hail from Visakhapatnam, a city in Andhra Pradesh. I ended up with an AIR 6025 in IIT and an AIR 1745 in AIEEE. Now, I am pursuing my B Tech final year in Computer Science and Engineering at NIT Trichy. My dad works for the Government and my mom is a homemaker. Prior to engineering, I was not any different from other Indian kids. As I entered NIT, I quickly grabbed some interest into Computers and worked my way through to get into a Computer Club at college (called DELTA). Apart from this, I am into many other teams at college conducting and organizing events/fests. I am the Marketing Chairman for NIT Trichy's International Cultural Festival, Festember. I pursued research on "Parallel Algorithms – Task Assignment" for some time and I am expecting to publish a paper on this topic very soon.

2. Can you describe the complete hiring process? Did your internship help you grab this offer?

Amazon came to our campus to hire interns. The Selection Process consisted of a written test, programming test followed by two interviews. We were tested on Data Structures, Algorithms and OOP Concepts during the interviews. I did an intern at Amazon in the summer of 2013 post which I have been offered a Pre-Placement Offer from them.

3. What project did you work on during your internship?

Amazon, as all of us know is a giant in e-commerce. Something very astonishing about Amazon is the scale at which they function. At some points the servers at Amazon need to handle something close to 10,000 orders per minute. So in this company, speed and complexity handling is a great challenge considering the scale at which they function.

My project was along the same lines – I had to bring down the running time of a "process" [confidential and cannot be disclosed] from 2 to 4 hours to something close to 15 minutes. I used AWS and Java Technologies to achieve the same.

4. What were the tricky questions you encountered? How did you tackle them?

I was questioned on Data Structures, Algorithms, OOPs and other basic concepts. I still remember one question in which they asked me to choose a favorite game and give an OOP model for the same. This is something real and application of what we read in books. This involved a lot of thinking and I liked the way they asked it. Apart during the intern I required concepts from Operating System, Threads, Basic Algos and DBMS to complete my project.

5. How much preparation did you put in to get this opportunity?

I should say I dint put any focused preparation for the above. I went with the flow, grabbed all opportunities to learn and innovate. I feel what companies look for is an overall well developed person. So I guess my involvement into a lot of clubs and

activities, decent tech knowledge and my projects got me this opportunity.

6. What is your advice to other aspirants looking for similar opportunity?

Technically, get to know all basics of Algos, DS, OS, DBMS, Networks etc. I would recommend interview designed books like "Cracking the Coding Interview" by Gayle Lakmann and "DataStructures and Algorithms" by Narasimha Karumanchi. Apart one great opinion I have is, it is just not enough to be a good coder, develop in all aspects – Have a decent pointer, grab all opportunities (you have a lot of them in IITs and NITs), get social, learn some tech, do some cool projects and any company would be more than happy to have you with them.

7. What should one keep in mind while preparing a resume?

A resume is one page reflection of YOU. It is important to customize a resume for companies. For eg Research projects would interest Microsoft R&D profile and Coding projects would attract Facebook or Google. And one thing I find in most resumes is people put a lot of unnecessary stuff. No one out there really bothers if you had won some Bronze medal in a quiz when you were in 6th Class at School Level. Get to real stuff. Put yourself into a shoe of a recruiter and think what you would look for in a resume. And it is very important to proof read your resume. Having spelling mistakes on a resume could be a blunder.

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114. Oracle Interview | Set 2 (On-Campus)

Oracle Interview-Server Tech.

=====

Round 1:

=====

1. Explain Tree traversals. Given a inorder and postorder construct a tree
2. What is fork? How many total processes on execution of three fork statements.
Justify your answer with diagram
3. What are JOINS in DBMS, their types and give examples.
4. Explain backtracking with example of anagram. Draw space diagram for that.
5. Explain quick sort and how it differs from other sorting algs with same run time

complexity (like merge sort)

6. Write a program function for finding no. of levels in a binary tree.

=====

Round 2:

=====

1. Tell about yourself.

2. Explain your project.

3. The JAVA Story: Why java? the difference with C/C++. (Only conceptual, no technical)

He asked abt my perception of server tech and then he discussed what actually is being done in server tech.

=====

Round 3:

=====

A normal discussion round with HR, who wants to judge your commn skills, confidence, views, behaviour...etc. JUST be Yourself.

1. Likes, hobbies, fav passtime..

2. Why a year gap?

3. Give some feedback on our placement process.

4. Which part of ppt you liked and why?

5. Do you want to ask something. I asked abt after hiring process. He explained that you will get a mail from us regarding ur bckg verification. then project preference will be asked. At the time of joining you will placed in grp.. and will underwent some training.

=====

Finally HIRED!!!

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115. Amazon Interview | Set 40 (On-Campus Round 1)

20 Objective type questions (Technical: OS, Java, Networking) and 2 programs. Time given was 90 minutes.

1) Longest Remaining Rime Scheduling

2) Threads

3) subnetmask – classB – 64 departments

4) Match the following

SMTP
BGP
TCP
PPP

5) On recursion, value of f(513,2)

```
if(n<0)
    return 0;
else
    return ( n%10 + f(n/10, 2) )
```

6) Complexity?

```
f(i) = 2*f(i+1) + 3*f(i+2)
For (int i=0; i < n; i++)
    F[i] = 2*f[i+1]
```

7) Frog steps either 1, 2 or 3 steps to go to top. In how many ways it reaches the top?

Based on recursion, options

- a) $f(i) = f(i+1)+f(i+2)+f(i+3)+1$
- b) $f(i) = f(i-1)+f(i-2)+f(i-3)+1$
- c) $f(i) = f(i+1)+f(i+2)+f(i+3)$
- d) $f(i) = f(i-1)+f(i-2)+f(i-3)$

8) Based on java 2 questions, one from Exceptions

9) Preorder is given, we had to find out the postorder

10) Memory management, pa=32bit, la=36bit , frame size= 2^{12} , first page entry, second page entry

11) This question is from GATE CS previous question papers

```
for (int i=0; i < n; i++)
Fork();
No of child process?
```

Programs:

1) Print left view of binary tree

2) Sum of 3 linked list

```
Digit.. 123----1->2->3-----linkedlist1
        234----2->3->4-----linkedlist2
        34567----3->4->5->6->7---linkedlist3
Output: 34924-----3->4->9->2->4
```

`Sum(linkedlist1, linkedlist2, linkedlist3)`

We had to print the linkedlist form of the digit.

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116. [TopTalent.in] Rubal Chadha on playfully working in EA – A Gamer's Paradise



EA India has been on a hiring spree lately. (Yes, we do keep track) It has staffed 500+ employees in its Hyderabad Office which is being developed for running business operations and as a rapidly growing studio. When we went about interviewing Rubal who is working as a Software Developer at EA Games, we knew this would be an exciting interview given the number of EA games we have played all through these years. In this interview Rubal talks about what is so special about EA's culture and shares his views on working in the gaming industry given Zynga's performance post the IPO.

You can also download Rubal's [resume](#) by logging in to see what are the skills required to get into the gaming industry.

1. What makes EA Games so special? Why did you decide to join EA?

Rubal : The first thing that comes to one's mind when they talk about the gaming industry is the amount of innovation and creativity that goes into the work. The amount of R&D in terms of technology and user experience that the developers put in to please the insatiable minds of gamers all over the world is remarkable. EA over the years has made a name for itself that no one else has in this business. Right from yearly franchises like FIFA, Need for Speed and Madden NFL to social and mobile games like those from PopCap – the journey has been tremendous.

My decision to join EA was driven by the fact that I always have been fascinated by games and the job role aligned with my career interests as well. The thought of being a part of a community of game developers, who have provided us with captivating experiences through games like Battlefield, Crysis and Medal of Honor, was more than enough to get me to choose EA.

2. Can you describe the complete hiring process of EA Games?

Rubal : EA has an extensive hiring process. Since this was their first recruitment drive

across Premier colleges in India, they wanted to take the best of the lot. The first round like most companies was an online objective test. The test covered areas like Mathematics, C/C++ programming, Java programming and Algorithms. Shortlisted candidates were called for a written programming test wherein coding and design skills were checked which was then followed by two technical interviews, and two additional HR meetings.

3. What were the tricky questions you encountered? How did you tackle them?

Rubal : EA's primary focus was on quality. They focused more on the design and algorithmic approach. Emphasis was given to the projects and internships which I had done earlier. Questions were pretty straightforward, but continued into stimulating and exciting discussions based on the answers – which I thoroughly enjoyed. The first thought that crossed my mind during the interview is the kind of approach they have towards employees. They are a company that respects an individual's point of view and encourages one to voice their opinion.

The key is to be relaxed and calm and understand the Interviewer's basis behind asking the question. Don't lose track of what the question is and don't get into an endless discussion over proving your point. Have an open discussion as far as possible, for it would show the maturity you have towards different opinions on the subject. To summarize, the interview touched aspects of DSA, databases, networks and operating systems. So having your concepts clear will surely give you the necessary boost.

4. What is EA Games culture like? How does it impact the overall process of working in EA?

Rubal : The fact that stands out most at EA India is that everyone, right from game QA testers to the Development Directors are extremely passionate about what they do – and this is what keeps you motivated all the time. This I believe is very important to be successful at your work and this sets working here apart from any other IT firm. We have a dedicated Gaming Room right next to where I sit and everyone loves to come and show off their gaming skills. EA hence has the perfect atmosphere that balances both work and play.

5. Given Zynga's dismal performance do you think gaming industry in general is a good place to be in from a career perspective?

Rubal : In the gaming industry, we need to look at a way of keeping our customers engaged all the time. The fact that EA continues to do well year after year is an example of the splendid higher management it is led by. We are not only working constantly on having the team ramped up on new platforms to adapt to changing technology but are also have team looking forward towards the future.

There are a lot of risks but the kind of challenges one faces and the amount of learning in one single project in this industry is novel in its own way. Change is the only constant, and that should be guiding your modus operandi in this industry and hence to be here

you need to be extremely flexible and be able to adapt to different requirements based on the changes – this is what makes the journey fun!

6. What were some important factors according to you that made you stand out?

Rubal : I think it was the way I conducted myself in the interview that really helped. The emphasis was not just on getting a satisfactory response but on the approach and on out-of-the-box thinking. I voiced all my thoughts and discussed my ideas in open and had interesting discussions on all of them. Moreover, I was very vivid in my explanation when asked about my projects. I was lucky to have worked on a game development project and played a major role in my selection.

7. Currently, what are you working on and how has been the experience till now?

Rubal : I work in a business unit which primarily deals in developing and supporting popular EA labels for multiple mobile platforms. The kind of work varies from updating the gameplay to upgrading the current services with new technology.

I am currently working on the Apple/iOS platform which requires objective C/C++ knowledge. It has been 1.5 months and I love every minute of my job. It's not often that one comes across people who are passionate about their jobs, and I consider myself lucky for that. If someone were to ask me what I do for a living – I can proudly beam and say "I make and play games for a living".

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117. Twitter Interview | Set 1

Phone screen – I

1. Fibonacci series without using an array – this is a typical favorite question w.r.t. Dynamic Programming where you will be asked not to use Memoization or any extra storage to store the values of the previous iterations.
(More complicated version of the same problem: Generate Nth row of Pascal's triangle w/o using a 2D array of dimension N x N)

2. N-ary tree : find if a node exists in the tree with value = x. If yes, return true, else, return false.

Phone screen – II

1. Find the lowest common ancestor of Binary Tree
Answer: Done it a 10 times 😊 Explained how to do it !

- 2.** Clone a graph and analyze the time and space complexity (since DFS based approaches leverages smaller time at the cost higher memory)

```
public class Node {  
    public int data;  
    List neighbors;  
  
    public Node (int data) {...}  
    setNeighbors(List neighbors) {...}  
}  
  
// HashMap created = new HashMap();  
  
public Node clone(Node oldGraph) {  
  
    if (created.get(oldGraph))  
        return created.get(oldGraph);  
  
    Node newGr = new Node(oldGraph.data);  
    List nbors = new ArrayList();  
  
    created.put(oldGraph, newGr);  
  
    List adj = oldGraph.getNeighbors();  
    for (Node n : adj) {  
        nbors.add(clone(n));  
    }  
  
    newGr.setNeighbors(nbors);  
    return newGr;  
}
```

Phone Screen III

Design a bloom filter to remove the duplicates from an unsorted array !

On-site

1. (Boggle – like question) In a 2D array ($M \times N$, in the given ex. 3×3) of numbers, find the strictly increasing path from the specified origin cell $(1,0)$ to the specified destination cell $(0, 2)$. Array may contain duplicates, and solution should work with the dups.

2.a. Design a unique hash function for every tweet in Twitter which will be used as part of a service.

2.b. Find if a directed graph has cycles or not. Write a function with boolean return type for the same.

- 3.** Casual Lunch interview.
 - 4.** Pattern matching using patterns containing chars (a to z) and '*' , '?' and '.'
- 5.a.** Describe how would you do external sort -> come to a map-reduce kind of solution. Each machine has 10M numbers (total 100M), 10 total machines. Each m/c has 20MB RAM and 50GB memory.
- 5.b.** N-Queens problem: find and print all possible non-conflicting positions for the Queen.
- 6.a.** Given an input binary tree and reference to a Node in the tree, find next in-order successor for the input node. Output null if none.
- 6.b.** What is the best way to sort a k-sorted array ? Optimize for time complexity. (My hint: use a priority queue of size k)
- 7.a.** Hiring manager: Design a service for a. Durability b. Consistency
- 7.b.** Explain C++'s problem with multiple inheritance.

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118. Amazon Interview | Set 41 (On-campus)

The first round had 20 multiple choice questions covering C programming, Data structures, Algorithms, Maths and puzzles, and a question from Networking and Operating systems. The duration of the test was of 90 minutes and marking scheme was +1, -0.25

It also had 2 coding questions.

- i) Given an array of numbers, find the minimum value of the absolute difference that can be obtained from any pair of numbers from the array.
- ii) Find the first non-repeated character in a string. If there are no such chars then return -1.

There were 4 rounds of technical interview, no HR round. Following are the major questions asked to me in the tech rounds. I had to first suggest the logic, discuss that with the interviewer and then he asked me to code it up.

Round 1 –

- 1) Check if a given tree is a Binary Search Tree or not. Simple enough question.
- 2) You are given an array whose each element represents the height of the tower. The

width of every tower is 1. It starts raining. How much water is collected between the towers?

Eg. [1,5,3,7,2] – then answer is 2 units between towers 5 and 7.

Looks easy, but if you don't observe well, then you might end up with the wrong logic like I did at first. Also there are lots of possible corner cases. Luckily I could identify them all.

3) Given an array and a fixed window size X, you have to find out the minimum value from every window. De-queue was not allowed. So I had to do it using 2 stacks.

Round 2 –

1) Some DBMS questions like how is database stored in memory, how an image stored in database and a few more questions from it.

2) What is a height balanced tree. Give an O(n) solution to balance it. Then he changed the definition of a balanced tree as- a tree is balanced if every node in a particular level should have the same number of descendants (and not only direct children). And every node can have any number of children. I had to design the class and then write the code for it.

3) Given an array of integers, find an index such that if you split the array into two parts the absolute value of the difference between the sum of elements in both parts had to be minimum. After giving him the logic, he changed it to split it into 3 parts such that sum of elements in all of them are equal. I had to code this one.

Round 3 –

1) There is a sentence that your friend knows, but while giving it to you, he lost all the spaces. You have to dictionary with you. How would you reconstruct the original sentence using it.

2) How to delete a particular node from a circular Linked list.

3) You are given an encrypted file. You don't know the key used to encrypt it. Like A might be mapped to B, B to some D and D to some other F. But you don't know this encryption scheme. You have the dictionary with you. How will you decrypt the file? I suggested lots of solution like exhaustive searching, then using some variants to minimize the complexity. He gave me just a one word hint- histogram. So I gave him a logic that counting the frequency of every letter used in the dictionary. Then replace the most used letter in the file with the most used in the dictionary. And then compare words with the dictionary. In case of a mismatch back –track and use the second largest and so on. I also discussed with him that it could also have high complexity in worst case, but he moved on.

4) What is indexing in DBMS. How will you implement an index.

Round 4 -

1) A complete path in a tree is from a root to a leaf. A k-heavy path is a complete path whose sum of elements is greater than k. Write a code to delete all nodes which are not in any of the k-heavy paths.

2) You have an array whose elements firstly strictly increase and then strictly decrease. You have to find the point of change.

All the questions in all the rounds required the minimum possible complexity possible (both time and space). And I had to write the code of my final solution as well. Finally the results came and I was selected by them.

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119. Adobe Interview | Set 6 (On-campus for MTS-1)

I would like to thank the entire Geeksforgeeks team, whose contribution has helped me a lot in my preparation for the interviews and getting placed at Adobe.

No of rounds: 1 apti + 1 written + 4 PI

Aptitude Round: 1 hr

15 questions on Analytical Ability, 30 questions on Data Interpretation and Quantitative Ability

Written Round: 2 hrs

10 questions on Algorithms and OS, 10 questions on output of C/C++ code snippets

PI Rounds-

1st Round: 45 minutes

1. Implement a queue using 2 stacks(average time complexity $O(1)$ for push and pop)
2. Discussion regarding demand paging. Then the interviewer asked me to give a detailed implementation of demand paging, using object-oriented approach, considering everything from page tables to swap disk I/O to page replacement policies.

2nd Round: 45 minutes

1. This round started with a puzzle: There are two buckets- one having 100L water and another having 50L milk. A spoonful of water is taken from 1st bucket and added to 2nd bucket and the mixture is stirred, now a spoonful of the mixture is taken from the 2nd bucket and added to the 1st. Compare the final volume of milk in 1st bucket to the final volume of water in 2nd bucket.

2. Defective ball puzzle: Find defective ball among 7 balls using minimum no of measures.
3. A system sends multiple queries to find all primes between two given numbers. Provide service to each query in less than $O(p)$ time(p is total no of primes)
- Solution: Perform Sieve of Eratosthenes initially and maintain list of primes. For incoming queries, use binary search to find first and last primes between given numbers.
4. A modification of Towers of Hanoi problem: Consider 3 towers A(source), B(secondary), C(destination) and n discs. All usual constraints of the original problem hold true, but a new constraint is added: No disc(s) can be moved directly from A to C or from C to A, B has to be used in between.

Solution: For n discs and towers A,B,C as source, auxiliary and destination respectively, consider the following function:

```
Move(n discs, A,B,C)
{
    If(n==1) print(nth disc, A->B->C);

    Else
    {
        Move(n-1 discs, A,B,C);
        print(nth disc, A->B);

        Move(n-1 discs, C,B,A);
        print(nth disc, B->C);

        Move(n-1 discs, A,B,C);
    }
}
```

It will take $O(3^n)$ time instead $O(2^n)$ as in the normal Towers of Hanoi problem.

The interviewer seemed quite impressed with the solution.

3rd Round: 45 minutes

1. A robot can move forward either 1 or 2 steps. Find no of possible ways to reach n th step(easy DP problem).
2. Questions regarding scheduling concepts, how cpu burst length is predicted for SJF

scheduling, exponential averaging, etc.

3. The interviewer asked me to implement my own timer service in the user-space. Using system timer countdown was not allowed, only reading current system time was allowed.

Solution: Create a high-priority helper process P which will have some idea of flow of time(since we cannot use hardware timer) and hence will act as a sand clock for any process that requires timer service.

P will have the following operations:

`t1=getSystemTime()`

`do dummy op(which should take very less time)`

`t2= getSystemTime()`

$(t2-t1)$ will be the time unit for P. Whenever any process requires a countdown of time t, it will communicate with P and request it to send a signal after time t. P will divide t by its time unit and perform dummy its operation $t/(t2-t1)$ times and then notify the requesting process that the time period has elapsed.

The interviewer said that the solution was coarse, but still he seemed pleased with it.

4th Round(HR Round): 15 minutes

Normal HR questions like: why do you want to join Adobe, what were the most challenging situations you have faced in your career so far, where do you see yourself in 5 years, etc.

After the final round, the results were declared. I along with 4 of my peers were hired!!!

This article is compiled by Biswarup Pal. Many many congratulations to him. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

120. Amazon Interview | Set 42 (On-Campus)

Following questions were asked during interview.

- Given an array, find the longest increasing subsequence of size 3 with max product, all numbers are positive.

2. Given 3 linked lists representing 3 numbers, add them and return the result as another list (take care that your method handles overflows).

3. Find the length of longest path in a binary tree(diameter). I gave a $O(n\log n)$ solution. He wanted $O(n)$ solution. did that

4. You are standing at 0 0 and you have to get to i, j. Find the number of ways. Did that with recursion then with DP. Then he extended the question saying some edges are not traversible. Then edges have weights, find min weight path.

5. Delete all leaf nodes in a tree.

6. Find the peak in an array, array is first increasing then decreasing. Peak is the max element.

7. Given a binary tree. A complete path is defined as any path from root to leaf. A k heavy path is a complete path with sum of node values on that path $> k$ node values can be -ve too. Delete all nodes in a tree which do not lie on any k heavy path.

8. Given a rotated sorted array, find the minimum element.

9. Infinite stream of bits is coming, after every bit comes, you have to determine whether the number formed with bits till now is divisible by 3 or not, you cannot form the number as it will overflow at some stage.

10. Imagine a binary tree lying on the floor with nodes as balls and edges as threads, you are given a pointer to a node. When you pick the tree from that node up what will be the structure of the tree. You have gravity changing the structure of the tree.

11. An array is given representing the colors of n jars, colors have values 0-99. When two jars are mixed the resulting volume is same as volume of one jar. Smoke is $\text{color1} * \text{color2} \dots$ and resulting color is $(\text{color1} + \text{color2}) \% 100$. Keep on mixing colors such that you end up with just one jar with minimum smoke.

12. A question on paging, processes also.

Selected ... thanks to geeksforgeeks team.

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First of all, I would like to sincerely thank the entire GeeksforGeeks team for creating and maintaining such an awesome site. GeeksforGeeks has tremendously helped me in my preparation for the on-campus interviews and finally cracking the job interview for Adobe.

Type of Interview: On-Campus for MTS 1

No of rounds: 1 apti + 1 written + 4 PI

Aptitude Round: 1 hour

There were 15 questions on LR followed by 30 questions on DI. The questions were similar to those asked in management examinations like CAT.

The results were declared after a couple of hours and around 50 odd students were selected for the written round.

Written Round: 2 hours

It was divided into two sections :

Section 1 contained 10 questions including a couple of questions on OS and the rest were common programming questions.

Section 2 had 10 syntactical questions on C/C++. I guess most of them can be found on GeeksQuiz.

15 students cleared the written test and were to attend the PIs the next day.

PI Rounds-

1st Round: 45 minutes

1. Had a general discussion about various data structures. Comparison of BST and hashmap (relative advantages and disadvantages). Applications of each.
2. Implement a queue using 2 stacks. Then optimize the implementation.
3. Suppose we have two functions void g() and void h(). The function h() has been called somewhere in the body of g(). Now using a debugger, we find that that the program crashes as soon as the return statement in h() (at the end of function h()) is executed. There is nothing syntactically wrong with the program. How will you debug the code ???
My answer : The function h() has modified the return address on stack.
4. The last question was a puzzle. You have 7 coins out of which one is fake. Find the fake coin in minimum number of weightings.

2nd Round: 45 minutes

1. The round started with a rigorous discussion about various OS concepts, specially virtual memory and demand paging.
2. Implement a stack using 2 queues. Now optimize the implementation.
3. A robot can walk on 1 step or 2 steps. Find the number of ways in which he can reach the nth step.
I started with the naïve recursive solution. He asked me to draw the entire recursion tree

and hence manually find the answer for n=8. I asked him to make it n=5 😊 I pointed out the overlapping sub-problems and gave him the DP solution. He also asked for time and space complexities of both the solutions.

4. This question was related to what he called conditional operator on an image. I had no idea what that was. So he explained it to me.

A monochromatic image is represented by a MxM matrix Image0. We have another WxW matrix Op (W<=M, W is odd). Create a new MxM matrix Image1 such that each pixel Image1(i,j) is the summation of the product of overlapping pixels when the pixel(i,j) of Matrix Image0 is aligned with the central cell of Matrix Op.

At first I suggested a naïve O(N²xW²) solution. He asked me to write the complete code. Using a getpixel function which returns the pixel value if the co-ordinates are valid and 0 for invalid co-ordinates, usually helps in such cases.

Then he told me that all the values in the matrix Op are equal. Optimize the implementation.

I was able to bring it down to O(N²xW).

3rd Round: 45 minutes

1. Fibonacci series. Just the recurrence relation and derive the time complexity of recursive implementation.

2. Write a function that takes n parameters and returns an n-dimensional array using those parameters as the dimensions. The expression a[1][i2]...[in] should work.

For 1-d array, it's trivial. For 2-d arrays of dimensions mxn, first create an array of m 1st-level pointers and for each pointer allocate an array of size n. He asked me to do it for k-dimensional array where k is a parameter. The real issue was implementing k nested loops, where k is not a constant value.

I was able to implement it using a single loop which runs from i=0 to i=k^k - 1. For each iteration, I calculated the various nested loop variables, say par(L)=i mod k^(L+1), where L=0 represents the innermost loop and par(0) represents the innermost loop variable. So when par(t)=0 for some t, it's obvious that either i=0 or the immediate outer loop, ie the loop L=t+1 has moved on to its next iteration. So the malloc statement between the loops L=t+1 and L=t has to be executed.

The interviewer was very impressed with the approach.

3. The question started with the interviewer asking me to write a program to print "Hello World". I just stared at him for a while. So he repeated the question 😊 He then wanted to know what the compiler does when it encounters the statement #include, whether the stdio.h file contains just the function declaration of printf or the definition too. Then we had a discussion on static and dynamic libraries.

4th Round(HR Round): 20 minutes

Was asked typical HR questions like why do you want to join Adobe, your dream companies, why not go for a higher education instead of a job, what do you like to do in your free time. When I told him that I was a sci-fi fan, he asked me that assuming I had the resources, how would I design an iron-man suit 😊 Needless to say, I really enjoyed

this round for multiple reasons 😊

Finally, the results were declared and 5 students including me were hired 😊

This article is compiled by Saikat Chakrabarty. Many many congratulations to him. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

122. Amazon Interview | Set 43 (On-Campus)

Questions asked in Amazon Interview.

Round 2: Written

1. Find the SQRT of a number.
2. Simulate Reversed level order traversal.

Three F2Fs.

F2F 1:

1. Given a binary tree, no two adjacent nodes have same color, but all leaves should be in same color. You can fill only with two colors. Write a function to find whether a given tree can be colored using above scenario.
2. Given a binary tree, change the right pointer of every leaf node to the next leaf node (right to it but may be on different level).
3. Given a class with n people, where each person plays a game with all other people. Results are with you. You have to arrange them in a queue with a condition that, $a[i]$ should have won $a[i-1]$, for all i , you don't need to care about $a[i-2]$. ($a[i]$ may win or lose $a[i-2]$).

F2F 2:

1. Write prime numbers from 1 to 100000.
2. Another simple question from tree. can't remember 😊
3. Question from probability. Given c containers, r red balls, g green balls. Give a condition that if a guy randomly picks a ball from any of the containers, it should be red. (more probable)

F2F 3:

1. Reverse a linked list iteratively, recursively.(Ice breaking question :P)
2. Given a matrix with 1s and 0s, you have to construct a matrix such that $a[i][j]=1$, if only

every element in i th row and j th column is 1, otherwise 0. You have to use constant space and $O(mn)$ time complexity.

3. Maze solve problem. Given a matrix with 1s and 0s, 0 represents free path, 1 represents blocked area, and you can move in any of the 8 directions. Find the path from source to destination and print it. Then he told me that he can change destination at run time. And asked me to do for that.

This article is contributed by Karthick Raja R. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

123. Amazon Interview | Set 44 (For Internship)

The written round was relatively easy. It contained 20 multiple choice questions on basic c, algorithms and finite automata. Some questions from OS and networking were there too but were easy. Coding questions were:

1. Find the nodes of the tree as seen from the left view of the binary tree.
2. Rotate the given matrix by 90 degrees i.e. the first row becomes the last column and second row becomes the second last column and so on.

Interview round 1:

Two questions were asked. One puzzle and the other coding question.

1. Given n coins for two players playing a game. Each player picks coins from the given n coins in such a way that he can pick 1 to 5 coins in one turn and the game continues for both the players. The player who picks the last coin loses the game. You have to tell that for given n coins who loses the game?

2. Given a number n , find the number just greater than n using same digits as that of n .

Interview round 2:

1. Given in facebook find an efficient way to find the mutual friends between you and one of your given friends.

Hint: hashing, dictionary data structure implementation

2. For two very long numbers given, find the product of these numbers in an efficient way.

Hint: using binary multiplication effectively.

Finally I got internship offer from them....:)

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mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

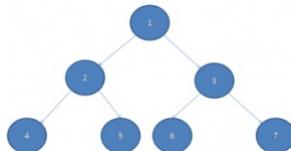
124. Amazon Interview | Set 45 (For Internship)

Hello everyone! Recently I sat for an on-campus internship recruiting process of Amazon. The process consisted of a written round followed by two face to face interviews.

Written Round:

This round consisted of 20 MCQs and two coding questions. We had to complete the test in 90 minutes. The MCQs mainly focused on C and general aptitude. They were easy to solve. The students having faster question solving skills were in advantage! The two coding questions were:

1. We were given the edges of the graph and we had to find if a cycle exist in the graph or not.
2. Given a binary tree, we had to print all the nodes in the Zigzag order.



For the given tree, we should print: 1324567

A total of 18 students were selected for the next round from around 150+ students.

Face to Face Interview:

The interviewer started with the question about what projects I have done. I explained the two recent projects which I did. Then he started asking technical questions. He asked about:

1. Given a sorted array which has been rotated, we have to find the point of rotation.
I did it in $O(n)$. Then he asked me to write a more optimized code. I then did it in $O(\log n)$ using modified binary search.
2. About heaps, maps.
3. About Job Scheduling.
4. Scaling of websites as one of project was an online portal.

Then he asked me if I have any questions. I asked about how to improve. He said that I should blue practice the problems more and more. I should work more on algorithms rather than solving the problems relating to the limitations of any language. He even emphasized on the fact that companies like Amazon are looking for the students having good knowledge of algorithms. He even mentioned that GeeksforGeeks is a perfect site

for preparing for companies like Amazon.

I was not lucky enough to be selected in the 2nd round of the interview but it was a motivating experience. 😊

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125. Microsoft Interview | Set 20 (On-campus for Internship)

Hello everyone, I recently got selected for the internship at Microsoft IDC. GeeksForGeeks helped me a lot in preparing for the coding tests as well as for interviews. The positions that they were interviewing for were SDE and SDET(Testing).

1st Round. – Online – 30 mins

The first round was an online round which was hosted on cocubes.com . There were 20 MCQ questions. Questions were from a variety of topics like Algorithms, Data structures, C, C++, OOPs, Memory Management, Computer Architecture etc.

2nd Round. – Online – 1 hour

This was a coding round in which two problems were given.

Problem – 1: Given a word and a text, return the count of the occurrences of anagrams of the word in the text.

For eg. word is “for” and the text is “forxxorfxdofr”, anagrams of “for” will be “ofr”, “orf”, “fro”, etc. So the answer would be 3 for this particular example.

Problem – 2: Given a binary tree with parent pointers, find the right sibling of a given node(pointer to the node will be given), if it doesn’t exist return null. Do it in O(1) space and O(n) time.

3rd Round – Group Test – Code on paper – 45 mins

First we had to discuss the solution with the assigned mentor and then we had to code it on paper(no pseudo code)

Problem 1: Given a BST, one of the nodes violates the BST property(left-child < parent < right child), return the pointer to that node.

Problem 2: Two no.s having equal no. of digits were given in the form of singly linklist. (For eg.- 102 will be given as 1 -> 0 -> 2). Add these no.s and return the answer in the form of a singly linklist. Do it in O(n) time, given n digit numbers

4th Round – Interview

I had to implement a T9 dictionary . insertWord function and populateWords were the two functions which I had to implement on paper(again no pseudo code).

First I have to dicuss the approach with the interviewer and then he asked me to code.

5th Round – Interview

He dicussed the work that I did in my last summer internship and after that he asked me to code the maximum subarray problem in one pass.

I and my friends who got internships at Adobe Research, Amazon, De-Shaw, Samsung would like to thanks GeeksForGeeks for mainting a high quality problem set for coding tests and interviews.

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126. Amazon Interview | Set 46 (On-campus for Internship)

Written:

20 MCQ on basics of C, OS, Networking + 2 Coding.

- 1) Left view of Binary Tree.
- 2) Rotate a matrix by 90 degree.

Interview (Round-1)

1. You have to find p,q of matrix $p \times q$ such that it fill n elements(n given) Such that
 - a) matrix should be nearest to a square matrix and
 - b) $0 \leq ((p \times q) - n) \leq 2$
2. Zig-zag traversal of tree
3. You are given an array of length k and it have numbers from 0 to n (where $k \gg n$) in $O(n)$ time and no extra space find occurrences of each element in $O(n)$ time only

Round-2

1. You are given row and column wise sorted matrix you have to find and delete an element such that it is still sorted in $O(n)$ time.
2. Find if sum of any 2 elements in an array equal to k in $O(n)$ time using extra space.
3. In a BST to every element add sum of elements greater than it.

Result → Got Selected from Campus Internship Interviews.

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mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

127. [TopTalent.in] Parag Reveals Few Secrets about getting into NetApp

NetApp is a leading company of innovative storage and data management solutions that helps organizations around the world store, manage, protect, and retain their data. Even though being in the enterprise space, Netapp is known for attracting the sharpest minds in the industry. Meet Parag who got an offer from NetApp and is one of the lucky few to be working from their Bangalore office as a member of their technical staff. In an interview with [TopTalent.in](#), he talks about his experience, what makes NetApp special and why he chose to work there.



You can also download Parag's resume [here](#).

1. What makes NetApp so special? Why did you decide to join NetApp?

Parag : NetApp is a “brand name” for storage. NetApp is a company with rich history, a culture of innovation and a great place to work. It has the perfect work-life balance, great products to work on. Most importantly its area of work matches my interest, which is File system. But there are many companies(like EMC, IBM, Hitachi etc.) which have almost same attributes, what drifted me towards NetApp is its capability of adaptation when it comes to new technology, products are being developed/modified taking care of new technological advances which are in pipeline and are expected to be feasible only after 5-7 years. I got a PPO through my internship at NetApp in the File system group.

2. Can you describe the complete hiring process of NetApp?

Parag : The process started with a written round having total 50 MCQs, 10 Quantitative, 15 Data structures and algorithms, 15 programming and 10 systems related questions. And after clearing it 2 technical rounds were conducted, and after the shortlisting, managerial round was conducted. And if everything goes well HR will confirm the hiring. Resumes and consolidated report of the interviews of all the hired candidates will be sent to Directors having vacancy in their Business Units and they will choose based on their requirement and match of expertise.

3. What were the tricky questions you encountered? How did you tackle them?

Parag : Most of the questions were related OS fundamentals. Interviewers covered

almost all the concepts of OS like Memory management, Synchronization, Processes and threads, System calls, they even asked me about my internship project. There were some programming, algorithms and data structure questions, one need to have deep understanding about all these to clear it. One question was to emulate the behavior of page table given a program, accessing data from a disk, and the level of difficulty was increased by changing the replacement scheme and by introducing TLB. The tricky part here was to play with virtual and physical address space and mapping between them after consecutive data accesses considering replacement scheme.

4. What is the application process for companies like NetApp?

Parag : NetApp has a very strong internship and referral programme. They give preference to interns for NCG jobs. But they do go for on-campus placement to a very limited set of colleges (Almost all IITs, some NITs, BITS Pilani and some Bangalore colleges). Referral programme is generally used to hire laterals.

5. Can you talk about what resources did you refer before the interviews?

Parag : As I knew that I will be bombarded with OS and DSA related questions, for OS I referred “UNIX Internals by Uresh Vahalia” and studied some concepts from “Operating systems by William Stallings”. They are some finest books to build your base in OS, for DSA I referred “Introduction to Algorithms – Cormen”. I also referred my class notes and slides for both the subjects. There are some good websites for standard programming questions like careercup, geeksforgeeks and there are some good forums like stackoverflow, Daniweb to refine or clear conceptual doubts. For programming questions in C you need to be comfortable and patient with pointers.

6. What were some important factors according to you that made you stand out?

Parag : The most important factor is my teachers who played an important role by helping me strengthen the basics of all the subjects. Most importantly my mentor who guided me for almost 2 and half years and helped me gain substantial knowledge which eventually helped me, and also the projects I did in my college steered me through the interviews. One more very important factor was my internship project which was related to Delete subsystem of NetApp’s file system WAFL, it gave me more deeper understanding of file system internals.

7. Currently, what are you working on and how has been the experience till now?

Parag : Currently I am in the Consistency point team of WAFL group, which works on maintaining consistent image of file system all the time and writing it down to disk so that in case of disruption user can switch back to last consistent image and hence won’t lose any data. It’s been a wonderful 13 months at NetApp, people here are very cooperative, generous, intelligent, they strive very hard to make the workplace fun beyond just being a place where people would show up, do their work and leave. I hope this work environment remains as it is for years to come.

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128. Amazon Interview | Set 47 (Off-campus for SDE-1)

Round 1: Written

20 MCQs and 2 coding questions

(1) Mirror a tree.

(2) Find if an array has pair of elements with sum k.

Round 2: Telephonic Interview

(1) Given a number, find the next minimal greater number with same number of set bits(Approach+code)

(2) Given a linked list with next and arbit pointer. Clone the list(Approach + code)

(3) AVL Tree(Approach)

Round 3: Telephonic Interview

(1) Given a number which denotes number of pair of parenthesis(only one type of parenthesis). Print all the valid permutation of those parenthesis(Approach + code).

(2) Connecting all nodes at the same in Binary Tree(Approach + code)

Round 4: F2F(manager)

Discussion on all projects I have done.

(1) Convert BT to DLL(Approach + code)

(2) How to find if nodes in LL are odd or even(Approach)

(3) How to detect loop in LL(Approach)

(4) Segment Tree(Approach + code)

Round 5: F2F(Two interviewers)

This one was bar raiser I guess

(1) Convert a BST in such a way that every node contain sum of it and every greater element than it (Approach + code)

(2) Garbage collector(Approach)

(3) Finding median in array(Approach)

- (4) Finding k closest elements to an element in an array(Approach)
- (5) Deleting a node from LL provided the tail nodes points to mid element. After deletion property should be maintained(Approach)

Round 6: F2F(Senior guy)

A long discussion on projects.

- (1) Circular Buffer array problem(Approach + code)
- (2) BT is BST or not(Approach + code)

Round 7: F2F (Two interviewers)

- (1) Given coins of 1,2 and 5 and given a number N. Find in how many ways you can make the change(Approach + code)
- (2) Swapping alternate nodes in LL(Approach + code)
- (3) Swapping k nodes in LL(Approach)

Round 8: F2F(Again with manager)

Discussion on projects. Every positive , negative point he discussed on each projects

Now All HR type questions

- (1) How will you handle conflict with teammate.
- (2) How will you handle conflict with manager.
- (3) Your teammate is not sharing required information with you. What will you do?
- (4) If you are given 10 requirements and you don't have to fulfill each and every requirement what will you do?
- (5) Given some languages which one you prefer and why?
- (6) Given some tasks with one you prefer?
- (7) If you are about to meet deadline and one of your teammates need some help.Would you cross deadline to help him?

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Recently, I have been through the interview experience of Amazon India and I would like to share my experience with everyone.

Position: SDE- 1

No. of Interviews: 1 Written + 4 PI

Day 1:

Round 1 : (Written)

20 MCQ questions consisting of Data Structure, Algorithms, Operating Systems, Probability, Combinatorics and Quatitative Analysis.

Coding Problems :

1. A string consists of parentheses and letters. Write a program to validate all the parentheses. Ignore the letters.

eg. ((alf)ls) – valid

)dkk() – invalid

2. You are involved in a betting game whose rules are as follows :

a) if you win a round, the bet amount will be added to your sum and next bet amount will be \$1;

b) if you lose a round, the bet amount will be reduced from your total sum and next bet will be twice the previous.

c) game ends when all the rounds are complete or you dont have sufficient sum.

Initially, you are given with a string of the form “WLWWL” where W indicates a win and L indicates a loss and initial sum. Initial bet amount will be \$1.

Function prototypes and main was given for both questions.

Round 2 : (Face to Face)

Some discussion on my projects, and then a couple of questions.

1. An array of integers is given, find all the ranges present in the array.

eg. 1 6 4 2 3 — ranges will be {1-4} and {6}.

I used sorting to solve this problem, so some follow up questions about which sorting technique i would prefer here.

What is the difference between merge sort and quick sort and when quick sort is preferred over merge sort, etc.

2. Two strings are given. One of them is the initial string and other string contains characters as per their priority. Sort the initial string as per the given second string. characters in initial string may or may not be present in the second string. If not present, sort them in lexicographical order at the end of output.

eg. String1 – ddloyc, String2 – odll

Output – oddlcy

Again, some discussion over various approaches to solve this problem.

Round 3 : (Face to Face)

Discussions over my projects.

1. (Reservoir sampling problem) <http://www.geeksforgeeks.org/reservoir-sampling/>

2. Generate all valid permutations of n pair of parenthesis.

<http://www.geeksforgeeks.org/print-all-combinations-of-balanced-parentheses/>

3. Given a bst, update the value of every node with sum of value of all nodes greater than and equal to the value of current node.

Counter Question : I had used global variable for this purpose, so he asked me to solve it without any global or static variable.

4. Inorder Successor of a node in bst.

5. Given a list and a number k, invert first k elements and leave next k elements. Repeat this throughout the list.

Round 4 : (Face to Face)

1. N number of jars are kept in a linear fashion. Each jar contains a color whose value ranges from 0-99. Now you can mix any two adjacent jars having colors 'a' and 'b' (both integers), and it will produce a new color of the value $(a+b) \bmod 100$ and will also produce smoke with value $(a*b)$. Mix all the jars in a way such that in the end only one jar remains and total smoke produced is minimum.

Day 2 :

Round 4 : (Telephonic with someone very senior)

He said that i must have been through many coding questions already, so he will start with the basics.

1. What is the difference between C and C++ ?

2. Which one will you prefer, when and why?

3. What is the difference between C++ and JAVA.

4. Which is better, C++ or JAVA. Support your answer.

5. Give one use case where C/C++ can use pointers to solve it, but it can't be done in Java.

6. Again, some discussion over my projects. Which project i liked most and why? What problems did i face during that project and how i handled them.

7. Given a stream of 0's and 1's in which 0's come first and then 1's, find the first occurrence of 1.

8. Design a data structure for phone-book of mobile phones. Implement it and discuss about its benefits and limitations.

In the evening they announced the result and i was hired!!! 😊😊

Suggestions :- Write a neat code with indentations. It's a good idea to mention all the test cases(in case of an algorithmic problem) and all the use cases(if needed to design a data structure) beforehand. And, don't just respond to the questions of the interviewer, try to interact with them.

This article is compiled by Kumar Vivek Ranjan. Many many congratulations to the

author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

130. Amazon Interview | Set 49 (On-campus for SDE-1)

Recently, I have been through the interview experience of Amazon India and I would like to share my experience with everyone.

Position: SDE- 1

No. of Interviews: 1 Written + 4 PI (3 F2F and 1 telephonic)

Before telling you the questions and interview procedure, I would like to offer some suggestions. There are always instances when your interview is not off with a great start. You need not panic and keep your calm. Secondly, to compensate all the shortcomings in the technical part, interact with the interviewer as much as you can. Show him that you are really interested in the company. They are looking for future managers not just coders, so you have to have people skills.

Okay, so here we go:

Day 1:

Round 1 : (Written on Interview Street)

20 MCQ questions consisting of Data Structure, Algorithms, Operating Systems, Probability, Combinatorics and Quatitative Analysis.

Suggestion: Always code your solution on the editor provided on the website. It takes screenshots of the page so if you copy a large chunk of data even from your notepad that's considered as cheating.

Coding Problems :

1. A string consists of parentheses and letters. Write a program to validate all the parentheses. Ignore the letters.

eg. ((alf)ls) – valid

)dkk() – invalid

2. You are involved in a betting game whose rules are as follows :

a) if you win a round, the bet amount will be added to your sum and next bet amount will be \$1;

b) if you lose a round, the bet amount will be reduced from your total sum and next bet will be twice the previous.

c) game ends when all the rounds are complete or you dont have sufficient sum.

Initially, you are given with a string of the form “WLWWL” where W indicates a win and L indicates a loss and initial sum. Initial bet amount will be \$1.

Function prototypes and main was given for both questions.

Round 2 : (Face to Face)

The interview started off with a light discussion about myself, achievements. Then he asked me about my project and the difficulties faced. Then we moved on to coding problems.

Q1: You are given an array in which you've to find a contiguous subarray such that the sum of elements in it is equal to zero. (I coded using hashtable in java)

Q2: Given a binary tree. Find out if it is a binary search tree or not.

Round 3: (Face to Face)

Q1: You are given a generic tree. Design a structure for it. Now for every node of the tree make the leftmost child of the node as a duplicate of the node itself and return the root of the tree.

Q2: He: Tell me the time complexity of 8-queen problem.

Me: (I did not exactly remember the complexity so I coded)

Round 4: (Face to Face)

He asked me variety of theory questions, I was stumped as I did not know many things.

He asked me about ACID properties, oops concepts, SQL etc. out of which I could answer only a few.

Then we switched over to coding.

Q1: He: You are given various time intervals and you have to merge the overlapping ones.

Me: I had already coded it in the Code Ninja questions on the amazon's website, so he just asked me the approach to the question.

Q2: You are given a binary tree. Tell me if it is height balanced or not.

Round 5: (Telephonic)

The interview started with if I had any questions, and then proceeded with the projects I've done.

Q1: You are given a file with many words. You are given a word as an input and you have to find every anagram of that word in the file.

Q2: Given two words, tell if they are anagrams or not. Extend your solution for unicode as well.

Finally after a long wait of almost 8 hours the result came and I was hired!! 😊😊

I would like to thank geeksforgeeks for all the pain they take in compiling every article so that people may understand every concept clearly.

Many many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to

contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

131. Amazon Interview | Set 50 (On-campus for SDE)

Recently, I have been through the interview experience of Amazon India and I would like to share my experience with everyone.

Number of interviews: 1 online exam (will be completely evaluated by the compiler itself, then code of those who will clear the cut-off will be analysed by the hiring team) + 3 Face to face technical + 1 Telephonic (Technical again)

Online exam:

20 MCQ: Aptitude questions, if you are good in logical reasoning then don't worry about it (basic permutation and combination), C output questions, and most of them were pretty simple.

- 2 Online coding questions: 1. Print the first non-repeated character in a string.
2. Print the left view of a binary tree.

1st Face to face:

A skeleton of a binary tree with nodes having garbage values is given and an array is given. Had to fill up the binary tree skeleton with the values in array such that the resulting tree is a BST.

Solution: sort the array, enter the values in an in-order fashion (A long discussion on which sorting algorithm is the best and why? We ended up discussing how merge sort can be optimized, just "optimized", not like reducing the order of time or space complexity). Then told me to write the merge-sort function for the discussed solution for merge-sort such that say I am a developer, I can't test on a machine, and this class will be used by a million number of users.

2nd Face to face:

Was asked 4 questions: Print all string permutation (String might have repeated characters).

Least distance between two values in a very big binary tree (Binary tree may contain same value in many nodes).



{Least distance is 3 between 1 and 2 (not 5). }

Vertically print the value in a binary tree. Like in the previous example:

4, 7

1

5, 3, 8

7

2

Next, I was asked to design an efficient data structure for two lifts in a building of n floors.

Round 3 Face to face:

Had to find maximum profit in an array of stocks prices for consecutive days in two cases, one I can sell and buy any number of times I want, second, I can only buy and sell one time.

Another question was to define a function “inorder_it(Node A, Node root)” which will return the next node in a binary tree to a particular node A. Was asked to write code for both of them.

Round 4: telephonic:

Kind of HR + Technical, asked a lot about my internship project and other academic projects. Then we discussed the problem of sorting rows of a file based on a particular column. Like as in Excel file, you can sort file based on roll_no, first name, last name, any column you want.

File is very large, so you can't just store the whole file into memory.

Solution: sort it out yourselves.

All the best everyone.

And yes, I got through along with 5 other mates from my college.

Many many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

132. Directi Interview | Set 3

Online round:

1. There exist a binary tree with each node containing a character (lower case letters for leaf nodes and upper case letters for non-leaf nodes) and exactly two child, Now given a string find the number of root to leaf paths that contain this string as its subsequence.

And the binary tree is given in post order notation.

2. A long question and a brute force solution of finding the most optimum subset (2^n)

First Round-

1. Find the k root of a number n. Mention the special cases, if any.
2. Given a connected graph with $n-1+k$ edges and k being less than 10. Convert this graph to a tree removing the most weighted set of edges.
3. Given a set of coins n with each coin i having P_i probability to give heads. Find the probability of getting k heads, when all coins are tossed together.

Second Round-

1. Given a random function which gives some value in the range [-1,1]. Find the value of PIE.
2. Given a set of currencies and the exchange rates from each currency to another. Find if there exist any cycle of exchanges after which the original value of the amount increases.
3. Given a tree find the maximal XOR of any path from root to leaf (simple recursion)
4. Given a tree find the maximal subset XOR of any path from root to leaf. (ie the subset XOR may or may not include all elements from root to leaf)

Third round-

Some HR questions especially regarding the projects done by you and only one algorithmic question-

1. Given a set of restaurants (the number being quite large) and its geographical location(x,y) , you are allowed to do an significant amount of pre-processing on it. Now suppose there are x customers located at position (s,t), design an efficient algorithm to find the k nearest restaurants to these customers.
(This problem is the famous KNN problem- the solution they were expecting were of grid files)

Please do comment in case of doubts and queries.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

Hello Everyone!! Recently, I have been through the interview experience of Amazon India and I would like to share my experience with everyone.

Position : SDET

No. of Interviews : 1 Written + 4 PI (3 F2F and 1 telephonic)

Suggestions : Your code should be optimal, have proper variable naming, consider all corner cases and should not be lengthy.

Round 1: (90 minutes)

20 MCQs and 2 coding questions

Coding questions :

1. A string consists of parenthesis and letters. Write a program to validate all the parenthesis. Ignore the letters.

eg. ((alf)ls) – valid

)dkk() – invalid

2. You are involved in a betting game whose rules are as follows :

a) if you win a round, the bet amount will be added to your sum and next bet amount will be \$1;

b) if you lose a round, the bet amount will be reduced from your total sum and next bet will be twice the previous.

c) game ends when all the rounds are complete or you dont have sufficient sum.

Initially, you are given with a string of the form “WLWWL” where W indicates a win and L indicates a loss and initial sum. Initial bet amount will be \$1.

You need to find the amount at the end of the game.

Function prototypes and main was given for both questions

Round 2: (face to face) (1 hour 15 min)

1. Given a 2d matrix in which rows are sorted in ascending order and columns are also sorted in ascending order .I need to find an element in optimal time complexity

2. In the same (M X N) matrix I have to print the matrix in increasing order of elements .write code for it(I used heap for that purpose and used concept of merging k sorted array).

3. Given an array , each element is one more or one less than its preceding element .find an element in it.(better than O(n) approach)

4. Given two strings STR1 and STR2 .we need to find longest substring in STR1 whose all characters are taken from string STR2(was asked to write code for it in optimal time)

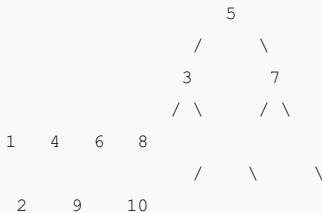
```
STR1-abcdefacbccbagfacbacer
```

```
STR2-abc
```

```
ans : length : 7
```

```
acbcccba (from position 7 to 13)
```

5. Given a binary tree. I need to print the nodes in vertical line zigzag manner. For example: 1st vertical line from top to bottom, 2nd vertical line from bottom to top, 3rd vertical line from top to bottom and so on



Answer would be –

- 1
- 2 3
- 5 4 6
- 9 7
- 8
- 10

Round 3: (face to face) (50-60 minutes)

I was asked about my project in details. He asked me project related questions for first 20 minutes.

Next he asked to convert a binary tree in a doubly link list.

I told him various approaches like by using space complexity and in-place conversion.

I was asked to code all those approaches.

Then he gave a hint about one more approach and asked to code it.

Round 4: (face to face) (60-70 minutes)

Again, I was asked about my project in details and he was questioning me on every part of it. Next he asked me to name the subjects that I have studied so far 😊 . He asked many theoretical questions on database management systems, SQL, operating systems, OOPs concepts and their real life examples and also two coding questions.

1. Code for dfs of a tree(tree can be any general tree)
2. Print pascal triangle and your output should be same as pascal triangular form (have to consider the space separation) . I told him two approaches and wrote the code.

Round 5: (telephonic) (1 hour 30 min)

For first 40 minutes he asked me about my achievements, about amazon company, my project in details and what problems I faced in project and how I resolved them. next he asked one coding question.

1. Find the square root of any number (square root can be a real number) without using any library function .

I told him an approach using Newton-Raphson method. It was faster but he asked simple and optimal method so then i suggested binary search method ($O(\log n)$) and I was

asked to code it and dictate and he ran the code on his system also.

Finally, I was hired with three of my friends. 😊 :

Many many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

134. [TopTalent.in] Want to know how to get into Yahoo! ? Read our exclusive Interview with Prabha

"Persistence is what got me this far", says Prabha Satya, Yahoo!'s recent hire for Software Development. Lately Yahoo! is also actively hiring other than acquiring startups one at a time. "I want to make a difference in the field of technology, however small it may be" she explains when asked about her Goal in life. A graduate from a remote village in Andhra Pradesh to multiple placement offers at IIITB , this week we bring you the story of Prabha who considers herself as a proud Alumnus of IIIT Bangalore.



Want to know how her resume looks like ? You can download it [here](#).

Could you briefly describe about your student days at IIIT Bangalore ? How is it like to study there?

Prabha: I was a very common student until my B.Tech but it was when I joined IIIT-B for my masters, I had become a true computer science student. It had widened my horizon, made me inquisitive and curious at learning instead of just being bookish.

Coming to my student days over there, they were really challenging. The kind of dedication we used to pay in order to produce some quality work in our projects is so intense. I do remember one course in our college, Web Information Retrieval, which had changed me and my learning process completely with its mandate oriented approach. IIIT-B is the best place I had ever been and it had truly made gaining knowledge as my aspiration.

What makes Yahoo so special? Why did you decide to join Yahoo?

Prabha: Yahoo! is a great place to work for. The kind of exposure one gets in terms of technologies is both deep and wide. Now, Yahoo! is in a very big transition. And even if small change has to be made, it does not effect just hundreds of users but millions of users, the scale with which it operates is very big. And being able to deal with such a scalability makes it special. The only reason for me to choose Yahoo! is it is very much aligned to my interests.

Can you describe the complete hiring process of Yahoo?

Prabha: There are several different rounds. First round was a written test which included around 50 objectives, completely technical and no aptitude questions. This round is intended to test the basics in computer science. Next there were two programming rounds. You have to code and solve some algorithmic related questions. Then started my technical interviews. I had about three technical interviews in which first two were completely focused on problem solving and algorithms. Then came the last technical interview, this is mostly aligned towards designing systems. I need to design some real time problems like building an airport system in a best possible approach, best cache system etc., In this round, they also dwelled deep into my projects and electives . All the 3 interview rounds lasted for more than an hour. And it was finally HR round.

What were the tricky questions you encountered? How did you tackle them?

Prabha: In the second technical interview, they gave me a question which should be solved using stacks. I was not able to give the exact solution. I just told all the possible approaches and the best way is to solve using stacks and why is it so. The only thing which matters in technical rounds is our approach to solve the given question. You need to start from the basics and go on discussing with the interviewer till the best possible solution arrives. Most of the time the interviewers help us arriving to the solution.

What is Yahoo culture like? How does it impact the overall process of working there?

Prabha: Culture in Yahoo! is very much open. There are events where you will get to know what other teams or departments are working on. You are very much welcome to any suggestion before any product reaches the end user. Your work is not just for your team and you can also contribute by making hacks in quarterly hackathons etc., There are lots of chances to contribute ideas not just belonging to your work but anything which makes an impact from the company's perspective.

Yahoo has been going through a transition phase recently . How do you think this affects the workplace from a career perspective?

Prabha: Yes, after Merissa Mayer took over as CEO, Yahoo! is in a very big transition phase. Developing products from scratch is challenging but developing new features(which are not intended to provide at the start) for any product with minimal changes to the existing base product is even more challenging. It is a great time to work in Yahoo! in terms of learning.

What were some important factors according to you that made you stand out?

Prabha: Sound basics, developing problem solving abilities, solving algorithms, enough coding skills helped me. Being a technology student one should be able to follow the changing trends, should be ready and willing to learn new stuff every day because change is rapid in the field of technology. Any student who is ready to learn new stuff can lead here. I always enjoyed accepting challenging work and continuous learning. May be that helped.

Currently, what are you working on and how has been the experience till now?

Prabha: I am currently working for Advertisements and Data platforms in Yahoo!. My work is more towards user data analytics. Got a chance to work on one of the biggest data pipelines in the world. My journey is just started and there are very big technologies within Yahoo! and there are lots to learn for me.

Your advice to students and job seekers from elite colleges

Prabha: When we are in college, there would be lots of pressure in terms of grades, averages and needless to mention pressure of getting a job and making it big. But only thing which matters is to focus on gaining more knowledge. Do not limit your work just to course work. Try out some new stuff. And at last be curious and inquisitive at what we learn. All these finally pay us.

Any relevant incident or experience that you like to share through TopTalent?

Prabha: There would be lots of distractions but we should not get blinded by the options while choosing the courses we elect, or the job profiles which we aim for. If you want to choose something, first know what your interests are, what you want to work for and then decide the best possible option. Learn to enjoy the journey by constantly gaining more knowledge out of your interests and by accepting challenging work.

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135. Qualcomm Interview | Set 2

It was a very good experience to face interview at Qualcomm.

I have attended the interview for a position of Embedded SW application developer and my experience and my expertise is on C/RTOS/Data structures in telecom domain.

Process: 1 Telephonic, 5 Technical, 1 HR round (each of 40min to 1 hr).

All rounds were not that much tough and interviewers were very friendly in talking.

Telephonic:

- All about your CV
- Lots of questions on project and how it works actually
- OS concepts and real examples
- Deadlock situations (detection ,prevention)

- Sw watchdog timers
- OS schedulers and algos
- Error handling in the system , Core dumps ,etc
- Memory management concepts
- IPC communications
- Mutex/critical section/semaphores

Note: All questions were asked deeply and need to tell him until he convinced with the answers.

After 2 days I got a call to come down to Qcom office for next rounds. That day went long..!!

Round 1:

- Basics of C programming
- Memory map of program, Storage classes and their mapping
- If we declare more number of variables than the registers available on the processor? Where they will be stored.
- IPC (signal, as I coded in this) how actually it does transfer of memory
Set of C code snippets given to debug ... Identify problems in it and tell outputs

And further questions on that.. like why ?

Round 2:

- Basic C questions
- Write a program to Delete a node , given only a pointer to the node in a Circular linked list
- How to access data in the called functions after returning from it (point here is that, cannot access auto variables in functions after it is being called off)
- Write a program to return a stream of bytes from a function
- Lots of questions on Function pointers, how, usage, examples

Round 3:

- Generic questions on project they are doing , how market values are there , what products are coming
- Memory handling in SIM cards/embedded applications
- Priorities of OS programs , process and thread differences
- How to handle the Generic functions , like Void pointers

Round 4:

- Write a own program for strstr function, optimal way
- Write a program to convert a given single Linked list to BST
- How a software development happens and what you do if you were given a product

- to develop
- Project questions
- How do you want to see yourself after a year, your intentions, aspirations

Round 5:

- Big & Little endian – definitions, representations, write it down, swap them, etc
- Lots of memory related questions
- Write a program to implement memcpy() on your own –
- Need to evaluate many other conditions like overlap situations and etc.,
- Difference between library call and a system call
- Priority inversion in a RTOS and its solutions

Round 6 (HR):

- Qualcomm aspirations, culture and how you look to be next, feedback from us on the interview, Nothing much... just a casual talk.

Note: All rounds, you need to explain about your project clearly and they can ask some really good questions from project. Be out and out clear with your projects and CV. All interviewers will explain about the position you have applied for and it is good if you ask more questions on what exactly they do and how it works.

I did these interviews very good but unfortunately I was not into the Qualcomm after this. But they considered for another position and within a month I got another call and again 3 rounds of Technical Interviews as below,

Process: 3 Technical

Round 1:

- Network Traffic measurements
- Udp vs tcp, diff
- Os schedulers
- Timer module code // you need to write code for the timer module which actually handles timeout functionality for all clients and execute handlers of client at timeout. (things they looked for are how you design a given problem, callback functions, function pointers,etc)
- Questions on Call back functions
- Questions on function pointers
- Program to Reverse a single linked list
- Program to Detect loop in a single linked list
- Detect errors in pgm below

```
int main(void)
{
    char *p;
    while(i<50)
```

```
    p++;
    return p;
}
```

Round 2:

- Project details deeply
- Ipc , os schedulers
- Prioritized processes, weighted round robin
- sw wdog
- Memory management
- Mem leaks & corresponding tools
- Buffer overflows and impacts/problems from that
- Deadlock, methods to avoid, prevent, etc
- Semaphore, mutex, busy wait
- code for memcpy and problems, covering all error scenarios.

Round 3:

- Stack corruption
- Hacking through stack smashing
- Program debug
- Priority Inversion,ex
- Race conditions,ex
- Semaphore, mutex, ex
- Strcmp, pgm,ff ends it
- Arbit linked list pgm
- Memcpy pgm, possibilities like overlapped memory address copy.
- Small general DI puzzle
- Pointer subtraction

After this I was actually into my Dream Company and Happy..!!

I would sincerely Thank GeeksforGeeks very helpful in my preparation and hope this would be useful for other aspirants.

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

Hi All, Here is my interview experience with Amazon for internship. Hope it helps:

Round 1:

Online round with 20 objective questions on (Questions related to data structures, analysis of algorithms, C Language and some puzzles.) and 2 coding questions in 90 minutes

Write a program to reverse k alternate nodes of a linked list

Ex: 1->2->3->4->5->6->7->8->9

If k is 3 Output should be: 3->2->1->6->5->4->9->8->7

Given a string. Write a program to form a string with first character of all words.

Ex: The bucket is full of water

Output: T bifow

Check all edge and corner cases.

Round 2: Face to face round

Given a binary tree. Modify it in such a way that after modification you can have a preorder traversal of it using only right pointers. During modification you can use right as well as left pointers. Write complete code and dry run it for some test cases.

Given 2 linked lists. Find out if they intersect or not. If yes, find intersection point .Write complete code for it.

I could not remember the simple way: find the length of the lists and simply move forward the shorter list by difference of the lengths and find the intersection point.

Instead, I joined the end of first list at the end of the 2nd list and then went for cycle finding by Floyd Cycle finding Algorithm. Although both are $O(n)$, but he was impressed as it was a new approach.

Round 3: Face to face round

Given a sorted array of 0's and 1's. Find out the no. of 0's in it. Write recursive, iterative versions of the code and check for all test cases.

Spiral level order traversal without using extra variable for detecting level (using one stack and one queue) and few other implementations as well.

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In each round they ask me why I want to join amazon, why I am leaving my previous company with such a short span(around 2.5 months) and project stuff.

Interviewers were quite friendly. They would explain you till the point you fully don't understand. And even while discussing approach and solving, they would clear your doubts if any.

Online Test on InterviewStreet

1. Given 2 string , find whether 2nd is sub-string of 1st or not. (it would be great if you solve with KMP)
2. Given 2 rectangles , find whether they are overlapping or not.
3. Given list of coins with various values (unlimited coins of each type) , find how many ways you can make a given value. (DP was expected.) Since it was not guaranteed that coin of value 1 would be present , we have to return -1 if the given value is not possible.

All rounds on same day.

1st f2f:

First I was asked to introduce myself and give a brief over my projects. Latter he asked me to explain any one of my project and the hardest task I have done.

We have used infix to post fix and postfix evaluation for our generic search expression's evaluation. Here we had a lot of discussion on why conversion from infix to post-fix was needed and all.

1. Given a String s and int r , first fill each character row wise and print column wise.

for e.g. String s = "abcdefgh" and r = 3

so filling column wise would give :

a d g

b e h

c f

and final ans would be adgbbehcf.

he just wanted the exact output. Internally how we handle string was not concern.

2. given a string or say number .. for e.g. 134 now with each number , as per mobile's keypad , some letters would be associated.

here 1 –> abc , 3->ghi, 4 ->jkl . So we should print all the permutation such that we take 1 character from each of the number.

input number can be of any arbitrary length.

lets say each digit has m numbers associated , then for the input of length n , we need to generate n^m possible strings.

Took a map of which would return all the letters for the number. solved it using recursion. its quite similar to permutation of string. .

Interviewer seemed quite impressed here.

2nd f2f

1. Find integer part of sqrt of given number. Initially I gave $O(\sqrt{n})$ solution. Later

solved with binary search($O(\log n)$).

2. Given an array of integers. replace each number with next higher number on its right side , which is nearer.(if not present than keep it as it is.)

for e.g. input – > 3 4 6 1

output->4 6 6 1

I suggested we can traverse from right side , we will take extra array ($O(n)$ space complexity here) and in that array , we would store index of next higher nearer number. so it would be like

```
if (a[i] < a[i+1]
    then store i+1;
else
    traverse using index stored in auxiliary array
```

Since we needed extra space to store indexes, he asked that the input is array of a structure which has number and higher Index, 2 fields. So that we don't need extra space and extra traversal.

```
class Node {
    int val;
    int higher;
}
```

He was very interested to see how i keep track of indexes and how i traverse between them. It is $O(n)$ with $O(1)$ space complexity. (when we have $a[i] > a[i+1]$ we don't do linear search , but we jump using the indexes, so its not $O(n^2)$) It was hard to convince him on complexity.

3. given a binary tree. connect all the node at the same level. each node would have left,right and nextSibling pointers. we need to fill nextSibling.

solved with level order traversal . Similar to BFS on tree with queue. Only approach was needed, no code for this one.

3rd f2f (Hiring Manager)

1. It was a design question. You have to design a game. it has different types of monsters and different weapons. hero would shoot monster. each monster would have some initial health. Each weapon would do some predefined damage to monster. when its health gets 0, monster would die/disappear. and there would be multiple levels. based on level, monster and their behavior would change.

2. Given a read only linked list with next and random pointer , clone the list. I told him that i know the solution and explained him the approach. It was with the use of hashmap and takes $O(N)$ extra space. Then he ask me whether I know a $O(1)$ space solution, since I didn't knew, i was told to solve this. With this , he told that I can modify link list.

Initially I struggled, but with his help, in the end came up with working code. He was looking fine with implementation.

Here I ask about the work culture and the process being followed at amazon.I ask lot of questions regarding tools and technology they use. Since I had work on scrum model , it was quite interesting. He seemed to be impressed here.

4th f2f(Dev Manager)

- Given 2 sorted linked list , merge them into single sorted list. Change the pointers, don't copy data. (same as merge part of mergesort on SLL)
- Given binary tree, connect all the nodes which are in same column. 1 caveat was that same 1 node can have 2 parents. Here as in example, node 7 is being pointed by 2 and 6.

Solved it using level order traversal. Used a Map : columNo, Node. it would store the last visited node of that column. So whenever we visit a node, first we check if its corresponding column is present in hashmap. if not , it means its the first node of column, put into map. if the column present , then we will get the node stored in map and current node would be its nextVerticleSibling. and we update the map.

He deed the dry run with example and code and he was OK with final approach.



Finally after two days, I got call from HR that I am selected 😊

Many Many congratulations to the Priyank. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

Hi All. Here is my interview experience for internship at Amazon.

Position: 2-Month Intern

No. of Rounds: 1 Online + 2 PI (2 F2F)

Round 1: (90 minutes)

20 MCQs and 2 coding questions

There were 20 MCQs based on C output, probability, basic maths, OOPS, algorithm analysis and Operating Systems.

Question 1: Given a linked list, write a function to reverse every k nodes (where k is an input to the function).

Example:

Inputs: 1->2->3->4->5->6->7->8->NULL and k = 3

Output: 3->2->1->6->5->4->8->7->NULL.

Inputs: 1->2->3->4->5->6->7->8->NULL and k = 5

Output: 5->4->3->2->1->8->7->6->NULL.

Question 2: Given a string containing words separated by arbitrary number of spaces.

Write a function that returns a string consisting of the first letter of each word. (Note: there may be any number of spaces at the starting of the given string, at the end of the given string or in between words of the string.)

Example:

Input: " this is a test case "

Output: tiatc

(Function prototypes and main was given for both the questions. Although many solutions passed the initial test cases, they were rejected later as they did not satisfy boundary cases.)

Round 2: (face to face) (1 hour 20 min)

Question 1: Given two numbers represented by two linked lists, write a function that returns sum list. The sum list is linked list representation of addition of two input numbers.

Example

Input:

First List: 5->6->3 // represents number 563

Second List: 8->4->2 // represents number 842

Output

Resultant list: 1->4->0->5 // represents number 1405

I reversed the linked lists and simply added the corresponding nodes along with the carry. Then he asked me to solve the question without reversing the list. Then I solved the question iteratively without reversing the lists.

The interviewer then asked me to write a recursive code for the same problem.

After that he asked me to modify the code so that the carry at each place is passed by value instead of using pointers(which I had used in my code).

Question 2: iterative and recursive code to reverse a linked list(Take Care of corner cases: when list has no nodes or contains a single node)

Question 3: Write a function to check whether a binary tree is a sub-tree of another binary tree (Check for all corner cases).

I solved it in $O(n^2)$ time complexity. He did not ask me to optimize my code.

Question 4: Which data structure would you use to keep records of stock market?

I asked him to clarify the problem statement.

He then asked me : Suppose you have to maintain the stock values of various companies during various periods and return minimum stock value of a particular company over a given period of time.

I answered segment tree (Probably the correct answer was queue data structure). However the interviewer proceeded with questions on segment tree.

He asked me to write a code for

- a) Creating a segment tree
- b) Performing range minimum query in a segment tree
- c) Updating the segment tree

He asked me to analyze the time complexity for building the segment tree and performing the range minimum query in the segment tree.

He then asked me: If you are to maintain the stock value of a company for the past 6 months..then you have to update the segment tree every day by deleting a stock value and inserting a new stock value. How would you do that?

Here I got stuck and could not perform the updation in better than $O(n)$ time.(However using queue it can be performed in $O(1)$ time) .

He finally asked me if I had any questions.

Round 3: (face to face) (20 min)

Only one technical question was asked to me in this round.

a) He asked me to speak something about myself and my technical achievements..

b) How to store a binary tree in a file & then read back.(It is not necessarily a BST)
First I answered that I would store level-order traversal of the tree.

He then asked me how I would maintain the nodes at various levels (which I was unable to answer). So, I changed my approach and told that: I would store in-order and pre-order traversals of the tree from which the original tree can be easily retrieved.

But then he told me to optimize my approach (As this approach would require twice the original space to store the data in the nodes). I could not further optimize my approach (However the better approach was to use parenthesization).

A

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If this is the binary tree then it can be stored as (A(B(D),(E)),(C)) in the file.)

c) Then there was a 10 min discussion my project , the problems I encountered and how I solved them.

d) Finally he asked me if I had any questions.

I asked about the intern projects at Amazon and the use of DBMS and NETWORKING in it.

He started elaborating the entire work-process at Amazon and his work-experience.....most of which I could hardly understand. He also told me to have a good knowledge of JAVA as it will be required at some stage during the projects.

Finally I got selected.

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

139. [TopTalent.in] Hacker with a Heart – Interview with Google Hall Of Fame Member, Mohit Sahu from NIT Raipur



It's not everyday that you see a young under grad getting inducted into Google hall of fame. Yes, Mohit Sahu is indeed someone special. He owns a couple of startups, an NGO, takes guest lectures on web security and gets inducted into web security hall of fame of top companies every now and then. Mohit considers himself a geek and doesn't have a liking towards sports and other external activities; though he loves computer games. "When I am away from my computer, I visit new places and spend time with orphans" says the compassionate hacker. We at TopTalent had a fireside chat with this Google Hall of fame member. So, read on to know more about Mohit and what it takes to be an ethical hacker.

1. Could you give us a brief description about yourself?

Mohit: I am a simple guy from a small town in Raigarh, from a middle class family. I had done my schooling from various schools, including govt. school and from Hindi medium. After schooling, I joined NIT Raipur in Mining engineering. It was tough for me to choose any other field as career option as I was only aware about public sector jobs at that time. Joining NIT Raipur, was one of the best decisions of my life.

2. Congratulations on your induction to Google Hall of Fame. Could you share with us how it happened?

Mohit: Thanks a lot, frankly speaking it was luck. I was searching for bugs in Google, I got some bugs which some other researcher had already submitted as these are common for a bug hunter. So one day I got to know about a contest thinkwithgoogle.com for NGOs. By searching more I was able to find out other domains of thinkwithgoogle.com, then during this finding, I found a bug in Google shopping which was very critical. I reported all this to Google security team. I was already in Google security hall of fame in honorable mention, for bugs I have reported earlier. But for above bugs they replied and I got bounty money and also got my name listed in rewards section. I am not a bug hunter, I do it in free time. Basically I love to research over web app security and I found that bug bounty is good way to sharpen your skills and also get some penny.

3. What are your major achievements ?

Mohit: I am inducted into web security hall of fame of multiple companies like Google, Yahoo!, Microsoft, Nokia, Apple, Blackberry, got some rewards from Paypal and few more. We have recently received projects from NTPC, SBI and many other local projects too. Frankly, I don't consider these as my major achievements, because I believe my major ones are yet to come.

4. Coming from a mining major, how did you come across hacking?

Mohit: Well, I like exploring things and I started participating in many college events. One of them was a tech fest by IIT KGP. My first one actually, and it changed my whole vision. I attended a workshop on hacking and I was so attracted towards it. Exploring technology was always fun for me. So here my journey begins, I started hacking accounts on Orkut, at that time Facebook was not much popular. I got connections to many hackers via "underground hacking community" on Orkut. I made a habit of reading mostly tech blogs and all I was doing was helping Google, who assisted in gaining more knowledge. This was taking a lot of time, so I started bunking classes, and sometimes even exams. May be it was worth it. I don't suggest others to do it this way but it worked for me.

5. How difficult is it for a non CS student to master this field?

Mohit: For me, it was quite difficult to handle both my college life and virtual life (hacking career). I didn't get much time to learn languages and there was no proper guidance by anyone as Google was the only source. As I said before, it was my passion to explore things from my school days, so being a non CS/IT student it needs a little more effort but anyone can master this field. First thing, one has to be learning programming languages and also allot lot of time for research. While choosing this as a career option one has to focus completely.

6. As a country producing the highest number of software professionals, how

good are we doing in the areas of information and web security ?

Mohit: I would like to give an example here. When I was taking a seminar, I was shocked to know that even university passed out students didn't know anything about ongoing technologies and their university syllabus was completely outdated. This is the case with not just this college but most ones. Indian brains are really sharp but are not being used in the right direction. Universities should update their syllabus regularly otherwise, it will be hard for our students to compete with their foreign counterparts. We lack awareness and encouragement. So, we need to make people aware, update ourselves, promote security related fields and most importantly encourage innovation.

7. What is the significance of cyber security these days. What are opportunities for TopTalent from a career perspective in this field ?

Mohit: For any company security plays a very important role, it could be for webapp users or network users; we should be concerned about security. User count for facebook, twitter and other social networking sites is increasing day by day. All financial transactions are going over the air, so if this increasing functionality makes things easier, then security loopholes are also bound to increase. Due to open source, it is easy for a hacker to exploit any technology. We have lots of opportunities in both web and network fields . We can make our career in web application security, penetration testing , network penetration testing, wifi security audits, exploit development and many more. Being a programmer is good, but being a secure coder is much better.

8. Most Top Colleges in India offer various courses and electives on Cryptography and Information security, what else do you think should be done to improve the status quo?

Mohit: Course curriculum as I have seen in some colleges generally are theory based which is of very less use. In real life situations, students fail to code a single good program in a given time. I have observed that being a hacker, people learn to explore technology and learn a lot more than simple procedure based coding. Students should be given some unique and real life projects rather than old ones with no objective. It is easy to get code online and there ends the motivation for a me too type of project. Indian Universities should also offer some good courses like the MOOCs offered by American Universities.

9. What is the objective of your NGO and the motivation behind launching it?

Mohit: Our NGO "Chhattisgarh Infosec Society" founded by me and my brother Shubham Sahu, is a first of its own kind in our state for cyber security and awareness. As I am interested in social work, I thought working for cyber security awareness would be a good way to start. We give seminars in schools and colleges, take workshops, help people via social media. I do all the work by myself with full support from people like Mr. Prakash Bajaj. Our motto is to make India a secure cyber space by providing free security to some websites, restore hacked sites, give free training on cyber security etc.

10. Your advice to students and aspiring hackers

Mohit: For students, please don't rely on college courses, work on current problem and try to do something innovative. Follow your passion and make that your profession. For hackers, "Be Ethical" because its we who can make our country a better and secure cyber space. Learn as much as possible from your peers and seniors, this is what makes a college unique and wonderful.

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140. Flipkart Interview | Set 1 (For SDE 2)

Hi, I was interviewed for Flipkart SDE 2 role 2 months back. I want to share interview experience with other geeks.

Telephonic Interview (45 minutes)

- (1) There is a stream of characters and at any time we need to find and remove (means set occurrence = 0) character which has maximum occurrence till now. Design data structure and algorithm for same. (I used standard Heap and Hash table setup, then was asked if we can replace $\lg(n)$ Heap operations with some efficient operation in practical scenario. I came up with doubly linked list and moving character to front on basis of its occurrences).
- (2) Given a gold mine of $n*m$ dimension. Each field in this mine contains an integer which is amount of gold in tons. Initially miner is in first column but could be at any row i . He can move only (right $>$, right up $/$, right down \backslash). Find out maximum amount of gold he can collect and path followed by him.
- (3) Given two string str and pat. Find minimum window in str which contains all characters from string pat.

Problem Solving Round: (1 hour 30 minutes)

- (1) Given a dictionary of unknown language and characters. Find out order between characters.

Example :

ab

bcd

ce

de

Output : a, b, c, d, e

(2) Given two trees, superimpose them. If not possible to superimpose raise exception.

Example:

2 / 1 5 / 1	2 \\ 5 2 \\ 5	=>	2 / \\\br/>1 5
		=>	Not superimposable

(3) Given a review paragraph and keywords, find minimum length snippet from paragraph which contains all keywords in any order.

(4) Extended question 3 if there are millions of review, what preprocessing step would you do.

Coding Round: (1 hour 30 minutes)

Given list of expressions:

a = 10

b = a++

c = a + b

d = c*b + a*c

Print out value of last variable (in our example, it is d). First illustrate algorithm and then code in 1 hour.

Managerial Round: (1 hour)

Designing of all previous products I have worked on.

Design Round: (1 hour)

Design Snake and Ladder game.

Expose api to outer world.

Build following from exposed api:

(1) iOS app

(2) Web app

(3) Desktop app

HR Round: (15 minutes)

Why would you join Flipkart if you would have offer from Google and Facebook?

Why you want to join Flipkart?

After few days I received offer. Thank you Geeks as reading geeksforgeeks was wonderful and great learning experience and helped in preparation for interview.

Many Many congratulations to the Author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to

contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

141. Drishti-Soft Solutions Interview | Set 1

Location: Guagaon

Position: Software Developer

I decided to write this post because when I was preparing, I didn't find any help on google about the interview process by Drishti-soft, so I thought that since I bagged the job I might as well help those who are like me in a similar situation 😊 .

So, when Drishti came to my college I didn't know anything about the company nor even heard of it before even though one of our senior got placed in it. Well it came with a big package so I was sure I was gonna sit for it since the package was lucrative and it was a technical company which is my type.

First round started and since I was on time I found a seat near one of my friends. First they made us fill some forms including some feedback forms and personal details after that using our Facebook ID they made us login and told us to start the test.

1st round : 2 Tests : aptitude MCQ and coding MCQ.

I feel like the questions were good so needed more time than which was given to us. Well as they were no negative marking I tried to answer as much I can. Some of them based solely on my gut feeling In coding MCQs, questions were of medium size codes and we had to check for error/output for it. Some questions also asked about time complexity as well. In coding MCQ also I personally felt time given was less but was challenging.

After first round they gave us a PPT for their company which was one of the best ppts I had till now and the work ethics they had I liked them a lot. Those were like of what I thought of my dream company to be like and only difference was my dream company is a Game Development Company and the motivation speech about career guidance was so good it motivated me a lot. Most of the things they said were the things I think are right so I started to like them and started to develop a genuine interest in the company.

Result of first round came. I was playing DOTA 2 at that time which I do most of the time so I missed the results but luckily Shailesh Gupta, told me I cleared 1st round. I checked and went running to the Computer center for the next round with just a pen and in my mind I was thinking that since I was late they wouldn't let me sit for the second round. When I reached there they were cool about it and they tried to find me a place but in the lab where test was taking place, there was no PC available so they asked me bring a laptop or find one. I could not go back to my hall to get one and no one else brought

there laptop so they made me sit separately in another lab where I was the only one who was giving the 2nd round.

2nd Round: Subjective Coding round : 5 Coding questions :-3 of 1 marks and 2 of 3 marks

Q 1: Check that the number can be divided by the sum of its digit. (Easy as it can be)

Q 2: A girl counting on her left hand's fingers, u need to tell on which finger she will stop for a giving number. Counting was like 1-thumb, 2-index finger , 3-middle finger, 4-ring finger,5-little finger then 6-ring, 7-middle , 8-index, 9 thumb , 10 -index and so on ..(easy like hell)

Q 3: Gcd of two numbers (again ...))

Q 4: Remove duplicate from a sorted linked list . (was easy and as linked list was already sorted so it become more easy)

Till now all question i find were easy did these in 20-30 min, I had almost 1 hr left.

Q 5: given an array using in-place operation u have to put odd number in odd indexes and even number in even indexes. Assume array of even length and half of it will be even numbers (seems easy but as u cannot use another array and the order of number should not be change it was a good question took me while to implement the solution i think of)

Next round was in in their office in Gurgaon. They told us to take reservation in Tier-3 and all transportation expenditure will be compensated. Out of the 9 people selected, 7 of us were there, as we reached there sooner than scheduled so our interview also started 1 day earlier.

3rd Round : F2F coding round:

I was expecting an interview but when the sir came he asked my name and started giving problems. This round was 4-5 Hr long start at 5pm end up at around 10pm. I don't remember all the questions. Here is what I remember, you have to write code on paper:

Q : Given an array of size $(b-a+1)$ with number from a to b in sorted form. One number is two times. You have to find out the missing number.

Q : Given a sorted 2D array, find a number in a it. I knew the question but don't remember even a single solution. I tried a binary search in a 2D array but failed with it then gave a solution which choose direction and move in it. my solution was not that efficient but i did what i can .

Q: Given a binary tree, make a linked-list out of the leaf node of that tree. easy did this one in 5 min .

Q: Given 2D array with weight in each box, u have to move find minimum weight (total weight & $gt;=0$) in the shortest path (path can be a long one but weight should be minimum) between 2 point given to you.

Q: <http://www.spoj.com/problems/ACODE/>

4 selected out of 7 after the 3rd round

4th Round: F2F analytic round: this was the hardest round I faced in my life!!!

Q. Pipe one fills a tank in 15 hr another fills in 20 hr (time could have been different) and 3rd empty in X hr. if all work together tell the max value of X for which tank will never be

full. (easy :P)

Q. 13.1.13 is special because date*month =year find the year in this century which have max no of such dates. (I think answer is 24) NOW the HARD q comes

Q. 9 student have either back or white cap on them (cant talk to each other) black >white>1 teacher gave them 20 min no one answer then teacher gave them 10 min no one answered then teacher gave them 5 min all of them gave the answer. (gave many hints before I could answer)

Q. You have 2 ball of each A,B,C colors and each color have 1 light and 1 heavy ball. all light are same weight same goes for heavy. using balance (Scale) min time how u find weight type of each ball. (first time for me gave me lots of hints a lot then it was like he solved it for me it was already past 00:00 of night now)

Q. There on a island there are 13 A,15 B,17 C animal if two of different type combine 3rd one is created . can there be a time when only one kind of animal remains? (again he gave a lot of hints till i was able to solve it)

Q. There are 3 doors 1 of them have money other 2 have nothing if first we let u choose 1 door and then open one of the other u didn't choose and show u it have nothing behind u. Now i will let u change what u choose will u change ur choice and choose the one door which is left or stick with your door.

3 out of 4 left now.

5th round: HR round which was hard for me as I am not that social and weak in communication but as I went for the next round after 30 min I assume I passed HR round too or may be they considered both the 5th and 6th together.

The final and most important round was about the work you have done during your college such as project work and vocational training.

6th round:Project discussion and puzzle round Sir told me about him self and asked me about my interests then he asked about the project which I had done. They did not ask many any puzzle but they asked the 2 others before me. I explained my java UI project I did in summer. He seems quite pleased by what I know. Then asked me some network questions to check that I can answer questions from other topic other than programming.

Q. Public-key cryptography and

Q. question related to Certificate authority.

He asked these when i answered some of his question about my web project and the database I used in it.

3rd round : 4.5 hr

4th round : 3.5 hr (ended at 1:20 am !!)

5th round :1.5 hr

6th round: 2.5 hr (ended at 12:30 am)

Next day the results were announced and in the end I and another guy from my college got the job .

Key to get this job offer : You must be a real geek and not someone who is pretending to be one solely for the job. 12-14 hrs of interview will tell them everything about you whether you like it or not.

I am really thrilled about the work I will be doing there and can't wait to get started. I have an exciting future ahead of me 😊

Source: <http://sunilkumarsheoran.blogspot.in/2013/11/interview-for-drishti-soft-solutions.html>

Many Many congratulations to the Author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

142. [TopTalent.in] What it takes to be a Googler? An Interview with Google's recent hire Romal Thoppilan



There is a myth that only grads with high CGPA land in high paying dream companies. Despite his average grades, Romal with his extraordinary coding talent and determination succeeded in getting a job offer from Google. "I would like to create something disruptive in the fields of Data Science and Mining, and I believe Google is the right place to start my career," says the myth buster. We at TopTalent.in got a chance to interact with him about what made this possible and what others can learn from this.

In case you are wondering how the resume of a Google recruit looks like, you can [download](#) the resume by logging in.

TopTalent : Could you briefly describe your student days at BITS Pilani ?

Romal : I always considered myself fortunate to be pursuing my degree at BITS Pilani. The curriculum here is quite flexible giving enough scope to nurture your interests apart from academics. I tried to make the most of it by being able to complete few higher degree courses in undergrad itself. The faculty here is pretty knowledgeable, I spent some great time working along with them in projects. Also the students here share great enthusiasm towards their career and play a big role in your development.

TopTalent : What makes Google special?

Romal : Google certainly ranks among the top companies to work at and the quality of the products and services they offer is well known. Also working in Google allows one to pursue his own interest along, since Google has such wide ranges of projects to offer. The work environment and the culture there adds every bit of fun to it.

TopTalent : How much preparation did you put in to bag this opportunity?

Romal : Unlike most others, I took my time off. My primary objective was to complete and furnish off some of my incomplete projects, so that I could be confident about them during placements. For programming, I used to practice codeforces problems. The contests it organizes contains a real good mix of mathematical, logical and algorithmic problems, and poses an environment much similar to coding rounds during placements. Besides, I had completed most of the algorithms from Cormen and then shifted to GeekForGeeks to refer to past years interview experiences.

TopTalent : Can you describe the complete hiring process of Google?

Romal : The whole hiring process was pretty smooth actually. It had one written round based on your overall knowledge of the field which basically had a few aptitude and coding questions. The shortlist was announced after two weeks and we were called for an on-site interview at its Bangalore office. Then followed four back-to-back interviews, mostly algorithmic. We were allowed to write the code through whichever medium we were comfortable with. I toggled through all – pen, board and online editor. There was very little delay and the accommodation and food were pretty good. Finally within a week, I got the CALL!

TopTalent : What topics do you think students should prepare for similar jobs like that of yours?

Romal : Firstly, they should have regular coding practice as most companies now prefer using coding rounds for shortlisting. The problems asked normally don't require any deep knowledge of algorithms. They are to test your speed and logical thinking. Then comes personal interviews. Most of the companies prefer asking algorithmic problems. However, these questions could indirectly test your basics around other topics like operating systems and database management system as well. Mostly if your basics are clear, they look at the way you think and reach the solution.

TopTalent : From your experience, what are some of the important factors that the interviewers will be looking out for?

Romal : Many believe that interview questions keep on repeating every year so they could just mug up everything to clear such interviews. This brute force way doesn't even work out for regular jobs let alone Dream Companies. In one of my interviews, the interviewer asked me a question which I had never seen before. When I finished reading the problem, he asked me to speak out everything that came to my mind and to not stop speaking till I reach some solution. Luckily for me, I did arrive at some solution. It was a mind boggling experience. These kind of interviews end up testing your thinking abilities

more than anything. For Jobs like the one I am going to join, strong basics in algorithms and critical reasoning skills are essential. These are the two most important qualities that interviewers will be looking in you. *The answer impresses nobody, the way you reach there is what matters.*

TopTalent : What role does resume and CGPA play for applying to such jobs?

Romal : Resume serves two purposes. Firstly, getting you shortlisted for the interviews and secondly, to give a brief idea of the things you have been working around and are comfortable with. This generally guides the interviewer to choose what to ask and what not to ask from. I personally referred to '*Cracking the coding Interview*' for building my own resume. It contains a number of Do's and Dont's.

CGPA was never a thing to boast about in my resume. For most of the companies it just plays a role in the initial shortlisting. However for research based companies your CG does play a significant role. Though a high CG is a good thing to have, its just an indicative of how disciplined you are rather than a measure of your talent.

TopTalent : Would you like to share something exclusively for job seekers from elite colleges ?

Romal : Do not restrict yourself to some specific domain or subject, at least not at the undergrad level, but always have an overall sight of things and how they interrelate. Follow your interests and be good at it. Make most of the opportunities you get to learn as a part of your curriculum or through other online sources. And do possess a go-code mindset.

This article is powered by **TopTalent.in** - A high end Job portal for students and alumni of Premier Colleges in India. Sign up now for free exclusive access to top notch jobs in India and abroad. Get in touch with them via [facebook](#), [twitter](#) or [linkedin](#). If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

143. Flipkart Interview | Set 2 (For SDE 1)

Hi, I had Flipkart interviews for SDE 1. I would like to share my experience.

Online Coding Round (1 hour 30 minutes):

On interviewstreet, there were 2 problems.

- 1) It was long description for a DNA problem. Main DNA sequence(a string) is given (let say strDNA) and another string to search for(let say strPat). You have to find the

minimum length window in strDNA where strPat is subsequence.

2) There is a zoo and there are several groups(number of groups:K) of people for tour. Each group is having different size (g1,g2,g3...gK). There is one bus with capacity C. Journey starts from a point and bus will come back to the same point. A group can only be included in the bus if all the members of the groups can be accumulated in bus. After coming back from the tour, each group in the bus will again wait in the queue at the bus-stand. Bus-driver earns a rupee for each person travelled. You have to find the earning of the bus driver after R rounds.

For example :

Number of groups G = 4

Group size for each group : 2 4 3 5

Bus capacity : 7

Number of rounds R : 4

queue : (from front side) 2 4 3 5

First round : 2 4 (we can't take 3rd group as 3 members can't be accumulated after 2 and 4.)

queue : 3 5 2 4 (1st and 2nd group are enqueued. i.e. 2 and 4)

Second round : 3

queue : 5 2 4 3

Third Round : 5 2

queue : 4 3 5 2

Fourth Round : 4 3

After 4 rounds, total earning is $6+3+7+7 = 23$.

Coding round 1 (1 hour) :

Input :

List of edges are given in the format (source,destination) \rightarrow (s1,d1) (s2,d2)...

There are some error codes with priority.

1 – Loop

2 – Multiple roots

3 – More than two children

Output :

Indicate the error (considering the priority) in case of any error and exit the program.

Print the tree structure in the bracket notation in case of no errors.

(e.g. (A(B(D)(E))(C(F)(G))) .. Here A is root. B and C are children of A. D and E are children of B. F and G are children of C.)

Coding round 2 (1 hour) :

Design and code the sudoku solver.

Coding round 3 (on skype) (1 hour 15 minutes) :

There were two problems.

- 1) A document and a list of words are given. You have to find minimum length window in the document where all the words can be found.
- 2) 2-D matrix is given where each cell represents height of cell. Water can flow from cell with higher height to lower one. A basin is when there is no cell with lower height in the neighbours (left,right,up,down,diagonal). You have to find maximum size basin block.

Example :

```
9 9 9 8 7 7  
8 8 7 7 7 8  
8 8 8 7 7 7  
8 8 8 9 9 9  
8 8 8 7 7 7  
4 4 5 5 5 5  
5 5 5 6 6 7  
5 5 5 8 8 6
```

Here there are two basins.

```
9 9 9 8 7 7  
8 8 7 7 7 8  
8 8 8 7 7 7  
8 8 8 9 9 9  
8 8 8 7 7 7  
4 4 5 5 5 5  
5 5 5 6 6 7  
5 5 5 8 8 6
```

Maximum basin block size : 8

HR+Technical interview (on skype) (1 hour)

- HR questions (strengths, weaknesses, why flipkart ?, what kind of env. you like for work ? etc.)
- Projects (I explained 2 projects from start to end. They asked me challenges and how you dealt with them etc.)
- Multithreading and its examples

After few days, I got an offer 😊(:). Thank you so much geeksforgeeks for great help. It was awesome experience. It totally changed my thought process by solving the programming problems level by level and with deep understanding of solution for each problem. Many Many congratulations to the Author.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

144. Citrix Interview | Set 1

I had my citrix interview on campus. I would like to share my experience.

Written Round:

Section 1: 50 MCQs in 1 hour duration.

There were very basic questions of C, C++, OS, Networking, and Aptitude all mixed.

Section 2: 3 coding question on basic data structures and algorithms. Use of STL wasn't allowed.

1. Print a 'Y' shaped pattern from asterisks in n number of lines.
2. Level-order traversal of k-ary tree. Print all levels line by line.
3. Implement an LRU cache. (Prototypes were there to implement).

Interview Rounds:

First Round (Technical):

1. Questions on my project such as tables, UI, Platform used etc. Some questions on BigData.
2. How to implement Apache server? Write code for http server. What is difference between http and https? What is difference between GET and POST method?
3. How to implement STL map? I implemented with AVL tree (RB-Tree would be better). Then some questions on AVL tree and RB-Tree.
4. What is singleton design pattern? Its implementation. Race condition in this pattern and how to remove it.
5. What is multithreading? How is it implemented? User-level and Kernel-level threads. What their advantages and disadvantages?
6. What is race condition? Implement a C function with race condition.

7. Some questions on Inter Process communication.

8. Solution of Producer Consumer Problem.

Second Round (Technical):

1. Starting and ending co-ordinates of one-dimensional line segments are given. Find the co-ordinates of longest line segment that can be formed from these segments. Write two functions addSegment() and findMaxSegment(). He asked me to write a perfect C code.
2. What is flow control in TCP?
3. What is virtual memory? What are the advantages of it? If we have infinite RAM then should we use virtual memory or not and why?

Third Round (Managerial):

It was taken by production manager.

1. Puzzle: 1 out of 12 identical balls is faulty. It may be heavier or lighter. Identify it with simple-balance in minimum no. of weightings.
2. Biggest technical problem solved. Area of Interest. Want to be a developer or tester.
3. Some regular HR questions like where do u see yourself after 10 years etc. .

Fourth Round (HR Round):

It was taken by Recruiting manager. Some regular HR questions were asked like strength, weaknesses, leadership skills etc.

After few hours I got an offer 😊 :). It was a great experience. Interviewers were very friendly and they just wanted the logics instead of actual syntax. To crack citrix interview conceptual knowledge of various computer science subjects like OS, Networking, Algorithms, OOPs is important. Thanks to geeksforgeeks for providing such a great platform to practice and learn various concepts.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

145. Amazon Interview | Set 54 (On Campus for SDE)

Hi All, I got the following question for the On-Campus placement process. Hopefully it'll help you too.

Screening Test

Q1. Left View of a tree

Q2. Add three numbers represented as linked lists

example

n1: 1->2->3

n2: 4->5

n3: 6->7->8->9

sum: 6->9->5->7

Round 1 (F2F Interview)

Connect same level nodes without level order traversal. (Code)

Given an array where all numbers but one occurs in pairs, suggest all ways to find the unique number. What if the array was sorted? (Code)

Round 2 (F2F Interview)

Print cousins of a given node (Not sibling)

Given a 20 GB file and 2GB RAM, how to parse it and detect where to break it, concepts of memory management

Implement 3 stacks in array, all approaches and code

Deepest left leaf of a binary tree

Round 3 (F2F Interview)

Longest path in a tree with just one bend. May or may not start with from the root. (Complete code)

Code for deadlock and how to resolve.

OOPS concepts, polymorphism

Round 4 (Telephonic Interview)

Check if a tree is a subtree of another. (Code)

Convert a given number to Roman numbers.

Thanks a lot to the GeeksforGeeks team again. Appreciate the hard work you guys have put. Also a big thanks to all the contributors.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

146. Yatra.com Interview | Set 1

Recently I had appeared for Yatra Interview. I would like to share my experience.

1st Round: (Technical Round)

1. Tell me about yourself and your current company work.
2. Find whether two strings are anagrams of each other or not. What would happen if strings are very large.
3. Level Order traversal of a binary tree.
4. Given an unsorted array: Print all pairs having sum equal to given sum. After solving this, question was modified NOT to print duplicate pairs.

2nd Round: (Technical Round)

1. Tell me about yourself and your current company work.
2. Find whether a binary tree is BST or NOT.
3. Design a stack with findMax() (getting maximum element from stack) in O(1).
4. Given a binary tree, find whether all leaves are at same level or not.
5. Check whether given linked list is palindrome or not. Write optimized code handling all edge cases.

3rd Round: (HR Round)

1. Normal HR Questions.
2. Difference between HashMap & LinkedHashMap.

After few days, I got the offer :D. Thanks to GeeksForGeeks for providing solutions in a very simple manner which helped me a lot in the preparation. To crack Yatra interview, Data Structures and Algorithms concepts should be clear. Knowing Java/C++ is a plus point.

Many Many congratulations to the Author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

147. Cisco Interview | Set 5

Interview consists of one written and two technical rounds followed by HR round.

Written Test : Total 50 questions

Aptitude : 20

Technical : 30

cutoff : 29 marks. aptitude – around 9,10, Technical – 22

Aptitude Questions :

[Mainly covered on topics like basic probability question, functions, propositional logic, finding number with help of statement, simple passage, basic permutation]

1. Aptitude means everyone starts with speed and distance, train problems, boats and cisterns, Time and work but here there was no questions on these topics.

2. Simple questions on conditional probability like

X having 5 chips with 1 defective, Y having 4 chips with 2 defective what is the probability of selecting 1 defective chip out of 9 chips that to from Y.

3. simple problems on Propositional logic

$p \rightarrow q \vee p \rightarrow r$ how many set of values for this logic gives true value

Ans – 7

4. two set {1,2,3,4} and {4,5} total number of elements in cartesian product of these two sets.

5. If a digit square is divided by half of the number then its quotient is divided by and it is added by 36 then.... you can search questions of this type.

6. Two white ball and 3 red ball in box a, 3 red and 4 white in box b, probability of selecting white ball from box b.

7. Simple passage questions.

Technical :

Subject – [logic design, computer networks, os, datastructure, algorithms]

1. 12,54,86,78,13 how many swaps you need if you sort this using bubble sort.

2. Which of the following are valid coding schemes

a)Manchester

b)3B/2

c)4B/2B

3. Basic theoretical question on ADC

4. Have a look on ICs like 8241,8251, question was which one comes under this group something like that

5. $ab'c + a'b'c + a'bc + a'bc'$ minimize this expression

6. question based on memory mapped i/o definition

7. simple question on synchronization

8. page replacement

9. question on thrashing concept

10. worst case n^2 and best $n \log n$ which sort ? -quick sort

11. networks – which of the following are switch forwarding approach

a) cut through b) store and forward

ans – cut through

12) have a look at switch, hub, router, bridge and osi layer

14) how many hosts u can accommodate in 192.168.1.43/21

15)os – context switch, deadlock

Technical round:

Revise OS, B.Tech or M.Tech projects, data structure,

Program to find substring.

Network questions like DNS, OSI, DHCP

OS – InterProcess communication, Process, Deadlock, Garbage collection, Algorithm –

Dijkstra's algorithm,

Datastructure – Linked list questions

Tips and books- [Gate questions](#), [Data Structure made easy by Narasimha Karumanchi](#), [Timothy J. Williams computer science MCQ](#).

Many Many congratulations to the Author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

148. Microsoft Interview | Set 21

Hi, a brief documentation of my Microsoft experience is as follows:

Group Activity:

On the evening before the interview we had a group activity round. We were given to solve one question on our own, and the other one we had to solve discussing with Microsoft mentor allotted to you.

Q1. Insert an element in a sorted circular singly linked list. Pointer to any node of the LL will be given as input

Q2. A matrix $m \times n$ is given. If a cell contains 0 (zero) make that row and column zero.

We had to discuss Q2 with Microsoft mentors. Discussion is important and they point out flaws and ask you to optimize algo.

Interview Round 1:

Q1. Asked me to solve Q2 of group activity without using extra space.

Q2. Given an array of digits, form two numbers from those digits such that sum of those two numbers are minimum

Q3. Given an array of numbers, find out the minimum distance and print all the pairs with minimum distance

Interview Round 2:

Q1. Two string S1 and S2 are given, check whether S1 is a shifted version of S2

Q2. Write KMP/ Rabin-Karp for substring matching

Q3. Given a pointer to a circular linked list, delete that node

Interview Round 3:

Q1. Given a set of rectangles of varying length and breadth, find out the maximum height stack you can form with them such that if rectangle R1 is on top of rectangle R2 then length(R1)<=length(R2) and breadth (R1)<=breadth(R2)

Q2. Given the number of braces(opening +closing), find out the number of valid combinations you can form with them.

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149. SAP Labs India | Set 1 (On Campus Interview)

Hi, A brief documentation of my SAP Labs, India interview is as follows:

Interview Round 1:

Q1. What is I of ACID properties?

Q2. What is write ahead logging in DBMS?

Q3. What are the deadlock avoidance schemes?

Q4. What is clustering index ?

Q5. There is a program which inserts and deletes node in a sorted singly linked list. There is a bug in one of the modules, how would you debug it?

Q6. What are the ways in which fault tolerance can be ensured in systems? (Different redundancy techniques)

Q7. A pair of redundant systems are operating, how would you ensure that when one of them goes down, the other one will take over its operation ?

Q8. Virtual function in C++.

Interview Round 2:

Q1. Implement the malloc() and free() operations. Give the strategy for implementation,

no coding.

Q2. What is structure padding ?

Q3. A window of size k is sliding from left to right in an array of size n, find the maximum number in the window at each window position.

Q4. Explain your project in detail especially your contribution.

HR Round:

Q1. How was the interviews ?

Q2. What is your negative point that you want to improve?

Q3. Would you like to change your domain, if yes why ?

Q4. Tell me an experience of yours in that you didn't like to do and how you handled it ?

Q5. What are you expecting from the company ?

Q6. Are you comfortable shifting base ?

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150. Goldman Sachs Interview | Set 2 (On-Campus for Analyst)

Thanks GeeksForGeeks for helping me prepare for my placements. Here's my experience.

My interview experience for Goldman Sachs (On campus process) (For analyst position, strategic division) :

Written Test:

There was a lengthy written test consisting of objective as well as subjective questions. Preparation of fundamentals of algorithms and computer science subjects would be good. In addition to that GS sets lots of questions to check your quantitative ability, so be prepared for that.

Round 1:

There were lot of puzzles(approximately 8-10). To solve the most of the puzzles you

need to be good at probability and number theory. Practicing these kind of puzzles will definitely help, but be prepared to face fresh and really challenging puzzles. No matter how well you have practiced, they will give you some puzzles which you never heard before.

Round 2:

My interviewer asked me about my projects and we discussed almost all of them. There were lot of cross questions based on the discussion. He asked me to design few systems for given problems and asked few more puzzles. Interviewer was really friendly and this interview went good.

Round 3:

Again the interviewer discussed about the projects and asked two puzzles. This round was shortest of all four.

Round 4:

This was the longest round and toughest of all four. Interviewer started with one of my project and soon moved to ask lot of designing questions. He also asked about few of the theories and models of Mathematics and Machine Learning(I had few projects on Machine Learning). He asked me few questions on DBMS as well. Then he asked me 3 more puzzles. Then he asked me few simple questions on algorithms.

All the interview rounds took approximately 40 minutes. All the interviewers at GS were very good and very helpful, so do consider the hints given by them when you are stuck at any point. To prepare for GS you have to be good at Mathematics(specially topics like probability and number theory) and very strong at your basics in Computer Science. Good Luck.

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151. Microsoft Interview | Set 22

Hi, PFB my on campus interview experience with Microsoft.

Written Test:

First round was an online test which contains 20 MCQs on C & C++. Based on this test, they shortlisted some students and the next round was taken. The next round was a coding round which had two questions:

Q1. Print last 10 lines of a very large string.

Q2. Trim all the nodes in a BST which are not in the range of (minValue, maxValue).

The codes were checked on their online compiler with their test cases.

Group Activity:

The night before the day of interview, we had a group activity round. We were given to solve one question on our own, and the other one we had to solve discussing with Microsoft mentor allotted to you.

Q1. Insert an element in a sorted circular singly linked list. Pointer to any node of the list (may be denoted as the head) and pointer to the new node will be given as input.

Generate test cases for your code. Check for all corner cases.

Q2. An MxN matrix is given. If a cell contains 0 (zero) make that row and column zero. We had to discuss this question with Microsoft mentors. Discussion was important and they pointed out flaws and ask you to optimize algo (Space complexity).

Interview Round-1:

Q1. After a brief introduction the interviewer asked me to solve the puzzle of 100 bulbs. There are 100 bulbs (initially all switched off). At i-th iteration all the switches of i's multiple are flipped. Finally, after 100 such iterations, how many bulbs will be still switched on?? I didn't know the solution. The interviewer gave me a hint. Then after doing some maths, I finally gave him the solution (Perfect squares). Then he asked me to prove it. Somehow, I proved it (I was feeling lucky :P).

Q2. In continuation to the previous question, he asked me to write a function which will take a number as input and return all of its factors. I solved it in O(sqrt(N)). Then he asked me to check whether I missed any edge case. So, I put a checking for negative numbers. He was happy with it.

Q3. Then he asked me to write the code for DFS traversal of a tree. I asked him about the tree structure. He told me to write for an N-ary tree. Did it, using a vector (C++) of children pointers. This time, I didn't miss a corner case (coz, there was almost none :P). He was happy with it.

Interview Round-2:

Interviewer was very cool and very frank. He went through my CV thoroughly asked me one question in SQL and two algorithm questions:

Q1. He gave me an Employee table with Id, Name and ManagerId columns in it and then asked me to write an SQL statement which will output all the manager names who have at least 2 subordinates under them. I know, it's very easy :P.

Q2. He asked me to write the code to clone a singly linked list with next and random pointer and told me not to worry about any space complexity. A fairly easy one. Solved it using a hash.

Q3. In continuum to the previous question, he asked me to rewrite the above code without using any hash. Did it very quickly :P. He was really happy and chatted with me for a while. I even chewed a gum after taking his permission. He was very impressed by my handwriting. Yeah you heard me right, I was feeling lucky :D.

Interview Round-3:

Interviewer was funny and he continuously asked me not shout (though, I really wasn't in a mood to shout ;)).

Q1. He asked me to write a function which will connect all the nodes in a binary tree at the same level. I told him, I knew it and explained it in brief. He was cool and asked me whether I wanted to have a new question or just write this one. I said, "As you wish". So he moved on.

Q2. He explained an use case of MS Excel: we can select multiple columns in excel file and drag them together left or right. He then asked me to write the code to implement the aforementioned scenario on arrays. The input will be, an array, left and right index of a sub-array (multiple columns) and a destination index (either in left or right of the sub-array). After scratching for a few moments, I gave him an O(n) solution with left and right shift using flip method. He was really impressed and praised my handwriting once again (God is great :)).

Q3. He quickly moved to the last question. A file with numbers from 0-9999999 (each number in a line) is given. How to sort the content. I gave him a solution with radix sort (as maximum 7 digits are possible for each number). Then he posed a constraint of very less RAM available. I discussed a modified external merge sort like algorithm with him. But then he told me to minimize the huge time taken by external merge sort. Then he gave a hint as "Use bits". So I told him, to use a 10^7 size vector (which actually uses one bit for one boolean). He was okay with it.

Finally I was HIRED !!! 😊

I am really really grateful to the geeksforgeeks team. How much I say about it, it will definitely be less. Keep up the great work 😊

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

152. Amazon Interview | Set 54 (Off-Campus For SDE-1)

It was a usual interview process by Amazon: 1 written test, 1 telephonic interview and 4

f2f interviews.

Sometimes they just want efficient algorithm and sometimes just concise and efficient production level code is required. Mostly both, algorithm and code, are asked for every question.

Interviewers were very friendly. In the first f2f interview, I was extremely nervous and stumbling in answering the first question itself, the interviewer told me not to worry and to take as much time as I want. That expression by him made me calm after some time and I was able to solve the question with ease.

Solutions to some of the problems are provided at the end of the article.

Written test(same questions as Set-53 Amazon Interview Experience):

1. Given 2 string , find whether 2nd is sub-string of 1st or not. (it would be great if you solve with KMP)
2. Given 2 rectangles , find whether they are overlapping or not.
3. Given list of coins with various values (unlimited coins of each type) , find how many ways you can make a given value. (DP was expected.) Since it was not guaranteed that coin of value 1 would be present , we have to return -1 if the given value is not possible.

Telephonic Interview:

1. You are given an array of integers. You have to find the index in array from where (sum of left elements)=(sum of right elements). The elements itself is excluded.
2. Delete a node from an unordered DLL. Algo is quite simple. Clear and concise code was required to be written.
3. Zigzag traversal of a tree. He asked me if I know this question. I said yes and we moved on to other question.
4. You are given an array of integers(positive and negative). You have to find if there exists any sequence of numbers in it which has the sum zero. If there is any print the start index else print -1.

For example: 1 2 3 -1 4 -3 2 is the array and the sequence is -1 4 -3 which returns sum as zero.

Code and algorithm, both were required.

F2F Interview 1:

1. Find the longest even length palindromic substring in a string.
2. The interviewer asked me what are the data structures I know. I told him many of them. He chose HashMap and asked many detailed questions about it.

F2F Interview 2:

-Tell me about yourself and the work you are doing currently.

1. Write power function. Eg. $2^3=8$. Optimize it as much as you can. Simple.
2. Longest path in a Binary tree.

F2F Interview 3:

-Tell me about yourself, your work, strengths and weakness, challenges you have faced in current job, why Amazon.

1. I don't remember it exactly, but it was probably : Delete a node with value K from

unordered Circular Link List. Algo is straight forward. Production level working code was required.

2. Make OO design for 2-players game of chess.

3. You have some packages and you have to decide the build order for them.

A package should be built before the packages that depend on it.

For example. A={B,C}, B={D}, C={}, D={E}, E={}, F={}

So one possible build order for package "A" is E, D, B, C, A.

You have to write a function which will take the package name and will return its build order. You have API which will return you the list of packages on which calling package depends on. For example, the API will return B and C in a list when you call it providing the parameter as package A.

F2F Interview 4:

-Tell me about your work and challenges you have faced.

1. You are given a binary tree in which every node has left, right and a next pointer. Next pointer is null initially.

You have to modify the tree in such a way that every node's next pointer will point to the next node on the same level.

O(1) space complexity code was required to be written.

Eg.



ANSWERS:

Telephonic Interview:

1. It can be a recursive procedure.

For example, for 7 3 1 4 5 6. I can write a procedure like "public int getEqualSumIndex(int index, int left_sum)"

I can call it recursively like this: int right_sum=getEqualSumIndex(index++, left_sum+arr[index])

Can have return sum like this: right_sum+arr[index];

I can compare the sum like this: left_sum==right_sum

The code is very easy to write.

4. I came up with this algo: Start from left and get sum_till_now by adding the current element. Store the sum_till_now and current index in a HashMap.

If a sum value is repeated, then there must be a sequence in the array which is giving the sum zero. (repeated sum value's corresponding index)+1 will be index of the start of the sequence summing up to zero.

F2F 1:

1. Initially I thought it was a DP problem due to its resemblance with the problem "longest palindromic substring" and tried to modify that DP solution. But since it is an O(n^2) space complexity solution, I was told to do it in O(1) space. After some time I came up with a simple iterative solution. Find two same characters in the string and then expand

its left and right as much as possible. It is an $O(n^2)$ time solution. I coded the same.

F2F 2:

2. <http://www.geeksforgeeks.org/diameter-of-a-binary-tree/>

F2F 3:

3. If you can relate it to a graph, it is actually topological sorting. Though I didn't remember the name of the sort at that time, I explained him the concept, and how we can modify DFS to get the build order. I coded the same. He told me the name of algo afterwards.

<http://www.geeksforgeeks.org/topological-sorting/>

After two days I got the call that I have been selected.

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

153. Amazon Interview | Set 55 (On-Campus)

Online Test on InterviewStreet:

18 MCQs (Normal C loop questions, networking, dbms, os, analytical)

2 Coding questions

1. Check if an undirected graph is a tree or not.

2. Given an array of integers, print the 2 elements with least absolute difference.

Interview Rounds:-

Round 1:

Tell me about yourself.

1. Given a matrix(not necessarily square) in which the elements in a row, as well in a column are sorted. Find a given integer in the matrix.

Tell the approach. And then code.

2. Given a position where a knight is placed on an $n \times n$ chessboard. Find the maximum number of knights that can be placed on the board, so that no 2 knights attack each other.

Remember that you need to just give the number of knights, not all their positions. I first could arrange $\text{ceil}(n^2/3)$ knights. Then he asked me find a better solution. Finally I got to $\text{ceil}(n^2/2)$. Then he asked me to code it. Then he asked me to remove the ceil condition(check for even and odd separately).

He asked me if I had some question for him. I asked – Amazon strives to be the most costumer centric company on earth. What, as a programmer/developer, do you do to

achieve this, because generally, the customer's problems are an issue for high level managers and planners.

Round 2:

Started with some questions from my Intern project.

1. Given a Binary Tree, replace the data of each node by the sum of data of all its descendent nodes.(Leaf nodes will have 0)
2. Given a sorted array of positive integers, find the least missing positive integer. First I gave an $O(n)$ solution. Then he asked me to optimize it. Finally I gave an $O(\log n)$ solution.
3. Given a stream of numbers, find k random numbers from them. I explained him Reservoir Sampling approach. He asked why this approach works. What is the probability of each number being selected? What is the probability of any number being selected if stream has less than k numbers(its 1).

He asked me if I had some question. I said I had one, but I already asked it to previous interviewer. He asked me if I got a satisfactory answer to it. I said the answer was very much satisfactory.

Round 3 (CS Round):

He asked me if I am comfortable with writing SQL queries. I preferred not to.

1. What is an interface? Why it is used? Give an example. What is an abstract class? Why it is used? Give example. Why 2 different concepts of interface and abstract class?
2. Do you know about singleton class? What is it? Implement a simple singleton class. I made some mistakes in making attributes static etc. He guided me and finally I corrected all bugs.
3. Given a binary tree, where each node has an extra next pointer. Fill the next pointers so that each node's next pointer points to its next sibling node. First I gave a solution where I would require a map, where each map key will be a level number, and value will be pointer to the last currently accessed node of that level. Then he asked me to do it without space. Finally I gave him a solution without space. I gave a non-recursive approach, and he asked me to code it.

Round 4(Senior SDE 3 from Seattle Office):

He told me about himself, his team, his work and his team's work.

1. Tell me about one of your challenging project/internship/class assignment.
2. Give a situation from your life where you were given a negative feedback, and how did you tackle the situation.
3. Explained me a cache situation, where, keys will be in cache, and each key will point to a string. It was LRU cache condition, and I had to implement the LRU cache. Then write a function to retrieve a string, given its key, from this cache. Retrieval should be $O(1)$ (if you give $O(n)$ retrieval, he will ask you to make it $O(1)$).

Finally got an offer !! 😊😊

While you are answering a question, clarify any doubts that come to your mind. Don't take any assumptions by yourself at all.

Keep on speaking your approach as you think. Keep speaking, if possible, even when you write code. They want to test if you really know the approach, and not just copying code. All rounds were technical and elimination. The last round has the highest weightage in their procedure. Write clean code, ask for some time if you want.

Thanks a lot to the GeeksForGeeks team for helping with interview preparations! 😊

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

154. Arista Network Interview | Set 1

Round 1 : Technical Interview

Question 1: Given a sorted doubly link list and two numbers C and K. You need to decrease the info of node with data K by C and insert the new node formed at its correct position such that the list remains sorted.

Complete working code with test cases was required .

Question 2: Given a binary tree , and two values a and b, find the shortest length between the nodes with info a and b.

Question 3: Basics of synchronization , test and set, locks, mutex. (wrote a code and kept on adding constraints ,asked if code would work in mutiprocessor, uniprocessor, multithreaded system).

Round 2 : C/C++ concepts + HR

The round began with detailed description of projects. Then, He went into the details of printf function, format string and variable arguments and asked to implement my own printf fuction.

Interviewer wrote basic C programs on shared screen and output had to be predicted.

```
Eg. 1 )  
int main(int argc , char *argv[])  
{  
    printf("%c",***+argv);  
}
```

Eg. 2)

```
int *x[N];
```

```
x=(int(*)[N])malloc(M*sizeof(*x));  
printf("%d %d",sizeof(x),sizeof(*x));
```

Eg 3) Asked significance of return statement in C.
What does '0' in return(0) means.

Eg 4) Some questions based on pointing out errors in program
(eg. modifying read only string , concepts of constant
pointer to string)

Eg 5) 10000 students are there and each student has one bit
data. how can you modify his data in O(1) time .

Eg 6) Structure Padding details .

Eg 7) <http://www.geeksforgeeks.org/struct-hack/>

Basic HR questions

Round 3 : Technical Interview

Question 1 : Given a large file which contains m rows and n columns. Given a column no, sort the column in such a way that corresponding rows also sorted.

Question 2 : Suggest a way to search in sorted link list in better than O(n) time . (Skip lists)

Question 3 : LRU cache implementation.

Question 4 : Find the mean and median of the elements such that elements are dynamically added at runtime(only approach).

Finally, Why do you want to join Arista networks.

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155. Microsoft Interview | Set 23

Written Test: First round was an online test on cocubes platform (not good for coding). This test is based on C, C++ and DS. The shortlisted students in this round were selected for next round which is coding round. Coding round had two questions:

- 1)** In a Tic-Tac-Toe game two players are playing where player 0 is denoted as 0 and player 1 is denoted as 1. Given a linked list of moves made by the players ,determine who is the winner and in how many moves he required for winning.

```
Struct Move {  
    int p;      //Player number  
    int x;      //x and y pos in the tic-tac-toe  
    int y;  
    struct Move *next;  
};
```

- 2)** Given an array if in a position let $a[i][j] = 1$ then print all it's row and column 1. You should not consider a position 1 after you made it 1 in your past computation.

Note: In this question it is asked to not use any extra space.

```
sample(input):  
(i) 00100          (ii)10  
     00000          01  
output:  
(i) 11111          (ii)11  
     00100          11
```

Group Fly/Activity:

On the day of interview just before couple of hours we had a group fly in which we will be given two simple questions. We need to discuss our approach with our mentor.

- 1)** Check if a binary tree is balanced or not.

- 2)** remove duplicates from a string inplace.

The questions in this round will generally be pretty simple but an error free(handling all boundary cases) and completely optimized code is expected. Without this, it is very difficult make to next round. Test cases were asked for each and every question below. It is important for you to cover majority of the cases.

Interview Round-1:

- 1)** Interviewer asked me to optimize the code for the question 2 in previous round (Not in terms of complexity but in terms of number of assembly instructions, time taken to execute each instruction)
- 2)** Some simple questions based on LL. Sorry I couldnt recollect 😊
- 3)** Recognize power of two using bit operations

Interview Round-2:

Here I had only one question.

- 1)** A node which has following fields

```
a) data
```

- b) next_ptr
- c) prev_ptr

can be used to represent doubly linked list, binary tree or none. Given a random pointer recognize whether it forms DLL, Binary Tree or none. I pointed out that for Binary tree root node has to be given then he asked me to assume the same.

Keep on discussing your approach with the interviewer, they will generally guide you to the solution.

Interview Round-3:

My performance in round2 was a bit shaky and this round was a kind of eliminator.

1) 2 numbers each represented by linked lists, write a function which gives difference of these numbers.

2) Consider a webpage which has a big single image and another page in which the previous image is divided into 6 parts, which one loads faster?

Now propose a solution reducing the loading time.(There are no bounds for this question to think, I proposed a solution which includes concepts from vision, networks and multimedia. The interviewer was very much impressed and immediately told me that I am going to have a next round)

Interview Round-4:

Here I had 5-6 questions. I didn't remember all the questions but you should be able to do it if you follow GeeksForGeeks.

1) Copy a linked list with next and arbit pointer.

(<http://www.geeksforgeeks.org/a-linked-list-with-next-and-arbit-pointer/>).

I told him that I knew this question, then he asked me for the approach and test cases and moved to the next question.

2) Given two sorted arrays. Second array has enough extra space to accommodate elements in first array. Give the resulting sorted array obtained by merging two arrays without using extra space.

3) Consider a binary tree for which root node and a target node are given to you. Give the next sibling of the target.(let the target be in level k, then you need to give the immediate node which is in level k)

Other questions were based on arrays, linked lists and binary trees (mixture of these).

All the interviewers were very cool, helpful etc etc... They understand our tension and try to make us feel as comfortable as possible. The first interviewer even put his arm over my shoulder during our little walk from canteen to interview room.

And yes hired!!! Thanks to GFG.

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to

contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

156. Oracle Interview | Set 3 (On-Campus)

My on campus interview experience of Oracle Server Technology.

Online Round:

At first we had an online exam for shortlisting for final interview process. This round had almost everything from English to Puzzles. Basic computer engineering concepts to advanced computer engineering concepts.

Interview Rounds:

First Round:

At first the interviewer asked me to rate myself in C/C++ skills out of 5. And 4.5 was my answer. As he was impressed by my answer, he asked me to write bug free codes for following problems in C

- 1.** Iterative post order traversal of a binary tree. (I gave him the answer with 2 stacks).
- 2.** You are given a Single Linked List containing integer key as data in every node and a head pointer pointing to the first node, you have to delete a node with a given key, you can't create any new variable. (Copy data of next node to the node which contains k and delete next node).
- 3.** You are given an integer array of size n containing elements in the range 0 to n-1. Now count the frequency of all elements.

Second Round:

Interview was started with the introduction, after the introduction he gave me some tips on how to give introduction by highlighting my interests and achievements so far.

After that we discussed my 3rd year's project for about 10 min.

The he said he is going to ask me just one question on some topics, If I succeed then he will move to the next topic. The question was::

- 1.** You are given a square matrix containing 0 or 1 in every cell. Find if all 0's or 1's make a perfect square. I asked for some clarification on this question, then he said listen and understand at once, then he simply repeated the question and gave me 5 min to come up with an algorithm and left the room. He came after 5 min and I gave him the DP solution for finding max size square made by both 0's and 1's and in 2nd run I checked if there are 0's or 1's which are not part of those max squares. He was satisfied but he actually wanted a recursive solution.

- Now the next topic was database. He gave me 2 tables and asked me to write outer join query.
- Now in operating systems he asked me to draw process state diagram, I made a little mistake so he asked me to draw PCB, then why we need separate queue for both burst and I/O processes and finally how process queues are managed in multi core processor.

Third Round:

This round was puzzle round. I was given to solve 3 puzzles one after another after I solve the previous one. Puzzles were very simple math problems like::

- There are 8 members in family. 10 years ago the total age of all members was 'x', after 3 years a member of age 60 died and a new child is born. Again after 3 year a member of age 60 died and a new child born. Find the current average of age of all members in terms of 'x'.
- Three cars A, B and C move with constant speed of 40, 60 and 120 kmph respectively. B starts 2 hours after A. Now A, B and C meet each other at same time. Find how many hours later C started from A.
- In a exam there are 50 questions. +1 for correct, -1/3 for incorrect and -1/6 for unattempting.

Shyam scored 32 in that exam. Find the minimum number of questions he must have done wrong.

HR Round:

She gone through my CV, read each and every line. Then asked me to briefly explain my projects and the work I did during my internship. Then she asked about location preference and preferred joining date. After that I asked her 2-3 questions about company.

At the end of the slot I got the offer :). It was a great experience for me. Interviewers were very friendly except for 2nd round :P. To crack Oracle interview conceptual knowledge of various computer science subjects like OS, Networking (because of my project), Algorithms and Database is important. Thanks to geeksforgeeks for providing such a great platform to practice and learn various concepts.

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

Hello everyone, I recently got selected for the internship at Microsoft IDC. GeeksForGeeks helped me a lot in preparing for the coding tests as well as for interviews. The positions that they were interviewing for were SDE and SDET(Testing).

1st Round. – Online – 30 mins

The first & second rounds were online rounds which were hosted on cocubes.com . There were 15 MCQ questions. For me most of the questions were from C++, C. For others very few questions were from microprocessors, aptitude.

2nd Round. – Online – 30 mins

This was a coding round in which two problems were given.

Problem – 1: Given a singly linked list,in which the last node points to the middle node,delete the middle node and remove the loop.

Problem – 2: Given an array of size n, find the majority element.Majority element is one which gets repeated for more than $n/2$ times.

3rd Round –Telephonic interview- 45 mins

1. Tell about yourself? [Don't tell ur fathers name, etc tell about ur Hobbies, extra-curricular activities, accomplishments, ur strengths, ambition, etc.,]
2. Tell about any challenging task that you met in your life.[I told about the difficulties met in my project, it took 30 mins]
3. Tell about your achievements.
4. What is a good coding.
5. Why do you want to work for Microsoft?
6. Any questions?[Ask some interesting questions,it is a plus]

4th Round – Interview[conducted in Bangalore IDC]-45 mins

1. Given an address of a node in a singly linked list,delete that node.
2. Find the nth node from the end of a singly linked list.
3. Check whether a binary tree is a BST.
4. About project.
5. Any questions?

5th Round – Interview[conducted in Bangalore IDC]-30 mins

1. About project
2. Why do you want to work for Microsoft?
3. What is the disadvantage that you think that gmail has?How will you overcome it?[for these types of questions if you have not used the product for which you were asked to find a disadvantage, you can tell the interviewer so that they 'll be suggesting you some other product]
4. Insert a node in a doubly linked list.
5. Any questions?

6th Round – Interview[conducted in Bangalore IDC]

1. Given a rotated array which is sorted search for an element in it.

2. Why do you want to work for Microsoft?

3. Tell about your strengths.

4. Any questions?

My tips to crack Microsoft interview:

While answering the questions remember the following:

- 1. Be yourself.**
- 2. Show excitement and interest in solving the questions.**
- 3. Think aloud.**
- 4. Clarify doubts regarding the question.Don't assume things.**
- 5. Cover all the test cases in your code.**
- 6. Don't interrupt.**
- 7. Be up-to-date about the company.This will help you in asking some interesting questions about the company.**
- 8. Don't write about things that you are not sure about in your resume.**
- 9. Enjoy the interview.Don't be nervous.**

Books and websites that I referred:

1. www.geeksforgeeks.org

2. Cracking The Coding Interview by Gayle Laakmann McDowell (a very good book) If you get selected for internship, you also have a chance to get converted into an employee over there;if you do the project given there well and if you perform well in the interviews that they will be conducting after completing your project.

All the best!!!

I would like to thank GeeksForGeeks for mainting a high quality problem set for coding tests and interviews.

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

158. D E Shaw Interview | Set 3

Round 1 : (Telephonic Interview) (45 mins)

1. Tell me about yourself.

2. OOPS Concepts like abstraction, encapsulation and examples for each.

3. Polymorphism – Static and dynamic. why the name is static and dynamic.Again With

Examples.

4. What is final keyword in Java ?

```
Ques: Suppose we have -- > final ArrayList<Object> list =  
new ArrayList<Object>();
```

Answer: Yes, it's a valid operation. We can do add/delete. The only constraint is that we can't make list to point to other ArrayList objects. e.g, we can't do list = list1.

5. What's a Dangling Pointer and how to correct this.

6. How would you get total number of words in a file (In Unix).

7. Given two strings .. you need to tell whether they are permutation of each other.
Various approaches and their complexities.

8. Given a string. You need to print first non-repeating char. I told him we would use count array, count[256].

Counter question: How would you reduce space complexity. I told him we could use Hash table. In that, we would only be needing spaces equal to number of different characters.

9. 200 storey building..One egg given (Yes, only one egg)... find from which level egg would break in number of attempts less than 200. (Still haven't got any answer for this :D)

10. Four numbers are given: 1 3 4 6 = 24. Use any mathematical operators. I asked him can i write this expression in C and run it from there to get required result. He said yeah you can.

Then i took 4 integer variables(1,3,4,6) and another integer variable result. Now, $1/3 = 0$ (C integer division). so simply $4*6$ would give me 24. Pretty simple :D. He said it's okay, but try with mathematical operators only. (No coding :D)

Answer: $(1^3) * (4*6) = 24$

Code: (It was to be sent through email)

11. Write well commented code to print Matrix in Spiral Order . Also write some test cases.

Round 2: (In-house Interview) (45 mins)

1. Discussions on Various basic concepts like What makes Java Platform Independent language, Why C is Platform dependent, difference between JDK, JRE and JVM, What's a byte code (In Java) and discussion went on like this.

2. What's a function pointer ? Where it's used. Write a code to implement the same.

3. Is it possible to have try-finally block without catch block ? And several other similar discussions on Exception Handling.

4. What's a Process ? What are various sorts of Process Scheduling Algorithms.

Design a data structure which can be efficiently used to schedule processes based on their priorities. Further they added that Priorities of some processes can change any time and we should be able to pick that process which is having maximum priority (Min Heap concept). Also there can be many processes of same priority. Some discussions on approaches.

5. What's difference between extends and implements ? Some discussions on Abstract class and Interface.

6. Why Java does NOT support Multiple Inheritance ? How we solve Diamond Ring Problem in C++ (Virtual Inheritance). How to access a specific function from a class in case of multiple inheritance ? (Ans: Using scope resolution operator)

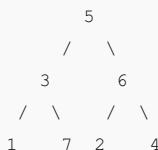
7. What's the difference between #define MAX 30 and const int max = 30.

8. What is 'register' storage class ? If we have declared any variable register and there is no free registers available, what will happen ? Will compiler throw any sort of errors/warnings ?

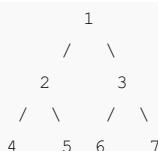
9. In C, Where can we find definition of printf(). Some discussions on header files and Process execution steps (like preprocessing, compilation, loading, linking etc).

10. Do we have destructors in Java ? Can we explicitly destroy objects in Java ?

11. Given a binary complete tree like:



Convert it into level order sorted tree like:



Code was required.

Though I did not get the offer, it was a great experience. If you want to crack DE Shaw, do have a clear concepts of whatever technology you are working on. For preparing

Java/C++, refer <http://javarevisited.blogspot.in/> & <http://www.learnCPP.com/>.

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159. Oracle Interview | Set 4 (On-Campus)

Pattern: written + 3 Tech Interview + 1HR

Type: Online

cgpa criteria: NO

Written exam Modules: 2hrs (no -ve marking)

1. Coding skills(comprehension oriented)
2. Computer science knowledge (basic)
3. Software engineering aptitude
4. Written English

Tips:

Try to get the oracle Questions from the other IIT's or NIT's , because it repeats the same.By the time IITD starts written's almost all NIT's placements get completed.

“Be individual and solve them”

Round 1: (1hr)

1. asked algorithm of Towers of Hanoi problem with 3 piles.
2. Now he changed the no. of piles to 4 for the above question.
3. Discussed the time complexity and analysis of the above algorithm.
4. gave DESIGN question “suppose if there is traffic management system database ,then if it goes into the deadlock, what happens and design such system such that it resolves many problems ”.No clear information was given and it's vague. So i explained it by using distributed system concepts. He was impressed.
5. Given an array of n integers(consider +ve and also -ve) ,find an sub array such that sum of that array s maximum.
6. aptitude: Two poles each of length 15 m are at distance d. A rope of length of 16 m is tied from the top one pole to the other. Distance between lowest point of rope and ground is 7 m. Find distance d
7. He asked me whether i know chess or not because he wanna frame a question on it. I said “NO :-p” then he skipped it.(but i know how to play chess)
8. Advantages of C language over C++ (really tough one ,as he was expecting 10 points)
9. Multi Threading , Multi Process and Context switching concepts(in depth)

10. code of Level Order traversal of binary tree and nary tree
11. Some silly Questions.
12. Major Project

Round 2: (45 min)

1. he gave me the code of lengthy C# program and asked the output of it.
2. Same as first again.
3. He gave Aptitude question(some comprehension -5 questions)— very tough
4. Tortoise and hare algorithm

Round 3:(40 min -STRESS interview)

1. Asked Course projects and requires in depth details of it.
2. He gave some comprehension type of aptitude to solve 5 sub questions of it within 5 min.
3. Gave me a puzzle. I solved it by substitution method but he started scolding me saying that why couldn't you solve it generically.
In case of my friend case, when he solved generically, he started scolding him saying that who said you to solve generically. So finally his intention was to make you feel more stressed.
4. HR related questions.

Round 4 :(30 min-HR)

Basic HR questions.

Try to make them feel like you will definitely join their company.

Source: <http://amarnath-iitd-placement-experience.blogspot.in/>

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160. DELL Interview | Set 1 (On-Campus)

Pattern : written + 2TECH + 1 HR(But for me 1Tech + 2HR)

Type : Online

Cgpa criteria : NO

Written Exam Modules : 60 questions 70 min (no -ve marking) Aptitude questions were time taking, OS, Data structure, Database and Computer Networks

Tips:

Try to read gate material from geeksforgeeks. many of the questions and concepts are from it.

"Be individual and solve them"

Shortlisting Information :

If you can answer at least 40 questions, you'll get shortlisted. They shortlisted 15 candidates for interviews and also they called 8-10 waiting list candidates for interviews.

My Interview Experience:

Round 1 : (35 min)

1. code of Inorder recursive and non recursive
2. Questions on sorting like best algorithm if u consider (no. of swaps, no. of comparisons etc)
3. Sorting words in a large file.
4. T9 Dictionary(most important question of many companies).
5. Insertion sort code (they look for each every corner cases,so better check ur code with all types of test cases and then ask the interviewer to review it)
6. course projects.

Then he asked to wait for second round.

By that time, those guys(DELL interviewers) have decided to take only 10 members and they already have the count and they were calling the selected candidates and congratulating them and for my friend they have specified the field and under whom he would be working. As the count have been reached, those guys are not interested in me, they would like to take my interview just for formal. I understood the scenario and i should create an special impression about me to get selected and increase their count.

Round 2 : (30 min Tech + HR)

Interviewer was the best guy among the other interviewers i met till now. Awesome experience with him. I felt like I was speaking to my friend and some times we were cracking jokes on each other.

Basic HR questions

1. Tell me about yourself
2. +ve's and -ve's
3. Explanation of Course Projects(discussion oriented went for 20 min)
4. Show me an example that you are good at team work.
5. course projects
6. Finally he asked me to say about DELL as much as i know?

But really speaking, I don't know anything more about the company information.But i said only one sentence

"DELL, The main weapon of most of the Computer Science students over here and every where."

By that one sentence he was impressed more and he gave me one best complement.

"You have good narrating and management skills. You can be recruited into HR management and can come to you campus again next year to recruit your juniors". It

was an awesome feeling when he said that sentence.

Round 3: (5 min)

I said that I was placed in INTEL and want to join INTEL. He said he was impressed with my frankness and ended the interview over there.

Source: <http://amarnath-iitd-placement-experience.blogspot.in/2013/12/dell-interview-experience-2013.html>

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161. Microsoft Interview | Set 25 (On-campus for Internship)

Microsoft IDC Internship Selection Process

Hi everyone! I sat for Microsoft IDC Internship Selection Process. The whole process comprised of 6 rounds as follows:

Round 1

This round was taken on-campus and it included 15 aptitude questions containing mostly problems related to general programming in C. The round was hosted on CoCubes.com. 46 students were shortlisted from around 150 students.

Round 2

This round was also taken on-campus and hosted by CoCubes.com. We were given to solve two coding problems on an online judge. The questions were:

1. To check a tree is BST or not.
2. Change one string to another with minimum number of changes (Sorry! I don't remember the exact one).

22 students were shortlisted from this round.

Round 3 (Telephonic)

The interviewer started with the introduction and went on asking questions from my resume. You must prepare your resume well and go through it thoroughly. Then after asking questions from my resume for around 20 minutes he asked a coding question.

The question was:

Given a series of numbers, print which number is repeated how many times?

I gave brute force solution first by using arrays. Then he asked if we have million of numbers and negative numbers as well then which data structure will be used. I said hash table. He asked certain questions on hashing. Then he said if don't care about time complexity and want to find in-place solution then what will be another method. I said first sort it and then count.

He appeared to be impressed and I was selected for the 4th round. From our institute 9 students were shortlisted for the next round. For next rounds students from all over the country were called to Delhi and Bangalore. I was called to Delhi.

Round 4

There were around 60 students. They were divided into two groups of 30 each. I was in the latter group of 30. We were given two coding questions to be solved on paper. The questions were:

1. Compress a string in-place.
2. Define BST. Check a tree is BST or not.

A total of 5 students from us were selected and I was lucky enough to be one of them. 10 students were selected from the former group of 30 students.

Round 5 (Personal Interview)

The interviewer started by asking a coding question: Given a rotated array, find the first element of the former un-rotated array. Then he asked some questions from Operating Systems. He then asked how to implement a queue from stacks.

I was not lucky enough to clear this round but it was a motivating experience. 😊

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162. Cisco Interview | Set 6

<http://geeksforgeeks.org/> has a major role coming out to placement preparation if you want yourself to be placed in the reputed companies one thing that i will suggest is Be well versed in core cs concepts.Try to get profound knowledge in subjects like.

.operating systems
.computer networks
.discrete mathematics
programming languages like c,c++,
.lastly Algorithms(especially graph algos)

Coming out to my interview experience with Cisco systems,my first round was mostly on computer networks fundamentals such as sub netting,super netting and on some network protocols like Go-back-N etc.,

Second round was also in networking but this time there was some in depth questions mostly pertaining to why layers and what are their advantages, explain dhcp in detail etc.,
and my last round was some coding questions which were mostly from [GeeksforGeeks – A computer science portal for geeks](#)

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163. Amazon Interview | Set 56 (Off-Campus)

The most important thing about Amazon interviews is that you need to produce Flawless, Most Optimal solution in the First try itself. Take your time to think, but when you code make sure you Cover every edge case before handing your solution to the interviewer.

Online Round (90 mins)

20 MCQ questions spanning Aptitude, basic C/C++ skills

2 Coding Questions

-> Vertical Sum in binary tree

-> Add 2 link lists

Phone Screen (PS1) (45 mins)

Basic questions about OS. Virtual memory, multi-threading, etc.

-> Next Greater number for every element. (Algo + Code)

-> Reverse link list (Algo)

-> LCA in Binary Tree (Algo + Code)

F2F Interview 1: (45 mins)

-> LCA of K given nodes in a n-ary tree .(Algo + Code)

-> Sliding window minimum . (Algo + Code)

Discussion about Internship project .

F2F Interview 2: (60 mins)

Discussion about Internship project .High level Design was to be produced

-> Given a boolean 2-D matrix, find the number of unique rows in it.(Algo + Code)

I gave 3 diffrent solutions.One of them used Hashing .The interviewer then went into GREAT details of hashing .

After a lot of discussion about various Types of hash implementation,pros/cons,uses , he gave me a Scenario for which i needed to build a good hash function.

F2F Interview 3(Stess Interview) (60 mins)

Discussion about Internship project .

-> Given a Binary tree and a arbitray node of that tree , find all the nodes at a Distance of K from that Node .Nodes DON'T have parent pointers.(Algo + Code)

-> Implement 2 stacks in an array .(Algo + Code).

Follow up question ->What do we do if we want to change the size of array dynamically.

-> Implement 3 stacks in an array .(Algo)

-> Implement K stacks in an array .(Algo)

F2F Interview 4 (60 mins)

-> Lot of OS questions . Mutex,semaphore,Deadlock ,Virtual memory , Scheduling algos

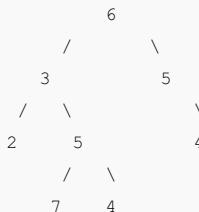
.

Then he gave me a Code, and asked to make it Thread Safe .

I had used SQL in my intership project, so was asked basic DBMS questions and SQL queries.

SQL query to find maximum in a column, without using aggregate MAX function .

-> Given a binary tree, where every node value is a Digit from 1-9 .Find the sum of all the numbers which are formed from root to leaf paths . (Algo + Code)



There are 4 leafs, hence 4 root to leaf paths:

Path	Number
6->3->2	632
6->3->5->7	6357
6->3->5->4	6354
6->5>4	654

Answer = 632 + 6375 + 6354 + 654 = 13997

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164. Amazon Interview | Set 57 (Off-Campus for SDE-1)

Hi geeks, I recently hired for amazon. I just want to share my Interview experience with You all.

Totally 1 Written + 5 F2F

Written round:

Q1: Convert a sorted integer Array to balanced binary search tree. This is very simple one and I could do it in O(n) time and O(1)extra space.

Q2: Write a Program to reverse every k nodes of singly linked list without using extra space. Constraint: k>=2

F2F round 1:

Q1: Find the largest element in the sorted rotated integer array in $O(\log n)$ time.

Q2: Find Height of a Binary Tree. This is very easy question, so I did quickly.then he move on to next one.

Q3: Find your own method to balance an unbalanced binary tree.(you must not use existing methods like AVL, red black or b trees).

Hint: There is no restriction on placing nodes. You can remove any node from any place and put it in any place.

I devised an algorithm which will make use of two lists. One list contains nodes far away from the root and this is sorted in decreasing order of levels and left to right if nodes are in same level. Other list contains nodes which are not fully filled. This is sorted increasing order of levels and left to right if nodes are in same level .

Remove the first node (listed in list1) and insert as a child of first node in list2.add this node also in list 2. Do this operation until the height of the tree becomes $\log(n)$. Interviewer was impressed with this and finished the interview.

F2F round 2:

Q1: There is a file which contains N words. There may be M anagrams in that file, K words on each anagrams. $K \geq 1$, $M \geq 1$, $N \geq 1$. You need to write an algorithm which will create one list for each anagram with k words and group all M lists with one data structure (This is the main area.we need to think a data structure which will minimize the space and time complexity of word Finding appropriate List and Inserting word).

I could do the insertion in $O(1)$ time by keeping track of tail pointer in each list. But finding the appropriate list needs $O(n)$ in case of linked list, $O(\log(n))$ in case of binary search tree. Using hash table, you can do this in $O(1)$, but writing a hash function is difficult and inefficient in terms of time. Then I suggested Trie data structure.with this, we can reduce the time complexity well. But space complexity will be more. I told all the ideas to interviewer. They were much satisfied with this. And moved to next question(without writing code J)

Q2: Find min and max element of an unsorted integer array.

Very simple question you can do two pass on the array and find it, but number of comparisons will be $O(2n)$. He asked me to reduce it.

I gave an algorithm which will do the same in $O((n/2)^3)$ which is fairly less than $O(2n)$. They were impressed on my solution and asked weather I have any question .

F2F round 3: (CS fundamentals and system programming)

Questions were in C++ patterns, Network Programming, Linux, since I did project on networking, Linux I could perform well in this round.

F2F round 4: (Hiring manager round):

Interviewer was keen on testing cultural fit. Nearly 10 to 15 questions on my previous project,

Why amazon?

Why you want to leave previous company?

What initiative you took in previous company?
How will you manage conflict with your manager?
How will you demonstrate ur product to customer?

F2F round 5: (bar raiser)

This also had cultural fit questions and then a data structure question.
Qn: Find the distance between two nodes in a binary tree, no parent pointers are given. I could solve this in post order traversal in $O(n)$ time complexity. He asked me to code in home and send it via mail.

Geeks for geeks is my Wikipedia for interview preparations. Thanks to geeks for geeks.

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165. Amazon Interview | Set 58 (On-campus for Software Development Engineer)

I'm in E&CE and I'm sharing my interview experience with Amazon on IIT campus to help you prepare for your interviews. There was online test for 300 students. 25 were selected for interviews. There were 4 back-to-back rounds on the same day. My interview process lasted for around 5 hours and finally I got hired. 😊

Round 1:

- Given 1 billion integers. Find 100 maximum integers. Memory available is insufficient to store 1 billion integers.
- Given array of N integers ranging from 0 to N-1. Output maximum repeating integer. Use only $O(1)$ memory.

Round 2:

- An array of integers is given such that it is first ascending and then descending. Find index of some given integer in that array. Ex. 2,4,6,8,7,5,4,3. Input: 4. Output: 2, 7. Write code on paper.
- Two sorted arrays are given. Find median when both arrays are merged and sorted. Write pseudo code on paper. Take care of boundary conditions.

Round 3:

Basic OS, DB concepts.

- You are given some integers. Propose a data structure to implement "add", "delete",

"fetch" and "fetch any" operations. All four operations must complete in constant time.

2. There is a B-tree with two type of nodes A and B. Return nth A or nth B while doing inorder traversal in O(1) time. And write pseudo code on paper.

Round 4 with manager:

There is very huge text file consisting several rows and columns of integers. Memory available is not sufficient to store whole text file. One column can be stored in memory. Sort whole file corresponding to given column keeping all rows unchanged. You cannot make new text file. Write neat code on paper.

Solution:

Round 1:

1. Make min heap of first 100 elements. For each remaining elements, if it is greater than root (min) node then remove root node, add that element then heapify. Time = 1 billion * log(100)

2. Simple. For $i = 0$ to $N-1$, $A[A[i]\%N] += N$. Return i with max $A[i]$. $O(n)$ time.

Round 2:

1. Find pivot point. $O(\log n)$ Binary search in both left and right arrays. $O(\log n)$

2. Compare median of both arrays. Accordingly select right half or left half array.

Repeat. $O(\log n)$

Round 3:

1. Make a hash table and a linked list. When you add an element add it in both hash table and linked list. But in hash table along value caralso store pointer to the same value in linked list. To delete an element find it in hash table, use stored pointer to delete the same element from linked list also. For fetch any operation return head node of linked list. Memory = $2*N$

2. Preprocess in $O(n)$ time: Make two vectors for A and B. Traverse in-order. When you get A add its pointer in vector of A. Same for B.

Round 4:

Read whole column. Heap sort (saves memory). Now you know old indices and new indices. Shift entire rows from old index to new index. Keep one row in temp storage to avoid overwriting.

Some tips that may help you:

1. Always be confident for whatever you are saying.
2. Listen carefully. Ask doubts until the question is perfectly clear to you.
3. Think out loud. Start with obvious approach and then improve upon it.
4. They will test your way of approach, thinking process. Don't give up. Interviewer may give you hint if you are stuck.
5. Direct them to ask you about your strong topics.

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166. Amazon Interview | Set 59 (Off-campus for SDE-1)

I recently went through the Amazon interview process for the post of SDE-1. It was an amazing experience for me.

Online Round (2 hours):

Q1- Program to rotate a matrix by 90 degree clockwise.

Q2- Program to convert a binary search tree into doubly linked list.

Q3- Program to find a node which is just greater than a given node in a tree.

Q4 –Given a sentence. Find all the characters which are repeated more than 1 time and print them in lexicographical order.

F2F interview 1(45 minutes):

Q- Given a MXN matrix. To find the number of ways to reach the nth row and nth column cell from 0,0 cell. Find the same if some of the cells are marked as not reachable.

First implemented using recursion then through dynamic programming.

Q- Given a linked list like a1-a2-a3-a4-b1-b2-b3-b4. Convert it into a1-b1-a2-b2-a3-b3-a4-b4.

F2F Interview 2(50 minutes):

Q- Given a sorted array of 0 and 1. Find the first occurrence of 1. Production working code was required. I provided him O(logn) solution. He asked me how it is O(logn). Then I explained him and generated the formula for same. He was convinced finally.

Q- Implement the cache using LRU technique. Production working code was required.

F2F Interview 3(1.5 hours):

Discussion on my current project. He asked every minute details of my project and made me feel like he knows better than me about my project 😊

Then he asked me to implement a data structure for showing the currently visited items by a customer on any website. You will find the same on Amazon website at bottom left side.

Program to sort m sorted arrays. I told him that I knew this. So we moved ahead.

Data structure to push, pop and find min element in O(1) time.

F2F Interview 4(45 minutes):

Q- To delete all the nodes from a binary tree that lie on a path whose sum from root to leaf is less than a given value K. Twist was that the node values can be any integer. It may be a negative number.

He asked me to find the time complexity and space complexity.

I did it using recursion with $O(n)$ time complexity and $O(1)$ space complexity. He said that there is some space being used by my program that I am not taking into consideration. I got his point. Since I was doing it using recursion, So some internal stack space was being used and that would be $O(\log n)$ i.e height of tree. That was bit tricky.

Q- Given two sorted arrays. Find the median of the combined array.

One thing that you need to keep in mind is that you need to provide them the optimized solution with respect to time and space and don't forget to consider the corner cases.

After 4 days I got a confirmation call from Amazon 😊

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167. Flipkart Interview | Set 3

Recently I appeared for Flipkart Interview. I would like to share my experience.

Round-1: Telephonic (45 mins)

1. Given an array of n distinct integers sorted in ascending order. Find an index i s.t $\text{ar}[i] = i$. Return -1 if no such index exists. Note that integers in array can be negative.

2. Design a stack which holds an integer value such that `getMinimum()` function should return the minimum element in the stack.

FOLLOW UP: Implement `popMin()` function which would pop minimum element from the original stack. $O(1)$ implementation was required.(Hint: Use LinkedList to implement stack and store address of minimum element node in min-stack)

3. Print an organisational hierarchy.

Naveen manages Satish

Satish manages Anushree

Satish manages Sandeep

Gurinder manages Naveen

Gurinder->Naveen
Naveen->Satish
Satish->Anushree,Sandeep
Anushree->
Sandeep->

Round-2: Telephonic (30 mins)

- Given an array which is first strictly increasing and then strictly decreasing. Find an element in this array.Discussions on various approaches and their complexities.

After these two rounds, I was called for Face-2-Face discussions in Bangalore. There I had 4 rounds.

Round-3: In-House Coding(1 Hour 45 mins)

Write a running code in any language to implement the famous tic-tac-toe game. First there was discussion on various approaches and basic functions which would be required to implement the same. Then I was asked to code.

I was given 1 hour 15 mins to code this.I had to design this game as per following:

- Game has 3 modes: Human Vs Human, Human Vs Computer and Computer Vs Computer.
- Initially start with 3X3 grid, but it can be generalised to NXN grid. So don't hardcode any variable.
- Minimise Code Redundancy and try to make it as modular as possible.
- Try to use abstraction and expose lesser number of functions(APIs) to outside world.
- Try to cover maximum number of edge cases, like when to abort the game, draw condition, win condition, overwriting existing value in grid etc)

After I wrote running code for the same, I was told to explain my code and then run with some test cases. Then he asked me to mail the code.

Round-4: Data Structure and Problem Solving(1 Hour)

- Given a sorted and rotated array. Find an element in this array.(Famous Problem)
- This was an interesting problem. Given a set of intervals like 5-10, 15-20, 25-40, 30-45, 50-100. Find the ith smallest number in these intervals.
Assume there are no duplicate numbers.

```
e.g: 1st smallest number = 5  
6th smallest number = 10  
7th smallest number = 15 and so on.
```

I told him that we would first sort the interval on basis of starting numbers. Then merge overlapping intervals to get a set of non-overlapping intervals like 5-10, 15-20, 25-45, 50-100. Now we can find the ith smallest number after finding the appropriate interval.

FOLLOW UP: He then modified this question to accomodate duplicate numbers also.

Suppose we have intervals like 5-10, 8-12.

Then total numbers in these two intervals would be: {5,6,7,8,8,9,9,10,10,11,12}

So, 1st smallest number: 5

4th smallest number: 8

5th smallest number: 8 (here is the change since now we have duplicate elements also) and so on.

3. Given a dictionary of 50,000 words. Given a phrase without spaces, add spaces to make it a proper sentence.

e.g:input: thequickbrownfoxjumpoverlazydog

output: the quick brown fox jump over lazy dog

FOLLOW UP Questions:

1) Worst case complexity of finding a word in HASHMAP given we have 'B' buckets and total of 50,000 words. (Ans: O(50,000/B))

2) Complexity of finding a word in TRIE. (Ans: O(Word Length))

3) Advantages of TRIE over HASHMAP and some similar discussions.

Round-5: Hiring Manager Round(45 mins)

He asked me lots of questions regarding my current company projects.

Questions:

1. My role in current project.

2. Most Challenging work in your company.

3. What technologies you learnt last year? and several similar questions.

Round-6: HR Round (10 mins)

common HR questions like why Flipkart, Why should we hire you etc.

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Believe me or not before I faced an Amazon interview round I was never sure whether all those gratitude that people usually present to GeeksforGeeks were actually worth. But it is always easier to connect the dots looking backwards and now I can say with assurance that this website really deserves all the applause.

I was recently interviewed for an internship position at Amazon and had to go through a total of 3 rounds i.e. one online followed by two telephonic rounds.

Online Round

As usual the online round had two coding questions and 20 MCQs. This was a pretty easy round and its duration was 90 minutes. The round consisted of questions from various domains like Algorithm, Data Structure, Operating System and Aptitude.

A few days after appearing in this round, I was informed that I have been qualified for the next round.

First Telephonic Round

I had just three days to prepare for this round and truly speaking, it was my first experience of appearing in any such interview.

This round lasted for almost 60 minutes. It began with my general introduction followed by a brief discussion on my projects. After this, the interviewer asked me four questions.

Question 1:

Given an array of numbers find all such triplets that satisfy the given condition.

Condition: $a[i] < a[j] < a[k]$ where $i < j < k$.

At first go I thought that it was a pretty easy question but slowly the mist started to clear and I realized how tough it was. The interviewer wanted me to solve it in linear time i.e. $O(N)$

Question 2:

Given two trees check if they are mirror images of each other or not.

This was a straight forward question and it took me less than 10 minutes to code it.

Now the interviewer wanted to test my understanding of operating systems and asked two fairly direct questions, to which I gave my answer based on my understanding (not bookish definition as I did not remember any of those 😊).

Question 3 & 4:

What is semaphore and what do you mean by a deadlock.

After two days I got a call from the HR informing me I have been selected for the next round. Now it was the time for the last and the decisive round.

Second Telephonic Round

For this round I had slightly more time than the last, due to the fact that the weekend fell

in between. The interviewer was very very cool and helping this time, something which I kept at the last in my list of probable things that can happen during an interview. Duration of this round was around 90 minutes.

This time I had to face three technical questions and one general question on Amazon.

Question 1:

Given a BST, replace each node with the sum of the values of all the nodes that are greater than that node. Only constraint being that I was not allowed to use any global or static variable.

Although I panicked a bit and made few mistakes, I got through.

Question 2:

Given an array of numbers find the maximum count of duplets and triplets such that their sum is a multiple of three. Number that has appeared once can't be included anywhere else.

I solved this question using a property of modulus.

Question 3:

Given the stock prices of 10 days find the best possible buy sell pair.

For this question I started with a $O(N^2)$ solution but then finally managed to reduce it to $O(N)$ solution with constant space complexity.

I was also asked few questions on Amazon like what are domains in which Amazon deals.

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169. Amazon Interview | Set 61 (For Internship)

Hello geeks, Last month I appeared for the **Internship Interview of Amazon**.

What my personal experience says is that never try to jump to the right solution straight-away, instead take your time and **think progressively** about the possible solution to the given problem.

Check for boundary test-cases carefully and also don't remain completely blank during your conversation with interviewer but keep on telling him about the **tentative solutions** that are coming to your mind.

My entire process consists of **3 rounds**:

1. Online Round.

2. 1st Telephonic Interview
3. 2nd Telephonic Interview

Round 1:

It was an online round consisting of 20 Multiple Choice Questions (from C language, Operating Systems, Data Structures and Algorithms and Software Development Concepts) and 2 Coding Questions:

1. Given 2 linked lists constructed another linked list containing the sum of those 2 linked lists. e.g Given : 1 -> 2 -> 3 and 4 -> 5 -> 6 Ans: 5 -> 7 -> 9
2. Find the Vertical sum of the given Binary Tree.

Round 2 (Telephonic):

The duration of telephonic Conversation was about 60 minutes and the Interviewer asked me 2 coding questions:

1. Given an array of +ve as well as -ve numbers, find out whether it is possible or not to convert it to 0 by adding/subtracting operations on all the elements.

e.g arr[]={1,2,3}

YES (1+2-3)

```
arr[]={3,6,2}
3+6-2 != 0
3-6-2 !=0
-3-6-2 !=0
-3-6+2 !=0
-3+6-2 !=0
-3+6+2 !=0
3-6+2 !=0
3+6+2 !=0
```

Hence ans= NO

2. Given a binary Tree where the structure of each node contains an extra "next" pointer (initially all NULL), modify the binary tree such that all the nodes at the same level gets connected by utilizing these given extra pointers.

The interviewer also asked me to write the code for the same.

Round 2 (Telephonic):

The duration of telephonic Conversation was about 90 minutes and the Interviewer asked me 2 coding questions:

1. Write a code to find the **Diameter** of the given a binary tree

Firstly I gave the solution which has complexity $O(n^2)$ then he asked me to optimize it so finally I did it in $O(n)$.

2. Given a number design the algorithm to find the next greater number which contains exactly same digits. e.g. n= 123 next greater with same digits = 132
The number can be very large so its better to consider it as a sequence of characters.

I was also asked to write the code for the same.

I had a very great time preparing for the interview and got to learn a lot of new concepts.
I am really very thankful to **GeeksForGeeks** for being the primary source of my preparation and believe me guys this website is just **awesome**.

And ya forgot to mention I finally got the confirmed offer for Internship at Amazon 😊😊

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

170. Amazon Interview | Set 62 (For SDE-1)

I recently went through the Amazon interview process for the post of SDE-1.

Round 1 (Written)

- Given an array, output an array where every index contains nearest greatest element to that element on right side.
- Program to convert sorted array to Binary Search Tree
- Find first non-repeating character in String
ex: geeksforgeeks: f
geeksforgeeksFirst:o

Round 2 (F2F)

- Given linked list as a-x-b-y-c-z
output it as a-b-c-z-y-x
that is reverse alternate element and append to end of list

- Output nearest number greater than given number such that output is palindrome
ex: 121:131
900:909
99:101

Round 3 (F2F)

- Vertical Sum in Tree(I told him I know the solution, he proceeded further)
- Given stream of Strings find top 5 words with maximum frequency or count
- Given 2 nodes in Binary Tree find distance between them

Round 4 (F2F with hiring manager)

1. Projects done so far, HR questions
2. Design LinkedIn and find till 2nd level connections and path between 2 connection
for ex: if A is friend of B which is friend of C
print between A and C A-B-C
3. Programming language: Java

About synchronisation, serialization, transient and volatile keyword, Singleton Class

Round 5 (Bar Raiser)

1. Count Inversion in array that is if $i < j$ and $a[i] > a[j]$

Told the solution $O(n \log n)$ of divide and conquer. He asked another solution, then told by inserting in BST and whenever node goes to left side then adding 1 and number of children on right side. We have to keep track of count of right subtree in every node

Round 6 (F2F)

1. HR questions (Why leaving company, projects, SWOT)
2. Program to check for mirror tree
3. Data Structure so that push, pop, getmin, getmax $O(1)$ (using 3 stacks)
4. Data Structure so that push, pop, pop min, pop max

Told Solution till $O(n \log n)$ by using min heap, max heap with pointers to doubly linked list nodes

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171. Amazon Interview | Set 63 (For SDE-1)

I have a total experience of two years. I am sharing my interview experience with Amazon. This is for SDE1 Amazon.

A very big thanks to whole team of geeks for geeks. It is because of them only that I was able to make Amazon and get a job in my dream company. Otherwise it was impossible for me.

Online round: (1hr, working code required)

- Given coin array and a sum K, find min. number of required coin to make sum K.
(DP Question)
- Two rectangles are given in two D space. Find if these are overlapping or not
- KMP for pattern searching

After two days I got the call to come Amazon Bangalore ofc to attend next rounds:

1st Round:

- First occurrence of duplicate char in a char array.
- Merge two sorted array of n and n+m size
- Zig-zag traversal of tree

2nd Round (Hiring Manager, full explanation in white board):

- Tell me about one of your best project, deep drive J
- Count the words in a file (simple one)
- Design parking system.

3rd Round: (one or two DS ques I forgot)

- Reverse every k-element in a linked list
- Check if two tree are mirror tree
- Find longest palindrome in a string
- Find sum K from an unsorted array which have both -ive & +ive numbers.
- Full explanation about tries (search, insert, traversal, delet)
- Full browser working
- Lock variable and their implementation (OS)
- What is hashing, if any hash function mapping tow inputs to one output then how to handle that scenario at the time of retrieval, you can't change hash function.

After one week I got the call from HR for my BR round.

4th Round (BR Round, full on white board):

- Cultural fit questions: tell me about yourself, why you are looking for change, what innovative you did in last two year (I had already preparation for all these type of questions) J
- Lots of discussion happened about my current project.
- Given two string remove the characters of one string from another string
 - o Another variation he asked: Given two string remove the characters of one string(**having duplicate characters**) from another string
 - o One more variation he asked: Given two string remove the characters of one string(**having duplicate characters**) from another string **from right to left**.
- Given one string, print all the anagrams of this string from a given file which contains lots of strings.
 - o Another variation of this he asked: Given **group of string**, print all the anagrams of all given string from the file of strings.
- After that he asked one more culture fit question

He was very happy after seeing my explanations J J

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

172. Open Solutions Interview | Set 1

Name of Company: Open Solutions

Profile: Software/Finance

Venue: On Campus

Written Test (Time): 1 hour

Sections and type of questions in those sections : there were 2 sections

1 Aptitude – 25 questions

2 Technical – 25 questions

No negative marking

Technical Interview:

1. Tell me about yourself: start with your place of birth, school, college, then move on to the projects you have done, basically they want to listen about your projects.
2. Asked several questions from one of my projects. Told me to draw the priority graph related to my project. So be prepared for tough questions from projects.
3. Given a link list, sort it by using Quick Sort: he want to see my approach, then I also explained that it can be done easily by merge sort, also write the code for it. (Given in Geeksforgeeks.org)
4. Given a string, reverse it using stack: easy question, but he want me to care boundary case. Then I gave many solutions for this question, one by simply using stack, then by using recursion.
5. Minor discussion on priority queues in general and heaps in particular.
6. Some questions on OS (scheduling etc)

HR cum Technical Round (Taken by the VP of Open Solutions, he was from the US office)

- 1.** Again tell me about yourself: same as above.
- 2.** One of my projects was Compile time task scheduling for heterogeneous system, so he asked some real good questions of scheduling related to my project. Many tough questions from project.
- 3.** Given a pointer *p address is 1030 and there is a class whose size is 40 byte, so what will be the address of *p+1.
- 4.** You have a 100GB disk filled with integers (in records whose size was given, so there was some free space left). You have 100 MB of memory. Come up with an algorithm to sort those integers.
Solution: apply concept of external sorting. Divide the whole list into several small array which can be done in 100MB RAM. All these arrays are sorted separately. Then we apply multiarray merge function and we will get the resulting list.
- 5.** Asked about various OOP concepts. Why polymorphism? Why OOP? Why C++ why not C? How to do polymorphism in C? several other questions on OOP.
- 6.** Puzzle : you and your friend are going in car from Varanasi to Delhi, after covering 100KM your friend does not feel well, he needs immediate doctor. Your car stops and does not start again, engine fails, you try but can't repair it. Mobile phone is not working. If you ask for lift they do not stop. If you stand in the middle of road then they will kill you but not stop. Think what will you do to save your friend.
- 7.** One question from their product, he explained all details, then ask to optimize it.

8. Do you want to ask any questions?

You should always ask some smart questions and never ask about CTC. I asked about the work culture, career growth aspects. Then I asked about the products and fields in which they work. Lots of chitchat and healthy discussion.

Tips / Advice: Don't feel nervous, be confident, they will check even your answer is right.

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173. IBM IRL Interview | Set 1

Following are the details of IBM IRL Interview.

Technical Interview 1:

1. Tell me about yourself.
2. Asked favourite subject, I told Algorithms & data structures.
3. Asked Vertex cover problem. I explained the brute force method. But don't know better solution.
4. Implement queue using 2 stacks.
5. Time complexity of DFS, BFS, Kruskal, Prims.

Technical Interview 2:

1. Again tell me about yourself.

This time there were lots of good questions from my project.

2. Again asked about vertex cover problem. This is NP hard problem. So no exact solutions exist, but approximation algorithm can be applied. We have to first find the maximal matching edges, then we will put all this pair in the list, remove one by one and check whether by removal of this it is vertex cover or not. For details see Wikipedia for vertex cover.
3. Many questions related to process scheduling. I explained all the scheduling algorithm like FIFO, Round Robin, SJF, SJRF. Then he asked about the detail pro and cons of each scheduling approach.

Don't remember more questions.

4. At last he asked me do you want to do Phd or MS?
5. Why IBM IRL (research profile)?
6. I asked many questions about IBM's financial support for further higher studies etc.
7. How can I be at IBM and also doing Phd, will IBM allow for that?

Tips / Advice: They were looking for strong grip on Algorithms and data structures, also in graph, so prepare it well.

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174. Amazon Interview | Set 64 (Off-Campus for SDE)

I am sharing my off campus SDE interview experience with Amazon.

Online round: (1hr)

1. Given coin array and a sum K, find min. number of required coin to make sum K.
2. Two rectangles are given in two D space. Find if these are overlapping or not
3. KMP for pattern searching

After two days I got the call to come Amazon office for F2F interviews:

1st Round:

1. Program to construct binary tree from its inorder and preorder traversal.
(algo+code)
2. Reverse every k-element in a linked list(algo+code)

2nd Round:

1. Tell me about one of your best project in detail.
2. Design Restaurant reservation system.

3rd Round:

1. Given a binary search tree of n nodes, find all the pair of nodes whose sum is equal to a given number k in O(n) time and constant space.(algo+code)
2. Given a function “f” in which 0 occurs with probability 0.4 and 1 occurs with probability 0.6. Using function “f” deduce a new function “f1” such that both 0 and 1 occurs with probability 0.5
3. Given a matrix, find the maximum sum subarray in it.(algo+code)

After one week I got the call from HR for my BR round.

4th Round (BR Round):

1. Tell me about yourself.
2. Why are you looking for change?
3. How will you handle conflict with your manager?
4. What is the most challenging work done by you in your current company?
5. Lots of discussion happened about current company's project.
6. Given a number N, find the smallest 3 digits number such that product of its digits is equal to N. (algo+ optimal code)

In all the rounds, the most optimal production quality working code was required and if you get stuck, then they will give you HINTS but don't consider this in your favor!

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175. Amazon Interview | Set 65 (Off-Campus for SDE-2)

My experience for Amazon's Software Development Engineer-2

1st Round (Face-to-Face)

- 1.** Design ATM
- 2.** Design Car Service center

— Deep dive into design and focus on specific module called 'Service'
— Supervisor should be able to allot a Best Engineer to Service customer request,
How do you code to get best engineer to fix the car service request.

2nd Round (Face-to-Face)

- 1.** Write a program to get all list of nodes without siblings in Binary tree
- 2.** How do you implement 'Car service center' application to achieve Reliability, Scalable and Consistent in distributed environment.

3rd Round (Face-to-Face)

- 1.** Some behavioural Questions
- 2.** Core java Q: Why do we need equals method ? Can we check equality using hashCode method. Difference b/w them ?
- 3.** Get all nodes K distance away from leaf nodes. I could able to tell him my idea, but I couldn't able to come up with program with in given time.

4th Round (Face-to-Face)

- 1.** Specific questions on current working project.
- 2.** Implement my own Connection pooling
- 3.** Given a linked list, write a function to reverse every k nodes. Initially I told him solution with help of Stack , then he asked without using extra space, With his clue, I could able to tell him using recursive logic to solve it.

Inputs: 1->2->3->4->5->6->7->8->NULL and k = 3

Output: 3->2->1->6->5->4->8->7->NULL.

5th Round (Face-to-Face)

- 1.** Given a string, find the longest substring which is palindrome. For example, if the given string is "forgeeksskeegfor", the output should be "geeksskeeg". I have seen this question , but never thought about solution.

Same question i got in interview, I was very happy to get solution, interview asked me optimize further. I could fix 1 improvement and he suggested 1 improvement.

- 2.** Identify all possible entities/domain objects in Cricket. Went little deep.
- 3.** Given Channel, Program and TRP ratings, How do you consume those at server side,

and what do you do to retrieve specific data like 1Get all programs in given channel where TRP is > 10'.

4. Some behavioral Questions

Overall it was great experience, Myself satisfied with my performance in all rounds expect 3rd round :(.

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176. Amazon Interview | Set 66 (For SDE)

A F2F

1. Min stack problem (algo+code)
2. filling next pointer in tree but in zig-zag order (algo+code)

B Hiring manager

1. A big file (some TB's) containing custid, page and time stamp, find out the repreating customer(the one who visits after 24 hrs)(algo)
2. In a paragraphs tell the frequency of the words(algo)
3. A sequence of array, print the kth largest number(algo+code)

C F2F

1. Left view of a tree (algo+code)
2. Swap two node pointers in a singly linked list(algo+code)

D F2F

1. Given some sets of people who fight against each other. They are represented as graph. if a link exists between A and B, the it means that A and B are fighting against each other. Likewise there are some more links. The question was to divide the nodes into groups such that no person in a group fight with another member in that group. (More of bipartite graph) find the groups (algo)
2. A singly linked list, find the kth element from the last. The question was further modified to not to process a node more than once. (algo)

E Bar raiser

1. Questions on projects, what is it, what did you do (deep diving)
2. Situation that has to miss deadline
3. Any situation encountered with performance issues

4. Any situation where you need to convince your team mates
5. Any situation where you can see there are some improvements required and proposed
6. There is a large file(1TB) containing braces. Question is to check for their balance. I said will use a counter, will increment on an open brace and decrement on a close brace. If counter goes negative or counter is non zero at the end of the file, braces are not balanced. Otherwise balanced. Followup question was to make this process parallel (meaning to see if this problem can be solved through parallelism, like dividing the the problem into sub problem....) Remember the file is very large.

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177. Amazon Interview | Set 67 (For SDE-1)

- 1) Round 1 telephone interview – implement division without using division operator in $\log(n)$ time.

solution: use bitwise shifting

- 2) Round 2 telephone interview – write a program to buy and sell stocks to maximize profit, can only do 1 action per day i.e. buy or sell.

solution: I used 2 pointers to keep track of best buy and sell rates. I implemented it in $O(n)$ time. He was happy with the solution.

After a few days I got a call from the recruiter saying the team was very happy with my interviews and wanted to meet with me in person.

I had to actually reschedule my on-site interview as I couldn't locate the office since it was not locatable on Google maps!!

I got in the office in Toronto. I was given a visitor pass and escorted to a meeting area where the interviews took place.

- 3) F2F(HR round)

This was easy, the interviewer asked basic questions about my background and what made me choose computer science. I talked about my favorite project and she answered some of my questions.

- 4) F2F(Director) he wanted me to do BFS search. Given a level, child index return the child node for a binary tree. I gave him an inorder search instead, he was okay with the solution.

5) F2F(SDE) this is when things started to get tough. He wanted me to design a library reservation system. He wanted me to explain him a design and draw some diagrams and then implement the classes.

We didn't have enough time to do all of it. He wanted to know what data structure I would use to perform searches for books. I choose LinkedHashMap because it allows O(1) lookup and O(1) insertion.

6) F2F(SDE) He wanted me to build a boggle game. This is where I got a little mixed up with some java and C# syntax and he was not too impressed. I tried to write the algorithm using 2 for loops and he gave me some hints as to how to implement it.

7) F2F(SDE) Given a list of words, find anagrams. This was easy enough to implement. He asked runtime in the end.

The interviewers communicated with you all the time, its not like you go in an exam and quietly write what you have memorized. There is lots of pressure and lots of explaining to do as you write the code.

All in all it was a great experience. The guys were cool and fun to interview with.

Geeksforgeeks was a tremendous help towards the interview.

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178. Amazon Interview | Set 68 (For SDE-1)

I went through the Amazon interview process for SDE-1, I didn't make it past the 3rd F2F round.

Online Round:

1. Find if a given string contains duplicates
2. Given a BST, find the maximum N elements of the tree
3. Given a BST, convert it into Doubly Linked List
4. Rotate a 2-D Matrix by 90 degrees

Telephonic Interview:

1. Given an array of integers (+ve and -ve), give a contiguous set of numbers that add to 1

Eg. 4 3 5 -3 -1 2 -3 10 2

Ans: 5 -3 -1 2 -3

2. Check if a given tree is a BST or not

3. In a 2-D Matrix with the following properties:

- i. Contains only 1s and 0s
- ii. Every Row is sorted

Find the row with maximum zeroes.

F2F:

Round 1:

1. Print all the cycles in a directed graph
2. Given an unsorted array, assign every element to its immediate larger number after the current number, assign to -1 if no such number exists

Eg. 3 1 2 5 9 4 8 should be converted to

5 2 5 9 -1 8 -1

Round 2:

1. In a 2 D array where every row and column are sorted, give the nth smallest element
2. In a Binary tree, every element must contain the sum of its sub-trees

Follow up question: how would you solve this if you can ONLY increment the value of a node

Eg. If a node's value is 20 and its sub-tree sum is 10, the node's value can't be set to 10 because you can only increment

3. Given n, find the smallest number for which product of the digits is n, if no such number exists, print -1

Note: Digits can only be split as single digits, i.e., 132 can't be considered as $1 * 32$ or $13 * 2$, it would only be $1 * 3 * 2$

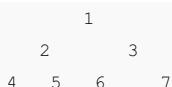
Eg. Answer for 36 would be 49

Round 3:

1. Convert a Binary tree into another binary tree whose in-order traversal gives a sorted list

This has to be done in-place

Eg.



should be converted into



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179. Microsoft Interview | Set 26

Round 1:

Questions about previous work, design patterns used in the previous work.

Given two integers represented in Linked list format and now add these two lists and put it in the third list, at any point of time a node can have only one digit in it.

With the discussions it came like by considering the carry forwards and all similar to some of two integers represented in a linked list fashion. Interview asked to tell the approach first then for coding

```
// Approach 1  
// 1 2 3  
// 12 8 9  
// 14 1 2
```

Version 1:

```
private static void Add(Node head1, Node head2)  
{  
    int res = 0;  
    if (head1 != null)  
    {  
        count++;  
        Add(head1.Next, head2.Next);  
        count--;  
        res = head1.Data + head2.Data + carryFwd;  
        carryFwd = res / 10;  
        Node newNumNode =null;  
        newNumNode = new Node() { Data = res % 10 };  
        if (head3 == null)  
        {  
            head3 = newNumNode;  
        }  
        else  
        {  
            newNumNode.Next = head3;  
            head3 = newNumNode;  
        }  
    }  
}
```

```

    // happy with this logic where the list will go in
    // reverse direction something like Insert at the head
    // position every time a new node occurs to be created
}

```

Version 2: asked me to take an example and prove the solution is correct

One of my test case failed if the last digits also give the carry forward

```

static int[] aa = new int[3];
static int carryFwd = 0;
static Node head3 = null;
static int count;
private static void Add(Node head1, Node head2)
{
    int res = 0;
    if (head1 != null)
    {
        count++;
        Add(head1.Next, head2.Next);
        count--;
        res = head1.Data + head2.Data + carryFwd;
        carryFwd = res / 10;
        Node newNumNode =null;
        if (count == 0)
        {
            newNumNode = new Node() { Data = res };
        }
        else
        {
            newNumNode = new Node() { Data = res % 10 };
        }
        if (head3 == null)
        {
            head3 = newNumNode;
        }
        else
        {
            newNumNode.Next = head3;
            head3 = newNumNode;
        }
    }
}
}

```

Version 3:

This will save last digits sum in a single node this is not what I have expected when the

sum is of two digits, so please fix the code

```
private static void Add(Node head1, Node head2)
{
    int res = 0;
    if (head1 != null)
    {
        count++;
        Add(head1.Next, head2.Next);
        count--;
        res = head1.Data + head2.Data + carryFwd;
        carryFwd = res / 10;
        Node newNumNode =null;
        newNumNode = new Node() { Data = res % 10 };
        if (head3 == null)
        {
            head3 = newNumNode;
        }
        else
        {
            newNumNode.Next = head3;
            head3 = newNumNode;
        }
        if(carryFwd ==1)
        {
            newNumNode = new Node() { Data = carrFwd};
            newNumNode.Next = head3;
            head3 = newNumNode;
        }
    }
}
```

Version 4:

Can u optimize more here...? What is the maximum when you add two digits...? What are the possible values for the carryforward...? Back to back questions

So the final version of mine is removed the count variable and moved the last condition of carryforward to outside of function. He created more fun here that why he is digging so deeper.

```
public class Node
{
    public int Data { get; set; }
    public Node Next { get; set; }
}
```

Now write the test cases for this problem.

Around 15 test cases means test inputs. I had written by looking at my solution. The question here is do u write the test cases for your solution or for the problem, consider this is not your code you have been given a problem and write the test cases. Then I added some of the test cases by ignoring my assumption of equal length of list. Asked to some more to write was happy when I had written a test with linked list size of 10000000 as my solution is recursive I may get the stack overflow exception. With this answer he banged me with lot of questions.

Interviewer: Then why do you choose recursion I need an alternate approach not happy with one alternate

```
// Approach 2
/*
 * Reverse list 1:
 * Reverse list 2:
 * Add the lists with remainder and dividends
 * Reverse list 3:
 */

// Approach 3
/*
 * make the linked list to array and use the indices to
 * traverse and do the addition
 * No program is asked for it
 */

// Approach 4
/*
 * mConvert the entire linked list to an integer and then
 * add both the integers and then prepare a linked list
 * with the result
 * but the issue if the result is out of integer boundary
 */
```

When I told approach 4 he asked me

Interviewer: "Are you thinking that why this guy is saving integer in linked list and then asking me for addition of such lists...?"

Me: Yes

Interviewer: then answer yourself what is causing me to do this way, lets exchange the roles

Me: told some scenarios like

1. want to have index based integers and growing dynamically (so arrays won't be friendly)
2. If I want to have a counter which value is more than the range of integer then I can go with this or some other data structure.

Interviewer: Now lets go back to the question again and then fix your code by ignoring your assumption of equal length of lists

Me: the above approaches 3 and 4 can solve

Interviewer: but these are alternate approaches to solve any means of fixing the same solution instead of going with the alternate?

Me: May be I'll pad the smaller list with the zeros and then use my algo extra overhead initially but it works.

Interviewer: Ok Back to your solution Recursion why did you jump and started with the recursion when u have these many alternates...?

Me: I usually think of recursion when someone ask a question in linked list which will solve sometimes easily as it is unidirectional.

Interviewer: can u elaborate more how recursion will ease the developer logic

Me: It uses internally tree through which I can perform operations in reverse direction in a linked list

Vijj: What tree does it maintain?

Me: Name is some RecursionTree but its not actually a tree

Interviewer: Then what is that

Me: some data structure

Interviewer: offcourse what is that data strucrue

Me: I hope its stack as it is working LIFO fashion so I can do the reverse operation easily. That's why one of my test case checks for Stack overflow exception as I used recursion when I have huge data.

Interviewer: What is LIFO

Me: explained about the LIFO and compared with the FIFO.

Interviewer: Any questions to me ...?

Me: If it is not confidential and obvious tell me what is the core logic or algos used in Bing, as my manager told this is for bing team

Interviewer: ok if you want to write an algo for a search whats ur approach

Me: I'll go with some Heuristics based search, like Best-First search kind of A* algorithm or TSP (Travelling sales person) problem solution.

Interviewer: if that is the case anyone can write a search engine 😊 we also use some heuristics but never be like straight A* algo

And some discussion on Google Vs Bing and then That's all from my side and you may be part of Bing relevance team once we talk with other guy.

Round 2: lasts for 1:30 min

Interviewer: will start directly with the question without wasting time.

Given an array of +ves and -ves find a sub array which maximum is max among all the sub arrays of any length in the given array.

Tell the approach first and then write the code

Me: After some time told the approach with O(n) complexity then he asked me to write the code

```
int len = sizeof(arr)/sizeof(arr[0]);
int currMax = a[0], finalMax = arr[0];
for (int i=1;i<=len;i++) {
    currMax += a[i]; i
    if(currMax > finalMax)
        finalMax = currMax;
    if(currMax<0)
        currMax = 0;
}
```

Interviewer: Take some numbers and prove that your solution is correct

Me: Shown with the example I need to traverse for the entire list till I get the answer.

Interviewer: Does it fail in any scenario?

Me: no never

Interviewer: It will fail if all the numbers in the array are -ve

Me: but initially the question was the array is mix of +ve and -ve

Interviewer: Ok then let me change the question and consider it has all -ves then does your code fail if so where?

Me: yes it will with condition of currMax

Interviewer: then fix

Me: took lot of time to fix and then asked me to prove the correctness

I couldn't prove my solution as I lost somewhere while I was tracing with the big list but the solution was correct, So

Interviewer: he asked me to change the initialization and fix that is the hint

Me: I couldn't fix as I was stick to my solution, but I gave an alternate approach like I'll multiply all -ve numbers with -1 and make the list is full of +ves and then find the minimum of sub array instead of max once I got I'll make it is a -ve number before return or print

Interviewer: very keen on what is the return value of the function which I wrote; and he told you are going to the alternate solution instead of fixing the existing solution

Interviewer: ok lets go to another question given a tree find the ancestor

Me: meaning parent, grand parent, or grand grand parent

Interviewer: does it matter for you? And what is your approach for say grand parent

Me: I said may be I'll go with stack and based on your option I'll peek the node from stack

Interviewer: Ok we will go to some other question instead of this.

Interviewer: I'll draw a tree on a paper and give that to you take your own time and remember the tree in a data structure and once you say yes I'll wipe out or take my paper back then consider the data structure is input to your algorithm and then construct my tree back

Me: I couldn't understand the problem asked too many questions what he really want like I'll construct the tree by using your tree and then call the same function to recreate

Interviewer: how do you create what is your input what is the data structure is that

Me: I said Node blah blah ... asked too many questions then I understand what he wants So my approach was I'll represent your tree in two arrays one will be Inorder and other will be pre/post here I'll go with Pre and once I have these two arrays I can go with the construction algo by giving these are inputs.

Interviewer: tell me the approach how do u construct if you these two arrays

Me: I told combining these two how we can go and construct like from inorder we can get the root element and find that root in the second array and then split the array which is same as left and right of tree for the root and proceed further; this I need to do it manually for the given tree to prove my solution; and he asked couple of questions after splitting where the sub arrays will go and how dow remember that what is left n right; manually I explained all these with the example and I said don't know what condition need to check when I write this as a program

Interviewer: happy with the approach and asked what In/Pre/Post orders why did u choose only these two

Me: I need Inorder and you can tell me which one do you want me to take either pre or post

Interviewer: its up to you, ur algo ur data structure and write the program

Me: I was not able to put my logic in the code as I couldn't get the proper conditions tried in normal way as well as recursion but couldn't make a concrete code at all.

Interviewer: we are running out of time so will stop here.

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180. Myntra Interview | Set 1

First round

1) Given set of coins of different denominations like 1\$(100), 5\$(50) ..etc, and given an amount, I was asked to come up with optimal solution using least number of coins to get that amount.

I told greedy approach of starting with maximum denomination coin, use up as much as possible, then moving on to next, I was asked to tell dynamic programming approach.
I told I will split the amount in half and keep doing it until i reach 1 1 combination..start calculating optimal combination..and keep going up like..

2) Next question was to try and implement google autosuggest. I told i will use tries, pseudo code and some optimizations on top of it.

Second round

1) If every leaf node in binary tree forms a double linked list, that is all the leaf nodes for a DLL.

ex:



print all the leaf nodes....

This involves first identifying leaf node. We can do that by checking at every node, if the its child points right back at the parent, then parent is leaf node.

2) After this it is simple traversal of DLL and printing nodes.

3) Level order traversal.

4) Mirror image of tree

5) Ancestors in binary tree.

Third round

System Design questions :

1) A Bunch of devices....u can share files etc., ..each device might support only some limited format of files. Design a common server hosting all the files repository.

2) Design a website where after user request...a bunch of processes need to be executed and then a mail is sent to user with the result. ..Take care of scalability etc.,

Fourth round:

System design: The whole supply chain, a central head, bunch of divisions under it... under each division ..bunch of manufacturing units and then under them...vendors.

SOA approach seems to be best in this case.

in mobile phones how autosuggest and autocorrect work.... google ranking algorithm... and little on analytics.

Fifth round

1) Database:design with one-one mapping, one-many mapping...some basic qns.

2) Binary tree insert, delete (all the cases in delete and when they happen)

3) Zig zag level traversal of binary tree

4) There was one dynamic programming question..I dont remember what it was...

5) c++ oops....polymorphism...

6) and also if following is possible...virtual parent, child1, child2

virtual parent* = new child1

child1* = new parent

child2= child1 ???

7) Given a bunch of floors....and egg will break only if it is thrown from a floor and any floor above that....what least number of eggs u would need if total floors are say 32.. I went with binary search..where I start from middle...throw the egg, if it doesn't break... go to middle of upper half and if it does break..i know I should go to middle of lower half. ...so 5 eggs

Sixth round

- 1) This was CTO round, if you make this round...you are doing pretty good.
- 2) He asked a lot on what I worked on ...and asked questions relevant to that.. process threads...stacks heaps. a minor system design on component in their system. how they are shared between..tradeoffs...
we discussed about scalability and challenge....

a bunch of behavioral questions .

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181. Cadence India Interview | Set 1

I recently gave interview for Cadence, for Member Technical Staff position. Total Work Experience – 2.5 year.

Telephonic :

- 1) How to limit the scope of a variable -> I explained about static
- 2) what is linked list, implement using array and linked list (which is better single or doubly?) and space and runtime complexities of push() and pop().
- 3) In a directed graph how can you find a cycle? is it possible to find using BFS, why BFS is preferred over DFS.

Face to Face

Round 1 :

- 1) Automata basic questions (I didn't remember automata.. the guy helped me in this one) make a State diagram for a^*b^*c expression.
- 2) convert it into deterministic diagram
- 3) state diagram for $a[POW(n)]b[POW(n)]c$ (use of counter is required)
- 4) n jobs are given , their dependency list is given how will you schedule them ? (I explained using modified BFS)
- 5) If a graph DS is given, how will you dump that into memory and retrieve it again ?

Round 2 :

- 1) Write code for string reversal.
- 2) Write code for linked list implementation. push and pop
- 3) Puzzle – 23 coins are given and two player are there. anyone can pick 1 to 4 coins at a time.
One who picks the last coin wins.. Find algo for it.

Round 3 :

- 1) In a project, i have an api which takes some parameters and returns a string.
How will you handle the memory allocation done inside this API ? – Ans is you make it static.
- 2) Puzzle – two ropes are given. each burn in 60 mins. how to count 45 mins from it.

Round 4:

- 1) General questions about my current work and projects done with the senior manager.

Round 5:

HR round..

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182. Amazon Interview | Set 69 (For SDE-1)

Online Coding Round:

1. Find if a given string contains duplicates
2. Given a BST, find the maximum N elements of the tree
3. Given a BST, convert it into Doubly Linked List
4. Rotate a 2-D Matrix by 90 degrees

Telephonic Interview 1:

1. Sliding Window Problem: Given a larger integer buffer/array (say size, x), now given a window size (say, n) and a number (say, k). Windows starts from the 1st element and keeps shifting right by one element. The objective is to find the minimum k numbers present in each window.
2. Given a binary tree, each node having an integer data, the objective is to create a new Doubly Linked List using this binary such that each node in DLL has vertical sum of nodes in binary tree. The order of nodes in DLL shall be left to right as that of binary tree's vertical nodes i.e., leftmost vertical sum shall be 1st node in DLL and the rightmost vertical sum shall be the last node in DLL.

Telephonic Interview 2:

- Given the root of the binary tree and a pointer to any random node in that tree, the objective is to print all the nodes at 'k' distance from the given random node.

Face to Face:

Note: Time and space complexity were discussed in each of the following questions. And for each question I was asked to optimize the algorithm and later write the working code for it. Also in each round the current project was discussed.

Round 1:

- Given a matrix ($m \times n$), source (0, 0) & destination ($m-1, n-1$) (i.e. last cell), Find out total number of ways to reach the destination from the source.
- Given a binary tree, defining a term "complete path sum" as, sum of values of nodes lying in a path from root to the leaf; Now given a value 'k', we have to find the k-heavy path and prune the binary tree i.e. prune/delete nodes for which complete path sum is smaller than k.

Round 2 (Manager's Round):

A thorough discussion on an issue: If I am an owner of company which is selling some product. So, how shall I store my data in Database such that when any analyst comes and asks for any information then I could provide him most precise values. It mainly consisted which data should be stored and how it should be stored.

- Given two sorted arrays, create a final sorted array. Later, the problem was extended saying that, now we have 'm' number of sorted arrays each of size 'n', now efficiently create a final array. A lot of discussion was done on complexity of the approach (both time and space).

Round 3:

- Given a binary tree, where cost of travelling to the left child is '1' and same for the right child is '2'. Now, given the root of the tree and a value 'k', find the total number of nodes that are at a distance/cost of 'k' from the root.
- Given an unsorted integer (positive values only) array of size 'n', we can form a group of two or three, the group should be such that the sum of all elements in that group is a multiple of 3. Find the maximum number of groups that can be generated in this way.
- Given an integer array, find minimum number of jumps to reach the end of the array.
<http://www.geeksforgeeks.org/minimum-number-of-jumps-to-reach-end-of-a-given-array/>

Round 4:

- Given a BST, convert it into a Doubly Linked List in place. **NOTE:** We don't have to create a new data structure i.e. we have to modify the links/pointers in given BST.

2. Question was framed this way: Given street of houses (a row of houses), each house having some amount of money kept inside; now there is a thief who is going to steal this money but he has a constraint/rule that he cannot steal/rob two adjacent houses. Find the maximum money he can rob.

NOTE: I didn't face any HR round, all though in each rounds I was asked about the reason for the change.

In all it was a great experience, and interviewers were really cool and gave a plenty of time to think and code, sometimes suggested/hinted if I got stuck.

GeeksforGeeks has been extremely helpful for me in preparing.

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183. Flipkart Interview | Set 4 (For SDE-1)

Company: Flipkart

Profile: SDE 1

Experience: 7 months

Round 1: Online Coding Exam (2 hour on interviewstreet)

(Need to pass 4 test cases + if time permits 4 hidden test cases)

Q.) There are two strings s1 and s2. Find the maximum of percentage word matching from s1 to s2 and s2 to s1.

Where, percentage word matching= (Total words matched in s2/total number of words in s1) *100

Round 2: 1st Telephonic interview

Q1) Generate all numbers in ascending order which are having factors as 2,3 and 5.

Discuss various approaches.

Q2) Check whether given Binary Tree is a Binary Search Tree. Discuss various approaches.

Q3) I don't remember

Round 3: 2nd Telephonic interview

Q1) some scenario interviewer described on phone had to identify data structure to model it and algorithm to solve. Data structure used: Graph and algorithm used:

Topological sort

Q2) Given N meeting with their start time s1, s2sn and end time e1, e2en and K rooms. How to schedule maximum of N meetings in k rooms. (Concept: Interval

partitioning using greedy approach).

Called for onsite interview. All expenses flight, hotel, cab etc..were taken care by company.

Round 4: 1st f2f interview (Machine Coding round) (1hour 10 min)

Given a string regex and another string pat find whether the pattern is acceptable against given regex string.

Regex string contains following characters and special characters:

1. Normal alphabets – a to z and A to Z
2. '\$' – all string should end with all characters preceding \$

Example:

Regex :abc\$,

Pattern: abcd(Not acceptable) , abc(acceptable), ab(Not acceptable), dhfusdhabc(acceptable) etc..

3. '^' – all string should start with all characters exceeding ^

Example: Regex : ^abc

Pattern: abcd(acceptable) , abc(acceptable), ab(Not acceptable), dhfusdhabc(NOT acceptable) etc..

Regex: ^ then only pattern acceptable is null.

4. '.' – any character can be mapped to dot except null

Example 1: Regex : .abc

Pattern: Zabc(acceptable) , abc(NOT acceptable), ab(Not acceptable), habc(acceptable) etc..

Example 2: Regex :a.bc

Pattern: abc(NOT acceptable) , aXbc(acceptable), ab(Not acceptable), habc(NOT acceptable) etc..

5. '*'-the character just preceding * can be repeated n time where ($n \geq 0$)

Example 1: Regex :abc*de

Pattern: abcccccccccde (acceptable), abcde(acceptable), abcccd(not acceptable)

Code should follow OOPs principle such as modularity (make each function for each special character), encapsulation etc.

Further discussion on improving the code and how would other person can see the code and add other functions to it.

Round 5: 2nd f2f interview (Problem solving and data structure round) (1 – 1.5 hr)

Q1). Generate n numbers in ascending order which are having given k factors. Discuss various approaches. Discussed on various approaches.

I told 3 approaches:

Naïve approach— $O(nk)$

Heap approach — $O(n\log k)$,

Linear time — $O(n)$

Q2). Given set of words which I have to treat as dictionary as new lexicographic order. I have to learn from set of string as print lexicographic order of each character.

(Topological sort) (<http://www.geeksforgeeks.org/topological-sorting/>)

Q3) <http://www.geeksforgeeks.org/flipkart-interview-set-3/> –> Round 1 , Question

3(<http://www.geeksforgeeks.org/topological-sorting/>)

Round 6: 3rdf2f interview (Hiring Manager Round) (1 – 1.5 hr)

Tell me about yourself.

About your hobbies, your ideal

Discussed every minute details about my one published research IEEE paper.

Why you want to join Flipkart?

Why you are leaving your previous company within just 7 months?

etc. etc.....

Round 7: 3rdTelephonic interview (Reporting Manager Round) (1.5 hr)

Discussed about product life cycle in a product based company and consultancy based company.

Work flow, Flipkart hierarchy.

Compensation details.

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184. Amazon Interview | Set 70 (On-Campus For Internship)

Online Round Coding Question:

Q1. Given a float number 7.64, convert it into the string WITHOUT using any inbuilt function/library.

for eg:

input

float no.: 7.64

output

string: 7.64

Q2. Given the inorder and preorder traversals of a Binary Tree, output the postorder traversal of it.

for eg:

input:

Inorder: 7, 8, 4, 1, 6, 2, 5

Preorder: 1, 4, 7, 8, 2, 6, 4

output:

Postorder: 8, 7, 4, 6, 5, 2, 1

Round 1 written:

Q1. Given a string find the length of longest substring which has none of its character

repeated?

for eg:

i/p string:

abcabcb

length of longest substring with no repeating characters: 3 (abc)

Q2. Given a link list with right pointers and each element of the list has a down link contains another link list with down pointers as:

5	->	7	->	9	->	18
10		6		14		20
11		8		19		22
12		13				24
15						

each right and down list are sorted.

Write a function flatten() which flattens this link list to a single link list with all the elements in sorted order as:

5->6->7->8->9->10->11->12->13->14->15->18->19->20->22->24

PI Round 1:

The interview started with discussions and questioning about the internship project and other projects mentioned in my Resume.

After the discussions about projects interviewer asked a question on string the question was:

Q1. A string of length n and an integer m was given, give an algo. to rotate the string counter clockwise by m. I was asked to give all the check conditions for input m.

Then the interviewer asked me to write a code for the same with a strict guideline that there should not be any mistake in the code ;).

Q2. After this he asked me about heap, min and max heap, insertion and deletion in a heap. He asked me to prove that the time complexity of inserting n elements in a heap. At-least he asked about the uses of heap data structure and other data structure which are implemented using heap.

PI Round 2:

Q1) What is the difference b/w abstract and interface class?

Q2) Write a program to create single thread and print "Hello World", stating all the arguments of createThread function?

Q3) What is a deadlock and what are the condition necessary for the deadlock to occur?

Q4) What is a cache memory and how it is implemented?

Q5) Explain LRU, FIFO and other page replacement algorithms?

Q6) Write a code to implement LRU cache and then implement full cache memory?

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185. Adobe Interview | Set 8 (Off-Campus)

Experience : 8 months

First Round :

Held on interview street .Aptitude + technical (standard pattern and questions)

Second Round (f2f):

Started of with the discussion of trees. Like what is a tree/BST ?

Implement insertion in tree (Java).

Discussion on projects.

Search time complexity in BST/ ternary tree.

Link List v/s BST

Third Round (f2f):

Implement a generic binary search algorithm i.e. the input array may contain int, double or structure values.

How does strtok() works. How can you make it thread safe.

Given an array, find number of pairs which equal to a given sum.

Question on singleton pattern.

Fourth Round(f2f) :

A building has n steps. A person can take 1,2 or 3 steps. In how many ways can a person reach top of building.

General discussion on cache.

You have a stream of incoming integers. How will you store these numbers and implement following functions : GiveMax(), GiveSecond Max(), Delete Max(), DeleteSecondMax (), Add , Remove an element.

I couldn't make it beyond this round.However, this was my interview experience.

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186. Amazon Interview | Set 71 (For SDE-2)

Recruitment Drive – Delhi (22 March 2014)

Position SDE-2

1st Round – Coding and Algo (50 Minutes)

1. Find In order predecessor in BST.
2. Find Nodes which are at “K” distance from given node.

Interview asked to explain logic and write full code with all boundary conditions.

2nd Round – Design Round (50 Mins)

1. Asked about abstract classes and abstract class there uses and where they have to used.

Asked me to design online cab booking system for amazon. Then asked me to design High Level diagram for it.

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3rd Round – Coding and Algo Round (1 Hour)

1. Asked to explain how to check Binary tree is BST? then asked me to write whole code of it.
2. Then asked me about assembly line problem. <http://www.geeksforgeeks.org/dynamic-programming-set-34-assembly-line-scheduling/>
3. Then asked me to solve Knapsack Problem <http://www.geeksforgeeks.org/dynamic-programming-set-10-0-1-knapsack-problem/>

4th Round – Manager Round (45 Min)

Asked me about my experience with current company and details of my project

Then asked about singleton pattern.

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mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

187. Bharti SoftBank (HIKE) Interview | Set 1

First Round Written Test

1. The test consisted of 10 MCQ's on Aptitude and 10 MCQ's on C programming.
2. It also consisted of 2 programming questions which were easy
 - a. In an array find two numbers whose sum equals zero in O(n) complexity.
 - b. Given Preorder and Postorder traversals of a BST . Construct the tree.

First Technical Interview

The interviewer was quite cool and composed. He started from initial questions about me and then went on with asking some questions on processes, semaphores and networks(as i had a networking project in my resume).

Then he started with some questions as

1. Given two strings check whether one string can be mapped to other string. For eg. abcd can be mapped to ghjk but accd can not be mapped to ghij since 'h' and 'j' both can not be mapped to 'c'.
2. Given a string find the number of meaningful words(which add to original length of the string) which could be formed from the string (A function called isWord() was provided which had tell you if the word was a dictionary word.

for eg. programmerit forms:

pro+gram+merit

program+merit

programmer+it

pro+grammer+it

Then he discussed the iterative and recursive approaches and asked me to calculate the complexity of my code.

3. He discussed the longest common subsequence problem with me and discussed the top-down and bottom-up approaches.

Second Technical Interview:

He started with questions on Object Oriented programming like inheritance, virtual classes, operator overloading etc.

1. Given a number find the next higher number from the combination of given numbers.

for eg. 3256 ----- 3265

```
3265 ----- 5236  
432 ----- error
```

2. Discussed hashing and some other questions on OS related algorithms.

Good Experience !!

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188. Adobe Interview | Set 9

Experience: 8 months

Online Written Test:

Given interviewstreet links of two tests. 24 hr. time-line to finish both tests. Tests are independent, can be given at any-time on that day in any order.

1. Duration 120 min.

Basic C, OS 20 multiple choice questions

7 coding questions

2. Duration 50 min.

40 low level maths aptitude and LR questions

After a week, received call for onsite interview rounds at noida office.

4 technical rounds + HR:

1st round: (manager level guy)

little intro to give it a start

why do you want to leave so early (Graduated in 2013 so its only 8 months)

Should I evaluate you as freshers or experienced ? (because my previous work was bit of non-technical)

1.(Bit manipulation/bit masking)

Given a M*N size tv screen. Colour of each pixel is integer value b/w 0-7 (i.e. 3 bits to represent colour)

screen is tightly packed bits(no byte padding allowed). now given a (i,j) index of pixel change its colour ?

Basically screen is matrix but in memory its represented as 1-d array.

character array can be used to represent each bit.

Hint:

map matrix (i,j) to 1-d array and change 3 bits to change colour.

problem arise when 2 bits are in one byte and another 1 bit is in another byte.

2. Process vs threads

3. One question to check whether i have idea on address space of process and threads
(based upon threads share data and heap but have separate stacks)

4. How realloc() work in C.

2nd round: (4-5 years experienced guy)

1. Given an integer N . tell if it is power of 3 or not.

2. Given infinitely long character array.

replace all occurrence of particular word with another word of larger length. Solution should be inplace can do copy only one time.

e.g.

Gandhi was born in 1969. Gandhi was from gujrat.

replace gandhi with mahatma

3. Given a binary search tree delete any node in tree.

one more question...

3rd round: (4-5 years experienced guy)

1. Given sorted 2-d array of integers i.e. row wise and coloum wise sorted
Search for given number in array.

2. Given an circular linked list. convert it into non-circular . no link or data can be changed.

(basically find start node of circular list and de-link it)

3. Given an integer array find two numbers with sum equal to K.

one more question...

I finished this round early so he chated about which system you use.(windows or linux)
what is difference b/w this two.

You had 4 gb RAM or 8 gb RAM ? how RAM size affect user perspective ?(want to know i have general idea about virtual memory or not)

4th round: (highly experienced old guy)

Given sorted 2-d array of integers i.e. row wise and coloum wise sorted
Search for given number in array.

I told him i already solved this in previous interview.

then he extended same question.

Insert a number in this array.

Delete a number in this array.

Only this question,because we had wide discussion about various approaches.

HR round:

Didn't happen because HR was in urgent critical meeting.

After 2 days got a call from HR that I was selected for Adobe 😊😊

Thanks you geeksforgeeks team for making my preparation smoother.

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189. Flipkart Interview | Set 5 (Off-Campus for SDE-1)

I recently attended Flipkart interviews(off campus). I would like to share my experience with everyone.

Round 1 : Telephonic Interview

1) Print the left view of a tree.

2) Given set of words that are lexicographically sorted, find the grammar.

Eg:

abc
acd
bcc
bed
bdc
dab

The order of letters for the given example would be

a->b->c->e->d

Round 2: Telephonic Interview

1) Find the largest basin size in a given matrix.

9 9 9 8 8
8 8 8 7 7 7
7 7 7 7 7 7
8 8 8 8 9 9
5 5 5 5 6 3
5 5 5 3 3 3

For the above example, the highlighted values form the maximum size basin.

2) Given a sentence and a set of characters. Find the minimum window within which the set of characters can be found in the sentence in any order.

3) In a client-server architecture, there are multiple requests from multiple clients to the server. The server should maintain the response times of all the requests in the previous hour. What data structure and algo will be used for this? Also, the average response

time needs to be maintained and has to be retrieved in O(1).

The HR sent a mail within 2 days that I was shortlisted for the onsite interviews. They arrange flight travel to Bangalore, cab facility and accommodation if required.

In-House Round 1: Coding Round (2 hours)

I was asked to write code to parse an XML and do the following options by not hardcoding any value.

- 1) Validate the XML.
- 2) Given a level number, print all values of tags in the same level.
- 3) Search
 - a tag name for a given value
 - for value of any tag given a value of tag at any sub levels.

First there was discussion as to how to go about the problem and the algorithm. Then 1 hour for coding the solution. Finally the code was evaluated and some extensions to the solutions were discussed

In-House Round 2: Hiring Manager (45 mins)

The Hiring Manager was on leave and hence had the interview via phone. This round was a cultural fit round. The manager checks whether we will fit into the company's work environment. Few questions like,

- 1) Some unix commands since they work extensively on UNIX platforms.
 - 2) Achievements.
 - 3) Details on previous projects.
 - 4) Most challenging situation.
 - 5) Estimations that need to be done for a project and considerations
- Some more questions like these.

In-House Round 3: PS & DS Algo (1 hour)

- 1) Merge k sorted arrays.
- 2) Given a tree with edge weights, find any path in the tree with maximum sum of edges.
- 3) Given a maze, a start point and end point find the shortest path to reach the end point from the starting point.
- 4) Given a polygon and a point, find whether the point lies within the polygon or not.

After a week, the HR contacted me and I got through the interviews. 😊😊

Excellent facilities and salary package for candidates who get selected.

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190. Amazon Interview | Set 72 (Off campus for SDE-1)

Amazon Interview (Off campus for SDE-1)

Experience: 8 months

Interview Process – 2 (telephonic) + 3 (f2f – Bangalore) + 1 bar raiser (telephonic)

Telephonic 1 (25 minutes only)

Q1. Two strings s1 and s2 are given; find a minimal length substring in s1 which does not contain s2 as a substring. (Do include all edge cases)

Q2. Swap all nodes of a linked list with their next nodes.

Telephonic 2 (65 -70 minutes)

Q1. An integer array of size n is A[] given, find the three numbers s.t. $A[i] > A[j] > A[k]$ and $i < j < k$. (algo only)

Q2. An array of integers is given, trim the array such that $2 * \text{min} > \text{max}$. min and max are the minimum and maximum elements of the array. You can remove elements either from start or from end of the array if above condition does not meet. No of removals should be minimum. (algo + code)

For example a, b, c, d, e f are the elements of array, c is the min num and e is max no condition $2 * c > e$ is true then we are done but if false then remove either from start i.e. a,b,c or from end i.e. e, f such that new min or max would satisfy the condition and removals should be minimum.

Q3. A sorted array of integers and a number K is given, find the closet number to K. (algo only)

F2F 1 (60 minutes)

Brief introduction about my self and my work experience in current company

Q1. Equilibrium Point in an integer array (sum of left side elements should be equal to sum of right hand side elements)

Q2. Extend above for multiplication (multiplication of left side elements equal to multiplication of right side elements)

(special case of Zero and some discussion on arithmetic exception and range bound errors)

F2F 2 (60 – 65 minutes)

Some general introductory questions; why are looking for a change and work experience.

Q1. For a given number K, print all pairs of valid parenthesis combination and return the total count of such combinations.

Q2. There are n balls kept on a table and connected in random fashion but there is no cycle (no back edge). Write the code to select a ball such that after lifting the whole structure from that ball height will be minimum. (algo+code+ mathematical proof of

correctness)

Q3. Difference b/w http and https.

Q4. Suppose you are handling Amazon website and you have 10 MB size home page.

Optimize the homepage for a customer who has 100 kbps internet connection.

Further he asked for the customer who has 100 mbps internet connection.

F2F 3 (with Hiring manager, 80-90 minutes)

Lots of discussion about current project. He will ask you everything from bottom level to your contribution.

Q1. Implement memcpy (*src,*target) function.

Q2. Reverse contents of a linked list.

Q3. I code in java so lots of question on oops and java like swing and awt difference , vector and array list difference , interface and abstract classes.

Q4. Client and server code in chat window, background process in server and network, networking layers.

Q5. Process and threads and code for thread safe situation (take an example and explain)

Bar raiser (Telephonic one hr)

Hr Question like biggest challenge so far, projects, why are you looking for a change, why amazon, biggest mistake.

Q1. Given flat files (for an entire year, 1 per day) of train schedules (arrival and departure times at a given station) find Min platforms required to accommodate the trains in that station.(algo only)

Q2. I want to write a ransom note. But I don't want to write it by hand, I'm going to cut letters out of a magazine. How can I tell if the magazine has enough of the right words to spell out the note I want to write? Let's assume we have a way to digitize the text of the magazine. (algo only)

I asked him about Amazon kindle and Amazon instant video. Show him that you know lot about amazon.

Advice for Amazon: except from all data structure, read Trie data structure very well and how to process big data.

Next day I got call from HR tht I am Hired 😊

Thanks a lot to geeksforgeeks team.

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I have been interviewed for SDE1 by amazon. Here are the questions.

1st Round – Online Coding

1. Contiguous elements in an array whose sum is k.
2. Convert sorted array to binary search tree.

2nd Round – Telephonic

1. Implement stack with Push, Pop, GetMin and GetMax in constant time. Algo + Code
2. Given a matrix, sorted both horizontally and vertically, algo and code for finding an element in it. Algo
3. Given a stream of characters, convert it to a sentence with valid words. Assume you have a function IsWord which returns true if the passed string is a word. He asked me to write code and mail him. Algo + Code

Ex: lamgoodboy – I am good boy

3rd Round – Telephonic

1. Given an array of characters, find the longest continuous non-repeating sequence of characters. Algo + Code

Ex: abcdefgdghijk – efdghijk

I have given a hash based solution, so he asked me to write a custom hashfunction and how to handle collisions.

2. Find the next largest palindrome number of the given number. Algo + Code

Ex: 120 -> 121, 123 – 131

4th Round – InHouse technical round

1. Find the mirror image of a binary tree. Algo + Code
2. Given a string, find the largest repetitive sequence. Algo + Code

Ex: abcdefbcd – bcd, banana – ana

5th Round – InHouse technical round

1. Given a string, remove 'a', 'bc' from the string and print the result. Algo + Code
2. You will be receiving an infinite sequence of numbers continuously and at any particular moment find the 10 largest ten numbers received till now. Algo

6th Round – Bar raiser round

1. Given a graph, find the nodes which are at less than k distance from the given node.

Continuation: find all the nodes which are less than k distance from m nodes. Algo + Code

2. Implement a queue using an array. All base conditions. Code
3. Given a very big array of millions of integers, find sum of all the elements. Parallel processing and threads is the answer. Threads concept, synchronisation and so many of it.
4. OS concepts – virtual memory, paging, process states, paging algos.

5. In detailed explanation of projects done till date.

7th Round – Manager Round

Asked dilemma situation. Any process development work, work experience and all.

geeksforgeeks helped me to refresh all kinds of topics. Thank you.

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192. Amazon Interview | Set 74

Phone Interview:

- 1) Given a 2D matrix where every row is sorted, give the index of row which has maximum number of one's
- 2) Given a Binary tree, print its every level in a new line.

Face to Face Interview (Round 1):

- 1) you have an array which has a set of positive and negative numbers, print all the subset sum which is equal to 0.

```
eg 2, 1, -1, 0, 2, -1, -1  
o/p: 1, -1  
      1, -1, 0  
      0  
      2, -1, -1
```

- 2) How do you check whether a binary tree is a binary search tree.

Face to Face Interview (Round 2):

- 1) you have a billion numbers how do get kth top elements
- 2) given a number n, print all pairs of valid parenthesis

```
eg: n=2 -> (()), ()()  
n=3 -> ()(), (())(), ()((), ((()))
```

I did not clear after this round, I hope this helps others.

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193. Amazon Interview | Set 75 (For SDE-1)

I am currently in my 8th semester . I recently attended the off campus drive for SDE1 at Amazon. Here's my journey.

Round 1:- (Written)

This was a written round . It was hosted on interview street.

It was a 90 minutes test with 20 mcq and 2 codes

1> Return the longest palindromic substring in a string

2> Count the number of 2's in all number from 0 to n .

Mcq's were based on ds algo,operating system and maths.

After two days I got a call from the hr that I have cleared the written and a phonescreen is to be scheduled.

Round 2:- (Phone screen 1)

This was supposed to be a 1 hour round. The interviewer shared a collabedit link.

1> Divide an array into 2 subarrays such that the absolute difference of their sum is minimum. It was then extended to divide into two subsequences .

2> Convert a sorted array to a balanced binary search tree.

3> Convert a linkedlist with positive and negative integers into a list with first all negative integers, then positive. order amongst negative and positive numbers to be maintained .

Generally if first phonescreen is convincing the next step is direct face to face interview , else one has to go through another phonescreen . I had one phonescreen only . After a month i was called for inhouse interviews . All arrangements were made by them .

Round 3 :- (Face to Face 1)

1> Define a BST. Now check if a binary tree is a BST

2> Given an array of size n, and an integer k. find minimum number in every subarray of size k

3> Given n non-negative integers representing an elevation map where the width of each bar is 1, compute how much water it is able to trap after raining

4> Given an array find all triplets whose sum is equal to a given number k

Round 4 :- (Face to Face 2)

1> Find the diameter of a tree.

2> Print the diameter of a binary tree . (U have only left and right pointers)

3> Assembly scheduling problem (Dynamic Programming paradigm)

Round 5 :- (Face to Face 3)

1> How to check if two sets are disjoint ?

- 2> How to implement hashing for a set .
- 3> Given n sets , give the minimal number of sets which must be removed so that the remaining sets are all disjoint (Variation of set packing problem)
- The interviewer was interested in some greedy heuristic as he knew its an np complete problem and no solution can be better than exponential
- 4> You are given a matrix of 1's and 0's . The property is that every row of matrix is sorted in descending order . Return row with maximum number of 0's

Round 6 :- (With senior manager)

Interview started with detailed discussion of projects.

- 1> Implement lastindexofastring(String s1,String s2) . If s2 is present multiple times return the last index of s2 in s1 , else return -1.
- 2> Given a paragraph of text, write a program to find the first shortest sub-segment that contains each of the given k words at least once. A segment is said to be shorter than other if it contains less number of words.

The interviewer then asked me if i had done something on multithreading . As i was not very confident so i said no and he dint go further .

He then asked me what is my biggest regret in my student life in college .

Amazon hr's were extremely helpful. After 3 days I got a confirmation call that I was hired. Geeksforgeeks has been instrumental in helping a lot of people to land up in good companies. Keep up the good work 😊

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194. Amazon Interview | Set 76 (For SDE-1)

Hello Guys, I was recently interviewed by Amazon for SDE-1 position. Following is my interview experience.

Round-1 (Written on InterviewStreet)

1. Rotate a N*M matrix 90 degrees clockwise
2. Given a string find the repeated characters and print them in lexicographical order. e.g i/p string- "ABCCAD" o/p- "AC"
3. Given a binary tree, find the k-th largest element
4. Convert Binary tree to DLL

Round 2 (Telephonic)

1. Given an MxN array, in which the rows are sorted. Need to sort the complete array

Round 3 (F2F)

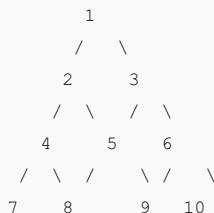
1. Spiral Level order traversal of Binary tree
2. Given a huge file 100 million integers. He further divided the file to 100 files with 1 million integers each. Each file is sorted. Find the efficient way to find smallest 'm' integers. Note 'm' is very less in comparison to a million
3. Given sorted & rotated array find the index of given integer

Round 4 (F2F)

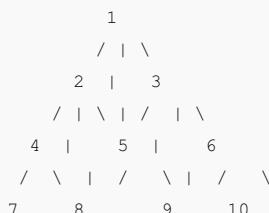
1. Given a Binary Tree and a sum k. Print all the paths with sum = k. Path can or cannot start with root
2. Reverse k elements of linked list
3. Given a 2D array find the maximum sum rectangle
4. Given a list of n mp3 songs. Play them randomly. No song should repeat until all the others are played.

Round 5 (F2F with Development Manager)

1. Tell me about yourself and the projects done in previous company. A discussion on those projects followed.
2. Why do you want to leave your previous company
3. Given a binary tree



Needed to connect the nodes vertically



Assume each tree node has an additional pointer

```
(struct node* vertical)
```

Round 6 (F2F)

1. Given stock price of Amazon for some consecutive days. Need to find the maximum span of each day's stock price. Span is the amount of days before the given day where the stock price is less than that of given day

```
E.g i/p = {2,4,6,9,5,1}  
o/p= { -1,1,2,3,2,-1}
```

- Given a Binary tree each node should contain the sum of left and right subtrees. Leaf nodes will become 0 in the resulting tree.

Round 7 (F2F with Project Development Manager)

- Tell me something about yourself
- Tell me about your previous company and projects
- Why do you want to leave the previous company in such a small time.

Finally got the offer after few days 😊

Tips:- Be clear to the interviewer, they are quite helpful. Try to discuss the various approaches that come up in your mind if you are stuck somewhere.

All the best.!!

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195. Amazon Interview | Set 77 (Off-Campus For SDE-1)

Amazon SDE1 Off campus (1.5yrs experienced)

Written Round

- Given an array in which elements are first increasing and then decreasing. find the maximum element in the array.
- Given an array of unsorted elements, find the minimum difference between any 2 elements in the array.

1st f2f

Discussion about my projects (nearly 20 mins)

- Given an array of positive numbers, find the maximum sum of a subsequence with the constraint that no 2 numbers in the sequence should be adjacent in the array. (extended to negative numbers)
- Write a function to print the level order traversal of a binary tree in spiral form.

2nd f2f

Small discussion about my projects

- Write a function to find the next smallest palindrome number of the given number. for example: if given number is 12345, then the next smallest palindrome is 12421.

2. Given 2 strings str1 and str2. What is the efficient way to navigate from str1 to str2? The constraints are i) a string can be changed to another string by changing only one character. ii) all the intermediate strings must be present in dictionary. If not possible, return “not possible to navigate from str1 to str2”. (pre-processing is allowed and enough memory is available). for example: str1 = feel and str2 = pelt, then the navigation is feel -> fell -> felt -> pelt (Hint: Graph)

3rd f2f

Discussion about my projects (nearly 20 mins)

- Given two numbers represented by two linked lists, write a function that returns sum list. The sum list is linked list representation of addition of two input numbers. It is not allowed to modify the lists. Also, not allowed to use explicit extra space.
- Given a matrix of characters and a string, find whether the string can be obtained from the matrix. From each character in the matrix, we can move up/down/right/left. for example, if the matrix[3][4] is

```
o f a s  
l l q w  
z o w k
```

and the string is follow, then the function should return true.

4th f2f Hiring Manager

Deep discussion about my current project (nearly 45 mins)

(application architecture, challenges faced and a lot of technical discussion)

- Write a program to check whether the given binary tree is BST.

5th f2f Bar Raiser

Deep discussion about my current project (challenges faced, etc) nearly 20 mins

Deep discussion on REST api authentications (Hash key vs Encryption & Decryption) nearly 20 mins

- Given an input string, write a function that returns the compressed string for the input string in INPLACE. (no extra memory) (length of compressed string \leq length of input string)

For example, if the input string is “aaabcdeeee”, then the function should return “a3b1c1d1e4?”.

GeeksforGeeks helped me a lot in improving my skills in DS and Algorithms.

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196. Belzabar Interview Computer Scientist Internship

Belzabar Software Design & Development recently visited our Campus, as a regular offering Computer Scientist Internships to 2-3 students of the college from CS/IT Engineering Branches. They had a very strict policy that if one applies to Internship cannot sit for Placement Drive when the company visits the campus again. To put in a nutshell, You get only one chance!

The Selection consists of 3 rounds of rigorous test,

1. First Round (Online Test)-

The first round was an Aptitude cum Technical Test of 95 questions to be solved in 50 min.

Questions were primarily from OS, Linux, Java, Databases Queries, Computer Networks, Data Structures and were targeting the basics of these core subjects.

I got through the first round with one of the highest scores.

2. Coding Round -

45 min to write a program in C,C++ or Java.

Efficient Program has extra credits.

Algorithm is to explained at the Beginning or the end, Extra credits for that.

Compilation of Code is not allowed.

Previous Questions which have come so far are –

Q) Given a digit string, return all possible letter combinations that the number could represent.

2=abc, 3=def, 4=ghi, 5=jkl, 6=JKL, 7=pqrs, 8=tuv, 9=wxyz

A mapping of digit to letters (just like on the telephone buttons) is given below.

Sample Input:

23

Sample Output:

ad, ae, af, bd, be, bf, cd, ce, cf

<http://tanjibridergenit.com/belzabar-interview-review-intern/>

The question for me –

Q) Remove Duplicates from Linked List, which has already featured on GeeksForGeeks,
<http://www.geeksforgeeks.org/remove-duplicates-from-an-unsorted-linked-list/>

I solved it using the naive approach and two of my batch mates solved it using Hashing, they got selected for interview. I didn't make to Personal Interview Round.

Belzabar is a Superb company offering 6.70 LPA PPO to Students, so must apply and All the Best for your Belzabar Internship/Placement Rounds.

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197. Amazon Interview | Set 78

The first round was an online test hosted on Interviewstreet.com. Around 350 students appeared in the online test. The duration was 90 minutes. It consisted of 20 MCQs based primarily on Predicting The Output, OS, CN and Data Structures.

These questions were pretty basic and easily solvable.

Apart from that, there were 2 coding questions.

- Given a string, find the first element which is non -repetitive i.e that element must not be present anywhere else in the string.

```
Eg : Input : teeterson  
      Output : r, as it is the first element which  
                is non repetitive.
```

- Given a string of digits,find the next smallest number using the same digits.If its not possible to get such a number print -1;

```
Eg : Input : "123"  Output : "132"  
      Input : "12453" Output : "12354"  
      Input : "987"     Output :  "-1"
```

After a week, the results came out and 25 students were shortlisted.

Personal Interviews:

Technical Interview 1 :

1. Given an array of 1s followed by 0s, find the number of 0s.

```
Eg : Input : 111100      Output =2  
      Input : 1           Output =0
```

I solved it by using Binary Search to find the first and last occurrence of 0 in the array and subtracting the results.

2. Given an array of positive and negative numbers, find the pair of elements whose sum is closest to 0.

```
Eg : Input : 3 5 -9 -4 17 11  
      Output 3 , -4
```

The brute force solution would be $O(n^2)$ by comparing each pair of elements. As expected, he asked me to optimize my solution.

So I sorted the array using merge sort. (I know its not in-place but it did not strike me at the time)

Then used two indexes at the beginning and end of the array and incremented/decremented the indexes as needed.

3. Given a Binary Tree , print all the root to leaf paths.

I started by telling him my approach and the logic behind the recursive solution that I had in mind. Then he asked me to write test cases for the function that I had written.

6 students were selected after this round.

Technical Interview 2

1. Given a binary tree convert it to a double linked list.

2. Given an array of integers , replace each element with the product of the remaining elements.

```
Eg : Input - 1 2 3 4  
      Output : 24 12 8 6
```

First, I gave the obvious solution. I computed the product of the whole array and then divided it by each element to get the resultant array.

But he asked me to do it without using the division operation. After some cross questioning I gave the following solution.

Store the product of the left side elements for each integer in an array L[].

```
For eg : Here , L[] = {1 , 1 , 2 , 6 }
```

```
Do the same for the right side elements.
```

Here R[] = { 24 , 12 , 4 , 1}

The multiply R[i] and L[i] to get the resultant array.

Complexity : O(n)

Finally 2 people were selected.

Result: Selected for a 6 month long internship as SDE-T (Testing)

GeeksForGeeks has been instrumental in my preparation for the interviews and I am really glad that I discovered this website at the right time.

PS : Could you guys tell me if the SDE-T position is inferior to the SDE-1 position or are they of the same level?

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198. Yatra.com Interview | Set 2

I appeared for yatra.com interview process. In each round, I have to discuss the problem with interviewer and to tell him my approach. Also they asked About complexity of each solution and also stressed to optimize it

Round 1 ->

- Given a Matrix with 0's and 1's in sorted order. design an algorithm to return row index with maximum number of 1's. after That he modified the ques that some rows are sorted in increasing order and some in decreasing order.
- Given two arrays of n+m and n size. n+m size array only have m elements and n size array have n elements. Design an algorithm to shift smaller array element in larger array also larger array should be sorted. interviewer asked to give 3 different algorithms.

Round 2 ->

- What is Hashing, Hash table.
- Algorithm for Level order traversal of BST without using Queue Data structure.
- Given an array with +ve and -ve numbers. Give an algorithm to find 3 numbers having sum x in less than O(n³) complexity.
- Binary search.

Round 3 ->

- Given a file with all 255 chars in it. design an algorithm to check whether this file is

parenthesis balanced or not.

(file handling question)

2. HR questions.

3. Discussion about current company work and my responsibilities.

After 3 days i got the offer letter. Do a lot of work on complexity optimization.

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199. Expedia Interview for SDE-II

I attended Expedia interview for SDE-II role.

Here are the questions on each round.

Round 1: [Coding]

- Given MxN matrix with sorted elements row wise and column wise, find the Kth largest element
- Given MxN matrix with sorted elements row wise and column wise, find an element
- Given MxN matrix which contains 1s and 0s, find the largest sub matrix which contains most number of 1s. condition is that each row in the sub matrix must contain at-least one 1

Round 2: [No coding – Just Approach]

- Given two Linked lists, find out whether they intersect or not and where do they intersect
- Two linked lists are given, find out the sum of them without altering the linked list
- Questions about Java, Spring and previous projects

Round 3: [Coding]

- Given MxN matrix, which contains 1s and 0s only. Redraw the matrix so that, if any one position $[i,j]$ contains 1, mark the entire row and column with 1. But make sure because of newly marked 1s, don't do the same

i/p	o/p
0 0 0 1 0	1 1 1 1 1
0 0 0 0 0	1 1 0 1 1
0 0 0 0 0	1 1 1 1 1
1 0 0 0 1	1 1 1 1 1
0 1 0 1 0	1 1 1 1 1

Round 4: [On different day]

Google Docs type Online Text Editor with similar functionality – Designing question.

Asked to design the system with flows etc.

Rejected the offer as I have another better offer.

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200. Amazon Interview | Set 79 (For SDE-1)

I have 8 months of experience and I recently appeared for interview of Amazon for role of SDE-I.

Written Round:

Q1: Convert a binary tree to DLL.

Q2: Given a random node address in Singly linked list. Delete that node.

You need to write full code in language of any choice with all the edge cases covered.

Interview 1:

Q1 : Given a sorted array and a number and element K. find K nearest elements to the number in sorted array.

Q2: MsExcel columns has a pattern like

A B C ... Z

AA AB AC.... AZ BA BB ... ZZ

AAA AAB

A has code 1

Z has code 26

AA has code 27

AAA has code 626

given a number return a column name as string

Interview 2:

Q1: Given 4 youtube servers which are processing user requests.

i> At any given time If someone requests for currently running videos, then return the number of videos running at a time.

ii> Which server will actually get the request ?

iii> How the servers will communicate with each other ?

iv> Other methods to do this task to reduce overhead on servers?

v> How many videos running given a time constraint ?

Q2: Given a binary tree and each node has an extra next pointer apart from left and right. Connect all the nodes using next pointer in Zig-Zag Manner.

Interview 3:

Q1: Discussion about project in current company.

Q2: Given a shared memory between multiple threads, how will you ensure safe access to memory in different scenarios like reading and writing? If at the point of writing there are multiple read requests from threads how pending requests can be managed.

Q3: Given an array that has positive numbers and negative numbers and zero in it. You need to separate the negative numbers and positive numbers in such a way that negative numbers lie to left of zero and positive numbers to the right and the original order of elements should be maintained

Interview 4:

Q1: Discussion about current project in company.

Q2: Why do you want to leave your current company?

Q3: Why Amazon?

Q4: Which phone do you have

Q5: Which one will you buy next

Q6: Given a function with signature

bool isFactorialDivisible(int x, int y)

Return true if $x!$ is divisible by y

else return false

After 3 days I got the confirmation call.

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201. Android Developer Interview at Headstrong and SnapDeal

Headstrong:

1st Round:

- 1) What is Heap Memory and Difference between stack and heap memory.
- 2) Why would you do the setContentView() in onCreate() of Activity class.
- 3) In an app where a component would get stacked up dynamically like experiences in LinkedIn. Would you declare a component in layout xml for this or you will create it dynamically and why.

2nd Round

- 1) How will you go about creating an in house GPS map system with Bluetooth.
- 2) How will you create a circle with color by using XML only.
- 3) How will you create an OCR application.

Snapdeal

1st Written Round

- 1) What is the difference between an interface and abstract class.
- 2) Find maximum number in an array with increasing and then decreasing numbers.
- 3) Add two numbers represented by linked lists and represent the sum in third linked list.
- 4) 20 odd questions about activity base class, fragments types, service's base class, Content Providers Functions, Loaders Functions and Out Of Bound Errors.

2nd Face to Face Round

- 1) What is lifecycle of Fragment
- 2) What is IPC and architecture of an app using .so file having its API exposed with IPC.
- 3) Binary Search.
- 4) Basic about Threads, Service and AsyncTask.
- 5) When will you use a messenger and a handler.

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202. Software Engineering Lab, Samsung Interview | Set 2

First of all I would like to thanks GeeksforGeeks for such a good website.

Round 1 (Written Test)

1. GSAT(Global Samsung Aptitude Test)
2. 30 Question 30 min. with -ve marking* (20 Q. from C,C++ n D.S. and 5 from O.S. and 5 from database and Network,microprocessor)

Some question which i remember.....

1. what is the output of following

```
#include<stdio.h>
int main(void){
    int i=1, j;
    switch(i){
        case 1:
            printf("SAMSUNG");
            break;
        case j:
            printf("NOIDA");}
}
```

2. how hexadecimal no 1234 store in big endian form there are four option

3. how many queue required for implement stack.

4. what thread does not share.....

- a. data
- b. stack
- c. code
- d. message queue

5. what protocol required for e-mail transfer.....there are four option

6. what is the complexity of code

```
int f(int n) {
    if(!n) return 1;
    return n*f(n-1);
}
```

7. A process call fork() system call n times than how many new process created($2^n - 1$).

8. which is not used for sorting link list..

- a.quick sort
- b.merge sort
- c.heap sort
- d.All of these can not be used

9. due to priority of process what type of problem occurs in priority scheduling..

10. what is output of the program.

```
char a[] = "hello";
char b[] = "hello\0";
if(strcmp(a,b))
    printf("string is same");
else
    printf("not same");
```

11. which data structure is used to check for whether expression is balanced or not..

12. which data structure used for recursive function..

13. what is output of code

```
int fun(){
    static int i;
    return i++;
}

main()
{
    int i;
    for(i=0;i<5;i++)
        printf("%d ",fun());
}
```

- a.1 1 1 1 1
- b.1 2 3 4 5
- c.0 1 2 3 4
- d.5 5 5 5 5

14. one question on the definition of object..
 15. if time slice is greater than the execution time of largest execution time process than round robin acts as...
 16. if derived class has same name function as base class than it is called..
 17. suppose a process have to need some I/O event than CPU has to wait what is event to overcome this problem(multi programming)..
 18. what is complexity of merge sort in worst case..
 19. which has greatest space complexity ..
 - a. quick sort b. selection c. merge sort d. radix sort
- Technical Interview :-**
1. how to find your system is big endian or not.
 2. write the code of heap sort and complexity in different cases.
 3. insertion and deletion in min heap and max heap..
 4. write the code of quick sort and explain your code with an example
 5. iterative implementation of inorder, preorder and postorder
 6. deletion in BST
 7. he wrote an example of multilevel inheritance and ask in what order destructor called and why?
 8. what is virtual function.
 9. what is encapsulation explain and how it is achieved and give real life example.....
 10. he drew a stack elements are (top to bottom) 8 3 2 1 4

write a recursive function to print 4 1 2 3 8

11. Advantages of C over C++.
12. what is function pointer how to use it.....
13. what is structure padding why it is occurred.
14. how to do this A programme's variable can not be used by another program
- 15.

```
char *p="SAMSUNG"  
char p[]="SAMSUNG"
```

what is difference b/w them

16. implement stack using Link list and perform push() and pop() operation..

17. deletion in link list
18. detect loop in link list how to remove
19. how to find middle in link list
20. advantages of link list over array.
21. sorted merge in link list
22. what is multi programming
23. what is page fault and why it occurs..
24. what is virtual memory.
25. about the page replacement Algorithm LRU
26. what is Inter process communication ,types and which one is fast and why?
27. what is fragmentationbrief discussion on external fragmentation..
28. one simple question from network and 1 from DBMS

HR Interview :-

1. find the largest and second largest element in array give 4 different approaches
2. tell me about yourself?
3. why do you want to join Samsung?
4. what do you know about Samsung?

and finally after 2 hours got placed in SRI NOIDA.....😊

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203. Flipkart Interview | Set 6

Online Round:

1. Don't remember the questions, but they were of medium level, not tough as such.
2. Basic knowledge will help you in clearing that round

1st Telephonic

1. Solve Snakes and ladder problem, Given all the inputs for the board.
We can roll the dice, as we want to. Need to find the shortest path to reach the 100 level from the starting of the path. Various other questions were asked on the basis of that only.
2. Given a file with millions of words, need to find top K words on the basis of occurrence.

2nd Telephonic

1. Given a list a1,a2,a3....an. Comparison between elements is given like a1>a2, a3>a5, a4>a2.....etc. We need to find whether is there any situation that we can sort the list in to the ascending order on the basis of comparison. Yes or No , explain the conditions
2. Given a string example : shoppingwithflipkartiseeasy, Now we are given this string and a dictionary containing valid words , now we need to break the sentence into words separated by space. Output : shopping with flipkart is easy

Onsite

Coding Round

1. Need to write a fully functionally and working code for a problem statement. Problem is to write the code for maintaining a directory for any organization where employee will have id, name, post and manager as attribute. Basically two features need to be implemented: (a). Should be able to do searching on the basis of name, prefix search for the name should also be supported, (b). For any employee, we can get the list of all the subordinates which comes under him/her, like for ceo , all the employees list should get displayed
2. No database is needed, memory storage was asked to used for this
3. Code should be extendable so that new attributes for the employee can be added
4. Approach for maintaining the structure and optimality in searching for required.

Face to Face

1. Given a file containing billions of words, need to find top K words. Other variations like the file size is 100 MB and we can read only a chunk of data at a time, how to maintain that, etc
2. Given a series 2,3,4,5,6,8,9,10,....., here in this series all the numbers are present which have factors only and only either 2,3 or 5. Need to write a node to generate nth number for the series . With best approach and complexity
3. Given a Alien language, we have the dictionary of that language , but we have only very few words, but they are all arranged in the lexicographical order. We need to first find whether we will be able to get a alphabetical order or not, if yes explain approach

Hiring Manager Round(Skype Round)

1. Most of the questions are on the cultural fit only, but they were tough
2. Situational and behavioural questions he asked, positive attitude and calmness is really required at that time.
3. I also asked many questions regarding work and etc.

Finally few weeks later, got a call from HR and manager regarding offer and figures.

Many Many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

204. Expedia Interview | Set 2

Written 50 questions all mcq:

1. questions on sql.
2. lot of threading and java exceptions
3. questions on sorting, complexity and comparison with other sorting techniques
4. Error output questions
5. DS questions
6. Increment and decrement operator questions

first face to face(SDE)

1. reverse a string, complexity, complete code.
2. complete structure of hashmap, very detail description, along with the basic coding of the hashmap internal implementation.

3. code for how to create deadlock
4. code for singleton class, with all boundary conditions like double check condition
5. detail discussion on synchronized keyword, both in the cases of class static functions and instance functions

second face to face(SDE)

1. introduction, ask about my interests and current projects
2. wrote me a basic code of two numbers performing some operation(modulus, or factor or comparison), cant remember exactly but was very basic operation, he then asked me to improve that code as such as possible with all possible boundary checks and then asked me to explain all the points.
3. Asked me to write a program , where i have a grid with many cells, how many paths are possible from one point to other desired points.
4. then we had a long discussion of how expedia works and what type of projects and opportunities are there.

Third face to face(senior dev)

1. Introduction
2. detail discussion on my projects
3. 2 Questions on arrays and strings, medium level difficulty
4. Difference between c++ and java and my preference
5. Very Detail discussions on JVM, memory management and garbage collector

Manager Round(Director and Manager)

1. Define work, work pressure
2. Situational questions, pretty difficult
3. Reason for leaving current company, and what will be my action if the same things repeats in Expedia
4. Keeps on increasing the stress by continuously pressurizing on reasons for which I am willing to leave the company
5. Being calm and remain open minded, is the key to handle the situation
6. They actually want to measure the reaction at panic scenarios.

Finally, got the good news from HR, got selected.

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Please find below my interview experience with Fab Technology Pune.

Round 1(Telephonic): It started off with general discussion about my current work and prior projects. It consisted of questions from the resume like explain xpath, indexing, xslt. The DS question was arrange an array such that when merged it forms the largets number possible.

Round 2(Telephonic): It began with telling about my self and why do I want to join Fab.

Then 4 DS qustions:

1. Sort an array of 0 and 1.
2. Sort an array of 0,1 and 2 .
3. Given a matrix with row and column sorted. Find a number in it.
4. Reverse a stack without additional data structure.

Round 3:(F2F):

1. Given a series of stock costs for a number of days. Find two days on which a person should buy and sell stock for maximum profit.

(The solution breaks to finding two numbers in an array with maximum difference such that the smaller number appears before the greater number) .

2. Given any pointer(it can be head or any other node) to a sorted cyclic linked list and a number .Insert the number in the list without disturbing the order.All the edge cases to be taken care of.

Round 4(F2F):

1. Find median of two sorted arrays of equal size.
2. In an array,find two numbers having sum closest to zero.
3. Given a string,display all possible subsets.
4. Difference between overloading and overriding.
5. Can constructor be overridden.
6. Difference between primary key and unique constraint.

Round 5:(HR):

History of Fab and Why do you want to join FAb.

Round 6:(with CTO):

1. Describe your life in a true Bollywood Style.
2. Mistakes you have done.
3. Things you have that you really proud of.
4. Inclination towards Fab and why do you want to join.

I was offered the job that evening 😊

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206. Amazon Interview | Set 80

Online Written

1. Cant remember the question exactly, but it was bit easy and was easily solvable using the substring function for the string.
2. Need to find whether two rectangles overlap or not
3. Need to find the matching percentage , if we are given two paragraphs

Telephonic

1. Need to find the least common ancestor for given two nodes
2. Implement Min stack problem with other optimizations

Fully functional code and covering all boundary conditions was required

Face to face 1 (Hiring manager)

1. Top K words from the file containing millions of words. Proper code for the scenario.
2. Why do you want to change the company
3. What is your manager review for you in your current company
4. What all projects you worked on and detail
5. Some other non tec questions

Face to face 2

1. Given a number n where n means 0,1,2,3,...n-1. Compute the no of BST which can be formed using this range as input in any order
2. Given a string input : aaabbccdeeabb output should be : a3b2c2de2ab2
Challenge here is that we need to do it in place, without any other string or data structure

For both the problems full code with all the boundary conditions was required

Face to face 3

1. Rotate a 2D matrix by 90 degree, but here the matrix is stored in 1D form
2. Given a linked list which contains representation of any number, like for 1234, the representation will be 1->2->3->4. Now we need to add 1 to the number, so that the output is 1->2->3->5
3. Then he asked me 1-2 questions for which I immediately responded the solution, through that he got the idea that I already know the solution

4. Moved to the white board, he draw a matrix, each contains only 0 ad 1 but in sorted manner. I need to return the row which is having the max no of zeros. Then he asked me optimized solution for finding the first '1' in the array

5. Then he explained me a production line problem, Many factors were involved in that, robotic arm need to draw some lines with various colors on some wall. We need to minimize the cost of drawing those lines, Code was not required in that situation, as the problem set was very big, but we discussed the complexity plus solving procedure for each of the factors of the problem. Every minute detail of how will I solve the problem.

Basically problem itself was composed of many different types of sub problems, keeping mind open at that time is very important.

Then after few days, I mailed the HR regarding the result, she told me one round is still pending, will update soon and after 1-2 week, they sent the mail for halting the process, didn't get any solid reason, as it was totally unexpected, all my rounds went well.

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207. Google (Mountain View) Interview

About myself : I was contacted on Linkedin by a google recruiter. I have 4 years of experience.

Phone screen

Warm ups

- 1) Manually calculate bits in 146
- 2) Tell difference between big endian and little endian

Actual questions

- 1) kth largest element in array
- 2) Find minimum number of steps to reach the end of array from start (array value shows how much you can move). DP question

Next day recruiter called me for onsite interview.

I scheduled my onsite interview after 30 days to give myself sufficient time to prepare.

Onsite interview

Round 1

- 1) Design question based on storing images. Stress on performance and scale.
- 2) Divide number and return result in form of a string. e.g 100/3 result should be 33.(3)

Here 3 is in brackets because it gets repeated continuously and 5/10 should be 0.5.

Round 2

- 1) Median of stream of numbers
- 2) Question like pancake sorting where you can only swap to sort an array of characters.

Round 3

- 1) Find count of a number in sorted array.
- 2) Design two player battleship game to be played over internet

Round 4

- 1) Design question based on wearable devices.
- 2) Draw a line on 2D array of boolean. You will be given start point and end point co-ordinates.

Round 5

- 1) Compare two documents(string array) based on n grams.

e.g doc1 – Today is Sunday.

doc2 – Today is Saturday

if n = 2 then number of duplicates is 1 (Today is)

if n = 1 then number of duplicates is (Today, is)

if n = 3 duplicates is 0

Final comments – You must do graphs, DP, string, array, bits and Link list questions from geeksforgeeks.

Design questions are much harder to answer than it seems. Prepare hard for them.

I appeal geeksforgeeks team to post more questions on design.

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208. One97(Paytm) Interview Experience

Written 1 : Technical and Aptitude.

Written 2: Written Coding

Written 1 was Normal Written exam based on fundamentals of Aptitude and Computer Science.

Written 2:

Few Questions I remembered :

Q1 :

```
char a;
int i = 300;
a = &i;
a++;
*a=2;
printf("%d",i);
```

Q2 :

Imagine you have a special keyboard with the following keys:

```
A
Ctrl+A
Ctrl+C
Ctrl+V
```

where CTRL+A, CTRL+C, CTRL+V each acts as one function key for “Select All”, “Copy”, and “Paste” operations respectively.

If you can only press the keyboard for N times (with the above four keys), please write a program to produce maximum numbers of A. If possible, please also print out the sequence of keys.

That is to say, the input parameter is N (No. of keys that you can press), the output is M (No. of As that you can produce).

Q3 : Consider a Binary Tree not necessarily BST, Remove all nodes which don't lie in any path with sum \geq k.

Q4: Given an array arrange it in the form a**<**b**>**c**<**d**>**e**<**f**>**g.....

Q5 : Given an array of numbers arrange it in the form of a single number such that the concluded number is

the maximum.

e.g. given : 99,8,76,45,66,9,7,33,5,42

O/P : 99987766654233

Sectional Cut-off for O/P and Coding Questions.

Marking was done against correct approach not the exact answers.

Round 1 (Technical):

Q1: How will you store 800 Million records in database.

Q2: Data storage of double and float differs in C/C++ and Java How is it ???

Q2: Transfer data between a program written in Java and C#.

Q3: I need to establish a network in which I will be sure of security ,How will you proceed

Q4: A and B are two sets Write a non nested query so that I can get the data in B but not in A.

Q5: 000.....? 111111111111111111.....? Write a Program which find

the index of the
start of series 11111111.....?.

Round 2 (Technical):

Q1: Give your introduction along with your technical skills.

Q2: Explain your project “Stock Prediction”

Q3: I want to retrieve records from a table from date 1 – 15.I don't want to use range

Queries

Suggest the optimal solutions...

I suggest Indexing on date column.

He insisted on alternate ways.

“he said what you think you can do.....”

Q4: What is Unique and NULL Constraint ?

Difference between Primary Key and Unique.

How many maximum records in Unique can be NULL.

Q5: Write Most optimized algorithm for finding a Word in sentence.

(I used Trie approach , he scolded me for not asking the sentence is sorted or not.. the used Binary search.)

Q6: Difference between thread and process.

What is PCB ?

What is synchronization ??

What is Semaphore ?

Explain and solve Producer Consumer Problem using Semaphore ? What is Drawback here

What is monitor ? Solve Producer Consumer Problem using Monitor and explain pros and cons.

Final 8 candidates from Delhi region selected.

Round 3(Final Round Managerial and Technical):

Q1 : What you want to do in your Life ?? Discussion life as a placement coordinator ?

What you did ? your duties ? differences you made ...

Q2 : Doing Post Market Analysis of a Stock Market of Previous Month .

Write a Program of Stock Buy Sell to Maximize Profit.

Q3 : Explain Cursor ? its types ? differences between them ? What to use When ?

Q4 : Explain Matrix ? Matrix Multiplication? Difference ways of Matrix Multiplication ?

Explain Both.

Q5 : What are you doing right now ??? will you join us ?? Why ??

Students from 30 Colleges of India are evaluated and Top 25 are offered the JOB.

I was not one of them.

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209. Amazon Interview | Set 81 (For SDE-I)

Hello Geeks, I had interview in amazon few days before. I'm sharing you my experience. It was for SDE-I Profile for Hyderabad(India) location.

Round 1: Online Coding(Interviewstreet)

Q1. Print the nth largest node of the given BST. In this question you will have to write a function.

Q2. Convert the BST into sorted doubly linked list. In this question also you will have to write a function.

Q3 & Q4 was simple algorithm based.

Round 2: Telephonic Interview-I

Q1. Given Matrix, and co-ordinates of sub-matrix of given matrix find sum.

```
Eg          1   2   3  
           4   5   6  
           7   8   9
```

```
Coordinates for submatrix 1,1 and 2,2  
Sum= 28
```

Q2. Given a linked list reverse every n chunks.

EG: 1 -> 2 -> 3 -> 4 -> 5 -> 6...n = 3

Output: 3 -> 2 -> 1 -> 6 -> 5 -> 4...

later they extended this Question...If there is only one node and give many conditions.

Round 3: Telephonic Round-II

Q1. Design a data structure for insertion, deletion & get minimum element in O(1)time complexity? Implement the same.

Q2. Given a Binary Search Tree and two nodes find parent node which is parent of both nodes in a given binary search tree. Later they extended it to simple binary tree.

Round 4: F2F-I

Q1. Is given n-ary tree is Sum tree or not? implement function...

Q2. find Nth largest element in an array

Round 5: F2F-II

Q1. Vertical traversal Order of tree(implement it).

Q2. Lots of discussion on project.

Round 6: F2F-III

Q1. Given a circular array and a pointer find the given element in the array.

Q2. Lots of discussion on current company & company's work.

Round 7: F2F-IV

Explain:

1. Customer Producer problem,
2. Semaphore
3. Deadlock how to solve it.

Q: Favorite Sorting Algorithm.why,where to use it? and various question on the sorting algorithm which I answered.

Every time they ask for time complexity for code. Ask to optimize my solution.

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210. Amazon Interview | Set 82 (For SDE-2)

Round 1 (F2F):

- 1) Find the merge point between two lists.
- 2) Given a sorted array find the number of BSTs you can form.

Round 2 (F2F):

- 1) Discussion projects i have worked on.
- 2) Given millions of files process them sequentially in multiple stages and make sure it has good scalability, error handling, elegantly handles changes to the system. etc.

Round 3 (F2F):

- 1) Given a matrix with each cell containing each number of candies, and a constraint that you can move only right or down, from the top left corner to the bottom right corner, find the path that gets you maximum candies.
- 2) Convert a Binary tree to its mirror in-place.

Round 4 (Telephonic + online coding):

Given a continuous stream of strings, maintain strings such that duplicate are eliminated on the fly. The interviewer wanted working code. So coded the solution during the

interview and emailed it to him 10 mins after.

So if you get "Ted", "John", "Mark", "Ted", "David", at the moment in time, the list should contain John, Mark, David.

Round 5 (Hiring manager in US, telephonic + online coding):

- 1) Discussion on current projects.
- 2) Why Amazon
- 3) BFS vs DFS
- 4) Given a function to getFriends that gets a list of profiles of friends of a particular friend, implement a function to get the shortest path between two given profiles.

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211. Amazon Interview | Set 83

Written (50 Minutes)

- 20 aptitude and general cs objective questions
- Code : Find minimum # elements to be removed from int array so that max element is <= 2x of min element
- Code : For given array a of size n we create a set of $a[i]$, $a[a[i]]$, $a[a[a[i]]]$ i varies from 0 to n-1 , find the max size of such set.

Face to Face 1

- Design MP3 player which would play only unique songs in random order from given list of songs
- Code : Print left and right most elements at all levels of a binary tree.
- Max elements in sliding window of size k over int array of size n.

Face to Face 2

- Code : Find min element at given level in binary tree
- How would you combine lots of big sorted files residing on disk (file size >> memory)
- What happens when you enter URL in browser.
- Design multiple stacks in a Single one big int array as efficient as possible (real world example multiple process function stacks creation and deletion in memory of linux os)

Face to Face 3

- Discussion on challenging work projects.
- Design in-memory file system.

Last round Telephonic

- Toughest work project experience.
- A robot standing at top left corner of a grid, it can only move in right or bottom direction , determine total number of possible paths are their to reach bottom right corner.
- Code : Prune binary tree so that only nodes which are part of K-Heavy path remains, K-Heavy path means total of all elements in a path from root to leaf is > K.

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212. Amazon Interview | Set 84

I attended a hiring event for Amazon in world trade center in bangalore.

First round was coding test (Written round) :

1. Given a string of parenthesis, write a function if it is balanced.
2. Convert BST to a Doubly linked list.
3. Find the number of occurrences of words in a paragraph.

First Round :

1. Asked Why Amazon?
2. Asked some questions on resume.

After some friendly talk, jumped on technical but easy questions :

1. Implement BFS.
2. Difference between Dijkstra and BFS.
3. Given a linked list, find out if the list is circular, also find the point from where the cycle start.
4. Given an array, find the max sum over a sub array.
5. If you have two eggs, how many max steps you need to find the floor, from which the eggs break.

And some more easy questions.

It was already 5, so they decided to have further rounds later.

10 days later I had attended interviews :

First Round :

1. Asked about heaps, given an array, tell if it is min heap, if not, apply operation min-heapify.
2. Is a heap a complete binary tree?
3. Asked What is hashmap.
 - a. What happens when two numbers map to same key?

- b. how does chaining work?
 - c. What to do when you have a bad hashing function, and only we can modify the structure of hashmap not hashing function?
 - d. What do to when your hashmap is filled completely (as in all the linked list are filled up to their capacity)
4. What is quicksort? Implement for a linked list and tell complexity.

Second Round :

- 1. What is quicksort?
 - a. What is complexity when all elements are sorted and how can you improve it? (Randomization)
 - b. Will randomization work when elements are same?
 - c. What algorithms sort equal elements in $O(n)$ time ?
 - d. using the information, how can you improve quick-sort? Think about it, its good.
- Don't want to spoil it for you by writing answer here.
- e. implement this modification.

- 2. Given two river banks (visualization : two parallel lines), one bank has numbers written (1....n) in sorted order. On the other bank the numbers (1...n) are arranged randomly. A bridge can be formed from the i^{th} point from bank 1 to i^{th} point in bank 2. Find the max number of non-intersecting bridges you can form?
- 3. Given 1....n , and given some statements like i hates j, then find some arrangement of n numbers such that if i hates j then in the arrangement i comes before j. Say 1 hates 2, then 123456789 is acceptable but 213456789 is not.
- 4. Asked about internet. What happens when you type a URL on your browser?

Third Round (Hiring Manager):

- 1. Why do you want to leave current company?
- 2. Why do you think amazon is the right place for you?
- 3. Implement a calculator which takes a maths expression and evaluates it and prints the result.
- 4. Given statements like A is connected to B. D is connected to E. And transitive connections are allowed. Write a code which takes input such connected statements and two numbers i and j and returns true if i and j are connected (can be transitively), and false if not connected.

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1st Telephonic round

After few project and introduction related question.

1. Write a program to find an element in sorted and rotated array.
2. Write a program to print all path whose sum is equal to a given number path must start from the root node and it may or may not end at the leaf.

2nd Telephonic round

After 3-4 days

Some c/c++ question what is malloc how does it work and memory layout and allocation related questions

1. Write a program to find longest repeating substring in a given string running code were required covering all base cases.
2. U have given 10 files and you have given a string suggest data structure which ll facilitate efficient search of string in the file if string appears more than ones in that case u have to print line number and file in which they appear.

After 15 days I got call that I have cleared the telephonic round and my F-2-F interview is going to take place in Hyderabad

F-2-F round 1

After introduction and project related questions

1. Write a program to print a tree in vertical order asked more than one approach to do this problem and modified problem many times.
2. Write a program to convert a tree to doubly link list in post-order fashion only change of pointer are allowed that is left pointer can work as previous and right pointer s as next.

This interview went well :)

F-2-F round 2(Bar raiser)

Few question related to OS what is deadlock, Race-condition, Semaphore and many more, few question Related to DBMS what is Normalization define all normal forms(I directly told him I don't remember I read it in 5th semester)

1. Why amazon??
2. Why do u want to leave company XYZ.
3. Your biggest challenge till the date.
4. Many project related question.

Data structure

1. U have given 10 files each having 1 million integer in sorted order, physical memory have size of 3 million suggest method to extract 1 million integer in sorted form efficiently.
2. Write a program to convert a decimal number into binary your code should work on both big endian and small endian machine. U have given a variable which tell u whether machine is big endian or small endian

DBMS and few bar raiser question made this round average L

F-2-F round 3

1. You have given an n-ary tree write a program to check whether this tree is sum tree or not.
2. Given an array write a program to find kth smallest element in the array. He was hardly interested in the solution he just want to know how many ways u can solve it solved using 5-6 method at the end he was satisfied with the answers.

F-2-F round 4

Longest one....this interview went on for 1 hour and 30 minutes but was interesting one(interviewer looked lyk a frustrated guy...some tyms I felt that he is going to punch me 😊 :P)

1. You have given M array each of size n all array are sorted separately write a program to make a big sorted array of size $m \times n$. during discussion he told me to prove many lemma like height of tree is $\log(n)$ (for n elements) sum of n natural number is $(n^2+n+1)/2$ and many more. He modified problem many times don't use extra space do it in space etc. discussion went on for almost 1 hour but at the end he was happy with the solutions(I suggested 2 method and further optimization in them).
2. U have given an binary matrix which is sorted row wise and column wise write a program to search a row in the matrix having maximum number of zeroes.

Finally this interview also went well he was happy with my performance

After 2-3 days I got mail from the HR that I m rejected LL reason was bar raiser ... 1 advise to all don't take BR round lightly it does not matter how well u performed in other round if u didn't do well in BR round then there is no way u can make it. An average round tech interview is fine but average BR round means rejected.

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214. Amazon Interview | Set 86

This is an account of my recent interview experience with Amazon. My process started off at one their hiring drives. It was a tiresome process that comprised a written round followed by six rounds of interview, spanning around 37 days.

Following is an account of my experience:

Round 1 (Written round):

1. Given two linked lists each of which represent a number, write a function that returns a linked list that represents the sum.
2. Given a sorted array of numbers. Construct a balanced binary tree with the numbers in the Array as keys.
3. Given a sorted Array of numbers that has been rotated by a few positions, write a function to search an element in the Array.

Round 2 (F2F):

1. Given a binary tree in which the node structure has an additional field called “next” which of pointer to tree node type, fill up this field of each node to point to the next node at the same level (NULL if last node).
2. Sort an almost sorted Array. An almost sorted Array being an Array in which a number is at the most k positions away from its position in the sorted Array.
3. You are given a 2D grid in which each cell is either empty, contains an entry “D” which stands for Door, or an entry “W” which stands for wall (Obstacle). You can move in any of the four directions from each empty position in the grid. Of course you cannot move into a cell that has “W” in it. You need to fill each empty cell with a number that represents the distance of the closest door to that cell. (They asked me only for the Algo as there wasn’t much time).

Round 3 (F2F):

1. Given a 2D (Rectangular) grid of points. You need to find the shortest path from a given source point to a destination point. You can only move up or right. Now among these points, there a few special points from which you can directly jump to the diagonally opposite point (Top-Right diagonal). You are granted a function which when invoked on the point returns 1 if it is a special point and 0 if it is not.
2. You are given a sequence of black and white horses, and a set of k stables numbered 1 to k. You have to accommodate the horses into the stables in such a way that the following conditions are satisfied:
 - a. You fill the horses into the stables preserving the order of horses. For instance, you cannot put for horse 1 into stable 2 and horse 2 into stable 1. You have to preserve the

ordering of horses.

- b. No stable should be empty and No horse should be left unaccommodated.
- c. Take the product (number of white horses * number of black horses) for each stable and take the sum of all these products. This value should be the minimum among all possible accommodation arrangements.

Round 4 (F2F with Hiring Manager):

1. Discussion on my current work, difficulties and challenges faced at work, difficult people I have had to work with, instances when I went out of my way to propose creative solutions to existing problems at work etc.
2. Given a parentheses string, determine if it is a valid / legitimate parentheses string. For strings consisting of single parentheses type and those consisting of multiple types.

Round 5 (F2F – Bar Raiser):

1. Discussion on my current work, difficulties and challenges faced at work etc:-
2. Given a floor of dimensions $2 \times W$ and tiles of dimensions 2×1 , write code to find the number of ways the floor can be tiled.
3. Given a graph, if we were to print all nodes within k hops of a given node, which algorithm would we use, the answer to this was obviously a Breadth first search. He followed it up asking, if one were to use Depth first search instead to code this problem instead, one would encounter bloated running times for Graphs with certain attributes (Perhaps Dense graphs or some such). Describe what types of graphs would a DFS algorithm falter with and why.

Round 6 (Telephonic Interview):

1. Given that you want to maintain a backend for a bookstore Application that would store names of Authors and books, such that the application can return all the books written by a specific Author and all the Authors of a specific book which is specified in a query. The query can be such that only a substring of the Authorname or the bookname is specified and all the matches should be returned. I proposed a trie based solution, and was asked to code the solution on a collabedit shared document.
2. Describe multithreading.
3. Describe all the processes that happen between you typing in a URL and the webpage appearing on your screen.
4. What is a singleton set What is the data storage model (Data structures) used to store records in a relational Database.
5. Given an Array containing numbers between 1 to n , out of which 1 number is missing, find the missing number.
6. Given a sorted Array and a number, print all pairs of numbers in the sorted Array that

sum to the given number.

I got the confirmation call the same evening that I had the telephonic interview.

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215. [TopTalent.in] Top College: No, Top Talent: Yes ; Anudeep cracks Google



Anudeep Nekkanti embodies the old adage – there is no substitute for talent. The 21-year-old coder from Samalkot (a small town near Vishakhapatnam) has landed an offer from Google, Zurich.

What makes Anudeep's feat commendable is that he was not placed out of the cream colleges of the country. No he is not an IITian, NITian or BITSian! A B.Tech student in computer science from Anil Neerukonda Institute of Technological Science, Vishakapatnam, he considers his preparation and performance in programming competitions the reason for his success at cracking the google interview process.

We at toptalent.in had the opportunity to interact and pick Anudeep's brain to gain valuable insights into developing the right skills to be successful at getting recruited at Google.

Toptalent: How do you feel on achieving this rare feat?

Anudeep: It always feels great to achieve something rare. I was happy after knowing about it, but the real joy was after knowing how much my parents and well-wishers enjoyed the news. There is a lot of hype about being Googler, excited to see what it is really. Also excited about Zurich and Swiss chocolates

Toptalent: What made you chose your particular college and course?

Anudeep: I did not know about IIT-JEE or AIEEE. I did not dream about joining particular college. I almost never took decisions back then. My dad is cool, he does not believe that education is everything and he did not want me to only concentrate on studies. So, when joining 11th standard, he asked me if I want to opt for JEE training. Not knowing what it is, my initial answer was yes but then he realised that I had no knowledge of what I was getting into and made me change my mind, and I am

grateful to him for that.

My EAMCET (State board common entrance test) rank was in the seven thousands. I had never lived outside of my town. So I wanted to stay away in a city and study, at the same time I did not want it to be too far from my home. Visakhapatnam was the best choice.

Initially I was supposed to take Electronics. My sister, who had finished B.Tech in computer science by then told me “CS is easy, you can start preparation one day before exams and clear them”. Well, I was looking to enjoy a lot in engineering and this line was perfect! It had so much impact. I just decided to take Computer science. It turned out to be one of the best decisions I have taken. CS is not easy, it is fun!

TopTalent: How many interviews were held in all?

Anudeep: Telephonic Interview initially. Then six onsite interviews at Google Hyderabad, then manager interviews.

Toptalent: Can you give us a brief account of what you felt was the toughest interview?

Anudeep: Hard to pick a single interview. Of the eight rounds I had with Google, couple of them were tough, one of those rounds lasted two hours on a single question.

Toptalent: What was your preparation strategy?

Anudeep: I did not prepare on anything specific for Google interview, I knew that my strength is algorithms and data structures. I did not want to read about other topics only for the purpose of job. I was hoping that only algo related stuff was asked. I was lucky with Google, all my interviews, all the questions were related to algorithms, data structures and programming.

Toptalent: What kind of skills do you think helped you getting this job?

Anudeep: It is competitive programming. I should say I was lucky about it. It is true that majority of hiring is biased towards competitive programming. One can clear these interviews by having good knowledge only about algorithms and data structures. Open source contributions, projects and machine learning are 3 other skills I would list.

Toptalent: Tell us a bit about competitive programming and how you became good at it.

Anudeep: It is similar to any other sport. One need to have a lot of interest to perform. One need to put a lot of effort to top. We say someone is ‘out of form’ or ‘in form’ in sports, true for competitive programming too, you need to keep doing them to be in good touch. And most importantly, at some point of time you realize that ‘This sport is not correct for me’, it can be true with programming too, and when this happens do not hang on to it, move on there are lot more things to do. How did I become good at it? I played it a lot. Concentrated practice is all that matters.

Toptalent: What resources did you consult? Where did you practice problems from?

Anudeep: Firstly, I solved about 300 problems on SPOJ (Sphere Online Judge). I came to know about online judge for the first time in 2012 Jan. That was because of IOPC (programming contest by IIT Kanpur).

Practice was my mantra. I used to try a problem for 2-3 hours. If I didn't get it, I looked for solutions on forums. I read few tutorials on TopCoder, but I did not know that TopCoder also has algorithm problems. I participated in following August's long contest, I was lot better this time, I could solve 7 problems. Ended 35th in Global ranking.

With this limited exposure to programming I went to participate in ACM ICPC Regionals. I could solve 4 problems there at onsite. I then understood that knowing how to solve is not enough, it is the ability to think and code fast is more important.

By August end I solved about a hundred and eighty *500 pointers*. I slowly started to think dynamically. By then I was able to solve four out of five problems. Now I am quite comfortable with 500 pointers. So, to conclude all that matters is sheer practice.

Programming is fun, programming is easy. My failure at IOPC 2012 made me start it. I thought, I will do well in IOPC 2013 and stop programming. That is how I started it. Very soon I started to like it, then I got addicted to it. I enjoy the feel that I get when I see "Accepted". That awesome green color. My heart beat raises whenever I submit a solution. I get goosebumps. It was that fun that kept me going. Don't do it, Play it. Enjoy it, it is a fun game. After 21 months, I am still deeply in love with it. Right now I am preparing for world finals. I am doing problems from various on-line judges like Topcoder, Codechef, Codeforces.

Toptalent: Were grades a factor in you getting selected?

Anudeep: No. I did not mention much about my grades in my CV. My CV only says B.Tech 4th year, 8 CGPA till date.

Toptalent: Tell us more about your final location choice, Zurich?

Anudeep: I had to risk my job for Zurich. I was initially offered London, Bangalore and then Hyderabad. I told I do not want to take those position, and was in a situation of being completely rejected by Google. But I was okay with that too so I told no to those 3 positions. 70 days after my onsite interview I was finally given Zurich.

Toptalent: Whats your advice to students who are aiming for similar placement offers as yours?

Anudeep: I see that a lot of Indians are putting a lot of effort into competitive programming (mainly for placement offers) with not so good results. Trust me, do it with complete concentration for a month, by then you will exactly know if you have to continue in this field or not. If you feel you should not continue, stop it, do not hang on to it hoping for offers. Use your time on other stuff.

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216. Flipkart Interview | Set 7 (For SDE II)

Online Coding round

1. Find all the Node at the distance K from a given node in a Binary tree. Print them in any order.
2. Design a LRU cache.

Telephone screening rounds

1. Given two sorted linked lists. You start with one of the two lists and then move till the end. You may switch to the other list only at the point of intersection (which mean the two node with the same value in different lists.) You have to find the path of maximum sum

Eg

```
1->3->30->90->120->240->511  
0->3->12->32->90->125->240->249
```

You can switch at 3 90 or 240 so the max sum paths is

```
1->3->12->32->90->125->240->511
```

2. Design a contact list for a cell phone which can add & search really quick and is scalable.

Machine coding round

1. Write a program which should create a parse tree, find invalid query and do some optimizations.

Input: first line contains the list of columns. There will be subsequent lines which will contain the query as follows.

```
EMP_ID, EMP_NAME, EMP_DEPT, EMP_AGE
```

```
SELECT EMP_ID,EMP_NAME where EMP_ID>5 AND EMP_NAME='robert'
```

```
SELECT EMP_AGE WHERE (EMP_NAME='robert' AND EMP_ID=5) AND  
(EMP_ID=32) OR (EMP_ID= 32)
```

ONSITE INTERVIEWS

1. Design a Synchronized Message broker queues. How will you handle various situations like one queue is down, automatic failover, active master selection, handling acked and unacked messages.
2. Design a site like book my show. It was an open ended question so I concentrated on

- inventory management. List all entities, classes objects modules and their interactions.
3. Design a secure Card storage system. Again open ended but the concentration was on encryption and decryption
 4. HR round. What are your strength and weaknesses, what did you do that made you happy. What was your best contribution till date.
 5. Design a Traffic signal . List all entities and classes involved. How will you handle pedestrian crossings etc.
 6. Design a game of tic tac toe, handling winning situation etc. NXN, multiplayer, multiplayer with synchronization, Disaster recovery, data analytics, SWOT of each approach.

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217. Microsoft Interview | Set 27

Round 1: (1 h)

=====

Q1. Design a Garbage collector like java. How would you detect depended reference loop?

Hist : Class design, Cycle detection algorithms for disjoint graph(List of connected graph)

Q2. Find an element in a sorted rotated array in O(logn) complexity.

Round 2:(1.h 15min)

=====

Q1. Given a sorted array having duplicate elements,how would you find first index of a given element in O(logn).

Write code for it. Change the condition to find out last index of that elements.

[Hint Binary search]

Q2. You have a dictionary of words. Given a word, print all anagram are in dictionary . State the data structure to be used to solve this problem.

Q3. Design a Chip-Encryption system. Which will do following operation:

1. Take a word from user
2. Encrypt the word by some Private or public key cryptography or any other algo.
3. Transmit the encrypted word by TCP or UDp or SSL.

Design the class diagram using OOD. Which design pattern you are using to achieve this.

Round 3:(1.h 15min)

Q1. In a plane n points (X and Y) is given. How will you find out maximum co-liner points.
Extend this algorithms. it for point(x,y,z) in 3D plane.

Q2. Reverse a 32-bit integers. write code for it.

Q3. What the different issue in multi-threading ? What is the difference between mutex and semaphore.

Q4. You have a file with million words in it. Find most frequent 10 word in that file. Note that you can store all word in memory.

(Note : Min-Heap + List)

Round 4 :

Skipped ... 😊

Round 5(2h 30 min)

Q1. You are given a Text, where all space, full stop and all punctuation mark is removed. You want to reconstruct the text by putting spaces between words.

A dict is given and following API < bool isInDict(word) > is also given.

- Decide if the text can be converted a sentence with valid words or NOT.
- Find how many way you can do the reconstruction of the text.
- Find what is the minimum number of space can be used for this reconstruction.
- For case (c) find out the indexes where you suppose to put a space.
- Now recover the text to sentence in place .

Subsequent Question:

- Why Greedy technique will not work for this?
- yes ! Backtracking will work, what is the problem of using backtracking ?
- Illustrate and explain how the solution is contracted from the Dynamic table ?
- Write the correct working code for (c),(d),(e).

Q2. Given a BST, find out the minimum length form root to leaf with sum S. Note that:

- Path from root to leaf node.
- Sum of node of the path is S.
- if multiple such path exist, print minimum length path.
- What is advantage of BST rather than BT used for this algorithm, how it improve the performance. in BST, is it required to explore both side ?
- Write working codes for it.

Status: Selected ! (The interview call was for SDE-I, but they offer me for SDE -II(L61) position)

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218. Shreepartners Gurgaon Campus Recruitment

Written was mixture of technical and aptitude. Aptitude tests covers few questions on numbers, reasoning and probability.

Technical part covers Operating System, Database and Data Structures

Coding Questions

1. Given a sorted array, print any two numbers equal to a given number.
2. Write optimized code to find x to the power of y .
3. *Given an array of n numbers, divide the array in 3 Lots in such a way that the difference between the lots is minimum (I gave sort the array and then divide into lots by taking elements from each list for e.g. 1,2,3|4,5,6|7,8,9 take them like (1,6,7),(2,5,8),(3,6,9)).*
4. Write a program to print the matrix in alternating rectangle of 0's and X's.
5. Write a program for searching for number of occurrences of a word in file.

Technical :

Solution written in the test for coding questions was asked to elaborate and asked to do the necessary optimizations if possible.

- Q1. Difference between abstract classes and Interfaces
- Q2. What are time sharing systems.
- Q3. Important Concepts of OOPS (Inheritance,Encapsulation)
advantage of OOPS over other Languages.
- Q4. CPU Scheduling Algorithms
- Q5. Write Recursive and Non-Recursive Factorial Program.

HR:

Simple Questions were asked:

- Q1 . Introduce Yourself
- Q2. Your area of Interest ?
- Q3. Why shreepartners ?
- Q4. Travelling to gurgaon will be possible or not ?
- Q5. Will be able to work late ..

Please suggest most optimized solution to the coding question number 3.

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219. Oracle Interview | Set 5 (For Server Technologies)

1st there was a online assessment. Oracle finance and oracle server, both had almost the same paper..4 sections..

- 1) eng
- 2) apti
- 3) basic technical
- 4) advanced technical

It was pool campusing, so we were called to some other college.

There were 4 rounds:

1) Technical round (20 mins) – Reversing a linked list , level order traversal of tree, a simple puzzle was asked.

2) Technical Round (45 mins) - here a lot of question were asked.. Threading, paging (OS)

queries, join, indexing (DBMS)

B+ tree, loop in a linked list (DS)

String reversal using recursion

Other questions I don't remember yo be honest..

3) Managerial round (20 mins) – Asked about Object oriented programming, Networking(all basic definitions).

Then there was an informal discussion about the company, its products, etc.

4) HR round (50 mins) – it was a stress round. HR will cover every point in ur CV and grill you. Just be confident and keep smiling.

P.S. – if you don't know something, just say sorry sir..I don't know this topic..they will move on..

N if you get stuck while answering tat question..they will keep asking u questions on that topic..

Thanks a ton to geeksforgeeks. Without them, it would not have been possible for me to crack this one.

Many many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

220. Amazon Interview | Set 87 (For SDE)

I recently cleared the Amazon SDE position. Through out my preparation GeeksforGeeks played great role, this is the only site which I referred/followed more than 90% of the time during preparation phase.

Please find my experience with amazon below.

1 Written test

- Given a array of number find the next greater no in the right of each element

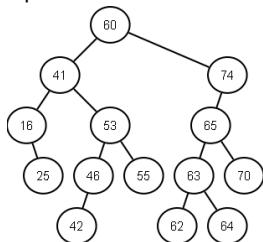
Example-	Input	12 15 22 09 07 02 18 23 27
	Output	15 22 27 18 18 18 23 27 -1

- Given a linked list and input int K, reverse the linked list in K size slots

Example Input	12--> 13--> 3--> 20--> 55--> 87--> 20--> 77--> 90 Lets k =3
Output	3--> 13--> 12--> 87--> 55--> 20--> 90--> 77--> 20

- Given tree and input int K, Print the nodes that are k distance away from leaf.

Input is below tree and k = 3



Output- 41, 53, 65, 74

2. First F2F round (DS and Algo)

Two interviewer was there in panel, Only one was asking question other was only observing, He was noting down all the conversation happening between us and noticing approach and solution provided by me. This was common in all the interview rounds.

- Given a infinite string of 0's and 1's respectively. You need to find the transition point from 0 to 1.

I gave the native solution in O(n). He told to optimize more. Direct binary search can't be applied on it because string was infinite and length of string was not given.

I told that I will divide the string in 10 size slots it will reduce complexity. Still he told to optimize more. I told I will increase the slot size in power of 2 like 2,4,8,16,32. he was satisfied with that.

He again complicate it by adding that now my string contain 0, 1, 2 in sorted order. You

need to find transition point from 0 to 1 and 1 to 2. i provided the approach. After that told this time i want to make it generic. String can contain 0 to n(input) number find all the transition point. I solved it, he was satisfy with approach and told me write code for it.

2) Find common elements out of two sorted array

3. Second F2F(DS and Algo)

1) It was bit difficult for me to crack, She stated asking from java cloning, which was my weak area. Given a class which contain string Name and reference to person friend, clearly shown below.

```
Class A {  
    A(String str, Person P { //Constructor  
        this.name = str;  
        this.friend= P ;  
    }  
    // override  
    Clone() {  
        // code for this function was expected from me  
        // which can produce the deep copy  
    }  
}
```

Suppose A→B→C→D means A is friend of B, who is friend of C and so on..

Calling once the Clone method will clone the whole friend list like

A'→B'→C'→D' (there A' is the clone of A).

Cracking this was really tough for me, because i was not familiar with these question.

2) How to find the last nth element from singly link list, its was very easy for me.

Solved in 2 min and wrote the code quickly.

3) Given a sorted array of number , value K and value X, find the K nearest number to the value

Example: Input 12 16 22 30 35 39 42 45 48 50 53 55 56 K = 4 X = 35

Output 22 30 39 42

Interviewer was running out of time because 1st question took huge time. So she told to tell only the approach, code was not expected.

4. Third F2F (Bar raiser)

Interviewer was of friendly nature. He was very senior and very cool guy. Started with my project question and then some behavioral question and in last one technical question

1. What is your current project, What value you added in your project till now.
2. What challenges you faced while working in project and how did you overcome.
3. What was the important learning for you in last project.

4. If you have the option to go 3 year back in life, then what would you like to change in life, means which skills and steps/decision you want to gain or change.
5. What you did in past on which you feel proud.. bla bla....
6. Given a tree, how will you find the vertical sum of nodes
refer this link to understand more about question

<http://www.geeksforgeeks.org/vertical-sum-in-a-given-binary-tree/>

I gave the solution using Hash map, but he was not satisfy with answer. He told to gave other solution because Hash map will increase the space complexity. I used array solution which was increase time complexity, then i used circular link list and finally solve it using doubly link list. He was satisfy with solution. Told me to code for it.

5. Forth f2f round(OOPS, design pattern and OS fundamental)

1. Started with my project details, my project was in android mobile, so he told me to design a “Contact application”. Class diagram and their relationship was expected from me. What all design pattern you can use in that.
2. Explain inheritance and Base class is given you need to stop exposing the base class methods without touching the base class at all. It was really tricky. question i liked it.
3. What is deadlock and How to detect deadlock in system.
4. Concept of Database normalization and various types of it.
5. He also started asking some networking question. Like TCP/IP, socket connection.
6. How the chat between 2 user work internally, internally how the packets flows between layer. And suppose user A send “Hi” message to user B and user B just shutdown the system. What will happen in that case.

6. Fifth f2f (Hiring manager)

1. Why you want to join Amazon.
2. What did you know about Amazon.
3. Current project explanation.
4. What new code you implemented and how much impact it put on other.
5. Given a tree, write the In-order traversal. I wrote in 2 min using recursion.

Next addition was, can you write it using iteration tried and wrote some buggy code.

He started checking and told the bug and told me to correct it. Even-through i solved the same question at my home, Still it was not clicking my mind. I started correcting it but failed. After that interviewer gave one hint. I used the hint and solved the whole code again. He was running out of time so took the code sheet and told i will check it later in free time.

Refer this link for actual solution and proper understanding of last question

<http://www.geeksforgeeks.org/inorder-tree-traversal-without-recursion/>

Message for all :-

Amazon expect accurate and precise code with less complexity. So discuss first with your interviewer the approach. Don't jump into code.

Even if you don't know the right answer, keep on discussing various possibilities to solve the question and try crack that problem with different angle. Practice more and more variety of questions.

Many many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

221. Pilani Soft Labs (redBus) Interview

I had three technical round of interviews. Two were telephonic followed by one skype interview with the team leader.

1st Round

- >Whether a number is prime or not
- >Reverse an array in $O(N)$ time
- >Bubble Sort
- >Reverse Linked List in $O(N)$ time without using any auxiliary space

2nd Round

- >Explain one of your projects. Cross questions on them. Then he modified the original problem statement and asked to implement the same.
- >1000 people standing in a circle. 1 kills 2, 3 kills 4, 5 kills 6 and so on. Who will be the last person alive. Code to implement the same.
- >Implement the entire RedBus website from the Home page to Payment Gateway page. Approximately 45 mins of discussion on the same and cross questions. Data Structures to be used at every point and stuff like that.
- >How to find second last element in Linked List
- >How to find middle element in Linked List
- >Program to segregate 0 & 1 in an array with $O(N)$ complexity and compute total number of iterations.

3rd Round (Team Leader Round)

- >Both sided Intro
- >Good discussion on my projects (esp MNIT & BIT-Mesra)
- >Technologies I have worked on. Questions on them.
- >Will I be able to switch technologies if asked like Java & .Net. Other questions like that.
- >Thereafter, he asked me when will I be able to join. So I got an idea that my interview

went well and further discussions were based on the technologies I will be working at RedBus.

Finally, my candidature was accepted. Thank you GeeksForGeeks for providing a centralized platform to prepare for such interviews.

Many many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

222. Oracle Interview | Set 6

I was referred by a friend and all the interviews are held at Oracle office, Hyderabad. None of the expenses would be reimbursed by Oracle.

F2F1: (1 hr) (With hiring manager)

As i was working in Payroll team in my current company, lot of questions were asked about it. He made me explain whole architecture, write flow charts for important modules like pay calculation and income tax.

F2F2:

After all the discussion in the previous round, he wanted me to design a new payroll system using OOPS principles.

F2F3: (Next day) (with a junior guy)

This interview started with my general introduction and followed by 10 sql queries (he brought a sheet with all the questions) . The queries are simple involving date manipulation, group by, max value with out aggregates etc.

F2F4: (with a senior guy)

Started with general introduction and then income tax module of payroll.

He asked me to write a program to reverse a string , then he dived deep into Oracle database questions like how the null is different from other boolean values, truth table with null, handling of null values in aggregate functions, codd's rules, indexing, normalization etc.

(My interview with senior guy dint go well, then i was waiting out side while my hiring manager and this senior guy discussed for at least half an hour)

F2F5: (With Director)

He introduced himself , told about the joining formalities in Oracle and asked my current CTC and expectations etc. (I asked for 10 % hike)

He gave me question about time taken for a train to completely cross a bridge.

then a coding question about finding the longest palindrome in a string. (He insisted on coding before listening to my approach)

Aftermath:

They seem to consider me for their ERP product Oracle Fusion apps HCM as i have domain expertise in payroll. Offer letter of Oracle takes its own sweet time of 2-3 months.Meanwhile, I took interview with Amazon and made it.

Many many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

223. Amazon Interview | Set 88

Online Test:

1. Rectangle overlap problem
2. String searching problem
3. Coin change problem

1st Telephonic interview:

Questions regarding processes in OS(how it is represented in memory like code segment, data segment, stack , heap), garbage collection , stack and heap , what happens when a URL is entered in browser and then proceeded to 2 programming questions

1. Given a BST, transform it into sum tree where each node contains sum of all nodes greater than that node.
2. Shuffle an array

(All arrangements were done by Amazon including travel, stay)

Onsite F2F 1:

Started with general introduction , asked about my work , know any design patterns and where you applied them in your project etc.

He asked a single question to design a single stack with push , pop and pop mid operations , followed by working code.

F2F2:

Again started with general introduction , work i do , then he gave a question about finding count of each occurrence of words in a document.

I gave hashing based solution (with working code), it lead to a great discussion on hashing , then he led me to give a solution with tries . As much time is not left he asked me to tell the approach only.

F2F3 (With Bar raiser):

Bar raiser will be from a different team.

He asked me a question to connect siblings at each levels of a binary tree , as i knew this question already. He wanted working code. After i gave the code he found a bug and i found one myself.After resolving the code he moved on to different question.

Next question is optimal implementation of 3 or more stacks in a single array.I gave some approached based on heuristics and with extra memory.He dint seem satisfied and then asked many questions about work i do and grilled me on many aspects.

F2F4(With Hiring Manager):

Asked me to design Automated Air traffic controller system . Gave me few requirements , made me identify classes and its members , and some high level code for identifying probable aircraft collisions.

He asked me about situations where i missed the deadlines and learnings from it , How do you build trust with Customer .

Then i asked him few questions like What specific qualities you look for in a potential candidate , How an SDE can contribute to Amazons claim to be most customer centric company and any concerns about my employment background (as i am working in manufacturing industry currently).

Interviews were held on friday , i got a call from HR lady on Tuesday following week.

Some tips:

1. Practice lot of pen and paper code.
2. Folks at amazon do not want pseudo code , they want working code with minimal syntactical errors.
3. Online plus telephonic rounds are for screening only.Also , Don't pass the time in telephonic rounds, they want to give at least two questions (easy though)
4. McDowell's book and recent 40 sets of amazon interview experiences will make you good to go.

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224. Interview experience in SRI, Bangalore

General Questions asked for SDE-1 in Samsung Research India Bangalore:

1. client server architecture
2. L value R value reference
3. OOPs concepts
4. MFC COM DCOM definition
5. big n small endian → how to know a m/c is small or big endian?
6. Templates → V v v interested in this
7. STL
8. Function pointers : how and y ?
9. Virtual n friend fxn n class : Why n how (behind d scene)
10. Singleton class : Why and how?
11. Abstract n pure virtual : DETAIL – y used, how used?
12. Constant n static fxn n var : difference, use n wats behind d scene?
13. Interfaces
14. Namespaces : do namespaces interact? if yes, how? if no, y not?
15. *p = NULL; – ok? –|__ Which to use and y?
&p = NULL; – ok? –| any error? if yes, y n how(n behind d scene)
16. Scheduling – in detail, which DS to use in which and Y?
17. Class diagrams
18. ACID property usage
19. Which SDLC model to be used where and y? → scenario based
20. Segments of memory – heap, stack, data, code
21. Which variable goes where in memory? (static, extern, register, auto, const, etc)

22. Size of class
23. Object of d class in the class declaration – when needed?
24. <http://www.geeksforgeeks.org/software-engineering-lab-samsung-interview-set-2/>
25. Virtual Destructor
26. Null, smart, wild, void/generic, dangling pointer
27. Diamond problem of inheritance and virtual class
28. Threads
29. Implement 3 stacks using 1 array
30. Deep Copy n shallow copy
31. Runtime error, segmentation fault, compiler error, stack overflow
32. <http://www.geeksforgeeks.org/memory-layout-of-c-program/>
33. deque

I apologize that I do not remember the questions as asked according to the interviews but this was pretty much it. I got through and I wanna thank Geeks for Geeks for it.

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225. Amazon Interview | Set 89

Online round:

- 1) Program to check if two rectangles overlap.
- 2) Program to find if a given string, say S, contains another given string, say P.
- 3) Write a program to check if the coins can be summed up to a given number, if yes print the coins that sums upto the given sum.

Telephonic round:

- 1) Given a singly linked list, modify the value of first half nodes such that 1st node's new value is equal to the last node's value minus first node's current value, 2nd node's new value is equal to the second last node's value minus 2nd node's current value, likewise for first half nodes.

Ex:

1) 1 -> 2 -> 3 -> 4 -> 5 -> 6 -> 7

Modified list:

6(7-1) -> 4(6-2) -> 2(5-3) -> 0(4-4) -> 5 -> 6 -> 7

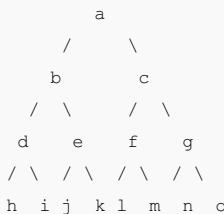
2) 1 -> 2 -> 3 -> 4 -> 5 -> 6 -> 7 -> 8

Modified List:

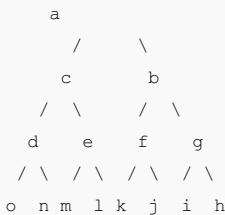
7 -> 5 -> 3 -> 1 -> 5 -> 6 -> 7 -> 8

2) Reverse the alternate level nodes of the binary tree.

Ex: Given tree:



Modified tree:



Face to Face Rounds:

Round 1:

- Thorough discussion about one project that I considered as the most interesting or challenging.
- Suppose we need a service to perform certain task every day at some specified time. How do we ensure that everyday at the specified time the service will do that task?
- Design a stack that supports push, pop, and retrieving the minimum element in constant time.
- Program to get the maximum distance between two nodes in the binary tree. The interviewer further generalized this problem for n-ary tree. Then he asked how to get the longest path in a graph.

Round 2:

- What happens when we enter the url in the browser?
- Difference between inner join and outer join.
- How does the garbage collector works in java?
- Questions on stacks and heaps(memory management).

- We have n gold coins. We need to amalgamate all the n coins to create one single coin, we can merge two coins at once. The cost of merging two coins is equal to the value of those coins. How do we ensure that the cost of merging n coins is minimum.

Ex: 5, 8, 4, 3, 9, 6

We will merge 3 and 4, cost=7 {Remaining coins: 5,8,9,6,7}

Then we merge 5 and 6, cost=11 { Remaining coins: 11,8,9,7}

Then we merge 7 and 8, cost=15 { Remaining coins: 11,15,9}

Then we merge 9 and 11, cost=20 { Remaining coins: 20,15}

Then we merge 20 and 15, cost=35 { Remaining coins: 35}

Total cost: $7+11+15+20+35 = 88$

If we had merged the coin array {5, 8, 4, 3, 9, 6} in different fashion:

Merging 5 and 8, cost=13 {Remaining coins: 13, 4, 3, 9, 6}

Merging 13 and 4, cost=17 {Remaining coins: 17, 3, 9, 6}

Merging 17 and 3, cost=20 {Remaining coins: 20, 9, 6}

Merging 20 and 9, cost=29 {Remaining coins: 29, 6}

Merging 29 and 6, cost=35 {Remaining coins: 35}

Total cost: 114

As we can see that the cost is less in the first case. Program to get the minimum cost of merging all the n coins.

- Replace BST nodes with the sum of nodes greater than or equal to the node.

Round 3 (Hiring Manager):

- Detailed discussion of my work in the current company.
- Some behavioural questions like how do you handle certain situations etc.
- Design a restaurant reservation system. I was also asked to write some sql queries in this regard.

Round 4 (Bar Raiser):

- Given a linked list, write a function to reverse every k nodes (where k is an input to the function).
- Given a sorted array which may contain duplicates, write a method to find the starting and the ending index of the given number if present.

Suppose we are give array: 1,2,2,2,5,6,6,9,10,10,10

If the number given is 9 then starting index and the ending index will be 7.

If the number given is 2 then the starting index will be 1 and the ending index will be 3.

If the number given is 7 the the starting and the ending index will be -1 as the number is not present in the array.

- Write a method to compress a given string “aabbbccc” to “a2b3c3”. It should be an inplace compression, no extra space to be used.
- Discussion about my current project.
- Describe a scenario when you failed, when you helped our colleague etc etc.

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226. Flipkart Interview | Set 8 (For SDE 1)

Applied through LinkedIn

Online Coding Round (Interviewstreet)

One of the many ways of representing a tree is to have an array(of length same as number of nodes), where each element in the node denotes the parent of that node.

Please note –

- * An element with parent = -1 is the root element.
- * An element with the least index becomes the left most child. (ie. a node with always be on left of all its siblings that have higher index than it)
- * When printing a level of tree you need to maintain left to right order.

Eg –

{-1, 0, 0, 1, 1} would represent a tree with –

- * 0 as root
- * 1 and 2 as children of 0
- * 3 and 4 as children of 1

Given a similar representation, you have to print reverse level order traversal of the corresponding tree.

Level order traversal of a tree is where we traverse levels of tree one by one.

Eg –

For the above given tree, level order traversal would be –

0
1 2
3 4
And hence, the reverse level order traversal is –
3 4
1 2
0

Telephonic Round 1

- =====
1. Find the square root of a given integer. e.g 27 output should be 5, for 32 output should be 6.
 2. Given a 2D matrix of integers find the maximum sum path in the matrix.

Telephonic Round 2

- =====
- Given a number n, find the largest number small than having the same digits as of n.
E.g. 231 output will be 213.
 - Given a long stream of numbers find the largest k numbers at any given point.(I told him I know the question and told the solution, he moved on).
 - Given k arrays of sorted integers, find the minimum range which contains the number from each of the k arrays.
e.g. {-1,4,7},{5,9,15,23},{8,24,25,31} output should be 2 range of {7,8,9}
 - Given a binary tree find all the nodes at k distance from a given node.

F2F-R1 Machine Coding Round

=====

- Create an employee database structure in which Employee has id,name,manager.
Three functionalities required were
 - Given any id return all the employee details
 - Given any name(or id) list all the subordinates of the given employee.
 - Given a name search with prefix search property.

45 minutes of time was given and running code was asked. Interviewer first asked the approach and then after coding he reviewed the code thoroughly.

F2F-R2 Data Structure and Algorithm

=====

- Given a list of words and a 2D matrix(of characters) find all the valid words(present in the given list) which are possible inside the given matrix.
Words can be formed in all 8 directions from a given cell.
First discussion about approach and then implementation of the logic.
- Given a binary tree serialize the tree such that it can be retrieved in the same form again.
- Given a double linked list with one pointer pointing to the next node and the other pointer to any arbitrary node in the list, duplicate the given linked list.

F2F-R3 Hiring Manager

=====

- Introduction about the organization and the work being done.
- My introduction and the work done by me.
- Asked some of the new ideas (wow!!!! features) which can be implemented in the smart phone.
- Few other general questions.

F2F-R4 Design Round

=====

- Design the Tic-Toe game for a smart phone. Discussion about the class diagrams, structure of the code, code flow, abstraction of code and functionalities.
- Interviewer asked the approach to implement the above in android.
- Various android questions.

F2F-R5 Hiring Manager + Reporting Manager

Hiring manager was on leave so this happened after a gap of one month after R4.

1. Introduction about work.
2. I asked various questions about work and my role.
3. Design a mobile cab booking application (just screens and functionalities) on board.
Asked questions about the things which I missed during the design.
And what all requirements are needed to before the application goes in development phase.

Response was positive from the recruiter side.

Thanks to all the contributors of GeeksforGeeks for bringing up this helpful platform for us. Hope to contribute further.

Many many congratulations to the author. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

227. [TopTalent.in] Exclusive Interview with Prashanth from IIT Madras who landed a job at Microsoft, Redmond

Armed with a dual degree from IIT, Madras, and a very strong resume, Prashanth Srikanthan was destined to land a lucrative offer from one of the big recruiters. So when Microsoft came calling he converted his potential into a Rs 60 Lakh package as a Software Engineer. [TopTalent.in](#) brings you his opinions and advice about dealing with interviews.

TopTalent: How does it feel to be selected by Microsoft?

Prashanth: It felt good to be recognized for the effort put in. It was definitely a proud moment to be hired by a company with such a rich history. After a few years of lacklustre activity in the spectrum of consumer products, I believe Microsoft is finding its way again, so this is an exciting time to join the organization.



TopTalent: Which companies did you get an offer from apart from Microsoft, Redmond?

Prashanth: I received an offer only from Microsoft Redmond. I was interviewed by Google MTV (Mountain View), Epic Systems Wisconsin and Oracle California besides Microsoft Redmond. My interviews with Oracle were left incomplete due to lack of time. Although I had excellent interviews with Epic Systems, I asked the HR to not extend an offer to me as I was uncomfortable with the fact that they had an office only in the US, and therefore being unlucky in the H1B-visa lottery would make the job offer worthless for at least a year.

TopTalent: Can you give us a brief account of what you felt was the toughest interview?

Prashanth: I think toughness of an interview is subjective to a certain extent. Having said that, the toughest interview for me was undoubtedly the final interview for Google MTV. They asked me a challenging set of questions, mostly open-ended. Overall, I would say Google had the toughest interviews.

TopTalent: What was your preparation strategy?

Prashanth: Preparation aimed specifically towards interviews was done in the 3-4 months leading up to the placement season. Apart from the resources I consulted, I also asked a couple of friends to suggest problems to think about during my free time. Whenever I encountered an algorithmic problem, I would try my best to solve it without consulting the web or a friend. Then I would code it up, since fast coding is often a great advantage during placement interviews.

TopTalent: What resources did you consult? Where did you practice problems from?

Prashanth: I read a few chapters from “Cracking the Coding Interview” by Gayle Laakmann McDowell, which I would suggest as a first resource for anyone appearing for a coding interview. Besides the book, I used to look up online resources like GeeksforGeeks and Leetcode from time to time. The tutorials at topcoder are also a fine resource. For a couple of years, I had been solving problems from codechef, codeforces and topcoder sporadically out of interest which helped me break into the mindset of an algorithmic problem solver.

TopTalent: What kind of skills do you think helped you getting this job?

Prashanth: The obvious answer is, first and foremost, algorithmic problem solving skills. Additionally, I was working, at that time, on two significant, interesting projects which I was very enthusiastic about, and spoke enthusiastically about them to my interviewers which I believe was a non-trivial factor in creating a favorable impression.

TopTalent: What is your advice to students who are aiming for similar placement offers as yours?

Prashanth: For the interview questions, practice a lot of problems and don't feel lazy to practice writing code. In my case, the interviewers (from Microsoft and Google) were very interested to hear about the research work that I had carried out and was planning to pursue in my final semester. I would advise students to take an initiative to undertake

projects that interest them, because it will give you an edge in the interviews.

TopTalent: What should one keep in mind while preparing a resume?

Prashanth: I spent a considerable amount of time preparing my resume. My rule of thumb was to not exceed 2 pages. It is always a good idea to scrutinize your resume from the perspective of an interviewer and ask yourself how you can make it better, more concise, more appealing. Never claim to know something you don't. Do not be afraid to deviate from a fixed resume template (that your institute might suggest, for example) if you feel a different arrangement represents your case better. Advertise your achievements and projects well, and be thoroughly prepared to answer questions on every point mentioned in your resume.

TopTalent: Please add other details that you want our readers to know.

Prashanth: I want to emphasize a couple of points. First, always remember that the company you are interviewing for wants to hire you as much as you want a job offer from them. Remembering this simple fact helps in maintaining confidence and avoiding panic during the interviews. Second, never try to deceive the interviewer. Try to be as honest as possible and if you do not know something, admitting it is far better than any alternative.

You can [login](#) and [download](#) Prashanth's resume from [TopTalent.in](#).

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228. Amazon Interview | Set 90

1. Phone Interview

- Given sorted array in decreasing order. Find first occurrence of given key.
- Find diameter of a binary tree.

2. Face to face 1 (Programming skill)

- <http://www.geeksforgeeks.org/dynamic-programming-set-31-optimal-strategy-for-a-game/>
- Merge N sorted lists to a single sorted list but comparisons should be minimum

3. Face to face 2 (DS round)

- 1 represent A, 2 rep B etc and 26 rep Z. Given a number, find number of possible decoding for this number. No need to consider number starts with zero. Eg: input – 1234, output – 3(ABCD, AWD, LCD)

- b. How to find a loop in linked list. How to remove this loop.
- c. How to design LRU cache(looking for the DS's used and their interaction)

4. Face to face 3(Design)

- a. A device need to upgrade and downgrade its software. Eg: mobile phone need to upgrade its OS. Design high level and low level.
(follow-up – 1. form version X to Y is not possible but z can. 2. from current version to latest version not possible but we can upgrade to an intermediate version and then to latest version. What
DS will be effective here)
- b. Design a semaphore.

5. Face to face 4(curtain raiser)

- a. HR questions including prev projects, best work etc
- b. Given a linked list where each node contains an extra arbitrary pointer which points to any node in the list. Write code to clone the list.
- b. Print vertical sum of a binary tree.
- c. Print a binary tree in vertical zig-zag order.

6. Manager round

- a. manager round HR questions. Team fit questions etc.
- b. Given a mathematical expression. How to design this expression evaluator using OOPs concept.

Each round consists of 1 to 1.30 Hrs.

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229. [TopTalent.in] 51 Students from BITS get into GSoC, Janani talks about her experience.

Google has always been on the lookout for exceptional talent. They begin this search early with their Google Summer of Code gsocprogramme. TopTalent.in had the chance to interact with a GSoCer, Janani Padmanabhan, who just completed her 2nd year of CS Engineering. Here's what she has to say about her experience.

TopTalent: What can you tell us about GSoC?

Janani: Google Summer of Code, more popular as GSoC, is an annual summer



program hosted by Google. It provides an amazing opportunity for student developers to code their summer away with great mentoring and a nice stipend. Every year, hundreds of open source organizations register with this program. A GSoC aspirant is to submit a proposal to these organizations. If the proposal is selected, he/she contributes to the organization under the guidance of an active member of the organization who acts as his mentor.

TopTalent: Can you briefly state your background?

Janani: I was born in Coimbatore, Tamil Nadu, but had the awesome opportunity of a tryst with a variety of cultures, being always on move. Now I am in BITS Pilani, Hyderabad Campus, having completed my Second Year of BE (Hons.), Computer Science. The areas of Computer Science that constantly attract my awe and passion are theoretical computer science and scientific computing and my chosen projects have been related to these fields. I have worked on approximation algorithms and mainly Genetic Algorithms.

Apart from this I am interested in Finance and Creative Writing, duly being nourished by the college which has given me the opportunity to be one of the directors of the finance club of the college and also the editor in chief of the official Editorial Board of the college.

TopTalent: Can you describe the complete selection process?

Janani: The selection process for Google Summer of Code is a pretty straight-forward one. Once the list of participating open source organizations is out, we have to shortlist the organizations whose purpose best matches with our interests, look into their functions and source-codes, contact their active members and most importantly come up with a project that is in line with their aim and of interest to the active contributors. We then submit a detailed proposal which the organization reviews and then proceeds to select the projects that are of use to it. My detailed proposal can be viewed [here](#).

TopTalent: What project are you working on currently?

Janani: My project is with SciPy, a Python package commonly used for mathematical aspects of scientific computing applications. I aim to improve the speed of spherical harmonic function, develop ellipsoidal harmonic functions and to debug hyper-geometric function.

TopTalent: How much preparation did you put into this opportunity?

Janani: I took my own time to get acquainted with the mailing culture and the code base of SciPy. It took 2 months to get acquainted with the organizations, to understand the direction of its development and also to learn and familiarize myself with version control systems like git. Then my focus was to develop the proposal and refine it based on the inputs from the prospective mentors and other active members.

TopTalent: What is your advice to other students looking for a similar opportunity?

Janani: Basically, we need interest and perseverance to make it through. Open source coding, documentation and mailing etiquette is not something we have in our formal curriculum but it is definitely a window to the actual coding world out there. It also allows us to meet some amazing people across the globe. So, GSoC or not, I would advise all the Computer Science students to give it a try.

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230. Amazon Interview | Set 91

I recently got interviewed with Amazon for SDE position for their Hyderabad office.

Round 1: (F2F)

1. Discussion around current company and work I was doing there. Why Amazon?
2. There is a robot standing at first cell of an $M \times N$ matrix. It can move only in two directions, right and down. In how many ways, it can reach to the last cell i.e. (M, N) . Discuss all the approaches and then asked to code it.
3. Remove the nodes in the binary tree for that the sum of all values from root to leaf is less than K.

Round 2: (F2F)

1. Convert a Binary Search Tree to DLL in-place.
2. Implement LRU policy.
3. Find the First Non Repeating Character in a stream of characters. Use Constant Space and linear complexity in terms of character count.

Round 3: (F2F)

1. Why do you want to leave your current organization?
2. Current Project Discussion and your contribution in the project.
3. Some Nice Behavioral questions.
4. Given a magazine of thousands of pages. You have to construct a note out of it by cutting the words out of it. You can only cut whole word from magazine and you can't add any words. Also, you can't cut partial words or alphabets from it.

Round 4: (F2F)

- Given an array of size $N = k * s$. In this array, construct blocks of k size each (Number of such blocks will be s). Now find all combinations of these numbers such that difference among the k numbers in the block should not be greater than d . e.g. $N=6$, $k=2$, $s=3$ $A=\{2,4,6,8\}$ and $d=2$. So the answer should be 2 $\{\{2,4\},\{6,8\}\}, \{\{4,6\},\{6,8\}\}$.
- Given a binary tree with usual left and right pointers and one additional pointer called adj. modify the tree in-place such that adj pointer should point to the right node in same level as current node or if it there is no node right to it, adj should be NULL.

Round 5: (F2F)

- How many Binary Search trees can be constructed using sequence of N numbers?
Write Code for it.
- How many cycles of length 3 can be constructed using edges of a undirected graph?

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

231. [TopTalent.in] Interview with Rishav who got a job offer from one of the core companies, Qualcomm

Engineers from core branches like Electronics, Mechanical, Chemical today are often found chasing lucrative employment in fields like IT and analytics, areas unrelated to what they spent four grueling years studying. But Rishav Rej of BITS Pilani, Hyderabad Campus decided to take the road less traveled by. Armed with an impressive resume that included plenty of experience and projects in his core branch, ECE, Rishav earned a place with one of the world's leading semiconductor and telecommunications company, Qualcomm. TopTalent.in brings you his opinions and advice about dealing with interviews.



TopTalent: How does it feel to be selected by Qualcomm?

Rishav: Great! I was always interested in Communication Engineering. Making it to one of the leading companies in MODEM technology, it really feels special.

TopTalent: Can you describe the complete hiring process of Qualcomm?

Rishav: Qualcomm had come in the first semester to hire fresh grads and recruit summer interns as well. Firstly, there was an online test and the shortlisted candidates were called for interviews. There were two rounds of interviews, one for technical and the other HR. Five of us were selected for the internship program of 10 weeks. During this interning tenure we were evaluated and our performance reviews were submitted.

We also had to go through an Exit Interview. Combining both these components they selected 4 out of those 5 interns as new hires.

TopTalent: What was the toughest question you encountered and how did you answer it?

Rishav: 'Tell us about yourself' was definitely one of them. This was the one question which I was certain would make all the difference as technically all my fellow candidates were very competitive. I took the opportunity of answering this question by telling the interviewer about my projects, internships and my interest in the field of wireless sensor networks, a field that works in close lines to Qualcomm's R&D. And the rest of the interview went smoothly.

TopTalent: What was your preparation strategy?

Rishav: I wasn't prepared actually on the day of my interview, but I was confident about what I know. So that confidence did help me through. During the internship period sincerity and dedication did the trick for me. Previous experience in the form of internships and projects can also come very handy. I had worked in the Engineering Section of Moser Baer India, MODEM-Automation Team of Qualcomm and in Research and Development for Tejas Networks. Also, I had done projects in the fields of Data Acquisition through Wireless Sensor Networks, Data Indexing in Wireless Sensor Networking and Optical Networking in Fiber Optics during my four years in college.

TopTalent: Can you talk about what resources you referred to before the interviews?

Rishav: I mostly referred to my class notes and went through the few technologies Qualcomm was working on. Basically I brushed up on concepts.

TopTalent: What were some important factors according to you that made you stand out?

Rishav: I cannot say that for myself, but one thing which I always ensured was to carry myself in a confident manner. I kept repeating to myself, 'There is nothing to be afraid of or nervous about'. I think the most crucial point is to be able to handle any situation well under pressure. I tried to constantly remain calm and I think that might have turned things to my favour.

TopTalent: Currently, what are you working on and how has the experience been so far?

Rishav: It's the third day since I've joined Qualcomm and been allotted my team. The general atmosphere and ambience here is awesome, everything that I had hoped it would be. Also, my peers here are the friends I had made during the internship, who joined the company along with me. Coming to my work, it is in CDMA, something which has always interested me. So far, it's been a perfect combination of work and fun. At present I am just taking my time to settle down and am definitely looking forward to a

great experience ahead.

TopTalent: What is your advice to students who are aiming for similar placement offers?

Rishav: Be very clear about what kind of work you want to do. Remind yourself of your aim and always keep it in your mind. If you have clearly defined goals, you will be able to ensure that your preparation is organized and up to the mark. This will also give you the confidence to crack the toughest of interviews.

You can login and download Rishav's resume from [TopTalent.in](#)

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232. Amazon Interview | Set 93

I have just completed a full interview with Amazon and wanted to give back to GeeksForGeeks my experience because it has helped me so so much to go through it.

1st phone interview

Why Amazon?

How do you find out the cause of a slow UI request?

Write function to convert a stream of incoming characters to an integer.

Write function to convert one character to one digit number.

2nd phone interview

Get nth to last element

Check if 2 binary trees are equal recursively and iteratively

On-site interview

1st interview

Write a url shortner. Design scalable architecture that host this service.

2nd interview

Array vs linked list. Rest vs Soap. What is a hashtable? Write code to handle hashtable collisions?

3rd interview (lunch)

Situation where you missed a deadline.

What are you proud of the most in your career?

Situation on how you handled conflict.

Other behaviour questions

4th interview

Why Amazon?

Build a clone of a binary tree sent from a different machine

5th interview

Design and implement algorithm to find the shortest path from start to finish of a maze.

I thank GeeksForGeeks for all the help it gave me.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

233. Paxcel Technologies Interview Experience

I have successfully completed the recruitment process of paxcel technologies pvt ltd and wanted to share my experience with geeksforgeeks.

1st Round

Online Test with 40 MCQ questions related to computer science field subjects like DS, OS, CN, COA and Programming.

2nd Round (Programming)

1) Traverse a given 2D matrix from given source to destination in such way that every cell should be visited exactly one time (we have to cover all cells of matrix exactly once and have to reach at destination).

2) If m is a number then i right rotation of that number is mi. Ex m = 123 then m1 = 312, m2 = 231.

Now you have given 2 numbers as input say x and y. You have to count all m numbers between them such that x <= m < mi <= y.

Ex if x = 123 and y = 250 then for m = 123, m1= 312 and m2 = 231 so,

X <= m < m1 <= y is not valid

X <= m < m2 <=y is valid. And so on..

3rd Round (Telephonic Interview)

Discussion of logic of programs from previous round and questions on selection of

programming language (why Python or why C).

Some basic questions from OS, COA and Networks.

4th Round (Face to Face)

Discussion of Project/Thesis.

Asked me to convert my C code of thesis into Object Oriented term.

Questions from Memory, paging, segmentation and unix.

Gave some simple programming questions to write (like to print all permutation of a string and pointers related).

5th Round (HR)

Discussed about myself, Relocation, and salary package.

I thanks to geeksforgeeks for huge contribution to this. I will keep learning from geeksforgeeks. 😊

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

234. Amazon Interview | Set 95 (For SDE-I)

Hi, Below is my interview experience for Amazon for SDE-I position.

Round-1(F2F)

- 1.) Traverse a binary tree in a spiral manner. (zig-zag manner)
- 2.) Given a number, find the just greater number than the given number containing the same digits as the given number. Write code for this.

Round-2(F2F)

- 1.) Print a binary tree in a level order traversal but in bottom to top manner.
- 2.) Given 2 BSTs, validate their equality. Both are equal if they consist of the same set of values irrespective of their structures. (Can you traverse them parallelly).
- 3.) Given a infinite stream of integers, find the first non-repeated number till now. Write code for this.

Round-2(F2F)

1.) Given a binary tree, convert it into doubly linked list and after the conversion, the linked list should

look like the post order traversal of the binary tree. The conversion should be in-place.

What is the time and space complexity of the program.

2.) Given the following sequence

A, B, C,.....Z, AA, AB, AC,.....AZ, BA,.....BZ,....ZZ, AAA.....

1, 2, 3,.....26,27.....

Given n, return the string. What is the time and space complexity of the program.

Write code for this.

Round-4(F2F) – with Hiring Manager

1.) Given an array, return the second largest number. Write code for this.

You can not modify the array, just traverse the array once and return the required number.

Handle all the edge cases. What should be the function signature.

2.) Given two files which contain very large size of number, say the size of the file is 5 GB.

That means that you can not load the whole file into memory. How would you add these two files and store the result in another file. Long discussion on optimization.

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235. [ToTalent.in] Exclusive Interview with Shweta, who got a job at Goldman Sachs

Armed with a B. Tech Degree in Information Technology from NITK, Shweta Shrivastava has secured herself a successful future in Goldman Sachs. Harnessing her skills through a plethora of projects and actively participating in various extra-curricular activities, Shweta built a strong resume. She worked as an intern for Goldman Sachs and sure enough, secured a permanent offer from the most recognized investment banking firm. [TopTalent.in](#) brings you the important interview tips and strategies that Shweta has to share. You can [login and download](#) her CV from [TopTalent.in](#).



TopTalent: What makes Goldman Sachs so special? Why did you decide to join?

Shweta: Goldman Sachs is one of the leading companies in the world of investment banking today and an amazing place to work for. I had the opportunity to work here as

an intern for two months after which I was hired as a permanent employee.

TopTalent: Can you describe the complete hiring process?

Shweta: I was recruited as an intern here in my third year. The hiring process is exactly the same as any other company which comes for campus recruitments. There's an aptitude test in the first round followed by GD and finally personal interviews.

TopTalent: What is your strategy while answering tough questions?

Shweta: In any interview, whenever you come across a tough question you're unsure about, the best thing to do is to honestly tell the interviewer that you don't know the answer rather than trying to give senseless answers. It is very important to stick to context. Always keep your answers short and to the point, don't beat around the bush. However you could always tell them what you think is right and back it up with an intelligent explanation. Say you're not very sure but logically this should be the answer.

TopTalent: Can you talk about what resources did you refer to before the interviews? What tips would you give to students sitting for interviews?

Shweta: Before the interviews, you don't particularly have to prepare for anything. Your ability to answer the technical questions that they ask depends on your overall knowledge and can't be achieved by last minute preparation. In any interview, the most important thing that they look for is your presentation. They know you are smart, having cleared the aptitude test and GD; otherwise you wouldn't have made it there. What they want to see now is your personality, your communication skills and your confidence. So whenever you're going to sit for an interview, just relax. Always be yourself. Don't portray a fake personality just to create an impression. The people hiring you have been conducting interviews for years and will easily spot the deception.

TopTalent: What were some important factors according to you that made you stand out?

Shweta: According to me, the most important factor that made me stand out was my appropriate level of confidence. Not only is it important to be confident, it is extremely crucial to never be overconfident. You should know how and when to say what, how to tackle questions, how to make a connection with the interviewer. Remember, all you have is ten-fifteen minutes. Do your best. Don't be tensed. Don't be too nervous. Take the interview as a conversation and not as a question-answer session. And always be yourself.

In case you missed it the first time you can [login and download](#) Shweta's resume from [TopTalent.in](#)

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236. Amazon Interview | Set 96 (On-Campus for Internship)

I'm a 3rd year grad and amazon visited our campus. My interview had only 3 rounds.

Round 1 (Online round 20 MCQ's and 2 coding questions)

MCQ's were mostly on data structures ,time complexities and C,C++ outputs with 2 aptitude questions.

- Given 2 linked lists of digits as data in their nodes add two numbers.

```
Eg: 1 -> 2 -> 3 -> 4      and 4->3  
      print 1 -> 2 -> 7 -> 7
```

- given few sets of intervals print out the the entire intervals without overlapping , if they overlap then combine them into one.

```
Eg: Input : (5,7) (1,6) (2,4) (10,14) (8,9)  
      Output : (1,7) (8,9) (10,14)
```

Round 2 (F2F)

Tell me something about yourself.

- Convert a BST into inorder, preorder and postorder linkedlists inplace.
- Make a queue out of 2 stacks, as it was easy he asked me to code and asked me the complexities.
- Given a linked list with a loop find the loop and make it straight . I did with HashMap but he told me not to use extra space so i told him floyd's cycle.

He asked me i had any questions.

Round 3(F2F) (After lunch)

- Given a Binary tree convert into a BST no auxillary space (i did it with an inorder traversal) he asked me to code.

- Given an infinite stream of characters find the first non repeating character at any instance , The storing,retrieval should be o(1) .

I told him a solution using a hashmap then he modified that he may have millions of unique characters not just alphabets.

i gave a solution with a linked list and a hashmap. This question was not asked to me but was to my friend .Its a good one.

- print all the binary values of number from 1 to n , each number's binary should be printed in O(1).

for eg: n = 6

then print 1 10 11 100 101 110. printing 1, 10 ,11 ,100,101,110 should be in O(1) each

I thank Geeksforgeeks for letting me know about Floyd's cycle .

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237. Flipkart Interview | Set 9 (On-Campus)

I am 4th year undergrad. Recently Flipkart visited our campus.

Online Coding Round(on Interview Street)

There were 2 questions time limit 90mins –

1. A person wants to go from origin to a particular location, he can move in only 4 directions(i.e East, West, North, South) but his friend gave him a long route, help a person to find minimum Moves so that he can reach to the destination.

Input – NESNWES

Output – E

You need to print the lexicographically sorted string. Assume the string will have only 'E' 'N' 'S' 'W' characters.

E.g – SSSNEEEW

output – EESS

2. A sender will send a binary string to a receiver meanwhile he encrypt the digits. You are given a encrypted form of string. Now, the receiver needs to decode the string, and while decoding there were 2 approaches.

First, receiver will start with first character as 0; $S[0] = 0$, $P[1] = S[1] + S[0]$, $P[2] = S[2] + S[1] + S[0]$ and so on.

Second, Receiver will start with first character as 1; $S[0] = 1$, $P[1] = S[1] + S[0]$, $P[2] = S[2] + S[1] + S[0]$ and so on.

You need to print both the strings, after evaluation from both first and second technique. If any string will contain other than binary numbers you need to print NONE.

Input1; 0123210

Output: 0111000

NONE

explanation for NONE – $S[0] = 1$, $P[1] = S[1] + S[0]$ so $S[1] = 0$

$P[2] = S[2] + S[1] + S[0]$, $S[2] = 1$

$P[3] = S[3] + S[2] + S[1]$, $S[3] = 2$, not a binary character so NONE

Machine Coding Round (on Interview Street)

There was only one question, time limit 45mins

Q1. Word Wrap problem with few conditions, even i didnt remember much conditions here are some conditions.

- i) there can be maximum of X characters in a single line.
- ii) there can be maximum of Y number of spaces in the end of the each single line.
- iii) if a string length is big enough, so that it cannot be printed in single line, use '-' in the end of the line and print string further in the different line.
also there should not be '-' consecutively in the end, if the string contains already '-' in the end dont put '-' character.

E.g. flip-kart and if x = 5 so it should be ->

flip-
kart

- iv) the string should not start with these characters('.' , ',' '')
 - v) the cost value should be minimum, there can not be multiple answer for a single string.
- Eg. This is a flipkart online programming test.

x = 10 Y = 3

Output

This is a
flipkart
online pr-
ogramming
test.

First Technical Interview (F2F)-

They asked me about myself, so i gave my brief intro to them(there were 2 people who were taking the interview)

and then they asked me about, what coding practices you used to do.As i dont do much coding online so i gave told them truely that only Codeforce and Spoj

After that they started my interview, that what is the approach that you had used in the Machine Coding Round and how you implemented and why you uses this type of technique.

My approach was Greedy.

Further they asked me what Data Structure you Know, how you use it some basic questions.

Later they asked me to print vertical nodes together in the binary tree, he asked me why you used Recursion in the solution.

After that they asked me a question, which was –

you are given an array(say C) of characters and an array(say M) which contains the indexes of the array of characters.

We started moving elements of array(C) according to the position of indexes given in the array(M).

e.g. array A – a b c d e f g

array M – 1 4 3 5 0 2 6

so array A will change in first to – e a f c b d g

again applying same – b e d f a c g

again applying – a b c d e f g

so after 3 times we got the same sequence of characters.

He wants minimum number of times modification on the array (A) so that we will again reach to the initial order.

I gave him first recursive solution, then he says optimize it and after that I gave him O(n) solution; the logic for the problem came to me from Inplace Transpose of Matrix

the question is like -> <http://www.codechef.com/JULY14/problems/SGARDEN/>

After this he asked me a question on Next Greater Element, he wants how many ways I can handle this question.

I told him 3 approaches- 1.O(n^2) 2.O($n\log n$) 3.O(n)

He asked me about AVL tree, how you will implement it and then said you have final interview in early morning 😊

Technical + HR interview(F2F) –

In this round, first they asked me about myself while studying My Resume

So they started asking some questions on LINUX – like what is gdm but I said sir didn't know much about linux.

further they asked me how to debug the code, and what is segmentation fault, memory leak and how you will find the segmentation fault in 5000 lines of code.

after that they asked me about my projects, why this project how you did it... they grilled me in every step.. why this why not this and all..

after that he wants some optimization to be performed on the project.

After this they asked me some questions on stack while putting pressure of time that you have 2mins for this question.

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238. Flipkart Interview | Set 10 (On-Campus For SDE-1)

Round 1(Online):

There were 2 questions time limit 90 mins.

1. A person wants to go from origin to a particular location, he can move in only 4 directions(i.e East, West, North, South) but his friend gave him a long route, help a person to find minimum Moves so that he can reach to the destination.

Input – NESNWES

Output – E

You need to print the lexicographically sorted string. Assume the string will have only 'E' 'N' 'S' 'W' characters.

E.g – SSSNEEEW

output – EESS

2. A sender will send a binary string to a receiver meanwhile he encrypt the digits. You are given a encrypted form of string. Now, the receiver needs to decode the string, and while decoding there were 2 approaches.

First, receiver will start with first character as 0; $S[0] = 0$, $P[1] = S[1] + S[0]$, $P[2] = S[2] + S[1] + S[0]$ and so on.

Second, Receiver will start with first character as 1; $S[0] = 1$, $P[1] = S[1] + S[0]$, $P[2] = S[2] + S[1] + S[0]$ and so on.

You need to print both the strings, after evaluation from both first and second technique. If any string will contain other than binary numbers you need to print NONE.

Round 2(Machine Coding Round):

There was only one question, time limit 45mins

Q1. Word Wrap problem with few conditions, even i didnt remember much conditions here are some conditions.

- i) there can be maximum of X characters in a single line.
- ii) there can be maximum of Y number of spaces in the end of the each single line.
- iii) if a string length is big enough, so that it cannot be printed in single line, use ‘-’ in the end of the line and print string further in the different line.

also there should not be ‘-’ consecutively in the end, if the string contains already ‘-’ in the end dont put ‘-’ character.

E.g. flip-kart and if x = 5 so it should be ->

flip-
kart

- iv) the string should not start with these characters(‘.’, ‘,’ ‘‘’)
- v) the cost value should be minimum, there can not be multiple answer for a single string.

Eg. This is a flipkart online programming test.

x = 10 Y = 3

Output

This is a
flipkart
online pr-
ogramming
test.

First Technical Interview (F2F):

They asked me about myself, so i gave my brief intro to them (there were 2 people who were taking the interview)

He saw my resume and asked me that do i know DBMS.

I said i have done a course on it. So he started asking about DBMS. He explained me how the order are made in flipkart (like there are many item from different locations and many order are places

and there are many order item to be placed at different location. There can be offers on items).

After explaining he asked me what tables would you like to used for online shopping like flipkart. He asked the the primary keys for every table and foreign key if there are any. He then asked me about mapping of these keys and what type of mapping to be used here (one to one, many to many or many to one).

Then he asked me about my Codechef and spoj rating. Then he asked me 3 coding questions:

1 – <http://www.codechef.com/JULY14/problems/SGARDEN/>

2 – Simple dp question that a frog can take 1 or 2 step. Number of ways to reach nth position.

3 – Number of palindrome between 2 given numbers.

Technical + HR interview(F2F) –

He discuss everything about my project very deeply.

Then he asked a coding question.

<http://www.careercup.com/question?id=13394663>

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I had my amazon interview few days back in my campus.

First Round:

First round was a simple round. It had 20 MCQ questions on C/C++ and 2 coding questions. The coding questions were:

- 1.) You have given an array in which numbers are first increasing and then decreasing. Find the maximum element in $O(\log n)$.
- 2.) Swap the data of alternate nodes of a list.

We were given 90 minutes for 22 questions. For objective questions, you should be clear with virtual functions, inheritance, data types etc.

Second Round:

In this round, we were divided in groups. And a tree problem was given. We have to solve them individually.

My problem was:

Given a bst and two boundary values. Prune the tree if the node data lies outside the boundary values

Round three:

In this round,

- 1) Reverse a doubly linked list and a singly linked list. Both iterative and recursive. Which one is better approach and why?
- 2) Can you reverse a list in less than $O(n)$?
- 3) Differences between list and array. Which data structure you like and why?
- 4) How will you find the kth node from last in a list? Discussion on optimization
- 5) Given a string. Print all permutations of it. Discussion on time complexity and optimization.

Round four:

- 1) Interleaving of a string. A big discussion on various test cases. Your code should handle the case if the string contains repeated characters.
- 2) Check if a binary tree is a bst or not
- 3) find diameter of a tree. Follow up how will find the height of a binary tree?

Round five: Problem Solving round

- 1) Given an array of heights of poles. Find the no of poles which are visible if you are standing at the ith pole.
- 2) You have a youtube video. A person watches the video in random order. You have given the start and end time of various intervals he watched. How will you confirm whether he has watched the full video or not.
- 3) Given a number. How will you find the next greater number with same digits.

Round Six: (HR round)

- 1) tell me about yourself.
- 2) why amazon?
- 3) Project discussions.

4) A little discussion on OOPS.

All the best Guys.. 😊

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240. Amazon Interview | Set 98 (On-Campus)

I am a fourth year undergraduate CSE. I had my amazon interview in my campus.

First Round:

First round was a simple round. It had 20 MCQ questions on C/C++ and 2 coding questions. The coding questions were:

1.) You are given a string that represent an expression of digits and operands. Eg. $1+2*3$, $1-2+4$. You need to evaluate the string or the expression. NO BODMAS is followed. If the expression is of incorrect syntax return -1.

Test cases :

- a) $1+2*3$ will be evaluated to 9.
- b) $4-2+6*3$ will be evaluated to 24.
- c) $1++2$ will be evaluated to -1(INVALID).

Also, in the string spaces can occur. For that case we need to ignore the spaces. Like :-
 $1*2 -1$ is equals to 1.

2.) You are given an array of both negative and positive integers. You need to rearrange the array such that positive and negative numbers alternate. Also, the order should be same as previous array and only $O(1)$ auxiliary space can be used and time complexity boundation $O(n)$.

eg. -2 3 4 5 -1 -6 7 9 1

result – 3 -2 4 -1 5 -6 7 9 1.

Second Round:

In this round, we were divided in groups of 5. And two problems were given and we need to write the code on paper for that problem.

My code were :

- 1.) You need to determine whether the linked list is palindrome or not.
- 2.) Print the level order traversal of the binary tree in the spiral form.[They also asked us the solution without any extra space and $O(n)$ Time complexity].

Third Round(F2F):

Interview asked me to write the code for the two problems which are :

1.) Reverse the alternate K Nodes of the Linked List.

eg. 1->2->3->4->5->6->7->8->NULL

Result – 3->2->1->6->5->4->8->7->NULL.

2.) You are given the binary Tree and the two nodes say k1 and k2 . You need to determine whether the two nodes are cousins of eachother or not.

eg. 6

/ \

3 5

/ \ / \

7 8 1 3

and say two node be 7 & 1. result will be TRUE.

say two nodes are 3 & 5. result will be FALSE.

say two nodes are 7 & 5. result will be FALSE.

3.) Give the algorithm, data structures, time complexity and space complexity for the following problem :

In our mobile phones when we enter say four initials of the number say 9 4 5 6, then our phone shows the whole lists of number that starts with these entered number.

Now the problem is : how it is implemented and what is the best way of doing this keeping the balance between space and time complexity. Also, user can enter any number of initials and your program should print all the numbers with those initials that are present in your phonebook.

Fourth Round(F2F):

Interviewer asked some questions on C++ . They were :

1. What are **virtual functions**?
2. What is the **use of virtual functions**?
3. What are pure Virtual functions?
4. Syntaxes of Virtual functions and **pure virtual functions**?
5. What are **abstract classes in C++**?
6. How we can implement pure virtual functions in JAVA ?

Design question :

How we can restrict our class so that only single instance of it can be created?

What is Singleton Design Pattern?

Operating system Question :

1. What are semaphores?
2. What is producer consumer problem and give different solution for it?

Two questions he asked me to code :

1.Convert one string to another string.For that purpose you can use three operations – SUBSTITUTE,DELETE,INSERT.Each having cost as one except substitute having cost 2.You have to determine the minimum cost required.

For eg.

First String : INCLINE

Second String :DECLINE

Minimum cost required are : 4 [change I to D and N to E].

2. Implement the stack in which push(),pop() and getMiddle() has O(1) complexity at any point of time.

3. Find the maximum size BST present in the binary tree.

He also asked question about my projects and why I choose them. He asked to just explain the whole set of thing that I have performed in it.

(About 10 minutes discussion)

Fifth Round(F2F):

This round started with the deep discussion about my projects. Interviewer tried to get each and every aspect of my project with lot many why and how questions. She asked me the future scope of my project and what are learnings I got from it. (About 30 minutes discussion).

Then she asked me implementation, algorithm, data structures, time complexity and space complexity for the following problem:

Say we have website having several web-pages. And also there are lot many user who are accessing the web-site.

say user 1 has access pattern : x->y->z->a->b->c->d->e->f

user 2 has access pattern : z->a->b->c->d

user 3 has access pattern : y->z->a->b->c->d

user 4 has access pattern : a->b->c->d

and list goes on for lot many users which are finite and numbered.

Now the question is we have to determine the top 3 most occurring k-Page-sequence. for the above example result will be : (k=3) a->b->c , b->c->d , z->a->b.

[Question took the long discussion and she kept adding constraints, cases and more problems to the above problem.]

One question she asked me to code which is:

You are given a sting. Find the character in that string which is not repeated and which occur last in the sequence.

Eg.- aababaacdffgxc

Result – x

I would like to thanks GeeksForGeeks which helped me to improve my knowledge and understanding of Data structures and Algorithms 😊

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241. Amazon Interview | Set 99 (On-Campus)

Amazon interview experience :-

1st Round :-

20 mcq and 2 coding questions

1. Left view of binary tree
2. addition of 3 link list

2nd round F2F :-

1. check listlist is palindrome or not
2. level order traversal in spiral form

3rd round :-

1. Length of the longest substring without repeating characters
2. Length of the longest substring who occur more than one in string
like :- geeksforgeek so answer is geek.

4th round :-

tell me abt ur self

check tree is BST or not and code for it

Check number is power of 2 or not

what is Dns

difference btw TCP and UDP

one tough question is which i dont remember but it i dont know how to solve this question but interviewer help me alot to crack this question and ask me to code for my algorithm.

5th round(HR round) :-

1. about myself
2. 15 min. about my project
3. given a string return character whose count is 1 and position is right most... example :- aabccddeff so b and e count 1 :- so return e.
4. given a newspaper you have to find word in it.. so i solve it by trie.

suggestions :-

1. if you dont know answer of coding question so dont worry interviewer will help you.

He always give you hint and you have to think on that way.

2. GeeksforGeek

3. Always say interviewer what is your intrest subject.

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242. Amazon Interview | Set 100 (On-Campus)

First of all many many thanks to geeksforgeeks for such a great guidance. Amazon visited our campus for recruitment. Here is my interview experience.

Round -1

20 MCQs (C ,Aptitude,DS,DBMS,Networks)

2 programming questions were asked-

1.) Print all root to leaf path of a given binary tree whose path sum is a given value k.

Note: tree was given in the form of array (so no need to create the tree).

Input: Input contains two space separated integers K and L followed by 2^L-1 space separated values

Output: All root to leaf path which has a path sum = k.

Sample Test case :

Input :

40 4 10 11 13 # 15 28 6 # # 8 4 # 9 11 #

Output:

10 11 15 4

10 13 6 11

2.) Given few sets of intervals print out the the entire intervals without overlapping, if they overlap then combine them into one.

Sample test case:

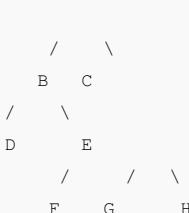
```
Input :      (5,7)  (1 , 6)  (2 ,4)  (10 ,14)  (8,9)
```

```
Output :    (1,7)  (8,9)  (10,14)
```

Group fly Round:

2 ques were asked in this round. We were asked to write code on paper very fast.(It was an elimination round.

1.) Given a binary tree as below



Convert the structure of the tree like a left aligned tree whose each node contains a down pointer and a right pointer and looks like the below tree..

```
A  
|  
B - C  
|  
D-E  
|  
F-G - H
```

2.)The arrival and departure time of trains are given. Find the minimum number of platforms to accommodate all the trains.

Eg. Arrival Departure

7	11
8	10
13	14
4	6

Output: 2

Round 2. (F2F)

1. An array is given in which elements are first monotonically increasing and then decreasing.

Search an element in the array. Working code was asked which takes care of all the edge cases. Also asked the time complexity of the code.

2. Implement queue using 2 stacks .

What would be the complexity of enqueue and dequeue operation. I told him O(1) for enqueue and O(n) for dequeue. Then he asked to optimize it. Then he asked the Average case time complexity.

Round 3 (F2F)

1. You are given a graph. Write a function to remove all the cycles. Means after the function call the graph must be converted into a connected acyclic graph(tree).

2. What happens when u send an email to someone.

3. What is socket ? What is port?

4. Which protocol is secure for mail transfer? Which protocol is used by Gmail?

5. What is the port number of SMTP?

6. Suppose u open notepad and type something and save it what would happen.

7. What is static member?

8. What is singleton class??

9. If a class has all its members as static would it be a singleton class? Compare them.

10. What is process scheduling? How does it happen? What are various queues maintained by the system? (Where does the scheduler process run ??- This ques was asked in 2nd round of DE Shaw & co).

11. Suppose various process are waiting for a particular resource? What is this situation called? How does the system overcome from this problem?

12. What the various ways of process communication?

13. What is thrashing ?How to overcome from it?

Round: 4.)(HR + Technical)

1. Tell me something about yourself

2. A long discussion on project. Brief description. How can you improve it?What changes will make if I ask you to develop it again? Give example of implementation of various oops concept in your project.

3. What is multithreading? Then he said that there are situations where there is no need of multithreading.eg- if I want to add two numbers then no point of using multithreading. So give an example where you can actually implement multithreading.
(ANS – Fibonacci number)

4. Some behavioral questions like-

What are you good at?

What are you proud of?

What are the things you want to change in yourself?etc.

5. Various oops concept like encapsulation, abstraction, inheritance , etc. with example.

Suggestions:

- Don't start writing the code immediately.
- First tell him the approach .
- Take care of all the edge cases.
- Many times interview may give you hints so make the interview interactive.
- Very Important – Don't focus just on a particular subject like only DS.
- More or less give time to everything.
- Study the concepts of OOPS and OS properly.
- Have a basic Idea of DBMS and Computer Networks also.

All the best.

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243. D E Shaw Interview | Set 4 (On-Campus for Internship)

D. E. Shaw recently carried out intern procedure in our college. The whole process had three rounds.

Round 1:

It was CV shortlisting. Out of total 41 candidates, 12 were selected.

Round 2:

It was a telephonic interview. The call lasted 40 minutes. The interviewer asked about my academic project first. Next he asked about my preference in programming language – C/C++/JAVA. My preference was C++. So he started with OOP concepts. After I have named few of the highlights of OOP, he asked about Data Encapsulation. He then demanded an example for the same. Few questions followed about the C++ implementation of the example that I had given. He then switched to virtual functions. Next came Inheritance, upcasting and downcasting, where should the virtual keyword be used.

He asked me how do we call the constructor of base class using derived class. Next he asked DS questions. There were three questions in total.

1. Given a string. How do we check if we can obtain a palindrome by rearranging the characters of the string.
2. Given a singly linked list. How to we detect if a loop is present in the list. (Both Brute-Force as well as Floyd's Cycle Algorithm had to be explained in details).
3. Given a doubly linked list with a next pointer pointing to next node and other pointer pointing to any random node. How do we clone this list?

Round 3:

Last round was again a telephonic interview. This time too the call lasted 40 minutes. There were two interviewers this time. I was asked to explain one of my projects at the beginning. Then, I was asked to explain any of the projects.

Next, they asked me about STL, Generic classes and templates in C++. He then asked me to give an example of a class implemented using templates.

After this came the Data Structures part. This time, they asked me two questions. Both of them were related to real-life scenarios.

1. Given details of a person – First name, last name and telephone number. Sort them according to the last name. I said we can use qsort() and explained the whole process and design of comparator function. But they demanded an answer without using any of the library functions.
2. They next asked me given a number in the directory, how will you search for the person details from the directory. Your answer must be efficient enough so that it could be used on a map like Mumbai.
3. The next question was to implement a spell-check that is used in Microsoft Office Word and which data structure could be used to implement it.

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244. Citrix Interview | Set 2

Written Round:

The written round (conducted on Hackerearth) consisted of two sections:

1. First section consisted of 50 MCQs to be attempted in 1 hours. The question wise division was:
 - o 5-6 Questions were of General Aptitude.
 - o 8-10 Questions based on C output.
 - o 4-5 Questions on C++ output
 - o Around 10 questions from networking
 - o Around 10 questions from operating systems.
 - o Other questions on different genres of Computer Science.
2. This section consisted of 2 programming questions to be solved in 1 hour. The code was run on Hackerearth.
 1. An easy question. Given a car consumes different amount of fuel per hour running on different speed. Speed and Fuel consumed were given as arrays. Also, given that the total amount of fuel we had initially. Find the maximum distance a car can travel given that it has to travel with constant speed.
 2. Given an integer x . You have to find a minimum base b such that $(x)_b$ is a palindrome. Eg: $(5)_2$ is a palindrome i.e. 5 in base 2 101 is a palindrome. Brute force solution passed.

After the written round, I was shortlisted for the Interviews.

Interview Round 1 (Duration 1hr 15 mins)

The interviewer started with a general question “Tell me about yourself”. I explained. He directly came about discussing about the projects and ask me to tell every minute detail of my project. This continued for about 30 minutes which consisted of a series of cross questioning. He was mainly concerned about the problems I faced during the project and what was the solution I came up with.

He then asked me about my areas of interest. Then he started asking some Data Structure questions. Given an sorted array which is rotated by k times, find an element in minimum time complexity.

Implement 3 stacks within an array given.

Explain everything about inheritance in C++.

Can we return value from constructor? If no, then if there is some error while initialising a new object then how can we possibly know it.

Explain virtual mechanism in C++.

Questions based on networking. How TCP works, when do you use UDP, flags in TCP header and few other questions.

OS questions.. What are Semaphores? Where are they stored? How do we prevent threads to enter in a critical section and other basic OS questions.

Interview Round 2 (Duration 1hr 45 minutes)

A general discussion on my internship project.

DS: Given a link list, find kth element from the end. Given a class stack which have functions push and pop implemented in O(1). You have to implement a function min such that it tells the minimum of elements till now.

Real time examples of Queue and Stack.

Search in rotated array(question repeated from prev round).

Questions related to BST and Heap data structure.

Given an array, containing 0s and 1s. Sort it in min time and space.

Check if a given binary tree is a BST.

Mechanism of function overloading. Can we overload on return type?

A few puzzles: 2 candles which burn in 1 hr each..you have to measure 45 minutes.

Heavy box puzzle.

After this round, I was called inside where the company people were sitting and there they asked me about my preferred profile as Citrix offer 2 profiles for Software Engineer.

(This gave a positive feeling).

Interview Round 3(Duration 1 hr 30 minutes)

This round was a mixture of Technical Questions and HR. Introduce yourself. The interviewer was very friendly and asked me very tricky "HR" questions. When I answered all those and not got trapped..he said you have come prepared 😊 He then came to Networking.

Tell me every minute detail of what happens when we open google.com. He wanted a layer by layer approach. After complete explanation, he was satisfied.

Asked everything about TCP.

Routing protocols which I knew.

What is ARP?

Why do we need MAC and IP both?

DS Questions: Maximum sum sub array. Implement strstr.

He then asked analytical questions.

Tell me how many cycles are there in India?

How can you measure the height of Mt. Everest? He seemed pleased with my answers :D.

After a few more questions, this round was over.

Interview Round 4(Duration 30 minutes)

This was HR round. First the HR asked me how good I am in team. Prove it. 2-3 questions like that.

He eventually shifted from asking questions from me to telling me about the company, work there and explained about the profile, the responsibilities I will get. This continued for 20-25 minutes and this round was over.

Interview Round 5(Duration 10 minutes)

This round was a formality. The main HR manager asked me 1-2 questions. Why Citrix? Goals? What about further studies? Strengths? Etc.etc.

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245. Accolite Interview | Set 1 (On-Campus)

Accolite came to our campus for recruitment.

First Round Written Test:

20 MCQs in which general CS basics question were asked. And one subjective paper where we have to write 3 codes.

1. Maximum path sum between two nodes of a tree
2. Majority element in an array.
3. Some 2d array related question.

They selected 7 students out of around 180 students for next rounds.

Tech Interview Round 1:

1. Let's say you are given with some lines of codes, in any language say C++. You have

to design a complete syntax checker.

– I need to give him a algo or design steps which I will follow to make this checker.
(Around 1 hr 15min discussion/suggestions/more test cases/new boundary case were discussed, Then finally he was satisfied with the output)

2. This question was pretty easy just to complete the round 1,I think. He asked me to code the problem “to find kth smallest element from the last in a Link List”.

Tech Interview Round 2:

There were two interviewers:

They picked my subjective paper (code I wrote in written test).

1. He picked my majority element question, in that question, I have used the MedianOfMedian technique. He was not very much clear with the technique so he asked me to prove the complexity that this technique works in $O(n)$. I was also not sure about the proof that time but after some discussions in 45mins he was satisfied about the technique.

2. He asked me give him a technique for the following question:

You are given with an array. You have to put even numbers at even places or odd at odd places. Firstly i had to tell how will I decide what to do, even at even or odd at odd?
Then he asked to design algo for that. He asked for inplace $O(n)$ solution.

I have never heard about the question so it took 30mins to give the best solution. At first I gave –outplace $O(n)$ solution then –in place $O(n^2)$ solution –Then an incorrect $O(n)$ in place one, for that he asked me to prove that this is wrong and finally I gave a correct solution.

And finally he asked to Code that algorithm.

Tech Interview Round 3:

1. He asked me the difference between P and NP problems.

2. Draw a venn diagram showing the relationship between P and NP (I got it completely wrong)

3. Probability question, Six coins are tossed What are the probability of getting at least 5 heads. (because of some stupidity again I gave the wrong ans)

4. Then he finally asked me to design an algorithm to find LCA of two nodes in an n-ary generic tree. I did that correctly and he was satisfied.

In next HR round, general HR questions were asked.

I think the whole process was little bit cumulative kind of process. All the rounds, even written round had some weightage in final selection. Although students got eliminated in between rounds.

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246. Amazon Interview | Set 101 (On-Campus)

Off late, Amazon had an On-campus recruitment. Here is the interview process.

1) Written Round

1. 20 MCQ's
 - two C code snippets
 - a couple of questions of time-dist-speed
 - easy questions on operating systems
 - find the no.of network addresses of a class C address

two coding questions

- Given a set of inputs (x,y) which represent intervals, merge overlapping intervals
e.x. (3,4) ; (2,5) ; (1,4) ; (8,9)
output should be – (1,5) ; (8,9)
*note – my code had errors, but as i had used merge sort for sorting the inputs, i cleared the first round, whereas others with properly working code but in-efficient algorithms didn't
- Given a ($n \times m$) matrix, with values present in each cell and a few in-accessible cells marked as -1, find the path from (0,0) to (n,m) with highest sum.

2) Interview Round 1

1. Given an array, find a pair with sum = k
*note – If you already know the approach/already coded a question before, let the interviewer know before hand!

2. Given a regular expression, and a string, validate the string against the regular expression

e.x.

Regular expression : ab^*bbc^*

Pattern : abbbc VALID

Pattern : abc NOT VALID

3) Interview Round 2

1. A couple of questions from arrays, binary trees and BST's , which were directly taken from DS section of geeksforgeeks.
(I said I have coded them all and know the approach)
2. Box stacking problem for 2 dimension, 3 dimensions.
(I said I know the approach for all)
3. Box stacking problem for k dimensions
(I didn't know the approach, so tried it out in the interview. Nearly reached the solution, with the help of the interviewer. In the end, turns out, this was the same question which was asked to him, during his interview round in amazon 2 years back. "SET 2")

4) Interview Round 3

1. Same question from interview round 1, given an array, find a pair with sum k.
But, now I was asked to optimize the solution to O(n) time.
2. Explain how chat-messenger functions in Facebook,Whatssap
3. Validate whether a given 9X9 matrix is a sudoku matrix or not.
(In all cases, the goal of this round was not to check your coding skills, but your ability to handle all varieties of test cases!)

5) Interview Round 4

(This I believe, was probably a stress interview a.k.a Bar Raiser Round. The motive was to shift your attention from one topic to another rapidly and see if you can handle the questions that follow.)

1. Tell me something about yourself
2. The interviewer asked me to pick up a project from all those I had worked on. I chose my B.Tech project related to Genetic Algorithm and Graphs
3. Explain the algorithm
4. How are graphs being represented in your project
5. Various ways to represent adjacency nodes (adjacency matrix, adjacency list)
6. Write code for adjacency list
7. Write code for reversal of linked list (iterative and recursive)
8. Which one would you prefer, arrays or linkedlist, if so why!
9. Why use double pointers to pass head of a linked list, why can't we just return the value from the function. Which one do you prefer and why.
(As I had done my code using double pointers.)
10. What is a stack and heap, and how is memory allocated
11. Given a step function $f(i)$ whose value increases just once as we move from $i = 1 \dots \infty$,
Find the value of i , where the transition occurs.
(I suggested increasing the length for checking by a power of 2, and then when a

- transition occurs, do a binary search within the boundary.)
12. Why increase the length in powers of 2 and not just increase it by a constant factor of some value 'n'

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247. Cisco Interview | Set 7(On-Campus)

Status: Full Time job + 6 month internship offered.

It was a 4 round interview. The first round was a written round with 50 questions(20 aptitude + 30 technical) for 1 hour. The second round was a technical round(1 hour). The third was a technical + management round(20 mins).The fourth round was a short HR round(10 mins).

In the **first round**, 20 aptitude comprised of simple-medium-complex aptitude questions. Some were answerable within 10 seconds, some took 30-40 seconds and the harder ones took slightly over a minute to solve. The questions were based on all the classic aptitude topics. Some questions were stated in a confusing way, but other than that, no hiccups were present. The technical side had 30 questions. roughly about 10 from C, C++, OS were asked, another 5-6 were from electronics side. Around 5 from networking topics and the rest were based on data structures, complexity estimation, and topics around that. I was able to answer most of the aptitude questions(17-18) were correct out of 20 and more than 22 questions were right out of 30 in the technical side. I think the cutoff for the second round was around the 40 mark, which i had gotten and i made it to the second round.

In the **second round**, the interview started off with simpler, shorter questions, like for example the interviewer pointed to one of the technical questions in the previous round(the interviewer has your answer sheet from the previous round) and asked me to explain the approach i had taken to solve the problem. The question he asked me to explain was a recursive function, and i had to estimate the worst case time complexity of the function. the function was something like this.

```
function (params)
{
    ...//terminating condition
    else..
    return function(params-1) + function(params-1)
```

}

The answer to this was $O(2^n)$. The interviewer modified the question to this:

```
return (function(params-1) + function(params-1)) * function(params-1)
```

The complexity of this was $O(3^n)$. He asked me to derive it on paper which i did. The next question was regarding how to set the nth bit in a 32bit-integer. The answer was pretty straight forward. variable | $1 << (n-1)$.

The next question was about a linked list. The interviewer asked me print a singly linked list in a reverse manner.

After that we moved on to trees. The first question was to find the min element in the tree.

The second question was to implement level order traversal in trees.

After i did that, he asked me to traverse the tree and print it in reverse level order fashion, but the associativity of the child node should be from L-R. for eg..

4 / \ 2 6 / \ / \ 1 3 5 7	Then the answer would be: 1357264
---------------------------------------	--------------------------------------

After taking a few hints from the interviewer i was able to code it up without errors.

The next question was to print the tree in a zig-zag manner. ie:
for the tree above the zig-zag traversal would yield: 4267531.

After thinking for some time, hints from the interviewer, i was able to code this up as well.

Basically by this time 1 hour was up. The key points the interviewer looked for, was my approach to the problem, error-less coding, All corner cases must be taken care of while implementing the program. The most important thing is you should be sure of your solution. The interviewer asks you if the solution is right or wrong, here he is checking your confidence, try to dry run the program once or twice after coding it up, this would help with the confidence. Also , try to speak as much to the interviewer about your thought process, this not only gives a better opinion to the interviewer, but if you tell him where your stuck, he/she might give you clues to proceed further.

After answering all the questions with hints from the interviewer , i qualified for the next round.

In the **third round**, The technical-management round., the key focus was your thought process, they were not too keen about the technicality of the solutions. The interviewer asked me what were my favorite topics, and i replied data-structures and algorithms. Then he asked me to code up a part of a social network were people were nodes and

different types of connections existed between them. my job was to write functions to connect any two nodes of the graph, and also another function to check if 2 nodes are directly or indirectly(transitively) connected.

I asked him, whether all these edges/connections were directed or undirected, so he asked me to assume they were undirected for simplicity. Then i was asked to come up with a data structure to handle these operations. It was obvious that it was a graph structure and the nodes had user details and a edge-list inside it.

the socialGraph class had a insertion,deletion functions and connect(node*,node*) , isconnected(node*,node*) functions as friend functions to connect 2 nodes and check if 2 nodes are connected. connect function was straight forward ,as i had to append node reference to the edge-list of the node.

Then to check if 2 nodes are connected, i did a DFS from the source node to the destination node. The interviewer asked me to make the code such that it could scale. So i suggested that we could do a A* search instead of a DFS to make the search space smaller. The interviewer seemed satisfied with my solutions and then we moved on to the other questions. He asked me about my projects, the roles i have played in various clubs in the college, my future plans, why Cisco? and other simple questions like that.

I did well enough to get qualified for the **final round** which was a casual HR round where they asked simple questions like the meaning of my name 😊 and then i was given a evaluation form to fill, and they asked me some questions on that which i could answer.

The interview overall was reasonable, but certainly made me think out of my shoes, and strong knowledge in Data structures and algorithms helped me pass this interview.

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248. Amazon Interview | Set 102

I had my Amazon Interview some days back and now I am posting my experience here.

Round 1 (Apt)

20 mcq question and 2 coding questions were there

Mcq consisted of questions from C, Data Structure, OS, and so on

Coding Question 1 – Given a String and a pattern find all anagrams of the pattern in the original string. You need to print all the index of the location where the match was found

Ex –

INPUT – ABDACDBACA

ABCD

OUTPUT – 1 3 4 5 (at index 1 BDAC , at index 3 ACDB and so on)

Coding Question 2 – Given an array containing zero and non zero digits you need to shift all the zeroes to the right of the array. Output should be number of non zero elements present in array and minimum number of swaps needed to do so.

Ex –

INPUT – 1 0 -6 5 0 0 2 0

OUTPUT – 4 (number of non zero elements)

1 (swap 2 with 0 present at index 1)

1st PI

Started with a general introduction with the interviewer. Some basic introductory questions like Tell me something about yourself and after we were settled he started asking question

1 . Given a binary tree store the vertical sum of the tree in a list.

2. Given a number you need to output the minimum number of factors needed to represent that number such that none of the factors is divisible by a perfect square.

EX-

INPUT – 8

So number of factors of 8 (2*2*2 , 4*2 , 8) (NOTE : do not consider 1 because it is divisible by all numbers) So minimum factor will be 1 (8) but it is divisible by 4 so not allowed then minimum is 2(4 * 2) but again 4 is divisible by 4 so not allowed so finally answer is 3 (2*2*2)

OUTPUT – 3

You need to explain the logic of both the programs and then have to code both of them

2nd PI

General Introduction about myself and asked me my Weakness and strongness and again once we were comfortable started asking questions

1. There are a number of houses in a row and each house contain some amount of money in it. Now suppose you're a thief and you want to steal money from this houses so find the maximum money you can steal. Condition was that no two adjacent houses can be robbed.

- After doing this he asked me to also print the houses that were robbed
- Given an expression consisting of opening and closing parentheses you need to find the number of onions present in it.
- Onion is any structure of the form ()

() – onion of size 1

(()) – onion of size 2

(((())) – onion of size 3

So suppose if input is (()) so output will be 2 because there are only two onions present in it

Again Complete coding of the two functions was needed

Then he started asking questions on subjects – OS , Networking and a SQL query

3rd PI

Started with introduction and then he gave me question

- Given an n–ary tree .Print the right view of the tree.
After that he added to print the right view in a zigzag way like first element from top element , second from bottom third from top fourth from bottom and so on. Then asked to print both the left and right view of the tree
- Given an array of 0's and 1's print the numbers in the form of Fibonacci sequence
i.e. 1st 1 zero then 1 one then 2 zero then 3 one and so on
Ex –

INPUT – 00101111011101011000

OUTPUT – 010011100001111110 (Number of 0's and 1's in the input and output must be same so if you run out of any of them then just simple print the remaining number)

Coding of both the program's was needed

4th PI (Bar Raiser)

- Given a list of cities you can travel in an number of city now you need to find the number of ways in which you can travel this cities.
- Implement the pow function in logarithmic time.
- Implement a DFA which will accept all string containing even number of 0's and 1's
- Find the 2nd maximum number from a table using SQL query
- Check whether a grammar is ambiguous or not

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249. Amazon Interview | Set 103 (On-Campus)

First of all, I would like to convey my special thanks to geeksforgeeks for such a special guidance. Here is my interview experience:

First day:

Round-1 :

20 MCQs(Data structure, C, C++, OS, Probability).

2 programs :

- Given an array of integers. Segregate all the non-zero numbers at the beginning. Print the number of non-zero integers and the minimum number of swaps required for these operations.

```
Eg. : I/p : 1, 0, 0, -6, 2, 0  
      o/p : Number of non-zero integers : 3  
              Minimum number of swaps : 2
```

- Given a text txt[0..n-1] and a pattern pat[0..m-1], write a function search(char pat[], char txt[]) that prints all occurrences of pat[] and its permutations (or anagrams) in txt[]. You may assume that n > m.

```
E.g. : I/p : txt[] = "BACDGABCDA"      pat[] = "ABCD"  
      o/p : Found at index 0  
              Found at index 5  
              Found at index 6
```

Second day:

Round 2 : PI

- Discussion on Project.
- Code : Given an array of integers. Find the minimum distance between two numbers. I did it in O(N) time complexity.

Then he changed the question and asked what if the array is sorted and contains duplicates.

I did it in O(logN) time complexity.

- Given a linked list. Segregate all the positive numbers at the beginning and all the negative numbers at the end.

I did it in O(N) time complexity.

Round 3 : PI

- Discussion on project.
- Code : LCA of BST.

3. Code : LCA of Binary tree.
4. Discussion on heap and stack.
5. Code : Maximum subarray sum.
6. Os concepts : What is semaphore? Brief explanation on wait() and signal() operation.

Round 4 : PI

1. Discussion on oops concept. Asked me about copy constructor, virtual function, virtual class, Template, exceptional handling.
2. Discussion on Os concepts. Semaphore, different page replacement algos.
3. LRU implementation using stack (I was not allowed to use any other data structure). I did it using two stacks.
4. It was a modification of this question.

Our chef has recently opened a new restaurant with a unique style. The restaurant is divided into K compartments (numbered from 1 to K) and each compartment can be occupied by at most one customer. Each customer that visits the restaurant has a strongly preferred compartment p ($1 \leq p \leq K$), and if that compartment is already occupied, then the customer simply leaves. Now obviously, the chef wants to maximize the total number of customers that dine at his restaurant and so he allows (or disallows) certain customers so as to achieve this task. You are to help him with this. Given a list of N customers with their arrival time, departure time and the preferred compartment, you need to calculate the maximum number of customers that can dine at the restaurant.

Instead of restaurant and customers, I was given platforms and trains.

I was asked to design a data structure for that.

Third day :

Round 5 :

1. Discussion on project.
2. Discussion on different types of sorting techniques.

Difference between merge sort and quick sort. When and where are they used.

Discussion on counting sort.

3. Discussion on hash-map.

Design a data structure which will provide the same function as hash-map.

4. Code : Given an array : A1[] = 2, 1, 2, 5, 7, 1, 9, 3, 6, 8, 8

A2[] = 2, 1, 8, 3

Sort A1 in such a way that the relative order among the elements will be same as those are in A2. If the element is not present in A2, append them at last in sorted order.

o/p : 2, 2, 1, 1, 8, 8, 3, 5, 6, 7, 9

I did it O(NlogN) time complexity.

Round 6 : (Bar-Raiser)

1. Code : Convert little endian to big endian.
2. Code : Kth max in a file.

I did it using min-heap, then he sked me to use other data structure. Then I did it using

Balanced binary search tree.

3. Code : Find the second non-repeating character in a string.

4. Given prime number $p \geq 5$:

Prove that : $(p^2 - 1)$ will be divisible by 24.

5. Given a decimal number N as a string of digits (only 0's, 1's and 2's are there), how do I check if it's divisible by 3 using regular expressions only, without converting to int? I was asked to design DFA for that.

I would like to thanks GeeksForGeeks which helped me to improve my knowledge and understanding of Data structures and Algorithms

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250. Amazon Interview | Set 104

Online round:

20 MCQs on mathematics, probability, operating systems, DBMS, compilers and basic DS concepts.

Coding questions (Full code required):

1. Given an array containing zero and non-zero elements, modify the array such that it has the 0's at the end and the non-zero elements at the beginning. Print the number of swaps required and the number of non-zero elements.

2. Given a 'pattern' and a 'text' print the indexes of 'text' where any anagrams of 'pattern' occur.

Input:

abcdad (text)

abcd (pattern)

Output:

0, 1

1st technical:

1. Given a linked list reverse the even nodes in one pass and in O(1) space.

So 1->2->3->4->5->6->7->8 should be converted to 1->8->3->6->5->4->7->2.

2. Given an array containing integers, modify the array such that the 5's are at the end and the rest are at the beginning (maintaining the same order).

2nd technical:

1. 5 minute discussion about my OCR project.
2. Given an undirected graph, count the number of cycles with 3 nodes.
3. What is a spanning tree? Difference from tree, if any.
4. How to find the minimum spanning tree of a graph?
5. Given an array convert it to another array such that the following condition holds:

a < b > c < d > e < f > g < h

where the modified array is {a,b,c,d,e,f,g,h}

Input:

1,2,3,4,5,6

Output:

1,3,2,5,4,6

3rd technical:

1. What do you know about memory management in Operating Systems? What is segmentation? What is paging?
2. Design problem: Given a station with n platforms. So each platform has one line. But these n lines join into one, after leaving the platform (on both sides). Each train has to wait a minimum of x minutes in the platform. Trains arrive from both ends. If all the platforms are occupied they wait. There is also a point beyond the end of the platform (on both sides). This point indicates that an incoming train has to wait at that point until a leaving train (from that end) passes that point. Design the whole system.
3. How are big files stored in memory? What are the uses of B-tree? How is it more useful than BST?
4. Given one billion file indexes and said that n files are missing. How would you identify the file indexes of those who are missing?

4th technical:

1. Given an array of integers. This array denotes 'our' own ascending order of the elements. So if the array is {2,3,1,4}, by mathematics we can say that $2 < 3 < 1 < 4$. Given another array, sort this new array in 'our' ascending order.

Let's say the new array is {1,2,4,3,5,4,9,2}, output will be {2,2,3,1,4,4,5,9}. Note that since 5 and 9 do not occur, they are sorted by actual ascending order at the end.

2. Integers are coming in a stream. A special integer (say -9999) denotes reset. Design a data structure such that when the special integer comes the previous elements are printed in a zigzag way and all the elements are deleted (reset). And then continues to accept other integers. What DS will you use?

Say the input is

1,2,3,4,5,6,7,8,-9999,0,1,100,-9999,-9999,500

Output will be

1,8,2,7,3,6,4,5

0,100,1

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251. Payu Interview (On-Campus)

Written round: 5 coding and 15 MCQ on ds, algos, dbms.

Round 1

Tell me about yourself

Given two strings str1 and str2 find if str2 is substring of str1, if yes return the starting index else return -1.

Given time as a string in format of HH:MM, draw an analog clock. (no logic , but made me write the entire code)

Round 2.

Tell me about yourself

Given a binary tree, change the value in each node to sum of all the values in the nodes on the left side of the node.

Eg



3



solved this question using int* he asked me to do it without integer pointer.

- >3 basket, apple, orange puzzle
- > bridge and torch puzzle
- > given an array first increasing then decreasing, find the max element, find any element boundary cases..
- > <https://oj.leetcode.com/problems/trapping-rain-water/>

Round 3

Tell me about yourself

Given a string without spaces and a dictionary return or print all possible ways that the string can be broken so that only valid words are formed.

Eg. "programmerit", dict = { "pro", "gram", "merit", "program", "programmer", "it" }

ans: { {"pro", "gram", "merit"}, {"program", "merit"}, {"programmer", "it"} }

HR

Tell me about yourself.

Strengths, weaknesses, why payu, why coding?, motivation, challenging moment.

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252. Amazon Interview | Set 105 (On-Campus)

Written Round:

20Q questions on C, data structures , some aptitude questions and other related concepts.

2 coding questions :

1. Merge overlapping intervals. This question has come many times so I am not repeating it.
2. Given a singly linked list you have to subtract the value of first node from the last node and so on until you reach the middle node.

Eg 5 -> 4->3->2 ->1

Output : 4->2->3->2->1.

First PI:

1. A brief discussion on my projects that I have done .
2. One thing that I am most proud of , a discussion on this .
3. Given an array you have to write two functions:
 - a.) getMinimum();
 - b.) update(index, value);

A detailed description on my approach , I gave him 2-3 approaches which were not satisfactory , He told me to give it a fresh thought , then I have him a solution . He was satisfied and then he asked me to code it.

4. Some basic questions on operating system concepts like CPU scheduling, why CPU scheduling , advantages , types. Questions on deadlock.

Second PI :

1. Tell me about yourself.
2. Discussion on graph data structure , then asked me to find number of three node cycles in a graph .Write code.
3. Given a string , find minimum distance between two given characters of the string, write code.

A detailed discussion on its complexity and the code I wrote.

Third Round :

1. A detailed discussion on my projects.
2. What happens when you type in a url .
3. Suppose that a user reports that your website is taking a long time to load , suggest possible remedies .
4. Difference between TCP and UDP.
5. Implement LRU cache. Code required.
6. A simple question on doubly linked list . Code Required .

Fourth Round(Bar Raiser /BR Round):

It was a telephonic round . I was given a design problem . We have a customer using amazon Kindle , suppose he wants to borrow a book for some days , lets say x and wants to finish reading the book within the days limit. The book contains ,lets say y chapters ,once he starts reading a chapter he has to finish that on the same day . He can read the book only in a sequential manner , you have to tell how many chapters should he read on each day so that he can finish reading the book .

A discussion on my approach and

Then he asked me to write a code for it.

Then he asked me some HR related questions .

1. Quote some example when you have motivated your team .
2. Quote some example when you have led down your team .
3. What projects and subjects are you interested into.

And some others, I don't remember.

It was an amazing experience, I learned a lot from it. Thanx a lot to GeeksForGeeks, you have helped me a lot.

Suggestions / Tips :

They need a code for whatever algorithm you are telling them, so be specific, take your

time to jump to a conclusion .Discuss whatever you have in your mind , everything you discuss matters and creates an impact , they will also guide you at times, and stay cool and relaxed, clear any doubts you have. And an important thing is to try to justify each and every thing you say, that matters a lot.

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253. Amazon Interview | Set 106 (On Campus for Internship)

Amazon came to our campus recently for placements and internships. I attended for internship and i am sharing my experience here.

First Round: Online:

20 MCQs based on basic aptitude,OS,C programming and data structures.

2 coding questions:

1st: Consider a coordinate system consisting of n coordinates from $(x_1, y_1), \dots, (x_n, y_n)$.
Also there are two values y_{\min} and y_{\max} given to you. You have to return $\min(D)$ where D is $x^2 + y^2$ for all y lying between y_{\min} and y_{\max} inclusive. If there is no such y then return -1.

2nd: Given a number n and a number k . You have to find the next bigger number from n which is obtained after exactly k swaps.

Eg: Take $n=43592169$ and $k=5$

1st swap: 43952169

2nd swap: 49352169

3rd swap: 94352169

4th swap: 94532169

5th swap: 95432169 :- final number.

First Interview:

1. Check if a linked list is palindrome or not.

2. Given an array of n integers(positive or negative). Find the maximum sum of subsequence of the array and also total number such arrays possible having the maximum sum.

Second Interview(Final):

1. A linked list consists of two pointers: a next pointer and a child pointer. We have to make the linked list linear i.e. making all the child pointers NULL.

eg: 1->2->3->4

| |

```
5->6 8
```

```
|
```

```
7
```

```
answer would be:
```

```
1->2->3->4->5->6->8->7.
```

2. Given a distance n. A person standing at position 0 has to reach n. He can either take 1 step or 2 steps at a time. In how many ways he can reach there.

Finally some definitions from OOPS, OS and basic data structures.

I was finally hired for the Internship at Amazon. I would like to thanks Geeks for Geeks which helped me a lot in my preparation.

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254. Directi Interview Questions

I took Coding Round 1 of Direct I campus recruitment today . Sharing the 2 questions which have been asked.

Question 1 (Optimal substring reversal):

You are given a string S. Each character of S is either 'a', or 'b'. You wish to reverse exactly one sub-string of S such that the new string is lexicographically smaller than all the other strings that you can get by reversing exactly one sub-string.

For example, given 'abab', you may choose to reverse the substring 'ab' that starts from index 2 (0-based). This gives you the string 'abba'. But, if you choose to reverse the substring 'ba' starting from index 1, you will get 'aabb'. There is no way of getting a smaller string, hence reversing the substring in the range [1, 2] is optimal.

Input:

First line contains a number T, the number of test cases.

Each test case contains a single string S. The characters of the string will be from the set { a, b }.

Output:

For each test case, print two numbers separated by comma; for example "x,y" (without the quotes and without any additional whitespace). "x,y" describe the starting index (0-based) and ending index respectively of the substring that must be reversed in order to achieve the smallest lexicographical string. If there are multiple possible answers, print the one with the smallest 'x'. If there are still multiple answers possible, print the one with

the smallest 'y'.

Constraints:

1 ≤ T ≤ 100

1 ≤ length of S ≤ 1000

Sample Input:

```
5
abab
abba
bbaa
aaaa
babaabba
```

Sample Output:

```
1,2
1,3
0,3
0,0
0,4
```

Attention:

The constraints are designed such that an $O(N^3)$ algorithm per test case, would not pass.

Question 2 (Database Queries): 2 points

You have a set of N objects. Each of these objects have certain properties associated with them. A property is represented by a (key, value) pair. For example, assume you have the following two objects.

Tower:

```
{
    (height, 100), (weight, 50),
    (xposition, 25), (yposition, 36)
}
```

Tree:

```
{
    (area, 100), (noofleaves, 500),
    (height, 25), (yposition, 36)
}
```

Each object you have, will have at most 4 properties. An object will have at least 1 property. Note, from the two objects above, that it is not necessary for key in the properties to be same for all the objects. Also, it is not necessary for the key to be different.

Now, given N such objects, you wish to answer M queries. Each query is represented by a set of properties (again, at most 4 properties, and at least 1 property). The answer for the query is the number of objects in the set, that have all the given properties. Two properties are considered equal iff both the key and the value match.

For example, if you have the above two objects, then the answer for the following queries is

Query: { (height, 100), (yposition, 36) }

Answer: 1 // matches Tower, but not Tree

Query: { (yposition, 36) }

Answer: 2 // matches both Tower and Tree

Query: { (height, 100), (noofleaves, 500) }

Answer: 0 // neither Tower, nor Tree satisfy both properties

Input:

The first line of input contains N and M. This is followed by the description of the N objects. The description of the i-th object will start by a number k, which is the number of properties associated with the object. The next k lines contain two space separated strings – the property key and the property value. Note that the property value is not necessarily an integer (although this is so for the example above).

This is followed by the description of M queries. The format of a query will be exactly same to that of the objects. Check the Sample Input for clarification.

One test file will contain only one test case. A single test case may contain several queries.

Output:

Print M lines. Each line must be the answer of the respective query.

Constraints:

1 ? N ? 10000

1 ? M ? 100000

1 ? k ? 4

Sample Input

```
2 3
4
height 100a
weight 50b
xposition 25a
yposition 36b

4
area 100a
noofleaves 500
height 25
yposition 36b
```

```
3  
weight 80  
xposition 25a  
yposition 36b
```

```
1  
yposition 36b
```

```
2  
xposition 25a  
yposition 36b
```

Sample Output:

```
0  
2  
1
```

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255. Amazon Interview | Set 107 (For SDE-1)

I finished interviews at Amazon few days back. Here is my interview experience:

Telephonic round (Screening):

- 1) Discussion around work in current company. Why Amazon?
- 2) You are given an infinite sorted array containing only numbers 0 and 1. Find the transition point efficiently.
- 3) He gave me some function and asked me to arrive at the complexity of it.

F2F-1:

- 1) Brief discussion on work in current company
- 2) Flatten linked list – <http://www.geeksforgeeks.org/flatten-a-linked-list-with-next-and-child-pointers/>
- 3) Design a data structure which holds number 1 to n such that insert, remove(this operation will take in a number between 1 to n as argument and remove that number from data structure if it exists) and get valid element in the data structure operations are done with O(1) complexity

F2F-2:

1) Brief discussion of work in current company

2) Find and print longest consecutive number sequence in a given sequence

```
Ex: Input: 1 2 5 3 6 8 7
```

```
Output: 5 6 7 8
```

3) A fair die is thrown k times. What is the probability of sum of k throws to be equal to a number n?

F2F-3:

1) Brief discussion of work in current company. Why Amazon?

2) Why do you want to leave current company? What do you like most and dislike most about your current company?

3) Sum two numbers represented by linked list iteratively and recursively.

4) You are given an infinite sorted array containing only numbers 0 and 1. Find the transition point efficiently.

F2F-4:

1) Lots of HR, behavioral and team fit questions

2) User statistics are logged in the following format –

```
user_id|page|time at which page was accessed
```

```
We need to identify most followed 3 page sequence by users.
```

Example:

```
Input: U1|Page1|05/08/2014 10:00  
U1|Page2|05/08/2014 10:01  
U1|Page3|05/08/2014 10:02  
U1|Page4|05/08/2014 10:03  
U2|Page2|05/08/2014 10:02  
U2|Page3|05/08/2014 10:04  
U2|Page4|05/08/2014 10:05  
U3|Page3|05/08/2014 10:04  
U3|Page4|05/08/2014 10:05  
U3|Page5|05/08/2014 10:06
```

```
Output: Most followed 3 page sequence for the input is  
Page2 -> Page3 -> Page4.
```

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Checking your coding capabilities and thinking level is their main motive. Hence the whole procedure I was involved in dealt only with coding questions. 😊

There were total 4 Rounds.

1. Online Coding
2. Machine Coding
3. Face to face Technical Interview
4. Technical + HR

Round 1 : Online Coding :

Time: 1 hour 30 Min

Question 1: Powers of 5

http://community.topcoder.com/stat?c=problem_statement&pm=12155&rd=15177&rm=314191&cr=22639266

Same question with modified language.

Question 2: Application of DFS/BFS

You were given a directed graph with n nodes. Given graph was connected. If there is an edge from u to v then u depends on v. Our task was to find out the sum of dependencies for every node.

Example:

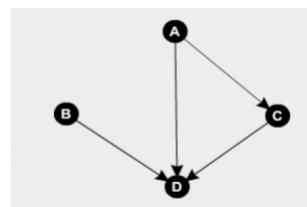
For the graph in diagram, A dependencies: C,D i.e. 2

B dependencies: D i.e. 1

C dependencies: D i.e. 1

And D depends on none.

Hence answer=0+1+1+2=4.



Round 2: Machine Coding Round

Time: 1 hour 30 min

Question:

Given two very large numbers a & b in string format. You need to produce the result for the following operation:

- 0 : Add a & b
- 1: Subtract a & b
- 2: Multiply a & b

Example:

123456789

987654321

Output:

```
0 ==> 111111110  
1 ==> -864197532  
2 ==> 1219326313718945259
```

Few cases were checked specifically:

- 1) Output of 132-132 must be 0 not 000.
- 2) 2 – 122222000002 should produce -122222000000 i.e either a or b can be the bigger string.
- 3) Negative input should be handled. Result of -2+202 = 200.
- 4) 1000000000 – 1 = 999999999 i.e. resulting answer can be of different length.

Round 3: Face to face technical Interview

Time: 45-50 minutes.

Question 1: Given the mobile numeric keypad. You can only press buttons that are up, left, right or down to the current button. You are not allowed to press bottom row

corner buttons (i.e. * and #). Given a N find out the number of numbers possible of given length. It was asked to write the code.

1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
*	0	#

Example:

For N=2

Possible numbers: 00,08 11,12,14 22,21,23,25 and so on. We have to print the count of such numbers.

I solved it using DP in first attempt. He was quite impressed as I took very less time to think of the exact solution.

Question 2: Given a undirected graph with following special points:

- 1) Every node has at most 3 links.
- 2) Node with a single link is a leaf node.
- 3) Nodes are numbered from 1 to N.

(Think how is it different from a 3-ary Tree, See bold text 😊)

We do the following operation on the given graph: Among all the current leaf nodes we search for the node with minimum node value, delete it and print its parent. We do this operation until only two nodes are left in the graph.

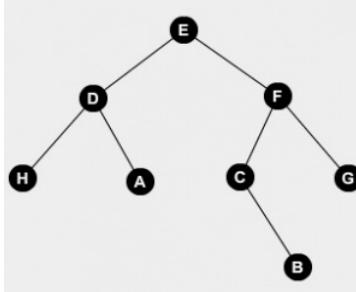
If your are given N and an array having the printed values from the operation, you have to generate the graph back. Exact implementation was asked to write.

Example:

N = 8

```
ar[] = {4,3,6,6,5,4}
```

Output should be adjacency matrix for the following graph.



Example Image for Question 2 of Round 3.

Round 4 : Technical + HR

Time : 1 Hour

- 1) Introduction.
- 2) Asked everything about my project every minute detail, even I was asked to write code for few sections of my code i.e. how I implemented those features.
- 3) Asked few questions on teamwork that how would I handle particular situations.
- 4) Strengths and weaknesses.
- 5) Tell me about one thing that you have done in college and proud of be it in academics or in any field.
- 6) Best and worst classmate till now and Why !! 😊

With this as the final interview my long journey of Interviews ended 😊 . Wish you all, all the very best hope this would help 😊

Following are screenshots of round 1 online coding questions.

Summing Nodes (Programming)

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to

All Flipkart, an employee has many subordinates. But an employee can also have many managers. And a manager can further have more managers overseeing his work.

A simple “boss-employee-relationship” can be denoted by an arrow \rightarrow .

$A \rightarrow B \iff C$

This denotes that A is direct boss of B, who is direct boss of C. Here A is also (indirect) boss of C. It is guaranteed that there is no cycles in this relationship.

That is there exists no pair of employees, X and Y, such that X is boss of Y and Y is also boss of X.

The salary of an employee can be calculated on the basis of following rules:

1. an employee like C who has no subordinates earns 1.

2. An employee who has direct subordinates earns a salary equal to the sum of his direct subordinates' salaries.

"relations" denotes a array of strings, where if the i^{th} character of j^{th} string is 'Y', if employee i is a direct boss of employee j . Otherwise it is 'N'. You have to display the sum of salaries of all employees.

Complete this function in the code editor:

int Summing(String relations)

Constraints

- The size of relations array will not have elements greater than 50.
- the arrays will only contain string composed of 'Y' & 'N'.
- each element of the array has same number of characters.
- For i^{th} row, the k^{th} element will always be 'Y'.
- If X is boss of Y , Y cannot be a boss of X .

• Test cases are designed such that answers will always lie within the range of signed 32bit int.

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257. D E Shaw

Interview | Set 5 (On-Campus for Internship)

Recently D.E Shaw visited our campus for internship and placements. They shortlisted 16 students out of 200 students on the basis of resume.

Telephonic Interview (Round 1)-

The call lasted for 40 mins Started with tell me about yourself. I had mentioned ACM ICPC rank in my resume. So he asked few questions about ACM ICPC (what is it ?how many rounds are there etc). After that he asked few questions based on my resume. Why have you migrated to python. I said as it can handle large numbers which other programming languages cannot. He then asked what if i want to perform addition, subtraction, multiplication of numbers which are extremely large (say 1000 digits). I said by storing the numbers in character array. He then asked me give me the class declaration that you will use and then asked about overloading of operators, virtual base class, virtual functions, and virtual destructor. He then move on to data structures.

1) given a linked list of even length say a,b,c,d,e,f. Rearrange it so that the list becomes:-a,f,b,e,c,d. Do it in o(n) time and constant space.

2) Given an array: 1,3,2,5. Find out the minimum number of array elements that should be changed so that the all elements in the array are strictly greater than the previous elements

output :1

ie 1,3,4,5

(2 can be changed to 4).

He then asked some questions on journalling file systems, log based recovery etc.

Telephonic Round 2:

The call lasted for 45 mins. Started with discussion on my projects. Then asked me how much i know about python and java.

He then asked few questions on normalisation of databases. After this he then moved on to data structures.

1) an array contains elements from 1 to n . One number is missing. Find that out . i discussed about 4-5 methods with him.

"The future is not always what we expect it to be. 60 years ago, we never thought that the world of humans, as we know it, will undergo such a drastic change. In the final war between the humans and the apes, the apes won, and Ceaser lead his civilization to its zenith," a fellow human prisoner tells another.

"Now some of them have even learnt mathematics and are trying their best to re-create human machines from ruins. They have asked me to help them start a power generator, or else they'll have no reason to keep me alive."

To start it, a puzzle has to be solved:

You have to complete a function int optimalCuts(String s), where s is a string containing 0's and 1's. It has to return smallest positive integer C, such that, the bit string can be cut into C pieces and each piece is a power of 5. Note that each piece can also represent different power of 5. If no such cut is possible then return -1.

Constraints

- Argument (String s) will consists of only '0' and '1'.

• 1 <= length(s) <= 50.

Sample Case #1

s = 10101010

Returns: 3

Explanation: We can split the given string into three "101"s, where 101 is the binary representation of 5.

Sample Case #2

s = 11100

Returns: 1

Explanation: "111101" is 125 which is 5^3

Sample Case #3

s = 00000

Returns: -1

Explanation: 0 is not a power of 5.

Sample Case #1

Input

N

Returns: 1

Explanation: There is only one employee, so his salary will be 1.

Sample Case #2

Input

NNYN

NNYN

NNNN

NNYN

Returns: 5

Explanation: It has the following relation.

4

 | \

 1 | 2

 \ | /

 3

So salary of 3rd employee is 1, 1st and 2nd employee is equal to the sum of its (only) employee (3rd) which is 1. Salary of 4th employee is sum of salary of 2nd and 3rd employee which is 1 + 1 = 2. So total salary is 2 + 1 + 1 = 5.

2) an array contains elements from 1 to n. One number has been replaced by some other number. Find out the missing and the repeating numbers (again about 4-5 methods were discussed).

3) find out the first non repeating number in a string.

4) Puzzle:-

find out the minimum set of weights required to measure weights upto 20 kg

I said: 1,2,4,8,16

He then extended question to 40 kg

I said: 1,2,4,8,16,32 (ie powers of 2)

He then asked to do better. He gave me the hint that 2 can be measured using 1 and 3

i then came up with the general solution ie powers of 3. 1,3,9,27 etc

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258. Stanley Interview | Set 7 (On-Campus)

Recently Morgan Stanley visited our campus for jobs and interns. I had applied for the position of an intern and there were two rounds for us :

Round 1 : Online Written Test – 90 mins

Part 1: Aptitude and Language proficiency : 45 mins

It consisted of 10 questions on general aptitude . They were fairly easy but time consuming. After attempting these 10 questions, we were asked to choose any language of our choice – C, C++ or JAVA and based on the selection, there were 20 questions based on that language. For C, most of the questions were to predict the outputs. There was +1 for each correct answer and -0.25 for each wrong answer for all the 30 questions of both sections.

Part 2: Coding: 45 mins

There were 3 coding questions.

1. You have to generate an even number which is just larger than the given input number and using the same digits of the given number.
2. Consider $2 = +1-2+3$, $4 = -1+2+3$. Any integer can be represented in this manner. For an input integer, print the number of terms needed to generate that number. For eg. it is 3 for 2 as well as for 4 in above examples.
3. Given an 2D matrix and an angle (multiple of 90 degrees), print the matrix after rotating it by that angle.

There are sectional cut-offs for each section(aptitude, language proficiency and coding), so do attempt sufficient number of questions from each section.

Round 2 : Personal Interviews:

Personal interviews consist of two sections – technical interview and HR interview.

For the technical interview, a mixture of questions were asked based on arrays, linked lists, trees and hash maps.

Cant remember any specific one but were fairly easy.

For the HR interview, normal personal questions such as tell me about yourself, why Morgan Stanley , etc, were asked.

TIP: Score good in coding round and technical interview to grab the opportunity. BEST OF LUCK. 😊

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259. Amazon Interview | Set 108 (On-Campus)

Dear, I just got hired by Amazon in my campus placement drive. Below are the details of my selection process with amazon.

Fist Round(Online):

20 MCQ questions and 2 Coding Questions .

Coding Questions :

1. Merge overlapping intervals(Very well known repeating problem).
2. Given a singly linked list you have to subtract the value of first node from the last node and so on until you reach the middle node.

Eg: Input: 5 -> 4 -> 3 -> 2 -> 1

Output: 4 -> 2 -> 3 -> 2 -> 1

F2F-1:

1) Given a sorted circular link list and a pointer to random node, now insert a new node. I did it , but i used if and else for some special cases in my code so he asked me to do it without if else for special cases (generic & simple code).

2) Given a pointer to node in tree and a root pointer. Print all the nodes which are at a distance k from the given node.

F2F-2:

1) He gave me task scheduling problem:

Given a set of modules, some modules depend on previous modules and can only be executed, if the requirements of that module is complete.

```
Eg: module A depends on module B,C  
     module B depends on module C and D  
     module C depends on E  
     module E depends on D  
     module D doesn't depend on any other module
```

so he asked me to give a schedule for above modules such that when a module is executed then all requirements of that module are complete.

so answer would be D E C B A

2) Given a string of letters from alphabet. Remove all pairs(2 consecutive same character) of characters which occur consecutively. And do it recursively on remaining string.

```
Eg given string abcdaadhzzppz1  
     then output string should be : abchl
```

Hint: He asked me to use some data structure for it .

3) Given a binary tree set the sibling pointers . I told him that i already know the question so he said code it .

4) He asked me about hashing .

4.1 He asked me about complexity . I told him about $O(\log n)$ and $O(1)$.

4.2 Then he asked me about how do you get $O(1)$. I told him my approach . He said how will you rehash it when required . I told him that i will use extra memory and copy the hash map . Then i Optimized and did it in-place using a Boolean field.

4.3 Then he took this question to OS and asked me to do it using threads .

4.4 Asked me what all problems you will need to take care about this problem while using threads and give solution to it.

5) Discussion on my projects

F2F-3:

He gave me 3 coding questions :

1) Given a number n find the number of valid permutations of a string formed using characters '(' and ')' . A string is valid if it has matching opening and closing parenthesis .
Eg: given $n=2$ so you can have 2 possible permutations which are valid $(())$ and $(())$.

2) Given a singly link list reverse every 3 nodes and if nodes are less than 3 then reverse them also.

```
Eg: Input: 1->2->3->4->5->6->7->8  
     Output: 3->2->1->6->5->4->8->7
```

3) Given a string of letters from alphabet insert frequency of each character in the string.

```
Eg: Input: aaabbbccdefggaaa  
      Output: a3b3c2d1e1f1g3a3
```

Time Complexity Required O(n) Space Complexity Required O(1)

Fourth Round (Bar Raiser):

It was a telephonic round with a collabedit screen shared on our laptops.

- 1) Tell me something about yourself .
- 2) He saw that i had given a seminar on cloud computing and sky computing so he started with cloud computing .Then he asked me why didn't cloud computing exist 15 years ago .
- 3) What do you understand by 32 bit and 64 bit OS ? . He asked for explanations in terms of hardware and software . Then he asked me that will a 16 bit program run on 64 bit OS without any problem . He asked me what can be the reason for problem faced .
- 4) What happens when you type www.amazon.in in your browser ? . He asked me for the set of activities that take place during this time . Then he went into asking how do you get to know the IP address of your ISP . Then after a lot of discussion he was satisfied .
- 5) Some questions about Complexity of a algorithm . Asked me to prove complexity of few sample codes .
- 6) Some questions about storage space of a variable(data segment , stack , heap , BSS). Some questions about Macro preprocessors and there problems & solutions .
- 7) Some questions about error in sample code given (like returning non compatible pointer type or returning address of a local variable etc)
- 8) In DOS and Linux shell when we press the up arrow we get the recently used commands . He asked me to implement this facility. Then he asked me to do it if memory bound was very tight .
- 9) This was a question to check my analytic skills . We have customers using www.amazon.in for buying phones. Let say we have a user who visits www.amazon.in for buying mobile phone . He selects a mobile then fills his address details and then when he finally goes for payment then he gets to know that this phone is not available . So how can you improve the over all user experience . Then he asked me that will you suggest redirecting the user to some other site if the product is out of stock .
- 10) Some HR Questions like What are your areas of your Weaknesses ? What are you doing to improve on them ?

It was an amazing experience. Thanks a lot to GeeksforGeeks for helping me get my dream job 😊

Suggestions/Tips :

- 1) Discuss your approach as many times as possible.
- 2) Don't start Coding the problem until the interviewer asks you to do it.
- 3) Tell everything that you are thinking about the problem. They are more interested in knowing how you are approaching the problem.
- 4) Asks for hints if you are stuck up. They will help you.
- 5) If you don't know answer to a question then please say it directly. It will save time for other questions.
- 6) First be confident about your approach then only code it.

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260. Aricent Interview | Set 1 (On-Campus)

Aricent(On Campus) Recruitment Process Divided into 3 parts:

Round 1: Online Written test (AMCAT) .

Sections:

- 1.1 English.
- 1.2 Aptitude.
- 1.3 Logical Reasoning.
- 1.4 Computer Programming.
- 1.5 Computer Science.

Round 2: Technical Interview.

Round 3 : HR interview.

Round 2 : Technical Interview question:

- 1) Write a structure for SLL that stores integer value. Then, she asked me to modify it to store value of any type i.e. integer char etc.. (using void pointer).
- 2) What is the difference between char a and char a[1]?
- 3) She asked about my favorite subject ...I said ds and algo. Then, She asked me to write an algo to find the middle node in SLL.
- 4) Given only a pointer to a node to be deleted in a singly linked list, how will you delete it?
- 5) How will you check in SLL whether any node is corrupted or not? Can you correct it?

- 6) Explain Rat and maze problem. How will you solve it and what data structure you will use. She asked me to code it.
- 7) How to print something without using “,”.
- 8) In Networks, she asked what will happen if i type google.com in browser (Basically, She was interested in headers and layers, Dns etc)
- 9) ARP and RARP, mac address and ip address.
- 10) In which layer Router and switches are used?
- 11) Puzzle : 3 bulb and 3 switches.
- 12) Puzzle : $26-63=1$ (change only one digit up, down, right or left ... do not change the value of digit)
(Ans : $2^6-63=1$)

Round 3 : HR interview

- 1) Tell me About yourself.
- 2) About your family.
- 3) Questions From Resume.
- 4) In which area you want to groom yourself.
- 5) Preferred Job Location.

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261. Amazon Interview | Set 109 (On-Campus)

Amazon visited my Campus a few days back. I did not clear the final round of Amazon but I got selected in D.E. Shaw the very next day after rejection from Amazon 😊
Here is my interview experience of Amazon.

Online Round (conducted on HackerRank):

20 MCQ questions and 2 Coding Questions (no C++ questions, C input-output questions(very hard) and aptitude questions).

Coding Questions :

1. Merge overlapping intervals(Very well known repeating problem).
2. Given a singly linked list you have to subtract the value of first node from the last node and so on until you reach the middle node.

Eg: Input: 5 -> 4 -> 3 -> 2 -> 1

Output: 4 -> 2 -> 3 -> 2 -> 1

Advice: Many people say that making 1 code is enough to clear the 1st round while this is not true, I made both the codes and many of my friends who made only one code were rejected. Everyone who made both the codes were selected. There were some

students who cleared this round by making only one code but don't try your luck here by making only one code is my suggestion.

Round 1(Bar Raiser):

Complete discussion on my project.

Suppose you have a file with billion entries and you have to sort the data of a file according to a column and can put only that column in memory and after putting that your memory gets full.

e.g. your file contains
name age address pincode sex
.....
.....

And you can have to sort the file according to pincode then you can only put pincode in the memory.

I approached it firstly by using merge sort but this requires the entire file to be put into memory. Then, I suggested using min heap but he said that heapify process of billion numbers will take a lot of time. He said you are getting close, then I suggested that we can use a balanced binary search tree to store the pincodes along with indexes and then traverse the bst in inorder fashion and swap the indices of the first pincode of file with the index of inorder element. He was happy after hearing this and asked me to write the code and to be careful with edge cases.

I did it.

Round 2 (CS Fundamentals)

He wanted to check my knowledge of DBMS, OS, and Computer Networks. Asked everything related to these subjects including all the layers of networks and from processes-threads to deadlocks to memory management in OS. Asked a SQL query to find 3rd maximum marks of student from a database. I gave him 2 solutions 😊 .

Asked me my favorite sorting algorithm. My favorite is insertion sort but I told him merge sort because I knew a lot about merge sort so I wanted to drive the interview towards merge sort and as expected he asked many questions on merge sort and I gave him all the answers.

He asked me to build a tree from given preorder and postorder traversals of tree, I said it is impossible to build from only these 2 traversals , you have to give me inorder to build a unique tree.

Round 3 (CS Fundamentals + Coding)

Deep discussion about project.

Asked me to choose my favorite subject other than any related to coding or algorithms. I said Computer Networks. He asked why it is your favorite ? Why not OS or DBMS?

He asked me What happens when you type www.amazon.in in your browser. I was expecting this question 😊 . I knew this, told him everything.

See the links below for solution

<http://igoro.com/archive/what-really-happens-when-you-navigate-to-a-url/>

<http://superuser.com/questions/31468/what-exactly-happens-when-you-browse-a-website-in-your-browser>

<http://edusagar.com/articles/view/70/What-happens-when-you-type-a-URL-in-browser>

He asked me to solve a coding problem now.

Suppose I am given a sorted array of unknown size, then how will I search an element in this array efficiently.

I said I can increase int i by the power of 2 and check whether the given arr[i] > element to search whenever I find such element then I can apply binary search between i/2 and i. He said this approach will work but what happens if while increasing i , you cross the array length. Suppose an array is of size 6 , then your i will become 8 and arr[8] will give garbage value so your program may go in an infinite loop. I said I can increase i in try block and whenever this case occur then I can catch the exception in catch block where I will decrease i by 1.

He smiled and asked me to write the code by taking care of edge cases.

Round 4 (Coding)

Deep discussion about the project which was on security. The interviewer asked me to design the database of a chat application similar to whatsapp. I did it and said what if some intruder access the database, then I said I will apply md5 encryption on phone numbers, then he asked me how md5 works. Why only md5? He asked me what are Man in the middle attacks and asked me to remove man in middle attacks from the message transfers. He was impressed. 😊

He then asked me what is cache, why are cache fast and how it differs from RAM and hard disk architecturally. This one was a bouncer, I hated computer architecture, admitted I am a beginner in computer architecture. He laughed and said thank god, there is one thing in which you are a beginner. I laughed too 😊

He moved further towards coding.

1. Suppose the structure of a binary tree is

```
struct node {  int val;
    struct node *left,*right,*random;
}node;
```

Where random pointer points to any random node of the binary tree and can even point to NULL, then how will you clone this tree.

This was the culprit question who led to my rejection.

I gave a lot of thought to it, but wasn't able to solve it directly. I said we can use hash, then he said what if there are duplicates in the tree then your hash will fail, then I said we can convert the binary tree to doubly link list in place then clone the doubly link list, he said ok but how will you generate the original tree from doubly link list, I never said it was balanced. I gave a lot of thought here, nut yeah couldn't solve it.

I got the solution by trying it after the interview, you can clone the left and right pointers easily by traversing the tree and to clone the random pointers, you can apply this : newroot->random=oldroot->random; oldroot->random=newroot;

Then traverse new tree again and put newroot->random=newroot->random->random.

2. <http://www.geeksforgeeks.org/find-the-row-with-maximum-number-1s/>

I solved it efficiently.

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262. Amazon Interview | Set 110 (On-Campus)

Hi, Amazon visited our campus few days back. Before I start off with my experience, here are few suggestions.

1. Don't just go through the codes. First try it on your own, that's very important. Once u have cracked a problem, write it in a paper and check for the corner cases.
2. For the online round. **GeeksQuiz** is enough to get you through the MCQs. For the coding part, once u have cracked a problem, always try to run the program at one go.
3. OS, DBMS and Networking. If you get a good hold on these subjects, it will make you stand apart from other candidates.

First day:

20 MCQs(Data structure, C, C++, OS, Probability).

2 programs :

1. Given an array of integers. Segregate all the non-zero numbers at the beginning. Print the number of non-zero integers and the minimum number of swaps required for these operations.

```
Eg. : I/p : 1, 0, 0, -6, 2, 0  
      o/p : Number of non-zero integers : 3  
              Minimum number of swaps : 2
```

2. Given a text txt[0..n-1] and a pattern pat[0..m-1], write a function search(char pat[], char txt[]) that prints all occurrences of pat[] and its permutations (or anagrams) in txt[]. You may assume that n > m.

```
E.g. : I/p : txt[] = "BACDGABCDA"      pat[] = "ABCD"  
      o/p : Found at index 0  
              Found at index 5  
              Found at index 6
```

Second day:

Suggestion: Always think loud when you are coding

Round 1 : PI 45 min

1. Discussion on Project.

2. Code : LCA of a BST.(check for all corner cases)
3. Code : LCA of a Binary Tree(check for corner cases)
4. Code : Maximum sum subarray along with its starting and ending index.
5. Code : Heap operations

Round 2 : PI (With Manager) 1 hr 15 min

1. Discussion on project.
2. Code : Given an array : $A1[] = 2, 1, 2, 5, 7, 1, 9, 3, 6, 8, 8$
 $A2[] = 2, 1, 8, 3$
Sort A1 in such a way that the relative order among the elements will be same as those are in A2. If the element is not present in A2, append them at last in sorted order.
o/p : 2, 2, 1, 1, 8, 8, 3, 5, 6, 7, 9

As I carried on telling him the approach, he went on modifying the question (what if A2 is much larger than A1 ?, what if they are of the same size ?)

A lot of discussion on complexities for all modifications. He was quite happy with my answers.

Finally he asked me to code the $O(n\log n)$ approach.

Round 3 (Subject Round) 1 hr

1. OS : Virtual Memory (lot of discussion of its advantages, thrashing , etc)
Then he asked me design a LRU replacement policy(approach) which I did. Then he asked to implement FIFO replacement policy with stacks. I did it using two stacks.
2. Networking : He started with Transport Layer(discussion on ports. How data from applications are changed into packets ?, etc).
Then he went to Network Layer (A lot of discussion on subnet masking and how it is used by routers to map the IP address of incoming packet, how a Subnet is different from Internet).
Next we moved to Data Link Layer(Discussion MAC addresses, sliding window protocols, etc).
3. DBMS: What is indexing?, Why indexing ?, How to implement indexing ?, What are the different types of Index? .
Differences among Inner Join, Left Outer Join and Right Outer Join. He followed it up with a SQL query on Outer Join.

As my first three rounds went very well, fourth round was of 15 minutes only.

Round 4 (Bar Raiser) 15 min.

1. Logical question. Given a prime number 'p'. Prove that $p^2 - 1$ is always divisible by 24.
2. Find 2nd maximum element in a given array in one iteration.

All the best !

GeeksforGeeks has helped me throughout my preparation. This is the best site for

clearing your concepts on Data Structures and Algorithms. [GeeksQuiz](#) has helped me to get through the MCQs in the online round. Thanks again !

Keep Smiling !

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263. Amazon Interview | Set 111 (On-Campus)

Amazon visited our campus, these are the questions that I faced.

Online Round (90 minutes)

20 MCQs(Data structure, C, C++, OS, Probability).

2 programs :

- Given an array of integers. Segregate all the non-zero numbers at the beginning. Print the number of non-zero integers and the minimum number of swaps required for these operations.

Eg. : I/p : 1, 0, 0, -6, 2, 0

o/p : Number of non-zero integers : 3

Minimum number of swaps : 2

- Given a text txt[0..n-1] and a pattern pat[0..m-1], write a function search(char pat[], char txt[]) that prints all occurrences of pat[] and its permutations (or anagrams) in txt[]. You may assume that n > m.

E.g. : I/p : txt[] = "BACDGABCDA" pat[] = "ABCD"

o/p :0,5,6

1st PI

- About 10 minute discussion on my project on Cloud Platforms and Big Data Analysis in Yahoo SDC. I asked him some doubts and he answered them clearly.
- Given a string of digits, output all the dictionary words they can represent. (Basically smart dial algorithm of an android phone). Each digit represents the corresponding characters on a cellphone as follows.



e.g. : I/p : 3323 O/p : DEAD , DEAFFirst, he asked me how I would store the dictionary. When he was satisfied by my approach, he asked me to write a recursive function that would do the job if a dictionary is given as an input.

3. Then he gave me a class design. He went on changing his requirements and I was asked to add support for them in my implementation. At first, his requirement was to draw a rectangle and a circle. Then he went on adding requirements and finally it was to draw different specializations (like curved-edges, skewed-edges, dashed-lines) of rectangles, triangles and circle. He gave a constraint that support for a new specialization can be added easily in my design.

2nd PI

1. Given, the starting and ending time of different meetings, what is the minimum number of conference rooms that will be enough to accommodate all of them. He asked me to code it. E.g. :

I/p : Meeting I – 8:30 – 12:50

Meeting II – 10:15 – 11:30

Meeting III – 11:45 – 1:30

O/p : 2

2. Implementation of a doubly-linked list using a single pointer. I didn't know the answer at that time. He gave me a few hints and I was able to solve it. Then he asked me to code it.

3rd PI

1. Given an array of integers. This array denotes 'our' own ascending order of the elements. So if the array is {2,3,1,4}, by mathematics we can say that $2 < 3 < 1 < 4$. Given another array, sort this new array in 'our' ascending order.
Let's say the new array is {1,2,4,3,5,4,9,2}, output will be {2,2,3,1,4,4,5,9}. Note that since 5 and 9 do not occur, they are sorted by actual ascending order at the end.
2. Return the left-view and right-view of an n-ary tree in a single traversal.

4th PI

1. 10 minute discussion about my internship in Cloud Platforms team in Yahoo SDC. He asked me a few HR questions like what do you think was your biggest screw-up in college life, etc.

2. Find power(a, n) iteratively without extra space in O(log n) time. He gave me a lot of hints. But unfortunately I couldn't solve it.
3. Pre-order traversal of a binary tree without using recursion.

Fortunately, I was selected as an FTE in Amazon.

Suggestions

I would like to give a few suggestions to all the upcoming candidates :-

1. Firstly, mugging up of codes will never take you far. If you find a problem that is solved in geeksforgeeks, rather than blindly mugging up the code, read the description properly. Try to understand what is being done and why is it being done. Try to understand each and every line of code. It is naïve to expect common known questions in interviews. But, if you can understand the approach of the codes solved in geeksforgeeks, you can use it to solve a plethora of problems.
2. In an interview, always think out loud. Explain what you are doing and why you are doing it. If you solve a problem within a few minutes without explaining your steps, the interviewer will assume (perhaps not incorrectly), that you have mugged up the code. This creates a very bad impression.
3. Follow proper etiquettes. Shake the interviewer's hands while entering and while leaving the room. Also, try to ask proper questions to the interviewer when he gives you the chance to do so. These are the small things that set you apart from the other interviewees.
4. Lastly, never be too tensed. Always remember, rejection is a part of life. Luck matters a lot in job interviews. So don't be disheartened if you are rejected. You can always apply later.

A very best of luck to all of you for your upcoming interviews.

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264. Microsoft Interview | Set 28 (On-Campus)

Microsoft Interview Experience(On Campus)

1st Round :

Online test was taken in the morning by cocube with 15 MCQ. Time was given for this 30min.

I had some problem (can't write here) so I did in 10 min and rush back to room. (I think u understand why I came back to room.)

After 2 hour result announced and was in the shortlisted of 78 students.

2nd round Begin : (time 70min.)

Again an online coding round begin with 2 question given.

Q.1: An array of string is given in sorted order but it can have any no of null sting in between. One another string you have to search in that array of string. If string found then return the index of that, otherwise return -1.

Q.2: An integer array is given which consisting integer no's, But in that array 3 unique no are there whose no of occurrence is even.

Print those three no and the sequence in which the appear in the array.

I did both of the question one I did myself and another one with the help of my friend.

Result Declared after two day on Friday. My name also were there with 28 students.

Round 3 Begin: (Group Fly Round):

They assembled us in a room and gave same problem to everyone and ask to right the algorithm for that.

Question: word reversing of the string.

Eg. "Microsoft visited your campus".

Expected Output: "campus your visited Microsoft".

Question was pretty simple everyone knows how to do it.

I don't know on which base the selected only 12 out of 28 students, and I was one of them who selected.

Round 4 (F2F) : (Time 1hr.)

It was technical round.

Firstly he went through my resume and asked about my project (Done in c++) which I mentioned in my Resume.

They ask which oops concept you used in your project. I told and explained everything whatever I had used....

Then he asked me by which oops concept you can improve your project...I told about STL and explained how I'll do.

Then he came to data structure and ask very few simple questions....

Q.1 : an array of 1...N no is given to you, but one no is missing, how will you find that.

I think everyone knows how to do it..

Q.2 : A string is given to you, and you have to find out first non-repeating char.

I had done before this question from geeksforgeek. So no problem at all.

Then some optimization discussion on different assumption's like...if you string consisting Bytecode char and all.

After one hour they announced the result of Round 4, I was the one of 7 students out of 12.

Round 5 (F2F) : (Time 1hr.)

It was another technical Round.

Firstly he gave me his intro then I.....

Then he gave me my page on which I had written algorithm in Group Fly Round. And asked me to code it.

I did and explained.

Then he asked me.... For implementing a dictionary which data structure you will use..???

I answered I'll use Trie .

He spelled 'T''R' 'E' 'E'...

Then I said no sir 'T' 'R' 'I' 'E'...

I explained with structure of trie how it is useful, beneficial and efficient.

He told me to implement it in Tree.

I did that...By BST

Then he made a loop in my BST by connecting two child node. And asked me to remove it..

I loop is not possible in a BST.

He asked me to proof it...and I proved.

Then he came to Puzzles.....

He gave a puzzle of "8 coins and a balance scale"

I knew it because I had done already.

But don't know why I couldn't solve there.

He gave me some hint after some time he told me the ans and how to do...

It can be done by using balance scale two time.

Mine answer was 3.

.....

.....

After some time result came out....

5 students were selected out of 7 for final HR round...But this time I was in those 2 who went out..

.....Thanks a lot to GeeksforGeeks for helping me.

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265. Motorola Mobility(Bangalore) Android Developer Interview

I have 2 yrs of experience in android domain.I have applied for Motorola in May.Process spanned for 1 month long.

I could not find much info about their interview process on net. So i am sharing my experience here. Hope it helps others.:)

Round 1- Interview Street (1 hr)

- 1)WAP to get maximum number from the digits of a given number
- 2)Parse a string and return if it is valid or not based on given patterns. It should contain only
“1” or “12” or “122” ONLY

Round 2-Google Hangout(1 hr)

- General Intro
 - Few basic android questions on localization and resource configurations
- 1)Code for Longest common prefix from a list of strings.
 - 2)There is a device driver that reads from a camera and writes a stream of bytes (captured frames) into a buffer. There also is a viewer that reads from this same buffer. The device driver and viewer do not communicate with each other other than through this buffer. Design and code this scenario. You may choose the data structure of the buffer per your liking. Please note that there may be multiple viewers.

Round 3-Google Hangout(1 hr)

- 1)Code for moving zeroes to starting in a random integer array
- 2)Given a binary search tree of positive integers, if all the nodes are multiplied with -1 then is it still a BST? If not, reconstruct to one.(Mirror tree code)

Round 4-Google Hangout (1.5 hr)

- 1)Given an array of random unique integers, find the indices x,y,z such that $a[x] < a[y] < a[z]$
 - 2)Given a ransom note and a magazine as Strings , find if the note can be made out of the magazine or not.
 - 3)Modified the second question to real time scenario where in , the magazine has print on both sides and only one side can be used.
- Input and output should be taken accordingly.

There were 4 more F2F rounds to go in Bangalore. They have very high expectations(Rock solid coder). I could not make it further.

I would like to thank GeeksForGeeks team for providing wonderful platform for interview preparation.

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Amazon visited our campus and was hired as intern. These are the questions that I faced.

Online Round (90 minutes)

20 Basic MCQs (Data structure, C, C++, OS, Aptitude, Networks).

2 programs :

- Given a text txt[0..n-1] and a pattern pat[0..m-1], write a function search(char pat[], char txt[]) that prints all occurrences of pat[] and its permutations (or anagrams) in txt[]

```
E.g. : I/p : txt[] = "BACDGABCDA" pat[] = "ABCD"  
o/p :0,5,6
```

- There is a matrix mat[m][n] with entries as 0 or 1 When you are at 1 you can move in all the eight directions and when at 0, you have to return back. Find the number of cluster of 1's

```
e.g. input { {1,1,0,0,0},  
             {1,0,0,1,0},  
             {0,0,0,1,1},  
             {1,0,1,0,0} }  
output 3  
  
clusters ((0,0), (0,1), (1,0))  
          (1,2), (2,2), (2,3), (3,2)  
          (3,0)
```

Round 1:

- Introduce yourself.
- Any moment when you worked really really hard to solve a problem.
- Find the best fit for a packet to be fitted in a rack rack sizes are given in increasing order in other words find the ceil value of a key in sorted array.
- Check given binary tree is BST or not
- Find the lowest common ancestor in binary tree
- If I have any question to ask him

Round 2:

- Find largest sum contiguous subarray in goven array
- If I had any question to ask him

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267. Amazon Interview | Set 113 (On-Campus for Internship)

Amazon visited our campus to offer internship for 6 months. There were 3 rounds – an online coding round and 2 face to face interviews.

Online coding Round(Duration:1 hr 30 mins)

This round was conducted on hackerrank.com. There were 20 mcq's related to computer science and aptitude. Many of these questions are there in the MCQ section of GeeksForGeeks. And there were 2 coding questions:

- Given a txt[0..n-1] and pat[0..m-1], write a function search(char txt[],char pat[]) that prints all occurrences of pat[] and its anagrams in txt[].

Assume that n>m.

Example: txt[] = "BACDGABCDA" pat[] = "ABCD"

Output: 0 5 6

- (Cluster Program) You are given a 2d matrix containing 0s and 1s. From a given position in matrix, you can move in all the 8 directions i.e. (i+1,j),(i,j+1),(i-1,j+1). You have to print the number of clusters of 1's in the matrix. Two 1's lie in a cluster if and only if we can move directly from one 1 to another.

```
Input : m=5, n=5.  
Mat[] = 1 1 0 0 0  
        0 1 0 0 1  
        1 0 0 1 1  
        0 0 0 0 0  
        1 0 1 0 1  
  
Output : 5  
First: (0,0), (0,1), (1,1), (2,0)  
Second: (1,4), (2,3), (2,4)  
Third: (4,0)  
Fourth: (4,2)  
Fifth: (4,4)
```

Face to Face Interview-1(Duration:1 hr)

Interviewer started asking questions straight away without any introduction. He asked me the worst case complexities of Quick sort and Merge sort. Then asked me 2 questions related to trees:

- Given an array that contains post-order traversal of a binary tree. Can you construct a single tree? I said no. Then he asked if i can make a binary search tree from the array to which i said yes. Then after discussing the approach, he asked to write the code.

2. Then he asked me to write the code for level-order traversal of a tree. Also asked me to calculate the complexity of the code.

Face to Face Interview-2(Duration:about 1hr 30mins)

Interviewer started with the general introduction. Then he started asking questions.

1. Given n appointments with the start time, end time and a boolean variable hasConflict, we have to set the boolean variable hasConflict of those appointments that conflict with the other appointments.

Example: Appointment1: (2:00-3:00)

Appointment2: (2:30-3:30)

Appointment3: (4:00-6:00)

I have to set the hasConflict of Appointment 1 and 2 as true.

Initially, I did it in $O(n^2)$. But then he asked me to optimize the solution. After some discussion, I was able to solve it in $O(n\log n)$.

2. Given that at Amazon.in the details page of an item shows only one field that is dynamically picked up from the database, we have to improve the performance according to the line:

"80% of the users visit details page of 20% of products."

I said we could store these 20% on the web server so that we don't have to fetch the item details from database everytime. He asked me where and how will i store it. I answered Main memory and will use BST to store it. Then after a lot of discussion(about 30 mins) on how will the get and put operations be used, he was satisfied with the solution.

3. Given a linked list placed in memory, what problems can arise if simultaneous operations are performed on the list. From here he started asking about threads because the answer was related to it.

4. When a single threaded application is converted to multi-threaded applications, what kind of changes operating system has to make?

5. What steps are taken when the os shifts from one-thread execution to another?

Finally, I was hired. Thanks to GeeksForGeeks for helping me throughout my interview preparation.

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Students were shortlisted based on their resumes. [Mainly on the basis of OS Projects]

Technical Round 1

1. Write the most efficient algorithm to find square/square root of a number.
2. Write the most efficient algorithm to find if a number is prime or not.
3. At Bit level, how will you find if a number is a power of 2 or not.
4. What is call by value, call by reference in C language.
5. Projects done in MTech

Technical Round 2

1. Swap two numbers using XOR
2. What are various storage classifiers and quantifiers in C.
3. What is a semaphore? Explain in detail.
4. What is an interrupt. How does a processor handle an interrupt?
5. What is the exact role of Memory Management Unit?
6. Explain your MTech projects.

Behavioral Round

1. You are Intel's representative for India and you are about to board a flight to US for a very very important billion dollar deal. But at the airport you are asked for a bribe of Rs500/- . Will you give the bribe or not?

Ans: NO!!! 😊

etc....

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269. Intuit Interview | Set 1 (On-Campus)

Intuit had come on campus last week for SDE-1 and Quality Engineer profiles. These were the questions asked:

Round One (Written round, 60 minutes):

1. Given an unsorted linked list, remove all duplicates without using temporary buffers.
2. A number starting from 1 can be got by either multiplying 3 or adding 5 to it. Given a number, find the sequence of operations to get it or say it's not possible.
e.g: 13 is $1 * 3 + 5 + 5$ but 15 you cannot get.
3. Given a tree, get the path from root to leaf such that the sum of nodes in the path is maximum.
4. There are 50 people in a bank. Each person is either an employee or a customer. Each person knows what everyone else is. The police can ask person i what person j is. Customers will always tell the truth. Employees are evil geniuses who may not tell the truth. The police have to find at least one customer asking a maximum of 49 questions. More than half the people are customers.

Round Two (Group activity, 60 minutes):

The selected students were divided into groups of 5 to 6 and were asked to design a system to

"How does a student achieve academic excellence"

All ideas were jotted into a chart and we were asked to present it after 45 minutes of brainstorming.

No elimination in this round.

Round Three (Technical interview, 45 minutes):

1. What's the angle between the hours' hand and the minutes' hand when the time is 3.15
2. How many times does the minutes' hand cross the hours' hand during one day?
3. Given an array which can contain either 0s or 1s, write an algorithm to find the length of the longest subarray of all 1s and all 0s.

Round Four (Technical interview, 60 minutes):

1. Design an e-commerce system for me using block diagrams and architecture diagrams. What components will you use and why? What does each component do?
2. Write an algorithm to delete an element from a circularly linked list. Optimize it. Implement it in Java.
3. Give me an example of a machine learning algorithm which you will use for giving suggestions on a e-commerce website.

Round Five (Technical / HR, 60 minutes):

1. Why do you want to join Intuit?
2. What will you do if a conflict arises in your team?
3. What were the major challenges you faced before?
4. Design a database schema for an Android app which calculates your GPA and stores

it in a SQL database.

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270. Intuit Interview | Set 2 (On-Campus)

Round One (Written round, 60 minutes):

1. Given an unsorted linked list, remove all duplicates without using temporary buffers.
2. A number starting from 1 can be got by either multiplying 3 or adding 5 to it. Given a number, find the sequence of operations to get it or say it's not possible.
e.g: 13 is $1 * 3 + 5 + 5$ but 15 you cannot get.
3. Given a tree, get the path from root to leaf such that the sum of nodes in the path is maximum.
4. There are 50 people in a bank. Each person is either an employee or a customer. Each person knows what everyone else is. The police can ask person i what person j is. Customers will always tell the truth. Employees are evil geniuses who may not tell the truth. The police have to find at least one customer asking a maximum of 49 questions. More than half the people are customers.

Round Two (Group activity, 60 minutes):

The selected students were divided into groups of 5 to 6 and were asked to design a system to

“How does a student achieve academic excellence”

All ideas were jotted into a chart and we were asked to present it after 45 minutes of brainstorming.

No elimination in this round.

Round Three (Technical interview, 45 minutes):

He started off by asking me to tell him about myself. He went through my resume and asked my which one is my favorite project. One of them involved string matching. He started with that.

1. Given a sentence say, “I love Intuit and Intuit loves me”, find the number of times the word “Intuit” occurs in the sentence.

I asked him, any language restrictions or any other constraints. He told any language, but it has to be better than brute force and the coding standards must be production level with all exceptions taken care of, properly modularized and neatly structured.

I first told him my approach and he was satisfied. I wrote the code in Java.

2. He extended the question. Assume you have 2 million files with some text in it. How do you find the number of times the word “Intuit” occurs in all these files. I suggested an approach with $O(n)$, but he said it can be better optimized.

3. Some puzzle question.

4. He saw that I had mentioned UI developer in a web project. He drew the Facebook news feed layout on a sheet of paper and asked me what happens when you click on an image thumbnail in Facebook. I told him that the background goes dark, the picture becomes bigger and the comments and likes appear to the right of the picture.

He asked me to write HTML and JavaScript code for that.

Round Four (Technical interview / HR, 60 minutes):

1. Tell me about yourself.

2. Tell me one situation where conflict arose in your team and how you handled it.

3. What are your strengths and weaknesses?

4. I was then asked to design a student database to keep track of the academic progress of the student and calculate the GPA of the student.

She then asked me to write a few basic queries against the database and I did that.

Then she asked me to update one table for all the values held in another table. I wrote a loop and for iteration called an update function. This code I wrote in PHP.

5. She asked me if I had any questions for her.

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271. Morgan Stanley Interview | Set 8 (On-Campus)

Recently Morgan Stanley visited in our campus for FTA(Full time analyst) and intern programs.

Written Test

It was the technical + aptitude test that anyone of us ever faced. 10 aptitude questions and there was a choice for technical part. We could choose among the three languages, C, C++ and Java. There were 20 technical questions. Total 30 ques. within 45 min.

There was sectional cut off. I attempted 3 from aptitude section and 7 from languages(I chose C language).

Then there was a coding round immediately after that which comprised of 3 ques. in 1 hr.

- a) Determining the range of a URL from many given ranges which fits the input URL.
- b) Huffman Coding.
- c) Determining the day of any date.

I was able to do only the last question completely and gave a try to Huffman one.

First Tech Interview

Held immediately after the presentation. The interviewer asked me to introduce myself informally and made me feel extremely relaxed. Then he asked me about my achievements and was writing it on a sheet of paper as i dictated. Then he asked me about my favorite subject and i said Data Structures. He then started with the interview part.

- a) Middle of a link list.
- b) Queue using Stack. I gave the general algo and then he asked me to optimize it by making the retrieval time constant. I tried but i wasn't able to come with something fruitful.
- c) Deleting alternate elements in a link list.
- d) Sorting algorithms. Almost all the sorts i knew i mentioned but he did not dig deep into sorting stuff.
- e) Given an array with duplicate elements, output the array without the duplicates as well as sorted. I gave him Brute force approach to it and then he asked me to optimize it but i could not. He gave me a hint and then i suggested building BST(excluding the duplicates when encountered) and then inorder traversal of it.
- f) External sorting question and optimizing it.

Throughout the interview he was noting down something or the other. There were many many sheets with different headers, on which he was writing down something. The results came late night and they selected 8 people for the next round.

Group Activity

We were divided into two groups of 4. There was sheet of paper with the instructions for each group and two boxes of LEGO blocks. The round was conducted in a board room and all the panel members were sitting around us to judge us throughout the activity.

We had to build up a functional unit for Morgan Stanley, and we were judged on the basis of our thought process, our approach, our goal, our planning, our execution, our team handling, and many many such factors. Throughout the discussion we had to discuss loudly so that the judges could hear our thought process.

There was a twist in between when another letter came from BOD and we(both groups) had to merge and build the prototype together now. So we now had less time and we had to come up with something that includes both the groups' ideas.

In all we were given 40 min.

After that we had to present our prototype. There was a session of 30 min during which a panel of 10-12 judges asked us questions about our approach, our team spirit, what

we thought of other members and all. It was something extremely new that we ever face in our lives.

Second Tech Interview

Held after the group activity. The interviewer was much more gentler than the previous one and made me feel very comfortable. Started with informal talks and then came to the real stuff.

- a) Diameter or width of a binary tree(only the approach).
- b) How to store 2D array in a database.
- c) How to store N-dimensional array in a database. I gave sequence solution.
- d) How to store N multidimensional arrays in one table.
- e) How to search a record by its name field when there are billions of records.

The whole interview lasted for 40-45 min.

HR Interview:

It was two on one, started with casual talks and then proceeded towards the business end of the Morgan Stanley's HR Interview. It was intense, and when i say intense then literally i mean it. They asked me 100+ questions on different situations and scenarios that a employee faces. I don't remember a lot but most of them were manager related. I answered something then completely changed the situation and came up with something more challenging.

They wanted to check what kind of a person you are? How you look at things? What your take on different situations? and stuff like that. You should just be yourself and please don't try to say something that you don't believe in because they were digging deep. They were very very polite and extremely supportive in a sense that they were listening to my responses keenly. In the end, they asked me to ask anything and i came up with few general questions such as work environment in the company, how you like it, etc.

My only suggestion to all job aspirants is to focus on what you like and then look for it on Geeksforgeeks.

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272. Microsoft Interview | Set 29 (On-Campus for Internship)

Recently we had microsoft interview for internship in our campus.

Online Test

It was the technical + few aptitude test. There were around 4-5 set of mcq for all students at Cocubes.com. i was lucky to have a easy one.

Then i was selected for 2nd round .

Round 2 : (online judge)

Around 200 people were selected for 2nd round. This round contained 2 question.

- 1) Given a linked list which contains series of numbers seperated by “0”. Add them and store in the linked list in-place.

```
for eg : i/p linked list is 1->2->3->0->5->4->0->3->2->0  
o/p Linked list is 6->9->5
```

- 2) Given a binary tree and value V. delete all the leaf nodes whose values are equal to V. It must handle all cases for example if u delete both leaf from a node Say B. Then the node B also becomes the leaf node.

This round was pretty easy one . first one can be done in O(n) and 2nd one can be done by postorder traversal.

I was confident that i will be selected for next round. after one week results was announced and 24 students were selected for next round.

Round 3: (group interviews Written test)

This round for the only 17 students and first seven were allowed to enter directly 4th round. i was one among the seven. The ranking was based on the scores of first two round. so each and every round matters in microsoft.

2 question were asked for this interview.

- 1) Delete alternate nodes in a doubly linked list.
- 2) Convert a string into a string without duplicates without changing the order of characters IN PLACE. EG: Input: Bananas Output: Bans.

Many of them were easily eliminated from this round. Neatness and indentation also matters.

Round 4: (technical round)

This round was the toughest round of all. The interviewer seems to be little strict. He called me and one more boy inside for interview.

I thought he will select one among us for next round. but actually they don't compare in these ways. first question they asked me was

- 1) given a 2d character array and you are allowed to move down, left, diagonal down and form a string and check whether that string is present in the dictionary or not.
ans. I gave him backtracking approach and he saw that and he asked whether I can improve it little more. I gave binary search solution for searching in the dictionary and he told me that I can use prefix checks also. then I made use of it. Then he moved to second question.

2) given a chess board $n \times n$ size and knight and you start from position (a,b) and have to reach (C,d) in minimum number of steps and there can be wall in some squares boxes also which blocks knight.

I was really nervous and in tension I gave him DFS solution. He kept on asking me that can I improve it or not and finally I told I can apply Dijkstra's algorithm. But I didn't mention the word BFS. I came out and I thought I won't be selected for next round.

Meanwhile the questions asked to my friend were

- 1) Topological sort
- 2) Box stacking dynamic programming problem.

Round 5 (personal interview) :

They called my name and I went inside. I have my resume to him and he went through it and then he was impressed by my Groupon internship during 2nd year. Then he asked me Why Microsoft? and then we talked for a while about game programming (Xbox) and he asked about cloud computing. Then he saw in my resume that I was mentor in Data structures for Weak students so he asked my question in Linked list.

1) Given a singly linked lists of $2n$ size. First n and second n are sorted. Sort the entire linked list. He asked for all possible solutions. I told him solutions for

- 1) Swapping by node
- 2) Swapping by data
- 3) Merge sort method
- 4) Hashing (Counting sort method)

It was not too hard one.

Round 6 (final round)

I think it was stress interview. The interview called me inside with one of my friends. He asked us about previous two rounds. Then he gave me 2 questions

- 1) Design LRU cache. (I read this just a day before)
- 2) Find and replace in a string.

Finally I was selected for Microsoft internship. The people from Microsoft were also very good and friendly. I read few websites before interviews and GeeksforGeeks is one of the best among them. It's really good to prepare for interviews from GeeksforGeeks and each and every round matters in Microsoft.

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First Round: (Aptitude written round)

This round consisted of two sections “Reasoning Aptitude” and “Technical Aptitude”.

Reasoning section was more like puzzles so do concentrate on logical puzzles.

Technical Aptitude dealt more with “operator precedence”, “pointers”, “iterations”, “dynamic memory allocations”.

Second Round: (Normal Programming round)

1. Print the word with odd letters as

```
P       M  
R       A  
O   R  
G  
O   R  
R       A  
P       M
```

2. Given a set of numbers like <10, 36, 54, 89, 12> we want to find sum of weights based on the following conditions

1. 5 if a perfect square
2. 4 if multiple of 4 and divisible by 6
3. 3 if even number

And sort the numbers based on the weight and print it as follows

```
<10,its_weight>,<36,its weight><89,its weight>
```

Should display the numbers based on increasing order.

3. Save the string “WELCOMETOZOHOHOCORPORATION” in a two dimensional array and search for substring like “too” in the two dimensional string both from left to right and from top to bottom.

```
w e L C O  
M E T O Z  
O H O C O  
R P O R A  
T I O n
```

And print the start and ending index as

Start index : <1,2>

End index: <3, 2>

4. Given a 9×9 sudoku we have to evaluate it for its correctness. We have to check both the sub matrix correctness and the whole sudoku correctness.

5. Given a two dimensional array of string like

```
<"luke", "shaw">  
<"wayne", "rooney">  
<"rooney", "ronaldo">  
<"shaw", "rooney">
```

Where the first string is “child”, second string is “Father”. And given “ronaldo” we have to find his no of grandchildren Here “ronaldo” has 2 grandchildren. So our output should be 2.

Third Round: (Advanced Programming Round)

Here they asked us to create a “Railway reservation system” and gave us 4 modules.

The modules were:

1. Booking
2. Availability checking
3. Cancellation
4. Prepare chart

We were asked to create the modules for representing each data first and to continue with the implementation phase.

Fourth Round: (Technical Round)

Technical question which revolved around “data structures” and “OOPS”

Fifth Round: (HR round)

Some general hr questions asked mainly about our projects and about certifications if we had one.

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274. Adobe Interview | Set 10 (Software Engineer)

Written:

Aptitude: Objective 50 min 45 questions

LR- 2 passages-5 each

DI- 1 paragraph- 5 each

Mathematical

Exactly same paper at this link

<http://www.gohired.in/2014/03/adobe-aptitude-c-language-written-test.html>

Easy only. Just time concern for those who are out of touch. My suggestion will be to do the LR in the end.

Java WhiteBox test: Subjective 45 min 20 questions

java-15

j2ee-5

- 1) What is package and how is it used.
- 2) When is thread's run method invoked.
- 3) What is synchronised method and synchronised statements
- 4) What is the difference in class hierarchies of Reader/Writer and InputStream and OutputStream
- 5) What is transient
- 6) Which is illegal

int i=0;

float f=45.0;

double d=49.0;

7)

```
StringBuffer sb1 = new StringBuffer("Amit");
StringBuffer sb2 = new StringBuffer("Amit");
String ss1 = "Amit";
System.out.println(sb1==sb2);
System.out.println(sb1.equals(sb2));
System.out.println(sb1.equals(ss1));
System.out.println("Poddar".substring(3));
```

- 8) What are wait(),notify(),notifyAll()
- 9) what is finally in try-catch-finally blocks
- 10) What is thin-client application
- 11) Difference between >> and >>>

O/P questions related to string.concat, equals methods. Error pointing codes with options

F2F Round 1:(1.2 hr)

- 1) Brief intro about work.
- 2) Why do you want to shift when Mobile (and ecommerce) are already the most happening things.
- 3) Test cases for mail attachment(word doc) not being opened scenario
- 4) WAP to convert a binary to decimal.(i wrote by taking the parameter as String, he asked me to do by taking as int)
- 5) WAP to print sum of first 'n' prime numbers
- 6)

```
String s = "Hello ";
s+= "Adobe ";
s.trim();
System.out.print(s);
```

- What is the output?
- 7) Explain a project you have been recently been part of and what are the test cases you have gone through.
 - 8) What is the testing framework you have used in Android.What is the approach you follow while testing any product.How do you test a method which does not return any value.
 - 9) What are the operating systems you have worked on.Do you know Unix.
 - 10) What are the main things that you need to look at while making a mobile application to that of a desktop application
 - 11) What is the toughest bug you have fixed.
 - 12) What is memory leak
 - 13) What is the difference between instance variable and local variable
 - 14) If i write java in command prompt from anywhere in system, will it work?If not, how to make it work.
 - 15) Why is the class name same as filename in Java.Is there any use.
Can a file have more than two classes.What will be the name of that file?
How many class files will be generated when we compile.
 - 16) Why is Java platform independent.
 - 17) Is JVM platform dependant?On what factors it depends?
 - 18) What are the best practices you have followed in your project.

He asked me if i have any questions.I asked more about the role and team. He explained in detail about the team and also about Adobe subscription model.We had a general discussion over this business decision.

F2F Round 2:(30 min)

- 1) Brief intro
- 2) WAP to find out factorial of a number
He asked for recursion as well.
Asked me to write the testcases and handle the overflow condition and border cases in the code.
Discussed which approach is better and when to use which.
- 3) Do you know Unix
- 4) Do you know any other mobile platform apart from Android. Do you know any application platform which enables building apps across channels
(desktop,android,ios,cloud...)
He asked me if i have heard about PhoneGap and later explained it. He asked me if i have any questions. I asked if they have a mobile team separately.He said yes and explained their work a bit.

F2F Round 3:(1 hr)

- 1) Brief intro
- 2) What is binary search.
- 3) Write a code for ternary search. Is it better than Binary? He asked me to generalize the search and asked me which is the optimum.

- 4) What is registry.
- 5) Do you know Unix
- 6) I have a hard disk of 100 gb. It has one and only file of 80 GB (database backup). What happens if i delete it and it goes to recycle bin.

Follow-up questions:

- Is the memory freed from the hard disk.
- What happens if i move it from one drive to another.
- What happens in case of permanent delete.
- What happens when we format the disk.

- 7) What is virtual memory.

- 8) Puzzle: 10 containers with 100 balls each but one container defective. Find out the defective container in minimum weighings.

He asked me for questions. I asked them if there will be option to shift to developer position. He said yes and explained about their open culture. Also explained how they interact and work closely with developers.

Director round:(40 min)

- 1) How was the day.
- 2) What is the most interesting question you have been posed today.
- 3) What is it that you have learnt today.
- 4) Give me a brief about your work.
- 5) Why do you want to shift from Development to Testing.

He said he will concentrate on only problem solving, aptitude and attitude-

1) Gmail wants to provide a new enhanced service which offers auto-backup , promotional mails filtered, extra space for mail box etc which costs 50 rs per month. They want to run a provisioning program which shows a popup to certain customers having options-

- 1) Yes and then redirected to payment and all
- 2) Remind me after 2 weeks.
- 3) No

- 4) Not happy with the service offered.

Asked me to test this model.

Later he asked me the factors which i will consider for choosing set of customers for this program.

- 2) Have you worked on Unix.

- 3) What is registry.

I have installed msword in my pc. Copied the C/program files/ folder into pen drive and pasted in another pc. Will it work? Why /Why not?

- 4) What is SaaS. Examples.

There is one fb user in India and another in US. When they communicate, do they connect to same server. If not then how does the communication happen? What is the data that is being transferred.

This round felt like a stress test and went very badly. Couldn't ask for any good questions when he offered. 😊

(My suggestion will be , answer only if you know and you are sure about it otherwise dont even try)

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275. Flipkart Interview | Set 12 (On-Campus)

I recently got selected in flipkart during an on campus placement drive. These were the questions faced by me.

ONLINE CODING ROUND(2 QUESTIONS)

1- Given two sets of elements we have to find whether the resulting set of LCM of the two sets would be equal or not.

Ex:- Let the set be $X = \{2,3,4\}$

Then the LCM set would be consisting of all the LCM of any subset of the given set.

In this case, $\text{LCM}(X)=\{2,3,4,6,12\}$

Constraints:

Number of elements in both sets do not exceed 50.

Range of elements i.e A_i and $B_i \leq 10^9$

I solved this question by first segregating the different elements in different set.

Let's suppose for set A, A' contains all the elements in A which satisfy $A' = A - \{A \cap B\}$

Similarly a B' for B.

Now for every element in A' , I checked the number of elements(n) that are its factors in B i.e numbers that may contribute to generating the number in A' in the final LCM(B).

If for any number in A' if $n < 2$ then the number can definitely not be in final lcm(b) set and function should return false.

Similar test was carried out for all elements in B' .

If the function didn't return false during these two loops then the answer should be true.

Although this logic doesn't cover all cases (like if two sets are $\{2,5,70\}$ and $\{2,5,10\}$ans is truebut correct ans is false), it passed as the test cases were weak.(I mean if such a tough question is in first round they gotta compensate somewhere else).

2- Given a network of roads connecting cities and capacity of each road(same for all roads) as well as their cost of repair(unique for each road) we are given number of buses(n) running between pair of cities using shortest path only. (Capacity of road= No of buses allowed on that road).

Unsafe roads are road where no of buses on the road > Capacity of the road.

Now given n we have to minimize the overall cost of all unsafe roads.

Pretty tough from what I recall I understood that we have to calculate the maximum

number of disjoint shortest paths so as to minimize the answer.(My solution only passed one test case).

Round 1(F-2-F)

I was asked variety of questions ranging from strings to dp to graphs.

1- Given a corrupted string i.e it's original string with just the spaces at wrong places, Construct the original string .We are given a dictionary of words.

Ex:-

```
string : Com put ereengineering  
original string: Computer Engineering
```

I gave the interviewer a recursive solution. The I was asked to code it. After that I was asked whether I could optimize the code further. I could not.

2- Given a lane where there are various houses each containing a fixed amount of gold. Now a robber has to rob the houses such that when he robs a house the adjacent one cannot be robbed.Calculate the maximum amount of gold collected by him.(Classic Dp question).

3- Given 1000 elephant ,none of whom exact heights are known, there are statements given which will be of two forms

```
3.i-E_i is taller than E_j  
OR  
3.ii-E_i is smaller than E_j
```

Calculate the ascending order of the elephants(in terms of height).

Seemed tough to me on the first look but after a few minutes I was able to do it.
(Construct a DAG using the statements and then topologically sort them to get the answer)

4- Topologically sort the DAG(excluding forest arrangement) given if the source is not known.

For Ex: if edges are 1->2,1->3,2->4,3->4 .

then normally we would run dfs from each pt and then choose the node as source which visits all the nodes.

This fairly is an $O(n^2)$ algo.

I was then asked whether an $O(n)$ algorithm is available.

I told the interviewer that if we run dfs from each node but instead of flushing clean the visited array each time we just keep the data then the dfs from the node after which whole visited array is marked i.e all the nodes are visited is the source.

when running dfs from a node if at any pt a visited node is encountered we leave the node and move to next child.Just by keeping a stack also during the dfsafter all the values int the visited array is marked we will have the final topological sorted order of the DAG in the stack.

5- Given a pond where all the stones are lined at a distance of one unit (C in each row and there are R such rows), each stone has a special value which denotes the length of the jump the frog can make i.e if frog is on stone (x,y) and value is k then frog can jump to (x+dx,y+dy) where $dx+dy=k$ and frog doesn't leave the bounds. Find the min number of jumps to reach the stone at (R,C).

Visualized it in form of a matrix. Did it using DP In case you are wondering, for a frog at cel (x,y) run two loops of dx and dy where net $dx+dy=k$ and do $dp[x+dx][y+dy]=\min(dp[x][y]+1, dp[x+dx][y+dy])$.

Answer would be in $dp[R][C]$.

Then I was asked to backtrack the path which was quite easy as for $dp[x][y]$ subtract 1 from it and look for the resulting value in cells (i,j) where $i \leq x$ and $j \leq y$. Repeat this process till (0,0) is reached.

This concluded my first round. One or two more questions were also asked but I cannot remember them correctly.

ROUND 2(F-2-F)

Technical + HR

1- Implement LRU and LFU page replacement policy using Data structures.

Had already encountered the question while preparing for Amazon.

I did it using Doubly Ended queue and a hashmap(Map or BST does not matter as both have same complexity for retrieval and insertion of data).

2- Given a normal die and a blank die. Fill in the blank die such that probability of sum of the number from both die is same for all the resulting sum and sum has a range from 1 to 12.

After a hit and trial I realized the number on blank die would be repeated to given a even probability distribution.

Min element required on blank die = 0

Max element required on blank die = 6.

mark 3 sides with 0 and three with 6 .

Due to the fact that the probability of occurrence of 0 and 6 on the blank die is same and equal to 0.5 ,

$P(\text{Each sum})=1/2*P(i)=1/12$ for each number.

Now taking 1/12 in the start then deriving the solution should have been easy but due to the tiring day and worse weather my mind took the backdoor method.

Some HR related questions to minor projects done in the college and questions related to my experience with flipkart as a customer.

ROUND 3(BONUS ROUND)

Four of us who got selected after the second round were called in for a GD round where they told us that they desired to take only two of us.

We were baffled by the claim.

They told us that they wanted a group discussion on the topic WHY SHOULD FLIPKART HIRE YOU??

We went on for 10 minutes trying to butter them with advantages of flipkart and God knows what.

Then we were given our results on a chit.

After opening the chit we realized that it was just a prank.

WTF!!Welcome to flipkart

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276. Interview Experience at Rockwell Collins

1. Difference between risc and cisc:

Risc more number of registers, what sir said is in risc for instructions like ldm and stm instructions cycles or loops are fixed like 12 or 13 but in cisc it depends, so therefore for industrial purpose risc is preferred when compared to cisc.

2. Which sorting technique is fast

Difference between merge sort and quick sort

3. What is ARM instruction set?

4. Pipeline concept explain using thumb and arm mode

5. IPC MECHANISMS

6. Semaphores and mutexes difference

7. Difference between process and threads

8. Program on preemptive scheduling with medium low and high priorities

9. Embedded C Program in microcontroller i wrote for avr atmega8, manage the speed of fan high or low depending on temperature and make fan switch ON or OFF during night 10 pm to morning 11 am.

10. When a semaphore becomes mutex (he said something at signal0).

11. Difference between assembler, compiler and linker with extensions

12. What are different debugging techniques like gdb and so on.....

13. Debugging effect on compilation

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277. Microsoft Interview | Set 30 (On-Campus)

Online Round:

15 MCQ's and 2 coding questions organized by CoCubes.

Coding questions –

1. Given a list of strings separated by space, return the position of the required string.

Return -1 if string not present.

ex:"at", "bat", "", "", "car", "", "", "dog" ... find "car" . o/p: 4

2. Given a list of numbers find the numbers occurring even no. of times.

Group Fly Round:

Rotate a 2-d Matrix clockwise by 90 degree (inplace)

Round 1:

What do you understand by polymorphism? What are constructors? When are copy

Constructors used? What are virtual Destructors? Why do you need them?

Detect whether a linked list has a loop. Find the length of the loop.

Print the values of the Full Nodes in a Binary tree. (A node is said to be full if it has both right and left children).

Round 2:

Tell me something about yourself.

What does the word 'System' mean in System.out.println in Java?

Given 2 sorted arrays, find the median element. (without extra space)

Search for an element in an array. (He just wanted n comparison i.e. I was using a for loop which has a comparison and another comparison within the for loop to find the element., he counted them as 2 comparisons. Hence 2n comparison.)

First Normal Form. If a schema has a date attribute is the schema in 1NF.

Round 3:

Tell me something about your project.

Find the index of the element which is greater than the given number(the number may or may not be present in the array). The array is sorted , contains duplicates .

Delete n elements after m elements in a linked list, continue till the end of the list.

Round 4:(HR round)

Why do you want to work for Microsoft?

He gave a list of functions that can be used in a file. Find the last n lines in the file using those functions only. (Have you heard this question before? Have your friends discussed it with you? If you were in place of your friends would you tell them about your questions?)

Given a 2-d Matrix sorted row wise and column wise . Find the k-th smallest element.
(Not the min heap method, he needed a more optimized method. He guided me through the question.)

Note: The panellist were quite experienced they will understand whether you know the question or not. So just own up. Test Cases are very important.

Microsoft has an amazing set of panellist. They are only interested in the basics. They won't ask very difficult questions, because they want to understand whether you can come up with a solution.

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278. Morgan Stanley Interview | Set 9 (On-Campus for Internship)

1st round– written test 30 objective questions along with 3 coding questions.

Time allotted 90 Min. It consists of 3 sections:

- 1.First section had logical and mathematical aptitude questions. A total of 10 questions.
- 2.This was language dependent section. You were allowed to choose any of C/C++/JAVA language and there were 30 questions in this section. The level of difficulty was moderate.
- 3.Third section consist of 3 coding questions which were as follows:

Q-1 Check whether the given strings are anagram of each other. Space has to be neglected.

Q-2 Three vertices of a triangle were given along with one more point.We have to check whether a given point lies inside a triangle or not.

Q-3 Given three strings A, B and C. Write a function that checks whether C is an interleaving of A and B. C is said to be interleaving of A and B, if it contains all characters of A and B and order of all characters in individual strings is preserved.

Questions were not so difficult but have to be attempted in 90 minutes.

Shortlisted 8/61 students for second round.

2nd round – Technical questions, Coding questions and HR round all together

Introduce yourself.

Share some nice experiences in college.

Technical Questions

1. Given an array with base address 4000 and the size of array is arr[20][20]. Determine

- the address of index arr[3][4].
2. Function prototype of printf.
 3. How malloc is used and where it is use. Also tell the return type of malloc and why you need to type cast the return type of malloc.Explain it with an example?
 4. If we will take a void*p and int*q and we write q=p. Then what will be the output in C and C++.
 5. In which conditions your copy constructor is called. Mention all the possible condition.
 6. What is the difference between early binding and late binding.
 7. Asked a question on the concept of object slicing.
 8. Asked a question on the concept of late binding.
 9. What is VPTR and V-Table. Where V-Table is actually present and whether it is different for each class or shared among all the classes. And where the VPTR resides ?
 - 10.The size of class will increase on using a virtual pointer. If yes, explain the reason behind it.
 11. Pure virtual function and its implementation with the help of example.

Now switched to some Coding Questions

Q-1 You have a linked list having data, next pointer and random pointer.The data may contain the repeating values. Now to store the whole information in any new data structure except linked list and return that structure so that the other user can make the same linked list with the help of data in new data structure used.

let suppose the linked list is

2 → 3 → -3 → 4 → 5 → -3

Now random pointer of 2 is pointing to first -3 and random pointer of 3 is pointing to second -3 and so on....

Q-2 Segregate R,G,B flag in O(n) and using one variable.

For eg:- R R G B R R B G G R

Output should be: R R R R R G G G B B

Q-3 With the help of which data structure you can implement a parking system for different category of wheeler(2 wheeler , 4 wheeler, 6 wheeler).

At last

Why you want to join Morgan Stanley ?

Total duration of the interview round was about 1 and a half hour..

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279. One Payu Interview Experience

Company : One payu india ,Gurgaon

Profile : Software Engineer

Round 1 : Coding Round

Consisted of 5 coding questions to be done in 1 hour .Most of them were based on algorithms but some were adhoc also . Everyone has a different set of questions jumbled from a pool of questions . Do 3 and you will definitely be through to the next round.

Around 30 were shortlisted for interviews .

The interviewers focused mainly on coding knowledge and skills .

Can't remember all of the questions.

In all three interviews I have to make codes for all problems.

Tech interview 1(50 min) :

1. Tell me about urself.
2. Given an array of ints of size n having no. from 1 to n+1 . find the missing no. Atleast two solutions expected .
3. P node problem in linked list .Its solution . I told him Floyd cycle .he asked why I moved fast pointer by two and not by four . told him we have to check multiple conditions to find whether there is a second/third /fourth node otherwise if we try to access a node that doesn't exists then it's a runtime error. He looked satisfied.
4. What is a stack ?
5. Find leader elements and ii) next greater element for all in an array.
5. Find whether a tree is a BST or not . Gave him 2 solutions :Inorder traversal and check if sorted with or w/o array , use recursion in top down manner. He was expecting another solution which uses property of bst . Told him the min , max solution .told me to code latter two .
6. Game question : 2 players play alternately . 1st always has to win.he can choose whether to play first or second.there is an array of coins(ints).at a time the player can choose only extreme ends.ex: 1 3 2 17 9 so player can choose only 1 or 9,if it chooses 9 then other can choose only 1 or 17.finally the player with max coins sum will win . what strategy will player 1 choose to win always.. Solved it with some help from interviewer . He extended the ques. Now the player 1 has to win with max sum (a good dp question).

The round went very good and the interviewer said he was impressed 😊 .

Tech Interview 2(1 hr):

- 1 . Given a text .there is a string in the text somewhere which is rotated version of original string .find and correct the rotated string in the text .ex: text – there was a company named entureacc in 1990s. string : accenture . gave the solution using 2 arrays . he told me to take advantage of space(' ') and code solution. So i used space as delimiter and coded solution using a 26 size char array.
- 2 . Reverse every word in a string . Code it . make sure ur code doesn't have any bugs and try to code faster.
- 3 . Discussion onQues asked in prev round.
4. Multiple and multilevel inheritance in java. Is there multiple inheritance in java and why ?
5. Design questions : i)Design a car , ii) Design an elevator system .
6. Camel banana Puzzle . Google it for problem statement .
7. Boundary and zigzag Traversal in a tree.

This round went perfectly and I was called for 3rd round immediately .

Tech interview 3(50 min):

Seemed like a police interrogation room with only 2 chairs and a table.The interviewer told me that I have to write complete codes for all probs in this round. I stayed confident...from outside ..

- 1) Rotate a square matrix by 90 degrees using O(1) space .The question was new to me and after struggling for about 10-15 minutes while the interviewer was busy with his laptop, I solved it and wrote complete code for it.
- 2)Given a binary tree ,I was given two pointers p1 and p2 to two nodes in the tree I have to swap the subtree rooted with these nodes . he asked me the base cases for this prob. I told him none of p1 and p2 should be ancestor of other .p1 and p2 should be in tree and they should not be null . Another constraint was that I can traverse the tree only once. I told him that I will find lca of both nodes and keep track of all ancestors of both using array and then use this array to perform swap. told me to code it.

HR round (Telephonic):

Just a formality. Asked everything about myself. How the prev rounds were. What I know about payu. Relocating, CTC, workin days etc.

Recommended Reading: geeksforgeeks.org/data-structures, headfirst for java, os video lectures by pk biswas.

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280. Directi Interview | Set 5 (On-Campus)

There was 1 online coding round, followed by interviews. Online coding round was on Codechef.

Online round:

There were 2 questions.

Question 1: A string can contain only a, b or c. There cannot be 2 consecutive same character. First and last character cannot be same. Now given a string with 'a', 'b', 'c' or '?'. We need to find the string replacing '?' that satisfy the above conditions. For multiple answer display lexicographically smallest string. For no answer possible display "Not Possible".

Round 2 (Telephonic):

Question 1. We need to make a string of size n. Each character of the string is either 'R', 'B' or 'G'. In the final string there needs to be at least r number of 'R', at least b number of 'B' and at least g number of 'G' (such that $r + g + b \leq n$). We need to find number of such strings possible.

For example,

$n = 4, r = 1, b = 1, g = 1$.

Output:

36

Reason:

Since No. of 'R' ≥ 1 , No. of 'G' ≥ 1 , No. of 'B' ≥ 1 and (No. of 'R') + (No. of 'B') + (No. of 'G') = n

then following cases are possible:

1. RBGR and its 12 permutation
2. RBGB and its 12 permutation
3. RBGG and its 12 permutation

hence answer is 36.

Question 2. There is a rectangle with left bottom as (0, 0) and right up as (x, y). There are n circles such that their centers are inside the rectangle. Radius of each circle is r. Now we need to find out if it is possible that we can move from (0, 0) to (x, y) without touching the circle. We can move freely anywhere.

Round 3(Face to Face):

Question 1. There is a binary tree. We are given 3 nodes a, b and c. We need to find a node in the tree such that we remove all edge from that node we get a, b and c in three different trees.

Question 2. Given an array and an integer T. We need to find a subarray from i, i + 1, i + 2.....j such that $||a[i] + a[i + 1] + \dots + a[j]| - T|$ is minimum.

I was rejected in this round. But latter got placed in flipkart.

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281. Amazon Interview | Set 114 (On-Campus for Internship)

Recently Amazon India visited our campus for 2 months internship. There were three rounds

2 online coding questions + 20 MCQ

The MCQ questions were mainly 6-7 questions on data structures, 7-8 C language output programs, 4-5 questions on general aptitude, Probability, Permutation and Combinations.

The two questions were:

- Given a set of intervals, you have to group the overlapping intervals and display all the intervals in non decreasing order.

Eg: (1,5),(8,11),(3,6),(10,20)

output: (1,6),(8,20)

Tip: Although this is a very easy question and can be found on many online portals, just remember that the given input is in the form of a string and it needs to be parsed carefully.

For this, instead of converting the string into integers, you could use something like

```
while (scanf ("%d,%d", &a, &b))  
{  
//store a and b as you wish to  
}
```

- Given a set of integers, negative as well as non negative, You need to rearrange them such that negative and non negative integers at alternate positions.

Constraints: order of all the negative and nonnegative integers must be the same as

before if there are more negative integers, the integers in excess should occur at the end of the array and same goes for the non negative integers in case they are more in number.

```
eg: -5,-2,5,2,4,7,1,8,0,-8  
output: -5,5,-2,2,-8,4,7,1,8,0
```

Again, for the input, you can use the above mentioned technique.

About 20 out of 150 students were selected after this round for Personal Interviews.

Following are the interview experiences of two of us.

Person1:

ROUND 1:

- Given a binary tree having 3 pointers, left, right and sibling out of which all the left and the right child pointers are already filled, you need to fill the sibling pointers with the addresses of the next node on the same level. If it is the last node of a level, fill NULL.

I first told him an approach using a level order traversal with a queue. Then he asked me to do it without a queue using recursion. I told him the approach and when he was satisfied, he asked me to write a code on paper with all the corner cases covered.

- Given an array of size $2n+1$ where n integers repeat two times and one integer occurred only once, Find that integer. I told him by using XOR. then he changed the question to

Given an array of size $2n+2$ where n integers repeat 2 times and 2 integers come only once. Find both of them. This can also be done using XOR. You can find the solution in the arrays section of Geeks for Geeks

- Given any binary tree in which all the leaves had their left and right pointers connected in a doubly linked list from left to right instead of pointing to NULL. Also, the leftmost leaf's left pointer pointed to that node itself and the rightmost leaf's right pointer pointed to that leaf itself and if there was an internal node with no left or right child, that particular pointer will point to that node itself.

You need to find the Inorder Traversal of the tree.

Once I told him the approach, he again asked me to write a code on paper.

- He asked me about the data structures I knew and then started asking questions on Graphs. How we represent them?

which is better Adjacency matrix or List?

Then he gave some situations and asked me which of the two implementations should be used.

ROUND 2:

- He asked me in detail about my projects for about 15 minutes.

2. Then he asked me about the subjects I had studied in 3rd and 4th semesters. I forgot what all subjects I had studied 😊😊
The first subject that came out of my mouth after a lot of thinking was Unix Linux Programming. Then he asked me to write all the commands I knew in 5 minutes. I listed almost 20. He asked me the functions of a few of them and differences between some of them.

3. Finally he asked me a question on binary trees which was pretty simple.
Replace the data of every node of a Binary Search Tree with the sum of all the nodes greater than it.

I gave him the approach using reverse inorder traversal. He then asked me to write a code on paper. I had used pointers in the code. He then asked me to write a code that did not use pointers, static variables or global variables.
I wrote that. Finally he appeared satisfied.

Person 2

ROUND 1:

1. Given a singly linked list and an integer k, I had to write code to reverse the list in pairs of k handling all base cases as well.

eg. 1->2->3->4->5->6->7->8 k=3

o/p 3->2->1->6->5->4->8->7

She actually tried my code on a number of base cases trying to find bugs 😊

2. Given 2 arrays one of size n and another of size (n+k) but having k values filled, I was asked to merge the two into the second array without using any extra space. I quickly gave her the logic and we moved on to the next question.

3. Given a string of characters, find the index of the first repeating character in the string.
eg. abcba

o/p: 0 (as 'a' came initially before 'b' did, though both are repeated twice).

Again error free code was required.

4. She then asked me questions on the research project I was currently working on. This went on for another 10-15 minutes.

ROUND 2:

1. This round started with questions on my research project. Then he asked me which data structures I liked. We had a long discussion on heaps and the associated time complexities.

2. Given a binary tree, any node in the tree and an integer k, print all the nodes at a distance k away from the given node.

Mind you, the node may be above or below. We first discussed on an approach and after he was satisfied with my explanation, he asked for error-free code.

3. Given an integer n, how many BST's can you make with n no of nodes?

I told him about catalan number and the direct formula – $2^n - n$. But he wanted a

derivation, so I built-up a recurrence and showed him the DP to evaluate it.

4. Given n people, you are told all pairs of people who belong to the same country. You are to tell the number of pairs of people who do not belong to the same country, I expressed it as a graph and applied dfs to get number of connected components and size of each. Then it was a simple formula over no of components.

After this he started discussing the life at Amazon, what the company expects from you and what you should expect to do at the company.

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282. Microsoft Interview | Set 31 (On-Campus)

Recently Microsoft came to visit our campus for offering SDE positions. Here is my interview experience.

Online Rounds: These were organized by CoCubes.

Round 1 – There were 15 simple MCQ's. Most of them are from [GeeksQuiz](#). Most of the students cleared this round.

Round 2 – There were 2 coding questions

1. Given a sorted list of strings that may contain NULL in random indices , return the position of a given search string. Return -1 if string not present.

ex:"at", "bat", "", "", "car", "", "", "dog" ... find "car" . o/p: 4

I initially tried a modified binary search, but something went wrong, So did a simple linear search. My bad 😊

2. Given an array of integers where all the elements occur odd number of times except 3 elements which occur even number of times, find the 3 elements.

They shortlisted 39 students for a Group Fly Round.

Group Fly Round: Students were divided into groups of 3 or 4 and were assigned a mentor. Everyone was asked the same question and was expected to write a clear and neat C/C++ code with comments wherever possible.

The question was that an 1-D array contained N*N elements. Assuming that the N*N elements form a matrix, you have to rotate the matrix in-place.

A group of 16 students were selected from this round for Personal Interviews.

F2F : Round 1 – 30 mins tops

What is your favourite subject ?

- OOP

What are the basic aspect of OOP ?

- Polymorphism, Encapsulation, blah blah

Explain Polymorphism to a layman

- More blah blah

How and when is it implemented ?

- Run time and Compile time, via Overloading and Over-riding

He asked me to write sample code for each, which i did.

Given a linked list which has got a loop, how do u detect the loop. ?

- Floyd's cycle detection algorithm

He asked me to code it. He was happy; I had put checks for all corner cases.

Count the number of full nodes in a binary tree. Full nodes are those which have both non-null left and right children.

- I gave a pretty easy recursive solution. He asked me to do it iteratively using a different traversal. So i did a level order traversal.

He asked me to give all kinds of corner cases. He was happy.

Have you implemented thread library ??

- Yes in Java and C++

Difference between thread and a process ??

- Blah Blah.

F2F : Round 2 – 45 mins

The interviewer was very serious and directly went into coding questions

Given an array containing elements where all elements have even occurrences except two elements, find those elements.

- I gave him the xor approach where you have to find the rightmost set bit and then divide into two groups. He was waiting for that and went directly to bit representation, i.e. Little Endian and Small Endian.

Followup : Check if the given machine architecture is Little or Small Endian.

Given two Strings, find the minimum length window in the first string containing all the elements of the second string.

- Did it pretty quickly. He kept tweaking the questions and asked me to make necessary changes in the code. Finally he asked me to give some good test cases.

F2F : Round 3 – 45 mins

This was my final round with the AA Manager.

He first asked me about my dismal CGPA :3

Then we discussed a little about my projects.

He asked me about semaphores and we had a little discussion about the types of semaphores. Then he asked me to write the Signal() and Wait() functions. Finally he asked me to implement mutual exclusion in critical section. I gave the Peterson's algorithm. He moved on

Given an array of elements arrange the elements such that the odd elements are in the odd position and even elements are in the even position.

– I gave him a two pass approach where i segregate first and then separate accordingly. But he asked the one pass solution. This was when my luck ran out. I know its pretty easy, but messed it up. And the guy was also adamant because even after 15 minutes of trial and error, he asked me to go on.

Though I didn't get the job, it was a wonderful experience to be interviewed by such experienced people from the industry.

A few points that i thought would be worth mentioning –

- * Think out load, let the interviewer know that you have actual depth in the matter
- * Always ask questions about a problem if you are not sure
- * Always think about the corner cases and uncommon test cases before you start writing your code

Also, a big thanks to the entire GFG team for their constant efforts 😊 Keep Coding, Keep Rocking.

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283. Microsoft Interview | Set 32 (On-Campus for Internship)

Recently Microsoft conducted an on-campus interview at my college. It consisted of 5 rounds which were all on-campus. They were as follows:

Round 1(online)(30 minutes):

Consisted of 15 mcqs mostly related to c/c++ and probability. It was fairly easy and very few people were eliminated.

Round 2(online)(1 hour):

We had to write two programs in this round.

1.A sorted list of strings interspersed with NULL in random indices is given. Return the position of a given search string. Return -1 if string not present.

ex:"a", "b", "", "", "c", "".... find "b" . o/p: 2

Just a simple linear search will suffice.

- Given an array of integers where all the elements occur odd number of times except 3 elements which occur even number of times, find the 3 elements.

A brute force solution is fine. You may also use a hashmap.

The above two rounds were hosted by cocubes.com.

Round 3(Group fly round)(30 minutes) :

Groups of 5 were made amongst the remaining candidates. Each group was assigned an interviewer and we were given a problem to solve.

Write a program to rotate a square matrix 90 degrees clockwise using constant space.

Round 4(F2F)(90 minutes):

The interviewer asked a lot of questions about my projects. Spent about 30 minutes on questions related to NLP and machine learning. Asked me about SVMs, neural nets, back propagation etc.

Then he moved on to programming questions. I was asked to program a regular expression(regex) matcher. Given a pattern string and an input string return true if the two match. The regex special characters like * and ? had to be taken into consideration. Basically if there is a '?' in the pattern string any character in the input string can take its place. Same goes for '*' but in this case any number of characters can replace it in the input string.

```
Example: a*b matches acdb  
         a?b matches acb  
         a*b does not match bca  
         a?b does not match acdb
```

The rest of the interview involved making modifications to this program. For example, modify the program so that it returns true on a partial match, i.e. even if the pattern is present inside the input string.

Round 5(F2F):

This round started with questions like why do you want to work for microsoft? Tell something about yourself etc.

Then came the final round of technical questions.

I was asked to write 2 programs and answer some theoretical questions.

- Given a MxN matrix of 0s and 1s convert all rows and columns to 0 which have at least one 0 in them. You can use O(m) space.
- Given a matrix of characters and an input string, return true if the string is present in the matrix.

```
input string = ABCDE  
Matrix = A T G
```

B	E	H
C	D	V

Output: string is present.

Some final questions:

1. Some questions about b trees. Don't remember the exact questions.
2. Describe an algorithm to balance a binary search tree.
3. Describe another algorithm for the same.

This was the final round.

I would like to thank the geeksforgeeks team for providing us with such a fantastic platform.

Hope this helps at least some of you.

Thank you.

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284. Amazon Interview | Set 115 (On-Campus)

Hai, recently amazon visited our campus for recruitment. Here is my amazon experience.

1000 people attend round 1

Round 1: (1.30 hrs)

20 MCQ's + 2 coding question

19 MCQ's were from os,c++,java and single mcq from probability

Coding questions:

1. Find maximum sum in a array,such that no two elements are adjacent.

For example 3,2,7,10 should return 13, sum of 3 and 10. Handle for negative cases too.

2. Given a binary search tree,print the sum of all nodes that are in same axis

(Modification of vertical order traversal)

I attended 12 mcq's. There was negative marking,so i attended the questions which i was very confident and did both programs.

I was confident that i will clear the round 1.

Round 2: (Group Fly Activity) (1 hr)

Around 36 people were shortlisted for second round.

We were divided into many groups and each group was allotted a mentor.

Two questions were given and we have to discuss the approach with mentor and only after getting his approval we have to code.

1. Given a monotonically increasing and then decreasing array with duplicates and a key, return true if key exists in array.

2. Given k sorted arrays of different or equal sizes, merge them into a single sorted array.

Thanks to mentor, he was very cool and helpful, I did both the codes and handled corner cases too.

Round 3: (30-45 min)

18 people were shortlisted for third round and i was one among them.

First the interviewer asked to tell about myself.

Then he asked why i had low cgpa when compared with my school marks.

Then came the first question

1) Given n ropes of different length, combine them into a single rope, such that total cost is minimum. You can tie two ropes at a time, and cost of tying is sum of length of ropes.

First i gave a solution similar to insertion sort in a linked list, he was not satisfied, and then I gave a min heap approach. He asked for time complexity. I got wrong, so he asked what steps u will do and time complexity for each step. He added all the step cost and asked me to arrive at final time complexity.

After this, I got correct.

Then he asked about 2nd code in group fly activity. I used merge sort for it and he asked why i had used merge sort, and asked to improve the code.

Then i gave a min heap solution (:P we discussed after group round). He asked me to code it. I was not good at heaps. I tried my best but unable to arrive at working code. So finally he asked if i had any questions for him. I asked about amazon's environment. After this i thanked and left.

I was sure that i will be eliminated and i was eliminated.

Only 10 people went to 4th round and 3 people were hired finally.

Here are some mistakes done by me

It was first f2f for me and i was very nervous and had butterflies in stomach, which ultimately decreased my performance.

I was not confident about the answer i gave.

My communication skills were very poor.

So try to avoid the mistakes done by me.

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285. Amazon Interview | Set 116 (On-Campus)

Round 1:-

20 MCQ's(Majority from OS and Java, C++, 1 aptitude)

2 coding questions.

- Given an array, find the maximum sum that can be formed from the array such that no two adjacent elements are taken into consideration..

for ex:- 1,2,3,5 should return 7.

- Print Vertical axis sum of the given binary tree.

Round 2:-

Group Coding Round

36 people made it to the next round. 2 questions were asked

- Given an array which initially increases and then decreases, search for an element in the array.
- Merge 'k' sorted arrays.

Round 3:-

Technical interview

18 people were selected for the next round and they asked me 2 questions

- Given an infinitely growing sorted array which initially consists of 0's and then 1's upto infinity. Find the transition point where 0 changes to 1 effectively.
- Given a binary search tree, make 2 separate trees such that difference between the sum of elements between them is minimum.(After some time he gave me a hint which helped me solve the problem).

Round 4:-

Technical Interview

- Some basic OS related questions

- Implement a data structure which would perform insertion, deletion, search and randomize operation with minimum time complexity.

We discussed a lot of data structures and I settled with a data structure (Hashtable with DLL). But he gave me clues and improvised my solution.

- Implement a Queue using 2 stacks. Optimise your implementation

(They didn't ask me to code in this round. They just checked how efficiently I approached it)

Round 5:-

Technical interview

I think this is the bar raiser round. We are aware of the game show in which a contestant will think of a famous personality and the host will try to find the personality within a finite set of questions. I was asked to design a system which would implement the same. He asked me to write a code to return the first question (like the deciding factor on which the

elements will be further partitioned) so that I can find the celebrity in minimum no. of questions.

I think they were checking your approach, ideas and patience in this round. Whatever solution I gave he never seemed to be satisfied. Be confident in your approach and don't ever give up.

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286. Amazon Interview | Set 117 (On-Campus for Internship)

Recently Amazon India visited our campus for 2 months internship. There were four rounds.

2 online coding questions + 20 MCQ :

MCQs had 15 questions(not exactly) on OS (to my surprise) , one aptitude(probability) and rest on c/c++

2nd Round (Group Interview / Written round) :

21 were selected for the second round. We had 2 questions.

1. Given two strings, find whether they are anagrams of each other. (too easy).

Its here.. <http://www.geeksforgeeks.org/check-whether-two-strings-are-anagram-of-each-other/>

2. Given a n-ary tree, Convert it into an array and return it. Construct the same n-ary tree from that array again. (DFS is better here as reconstruction is necessary) –

Push the root to a stack. “pop the stack.store the value of the root node and the number of children it has in the array.push all the children to a stack from right to left”.. do this until the stack becomes empty.. the array will have dfs along with the number of children of each node.

For reconstruction,pass “i” by reference(i is for iterating through the array) take the value at index 0 .. make it has root. increment i. for all the children of the root, recursively call the same function. return root. (I hope this works :P)

3rd round (Face to Face):

Only 5 were selected.I was asked only one question and i didnt do well. Find the square root of a number. i answered that this can be done using Babylonian method.

(<http://www.geeksforgeeks.org/square-root-of-a-perfect-square/>) or binary search method.. He asked me to implement Binary Search method. I did a mistake. then he

asked me to correct it.. i corrected it. I wasn't able to impress him much.

Remember the floating point arithmetic limitations.. this is where i failed.

4th round (Face to Face):

I was called for 4th round. (Only i had 4th round because of my bad performance in the 3rd round). The interviewer asked a lot of questions. They were easy

- 1.Given an array of 0s and 1s sorted. Find the first occurrence of 1 (Binary Search)
- 2.Given an infinite array of 0s and 1s.(sorted) .Find the first occurence of 1(similar to this.. <http://www.geeksforgeeks.org/find-the-point-where-a-function-becomes-negative/>)
3. Given a matrix sorted in ascending order both row and column wise. Search an element(<http://www.geeksforgeeks.org/search-in-row-wise-and-column-wise-sorted-matrix/>). This is O(n+m). He asked me a better solution.. I tried and he helped me a lot..Though i wasn't able to deliver.
4. Given a tree, print the max sum path from root to leaf ..
(<http://www.geeksforgeeks.org/find-the-maximum-sum-path-in-a-binary-tree/>)
- 5.Given a tree,print spirally the column order of a tree.

```
ex :           1
          /       \
         2           3
        /   \       /   \
       4     5     6     7
o/p : 4 2 6 5 1 3 7
```

6. Implement a stack using array. Implement two stacks using an array. Implement 3 stacks.

7. You are given an array . You have to create a stack when the user wants to do so and delete a stack when the user says.You wont be given the number of stacks that will be created.

I thank geeksforgeeks for providing an excellent platform to learn new things. Check the interview corner for other company interviews.

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Round 1: Online Written test(AMCAT).

Sections:

1.1 English.

English was pretty simple. The only hiccups were in the questions asking for the opposite words and meaning of some unusual words like 'TYPIFY'.

1.2 Aptitude

1.3 Logical Reasoning.

Both Aptitude and Logical reasoning were from most commonly asked questions like time and work and family relation questions.

1.4 Computer Programming.

1.5 Computer Science.

Computer programming were from basic C and C++.

Computer Science were asked mainly from OS and CN.

Round 2: Technical Interview.

The TI lasted for about 1.5 hours. The interviewer was quite experienced and was pleasant to talk with. He started off with questions on my project that i had done and had a pretty long discussion for about 15mins, asking me to make changes to my project and optimize it.

After that he asked a few basic q's on C and asked a question on SLL to insert a node at the end(simple enough) and asked me what would happen if malloc() function fails and asked me to make some other changes to the program.

Then he moved onto asking me about Microprocessors which was a weak spot for me. asked about what would be the technical requirements for me to be able to implement a simple microprocessor. Then he asked some qs on EC like Op-Amps.

He went onto OOPS and asked a few questions like overloading,over-riding,virtual functions,inheritance and encapsulation.

Some other questions were pretty logical ones like how would i compare the efficiency of two super computers.

Then there was a long discussion on Computer Networks starting from the basic question of the different layers of OSI model. He then gave me a few practical scenarios where i had to give in my thoughts to implement the solution to some problems based on networks.

Finally he asked me a puzzle to which i believe there was no definite answer. Say your house is at Position X and You're currently at position Y which is 3 kms away from your home and you have a car and a cycle for you to take home. You have to take both of them anyhow as the place is not a safe place.

constraints: 1. you cannot pull the cycle tied to the car

2. You cannot carry the cycle inside the car or anywhere on the car.
3. You're ALL ALONE . Neither you have any mode of communication with others.

Round 3 : HR interview.

The HR interview was pretty short and just asked questions like 'Tell me something about yourself not in the CV' and 'Why aricent?' and a few questions on my hobbies. And she asked if i had any questions for her. I asked her 2 questions . And then that was it.

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288. Goldman Sachs Interview | Set 3

Goldman Sachs visited our campus for both Full Time and Interns. I am going to share the experience for Full Time.

1st Round:

15 questions : Quant

25 technical Questions (C,C++,DBMS,networking,OS)

45 minutes for both..there was sectional cut-Off

Coding round (two questions)

1. Check if duplicates exist in an array of N which has range 1 to N.

2. Find a pair of elements in an array that sum up to a given Value K .

We were supposed to do coding questions in 30 mins, there was no compiler.

Finally a stupid "Essay" –"Why I am a good fit for Goldman Sachs?" (10 minutes)

Total 7 people got shortlisted from 1st round

2nd Round: Group Task

They gave us a hypothetical situation, that a ship is sinking, it has only one life boat and its capacity is only 8 and there are 12 members on the ship and each member has different profession and has a tool or an instrument that can be used for their survival. We need to discuss and select 8 people out of 12. (Basically you have to fight for your choices and convince others).

4 got short listed after this round

3rd Round: Duration (2hrs), Technical

1. How JVM works? (He asked internals)

2. What do you do in your free time?
3. Pattern matching question.. He was not satisfied with KMP algorithm..then I told him Trie..he asked me to implement Trie...(code)
4. How would you search a file in Linux I told him grep and sedcommads...he was ok with it.
5. When a message arrives at network interface card what exactly happens after that, and what is Operating system's role in it?
6. He asked me some questions in Perl..he wasn't that good with perl language ...he was nodding his head with whatever I was telling him.
7. Minimum window problem of strings. (we have to search all characters of a string that occur in another string with minimum window)
8. Some simple questions on Python. (I mentioned it when he asked me what are the languages you have learnt)
9. Which one is more efficient a Join operation or a nested query.
10. Given a set to 3 tables transform these upto 4th Normal form....even I don't know how I managed to do it. (m not that good with data-bases)

4th Round: (Duration 1hr 45mins), Technical

For this round previous guy sent a guy who know perl..this round was majorly on Perl and UNIX commands.

1. Tell me about yourself.
2. Given a file with business Date and contents. Extract the date(Validate it) and count all the other records in the file. (he was focusing on some basic pattern matching skills in Perl).
3. Check if a given IP address is valid or not.(Do it in perl using regular Expressions).
4. Check if a BT is BST or not.
5. There are 12 rats, 11 of them are trained to eat at fast rate except one. With minimum number of bread loafs I need identify the slow rat.
6. The classic puzzle to find where is the 1 rupee when 3 friends visit a restaurant and pay 10 Rs each
7. Write a perl and awk script to get the permissions of a file or a directory. (this was the easiest)
8. Given a BST but two nodes have been swapped, I was supposed to identify the nodes...then he asked me to rectify it as well. (code)
9. Some operating system questions, virtual memory, why we use virtual memory, File system related questions.
10. Project related questions.
11. He asked me do I know about Object Oriented python.(I said yes)..he didn't ask any question about it.
12. Use linux commands to find 10 most frequently occurring word in a file.
(sort -filename | unique -nc | head -10 | awk {print \$2})

(I think I nailed this round)

=

5th Round: (45 mins), Technical:

1. How will you detect a cycle in a graph?
2. Why Goldman Sachs?
3. Given two stacks implement a Queue. (code was required).
4. Give me "Mathematical Model" for Bubble sort... I was confused what is mathematical model..i asked him does he want the finite automata or workflow sort of answer...he said no, I want a single equation like $(a+b)^2=a^2+b^2+2ab$ this formula works for all values of a and b..he wanted me to come up with one line formula...I gave him one..he was satisfied
5. Now he asked to give mathematical formula for above stack Queue question(ques # 3 above)...I couldn't come up with a sigle line equation.

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289. Hike Interview Experience

First Round Written Test

3 sections in all. To be done in 90 minutes

Section A: – 10 aptitude questions (you can find almost every question on indiabix).

Section B: – 13 questions based on C skills.

Section C: – 2 programming questions which were easy.

1) Reverse every K nodes in a singly linked list.

2) Find out the next greater element having same digits.

```
1432 -> 2134
```

```
5432 -> no greater number
```

First Technical Interview

The interviewer was quite cool and composed.

1 He started with simple question and asked me to write the code of Quick sort but before I could start he said leave it and tell me how you will find out 3rd smallest element from an array.

2. Based on first Question, rather than an array you have a large file containing billions of number and from it you have to print Kth minimum element.

3. A file containing billion of numbers in unsorted manner is given to you. At run time you will be given two integers 'm' and 'n'. Now print all the numbers from file which lies in this range. He said u can use extra space, no problem with memory but time complexity

should be minimum.

4. This question was new to me. He told me let's play a game. I said okay sir :). In this game we will be given even number of cards. Each card will be having some digit written over it. Now both player will play optimally and can only choose card from either corner. He asked me to devise a strategy which would help me winning the game always.

Later he asked me to prove my strategy for the general case 😊

Second Technical Interview

Interviewer asked me about chess, rules of chess and all

1. He started with Knight Tour problem in which I have to print the path. Conditions were I have to cover all the blocks in chess. I can use only 63 moves and solution must be other than backtracking.(most optimal solution). He wanted me to tell him the strategy required to prune the recursion tree.

2. Given a file which contains large number of strings.

e.g.:**my name is XYZ. My emansi XYZ**

i.e. it has words and reverse of words. There can be the case where no reverse word is present

He told me to print all those pair whose reverse is also present in the file.

For above example output will be:

{name,eman}, {is, si}

Constraints were Minimum space should be used and time complexity should be minimum

further he added don't compute reverse of string at all.

(He was interested in function which I will use to calculate the hash value of string).

3. He asked me what my weak point in coding is. I said finding out the corner test cases. At this he caught me and said let see how you will face your fear and give me a code and asked me to generate all the test cases for the program.

Later he asked me to write code for printing a helix (spiral matrix)
and write all corner test cases for it.

I wrote solution for NxN but he asked me to write for NxM and do dry run for several test cases.

That is how second round went ?

Third Technical Interview

The interviewer was a bit strict.

In this round only single Question was asked but it took almost 1 hour.

He asked do you know spell checker in micro soft word. I said yes.

He said, you have newspapers of last 20 years. Use these newspapers and suggest most probable words.

He gave me example

Input: fon

for this input print

Output: foe, for, fork, fond

Question seemed easy but when I started he kept adding constraints on data structures used and complexity.

I used lexicographical dictionary for this but later he added two more example he asked me to suggest 'con' and 'ion' as most probable word for fon.

Later he added another example

Browser

Bsowerr

He said suggest browser for 'Bsowerr'.

He kept adding examples and constraints.

My solution started from lexicographical dictionary moved to Trie Tree then to Edit Distance problem then Hashing

He said why I gave you newspapers rather than Dictionary. From this I got smell of Machine learning

He wanted me to suggest on the basis of currently most frequently used words.

And the Question got more complex

and it ended on SUFFIX TREE.

HR round

It was telephonic round taken by the CEO of the company and asked me all HR related Questions

It was a good experience.

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290. Goldman Sachs Interview | Set 4 (On-Campus for Internship)

Goldman Sachs visited our campus for both full placement(NAPA) and internship. I am going to share my experience for internship.

ROUND 1:

There were in total 41 questions and time was 1 hour. 15 from aptitude and 25 from technical.

aptitude – included data interpretation, basic maths, probability, etc.(tough).

technical – included c and c++ output question, os(schudeling, semaphore),

dbms(normal form, etc).

1 essay which topic was “why are you best among all of them?”.

I would suggest to start with technical and then aptitude and at last essay. it will save your time and you can do better.

ROUND 2:

There was G.D in round 2. They divided us in two groups one of 11 people and other of 10 people.

I was in 1st group and my topic was “has technology taken over us or we have taken over technology”.

It was of 15-20 minutes. They will give you 2-3 minutes to think.

You just have to say your points and be active , listen to others carefully. Don't be arrogant and don't be aggressive.

15 people got selected for interviews.

ROUND 3:

It was a technical interview round.

They asked me out my research paper, like what's new in this and how did u get all this. I explained them very well.

Then they ask me one puzzle:-

You have a rod of length 7 and you have to give a part of rod of length of one everyday to a person. so what is the minimum number of cuts you will do , so that you can give him required number of lengths everyday?

Then they asked me some questions related to linux and data structure (graph, etc).

6 people got selected in this round.

By the time my interview completed it was already very late at night.

So they called us next morning.

ROUND 4:

This round was mixed bag of both of HR and Technical questions.

They asked me what is my favorite topic , i told them Data structure and algorithms.

Then they asked me a tree question:

you have been given a tree(not binary tree), and the last level of the tree is doubly linked list(i.e. first node of that level connected to last node and adjacent to it and similarly for all nodes of that level.). You have to do Dfs.

They also asked questions related to suffix array and tries(which data structure would you use to implement dictionary).

Then they asked some prefix, postfix questions which were followed by puzzles and questions related to data structures.

HR question they asked were “why you have join this college and you really wanted to join this or some other college”, “what is your interest and tell me something about yourself”.

Tips:-

- . Learn basic of c and c++ very well
- . Your communication skill should be good.
- . Should know all standard algorithms and data structure(including advanced ds also like suffix array, trie, heap etc).

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291. Inmobi On Campus Interview Experience

Inmobi recently visited my campus and i got hired. I would like to share my experience.

Round 1: 25 MCQ and 2 coding questions.

It was hosted on Hackerrank. MCQ's are all technical questions and also have negative marking (+1,-0.25). We had 20 minutes to do the 25 MCQ's

The coding questions were:

1. Given an array of integers and a number, count the total number of subsets of the array with sum equal to the number. (15 minutes)
2. Given an array of integers, you need to check if its an arithmetic progression, geometric progression or fibonacci series. You then need to return the next number in the series or -999 if the given numbers does not follow any of the above series. The fibonacci series need not start with 0. A valid fibonacci series could be 8,9,17 (25 minutes)

11 of us were then selected for personal interviews.

Round 2:

The interviewer started with a discussion about my CV. She asked me about my good and bad experiences with coding. The questions she asked were relatively easy.

1. Given a linked list of integers, remove all duplicates.
2. She asked me to design a database. 1 table for employees, another for department. Initially 1 employee could be in just 1 department but each department has multiple employees. Then she changed it such that each employee could be in many departments and each department can have multiple employees. Then she asked me to write a simple query to list all the employees that belonged to a specific department.
3. Implement a queue using stack

Round 3:

The interviewer again started with a detailed discussion of my CV.

1. He asked me to write a simple program which explains all the concepts of

multithreading and explain it to him considering him a layman.

2. He then asked me to design a class which has two random numbers and a mathematical operation in between them. If the user answers correctly, then a new question comes, otherwise the user tries the answering the same thing again. There is also a timer and a score to keep track of. The timer starts as soon as the user hits the start button button.

After i designed everything, he gave me 10 minutes to find bugs in my own code.

Round 4:

The fourth round was a bit tiring as I had only 5 mins between round 3 and round 4. The interviewer scanned through my CV but didn't ask me anything about it.

1. Given two strings, you need to transform one into the other. You can only transform 1 character at a time. The string formed after each character change should be a recognised word in the English language. If it's not, that change is not allowed and you need to go back. A function to check if a word is present in the English language was provided to me.
2. Given a matrix of $n \times n$, print all the paths from 0,0 to n,n. You can either increase the x-coordinate one at a time or the y co-ordinate. Decreasing co-ordinates or going diagonally is not allowed.

Round 5.

This was an HR interview. He asked me various questions trying to make it awkward. The key here is to stay calm and confident.

Tips: Be frank, be honest with your interviewer. If you are not comfortable in 1 topic, tell your interviewer honestly. Do well in other areas. Look for hints from the interviewer if you get stuck. They want to see how you approach a problem.

I would like to thank Geeksforgeeks to help me prepare and land this awesome job.

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292. Nagarro On Campus Interview Experience

Nagarro software company visited our campus. I am writing this so that it might help others around 290 students appear for this.

Round 1:

written round consist of two papers both pen and paper based and answers to be fill in omr. paper 1 consist of analytical questions like profit loss, speed, 10th class geometry

problems based questions there were total 25 questions.

Paper2 consist of only coding input/output questions of c there were 20 questions

Round 2:

there were three questions u have to write only pseudo code for that .

1-> given a starting point in a 2d array of size X Y you have to rotate subarray of size N staring from given starting point.

2-> there are a lot of strings like “ab” , “bc”,“cd”,“ad” and u have to find the longest string can be made like ab+bc+cd = abcd = 4(answer) but keep in mind that ending character of first string should be first character of next string.

3-> this questions also on array given an array of size m * n .and every row of array is sorted and contains unique element but different rows can contain same element present in other row . u have to sort the array and remove the duplicates and store in 1 1D array

Technical round:

Cross questions based on pseudo code u have written and on their complexities. and then he asked me another 2 questions

1- given a string consisting of various words . reverse all the string and words by 2 methods.

2- given an sorted array of size n and there is another array of 2n also contain elements in sorted order . merge these sorted arrays and remove duplicates if any .the resultant array should also be in sorted order.

do this by 3 methods.

HR round:

Basic questions like tell about yourself and questions about project.

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293. Morgan Stanley Interview | Set 10 (On-Campus)

First Round:: apti + technical + coding (1hr 45mins)

1) Multiple choice questions round : (45mins)

It consists of 2 sections. One was aptitude (10 ques). Level of difficulty was difficult. I was able to solve only 3 questions.

Other was technical (20 ques). Level of difficulty was moderate. I did 15 questions.

2) Coding round : (1 hr)

1. There are N stops and each stop had a gas station. You need to travel from stop 1 to Nth stop such that you should make minimum number of stops. Constraints: Your car has a capacity of M units to travel and you can fill only M units in your car from any gas station.

Input: N and M where N is the number of stops and each stop value is the distance from the source stop. e.g: 0 1 3 5 7 8 (so it was in increasing order). M is the capacity of the fuel tank. (8 marks)

2. Given a month and a year. You need to find the date of first Monday of given month and year. (12 marks)

3. Given an n X m matrix 'M' of alphabets and a string 'S'. You need to find the starting index of 'S' in 'M'. The string can be found horizontally or vertically. (Alphabets are case insensitive). (10 marks)

eg: 4 X 5 matrix

```
a b F D k  
s R I o j  
A p e g k  
o s A y n
```

String S : dog Output: 0,3

I was able to solve only 2nd question completely and tried 3rd one (but it was giving wrong answer).

After this round 18 students were shortlisted.

Second Round :: Technical interview (45mins)

He asked me about my C++ project then some OOPs concepts like polymorphism, function overloading and overriding, type casting, virtual function, vtable and vptr and some more questions related to virtual functions.

OS: Paging, process and thread, thread synchronization, semaphore, paging algorithms.

DS: Why we use linked list. Given a linked list, print the elements of linked list in reverse order. I solved it through recursion, then he asked me to use iterative method without using extra space and in one traverse. Lowest common ancestor of 2 given nodes of BST, and some more.

Puzzle: There are 5 switches in a room and there are 5 bulbs (not in that room but on different floors). Find the minimum number of trips you will make to find which switch is associated to which bulb.

After this round 7 people were shortlisted.

Third Round :: Group Activity (50mins)

We were divided into two groups of 3 and 4. There were some papers with the instructions for each group and two boxes of LEGO blocks. We had to build up a functional unit for Morgan Stanley for which we were given 40mins. Then in the next 10mins we had to present our prototype. It includes Logo, benefits, and some other factors which we had to consider in our prototype.

In between another letter came from Board of Directors and we (both groups) had to merge and build the prototype together now. So we had to come up with something that includes both the groups' ideas.

All the panel members were standing around us to judge us throughout the activity. And we were judged on the basis of our team work, how well we can communicate with other team members, our planning, our execution, and many such factors. Throughout the discussion we had to discuss loudly so that the judges could hear our thought process. At the end there was a session in which all the judges asked us questions about our approach, our individual contribution, what we thought of other members during the whole activity and all. This round was very interesting for me.

Fourth Round :: HR interview (45-50mins)

Started with my intro. Then he asked me about my another project which I made in VB.net. Then he asked me many questions, I remember now some of them like given some revenue and some technologies, how would you solve any particular issue in your home town using that. Asked about my achievements, any moment in my life which made me feel proud, what all things I have learnt and brought a change in me after coming to this college. How do you react to the situation when you are given a deadline for some work which is important but not able to meet that deadline. He asked about my hobbies and many more things.

Fifth Round :: Technical interview (almost 1hr)

This was the last round. Again he started with my project. And then came to some technical stuff:

- 1) What data structure will you use to find the unique words and the number of times the word appear in a novel. Then he kept on asking more questions related to this like print a word which is appearing maximum number of times. Print 10 words which are appearing maximum number of times. And many more.
- 2) Given a binary tree and a number n, find the root to leaf branch whose sum equals to n.

Now find maximum length branch whose sum equals to n (that means ofcourse now there are more than 1 branch whose sum equals to n)

- 3) Design the database for an online shopping website like flipkart. Now how will you modify your database if you want to give some discount on those product which are going to expire after 6 months. And many questions like these.

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Just want to share my interview experience @ Bankbazaar.com so that its helpful for the aspiring ones.

Total Rounds – 6 (2 Telephonic Technical + 2 Technical Onsite + 1 with CIO + 1 HR)

Duration : Spanned for 2 weeks (due to personal commitments)

Round 1 :

Q1 – Give an efficient algo to find if every nodes value is equal to sum of left + right node.

My Ans – Kinda Postorder traversal

Q2 – Give an appropriate DS to retrieve minimum from set of values

My Ans – Min-Heap & something else (don't remember)

Q3 – Best DS to store and manipulate huge numbers

My Ans – Linked List

Round 2 :

Q1 - Given a million strings , for the input string get count of anagrams of input string among the million . O(1) solution needed

My Ans – Modified Trie + Back Pointer

Q2 – Efficient Algo to find second shortest path in a graph given edges part of the shortest path

My Ans – Got to do with removing edge by edge from Shortest , find best second shortest so far .

Round 3 : This went badly 😞

Q1 – Efficient Algo for Tower of Hanoi , Trace working , Time complexity derivation

As a build up to this, given more than 1 auxillary rod how would u change the algo for better performance and derive/proove it

My Ans – Use DP to derive the new Time Complexity

Round 4 :

Q1 – Efficient working code to traverse tree level by level and print odd levels left to right , even right to left .

My Ans – Simple level traversal use 2 stacks.

Q2 – Given a sorted rotated array , efficient code to find element .

My Ans – Simple Binary Search + special conditions

Round 5 + 6 : Traditional HR questions , Why Bankbazaar ? etc. usual ones
Among all the questions I got everything right except the Tower of Hanoi (got stuck).

GeeksForGeeks thanks a lot ! for your question set helped me a lot, infact some of them are straight away the same.

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295. Morgan Stanley Interview | Set 11 (On-Campus)

Multiple Choice Questions Questions ranging from give the output of following C program to some theoretical concepts of OS etc.

Coding

1. Give maximum subarray product in a given input array which can contain integers (including negative and zero).
2. Given a set of n coins of some denominations (may be repeating, in random order), and a number k. A game is being played by a single player in following manner: Player can choose to pick 0 to k coins contiguously but will have to leave one next coin from picking. In this manner give the highest sum of coins he/she can collect.
3. A file of encoded message contains only numbers. Original message contains only lowercase letters and spaces. So character 'a' is mapped to 1 'b' to 2 and so on till 'z' is mapped to 26. Given an input of numbers find out the number of ways you can decode it in original message. Eg. 123 can be decoded in 3 ways as 'abc', 'lc' or 'aw'

Technical Round I

Description of projects. Seeing Java projects in my profile they continued to ask my questions from Java. Given a string of characters how will you print each word in reverse order. Eg. "Information Technology" you have to print "noitamrofnl ygolonhceT". Interviewers were very supportive and will guide you in the process.

Then explain how Hashmap data structure is implemented and code it. What is hashing and its benefits. Suppose a class is defined as follows:

```
class MyClass{  
    public String name;  
    public List phonenos;  
}
```

How will you make the class immutable. Please pay attention to the List it is important.

Then asked me about what is AJAX.

After this round 11 people were shortlisted

Group Activity

We were divided in four teams and were given LEGO blocks. We were asked to build a model of product which address high volume of clients and ensure it has following characteristics:

1. Strength
2. Sustainability
3. Aesthetic value.
4. < I forgot this one >

Time limit 40 minutes.

After about 10 minutes we were asked to merge with another team. Then we had to make model together. After that we had to present what we made in front of whole panel.

I just want to make a remark on this round: Guys do not pay attention is actually building anything. Process of how you come up with idea, interact with others, how much you push your idea and can you accept your mistake is important. It was a very nice experience.

PLEASE NOTE: UNLIKE GROUP DISCUSSION THIS IS A CONSTRUCTIVE EXERCISE. Work together and be creative.

Technical Round II

Design a Parking Management System.

A puzzle: two dice are given. each has six face. Change the numbering on one dice only so that the probability of occurrence of sum (of the numbers appearing in a throw of two dice) from 1 to 12, are all equal. So normally probability of occurrence of sum 2 is $1/36$, of sum 3 is $2/36$ etc. You have to change numbering in such a way that probability of sum 1 = $P(2)=\dots=P(12)$.

HR Round

I liked this round because it was very calm and went very smoothly.

They asked me to walk them through the resume. Good experiences of my last job which will be with me throughout my life. Some things you wish previous company could have improved on. Good and bad things of my experience in current college. What made me to go for higher studies and at last why Morgan Stanley.

Then they asked if I had any questions: I asked: are formals necessary? 😊

One interviewer explained very nicely how the company works for banks and the structure. He said company is very informal in field of technology but very formal in terms of attire. Other interviewer said Every fourth Friday of month you can wear casual if you want. 😊

I had a great experience interviewing with Morgan Stanley and wish best of luck for my fellow geeks.

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296. Amazon Interview | Set 118 (On-Campus for Internship)

The selection procedure consisted of an online round followed by two Personal Interviews.

Online Round:

The first round had 20 MCQs and two coding questions. The MCQs were based on the concepts from OS, DSA, compilers, architecture etc.

The coding questions were:

1. Given an array of positive and negative numbers, arrange them in an alternate fashion such that every positive number is followed by negative and vice-versa maintaining the order of appearance.
2. Given a $n \times m$ matrix, print the elements diagonal wise from top to bottom.

First round of PI :

1. Given a number n find the number of balanced parentheses expressions of that length.

Input: 2

Output: 1 which is (),

Input: 4

Output: 2 which are (()) and () ().

I gave a complex solution involving segment tree in which he pointed out the mistakes and then asked to write a code to check if a given expression is balanced or not.

2. Tell something about LRU. What DS will you use for it? Write pseudo code for it.

(Hint : Quite simple..Use doubly LL)

Second round of PI:

The interviewer introduced himself first and then asked me about myself.

We had a discussion on my projects.

1. Given two binary trees, write pseudo code to determine if one is a subtree of the other. I answered it and then he modified the question to check if the other tree elements are the subset of the elements of the first tree. (Hint: Inorder traversal)
2. Given a sorted circular linked list which is rotated at some point, write pseudo code to insert a new node. Ex: 8 1 2 5 7 and insert 6.

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297. Adobe Interview | Set 11 (On-Campus)

Adobe procedure consisted of two online rounds back to back.

- 1) **First Online Round-** It was Aptitude Test of about 50 minutes and 40-45 Questions were there. The questions were easy and everybody could easily solve that, speed should be good in order to attempt all the questions.

The questions were of type- some geometry based questions,some easy puzzle type questions (like there are 5 painters, one painter passionate about scenic beauty, 2nd painter has interest in..., and other information was given and 3-4 related questions were there),some simple comparison based questions and some quantitative aptitude questions.

- 2) **Second Online Round-** It was of 2 hours.

In this round there were about 10 coding questions and 10-12 simple c o/p(pointer related) and data structure related question.

Coding Questions asked can be easily found in geeksforgeeks, some of the questions that I remember are-

- 1) Reversing a linklist.(trivial question which everybody should know).
- 2) Given a 2-D binary matrix(nxn)(elements are either 0 or 1) such that in each row,all the 1's in the array are present before the 0's.You have to return the row number of the row with max. no of 1's.You just have to implement the function whose prototype looks like-
`Int max_row(int *arr,int n);`//here arr is a pointer to integer and nxn is the size of matrix.

- 3) Write a program to check whether the number is palindrome or not.
- 4) A recursive program to multiply two numbers with addition such that there should be minimum no. of recursive calls.
- 5) Given an array of n integers, find pair of numbers if present whose sum is equal to a given target sum.
- 6) Every number with 3 at it's unit place has a multiple which has all 1's like for 3,the multiple is 111,for 13 multiple is 111111.The multiple can exceed the integer range i.e,it can be very large number(try storing it in a string).
- 7) Given a mathematical expression, check whether the parenthesis used in that expression are balanced or not.Possible parenthesis used can be {},[],() only.Eg.(2+3)/4*[9+{8*5}].
- 8) Three processes p1, p2, p3, p4 – each have sizes 1GB, 1.2GB, 2GB, 1GB. And each processes is executed as a time sharing fashion. Will they be executed on an operating system.
- 9) One question was from scheduling in OS.

Technical Interview 1

In this round,firstly the interviewer asked me about DNS server(full working), ARP protocol etc.

We had some general talks regarding my achievements, then he gave me a problem- There is a string which may contain repeated words, you need to print unique words only.(I gave a solution using trie but he wanted brute force solution...:()

Then he gave a puzzle which I had never heard before(you can search it- “King’s poisonous wine cellars”).

He was also asking approach for some of the questions asked in written exam.

Technical Interview 2

In this round,first of all I was asked some networking questions,then virtual memory concepts,some scheduling questions etc.

Then he gave me a problem which I had to implement in C.The problem goes like this- There is an application which is again and again fetching data from database and then using that information in further processing.but since the application is again and again accessing the same database so inorder to increase the speed of accessing data we have to implement a cache.(Property of cache-keep the most frequently used data and remove the least frequently used data if cache is full,assume limited size of cache).

Solution that I first gave was using a linklist (wrote all functions inC)

He was happy with the solution but wanted me to think about more efficient solution so I told him using Heap and Hashing,implemented it in C again.He was impressed by this solution ...:)

Technical Interview 3

In this round he asked me about DHCP,DNS working protocols etc.(I wrote these terms

in my resume). He asked about unions, bitfields, structures, asked me to write 6-7 complicated declarations, asked me the meaning of some declarations (like int *const *const *i). Then asked C++ Questions about default functions in C++, how would you detect that error has occurred inside the constructor and destructor, lots of c/c++ output questions. I was also asked about reimplicit cast etc. but since I never studied so I simply denied (If you don't have any idea about something or heard the term for the first time, it's better to simply tell that u don't know that, rather than fooling around..). Output questions were easy if you have done 295C Questions and GeeksForGeeks C/C++ Output Questions.

HR Interview

My third technical and HR Round were scheduled on second day and after my third tech. round I got more confident which really counts in HR round. You should be really confident about each and everything you speak and kindly think before speaking something so that he may not be able to trap you.

First of all he asked my IIT rank and AIEEE rank, then why among all the options I chose this college, then tell some unique and different quality that you possess so that I should hire you (he warned me not to say words like honest, hard-working, determined etc., it should be something unique also think of a situation if u could fit in with that quality), why adobe?, what is my weakness and how will I overcome it, then he gave me a puzzle to solve. Also I forgot to add the most common question which you are asked if interviewing in adobe and you are not among the toppers, where do you stand (rank) in your class, what is the reason of your low pointers (prepare a genuine answer to this question).

In the end all went well and in my favor and I got recruited for the company. I really want to thank geeksforgeeks because of which I am at this position. It is really a great platform where you could find lots of problems to practice and these are repeated by many of companies in their coding round and interviews.

I hope that this experience of my interviews might prove helpful to some of you.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

298. Amazon Interview | Set 119 (On-Campus for Internship)

The selection procedure consisted of an online round followed by two Personal Interviews.

Online Round:

The first round had 20 mcq consisting of 3-4 questions from aptitude, 2 questions from

os and rest were from Basic C and Data Structure. There were 2 coding questions as well.

Question 1: You are given a phone keypad like following diagram, where each character corresponds to a digit mentioned in the same box.



You are given n strings and you have to find their decimal representation. You have to print the string and corresponding decimal representation in descending order.

Like if you are given “amazon” then its corresponding decimal notation will be 262966. If more than one strings have same decimal notation then you have to print them in the order in which input is given.

(Given that given string consists of lower case alphabets only.)

Test Case 1:

```
5
Amazon
Microsoft
Facebook
Aa
Bb
```

Output:

```
642767638 microsoft
32232665 facebook
262966 amazon
22 aa
22 bb
```

Question 2: Given a string. Print all Possible permutations of different lengths in sorted order.

Input: abc

Output:

```
A
Ab
Ac
Abc
b
Bc
c
```

Candidate who could solve at least one question out of 2 coding questions was selected

for personal interviews.

Round 2(P.I. 1) :-

Firstly interviewer had a deep discussion of my project. He also asked me to write code for one of my mini project (Backtracking).

Then he asked two back to back coding questions –

1. You are given a bst. You have to print the kth smallest element.

(<http://www.geeksforgeeks.org/find-k-th-smallest-element-in-bst-order-statistics-in-bst/>).

2. You are given two sorted arrays and you have to print the median obtained after merging them in $\log(n)$ time complexity.

(<http://www.geeksforgeeks.org/median-of-two-sorted-arrays/>)

Then he asked the language in which I am comfortable for coding. I said C . Then he asked me to allocate the dynamic memory of 2-d array in C(I used malloc function for this). Then he asked me the difference b/w malloc and new (c++) function.

Round 2 (P.I. 2):-

Firstly he asked me to tell about my academic background. Then he directly put a coding question in front of me.

1. You are given a binary tree and two nodes. You have to print the horizontal distance between them.

Let us say :

Given nodes are B and C : Answer would be 2.

Given nodes are A and E : Answer would be 0.

Given nodes are D and G : Answer would be 4.

We had an long discussion of 45 mins (approx.) on this problem.

One of my friend was asked the following questions:

2. Given a linked list. You have to determine whether or not it is a palindrome in order $O(n)$ time without using auxiliary space.
3. You are given an array of integers . You have to find the maximum sum sequence.(It needs not be contiguous).

After all these rounds I and my friend both were selected 😊 :). A total of 16 candidates were selected.

I really thank to GEEKSFORGEEKS for all the support and help in my preparation.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

299. [TopTalent.in] Nothing Could Stop Zubin from Landing a Dream Job at Goldman Sachs

It's not often that you come across a story which is so motivating and inspiring that telling the story to your audience is what you crave for. Zubin Sheth from Jadavpur University is someone special. Having been born with certain physical disabilities, he has crossed many hurdles in his life which an average person wouldn't have to. Zubin is an inspiration for all who crib about how unfair life has been to them and try to find excuses in their circumstances.



He has proved that if you are passionate about something no one can stop you from achieving your goals, no matter how thorny the road might be. When we at [TopTalent.in](#) asked him about how he felt after landing a job at Goldman Sachs, he said "it feels really great and satisfying getting into one of the best in the club. But yes, I am still 'hungry' as there's more to achieve. The journey has just begun."

We say more power to you Zubin. In case you would like to download his resume please [click here](#) and download his resume.

What was your preparation strategy?

I stuck to basics. That's what I've always done. I also used to practice writing code on whiteboard and paper more than system. Maybe that is something different that I used to do apart from regular practice and problem solving.

What resources did you consult? Where did you practice problems from?

I started off with Cracking the Coding Interview and after completing it I moved on to GeeksForGeeks. I was never a TopCoder fan! I also used to discuss solutions with my friends which made sure I was solving it in the right way and to the best possible solution.

What kind of skills do you think helped you getting this job?

For Goldman Sachs, your aptitude and coding skills are not enough. Soft skills like communication – whether you are able to communicate your thoughts to the interviewer, your presentation skills and your confidence are equally important. I think my confidence and the way i explained my solutions struck. Goldman Sachs takes your CV seriously! They look for all-rounders and people who have tried different things.

What's your advice to students who are aiming for similar placement offers as yours?

Don't do something because everyone else is. Do what you love doing. Even though I was pursuing engineering, I was working part time in Online Marketing. That helps you widen ways in which you think, which is a great skill to possess in the industry. Also in college, we have the time and resources to try and see whether we like something or not. One should NOT waste that opportunity.

Importantly do not jump to higher levels unless you have your fundamentals right. Trust me, this is the best piece of advice I can personally share. Trying DP (dynamic programming) before getting your recursion and stack calls straight, just to sound cool will end you up in a disaster. I am sure this applies to any field for any profession.

What should one keep in mind while preparing a resume?

Your resume should first, look good. Spend time on alignment, font, size, everything. Keep it short. One pager is good. Only mention your strengths. Remove every word which is not required.

Some personal to-do's :

- Start Early. Do before everyone else starts competing for it.
- Do what you love.
- Try out different things. Try out random stuff.
- Work Hard. Really hard.
- Believe in yourself.

In case you missed, you can also download his resume. [Click here](#) to download.

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300. Arista Network Interview | Set 2 (On Campus Full Term)

Lately, I had an on campus interview with Arista Networks. Here are the details of the company's written and interview process.

Round 1 (Written, On paper, 10 Questions, 45 min) :

1. Array indexing based C o/p question
2. Compute size of structure, Struct hack

3. Allocate $m \times n$ 2 D array. The array should be accessible as $\text{arr}[i][j]$.
4. Given a sorted integer array. Convert it to a balanced BST (Size of array is given)
5. Program to check whether 2 rectangles in a 2 D plane overlap or not.
6. A simple o/p question based on `fork()` (This question always comes in Avishkar and Mock exams)
7. Given an array of n integers which contains integers from 0 to $n-1$, with any of these integers appearing any number of times. Find the repeating integers in $O(n)$.
8. Mutilated Chessboard Puzzle
9. Merge two sorted singly linked lists into one sorted singly linked list. Allocate no extra node.
10. Don't remember

Round 2 (Tech Interview, 4 Questions) :

1. Given a full binary tree.

Given the tree structure like this

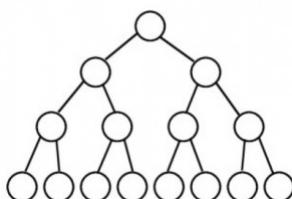
```
struct node
{
    int val?
    struct node *left, *right, *parent?
}?
```

Root pointer is not given.

Given a pointer to node x (say 10) (indexing left to right starting from root as 1).

To reach node 10 from root, you need to move left, then right, then left.

Full Binary Tree



Return a pointer to the corresponding node y in the other subtree of root (if x was present in left, y should be found in right and vice versa) tracing same path sequence. For $x = 10$, y will be 14 [from root, go right (must search in other subtree always), right, left]. You are not allowed to calculate the size of the tree.

2. Given an integer N. Convert it into MS Excel column string.

Ex $N = 1 : A$

$N = 2 : B$

N = 27 : AA

N = 52 : AZ and so on

3. A router's table is given. There are 4 rows and 3 columns (Destination IP, Mask, Next Hop) in the table. Given the destination IP address of a packet. Determine its next hop. (Hint : Longest Prefix Matching)

4. Draw the states of a process in an OS

Round 3 (HR Interview) :

1. How did you come to know about Arista? (Tell them about the Google story)

2. Why do you want to join Arista?

3. A practical problem :

Given a project P. P has m modules (M1, M2, ..., Mm). Each module has some tasks (t1, t2, .., ti) where i can vary for each module.

There are E engineers. Assume that every engineer can do any task of any module. More than 1 engineers are allowed to work on a task simultaneously. Efficiency of each engineer for each task is given (No. of days it will take ith engineer alone to complete task tj of module Mk). Each task is atomic. So you start a task only when you know you can finish it completely without any pauses in b/w. There can be dependencies b/w the tasks too (Say t3 of M2 depends on t4 of M1, t3 of M2 cannot be started until t4 of M1 has been finished). You have to o/p the no. of days it will take to complete the project (Assume that wherever possible tasks can be run in parallel too). Design data structures to represent resources (Engineers, computer systems etc.), tasks and dependencies b/w them so as to minimise duration of the project.

Thank you geeksforgeeks for helping me throughout my journey 😊

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301. Expedia Interview | Set 3 (On Campus Full Term)

Lately, I had an on campus interview with Expedia. Here are the details of the company's written and interview process.

Round 1 (Written, Computer Center)

Part 1 : Very easy questions

1. 25 C/C++ Q. mainly (35 min)
2. 16 Aptitude Q. (16 min)
3. 14 Logical Reasoning Q. (14 min)
4. 18 English Language Q. incl. 2 comprehensions (16 min)

Part 2 : 2 coding questions (There were lots of different questions. Everyone was given 2

random questions out of them)

1. Count LRU cache misses where page nos. referenced are given in array
2. Insert an element in sorted circular linked list

Round 2 (Technical Interview)

1. Print right view of a binary tree
2. Given an integer array A[]. Find max(j i) such that A[i] > A[j] and i < j

Round 3 (Technical Interview)

1. Given Rand5() which generates random numbers from 1 to 5. Implement Rand7() (a function

that gives random numbers from 1 to 7) using Rand5()

2. A continuous stream of binary numbers is coming (0s and 1s). At any time print the max

length of the window in which number of 0s and 1s are equal

3. Find lowest common ancestor of 2 given nodes in a binary tree

Round 4 (HR Interview)

1. Some basic HR questions based on resume

2. Why did you choose engineering?

3. Why C++ was named so and not C+++ or C+?

4. Some general awareness questions like India's population, conversion b/w crore, lakh, million, billion etc.

5. How would you feel like if I tell you that there's no growth for first 3 years at Expedia?

6. How would you feel when you will be given code maintenance work instead of code development?

7. Why did you do your project alone? Do you not trust your friends?

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302. Amazon Interview | Set 120 (On-Campus for Internship)

Recently Amazon visited our college and details are as follows.

Online Round:

There were two questions.

1. N strings are given. Convert all string to corresponding decimal value typed in an Alphanumeric Keypad (e.g. “bdg” -> 234). Then print all strings in decreasing order of their decimal value. If they have same decimal value then print lexicographically smaller first.

Input:

```
5
Amazon
sun
run
```

Output:

```
262966 amazon
786 run
786 sun
```

2. Write a code to print all possible combinations(order matters) of characters of string in lexicographical order.

Input: “ABC”

Output: A, AB, ABC, AC, ACB, B, BA, BAC, BC, BCA, C, CA, CAB, CB, CBA

Interview:

Round 1: 45 minutes

This started with a brief discussion on project. She quickly moved on to Coding questions.

She made me write an error free code for “Count all pairs which sum to k in a BST”.

Also she added that duplicates may be present but on left side only.

First she discussed for approach and then constrained the space complexity to be O(1).

She checked the code rigorously.

Then there were 3-4 coding questions. She just discussed approach.

-Update all nodes in a bst to be sum of all elements greater than or equal to it.

– Stock problem/ Given an array ‘arr’ find maximum difference between two elements ($\max(\text{arr}[i]-\text{arr}[j])$) where $i \geq j$.

-Then there was this awesome question... Given a perfect binary tree.

print nodes in a specific manner. e.g-

```
      15
     /   \
    13     14
   / \     / \
  9  10   11   12
 / \   / \ / \ / \
1  2  3 4 5 6 7 8
print - 1 8 2 7 3 6 4 5 9 12 10 11 13 14 15
```

I told her approaches having some space complexity. Again she restricted space complexity, and I got an efficient solution by recognizing some pattern 😊 .

Round 2: 25 minutes

There were just two questions.

1- Given a string having no spaces, and a dictionary. Problem was to find if that string can be splitted in multiple strings such that all the splitted strings are in dictionary. I was provided a function search(string str) which will tell if a particular string str is in the dictionary or not.

I quickly gave a recursive approach.

2- The second question was well known vertical order traversal of a binary tree. She just discussed how to implement various approaches in C++.

Then there was discussion on types of projects assigned to Interns and blah blah.

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303. Amazon Interview | Set 121 (On-Campus for SDE-1)

5-quant, 15 technical, (no verbal reasoning and English).

- 1) Given 2 binary trees check if it is symmetric (structure only not data).
- 2) Remove duplicates in a string in O(n) time (order of input must be preserved)

Round-1

1. Heaps-insertion.
2. Advantages of heaps over arrays.
3. Find 2nd min element from given array
4. Given an array and a sum s find all pairs of numbers which whose sum = s (assume array is already sorted) space complexity-O(1), time complexity-O(n)

Round-2

1. Given a tree construct a mirror tree and return root of mirror tree.
2. Level order traversal of a tree.
3. Given a stack output a sorted stack.(hint use recursion).

Round-3

1. Given a tree populate the sibling of the tree node with the next node in same level. space complexity-O(1).
2. What happens when you type amazon.com in browser.

Round-4

1. Linked list problem <http://www.geeksforgeeks.org/write-a-function-to-get-the-intersection-point-of-two-linked-lists/>
2. A simple problem in linked list.

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304. Amazon Interview | Set 122 (On-Campus for Internship)

My interview comprised of 3 rounds. 1 Online and 2 face to face rounds.

Online Round

In this round there were 20 MCQ's to solve and 2 coding question. Of the 20MCQ's a couple of questions were on Quantitative aptitude, relationships, OS, DBMS, Data structures etc. there was negative marking for every wrong answer so I attempted only 15 for which I was sure.

Q1- find the first non repeating character in a string.

Q2- given a binary tree where each node has some weight. You have to return the max weight in the binary tree.

Maxweight = value of root node + value in its left subtree and right subtree.

```
Ex      2
       /   \
      -1   3
Output = 4
```

After this round 33 students were selected for face 2 face round. 😊

Round 1 F2F (40-50 mins)

Q1 – given a binary tree where the left subtree is mirror image of right subtree. So you have to check whether the tree is symmetric or not (structure wise). O(n)

```
Ex      - 1
       /   \
      2     3
     \   /
      4   5
Output = Yes
```

Q2 – given a sorted 2D matrix and you are given a value you have to search that value

in the matrix. I gave him two solutions. O(row + col)

Q3 – given two arrays in sorted form. The first array has some empty space equal to the size of second array at its end. You have to merge both array in the **smartest possible** way in the first array. With constraint that auxiliary space O(1).

Ex – arr1[9] = {2,4,5,7,8,_,_,_,_};

arr2[4] = {3,6,8,9};

after merging arr1 should be = {2,3,4,5,6,7,8,8,9};

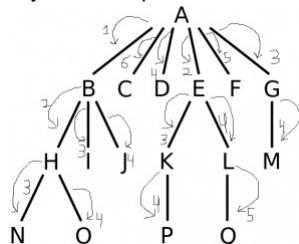
For every question I was asked to write a working code with all corner cases handled. I impressed the interviewer very much in this round :). Then I ask him some questions like – how an intern contribute to the amazon's claim to be the most customer centric company and a few more.

Round 2 F2F (70–80 mins)

This interview was with a senior guy.

Q1 – Given a very large n-ary tree. Where the root node has some information which it wants to pass to all of its children down to the leaves with the constraint that it can only pass the information to one of its children at a time (take it as one iteration). Now in the next iteration the child node can transfer that information to only one of its children and at the same time instance the child's parent i.e. root can pass the info to one of its remaining children. Continuing in this way we have to find the minimum no of iterations required to pass the information to all nodes in the tree.

Minimum no of iterations for tree below is 6. Consider passing root information first to any child except A-B answer will come more then 7. So 6 is the minimum answer.



I gave many approaches for this question but he was not satisfied with any approach. I said I will try to do it in a binary tree then I will generalize it for n-ary tree. He said your binary tree approach is correct but the way you are generalizing it to n-ary is wrong. The interviewer gave me many hints and said you have almost solved the question but missing a single point which I was not able to find till the end. Finally he moved to other question.

Q2- given a binary tree you have to check whether it is BST or not.

This question was very easy. I solved it within minutes (one inorder traversal approach O(n)) but to my surprise the interviewer was saying it is wrong. I explained to him but

again he said it is wrong. His motive was to pressurize me but I stick with my solution and finally he moved to other question. My answer was correct.

Q3 – given a BST find the Nth maximum and Nth minimum element.
I solved it in O(n). He was fine with it but he said do it in logarithmic time. I did it too with some preprocessing and coded both the approaches.

Overall it was a very nice experience interviewing with them.

Some tips:

- Be confident. Don't let the pressure prevail on you.
- Amazon is mainly looking for those who can write code, only telling approach is not fine. So start practicing as much as you can. There is no barrier of programming language.
- Please do ask questions to interviewers when they ask and try to ask something which shows that you are very much interested in working with them
- www.geeksforgeeks.org – my guidebook. Utilize the immense resource available on this portal for your benefit but don't mug up the code. Try to first solve it by yourself.

Good Luck !!!

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305. Adobe Interview | Set 12 (On Campus for MTS-1)

1. Online Technical Round (2 hrs)

7 coding problems were given along with 13 mcqs. Coding Problems were very easy.

2. Online Aptitude Round(50 minutes)

45 questions were there. Time was the only limit in this round. Two LR passages, 1 DI problem and rest were quant questions.

16 were selected after the online rounds.

3. Round 1 PI

This round was all about concepts of C, C++, Compiler, Debugging, Design patterns
a. Tell about different sorting algorithms and their complexities. Why so many sorting algorithms present where only one can serve the purpose. Advantages and disadvantages of quick sort and merge sort.

b. What happens when a C program is compiled and executed in details.

c. Where are local variables, dynamic allocated variables, global variables stored?

- d. Where are static variables stored?
- e. Tell me about the design patterns which you know. Which design pattern have you followed in your project.
- f. Write a pseudo code for Singleton Pattern.
- g. Consider the code snippet

```
main()
{
    cout << "Hello";
}
```

Without touching the above code snippet print

Hi
Hello
Bye

- h. Do you want to work for Adobe? Why?

4. Round 2 PI

- a. Tell me about yourself.
- b. Difference between process and thread. Give me a real life example where thread can be used.
- c. Consider a recursive function with no end condition and architecture of your own laptop. What will happen? After how much time will the program crash.(Calculations and perfect answer was required)
- d. Write a client server simple code. How will you handle multiple requests? Will increasing number of threads solve the problem. What should be the optimal number of threads depending upon your computer architecture if you are receiving many requests in 10milliseconds time.
- e. How google handles 1 billion request in 1msec.
- f. What is Load Balancer?
- g. Real life example where hashmap can be used. Real life example where array can be used.
- h. Why do you want to join Adobe?
- i. What happened in Microsoft last round?(I was rejected in Microsoft last round)

5. Round 3 PI(HR Round)

Basic HR questions were asked. A puzzle was given where three tires are given which can travel 14, 20, 26 kms . Two tires are required for travelling. Find the maximum distance which can be travelled. My advice will be try to be honest because these people are very much experienced. And if you lie you better be a good liar. :p

6. Round 4 PI

- a. Find the number of occurrences of a key in a sorted array. Handle the base case. Write some test cases for it.
- b. Implement a stack where you can search an element in the data structure. He asked me to optimize the solution.

c. Two strings were given. You have to find whether they are permutations of each other. I gave the hashing technique. He then asked me to optimize it.

I thank geeksforgeeks for maintaining such a great site. It helped me a lot while preparing for the interviews.

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306. Flipkart Interview | Set 13

Hi, I was interviewed at Flipkart few days back. I was contacted by one of their head hunters. The process was as follows :

2 – Telephonic interview

1 – Machine Coding Round

1 – Problem Solving Round

1 – Hiring Manager Round

Last 3 rounds were at their office.

Telephonic-1 :

He asked about my previous projects in detail and then asked one problem.

Find the next smallest palindrome give a number. He asked me to write the complete working code.

Telephonic-2 :

Started straight away with the problems.

1. Find the median of a stream of integers. I knew the solution and discussed the heap solution for it.

2. Given an array of integers, find a triplet having sum equal to K.

3. Given an array a1, a2, a3 ,an, b1, b2, b3,bn. Rearrange this array to a1, b1, a2, b2,an, bn. This needs to be done inplace.

Onsite Rounds (f2f)

Machine Coding Round :

This was the most exciting round. Problem was to do 3 operations on very large numbers.

1. Addition 2. Subtraction 3. Multiplication

Input can be positive or negative. In this round, focus was on Design and Coding Skills.

I was given 1 hr 30 mins to code for the problem. I completed in around 1hr 15 mins.

Then he asked me extend my code for decimal numbers as well. I told him the approach.

Then he asked me how will i do the division as well.

Problem Solving Round -

In this round he started with the discussion of Machine round problem. Then he asked me a simple problem. Find the first occurrence of a digit(1-9) other than zero in a stream of integers in less than $O(n)$. Given i can't have the access to the memory location where stream is written.

He basically wanted to know how i think and how many approaches i can think of, and whether i can challenge him or not that its not possible. and yes i did.

Then he asked a stock span problem. Given stock prices in an array. Find the buying and selling time so that profit earned is maximum.

Hiring Manager round –

He asked me some behavioral questions.

Why do you want to join Flipkart. Then What would you do if something goes wrong on production, and you are unable to find the bug, etc.

Them he discussed the projects i had done in my previous company.

I would like to thank GeeksforGeek team for building such an awesome site and platform for interview preparation and helping out the geeks over there to grab good opportunities in the industry.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

307. Interview Experience at Samsung Research Institute – Delhi

I am an **off-campus** hire. Please find my interview experience below:

1) Initially two written test were conducted:

a. First is **aptitude (25 Arithmetic Aptitude + 25 Data Interpretation)**. The questions were easy but time consuming. In this round, both speed and accuracy matters. We have to **solve around 35 questions to clear this test**. So, we have to be accurate in solving 35 questions. In this test there is no negative marking, so after solving 35 questions, you can mark all the remaining questions and you are through this round.

b. Second is the **technical test (20 Questions)**. They give an option to choose from **C or C++**. In this test, you have to **solve 14 – 15 questions** to get through. In this round, there are no options; we have to write the output on the space provided.

After this round, I get the phone call after **15 days** that I am selected for the interview.

2) Three round of Interviews were taken:

a. First round was based on **Operating System** concepts. They asked about **semaphores, inter-process communication, scheduling algorithms etc.**

b. Second round was based on **Algorithms** questions. The questions were:

i. Write down the program to tell whether the stack is growing in which direction in memory.

ii. Write down the program to find all permutations of the string and discuss the time complexity.

iii. Tower of Hanoi problem time complexity.

c. Third is the **HR round** where negotiation about salary is there. It was just the formality.

After a **week**, I got the mail from HR of the final offer.

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308. Telephonic interview for Tower Research LLC, Gurgaon internship(High Frequency Trading)

1. Brief explanation of a research project done in summers.

2. Algorithmic:

An infinite stream of numbers is given. The stream is stopped at an arbitrary point.

Return any number of the stream read till now with equal probability, using O(1) space.

3. Knowledge based:

(It was determined whether the candidate has done a course on Data Structures and Algorithms.)

A weighted, undirected graph is given, in which two vertices are specified. The objective to determine the shortest path between the two vertices. It was asked whether there exist any algorithms for this.

(It was observed by the candidate that the Dijkstra's algorithm is a suitable algorithm for this question.)

The interviewer proceeded to demand a detailed explanation of the algorithm and the

time complexity.

4. Probability Theory:

Given an array of size n, return the maximum element.

(The candidate demonstrated an O(n) time algorithm, in which a variable stores the maximum value. The array is read serially, and the variable is updated whenever an element with a value greater than that of the variable is found.)

An array of size n containing distinct numbers is given. The elements can be in any permutation with equal probability.

In the O(n) algorithm for finding the maximum element explained above, the variable containing the maximum element is updated multiple times over the pass of the array. Find the expected value of the total number of updations(changes) on the variable, over the pass of the array.

5. Game Theory:

A two-player game is described, in which each player can pick any number from 1 to 10 arbitrarily. The objective is to end at a position where you(a player) pick a number such that the sum of all the numbers picked by you and the opponent till that point(including the number picked at the end by you) is 50.

Find a winning strategy, if it exists.

The strategy should also include the information whether you play first or second.

6. Mathematical Puzzle:

Given a sphere, find the maximum number of points can be placed on the surface of the sphere such that all are equidistant from each other.

Explain the solution.

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309. Amazon Interview | Set 123 (On-Campus for Internship)

Online round: In this round there were 20 MCQ's to solve and 2 coding question. Of the 20MCQ's a couple of questions were on Quantitative aptitude, relationships, OS, DBMS, Data structures etc. there was negative marking for every wrong answer so I attempted only 15 for which I was sure.

Q1- find the first non repeating character in a string.

Q2- given a binary tree where each node has some weight. You have to return the max weight in the binary tree.

Maxweight = value of root node + value in its left subtree and right subtree.

```
Ex - 2
  /
 -1   3
Output = 4
```

1st round(50 mins):

Q1. Reverse link list in k chunks

<http://www.geeksforgeeks.org/reverse-a-list-in-groups-of-given-size/>

Interviewer was first interested in approach then he asked me to code.

Q2. Spiral order traversal of binary tree

<http://www.geeksforgeeks.org/level-order-traversal-in-spiral-form/>

I first told him 2 stack approach but he asked me to do without stack .Then I gave him a solution using one queue and one stack and he finally asked me to code both the approaches.

Q3. Longest palindromic substring

<http://www.geeksforgeeks.org/longest-palindromic-substring-set-2/>

I first used DP but he asked me to do O(1) space complexity. I was unable to do so.

2nd round :

Q1. Connect sibling pointer in a binary tree

<http://www.geeksforgeeks.org/connect-nodes-at-same-level/>

<http://www.geeksforgeeks.org/connect-nodes-at-same-level-with-o1-extra-space/>

Q2. Push ,pop and min operations in O(1)

<http://www.geeksforgeeks.org/design-and-implement-special-stack-data-structure/>

He asked me to do middle operation also and then he asked me to code 2nd problem.

<http://www.geeksforgeeks.org/design-a-stack-with-find-middle-operation/>

Q3. Given n point in a 2d plane ,find k distant nodes from the origin.

I told him min heap approach and he was satisfied.

Q4. Problem statement was very long but it was topological sorting.

<http://www.geeksforgeeks.org/topological-sorting/>

I used adjacency list representation, he asked me why

And finally asked me to code it.

Overall it was a very nice experience interviewing with them.

Some tips:

- Never give up
- Don't start with coding ,first explain the approach.
- Be honest
- www.geeksforgeeks.org – my guidebook.

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310. Oracle Interview | Set 7

On line test consist of 4 sections analytical, quant, computer science and English.

Coding on paper(45 min):

Based on scores they shortlisted for ST, APPS and Finance profile. myself shortlisted in ST profile.

On interview day

0th round(no elimination):

given 3 questions:

1. Given array of 14 integers and asked to build max and min heap pictorially.
2. Given array of integers and element find whether sum of any two elements equal to given number.
3. Given array of rotated sorted integers and asked to search for an element.

I completed these questions in 35 min and returned paper then immediately they called for interview.

1st round(1hr30min):

1. Difference between java and c
2. Questions based on above 3 questions (how you solved)
3. He asked me “given a big file and i want count of all words in file” define your own data structure for it and implement algorithm to it.

Once implemented asked me to implement efficiently.

For both algorithms time complexity.

4. Given around 10 sql queries i wrote the queries and then he given 2 tables and asked me the output for all the queries.
5. Given a complete binary tree and if you wants to insert a new element how to do it. I told him if tree represented in array representation then $2i$ and $2i+1$ concept. Then he asked me another way then i said using queue.
6. In both using array and using queue representation how you will implement max/min heap.

2nd_round(1hr):

Completely on resume.

In detail explanation about previously done projects.

Questions based on oops concepts.

3rd_round(50min):

Questions based on structures unions and structure padding.

He given array of elements and asked me to build binary tree, Binary search tree, avl tree.

Asked questions on all trees.

Then questions based on current project.

HR_round(around 15min):

Tell me about your self which you did not mentioned in your resume.

Out of all the projects which you did which one you like most and why.

And job location priority etc.,

I hope this may helpful to some one. Thank you guys without your help i cant make it.

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311. Directi Interview | Set 6 (On-Campus for Internship)

Recently Directi visited our campus for intern selections. There was 1 Online coding round hosted on codechef, 2 Algo Interview round and 1 Technical round.

Online Coding round:

There were 2 questions. Question 1 had 2 points whereas question 2 had 1 point.

Question 1. There is a compressed string eg. "ab2c3", the string has lowercase characters and numbers. We can uncompress the given string as follows: whenever we get a number "n" in the string, the portion of the string before the number will repeat "n" times. So in the above example, we get a 2, so string will become "ababc3", now we get a 3, so final string will be "ababcbababcababc".

Given a compressed string and a number k, you have to output the k'th character in the uncompresssed string.

1 <= length of string <= 1500

1 <= n <= 1000

1 <= k < 2^31

example:

input: ab2c3 10

output: c

Question 2. There is a string whose characters can only be either 'a', 'b' or '_' (there can be only one '_' in the string). At each step, we can modify the string as follows:

1. '_' can be swapped with its adjacent character, example "a_ba" can be changed to either "_aba" or "ab_a".
2. Two characters adjacent to '_' (both on the same side of '_') can be reversed along with the '_' if both characters are different, example, "aa_ba" can be changed to "aaab_" but not to "_aaba" because both characters are 'a'.

You are given two strings, the initial state and the final state (lengths will be same), you have to output the minimum number of steps required to change the string in initial state to the string in the final state.

example:

input: a_b ab_

output: 1

input: abaa_a b_aaaa

output: 4

reason for example 2:- abaa_a -> aba_aa -> ab_aaa -> _baaaa -> b_aaaa

Hint: Use Breadth first search

They shortlisted 12 students after this contest for the next round.

Round 2 (Telephonic interview):

Question 1. Suppose you are given a string of length n and a set of pairs(i, j such that $0 \leq i < j < n$). Pair "i, j" (0 based indexing) means that you can swap the i'th and j'th character in the string any number of times. You have to output the lexicographically smallest string that can be produced by doing any number of swaps on the input string.

example:

input: zcxfbe

0, 1 0, 2 3, 5

output: cxzebf

Hint: Try to model the problem to a graph problem.

Question 2. Suppose there are two piles of plates in the table. One has 'm' RED plates and other has 'n' BLACK plates. In his/her chance, a player can either pick any number of red plates or any number black plates or equal number of red and black plates. A player loses if he cannot make a move in his/her chance. You are playing this game with your friend. Given that you begin the game and both the players play optimally, output 'L' if you will lose or 'W' if you will win.

example:

input: m = 1, n = 2

output: L

input: m = 2, n = 2

output: W

After this round, they selected 4 people for the next round of interview.

Round 3 (face to face):

Question 1. Suppose there are 'n' trees (literal trees, not trees of computer science,

suppose they don't have any branch, more like a straight stick), each of them have some height. We want x length of wood. We have a woodcutter, which we will use to cut all the trees at the same height 'h' from ground, if 'h' is greater than the height of any tree, means that tree is not cut. Given the heights of all the trees and length 'x' of wood required, output the height 'h' from ground from where you will cut all the trees.

Question 2. You have an undirected weighted graph, given input 'x' and 'y', which are any two vertices of the graph, you have to output all the edges that are in any of the shortest path from x to y.

Note that there can be multiple shortest path from x to y. We have to output all the edges in any of those shortest paths.

They selected only 1 student for next round.

Round 4 (Technical round, telephonic):

In this round, he asked me small questions which included:

1. About any of my self-projects.
2. Advantages and disadvantages of BST and hashing. Questions related to collisions in hashing etc.
3. A question related to databases, he asked me to make a query.
4. Formulate the angle between the hour hand and minute hand of the clock for any given time.
5. Suppose we have a huge CSV file having ip-address ranges and its corresponding country code, given any ip-address how will we find the country which it belongs to.
6. Difference between BST and tries.
7. He asked few questions from Network course and OS course.
8. You have a huge linked list, how will you detect any loop in the linked list.

He asked few more small questions which I don't remember, after which the interview ended.

I got selected after clearing all these rounds. 😊

Tips:

1. The main focus was on string and graph, prepare well for them.
2. Practice your codes on paper or google doc, you will not get any editor for coding.
3. Keep your concepts clear on all the topics, they can ask you about any minute detail of any data structure or algorithm.

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Pilani who cracked EBay

Anubhav Chaturvedi was quite amused when he got the confirmation of a job offer from EBay. He recalls 'I did not expect everything to sail through so quickly. It was a rather quick back to back, I guess 2 hours of interview, and they offered me the job.' But we know it's not so easy to land a job in one of the fastest growing companies in the world.



Behind this is a lot of determination, hard work and talent which eventually resulted in achieving this amazing feat. We at [TopTalent.in](#) spoke to Anubhav about his experience of giving an Ebay interview and what advise he had to offer for others looking to achieve something similar.

You can also [download his resume](#) by logging in and see what you can learn from it which can help you with your job interviews.

TopTalent: Can you give us a brief account of what you felt was the toughest interview?

All the interviews were more of a discussion. I was given a problem and then there were modifications. So I did not feel very uncomfortable once it started. I would say the third round of technical interview can be considered the toughest. It involved questions based on your interests. I, being particularly interested in Computer Networks, was asked to design a complete WhatsApp application and server. It not only included the design, where I had to tell what all will be implemented on server and client on an abstract level, I was also asked to code for the client with few features. The discussion then moved to Java, OS and bit manipulation questions.

TopTalent: What was your preparation strategy?

I just prepared myself to tackle the problems as they came and made sure the interviewer knew what I was thinking. I think it is very essential to have effective communication with the interviewer in order to truly showcase your abilities.

TopTalent: What resources did you consult? Where did you practice problems from?

I looked through the problem sets on GeeksForGeeks and CareerCup but not extensively. The problem discussions I had with my friends were the most useful according to me.

TopTalent: What kind of skills do you think helped you getting this job?

My open minded and application oriented approach to problems. The interviews were based on my past work and the discussions were also focused on creation of applications and how I will go about it. So there was no right or wrong solution, it was about how you implement it and upgrade it with changing needs. We ended up designing

a basic WhatsApp server and client application.

TopTalent: What's your advice to students who are aiming for similar placement offers as yours?

Just be true to yourself and be confident. Things will work out. If you are learning something new everyday (even if it is not in your course) then you are not wasting your time, just keep learning and be curious. Not knowing is okay, not learning is not.

As far as study topics are concerned, I would say, as many others, that DSA and OS play an important role. If you are good at OOP (any language, like Java) that is a plus, as most of the industries work on these platforms. Don't waste your time during the summers, take up some internship or freelancing project or get involved in some opensource project.

TopTalent: What should one keep in mind while preparing a resume?

Do not put in anything you cannot talk about for at least 5 minutes. One of the rounds (~1hr) was completely based on my resume and I enjoyed it because I knew everything I had done. One of the project was based on Android sensors and location accuracy and that extended into a discussion of how PayPal uses it. So make sure you know what you have done. Keep it short and to the point.

In case you missed, like the blog article and wish Anubhav a very happy b'day and you can also [download his resume](#) by logging in.

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313. Adobe Interview | Set 13 (On Campus for Internship)

We had Adobe visit our campus recently. First they shortlisted students for an online test on the basis of CGPA. A few students even got direct offer.

Online Round

There were 8 questions in total. 5 MCQ, 2 Coding and 1 question was based on creativity.

The MCQ's were on heap, and probability. Finding the expectations and the running time complexities for heaps were the main focus of the MCQ's.

In the coding questions we had to write pseudo code, not actual C++ code.

1st question: There is a stream of incoming integers, how would you maintain its median using a minHeap and a maxHeap.

(<http://www.geeksforgeeks.org/median-of-stream-of-integers-running-integers/>)

2nd question: You have the start time, end time and index number of racers in a race. You need to tell the rank of each racer. The rank is calculated as following: if racer B starts after racer A but finishes before racer A, then the rank of racer A increases by 1.

Eg,

Index	Start Time	End time
0	100	170
1	80	150
2	120	165
3	110	145

Output

Index	Rank
2	0
3	0
1	1
0	2

I did it in $O(n^2)$, but I think there should be an $O(n\log n)$ algorithm for this.

The last creative question was:

If the 3g wireless network and smart phone penetration in India reached as much as the cellular network penetration, what product would you design and i) how would it benefit the customers and ii) how would you profit? (Write in roughly 200 words).

I was shortlisted for the telephonic interview.

Telephonic Interview

I introduced myself, and my projects. He asked me some details of the projects that he found interesting. After this, he asked me algorithm questions.

- i) What is the running time for insertion, deletion, extracting min from a minHeap.
- ii) What is the running time for insertion, deletion and searching an element in a sorted array and the same for an unsorted array?
- iii) How would you determine if a coin is biased or not. Does the degree of biasness effect the number of experiments you have to perform? (Eg, if the prob of heads is 0.6 in one case and 0.7 in another, then would you still perform the same number of experiments to decide if they are biased or different number of experiments).

Thank you geeksforgeeks.

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GeeksforGeeks main page and help other Geeks.

314. Facebook Interview | Set 2 (On Campus for Internship)

Recently facebook visited our campus. There was an online round first. 7 people were shortlisted for the telephonic interviews. And then there were 2 telephonic interviews taken by people from the US.

Online Round

2 coding questions were given, and the time was 75 minutes.

1. There are n trees in a circle. Each tree has a fruit value associated with it. A bird can sit on a tree for 0.5 sec and then he has to move to a neighbouring tree. It takes the bird 0.5 seconds to move from one tree to another. The bird gets the fruit value when she sits on a tree. We are given n and m (the number of seconds the bird has), and the fruit values of the trees. We have to maximise the total fruit value that the bird can gather. The bird can start from any tree.

I forgot the examples, sorry:(

2. You are given the encoding for a base 58 number. You have to convert all the numbers from 1 to n to a base 58 number using the encoding given.

The questions were not difficult, and the shortlisting basis was very strange. My friend finished much before me, but he was not shortlisted. I think they looked at your CV and projects.

1st telephonic round

Introduce yourself and tell me about your projects. Then he asked me 2 algorithmic questions.

1. You are given the start time and finish time of n intervals. You have to write a function that returns boolean value indicating if there was any overlapping interval in the set of existing intervals. (Sort and check, time complexity $O(n\log n)$)
2. You have 2 sparse vectors (large number of 0's). First tell me a way to represent and store them, and then find the dot product.
(To store them, we should store the value and index of those indexes that have a non-zero value, and then finding the dot product is very straight forward).

2nd telephonic round

The interviewer was not the same. Introduce yourself and tell me about your projects. Even he asked me 2 algorithmic question.

1. You have an array of n elements, and a sum. Check if any 2 elements in the array sum

to the given sum. (Expected time complexity O(n). Use hashing)

2. Extended the previous problem to sum of 3 elements in the array summing up to the given sum.

A few pointers:

- ? Always explain what you're doing and why.
- ? First explain the algorithm and then start coding.
- ? If he gives a hint, take it and use it.

Thanks geeksforgeeks.org

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315. Adobe Interview | Set 14 (On Campus for Full Time)

Round 1(aptitude and coding) Two tests:

Test 1 (50 mins)

45 questions on analytical reasoning, quantitative and geometry.

Analytical Reasoning Questions were tough, with lengthy and confusing statements.

Test 2- (2 hrs 50 mins)

13 MCQs on OS, C, DS, OOP, Computer Architecture

7 coding questions, few of them i remember are:

- a) Reversing a linked list
- b) Check if the given sum is available in an array
- c) Row with a maximum number of ones in a matrix of 0s and 1s
- d) Balanced parenthesis
- e) Multiply two numbers without using * operator, and minimum number of additions
- f) Check if a number is a palindrome

About 18 people were shortlisted.

Tech Interview Round 1:

Tech Interview Round 1:

- a) Asked me to implement a 2d bit-matrix representing monochrome pixels which will have only OFF/ON values and will take on an average only one bit of memory for each stored bit (Don't declare an int matrix!), and how to perform various operations on it.
- b) Some problems on basic geometry – circles and tangents were given.
- c) C programs were given and various OS related issues were discussed regarding them, mainly addressing issues, address space, paging etc.
- d) If F() generates 0 or 1 with probability .5 each, generate 0-7 with equal probability.

e) Some in-depth questions on pointers, dynamic memory allocation etc were asked..

Tech Interview Round 2:

- a) Convex Hull problem
- b) given a set of points in a plane, how would you make the most optimized triangular mesh-each point is a vertex of a triangle.
- c) Intersection of two lines in a plane, if they intersect- determine the point of intersection.
- d) Design problem: without knowing the underlying data structure to store various entities, how would you extend the stl library of c++, which will support any type of queries. Basically he was interested in methods of indexing upon the data and retrieval of relevant information.

Tech Interview Round 3:

This round was mostly a design round.

- a) Given two machines with different architectures and different endianness, how would you as a programmer make sure that user gets a uniform view of the various files stored. Now if one the files is transferred from one to another, how you're going to maintain that view to the user?
- b) Implement the qsort() in c/sort() in c++ library or your own custom sort which will sort any type of data on user defined criteria. write the function prototype, definition and another requirements.
- c) How much memory is made available to a user program by the kernel, is there any limit to it? What is the range of addresses a user program can have at max, what determines it?What happens if excess memory is allocated to a user program, say malloc in an infinite loop?
- d) What is the difference between mutex and a semaphore. Write down a crude implementation of both. How would you solve the mutual exclusion problem using semaphore. Propose a solution to the readers-writer problem.
- e) Other OS related problems.

Last round was the HR round.

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316. Microsoft Interview | Set 33 (On-Campus for Internship)

Recently Microsoft IDC had visited our Campus for Internship. There were 6 rounds in

total for me.

Objective Round :-

The objective round was taken in Cocubes.com, there were 15 questions (1 question was repeated in my set). There was a question about “Rectangular Collisions in an array” which I had no idea about.

Coding Round :-

There were two coding questions :-

- 1) Find an element in a sorted array which has been rotated circularly at only one location in $O(\log n)$ time.

(Refer <http://www.geeksforgeeks.org/search-an-element-in-a-sorted-and-pivoted-array/>)

- 2) Find the inorder successor of a node in a Binary Search Tree.

(Parent pointers were present in the BST). (Refer Method 1 of <http://www.geeksforgeeks.org/inorder-successor-in-binary-search-tree/>)

Group Interview Round :-

First 10 minutes, he asked about what we expect to be the next big thing in technology.

Then he gave two questions :-

- 1) Given a string, you have to check if it is a valid number or not.(The number can be signed, floating point/integer). If it is a number return true else return false.

The constraints were :-

- i) No decision statements allowed (No if-else,no switch-case).
- ii) No ternary conditional operators allowed (? : not allowed).
- iii) No looping statements allowed (No for/while/do-while).

(My solution was a recursive implementation returning a bool having only one return statement using relational operators and two global variables, one for checking if it is the first occurrence of a ‘.’ and other for checking if the sign ‘+’/-‘ occurs in 1st location or not).

- 2) Bing wants to improve the experience of users by giving reward points to users.

Devise an algorithm to assign reward points to different users.

Personal Interview Round I :-

- 1) You are given a string containing only ‘(’ and ‘)’, check if the the string is well formed,i.e. check if the paranthesis is well matched.

(Either have a count of ‘(’ or use a stack for pushing ‘(’ and popping when ‘)’ is encountered).

- 2) There is a Bot Class with the following prototype :-

```
class Bot {  
    // private data members  
public :  
    bool moveleft(); // The bot moves one block left and returns true.  
    bool moveright(); // The bot moves one block right and returns true.
```

```
bool movebottom(); // The bot moves one block down and returns true.  
bool movetop(); // The bot moves one block up and returns true.  
bool hasGold(); // returns true if the current position of bot has gold.  
};
```

You are given a bot and the dimension of a maze having walls and some blocks having gold, check if the bot can reach a block containing gold.

(Use dfs graph traversal using the recursive implementation and return true if the current position has gold and return false only if you cannot move any further).

Personal Interview Round II :-

1) You are given the roots of two binary trees, check if the trees are isomorphic or not.
(Initially he framed the question for a tree (not a binary tree) and gave me two random nodes instead of the roots).

(Refer <http://www.geeksforgeeks.org/tree-isomorphism-problem/>)

2) You are given an array of n X m dimension. You start from (0,0)th location. You can move from (i,j) to any of (i + 1,j),(i,j + 1),(i + 1,j + 1)th locations. Find the total number of paths starting from (0,0)th to (i,j)th position.

(For all i and j, $dp[i][0] = dp[0][j] = 1$, $dp[i][j] = dp[i - 1][j] + dp[i][j - 1] + dp[i - 1][j - 1]$).

Personal Interview Round III :-

1) Given a dictionary, group the anagrams together.

(Sort each string in dictionary, as anagrams will have same representation after sorting, use a hash map to store the groups of anagrams).

2) He asked questions related to my project.

Thank You geeksforgeeks.org.

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317. Sandisk Corporation On Campus Interview for Software Developer

ROUND-1

Written test-including 10 basic aptitude questions, 10 questions of C and 2 Coding Questions.

- Design data structure to implement sparse matrix.
- One bit manipulation ques.

Top 8 students were shortlisted from CS

ROUND-2

Technical Interview

1. Ask about written test,about questions in written test -how you had solve them.
2. Ask me about the projects you have made.
3. Which language you like the most and why?
4. Other basic questions...

Top 3 students were shortlisted in this round

ROUND-3

Technical Interview

All 3 students were asked to sit in one big room.

Then 2 coding questions were given to write on paper in 45 min.

1..Implement strtok functions of strings.

eg char a[]={“ab”, “cd”, “e”}

Output should be 3 strings—“ab”, “cd” and “e” if we consider the delimiter as ‘,’

2..People are sitting on round table and we have knock out each of one in alternate order eg 1 2 3 4 5 6. These 6 people are sitting in circular table. If we knock out 2 first. Output should be 2 4 6 3 1 5

ROUND-4

HR Round

1. Tell me about yourself?
2. Why you want to join sandisk?
3. What if any other company offer more than what they offer?
4. Working environment or high salary??

I would like to thank geeksforgeeks.org which helped me lot throughout my placement process.

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318. MAQ Software Interview Experience

30 Multiple Choice Questions ranging from quantitative aptitude and puzzles has to be done in 30 minutes, 25% negative marking was there.

Algorithm round

There were 2 questions, for 1st question we have to write the working code and for 2nd question we can write algorithm

(i)Print matrix in spiral form

(ii)Snake and Ladder problem

Coding round 1

There was 15 minute coding round

Find first non-repeatable character from an array.

Technical round 1

Tell me about yourself, then they asked me to explain the code i have write in coding round, snake ladder algorithm, give a program to write (sum of factorial series of n terms) and then asked me to optimise that code and about my projects.

Coding round 2

Again 15 minute coding round

Sort a matrix such that rows in ascending order and columns should be in descending order.

Technical round 2

Start from project, asked about the role in project, i handle database so he asked SQL queries. Also asked puzzle (from two dice make calendar), virtual function, function overloading, function overriding, program to find nth prime number and then optimise the code.

Communication test

There were two questions we have to write in 15 minutes.

(i)Why do want to join MAQ Softwares?

(ii)What skills or background makes you suitable for this job?

HR Interview

Tell me about yourself, family background, questions from what i have written in Communication test.

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319. MAQ Software Interview Experience | Set 2

1) Written Test: 30 ques in 30 mins consisting of simple quantitative aptitude, 2-3 puzzles.

2) Algorithm Round: 2 question, either write the code or pseudo code

- a) Write a code to print a matrix spirally
- b) Write an algorithm for snake and ladder problem

3) Technical Round 1:

15 mins coding test: write a working code to print first non repetitive character in a string.

explain the code, optimize it. General questions on dbms like transactions, 3-4 simple sql queries, 2 puzzles, basic oops concepts like inheritance, polymorphism.

Few simple codes were asked like factorial of a number with and without recursion

4) Technical Round 2:

15 mins coding test: working code to sort a matrix, so that the rows are sorted in ascending order and columns are sorted in descending order.

I was asked to optimize the code. question on data structure like find the common ancestor of given two nodes of a BST both with and without recursion, finding loop in a linked list, finding middle element in a linked list, whether a linked list is circular or not, Y node problem in a linked list, 1 question based on clock, 2 eggs puzzle

I was asked to explain the components of my project in detail

5) Communication Test (15 mins)

- q1) Why do you want to join MAQ
- q2) What skills of yours makes u suitable for this job

6) HR Round

Tell me about your self, your family background

Tell me something which is not mentioned in your resume

What you found most interesting about the company

What type of work you want to do at company

Any experiments you have done in your life

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320. Oracle Interview | Set 8

Company Name : Oracle (Server Technology)

Oracle procedure consists of

- 1) Written Round
- 2) Coding Round
- 3) 2-3 Technical Rounds and 1 HR Round

1) Written Round (90 minutes)

The written round was common for Server Tech, App Dev & OFSS profiles. It was an online

round having the following sections:

- a) Quantitative Aptitude
- b) Data Interpretation
- c) English & Vocabulary
- d) Technical (C/C++, Java, DS, Algo, OS, DBMS, Networking)

The questions were of moderate difficulty. Each section had a separate cut-off.

2) Coding Round (30 minutes)

The next round was an online coding round. One question was given and we were required to solve that question in 30 minutes. The languages allowed were C, C++ and Java.

There was no elimination in this round.

Based upon the performance in the above two online tests people were shortlisted for the interview process for different profiles.

Interview Round 1 (Tech + Project – 45 minutes)

This round began with my introduction. After that he gave me the following problem to solve:

You are given a two dimension matrix of characters. You are also given a String (character pointer). You have to find whether that string could be formed in that grid. You can move in the following directions: namely right, left, up, down & diagonal (forward and backward). But you can search the word by moving in only one direction at a time (i.e. if after the first letter, the second letter has been found by moving right then the subsequent letters also must

be matched by moving right only. You cannot change the direction.). I gave him my approach using the Backtracking algorithm. He said that he liked my approach and asked me to write the full working code. He was very helpful and gave me hints whenever I was stuck. After a few minutes I wrote the code in C++.

It is very important that you take into account all the corner cases and write the code as efficient as possible.

Then he asked me the different sorting algorithms that I knew and asked the space and time complexities of each.

Then he shifted his focus towards my projects. He asked me every minute details of my project. He asked the technologies that I used the shortcomings and asked me how I plan to overcome them.

After about 2 hours I was called for the next round.

Interview Round 2 (Tech – 30 minutes)

This round also started with my introduction. Next he asked me that how would I explain Quick Sort and Merge Sort algorithms to a layman. He asked me the differences between Merge Sort and Quick Sort and which algorithm fits better in which situation. Then he gave me a design question. You have to design a lift system with 3 lifts which can either be moving (up or down) or stationary. Whenever anyone presses the lift button then that lift should be chosen to move which reaches the floor in minimum time. He then extended the question to multiple lift requests and asked me to write an efficient code for the same. He gave me a hint to utilise the threading concept.

After that he asked some basic questions on OS and Networking like the difference between semaphores and mutex, process state diagram, difference between threads and processes, TCP, DNS etc.

After about 10 minutes I was called for the next round.

Interview Round 3 (HR – 10 minutes)

This round was mainly conducted to know about my interest in their offer and in my field (Computer Science). She read my resume completely and asked me about almost everything in it- my hometown, the details about my summer internship, my current rank (in my branch), my hobbies etc. Then she asked me whether I would try for other companies even after getting the offer from Oracle. I obviously said no with decent explanation.

Finally she told me about some formalities about joining and location and if I have any problems with it, again and obviously I said no 😊

After about half an hour, one of the interviewers came out and formally announced "YOU ARE SELECTED" 😊😊

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321. SapientNitro Interview Experience

1. Recruitment process

- There was a written test which had four sections. Technical, Logical Reasoning,

Quantitative Aptitude, Verbal Ability.

- Shortlisted candidate went for **technical interview** round.
- Then further shortlisted candidate went for **hr interview** round
- Those who got shortlisted after the hr round got the full time offer.

2. Questions and answers

Written Test

- Technical sections had questions from almost all the sections(C, C++, DBMS, DS, OS)
- Quantitative aptitude's questions were good.. All were almost of **R. S. Aggarwal's** level though few exceptions were there too
- Logical reasoning and verbal ability was good.. Some questions were tough.

Technical Interview

- The first question i was asked “what is polymorphism” ???
- Is Java only language to provide run time polymorphism ???
- Write a code for stack using linked list(when writing any code keep the boundary conditions in mind)
- Write an algorithm to find the loop in a given linked list(i did it with two pointers), then i was asked if we can do it with one pointer(yes, using extra space of course). Then i was asked if we really need any pointer??
- Next question was regarding dbms, a table was given and i was asked to write three different tpe of queries to insert data in that table
- Then the next question was about joins in dbms. First theory and then two tables were given and i was asked to perform each type of join on it
- A puzzle was also asked “we have a car which had 5 tyres(4 in use and 1 spare). The car had traveled 20,000 miles and all of its tyres has covered equal amount of distance and all the tyres has reached their maximum limit and thus all are busted. What is the maximum limit of each tyre ”

HR Interview

- It started with “tell me something about your self”
- Then we talked about my “strengths and weakness”
- Who is the toughest person you ever had to deal with
- Asked about my project. But he was mainly interested in how i participated in that project. and how i worked in that team.
- I was asked about my participation in different activities that ranges from playing an anchor to organize a debate in school.
- Where do i see myself in 5 years from now.
- Why “sapient”??
- What do i know about “sapient”??

- And then it was my turn to ask any questions..
- I asked “what kind of work i’ll be actually doing if i join you guys ” and “ what will the chances of my growth in your organization”

Interview tips

- Prepare for hr round as well, it's important too. If two people have same technical skills then obviously the one with better hr skill stands with an upper hand
- Your positive attitude matters a lot. Try to have a smile on your face when you enter the interview room
- Should have good communication skills
- Stay confident throughout the interview, even if u don't know abt any particular thing don't panic just try your best..

All the best everyone... !!!!

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322. Flipkart Interview | Set 14 (For SDET-1)

The **first online round** was an online test from HackerEarth. It had 3 programming questions, out of which we had to program any two. The questions were:

- 1) To reverse the words in a given string
- 2) I don't remember this question properly but was something similar to this.... Finding all the factors of a given number and finding if the one's position of the factorial and the number were same..

There were 30 other MCQs from aptitude, programming, data structures and algorithms.

After the online test, there were 3 rounds

The **first PI round** was taken by a team member and he asked many questions regarding my final year project. He was also asking different flows and testing involved in them.

He asked me some SQL queries too. He also asked me a question like if you are given a sorted array of size 7 but only 4 elements in it and a sorted array of 3 elements. How would you combine the elements into the first array in such a way that array is sorted.

One more question which I remember— How do you find if a string is a palindrome or not?

They rejected few candidates in the first interview.

In The **second PI**, I was given two scenarios to write test cases(apart from UI testing). One was the flipkart coupon textbox from checkout page and the other was the gmail application. He also asked me sql query to remove all duplicates from a table having multiple duplicates.

The **third PI round** was taken by team leader. Question

- 1) Program to find the angle between the hands of a clock. Input- the time. Expected output- Angle in degrees
- 2) How do you find if given two linked lists intersect or not
- 3) Explain basic concept of JOINS in sql
- 4) If in a given table, consisting of student name and grade, Output a table containing each grade and its frequency in descending order.

That's all for now. If i can remember more questions, then I will definitely write to you.

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323. [TopTalent.in] Exclusive Interview with Vivek Ruparel who got into Amazon

Vivek was quite happy when he cracked his first ever interview on campus. The thought of enjoying the college life in last year without the pain of campus interviews seemed quite pleasant. He could crack this amazing company by being dedicated and disciplined in his interview preparation. As he recalls 'I used to practice atleast 6 problems a day for two months before my interviews.' We at TopTalent.in spoke to Vivek from Jadavpur University about his experience of giving an Amazon interview and what advise he had to offer for others looking to achieve something similar.



You can also [download](#) his resume to see how you can do it too.

TopTalent: What companies did you get offer from apart from Amazon?

As Amazon was the first company in our campus, I didn't get a chance to sit for other companies. So its only Amazon interview that I can share with you.

TopTalent: How do you feel on achieving this feat?

It feels great. No better feeling than hearing your name in the final bunch of shortlisted students. If one puts his effort with full dedication, it does pay off.

TopTalent: Can you give us a brief account of what you felt was the toughest

interview?

Since I have only gone through the Amazon interview process, so its Amazon by default. I can definitely share the toughest round I came across during my interviews. It was a question based on arrays. It was pretty tough. I was able to solve this question and I think this question sealed my place in Amazon.

TopTalent: What was your preparation strategy?

Not just going through the codes but finding the solution and implementing them on my own, no matter how long it took. That is the most important thing according to me that helped me crack this interview. Second thing was regular coding to crack the online coding rounds. I used to practice atleast 6 problems a day for two months before my interviews. Third was the getting familiar with all data structures and algorithms.

TopTalent: What resources did you consult? Where did you practice problems from?

1. Geeksforgeeks is a must for Data structures and algorithms.
2. I used to do problems regularly in [leetcode.com](#)
3. [careercup.com](#) helped to go through the interview experiences.
4. Book : Programming Interviews Exposed

TopTalent: What kind of skills do you think helped you getting this job?

CS fundamentals is very important . My 3rd round was completely on CS fundamentals. It lasted around for 1hr and 15 minutes. One should not ignore CS fundamentals when preparing for interviews . Data structures and algorithms is must as all know. Choosing one site and practice coding regularly is also very important.

TopTalent: What's your advice to students who are aiming for similar placement offers as yours?

1. Don't just go through the codes. First try it on your own, that's very important. Once you have cracked a problem, write it in a paper and check for the corner cases.
2. For the coding part, once you have cracked a problem, always try to run the program at one go.
3. OS, DBMS and Networking. If you get a good hold on these subjects, it will make you stand apart from other candidates.

TopTalent: What should one keep in mind while preparing a resume?

My resume had only one page in it. I would suggest to keep only relevant information in the resume. Most important thing, one should be ready to answer any query on everything in his or her resume.

In case you missed, you can also [download his resume](#) by logging in.

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324. Samsung On Campus Interview

Recently Samsung visited my campus for full time recruitment.

Round 1:

60 MCQ – 20 each on verbal, logical reasoning and quantitative analysis

One hour was given and around 70 were shortlisted to next round

Round 2:

We then had next round the very same day and it was coding round. There were three questions and 1 hr was given

1. Given two polynomials as linked lists, return a linked list which represents the product of two polynomials
2. Given a string find the number of occurrences of the pattern 1[0]*1
3. Given a boolean 2D matrix, find whether there is path from (0,0) to (i,j) and if there is one path, return the minimum no of steps needed, else return -1

Technical Interview I:

It started with a formal introduction and the interviewer asked about me. Then he started asking me about my project on Distributed Systems and various questions based on that. Then questions on TCP/UDP, which is better, how, etc

Then he asked me questions from the linked list question asked in coding round. As I didn't complete that question and he asked me how will I do it. They had the code and asked me to correct it.

Given a number, how will you swap the nibbles.

Given two arrays of equal size 100, one array contains 100 consecutive unique numbers in random order. The other contains numbers with the same range as the first, but they need not be unique and there will be repetitions as well as some numbers missing. Now return the array which has unique elements

As I said I was interested in mobiles, he asked the differences between Android and iOS
He asked two small puzzles as well

Technical Interview II:

The next round interview again started with a formal introduction and he asked about my passion, etc. Then he started asking basic questions on OOPS concepts. I was asked about many keywords in C and how they work. Memory map, variables storage, etc.
They require candidates with very good knowledge on basics.

Again in this round, my project on Distributed Systems was taken and there was a thorough review about it. How i implemented, why did i do that way, etc.

Next he had a discussion about my internship, what I did there, etc.

Finally the dynamic programming question asked in round 2 was reviewed and he asked for optimizations.

Technical Interview III:

Few were selected for HR from round 2, but i had another round of technical interview where again i was asked questions from networks and OS basics, scheduling, difference between mutex and semaphore and many more conceptual questions. There wasn't any coding related questions this time.

HR Round:

Then finally i was called for the HR Round. Following questions were asked:

1.Tell about your internship experience

2.Did they give you full time offer?

3.Why do you want to join Samsung, when you have an offer already? (I had an offer from the company I interned)

4.What were the companies you attended previously and why do you think you failed in them?

5.How did you take those failures and improve them?

6.Questions about how the previous rounds were and what department you'd like to work and few more i forgot.

Finally after a long wait, the results were said and I was lucky enough to get selected.

Thanks a lot to geeksforgeeks without which I couldn't have prepared well.

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325. [TopTalent.in] Exclusive Rapid Fire Interview with Gritika Who Got a job offer from Microsoft

For Gritika, and for many others like her, Microsoft is a dream company. As she recalls 'I sat for Microsoft as a part of my campus recruitment.

Microsoft has always been my dream company. After getting placed, I didn't sit for any other company.' Being relieved at the thought sign off a recruitment season at a high, her biggest moment to savor was seeing a smile on her parents' face.



We at TopTalent.in spoke to Gritika from Jadavpur University about her experience of a Microsoft interview and what others can learn from her experience. You can also

[download](#) her resume to see her detailed profile.

My toughest interview was the third round of my Microsoft interview, after which I was asked to leave. But, seems like I was destined to get the job and was called back Even the HR round was quite grilling, the interviewer was very friendly still the answers he expected had to be prompt and precise.

Your Preparation Strategy: I worked on data structures. I feel if you have a sound knowledge of the various data structures, it helps in optimal problem solving. But practicing codes is also very important, as it enables us to identify all possible bugs and test cases.

Resources: Geeks for Geeks, I owe my success to that site. My college seniors were also very helpful. They guided me, which enabled me to only study the relevant topics from the pool of available topics.

Your Skills: Writing codes efficiently (on paper as well), this helps in the PI rounds as we can develop linear program writing skills. Identifying test cases, as we know Microsoft puts great emphasis on test cases.

Advice: Have a mind of your own. Don't just mug up efficient solutions to problems, try to come up with your own solutions. This is what makes you stand out from the others when you are confronted with an unknown/unexpected problem.

Resume: Keep it precise (within 2 pages). Highlight your skills and achievements. Doing project work is certainly helpful as it demonstrates that you are capable of developing something useful from just a list of requirements.

In case you missed, you can also [download](#) her resume to see her detailed profile.

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326. Nvidia Interview | Set 2 (On Campus for R & D Team, Pune)

[Answer](#))

4 sections, no negative marking but they had sectional cut-off.

Section 1 (C, C++):

15 questions.

Mainly questions of type what will be output of following, type of error.(compile time or run time ,etc.) [Do pointers, pointer to functions and OOP concepts in detail]

This section was quite easy.

Section 2 (Operating System):

10 questions.

Questions on deadlock, process scheduling, priority inversion , look-aside buffer memory, etc.

This section wasn't that easy.....

Section 3 (Data Structures):

8 questions.

DSA questions on sorting, searching , graph traversal (BFS n DFS),Minimum spanning tree (Prim and Kruskal algo), Shortest path(Dijkstra's algo).

Time complexity related questions and applications of all above mentioned topics. No straight forward questions.

Toughest section of apti.

Section 4 (Quant):

8 questions.

Questions on probability, series , simple logic puzzles.

Easiest section of apti.

No. of people shortlisted after the aptitude test = 20

Coding round

3 questions were there out of which we had to solve only 2

1. Implement stack (push and pop) operations using linked list.
2. Find the first non-repeating character in a given string in $O(n)$ time complexity.
3. Given co-ordinates of two rectangles find co-ordinates of intersecting rectangle.

No shortlist after this test.

Hints

ROUND 1 (Technical Interview):

Questions:

1. Tell me about yourself
2. What is your goal?
3. Find whether no. is even or odd...(I gave mod2 solution)
4. Then he asked about machine cycles required registers requiredwhat exactly happens at os level.....then drawbacks of all these....
5. So asked to give another solution to do same....so I suggested ($X \& 1$)....
6. He said still it require 1 extra register.... I gave another solution using shift operator
7. What are sockets, pipes, inter-process communication?
8. What is little endian and big endian?

9. WAP to determine whether your system is little endian or big endian?
10. Convert little endian to big endian in constant time.
11. I asked what does nvidia exactly do in s/w development section?
12. He asked to give my opinion I told they take diff OS n optimize them to work more efficiently (in terms of time and memory) with nvidia cards and GPUs.
13. He said your guess is correct....and explained even more.

They shortlisted 7 people from this round.

ROUND 2 (Technical Interview):

Questions:

1. Volatile memory and volatile variables.
2. Function pointers and one program to implement function pointer.
3. Uses of function pointer...(I said to send a function as argument)...he asked more...
(I told that I know only one)
4. What is polymorphism? What is virtual function...? How will you implement if I tell you to develop compiler?

I said, I will maintain a static table to store pointers of virtual functions for each class... so it can be accessed by all objects....and my call to virtual function will be converted as.....

p->fun_ptr->fun()....where p is my pointer to object.(He said this is another use of function pointer)

5. What is function template? Do you know what exactly happen when template is executed? If you don't then tell how will you do that?

6. What happens in recursive function calls? What are the drawbacks?

7. What is process, Thread? What is multi-threading?

8. Design data structure to implement multi-threading.

9. Can you find maximum stack memory available using above data structure....I said....can be....and told how I will do that....(pure imagination it was)...he was impressed

10. He was going too deep at OS level....mainly kernel part....how kernel manages all processes?

11. Thread scheduling....difference between process and thread scheduling.

12. Storage classes in C++....on which part of memory these variables are stored?

13. What is malloc, calloc function?

14. Memory allocation in struct? Why it is like that....why continuous memory is not allocated to struct variables?

It is like that so the variable can be fetched in single machine cycle...else it may require more than one increasing processing time.

15. Implement your own malloc function such that it will allocate memory of 16 bytes and starting address will always be divisible by 16.....was told to write code.

16. What exactly happens as we free up dynamically allocated memory using free()
I told OS allocate the block of memory to some other process.

17. In class of 100 students there are 24 girls and 32 boys....no 3rd gender person.....
I gave him confused look....and asked how it is possible...? He said that is the question...you tell me....and told me to write equation....

I wrote on paper..... $32 + 24 = 100$

I got a sparkand I said it is possible only if these are the numbers to base 6....

He said,"Yes....you got it."

18. Asked about my code which I wrote in coding test....he doubted on that....I proved it works for all test cases....showed him with some test cases.

19. Again a puzzle... On my birthday party he was invited....so he took a rectangular cake for me....but on the way he was so hungry that he ate a rectangular piece of cake.....The cut piece can be of any size and orientation. I was only allowed to make one straight vertical cut so that I and my sister will get same amount of cake. My answer ... In general, when a straight cut is made at any angle through the centre of a rectangle, the resulting pieces are always of equal area. So let's consider our situation. What if we make a straight cut such that it passes through the centre of both the rectangles?

ROUND 3 (HR Interview):

Questions:

1. How was the day?

2. How was apti, coding test, and entire selection procedure?

3. Asked me if I have brother and/or sister...then about parents.

4. What does your father expect from you?

I answered this in Marathi then translated to English.

5. Asked about future studies.....why I want to work and not want to go for PG.

6. Asked about my interests....

7. Are you a good cook? Tell me your special items that other love to eat?

8. Asked whether I have interest in sports...then we had discussion on badminton and gymnastics....He asked rules of badminton.

9. Asked whether I follow news.....followed by long discussion on elections, Mr. Narendra Modi and his Gujrat.

10. What is your goal? What you want to achieve?

I said to do something technological breakthrough or want an algo on my name....then our discussion moved to NP-complete problems.

The guy didn't know anything about it....so started explaining him about NP-complete problems.

11. More questions about family.

12. Asked "Are you *****guy???" I didn't know that word...I asked him what that word mean....He thought something....then seeing ring (Ruby) in my finger....He asked "Do you believe wearing this ring really helps you???"....

I said "Yess"as I wore it on that day only.

13. Biggest achievement in your life? Why do you think it is bigger than others?

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327. Morgan Stanley On Campus Written Round

Recently, Morgan Stanley visited our campus for the written exam for December placements. Here are the questions for the written round.

3 questions coding + 30 objective

Total Time – 1:30 hr

Objective Ques were simple – C/C++ prog, , input/output, logical ques.

Coding Ques –

- Given an array and a number k. Find number of pairs in the array having sum equal to k.
- Given a number N. We can divide the number into $N/2, N/3$ and $N/4$ at a time rounding all these to integer value. Now you can repeat above procedure for newly generated numbers.

Get the maximum number that you can generate from a given number.

Example – Given Number = 12

$12 \rightarrow 6 + 4 + 3$

$6 \rightarrow 3 + 2 + 1$

$4 \rightarrow 2 + 1 + 1$

$3 \rightarrow 1 + 1 + 0$

So max number generated = 13 (6+4+3).

- Various dates are given to us in a specific format. Find the least date among them.

example – Given-

13 Jan 2014

24 Dec 1994

08 Feb 2000

Ans – 24 Dec 1994

Hope this will help you all.

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328. Sapient global market Interview Experience

1. Recruitment process

- There was a written test which had four sections. Technical, Logical Reasoning,

Quantitative Aptitude, Verbal Ability.

Shortlisted candidate went for **technical interview** round at their office in gurgaon Then further shortlisted candidate went for **hr interview** round Those who got shortlisted after the hr round got the full time offer.

Written Test

- Technical sections had questions from almost all the sections through AMCAT(C, C++, DBMS, DS, OS)(level :moderate)
- Quantitative aptitude's questions were good.. All were almost of **R. S. Aggarwal** level though few exceptions were there too
- Logical reasoning and verbal ability was good.. Some questions were tough.

Technical interview

- project discussion
- asked me to write code of module written in project as my project was in c++
- Linked List : find middle node, DLL data structure, Sort Linked List, count nodes, how to free linked list.
- Polymorphism, Virtual function, types of polymorphism,
- Testing, Black Box Testing, types of testing, difference between spiral model and incremental model.
- Then they came up to global market questions , For eg, sensex, Banks interest, RBI, Finance, Loans, Accounts. (mad tho)
- Puzzles, Train problem, Petrol Tank problem

HR(most difficult)

- introduce yourself
- How will you show that you are confident
- leadership qualities
- GK questions(again mad tho)
- few testing based question.
- Test cases
- Hypothetical situations
- why you Graduation marks are low?
- Puzzles
- They asked do you have any questions? i asked about work culture and relocation
- they asked to tell two qualities of us(hr team)(confused)

Overall enjoyed. But not selected because of my less market knowledge.

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mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

329. Athena Health Interview Experience

In Athena Health you can apply for anyone Development or Testing(QA) jobs.

- 1.** The first round is for checking problem solving ability. It will contain some 10 questions and no negative marks.
- 2.** The second round is coding . the questions for coding may differ for developers and testers. I am sharing the questions that have been asked for developers

- a. For the given sudoku find whether it is valid or invalid.

There are three things you have to check.

- i) Check whether every row is valid if anyone is invalid print it as invalid row and the values corresponding to that row.
 - ii)Check whether every column is valid if anyone is invalid print it as invalid column and the values corresponding to that column.
 - iii)Check whether every square is valid if anyone is invalid print it as invalid and the starting and ending position of that square.

Otherwise print it as valid.

- b. For the given sentence and 2 words find the distance between 2 words.(i.e number of words between those 2 words in the given sentence). If those words are not present in the sentence then print as -1.

- 3.** It is technical round, you will be having 2 or 3 members per panel and questions may be from database,object oriented programming,operating systems, linux commands and algorithm may be asked for problems

- a. Maze problem.
 - b. exchanging the numbers opposite to each other in a clock. Replace 12 by 6, 1 by 7,2 by 8 and so on. The numbers may differ. not only 12 numbers. it should be exchanged depending on the number of elements given in the circular list.

- 4.** Tech 2 contains again questions based on your resume and project.

- 5.** HR about your family.

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330. Amadeus Labs Interview Experience

So recently Amadeus Labs visited my college for Campus Placements and finally picked 10 students. It also offered us 6 month training before the job.

The procedure for selection was as follows:

- 1) Online Test- Verbal and Numerical Reasoning.
- 2) Interviews(Technical and HR).

ONLINE TEST: The online test was conducted by SHL and was really tough. you are allowed calculators for numerical reasoning questions(YOU WILL REALLY NEED IT). The questions in maths were pretty long and therefore required quick reading and analysis skills.I would recommend reading the full question first before you proceed. It will surely save your time. Dont crosscheck your answers. You will not get enough time. You need to be really fast. Keep a good track of the time otherwise you will fail to complete the test. The verbal part was comparatively easy and would be easy to crack. Always remember to stick to the paragraph and do not deduce answers from your own. To practice for the test i would recommend you to go to SHL website and try out practice papers only for NUMERICAL AND VERBAL. It will really help you a lot!!!!

15 students out of 200 got shortlisted for the interviews. Thankfully I made it through.

INTERVIEWS: First of all there was a technical interview.I went in and shook hands with the interviewer. I believe its always a good idea to shake hands even if he hasn't offered first. I don't think there is any harm in offering a hand. He asked me about myself and I tried to drive the interview according to my strengths. He was very thorough with my CV and questioned me about my projects. I made a Ticket booking system which clicked with him as Amadeus does the backend for travel industry. He asked me the drawbacks in my system and ways to improve it.He was really pleasant and patient with me. I would really recommend you guys to be very thorough with your projects and know every bit of it. He then asked me how i would make an unmanned Parking lot management system. He gave me various obstacles in that but I turned out just fine. He then asked me about ROWID(sql). Then he asked me about normalization. He asked me how i would delete duplicate entries from a table. I just explained him the logic and the SQL query i wrote down was garbage. He crosschecked it n questioned me if it will work. I honestly told him that it wont but I tried to explain him the logic. He was not at all disappointed by that.He asked me where do i see myself after 5 years. Then he asked me what is multiprogramming, multiprocessing, multithreading (It was purely because my CV said i scored 'A' grade in OS). His aim was to test my knowledge and confidence.If u can justify your answers and make him realize that you are great with ideas he will definitely select you.

Then i was called for the second round of interview(HR). The guy looked kinda unconcerned(I believe he was testing my comfort level). If the interviewer tries to look

disinterested don't be bothered at all. Just stay polite and confident. Its their tactics to test u. He asked me about myself then about my projects. He then gave me 3 puzzles to solve-

- 1) A father and a son are in a car. car crashes. father dies. son taken to hospital. doctor refuses to operate saying "That's my son!". How?
- 2) 6 eggs 1 basket. 6 people. each pick one egg. still the basket contains 1 egg. how?
- 3) one mother has 2 sons born at the same hour, same day, same year but they r not twins. how?

I could easily solve all three problems and was then asked to wait outside.

Finally i was called for the final HR round which i believe was more of a formality. He asked me normal questions about myself and what would I do once i m in Amadeus etc etc.

Finally I got thru all the rounds and got selected in Amadeus Labs Bangalore!!!!
All the best guys! If its your day... You will make it Large!

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331. Amazon telephonic interview questions for SDE 1

Ques1. Find top 10 selling product given the count of sales of each product.

Ques2. Design a valet parking lot with basic use-case of assigning ticket to customer and retrieving the car later. Three sizes available. Use best fit and nearest distance.

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332. Oracle Interview | Set 8 (On Campus for Application Developer)

Online written Round:

Initially an online written round was conducted consisting of following sections:

1. General aptitude
2. Logical Reasoning

3. Technical (Basic C/C++ questions)

4. English

Overall time limit was nearly 2 hrs. It was an easy round.

Coding Round:

Then after this a large number of students were selected for the next coding round, where we had just one problem to code and time limit was 30 minutes. Problems were randomly distributed, it's just that coding interface was not that good so many fellow mates of mine faced problem getting the output to the console in the right manner.

I got the following program:

A number x supports a number $(x+b)$ where b is the number of set bits in binary representation of x , like if $x = 3$ then x supports $(3+2)=5$ as 3 has 2 1's in its binary representation. Now you are provided with an array of numbers you have to print SUPPORTED if number is supported by any number if not print BLEAK else if there is an invalid input print 0.

After this round 77 students were selected for the interview rounds. A big panel of 9 members had arrived to conduct these interviews.

Interview Round 1:

1. Code :- A simple C program to reverse the words in a string , like if string is “Oracle @ App Dev”, then it should become “Dev App @ Oracle”

2. Puzzle: – Two persons X and Y are sitting side by side with a coin in each's hand.

The game is to simultaneously flip the coin till anyone wins. Player X will win if he gets a consecutive HEAD, TAIL however Y will win if he gets a consecutive HEAD, HEAD.

Now you have to tell is the game fair or not.

3. Some DBMS questions like normalization, joins and composite key.

4. Code: – Given the value of a starting position and an ending position, you have to reach from start to end in a linear way, and you can move either to position immediate right to current position or two step right to the given position. You have to print all the possible path to reach from start to destination. (DP)

This round went for like 45 minutes, the interviewer was really nice and was giving certain clues in between to guide me.

Interview Round 2:

This was a long and scary round, it lasted for like 2 hours.

1. You are provided a CSV (Comma Separated Values) in file like E1:12, E2:32 etc.

You have to generate a tree with maximum height 3 only with the given values in the following manner :

E is the root of tree having n nodes to E1, E2, E3 ... En. E1, have n nodes E11, E12, E13 ... E1n, this is how things go on second level. Similarly for E111 types of element will be modelled.

Restrictions : You can read file only once , you must take care of the fact that if E1 is not in file but say E11 is there you must not include it.

2. Provided a string a character and a count, you have to print the string after the specified character has occurred count number of times.

Ex: String: "This is demo string"

Character: 'i'

Count: 3

Output: "ng"

However, solving this one must take care of corner case when character is not in string or its not in string count number of times etc.

3. Design a website similar to bookmyshow.com for booking cinema tickets but it must be for a single location only which can have multiple theatres in it. In this he wanted me to design a basic rough GUI, relevant database tables and linking GUI to database and also showing the whole data flow in system. Site must also provide features like advance booking, user login, user registration, movie rating option, saving card details etc.

4. Puzzle: Given 10 coins, arrange them such that we get 4 different rows each containing 4 coins.

5. Puzzle: Given 4 coins, arrange them to make maximum numbers of triangle of the figure.

6. In the end he asked Database Normalization and all the normal forms in detail.

Interview Round 3:

It was a technical + HR round, the interviewer asked me about the previous codes that I had made in previous rounds. He was more concerned about the approach than code. Then he started questioning about the site I made in round 3 regarding how I will amend it if it has to go global to all type of customers. Then there were some basic HR questions.

Finally 3 students were selected out of total 77 students (including me 😊).

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333. Microsoft Interview | Set 34 (On-Campus)

1st Round (Online)

15mcq 30mins – Most from C/C++, Few from OS

2nd Round: Coding Online (1 hour)

1st quest: <http://www.geeksforgeeks.org/intersection-of-two-sorted-linked-lists/>

2nd quest: <http://www.geeksforgeeks.org/check-for-balanced-parentheses-in-an-expression/>

13th august:

Top 20 students were selected for the next round. 8 had direct interviews while the rest 12 of us had another elimination round. The selection was done using the total score of both the online rounds

Elimination Round: Pen and Paper (20 mins)

Write the code implementing a queue using stacks.

Interview 1: Technical (1 hour 15 mins)

The interviews were on in parallel and when I went for my 1st interviews some were already rejected while some even had their 2nd and 3rd interview rounds.

Asked about myself and my history followed by technical questions.

1. Suppose you have an array of elements which has duplicates except 1 number, ex. 1,2,3,4,3,2,1. You need write a pseudo code to find the unique number. Here ans – 4. Also asked the complexity of my code which was O (n).
2. Tell the pseudo code to reverse a linked list.

I started to make the logic for O (n) but he said it might not be possible to do it in 1 iteration so not an issue. But I gave him the logic of O (n) and 1 iteration.

3. You have a matrix a[m] [n]. Transpose it into a matrix b[n] [m] in minimum iterations. I could think of $m^*n/4$ at most.
4. Questions on OOPS
5. Difference between OOPS and C
6. Difference between abstract classes and interface. Gave cases for me to tell the error or right ans in abstract classes.
7. DBMS: 5th largest salary of employees from a given table. I answered using rownum and then limit but he wanted a general ans. So all I could tell was using nested query.
8. Puzzles:
 - There are 25 horses. Only 5 can run together at most. You have no timer. Min no. of runs reqd. to find the fastest horse.
 - There are 4 people who want to cross a bridge. Minimum time they take to cross a bridge is 1, 2, 7 and 11 respectively. There is only 1 torch and at most 2 people can

cross a bridge at a time. But no one can cross the bridge without torch (Someone has to come back to give the torch). Find minimum time in which all 4 cross the bridge.

2nd puzzle I 1st answered 22 but then corrected myself and answered 18 (1 and 2 cross. 1 comes back. 7 and 11 cross. 2 comes back. 1 and 2 cross – total time $2 + 1 + 11 + 2 + 2 = 18$).

I was informed 5 minutes after my interview to be ready for the 2nd Round.

Interview 2: Technical (20 mins)

Was asked about self, my project on cloud computing and questions related to it.

1 technical question.

Write a code to delete x elements after 1st n elements.

I wrote the code but missed the case where $n = 0$. So as he was checking the code I told him the case I had missed. He was confused if the code would work if there were less than $n + x$ elements but I showed him that it would.

Was a short interview compared to others and was scared of being rejected but finally was called for the hr interview in sometime.

Interview 3: HR (20 mins)

He first told me about the code I had written in the elimination round that it was the best code he got in the day. Following it were typical hr questions.

Tell about myself, my strengths and weaknesses. Why do I want to join Microsoft?

Why should Microsoft hire me?

About my college project and my summer internship project.

What would you like to improve in yourself 3 years from now (other than knowledge)?

Finally after the whole day of interview I was selected with 1 more guy from our college. Thanks to geeksforgeeks.org and geeksquiz.com for helping me prepare and crack the interview.

Important Points:

1. Always show a lot of energy in the interview.
2. Microsoft gives great importance to values and ethics so stick to them in your questions.
3. Speak out whatever approach you think in the interview. The interviewers do not want to sit idle. They love to understand how you think.
4. Do try showing company's goals as yours.

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334. Microsoft IDC Interview | Set 35 (On-Campus for Internship)

Online test: This test was organized by cocubes.com, and had to be completed within an hour.

There were two coding questions:

1. There is a linked list whose node is defined as follows

```
struct node
{
    int x,y;
    node* next;
};
```

We had to implement a function which takes the head of linked list, and if any three consecutive points lie on same horizontal or vertical line, we had to remove the middle node. The linked list will either be empty or will contain atleast two nodes. The function prototype was:

```
void remove(node* head)
{
}
```

Example:

```
Input: (1,2) -> (2,3) -> (2,4), (2,5) -> (3,4)
Output: (1->2) -> (2,3) -> (2,5) -> (3,4)
```

2. Given a sorted array, convert it into a height balanced binary search tree. A height balanced tree is one in which for every node, the height difference of left and right subtree is at most 1. Node of binary tree was:

```
struct node
{
    int data;
    node* left;
    node* right;
};
```

Function to be implemented was:

```
node* binary_tree(int* ar, int len)
{
}
```

Interview:

There were 3 rounds of interview, and we had write code on paper.

Round 1:

There were two questions:

- Given a string, remove all continuous occurrences of 'a' and any occurrence of 'b'.

Example: Input: "aacbccdbsssaba", then output: "acccdsssa"

- What data structure should be used if we have to implement insert and delete functions in a text editor? The functions should be as fast as possible.

Round 2:

Question 1: Given a string and two positions in that string, shuffle the string, that is, move the given substring to the front. Example:

Input: abcdefgh, 4,6

Output: defabcgfh

This has to be done inplace with O(n) time complexity.

Question 2: How to implement dictionary data structure in C++? What kind of hash functions shall we use? How to manage collisions?

Question 3: How would you implement vector data structure in C++ on your own? What would be the accessing time complexity? How can you make it O(1)? How to resize the structure?

Round 3:

Question 1: Given a k-ary tree, how to print the elements layer wise?

Question 2: Given a singly linked list and a number 'n', write code to reverse every 'n' elements of the linked list. Example:

Input: 1->2->3->4->5->6, n=3

Output: 3->2->1->6->5->4

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335. Akamai placement questions for the role of Associate Network Infrastructure Engineer or Associate Network Operations Engineer

It was of 3 rounds :

1st round was aptitude (written test) which contained 30 general aptitude (which includes 2 analytic, 5 mathematical aptitude, also pie diagrams where 4 questions has to be answered using this diagram. other i don't remember) and 20 technical questions (which includes networks, unix commands, c programs to find out output and DBMS) it was quite easy. You have to get minimum 15 in general apti and minimum 10 in technical apti.

2nd was technical round

They asked most of the questions from networks and linux.

If u go for this post please prepare well with networks basics such as
OSI layers

function of each layer.

device used in each layer.

functions of switches,bridge,router. difference between each.

advantages of c over c++.

questions on linux.

program to find prime numbers.

and still more technical questions

also they asked why should i hire you ?

wt do u know about Akamai ?

but unfortunately i couldn't clear this round .

3rd round was HR round even there some of basic questions on networks and linux was asked to my friends. and communication skill is important in HR round.

finally they selected two candidates out of all.

Guys if they come as tier two company the interview process will be easy. Don't miss the chance.

All the best..!!!!!!

If they come as tier 1 company definitely they'll ask coding.

First was online test for 1 hour after that 45 min of coding.

In coding 3 questions was programs (One was on linked list other was related to pattern matching and one more is related to reverse of string) and one UML diagram.

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336. Morgan Stanley Interview | Set 12 (On-Campus for Technology Analyst)

Morgan Stanley recently visited our campus for its full time Technology Analyst position and Summer Analyst (Intern) position. I applied for full time.

There were 5 rounds in all.

1. **WRITTEN ROUND** : There were basically 2 parts : Aptitude and Coding.

Aptitude Part : There were 30 questions to be completed in 45 minutes. There were 10 aptitude questions which were quite time-taking.

Questions were

from Data Interpretation as well. Then we had to choose a section out of C/C++/JAVA and the rest 20 questions were from your chosen section.

The chosen section was also time-consuming.

Coding Test : There were 3 questions to be completed in 1 hour. Program 1 was to find the required element of Pascal's triangle. Program 2 was to count all the palindromic substrings in a string. I am sorry but I do not remember Program 3.

2. **TECHNICAL INTERVIEW 1** : It lasted for around 30-35 minutes. Questions were on array, hash map, file handling and string theory. All questions were generally algorithmic in nature.

3. **HR INTERVIEW** : It lasted for around 50-55 minutes. We were basically grilled in this interview.

4. **TECHNICAL INTERVIEW 2** : It lasted for around 1 hour. In this round, there were questions based on real-life scenario like designing a shopping cart for an e-commerce website etc. Then there were algorithmic questions on queue, graph and trees. A problem was given and I was asked to reason out the best data structure to solve that problem. There were simple problems on linked list.

5. **GROUP TASK ROUND** : It was an entertaining round but was quite pressurising. We were divided into groups and asked to make something with LEGO Blocks that they had provided. There is a time-constraint in this round. We had to explain all the design aspects of our construction like name, choice of colour, significance of buildings, structure strength etc.

Finally after 5 rounds of interviews, I got selected. I thank my parents, friends and my seniors. Of course, geeksforgeeks is not to be left behind!!!!!!

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337. Amazon Interview | Set 124 (On-Campus)

Hello friends, recently amazon visited our campus selecting 2 FTE and 7 interns for different roles.

I would like to say about rejections. I've got rejected in many companies (even in

Amazon) but finally got placed in a good company. So be strong, there is always a door opened for us.

Here I share my experience with amazon.

Round 1:

Around 500 people attended this round. As usual 20 MCQ and 2 programming questions.

We need to do at least one programming question to get through this round.

MCQ's include various topics like OOPS, OS, CN, DBMS etc.

Two coding questions were:

1. Merge two linked lists of different size such that nodes from each list are arranged alternatively.
2. Finding the minimum difference (I forgot the actual question).

59 people got shortlisted in this round.

Round 2:

It's a group fly round and people are divided into groups and asked to sit in different class rooms.

We were given a question in a paper. Here everyone got a standard question. The question which I got was "Finding the largest contiguous sub array, start and end indexes must be printed with sum " (kadene'salgo).

My friends got questions like "Boundary traversal" etc.

So, This round is very simple and if you are strong in standard problems, you can clear it with ease.

29 got shortlisted to next round.

Round 3:

It was very simple for me because we were running out of time. Only one question was asked.

"Find the kth element from the end in a SLL "

Different approaches were discussed and he asked me to code for the best one.

19 got shortlisted to next round.

Round 4:

It was one of toughest round for me. I was very much interested in SDE role but I was interviewed for SE/QAE role. I dint dare to ask the interviewer about the role. We are not said before the interview that they are going to interview for that roles. I mean it is in their hands to decide the role that matches your skills.

Questions were a bit tough for me in this round because am not much good in troubleshooting and testing. And this round went almost for 1 hr 30 mins.

Questions:

1. Given start and finish times of a youtube video and how do you confirm that the video is completely watched by the user or not? I gave a solution, we can set flags when the

user watches a particular unit of video. He asked me how discrete? I said it may be in terms of seconds. He then asked me, If a user is just watching in terms of microseconds? I was not able to give the right answer. He was not satisfied with my solution. 😞

2. A web application is running. We have only a text box. If we enter a name in the text box, we get the details of the person whose name is entered. Now the question is to troubleshoot the application when it stopped displaying the results after entering a name(whose details are present in the data base).

I answered many points here, like server is disconnected and there may be locks on the details such that only one user can access the data at a time. And many other, but he was not much satisfied.

3. Give the test cases for the Gmail login page. At first I got tensed on hearing this question but I answered well. I almost gave 10 test cases quickly but, the interviewer want to extract as many he can. So he started noting down all the points which I said and kept asking me further points. Finally 25 – 30 test cases were covered.

4. Given a video whose audio is not playing in a video player. Troubleshoot.

I gave many answers here. Like, there may be two major possibilities here. 1. The video may have some problem 2. The video player software may have some problem. Then I gave many points in each category. Like OS dependent etc. He was satisfied with my answers.

5. And 2 more questions were asked (I forgot) They were from testing and troubleshooting.

14 got shortlisted to next round.

Round 5: (Hr + Tech)

This was the round which I dint get through. 😞

First, Tell me about yourself. I request everyone to be well prepared for this question in any interview. It looks so simple, but its very difficult to impress the interviewer with your answer here.

Next was a question from trees. Find the vertical sum in Binary tree. I said I've done it before and I know the solution. He asked me to go ahead. Then I answered the same thing which was given in GFG. He then asked me to do it in a single traversal. I gave another solution but it also took 2 traversals. He scolded me that it is also taking 2 traversals. I was not able to think anymore after this. But it was very simple one. ?

Next he asked me to find the duplicate chars in a infinite length stream of chars. I gave a hashmap solution and he asked me about hashmaps. He then extended the question that we have Integers also. Even then I said hashmap solution suits. He asked me about collisions here. He asked me how much size of hashmap you need?. And also about the range of elements that can be mapped? I answered well all these questions because I've read a lot about hashmaps.

Next he asked me a troubleshooting question. I answered this like the one which I faced in the previous round.

Next he asked me “what happens during withdrawal of cash from ATM “? (only during withdrawal ?)

I was not able to convince him with my answers. He was expecting a lot in terms of internal clocks and stuff in ATM.

Next He asked me “what happens when you enter an URL in a web Browser “?

I read this question in many interview experiences, so I answered it well But, He asked few questions in between. Like what is HTTPS? What does ‘S’ stands for in ‘HTTPS’? And finally I was in a trap by this final question. What is a Web server? I really don’t know. But I dared to answer, But to my bad luck I answered DNS server instead of Web server. He was very much angry with my answer and asked am bluffing? GONE 😞

All the impression was gone by just one simple mistake of mine and I dint get through. Finally 9 people got offers out of 14.

2 were FTE and 7 were given INTERN.

TIPS:

If you are aiming for AMAZON then just try to solve as many questions as possible in GFG.

Try to be frank in the interview. If you don’t know the answer, Just accept that you don’t know.

Finally be Strong. Rejections are inevitable unless you are very cautious.

I hope this will help others.

ALL THE BEST.

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338. Amazon Interview | Set 125 (On-Campus for Internship)

Online Round

In this round there were 20 MCQs to solve and 2 coding questions. Of the 20MCQs a couple of questions were on OS, Quantitative Aptitude, Data structures etc. Most of them are there on www.geeksquiz.com. In MCQs there was – 0.25 marking for every wrong answer and +1 for right answer. Coding questions were of 10 marks each.

Q1- Given an array of positive and negative numbers, arrange them in an alternate fashion such that every positive number is followed by negative and vice versa maintaining the order of appearance.If the count of negative numbers is more keep the extra at last in array

constraint : Space complexity should be O(1).

Q2- Given an array of random numbers, Push all the zero's of a given array to the right end of the array in minimum possible swaps. Order of appearance doesn't matter. Print the total nonzero numbers and minimum swaps needed to do so.

input : {1, 9, 8, 0, 0, -2, 0, 1, 6}.

output :

nonzero : 6

swaps : 2 (-2 as it is and swap 1 and 6 from first two zeros.)

18 were selected out of 55 for f2f round.

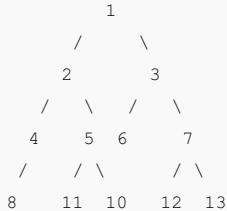
Round 1 F2F :

Q1- Two linked lists merge at one point, return the converging node. Constraint- O(1) space and O(m+n) ,where m and n are lengths of lists.

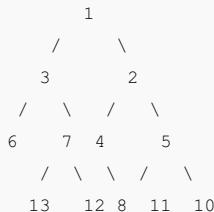
Link: <http://www.geeksforgeeks.org/write-a-function-to-get-the-intersection-point-of-two-linked-lists/>

Q2- Rotate the alternate levels of a binary tree.

Input:



Output:



First he asked to do it without recursion and then with recursion. O(n) time complexity.

Q3 – Write an efficient function that takes two strings as arguments and removes the second string from first string (in place). (Shifting not allowed)

input:

str1: aabcabcb
str2: abc

output: ab

Q4 – Insert an element into a sorted link list which is having loop somewhere and duplicate elements as well.

Q5 – Make your own data structure. which inserts, deletes and gives a random number in O(1) time.

Hint : Use hash table and array.

Round 2 F2F :

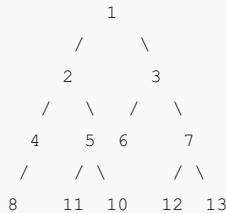
Q1 – You have n pencils, each having l length. Each can write 4 kilometers. After writing 4 kilometers it has $l/4$ length. Then you can join 4 pencils which are having $l/4$ length and can make 1 pencil. You can't make pencil of pieces if remaining pieces are 3 or 2 or 1 in number. And you can include these remaining pieces whenever you need. Write a recursive relation independent of l ,length of given pencil, for how much one can write from n pencils. Write mathematical equation also.

Q2 – Find the largest sum subtree in a given Binary Tree.

Q3 – Reverse level order traversal.

time complexity : O(n)

Input:



output:

```
13 12 11 10 8 7 6 5 4 3 2 1
```

You are permitted to use extra space and now print them in separate levels too.

Output:

```
13 12 11 10 8
7 6 5 4
3 2
1
```

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339. U2opia Mobile Interview Experience

Applied through Greymeter and received call next day for the recruitment process of Software Enginner(Product Development-C, C++, Java)

Test started with Written Tests

Comprises of 11 Questions Java,20 Questions c++ and 20 Questions Analytical ability

In Java,C++ questions were totally concept based and you have to attempt all of them as there is no negative marking.

Java:

```
String s1 = "Hello";
String s2 = "Hello";
if(s1==s2)
    System.out.println("Yes");
else
    System.out.println("No");
```

```
String s1 = "Hello";  
  
if(s1=="Hello")  
    System.out.println("Yes");  
else  
    System.out.println("No");  
  
if(s1.substring(0, 3)=="Hel")  
    System.out.println("Yes");  
else  
    System.out.println("No");
```

What interface or class you have to implement or extend to override java's default mechanism : _____

Which one of the following is thread safe

- 1.StringBuffer
- 2.StringBuilder

What are the ways you can implement threading in java.

C++:

```
int *p=10;  
cout<<*p;  
  
int *p=10;  
cout<<p;
```

how to get address of float type variable

- 1. &
- 2. float (&)

C inherit B and B inherit A, what are the data types of B and A ,C can access

- 1.Protected and Public
- 2.Public and Private
- 3.Private Only
- 4.Protected Only

Aptitude :

Questions were based on following types:

- 1.Speed Distance Time

2. Profit and Loss
3. Geometry
4. Average

Technical Interview (First Round) :

1. Differences between C++ and Java ? How is java platform Independent ?
2. Garbage Collection ? Why java perform its own garbage Collection ? what was the problem with delete and free in C,C++?
3. Thread Implementation ? Daemon threads ? How to implement ? What is the difference between thread and a process ?
4. Abstract class vs Interface ? Give scenarios for which two different concepts are introduced ?
5. Interviewer wrote 5-6 programs based on Strings, Threading, Exception Handling, dynamic method dispatch and ask me to find Errors, Correct them and give the final output.

Technical Interview 2(Second Round):

1. He draw a tree structure on board and ask me to store the structure in a table without disturbing relations.
2. How to implement Automatic Garbage collection in C++?
3. Write a program for queue ?

HR Round :

Discussion about Products company made till date, and what my role will be if I got selected.

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340. Payu Interview Experience | Set 3 (On-Campus)

Recently Payu visited our campus and its process of selection was as follows:-

Online Test :

15 technical questions + 5 Coding Questions(I solved all the coding and about 10 technical Questions). Luckily i got shortlisted for the personal interviews. There were 4 technical rounds and 1 HR round.

Technical Interview 1 (30 mins):

1. Introduce yourself.

2. Tell me about Projects
3. Code for a modified least common ancestor of two nodes in BST (complete working code with boundary conditions needed).
4. given two strings, remove the characters from string1 that appear in string2 in O(N) and constant space.(code was needed).
5. modified DP problem of Rod Cutting.(No code needed, we wanted the mathematical equations and how to solve by DP approach).

Technical Interview 2(45 mins):

1. Introduce Yourself.
2. Asked me to write the complete code for insertion and deletion in AVL Trees implemented using maps.(I mentioned it as one of my projects).
I was not able to write complete code and then asked me if can only explain it(He was OK with that).
3. Discussion about how to maintain session of users on web.
4. Discussion about what are cookies and their significance.
5. Given an array of integers, find all pairs with a given sum K.
6. Given an array of integers, find all pairs (a, b) such that $(a \% b) = k$. (k was given as input). O(N) solution was expected.
7. Given an array of integers, find all subsets of size 2 and size 3 such that in subset of size 2 , $a+b = K$ and in subset of size 3 , $a+b+c = K$.
(K given as input). needed O(N) solution.
8. Few questions on resume and achievements.
9. Puzzle: Given 16 horses find the top 5 horses in least number of races. Only 4 horses can take part in a single race.
(my starting approach was correct, but later on asked for hint), finally solved.

Technical Interview 3(30 mins) :

1. Introduce Yourself.
2. Why not higher studies.
3. Why Computer Science.
4. Gave me a paper with a single problem on it :- Given an English Dictionary that contains only valid English letters. We need no to worry about the way English Dictionary was implemented. Given some input and the corresponding output , I was asked to write the code for getting the required outputs. Once you are done with small cases he kept on giving more complex inputs.
He was actually checking by understanding of the Recursion, base cases and Problem Solving Approach. Code was needed for every case.

Technical Interview 4(40 mins) :

1. Introduce yourself
2. What is KMP Algorithm. Write code for preprocessing function.
3. Difference with Http ans Https.
4. How Security is provided on network.
5. DBMS : Discussion on Normalization and its significance and various Normal

forms(1st NF, 2nd NF, 3rd NF, BCNF).

6. OS : Explain Paging with Example.

7. Design Patterns: Asked me to implement Singleton Design Pattern.(Asked for hint and then implemented it).

8. Some easy questions on Arrays again.

9. Asked to write code for Vertical Tree Traversal by considering all boundary cases and all test cases. (I took some time then coded using map >). He was okk with my code.

10. Asked me the same English Dictionary question, I told him that I have already solved it.

11. How to implement Mutual Friend Feature of FaceBook.

12. How to implement top 5 friends feature.

13. Asked If I had any Questions.

HR Round (20 mins) :

1. Introduce yourself.

2. Why Pay U

3. Most Challenging situation during college projects and how to solved it.

4. Strengths.

5. Weaknesses.

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341. Expedia Interview | Set 4 (On-Campus)

My Expedia Experience:-

Online Test:-

MCQs on almost all topics (DS, Algo, C, C++, OS, DBMS, Quant, Verbal)

2 coding problems:-

1. Rat in a maze(Basic Recursion Problem).

2. Given a undirected graph check whether it is a tree or not(Easy BFS problem).

F2F Technical Interview Round 1(40 Mins):

-Very Long and depth discussion on Projects.

-Discussion about some google products implementation :(.

-Given Inorder and Preoder Traversal of a binary tree, Construct the Binary Tree. (Complete code with all boundary Conditions needed).

F2F Technical Interview Round 2(40 mins):

- Discussion on projects(Asked to dry run the algo used)
- Multithreading?
- Process and Threads ?
- Semaphores Implementation + Some Basic OS Questions(Critical Sections etc)
- Solve Reader Writer Problem with Semaphores(Code was needed :P)
- Given a tree, print rightmost nodes.(I said, it can be done using Level Order Traversal and printing the Last node at each Level,
then he asked to write the code for it).
- Implement Queue With 2 stacks
- Some More Questions on another projects.

F2f HR(60 mins) :

- Introduction
- Many Questions on different practical situations, and asked for my reaction to them.
- Find top 3 records from an employee table.

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342. CommVault Systems Placement Experience

My CommVault Experience –

First Round(Coding):

First round was a coding round. There was 1 demo question, and 6 real questions. Coding had to be done in their own environment. Partial marking(for partial passing of test cases) was there.

Questions were:

1. Given 2 integers m, and n (decimal system), write a program to perform right shift on m , n times.
2. Given a stack (implemented using linked list), and some pre-defined functions : push(int), pop(), and isEmpty(), write a recursive function to reverse the contents of the stack. (No loops allowed).
3. Given a string s, and a mask string m, delete all characters in s that were common to s and m.
4. Given a 2-D array of x's and o's, write a function that first rotates the matrix by 90 degrees clockwise, and then pushes all x's to the bottom and o's to the top in every

column.

```
For eg, if given matrix was: x o o  
                           o x x  
                           x o x
```

```
After 90 degrees rotation: x o x  
                           o x o  
                           x x o
```

```
After pushing x's to bottom: o o o  
                           x x o  
                           x x x
```

5. Given preorder and postorder of a binary tree, write a function to find the inorder of the same tree.

6. Polynomials are represented as linked lists in the following manner:

Each node has 2 members, the coefficient(coeff) and the exponent(exp). Nodes given in decreasing order of exponent. For example, linked list:

(5, 4)->(2,3)->(3,1)->(4,0)

represents the linked list:

$5x^4 + 2x^3 + 3x + 4$

So, given two polynomials as 2 linked lists, return the sum of these 2 polynomials as a linked list.

25 students were shortlisted in this round.

Second Round:

This was a 7 hour coding round. We had to complete their code for a virtual file system. There were certain milestones which had to be completed. At the end, only 4 students were shortlisted.

Third Round(Tech & HR Interview) :

Tech Interview:

First, I was asked to walk through my CV. They asked some basic questions about my projects, and I answered. Next, I was asked 3-4 hard puzzles. After that, coding questions, mainly from OOPS, DS and Algorithms.

HR Interview:

The HR interview was mainly about my CV. I was asked about my projects and roles held, and what all work I had done. It was pretty basic.

Finally, 2 of us were selected.

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343. Microsoft Research India Interview | Set 36 (On-Campus for Internship)

Recently Microsoft research india invited application for internship. They shortlisted based on CV (projects related to your topic of interest and CGPA).

After shortlisting I had one telephonic interview of about 40 minutes:

Main focus was on the project I did. I had to explain every thing I did in my project its basic utility and model. Interviewer asked me key challenges faced, key aspects used and many other things related to my project.

Then he asked me one data structures question:

Given n numbers you need to find min and max. How many comparisons are required.. optimize the approach

(<http://www.geeksforgeeks.org/maximum-and-minimum-in-an-array/>)

Then he was satisfied with the answers, he asked few more questions based on my project. I pushed some codes of project on github and provided link of the same in my cv so he asked about who came up with the design and how did you do this and that..

Finally the interviewer offered me internship offer at MSR India.

Special tips:

Be confident during whole interview.

Have positive attitude and talk with the interviewer while solving any question.

I want to thank geeksforgeeks for providing such a useful bank of questions.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

344. Microsoft Interview | Set 37 (For SDE-1)

Skype round:

- 1) Print the last n lines of a file (Hint : treat it like a linked list)

2) Length encoding -

Input: aaabbc Output: a3b2c1

F2F round 1:

1) Given a few points in first quadrant – (x1,y1)(xn,yn) and given another set of points (a1,b1....an, bn), determine whether all the points (a1,b1...an, bn) have already occurred in (x1,y1)....xn,yn)

2) Given a graph where every two nodes are either friends or enemies with each other.

Find a way to go from one node to the other.

Restrictions:

- 1) You can also travel from one node to next if they are friends with each other
- 2) You have some "magic potions". You can convert an enemy path to a friend path with a magic potion.

Find the path with min number of magic potions required.

F2F round 2:

1) Discuss one good, one bad feature of facebook. How you will redesign it to improve it?

2) Implement auto complete.

3) Given numbers a1...an find the minimum index, whose element occurs twice in the array. Do it in one pass of the array (or less than O(n) if possible?)

e.g 3 2 4 4 2

Output : 1 (is the lowest Index) since, '2' repeats twice.

Follow up:

Return the element that repeats at the earliest in the array. Output: 4

F2F round 3:

With GM. General discussions about projects/work culture/goals.

I got a call after two days that I've been selected. Many thanks to geeksforgeeks.

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345. Amazon Interview experience | Set 126 (For SDE-1)

Recently I got interviewed with Amazon for SDE1 position and here is my interview experience which I would like to share with others.

Telephonic round:

1. An array is given with element name and their respective pH values. Print the combination of 2 elements which make a neutral compound.

A discussion started and best solution was O(n) time complexity and O(1) space complexity.

Then I got call for F2F interviews and here are those-

Round 1:

1. Print Matrix in spiral form.

2. A store have n customers and any 1 can visit them any time through out the year. Data is stored in a file. Design a data structure to find given person visited on so n so date or not.

Round 2:

1. There are N packages P1, P2...Pn. A package may depend on another or many other for its compilation. Given a matrix of dependency, find a sequence of package compilation.

2. A 2D matrix is given, with each elements representing number of gold coin at that position. I have to travel from (0,0) to last element of matrix collecting maximum no. of coins. I can travel either right of an element or down of it.

3. In Galaxy there are trillions of stars. I am provide distance of every star from earth. Tell me nearest 1Million stars to earth, provided with best time and space complexity.

Round 3:

1. Implement LRU.

2. In Android phones we have 3X3 grid for making a pattern. Given a length, find number of combinations for that length in that grid.

Round 4:

1. Project deep discussion.

2. Few given scenarios and how you will tackle.

3. Strengths and weaknesses.

4. Given a file with many statements. Print all the strings with their anagrams through the file. Logic to check anagrams and to store them.

Round 5(Bar Raiser):

1. Behavioral Questions like

>Why you want to leave your organization?

>What is most challenging work you have done till date?

>Why you want to join Amazon?

etc.

2. Which data structure you know?

3. Say I have few words and their meaning, and I want to store them which DS will you

use and why.

I started with Hashmap and we kept on discussing about pros and cons. Finally ended up with trie. He asked me to write code for it, for adding new word and for fetching meaning from Trie.

The whole process started in 1st week and yesterday got a call from HR for I am invited to be part of Amazon.

Thank you geeksforgeeks for providing such a nice platform to learn and share.

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346. Interview Experience with Indus Valley Partners

Round 1 :

~200 students

Duration 60 minutes

Written round, comprising of aptitude question, logical puzzles, and technical questions.
(basic aptitude + heavy java)

You could clear it smoothly if your basics are clear 😊

Round 2 :

20 students shortlisted and 6 were in waiting list

I was among the shortlisted students, and the fourth one to give the technical round 😊 !

2 interviewers

They started with tell us about yourself, a brief summary of the projects I did.

Then they asked oop concepts and java questions . Questions like threading, diamond problem, virtual destructor, run time polymorphism, compile time polymorphism, operator overloading, operator overriding, searching, sorting, basic algorithms, exception handling, schema, database design, sql queries like finding the second maximum element and joins were the main questions asked .

One of the interviewer gave a table and asked to normalize it. Explain everything you know !

Since I worked with python on a research project they asked questions about it. Then questions about GSOC, GCI and a matlab project . You need to be confident of what you have done and how you have done .

I was also asked a logical puzzle based on the concept of binary search.

I was also asked about the ruby scholarship as I was selected for that and about a technical group for women of whom I am the co founder. One of the interviewer said he felt racial as I made a group only for females 3-4 times (may be he wanted to know how I will react under stress) I explained with an example of the ratio of females working in Indus Valley Partner (females have increased in lvp according to them 😊)

They were happy at the end 😊 as they said it was really nice talking to you 😊

It lasted for 45-50 minutes, within few minutes, I was called for the hr + director round ..

Round 3 :

~10 were called

Duration : 30 minutes

HR + Director round

HR questions like what do you know about ivp, weaknesses, why we should hire you were asked, hobbies

Director asked questions about algorithms and again projects were asked .

I was asked about sorting techniques, I explained about quick sort, merge sort, insertion sort, selection sort, bucket sort, radix sort, count sort with their complexities and auxiliary space used.

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347. Samsung R & D Interview Experience for Internship

There were total 2 rounds.

Round 1:

There were 60 MCQs(20 English + 20 Logical reasoning + 20 Data Interpretation) to be solved in 1 hour.

Round 2:

I got 3 coding questions.

1) Given two numbers. I have to find the number of bit which are required to change in binary conversion of 1st number so that It get converted into second number.

I have to simply compare the bits of both the numbers and whenever the bit is different increase count by 1 and return count at the end.

2) link for 2nd question is

<http://www.geeksforgeeks.org/find-excel-column-name-given-number/>

3) Given a string, I have to find the number of patterns of 1[0]1

where [0] represents any number of zero(minimum requirement is one 0)

there should not be any other character except 0 in the [0] sequence.

eg. 100001abc101

Ans- 2

eg. 1001ab010abc01001

Ans- 2

Both the rounds were hosted by cocubes.com

I solved all the three problems & got selected for the internship.

I thanks geeksforgeeks for this success.

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348. Citrix Interview | Set 2 (Written Test Experience)

Recently, we had Citrix written test in our campus. There was a 1 hr aptitude test & 1 hour coding round. The aptitude test had simple questions on c/cpp, Networking, OS etc. and some general quant aptitude questions.

The coding round had 2 questions to be done in 1 hour.

Q1: A matrix of 1s & 0s are given, you have to find no of groups of adjacent 1s.

Adjacency was based on 8-connectedness. (Finding no of components in an undirected graph)

Q2: A number is given and you had to translate it to string form (Indian system – lakhs, crores etc. not millions, billions etc.) The word “and” had to be added at the appropriate place (after 100s place if there was a digit in 10s or 1s place)

101 => one hundred and one

2311 => two thousand three hundred and eleven

900020 => nine lakh and twenty

35 => thirty five

3 => three

1<=N<=999999999

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GeeksforGeeks main page and help other Geeks.

349. Linkedin Internship Interview for Software development Engineer

Below is my interview experience with linkedin India for software development intern.

First there was an **online round** on hackerrank where they asked 4 simple coding questions about DP, strings and stacks. In this round the selected 3 candidates.

Then there were **2 telephonic rounds**, both were technical, both simple.

In **first round** they asked me 2 coding questions where he asked me to code as close as possible to the actual one.

First question was you are given a array of string followed by two words. You have to find the minimum distance between the two words in the given array of string. For example:

(“the”, “quick”, “brown”, “fox”, “quick”)

distance(“fox”, “the”) == 3

distance(“quick”, “fox”) == 1

Second question: Given two sorted array of Strings, Implement a merged sorted array of string

```
A[ ] = {"good", "person" }  
B[ ] = { "he", "is" }  
return { "good", "he", "is", "person"}  
After this round they selected all three.
```

Then in the **second round** they asked a little about tree and told me to code 2 codes.

First one : You are supposed to do a level order traversal of a binary tree(not necessarily complete) and have to print a special character(say '\$') after completion of each level.

Second: Given a number print all the combination in which no. can be printed.

for eg.

Input:

3

Output:

2 1

1 2

1 1 2

After this round they selected 2 candidates including me.

Tips for the interview: Just be relaxed interview will be simple you just need to be calm and do not make small mistakes like ','. Interviewer's main focus will be on end cases, so keep all end cases in mind while coding. Before start anything keep clear what you are going to code. Finally think out loud. Best of luck.

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350. Amazon Interview experience | Set 127 (For Internship)

Amazon visited our campus for summer internship. I prepared from Amazon Interview Sets which were pretty helpful!

Here is my experience :

DAY 1

They had an online aptitude test on day 1. It was 90 minutes: 20 MCQs + 2 coding questions (choice between C/C++/Java for coding). MCQs were based on DSA, OS, and Math. They were apparently difficult.

Two Coding Questions :

1. [Keypad problem](#) – Little difficult problem on backtracking.
2. [Given an array, find the count of impossible triangle](#)

Day 2:

Surprise aptitude test:

2 coding questions 60 mins.

Questions involved DSA and strongly based on optimising the code:

1. Given a linked list, reverse K nodes in it
eg :- 1->2->3->4->5->NULL , k = 3
3->2->1->5->4

2. Search for an element in an array which has elements whose values are first increasing and then decreasing. (Use modified binary search)

2 One-on-one Interview rounds, both technical.

Try giving THE most optimal algorithm which satisfies edge cases too.

I was told to write the code on the paper.

Questions asked to me were:

First interview round

1. [Find the second largest element in an array.](#)
2. Given a sorted array which can have repeated elements, find the occurrence of an element. (Most optimal solution is O(logn) – Using binary search to find start and end occurrence)
3. Make a data structure and implement an algorithm to print all the files in a directory. (the root directory can have sub-directories too.)

I used an n-ary tree and BFS to print files. It can also be done using Stack.

Second interview round

1. He asked some question about my CV
2. [Print a matrix diagonally.](#)
3. DFS of binary tree, n-ary tree.
4. Then he asked some question from other subjects.
OS – Scheduling
DBMS – Normalization, Transaction
OOPS – Abstraction

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351. [TopTalent.in] Exclusive Interview with Abhishek who got into DE Shaw

Cracking a Day 1 slot company like DE Shaw is not an easy feat. They try to hire the best candidate out there in campus by offering awesome Job Profile and Salary.

Abhishek could achieve this even though he was not in

Computer Science initially. In his own words, 'I felt a different kind of happiness, something out of this world.'



We at TopTalent.in spoke to Abhishek from NIT Kurukshetra about his experience of a DE Shaw interview and what others can learn from his experience. You can also download his resume to see his detailed profile.

TopTalent: What job offers did you have apart from DE Shaw?

DE Shaw was one of the first companies to visit our campus for recruitment. The placement policy of our college doesn't allow a candidate to participate in subsequent recruitment process once you are dream placed. So currently, I have a offer only from DE Shaw.

TopTalent: How do you feel on achieving this feat?

I sort of screwed my AIEEE exam and wasn't able to get the discipline of my choice in NIT Kurukshetra. My interest was towards computer sciences since initial days. We have a provision where you can change your discipline based on your performance in first year. I was fortunate enough to get my branch changed. Needless, one thing led to another and I got this job offer. When the panel announced their results, I felt a different kind of happiness, something out of this world.

TopTalent: What is the profile offered to you in DE Shaw and Why did you choose this opportunity over others?

The profile offered was that of Member Technical, in this capacity, we will be required to designs, implements, and maintains the firm's computer and communications infrastructure. I chose this opportunity over others because DEShaw has very less number of employees (around 1300). It feels good to be among the best few.

TopTalent: Can you give us a brief account of the whole interview process?

First, a pen and paper test was conducted, it was a MCQ type paper of 50 minutes. 20 –

20 questions from quant and computer sciences and 10 question were more about recent trends in field. Around 14 students were shortlisted out 150 who appeared in the written test. The level of quant was very high. Average questions solved were 4. I solved 7. There were three rounds, two technical and one hr. In technical rounds, questions were asked from a number of subjects like networks, databases and OS. Puzzles were also asked. I was also asked some design question like implement your own garbage collector. HR round was fairly simple for me.

TopTalent: What was your preparation strategy?What resources did you refer?

I have always believed in making the fundamental concepts of subject very strong. i think that helped me a lot. Apart from that, I practiced a lot on Codechef. I read cracking the coding interview and cormen's book for algorithms. Geeksforgeeks is also a very good resource. It has a vast variety of questions touching every nook and corner of Data Structures and algorithms. The strategy is to know what you are studying inside out.

TopTalent: What's your advice to students who are aspiring for similar kind of achievement?

My advice to aspirants aiming for top tech companies would be that reading previous year questions is fine, but you should also be able answer if something out of the box is asked. If you tell all the standard questions, and not able to answer something tricky, it will give a very bad impression.

In case you missed, you can also [download](#) his resume to see his detailed profile.

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352. Intuit Interview | Set 3 (For SE-2)

Written round:

1. Write a parser which takes java file as input and give count of uncommented lines as output. I wrote code with regular expressions, but I think he was expecting some state transition sort of approach.
2. Given a large file in which one no. occurs in strict majority(>50%). Find that no.

F2F:

1. Mostly discussed written round questions.

2. Secondary sort with map reduce.

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353. SAP Labs Interview Experience for Developer Associate

SAP Labs Procedure consists of 5 rounds.

- 1) ONLINE EXAM
- 2) APPLICATION DESIGN
- 3) TECHNICAL
- 4) MANAGERIAL
- 5) HR

1 Round: ONLINE EXAM

First round was online exam round. Exam consisted of multiple sections of objective questions. 1 section was 10 minute 60 questions round in which behavioral question were asked. All the questions were simple. I didn't think this section had any weight age from the point of view of marks/cut off. It was only to judge what kind of person you are. Remember although questions were yes/no kind of questions but among all those question they ask same thing in more than one way so if you try to check the option which should be correct instead of what you actually feel then you might end up giving different answers to same questions which might lead to your rejection. So it's in your best interest to answer what you feel. Other sections were aptitude and quantitative.

There was one technical section in which o/p questions were asked and some operating system questions were there too. There were 2 coding questions in last section. Solving at least one of them was essential for getting shortlisted. Difficulty level was above average. Important aspect was speed. Around 200 students appeared in this round and 30 made it to the next one.

2 round: APPLICATION DESIGN

This round was to check your innovative skills. There were 6 groups of 5 students each. Everyone was given same problem and needed to come up with 3 ideas of apps designing

which can be helpful in solving social issues. Example was given by recruiter as – Suppose you are on your way and you see an accident so you take out your phone and click a picture and upload it via your app and authorities were informed immediately through that app. We were given 45 minutes to think of 3 ideas and make class/E-R diagram for those ideas. After 45 minutes everyone was given 5 minutes to explain their

ideas in their group. Even though some students had better diagrams and writing than me (or at least that's how I felt) but they didn't make it to the next round because presentation was important as well. Keep it interactive and if possible ask them if they have any questions at the end.

18 Out of 30 were selected for the next round.

3 Round-TECHNICAL

It was a technical round and there was no specific pattern of questions. It was purely dependent upon you interviewer what you'll be asked. Although overall areas covered were OS , DBMS , C output question and some networking too.

1)question – Give your intro which I had prepared already.

ADVICE-Give your intro in categories like-

- a) first your background(very short version).
- b) Tell him about your academics profile.
- c) Tell him about your area of interest.
- d) Tell him about project(s) you have done.
- e) Tell him about your technical skills in categories as which one you are proficient in and which one you are good in. Don't mention the average one unless asked explicitly about those.
- f) At last tell him about what kind of person you are.

My interviewer was very keen. He kept everything in his mind I said. First he asked me to explain myself with examples as I said that I am very punctual and honest ? . I explained that to him and he seemed satisfied.

2)question-

Asked me about my project. I explained him problem statement first then what was the solution and then it's implementation. He had some cross questions and I explained those.

3)question-- Asked me one simple c output question.

While("abcd");

What will be output with explanation?

4)question- Detailed discussion over MAC address as

- a) What is MAC address.
- b) Why do we use MAC also if IP address is already there to identify computer nodes in network .

Just to see whether my concept of MAC and IP was clear or not.

5)question-

Why did I choose IT in b.tech.

I must tell you this was not a question where you can throw anything as an answer because when I tried to do that my answer was thrown back at me and I had to give him reasons for my opting IT branch. It was a tech round and even though this question was

not very techy but you must explain yourself logically and in steps.

6)question-

He said and I quote- "I want to hack your college network. How do I do it."

Now some questions are asked in that way for which answer cannot be to the point and short. So first make it very clear what does interviewer actually want to do/know. So I asked him-

What kind of hacking are we talking about here cause we have DNS server ,database sever ,proxy server and web server. Which one do you want to hack into.

Then he said okay but first I will need to be on the network. How do I do that.

So I said for that you can plug your computer in LAN, you'll be on the network. Next step is proxy server authentication to use network. So as we don't know password (that's why we are hacking, isn't it?) we will have to try all different combinations for user id and password and for that we can use tool like hydra(thank god I remembered this tool from somewhere). Then he asked me some other way to do it as it might take forever to guess the correct combination. So I suggested him that many students will also be on the network and they have vulnerable open ports. So we can scan the network using NMAP and find such open port then use them to get into network. So now we are in the network next thing I asked now which server you want to hack. He said database server- So I replied that we can use SQL injections. He asked me to explain that and I did. He asked if I knew any other way. Thanks to once seemed useless cryptography, I remembered "MAN IN THE MIDDLE ATTACK".I explained that to him. He seemed very satisfied.

7)question-

He took his i-phone and showed me it's fingerprint scanning feature + password feature in case of fingerprint scan fails. Then he asked me to write code for it. I wrote code for that. One line in code was if(scanned fingerprint=system stored fingerprint) so he asked me that fingerprint scanner is very small and our thumb is very large. How would one part of thumb will be matched to another part (cause it may happen that you had given lower part of your thumb print initially and now you are trying with upper part of thumb).How do we resolve this issue in programming. I explained him it's not about exact matching but it's about pattern of thumbprint and for that we can use pattern matching instead of simple "=" operator. Then a little bit about pattern matching.

8)question-

He asked me how good am I in puzzles.

I told him that I am good in puzzles. So he started asking me one. As soon as he started to explain puzzle I recognized that puzzle and told him that what he was going to ask and solution as well. He seemed impressed but apparently I dropped an axe on myself. He got the idea that I am very good at puzzle and he asked me a tough one that I didn't read about ever so I tried all that I could but couldn't find the solution. Then he moved on to the next questions but seemed disappointed as he was starting to expect much from me.

9)question-

He asked me what is a data structure and why do we use one.

Explained him.

He asked some real life example of stack and queue.

All I could give him was programming examples but when he insisted on real life examples I gave him some weird made up not so real life example. :-p

10)question-

He asked me about recursion

Explained him.

As we were talking very much on each question. He felt like talking more and from tech he went around for some biggest learning from a mistake/biggest achievement of life kind of questions. There were other questions too which I can't seem to remember now.

He told me that he is done with the interview and If I had any questions.

I asked him about opportunities to go foreign in future and he told me that there will lots of trips and opportunities to go Germany, US and other countries.

So this round went for more than 1:30 hour but it was good.

After this round 6/18 were cleared for the next round.

4 Round- MANAGERIAL

In this round initially introduction then he gave me a problem for making class diagram for an online shopping website within 5 minutes.

I made that then he had some questions and also pointed out some naming mistakes but apart from that conceptually he seemed satisfied with my diagram.

Then he asked me that he has explained different areas that SAP Labs is working in. which one I would be interested to work in. Now here comes the problem as I couldn't remember what those areas were. So I said I'm interested in technical work and will be hoping to work on a managerial post after 4-5 years. He said that's okay but as all the work we do is technical but which field I would like to work in. I was getting his point very clearly but I was afraid to say an area name in case SAP Labs is not working in that field and I'll be screwed. So I said "I'm sorry sir. I am not getting your point". He explained me that our company is working in ERP, Analytics, Cloud computing and gave some other name too(now I got all the names ?). I thought for 10 seconds and chose cloud computing and analytics. He asked me why these and why not others. I explained him that my project was on analytics so I loved that I am also fascinated with cloud computing. He said okay how are you fascinated and what do you know about cloud computing. I explained him all that. He seemed happy.

Then he asked me what career path I'll be following. I didn't remember those as well clearly so he drew all of them and then I selected one path and explained him my reasons. Lucky me that he wasn't looking for how much attention I paid in PPT.

ADVICE- pay attention during ppts.

Then he asked me if I have any questions for him. I replied that I had but I asked in last round.

(NEVER SAY "NO" WHEN GIVEN OPPORTUNITY TO ASK SOMETHING EVEN IF YOU DON'T HAVE ANY REAL QUESTIONS JUST ASK ANYTHING OR EXPLAIN THAT YOU HAVE ALREADY ASKED THEM IN PREVIOUS ROUND BUT NEVER

SAY “NO”.)

Only 4 students made it to HR round.

5 Round- HR

Initially intro.

Then some situational question.

Biggest disadvantage of working in a team.

What would I do if I was given to complete 30 days of work in 1 week.

Explained him with some made up stories and partial truth about my internship and he seemed satisfied.

And some more HR questions. Can't seem to remember them now.

Then he said he is done and if I have any questions for him. Never say “NO” in HR for this.

So I asked him about promotion criteria in SAP Labs. He explained very well. HR are really good. The way they categorize objective instantly and then start talking is really awesome. The way he explained the simplest question of mine was awesome.

Then he told me to wait outside for results.

Now all 4 students were done with HR. We waited for 20 minutes and then they came with 4 packets of gifts announcing selection of all 4 students.

After that we went for dinner with recruiters.

ADVICE

Try to be truthful as much as possible in interview.

Do not lie about your skills in resume.

Use preparing materials like-

For written exams—

a) ***must do 295 C for o/p question practice.

b) ***Solve geeksforgeeks quizzes, gate exam papers. c/c++ sections.

Geeks for geeks is best source available for cs/it students. Use it well.

For interviews—

Prepare basics well during 3rd year in all subjects.

Read all famous puzzles from puzzles sites.

And most of all keep smiling during interview. 😊

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First round was a written round.
second round was a written coding round.
third was a technical personal interview round.
fourth and fifth were HR and director round respectively.

First round

It was a online test which includes 90-100 questions based on aptitude, c++, java, sql queries, computer networks, linux. Questions were not too tough. They were basics based on what we have covered in our academic subjects.

Second round

They shortlisted 60 – 70 students for this round . It was a coding round . Only one question was given and we have to solve it on a notepad without using any compiler.
The question was

Rotate a matrix by 90 degree and explain the algorithm.

It is not necessary that code must compile. If it has some compilation errors they will consider it until and unless algorithm or approach is correct. We were required to explain used algorithm on each and every step so that it can be easily understood. (mention time and space complexity).

Third round

In this round they shortlisted 20 students . It was approx 1 hour round . They were asking questions on data structure , arrays , os , dbms , sql queries, OOPS .Questions were mainly covered from geeksforgeeks .

It is not necessary that all of these topics will be asked from you .They will also see your resume and ask according to your interest . Like they asked me Question on my interest area(coding, DBMS) .

Questions were as follows

- * What is BST, how will you delete nodes in bst ?
- * Given a boolean 2D array, where each row is sorted. Find the row with the maximum number of 1s.
- * Why sizeof operator is a operator and not a function ?
- *Find median in a stream of integers.
- * Sort an array of 0s, 1s and 2s .
- * Then he asked me basic OOP concepts and implement it in ATM machine . Basically create a class diagram for ATM machine .

*Then there were 2 simple sql queries which include joining of tables .

*At last he gave me a scenerio and asked me to create its database showing normalization at each step .

It is not necessary that you have to answer all questions correctly . For each of the question they will see your approach and how you reached to optimized solution .

Fourth round -

For this total 6 students were shortlisted.

It was a casual HR round conducted on skype . They asked simple questions like tell me something about you, what was the most challenging phase during your college life, how you have contributed to your college, your weakness and strength, why you want to join this company, your preferable location and which type of projects you have done. It was approx 20 minutes session. You just have to convince them that you are really interested to join the company.

Fifth round

This was a telephonic director round in which he asked basic puzzles, explanation of your projects and again basic HR questions.

Now if this round doesn't goes well dont panic . If your HR round went well , they will consider you .

And finally out of 6 they hired 4 of them.

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355. [TopTalent.in] “It’s the best feeling of my life” says Krunal after cracking Google, Mountain View

“I will never forget the day I received my offer letter. Its a dream come true.” Landing a

job in Arista Networks would ideally be a dream opportunity for many but for Krunal Patel from BITS Pilani – Goa it was just the beginning. We at TopTalent.in spoke to Krunal about the Google Interview Process, how he managed to crack it and what are his suggestions for aspirants looking to achieve something similar.

You can also [download](#) his resume by logging in to your account.



TopTalent: Can you tell us about the interview process?

Google conducted APAC test for 2015 graduating students in Asia pacific regions. I was 8th overall and 2nd in India after Divanshu. I was called for interviews at Google Bangalore office after that. I had 4 interviews in total and all of them were based on data structures and algorithms. A few basic questions were also asked from OS.

TopTalent: Can you give us a brief account of what you felt was the toughest

interview?

According to me all the interviews were of similar difficulty level. They were testing different domains in Algorithms and Data structures. The last interview was relatively at a bit higher difficulty level.

TopTalent: What was your preparation strategy?

I revised all my computer science CDCs before the placement season started. Lecture slides were good enough for that. I prepared for the GATE exam in the beginning of the year and it saved a lot of time for me during placement season. In my last 4 years my goal was to learn as many new technologies as possible. I gained introductory knowledge in web designing, Machine learning, Network Science, Application development etc. Apart from that I regularly practiced on codechef and topcoder to improve my programming and problem solving skills. I also thoroughly revised my projects which were mentioned in my resume before the interviews.

TopTalent: What kind of skills do you think helped you getting this job?

Mainly programming skills. I like participating in various programming contest and it improved my knowledge in algorithms as well as my programming skills. For eg. I learned to spend more time in designing the solution than in coding. Special thanks to my friend N Hari Prasad (Google Hyd) who guided me all the time.

TopTalent: What resources did you consult? Where did you practice problems from?

For my computer science subjects I mainly used my textbooks and lecture slides. For Algorithms I used Cormen and various tutorials on internet.

TopTalent: How was Competitive Programming in the interview?

By participating in such competitions and practicing in topcoder, I improved in terms of speed , Accuracy , Efficiency , and problem solving approaches. All of them plays crucial role in interviews where we are asked to design and code the solution for an unseen problem

TopTalent: Were grades a factor in you getting selected?

Google asked for my grade sheet after all the interviews were over. Hence it was part of their review process. Good grades always make a better impression.

TopTalent: What's your advice to students who are aiming for similar placement offers as yours?

1) Writing code after you solve a question or learn a new data structure or algorithm is equally important. Make a habit to write neat and readable code as that helps your entire team. Make sure you get your code reviewed. In case of programming puzzles, see the setter's solution.

- 2) Attend your classes regularly.
- 3) Find your passion and never give up on it. Rest all follows.
- 4) Keep yourself updated with new technologies.

In case you missed, you can also [download](#) his resume by logging in to your account.

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356. Zoho Interview | Set 2 (On-Campus)

Recently Zoho visited for the campus placement. I would like to share my experience to geeksforgeeks because of which I got this offer. Thank you geekforgeeks 😊

Zoho On Campus Placement Process

1) First Round : Written

40 C output questions. 2 Hours.

30 1Mark and 10 2Mark questions. IT WAS NOT MCQ. The questions were challenging and covered all C concepts.

2) Second Round : Coding

Around 150 students shortlisted for this round. It was a local machine coding round. A staff will be assigned to a group of 5 students. He made note of the time took for solving each question. There was totally 7 questions and I solved 4 questions and did not complete the 5th question.

1) Alternate sorting: Given an array of integers, rearrange the array in such a way that the first element is first maximum and second element is first minimum.

```
Eg.) Input  : {1, 2, 3, 4, 5, 6, 7}  
      Output : {7, 1, 6, 2, 5, 3, 4}
```

2) Remove unbalanced parentheses in a given expression.

```
Eg.) Input  : ((abc) ((de))  
      Output : ((abc) (de))  
  
      Input   : (((ab)  
      Output  : (ab)
```

3) Form a number system with only 3 and 4. Find the nth number of the number system.

Eg.) The numbers are: 3, 4, 33, 34, 43, 44, 333, 334, 343, 344, 433, 434, 443, 444, 3333, 3334, 3343, 3344, 3433, 3434, 3443, 3444

4) Check whether a given mathematical expression is valid.

Eg.) Input : $(a+b)(a*b)$

Output : Valid

Input : $(ab)(ab+)$

Output : Invalid

Input : $((a+b)$

Output : Invalid

I don't remember the 5th question.

3) Third Round : Advanced Coding

A matrix game was given with 5 rules. We were asked to implement each of the rules separately.

R3	-	-	-	
R2	-	-	-	
R1	-	-	-	
C1	C2	C3		

Each of the 9 cells can either be empty or filled with an atom. R3, R2, R1 are the rays that originate from the left. C1, C2, C3 are the rays that originate from the bottom of the box.

Input : Position of the atoms and the rays that gets originated from the outside of the box.

Eg.) 3
3 1
2 2
1 3
3
R3 C1 C3

Output : Print the box.

Rule 1:

A ray that has an atom in its path should print 'H' (Hit) If it does not have any atoms in its path, the ray should pass to the other side.

C1 C3

R3		-	-	-	-		R3
H		-	X	-	-		
R1		-	-	-	-		R1
		C1	H	C3			

Rule 2 & 3:

A ray that has an atom in its diagonal adjacent position should refract.

H		-	-	-	-		
H		X	-	-	-		
R		-	X	-	-		
		R	H	R			

Input rays: R1, R2, C3

H		-	X	-	-		
R2		-	-	-	-		C3
		-	-	-	-		
		R2		C3			

Rule 4:

A ray that has atoms in both of the diagonal adjacent positions should reflect back.

Input ray: C2

	-	-	-	-		
	X	-	X			
	-	-	-	-		
		R				

Input ray: R2

	-	X	-	-		
R		-	-	-		
	-	X	-	-		

Rule 5:

The deflection of rays should happen in the order of the input rays.

Input Rays: R3, R2, C1, C3

H		-	X	-	-		
R2		-	-	-	-		C3
		-	-	-	-		
		R2		C3			

The final task was to implement these rules for dynamic matrix size.

Input : no of rows, no of columns

Eg.) 4 4 (row & column)

2 (No of atoms)

4 4 (Position of atom)

2 2 (Position of atom)

2 (No of rays)

R4 C2 (Ray number)

H | - - - X |

| - - - - |

| - X - - |

| - - - - |

H

The final task was very confusing and it had to handle all the cases. There are chances for a ray to end at the starting position if the number of rows and columns are more than 5.

4) Fourth Round : Technical Interview

Basic questions from hashing, searching, sorting, JVM, OS, Threads. In-depth questions from the projects that I mentioned in my resume. So don't just add projects that you are not thorough enough to answer all questions.

And a simple puzzle : $(x-a)(x-b)(x-c)\dots(x-z) = ?$ 😊

5) Fifth Round : HR

General HR questions like why zoho, how do you see yourself after 5 years, why did you choose CS/IT stream, tell me about your leadership skills etc.

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357. Arista Networks Interview | Set 3

I had an telephonic interview with Arista Networks couple of days ago. To apply for Arista Networks (Internship) CGPA ≥ 8.5 , luckily i had. Here are the details of the company's interview.

Interviews were done using Shared editor and phone .

Round 1

1. Tell me something about yourself ?

2. what do you know about arista networks ?

3. output of given program

```
void print()
{
    char s[10];
    gets(s);
    printf("%s",s);
}
int main()
{
    print();
}
```

4. How you can check whether a machine is 64 bit or 32 bit ?

5. Print number in reverse (descending) order in BST .

6. Delete a node in DLL .

7. struct hack , struct size .

8. Do know backtracking algorithm ?

9. What is DFS , BFS ,which datastructures are used to implement this then he asked me to print BFS,DFS of a tree(t) i don't remember tree(t) .

10.Define OOP in 4 sentences .

11.Define Polymorphism .

12.Merging of list or array is good for if they are sorted , algorithm for merging of two lists time complexity of this algorithm

13.Following same question for array .

14.Following same question for array having the property as one array have enough empty space such that one array can accommodate another one , as like we have a[100] and b[40]; now we can accomodate b in a, assume we have 40 empty spaces in a.

15.sorting time of merge sort , heap sort , quick sort .

16.Define max and min heap , search time of heap .

17.Define Normalization in database .

18.Difference b/w C and Java

19.Do you have any questions ?

Questions are not in correct order and some question may be from 2nd round sorry for that.

Interviewer was very helpful .

Round 2

1. Tell me your interest subjects and grade .

2. How will you implement phonebook such that we can search using first name?

3. Following same question , How you will do if you have one more requirement as search with last name also ?

4. Following same question if you have to search using phone number ?

5. How can you show frequent calls list (list can have at most k items) for a phonebook ?

6. Following same question , how you can solve if two or more calls have same count(and still maintaining k items only) ?
7. Find duplicates in a file containing 6 digit number(like uid) in O(n) time .
8. Implement bitArray in C .
9. Why do you want to join our company ?
10. do you have any questions ?

I would like to thank GeeksforGeeks team for building such an awesome site and platform for interview preparation. After 4 days i got confirmation that you are selected for Arista Networks, feeling awesome .

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358. Amazon Interview experience | Set 128 (For SDET)

I was interviewed for the position of SDET-1 few days back at Chennai. Here is my interview experience:

Coding round (Full code required):

- 1) Given a linked list. Check whether it is a palindrome (without using any extra space).
- 2) Write a program to return the mirror tree of a given binary tree.
- 3) Given a 2-D array, Rotate it by 90 degrees.

F2F-1:

- 1) Given a phone number. Check whether it is unique or not(ie no duplicates)

I gave a $O(n^2)$ TC algo first which he wanted to optimize. After 3 series of optimization ,I came up with a $O(n)$ solution with $O(1)$ space complexity.

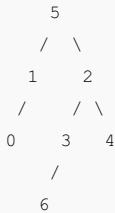
- 2) The interviewer told me to code a level order traversal in a binary tree.
- 3) An array of numbers are given such that the absolute difference between adjacent elements is 1.Given a value...Return the index of the 1st occurrence of that element.
I gave an solution where in the 1st value is subtracted from the search value and hops in the array by that difference. if the reached value is the search value ,then return the index or just continue this process. The interviewer was impressed by my solution and told me to code it.

F2F-2:

- 1) Brief discussion of work in current company

2) A given array represents a tree in such a way that the array value gives the parent node of that particular index. The value of the root node index would always be -1. Find the height of the tree.

Ex: Array: 1 5 5 2 2 -1 3



I gave a iterative solution which was told to be optimized. I did optimize it using memorization concept. I had to code it too.

3) Write a program to find the median of 2 sorted arrays when merged.

This problem is there in geeksforgeeks.

4) Write an optimised program to find the number of factors for a particular number
This was a very simple qn.

F2F-3:

- 1) Brief discussion of work in current company. Why Amazon?
- 2) Why do you want to leave current company? What do you like most and dislike most about your current company?
- 3) Design a automation framework to test a simple site with a login page .Give the various test cases also that should be considered. Later they told me to give some enhancements to the code too.
- 4) Design a automation framework to test twitter api's that is used in a particular site .
- 5) Give the various automation scripts and tools that I implemented in my current project.

F2F-4(Hiring Manager):

- 1) Lots of HR, behavioral and team fit questions
- 2) Describe the most challenging project I have worked on...and why is it challenging.
- 3) An e-commerce site has a particular functionality created by a group A and another functionality created by group B. Design a testing framework that could test the work by A as well as A\B(intersection).
- 4) I was working as a security Analyst. So I was asked about 5 critical hacking techniques that can be used to a e-commerce site and describe each.

F2F-5(Bar raiser):

- 1) Again behavioral and team fit questions.
- 2) Write a program to check the validity of sorting algorithms used to sort Linked lists. Consider the case where 2 nodes have equal values too.
I gave a optimized code using hash table concept. The interviewer was pretty satisfied with my coding ability and started asking me about my projects.

3) More questions on my projects

Thank you geeksforgeeks for helping me out during my preparation.

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359. Amazon interview Experience | Set 129 (For SDE 1 Off-Campus)

In the recent past, I attended interview with Amazon. Here is my interview experience.

Written Round: 1.5 hours

1. Given an array of integers, replace each element with the next immediate greater element.
2. Given a linked list, reverse each 3 nodes.
3. Given a tree, print all the nodes which are K distance from the leaf nodes.

Face to Face Interview 1 (Data structures and Algorithms)

1. Given a source string and destination string, Find the minimum number of edits (operations) required to convert one string into another. At the end of each operation, the resultant string should be a dictionary word.
2. Given an array of integers where each element represents the max number of steps that can be made forward from that element. Write a function to return the minimum number of jumps to reach the end of the array (starting from the first element).
3. Given the coordinates of billion stars in the sky, find the closest 100 stars from our current position (0,0).

Face to Face Interview 2 (Problem solving)

1. Given a binary tree, write code to check if it is a binary search tree.
2. Given a binary tree and two nodes, write code to find the common parent for the 2 nodes.

Given the below tree, and nodes 18 and 21.

	10	
5		15
2	3	12
	16	21

The result should be 15.

Face to Face Interview 3 (CS Fundamentals)

Tell me about yourself.

Why career change ? Why Amazon?

1. What happens when you compose an email and press the send button. How is the mail delivered?
2. Explain how mail server works.
3. Tell about the routing algorithms you know.
4. How is the data transferred across the network ?
5. Difference between TCP/IP and UDP.
6. What are the functionalities of an Operating System?
7. How does OS schedule processes ?
8. Which type of scheduling algorithm is used widely ?
9. How does OS replace processes in memory ?
10. How does OS detects if a deadlock has happened ?
11. When you type an SQL query in interpreter, what does happen? How is the query processed?
12. What is Primary Key, Foreign Key ?
13. Should Foreign key needs to be primary key of another table ?
14. What is index ? How it is implemented ?
15. How is the data stored in the database ?
16. Why doesn't Java support Multiple Inheritance ?
17. What are the advantages and disadvantages of Multiple inheritance ?
18. Tell us about the design patterns you know.
19. Do you know about Factory Design pattern ?
20. Write a simple class which implements Singleton design pattern. Applications of singleton design pattern. Why don't we declare the class itself as static class ? Why don't we declare all the members as static ?

Face to Face Interview 4 (Hiring Manager)

Tell me about yourself.

Why career change ? Why Amazon ?

1. Discussion about my current project, I am working on. Questions related to schema design, how can we improve it ? How to make the application scalable if the operations and data (session creation & data) are going to be increased 100 times. When do we need big data ?
2. What is your biggest achievement ?

3. What do you expect from your manager and team members ?
4. Given billion numbers in a file, get the top 10 numbers from it.
5. Write code to implement Hashmap in Java. It should accept any datatype and also objects.
6. Provide a high level class design for cab management system. Finding available car anytime and booking it, customers, orders, etc.

Face to Face Interview 5 (Bar raiser)

Tell me about yourself.

Why career change ? Why Amazon ?

1. What is your biggest achievement ?
2. Discussion about my project. Discussion about the tasks which I have done.
3. Tell me about a situation where you had a conflict with your manager and how you resolved it ?
4. What is the biggest bug have you made ?
5. Have you developed any tool, which is used by your colleagues ?
6. Is there any task which you feel, that you could have done better in your project ?
7. Have you suggested any ideas and improvements to your project, beyond your call of duty ?
8. Given a binary tree, write code to get the vertical sum of all the columns in the tree, with minimum space complexity. After I told a solution with Hash, he asked me to come up with a solution without using hash and code it.

Face to Face Interview 6 (Data structures)

1. Given a binary tree, how would you serialize it, store in a file and then recreates it again from the file ?

2. Given a dataset below,

Name	Score	Rank
A	50	1
B	40	2
C	30	3
D	20	4
E	10	5.

Name is a string and Rank is inversely proportional to the scores.

What type of data structures would you use to store these data to perform the following operations ?

- 1) Given Rank, Get the Name and Score
- 2) Given Name, Get the Score and Rank
- 3) Given Name, Update Score.

Though I didn't get the offer, it was an amazing interview experience with Amazon.

Thanks to GeeksforGeeks, an ultimate portal for learning DS & problem solving and for cracking the coding interviews.

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mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

360. Microsoft IDC and IT First Round Questions

Microsoft conducted their first round of shortlisting for placements and internship. The online coding round was organized by CoCubes like last year.

The test was for 1.5 hrs and had 2 coding questions. Allowed programming languages were C, C++ and Java.

The questions were as follows:

- 1) Given the head of two linked lists , find the merging point of both the linked lists. In case the linked lists do not merge then return NULL.
- 2) Given a 2d array of 0s and 1s where 0s represent water and 1s represent land. A connected patch of 0s count as one single water body and if a water body is covered by 1s all around it then it forms one pool. Write a function to return the total number of pools in the 2D matrix. In case a water body is present on the boundary of the array immediately return -1.

Sample test cases :-

```
Input :  
11111  
10101  
10111  
11111  
11111  
Output : 2
```

```
Input :  
11110  
11111  
11011  
11011  
Output : -1
```

```
Input :  
11111  
10111
```

```
10011  
11011  
11111  
Output : 1
```

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361. Hike Interview | Set 2

Round 1 (Written Test)

Duration – 90 mins

Section 1 (Technical objective questions)

- 25 mcq's mainly focusing on c , c++ , os , data structures , algorithms

Section 2 (2 Coding questions)

- Code was supposed to be written on paper

Question 1: Given a string of words return all words which have their reverse present in the string as ((word1 , reverseword1) , (word2 ,reverseword2))

```
eg .  
Input -  
Sachin tendulkar is the best    tseb      eth   nihcaS  
  
Output -  
{ ( best ,    tseb ) , ( the ,   eth) , (Sachin ,   nihcaS) }
```

Question 2: Finding the just smaller number formed using same number of digits.
Print -1 if not possible .

```
eg  
input - 371  
output - 317  
  
input - 456  
output - -1
```

Rouind 2 (Interview)

First round of interview was based on basic data structures

1. Interviewer asked me to write code for the 2nd maximum element of an array . Then

the 3rd and kth largest element in array was discussed .

2. Concepts related to binary search tree , uses and comparing complexity .

3. Asked about Hashing , Collisions , Implementation for hashing .

Round 3(Interview)

Question 1: Asked to write code for level order traversal in binary tree. Question was further modified to do a spiral order traversal. Both were supposed to be done in $O(n)$ time complexity .

Then he asked me a puzzle

<http://www.programmerinterview.com/index.php/puzzles/3-ants-on-a-triangle-riddle/>

There was a small discussion about my projects then .

Then he started asking questions about operating system

- Mutual exclusion and semaphores .
- Write code for producer consumer problem using semaphores .

After I wrote some pseudo code problem was made more complex by adding further constraints .

The interviewer wanted to test my understanding about semaphores and asked some tricky and confusing questions .

Round 4(Interview)

Question 1: Write code to get maximum and second maximum element of a stack. The given function should be in $O(1)$ complexity .

I gave a solution using 2 additional stacks

Then he made it more interesting by extending the question to Find kth largest number from stack at any instance in $O(1)$ time. Stack supports push ,pop , peek , and kthmaximum function .

He was very particular about the $O(1)$ constraint .

I gave plenty of solutions but he wanted me to reach a $O(1)$ solution.

Finally i gave him a solution which used an additional heap and a binary search tree and was able to get $O(1)$ time complexity .

Question 2: Given a biotonic array (first numbers increase and then decrease) write code to search a given number. Time complexity $O(\log n)$

The question was further modified to write code for 4 cases to search –

1 Array could be sorted ascending

2 Array could be sorted descending

3 Array could be first increasing and then decreasing

4 Array could be first decreasing and then increasing

The idea was to first detect which case it was and then search accordingly

Time complexity $O(\log n)$

Question was further modified to handle duplicates. In case of duplicates my algorithm became $O(n)$

Round 5 (Telephonic Interview)

This round was a telephonic interview with the CTO of the company .

First he asked me about database indexing. What ? Why to use indexing ? how is it implemented ?

I gave him a complete explanation

This is a very good explanation

<http://www.programmerinterview.com/index.php/database-sql/what-is-an-index/>

The he started with a small discussion about my projects and research paper .

He then moved on to data structures and asked me how to choose a relevant data structure for a given problem .

– I gave him advantages of every data structure and certain problems where specific data structures could be useful .

Then he gave a question and asked me for what data structure should be used keeping time complexity in mind

Question: Given a list of students and their marks write a function that would print all students with marks in a given range l, r

eg .

Akshay	30
Atul	25
Angay	20
Sahil	10

Then if input is $l = 12$ and $r = 26$

Output – Angay, Atul

I gave a solution by indexing marks with a link list of students creating an array of link lists

He then modified the questions by adding marks in floating points were also allowed .

I gave him a solution using map (c++) based on a key value pair of marks and list of students

But he asked to optimize the time complexity

I then gave a modification of my first solution and adding concept of buckets and binary search .

He asked me a few hr questions in the end .

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362. Chalk Studio Interview Experience

Hi, chalk studio recently visited my campus. Here is my interview experience.

Round 1: MCQ-31 questions-31 mins

It was a mcq round and test was conducted on facenow.in.

11 questions from web design

And 20 questions from algorithms,data structure ,oops,dbms and os.

The best part was we can view our performance after taking the test.

A correct answer carries 1 mark and wrong answer has a penalty of 0.25 marks.

36 people were shortlisted.

Round 2:Coding – 45 mins

There were 5 questions. Most of them solved only one including me,top 18 who showed output in chronological order were shortlisted for third round. For a question, a person can show output 3 times maximum.

1. Find remainder when a number is divided by another number without using modulus operator.
2. Print decimal digits of pi upto 100 digits,10 per line
3. A cipher was given. We have to write a code to decrypt the cipher alone(no other inputs).

Forgot other two questions.

Round 3: Design and NP Complete – 1 hr

Design a front end for mobile mcq test site. We can use html, css,photoshop, paint etc to design

A tetris game implementation for 9*10 matrix.

– I don't know about tetris but the interviewer allowed us to google, unfortunately net connection was down at the time. So based on the example given, I figured a algo. And finally he asked all of us to implement it for a 3*3 matrix.

– The saddest part of this round was first we started with design ques and when interviewer says switch we have to switch to next question. He said switch in interval of 5-7 mins and we switched between questions for every 5-7 mins.

Finally 7 people were shortlisted from this round, and 2 people were hired.

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363. Microsoft IDC Interview Experience | Set 38 (For Internship)

I completed my internship at MS-IDC this summer. Here is my interview experience.

Round 1(Online MCQ):

Varying level of difficulty. 15 MCQs. Topics: C/C++, data structures, DBMS, OS, Networking

Round 2(Coding test-online):

Two coding questions were given. Fairly simple. One was to print nth element from last in a linked list. Other was to convert a number to base 4 number

Round 3(Telephonic Round):

He asked me about myself, and a couple of questions from ethical hacking(I had written about it in my CV). Then he asked me to develop an online chess game. The entire class definition, data structures to be used and graphics implementation etc were discussed.

The interviews were held in a college in Delhi.

Round 4:

Firstly he asked me about myself, then my projects. Then he asked me to write a code to remove comments from a C file. Then he asked me the approach to detect a loop in a linked list. Then he asked me to design a system that would add two polynomials.

Round 5:

He gave me a very tough question of graphs. It was similar to a traveling salesman problem but had two paths, one path or no path to every other city. One possible way of reaching the other city was via plane and the other was a taxi. The salesman had a fixed number of coupons for both taxi and plane. He had to save maximum coupons at the end. Then, test cases for this problem. I wasn't the only interviewee in this round. I had another person sitting next to me. He was rejected while I made it through.

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364. Informatica Internship Interview Experience

Informatica recently visited our campus to hire full time employees and interns. About 70 students appeared out of which 4 were given internship and two were given both internship and full time job offer. I was lucky to get an internship. Here is my interview experience.

Round 1:(online MCQs)

MCQs on Data structures, C/C++, DBMS, OS and networking

Round 2:(online subjective)

20 questions of easy level. Time constraint exists. No one was able to solve all 20 questions. We had to write codes, algos, point out mistakes in given code etc

Round 3:(Interview)

1. Discussion on ethical hacking
2. Discussion on my projects at Microsoft IDC(I was an intern there)
3. Print all nodes at same vertical in a tree.(very tough)
4. Remove all occurrences of a particular value from a linked list
5. Find all root to leaf paths with a given sum

Round 5:

1. Implement insertion sort using stacks. Temporary memory, input, output etc, everything is in stacks.
2. Implement 2-D array in heap segment. This has to be used for page faults and related OS tasks. What modifications will you make?
3. Polymorphism, run time polymorphism and implementational details
4. Find a magic index 'i' in an array in O(1) time, such that a[i] = i. The array is already sorted

Round 6:

1. Flatten a multi level linked list
2. Find Next greater element in an array.

3. Check whether an array of strings can form a cycle, i.e., last element of one node can occur anywhere in the first of other

Round 7:(HR)

Basic HR questions, relocation questions, family background etc.

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365. Belzabar Software Interview Experience

Belzabar recently visited our campus to hire full time employees. About 120 students gave the first round, 50 made it to the next round and finally 11 people had interviews. One of was selected for the post of computer scientist and I was lucky to be that one person.

Here's my interview experience.

Round 1:(online MCQs)

About 70 questions, very easy level.

Round 2:(Coding test on paper)

One question. It was to rearrange positive and negative numbers in a 1-D array such that their relative order remains same. No extra space is allowed.

Round 3:(Technical interview)

1. Find if a number is palindrome or not.
2. Find if a string is palindrome or not.
3. Detect and remove loop in a circular linked list.
4. Check if a tree is height balanced.
5. Implement a Red Black tree.
6. Basic OOPs concept- run time polymorphism, encapsulation etc.
7. DBMS query to remove all duplicates from a given table.
8. DBMS query to print the nth largest salary.
9. Next greater element in array.

Round 4:

HR round. Not much of an effort. Be yourself.

Round 5:

Director's round. He asked me to find greater of two numbers without using if, else, conditional operator, >,< etc. Basically, no comparisons. He asked me what one way

encryption is and its uses. He asked me about my linux knowledge and some simple questions like grep, cron etc.

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366. D E Shaw Interview | Set 6 (Off-Campus)

Off-Campus recruitment process. I was contacted by a recruitment consultancy.

Round 1:

There were 3 sections – Apti, MCQ based on Java question + C++, coding each for 20 min.

Aptitude exam too difficult at least as student I had never prepared for aptitude round even in college as I was not interested in preparing for CAT therefore I found it too difficult. However, students who have prepared for CAT exam may find it easy.

Even more important point to note is that they don't even evaluate Aptitude round as I have made it through the written round twice without marking a single answer on MCQ. Though I used to do some random rough work on the question paper . Because of my experience I am inclined to believe that the aptitude round is just to make a candidates feel stressed. Difficulty level was 6 out 5. 5 being the highest difficulty level.

Section B was the technical MCQ round in which question were asked from various topics like C-enum, recursion, stack and queues, Least Recently Used memory allocation, nested union. Java – Overriding, abstract functions, serialization, one networking question based on TCP protocol something based on congestion window. I was able to solve 17-18 questions. Difficulty level was 3.4 out of 5. 5 being the highest difficulty level.

Section C :- You are given the data of reported and manager. There is a company which wants to reduce the hierarchy level. To do the same, the manager who has only one reportee , the manager will be moved to another department and that single reportee will be moved under the manager of reportee's manager.

Ex

Reportee	Manager
A	B
B	C
D	C

In the example above since B has only one reportee A, then B will be moved to another department and A's reporting will be moved under C.

Round 2: Re-evaluation of Section C

Round 3: Started with the discussion why do you want to join DE shaw. Since prior to my current company, I was working with a finance based company so they asked why do you want to come back to finance base company. So they asked my about debentures, bonds, mortgages and other financial jargons.

Algorithm based questions :

- 1.) How will you find 3 numbers in an array which sum to a given number
- 2.) You are given in and out time of trains, how many minimum number of tracks are required.

Discussion about my projects.

Internal fragmentation v/s external fragmentation.

Write a SQL query to find employee with third highest salary, without using TOP or inner query.

Another query to find the department which has maximum number of employees.

Discussion of Abstract classes V/s Interfaces and why multiple inheritance can't be done in Java but can be done in c++.

Can a main function return Boolean rather than an int in main function.

What makes Java platform independent.

Round 4: I am not sure whether it was HR or another F2F, may be it was their call depending on a particular candidate.

Though I would like to add a few questions which other candidates were asked like how will you divide a triangle into equal area triangles. What are register variables . Keep a track of minimum element in a stack.

For more details or questions, please comment below.

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367. Intuit Interview | Set 4 (For SSE)

I recently cleared Intuit Interview. It was a life changing experience and I am very happy to crack the interview for SSE.

Below are the questions asked :

Round 1:

Java basics:

1. int v=2
v += v++

- what is output of V?
2. Design a compiler for throw and throws key words. OR, how does compiler interpret those keywords.
 3. Why string is immutable and then some tricky questions on that .
 4. Algorithms:
 - a. sorting of 0 and 1 in place in n time.
 - b. stack option problem with maximum profit in $O(n)$ complexity

Round 2:

Algorithm 1: Write a code to max sub array by considering elements not next to each other

Algorithm 2: design a dice face such that one normal dice is played with the designed dice then the ouput of any value should have same probability.

Some logical puzzle.

Round 3:

Lot of OS questions and distributed system generic questions

How to decide which DB to use in application

Some design pattern

Difference between Design pattern and framework

My projects related questions and challenges

Logical puzzle

REST Framework questions.

Round 4:

1. Program to sort handle 1GB data in a 64KB RAM.
2. How to handle caching in distributed environment
3. Challenges in my current project
4. Logical puzzle (sorry dont remeber now).

Round 5: With Director of the Product

General Behavioral questions

Round 6 :

My projects and Behavioral questions

Finally after a week I got an offer letter.:)

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Total rounds : 5

1st round: Technical questions were from all core subjects including 5 to 7 quantitative aptitude questions. (30 questions : 30 Minute) (cutoff may be : 25+).

2nd round :

1. Space and time complexity to “Detecting a Loop in a Singly Linked List ” .
2. Executable Code to Detect a Loop in a Singly Linked List without any mistake in first time with all boundary cases if any.
3. As I've implemented Floyd's cycle finding algorithm he asked me to drive a mathematical expression in terms of variable why this algorithm works .

3rd round :

1. what is microprocessor ?
2. what is microcontroller ?
3. what is the difference between microprocessor and microcontroller ?
give an example for each and what is intel i7 ?
4. difference between functional and oo approach of problem solving .
why oops is best.
5. The Three Door Puzzle.
6. Program to convert a given number into words
(ex: input -197 ; output : ONE HUNDRED NINETY SEVEN).

4th round :

1. Generate all circular prime numbers from 1 to 10,000 .
(A number is called circular prime if all the numbers formed by using the digits of that number are prime .
ex: 17-71, 13->31 ,)
- > First he told me to write it on paper As I did It in 5 minute he told me to write the code on an online compiler as it is.

5th round : HR

Simple HR questions were asked (kind of formality).

At last but not least something I would like to tell you geeks :

- The most important thing you should have within you is Confidence.
Everybody says yes I am confident but I think not really .
- The second thing is dont bluff in anything what you dont know .
- ” BE YOURSELF .”

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369. BrowserStack Written Round Experience

Hi, BrowserStack recently visited our campus for written test for December placements. The written round was conducted on HackerEarth and was of 3 hours and had 2 coding questions.

1. Comment removal

Given a piece of code, the task was to remove all the comments from the code.

Eg. Input

```
int main(){
    // this is a comment
    int i = 1;
    /*
        some more
        comments
    */
    cout<<i;
    cout<<endl; // this is for new line
    return 0;
    // last one
}
```

Output:

```
int main(){
    int i = 1;
    cout<<i;
    cout<<endl;
    return 0;
}
```

PS : take special care of corner cases, how to deal with string properly.

2. JSON matching

Given two JSON objects, find the values of fields. whose values are different.

Eg. Input

```
{"Geeks":"Test1","Are":"hey","Cool":"yeah"}
{"Geeks":"Test1","Are":"20","Cool":['B','C']}
```

Output:

```
Are:Cool
```

PS : take special care of input and output format.

The questions were easy but the main task was to read the input correctly and string parsing related stuff.

Hope this will help you all.

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370. ZoomRx On-Campus Interview Experience

The company came for oncampus recruitment. It is a data analytic company.

There were three rounds

1. written test: 20 mcqs full of c programs and other 3 coding questions
2. 1st technical rounds: Be strong in dbms you can clear this easily and strong in your projects
3. 2nd technical round: slightly difficult than 1st one... if you are strong in basics.. you can clear it

And may be one hr ...depending on your performance.

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371. Oracle Interview | Set 9 (On campus for Application Development profile)

Online Round:

An online written round was conducted on mettl.com consisting of following sections:

1. General Aptitude – 15 questions
2. Logical Reasoning – 15 questions
3. Technical (All CS subjects) – 20 questions
4. English – 10 questions

Duration was 75 min and 53 members were selected for next round among 200 aspirants.

First Round:

Interviewer introduced himself and asked me the question "Why Oracle?"

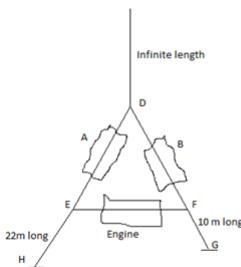
He then read my resume and asked me about the projects that I have done and about the things in my resume. Then he asked me to explain algorithm of the project that I'm going to do in the upcoming semester and asked me code it.

He asked me what my favorite subject was. I replied that it was Data Structures. He asked me few simple questions from DS like:

1. Implement queue using linked lists
2. Reverse a string
3. Find the number of palindromes in a big string.

Finally he asked me the following puzzle

He drew this diagram:



Engine is of length 12m. A and B are 2 bogies of 10m length each. Engine can turn only in obtuse angles but not in acute angle. For example Engine can turn as FEH but not as FEA. Now, the task is that I have to exchange the positions of A and B with the help of Engine and the engine should remain at the same place.

I tried for 15 minutes but couldn't solve this problem.

Second Round:

The interviewer went straight into questions. This is the toughest and longest round. I am posed with the following questions:

1. Explain interfaces in Java
2. What is overloading and what is overriding. Explain each with example
3. What are abstract classes in Java and what is the difference between an abstract class and an interface.
4. Find the fifth largest element in a linked list
5. Find the common ancestor of two given nodes in a tree
6. Explain heap sort
7. Find the duplicates in an array
8. An array of elements were given. You have to insert them into BST, Max Heap, B Tree
9. Merge two sorted linked lists
10. Explain three normalizations with example
11. Two SQL queries:

1. Find the maximum salary in emp table
 2. Find the name and department of the employee with highest salary
 12. Difference between semaphore and mutex
 13. PUZZLE: There are 25 horses and only 5 horses can be raced at a time and the top 3 are announced in each such race. What is the minimum number of races required to find the top 3 among 25 horses
 14. How is undo operation (ctrl + z) implemented internally?
 15. Explain 8 queens algorithm
 16. What is time complexity of 8 queens algorithm
- I haven't answered 12, 13 and 16 questions.

Third Round:

In this round I am asked both technical and HR questions.

1. Tell me about yourself
2. Explain your project
3. What is your favorite program and why is it so.
4. Write code for Towers of Hanoi problem
5. What are ER diagrams for?
6. Draw ER diagram for leave application of an employee in a department

I am not that good at DBMS. So I failed to answer the last two questions. I told him that I have more than 8 months of time before getting into Oracle and would concentrate on DBMS. He was impressed with my answers for other questions.

Then there was another round. In that round I am asked questions like "Is Hyderabad ok for you as work location?", "What's your email ID?" and then she explained me employee on boarding process.

Finally I am one among the 6 who got selected . Data Structures and Algorithms are the key subjects that helped me get this job. I should thank GeeksforGeeks a lot for helping me very much in my preparation.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

372. Amazon interview Experience | Set 130 (For SDET 1)

I attended an interview with Amazon for SDET-I position, about a month back. I did not clear the interview, but I would like thank GeeksforGeeks for the great learning period before the interview. GeeksforGeeks helped a real lot in my interview preparation and in general, my understanding of data structures and algorithms got deeper and stronger. Thank you very much GeeksforGeeks and all your valuable contributors!

Here is my interview experience:

Telephonic 1:

- Given an array and a number, check whether there are any 3 elements in the array which add up to the given number.

For example:

Given an array {1,2,3,4,5} and the number 9, return true, as 2,3,4 add up to 9.

Given an array {1,2,3,4,5} and the number 3, return false, as there are no 3 elements which add up to 3, in the array.

- Given a number, find the nearest perfect square(modified binary search)

For example:

Given 50, return 49

Given 25, return 25

Telephonic 2:

- Write a method to check whether two binary trees are mirrors of each other

<http://www.geeksforgeeks.org/foldable-binary-trees/>

- Write a method to print the boundaries of a binary tree

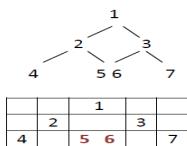
<http://www.geeksforgeeks.org/boundary-traversal-of-binary-tree/>

F2F 1:

- Fill an array with the next greater elements (using stack)

<http://www.geeksforgeeks.org/next-greater-element/>

- Given a binary tree, count the number of occurrences where there are two nodes with the same horizontal distance. To make it clearer, if we assume each node in a cell of a matrix, then count the number of occurrences when there is a collision of two nodes in the same cell.



Here the count is 1 because 5 and 6 occupy the same cell in the matrix

F2F 2:

- Given a linked list, write a program to check if it is a palindrome
- Write some test methods for stress testing of Furniture class
- Some discussion on automation testing

F2F 3: (System automation design)

System: The user gives a book id to be downloaded and the location in which the book is to be stored. The system downloads the book (if it exists) in the location given by the user and returns a url through which the user can access the book.

I was asked to design automated test cases for the system. The interviewer kept adding more and more constraints to the system and we discussed about the pros and cons of my approach.

Hiring Manager:

1. Discussion about my current job role
2. Several behavioral and team fit questions
3. What are the things you will consider (both from Developer's perspective and User perspective) while trying to develop an application for computer aided competitive examinations like CAT, GMAT etc.

Bar Raiser:

1. Given a singly linked list, write a recursive method to reverse every 3 nodes in the list.
I did not write a clean code for this. He moved on because of lack of time.
2. Again discussion of my current job role and about the projects I have worked on.
3. Tell me 3 things that you want to learn/change in yourself
4. Again several team fit questions.

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373. Aricent Group Chennai Interview Experience

Aricent is a telecom(network) based company.

There were three rounds

1. Online test hosted by amcat(aspiring minds) was very easy and there was sectional cutoff
2. Technical interview ... questions from networks, datastructures, os, dbms and ooad and also wireless networks.
for eg... what is the difference between vlr and hlr?
the interview duration went off for 45 minutes.
3. HR interview: I was very comfortable with the HR. They also asked me to speak about a topic for about 2 minutes, the topic is of your choice.. And some question is about the company and why aricent... etc

The total selection process was very long.. i came to college morning 8 clock and went to home at 11pm.

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374. Amazon interview Experience | Set 131 (For SDET 1)

Amazon visited my college and offered me SDET-I position. GeeksforGeeks helped a real lot in my interview preparation. Thank you very much GeeksforGeeks!

Here is my interview experience:

Round 1 (On-line Coding Round on HackerRank):

- Given an array of sorted integers which represent box sizes and an integer representing an item size

You have to find best fit box for the item (-1 in case of no box found)

For example:

Given 10,20,30,40,50,60,70 and 45

You have to print 50

Given 10,20,30,40,50,60,70 and 75

You have to print -1

Given 10,20,30,40,50,60,70 and 50

You have to print 50

- <http://www.geeksforgeeks.org/forums/topic/find-a-string-inside-a-2-dimensional-array/>

F2F 1:

- Given an array of integers

you have to output sequence a1,a2,a3,a4,a5,a6,a7 such that a1a3a5a7

For example:

Given 10,20,30,40,50,60,70

You have to print 10, 30, 20, 50, 40, 70, 60

At first, I gave answer using sorting. But my interviewer asked me to do this without sorting the input array, and I did it.

- A simple question on Tree data structure which i don't remember.

- Questions related to my project.

F2F 2:

- A matrix is given which is sorted row wise and column wise

You have to print the sorted order.

For example:

Given

1 2 3 4 6 8
2 3 3 4 7 8
2 3 4 5 7 8
2 3 4 5 8 8
3 4 4 6 8 9
4 5 5 7 8 9

You have to print sorted order

2. Questions related to my project during my internship.

F2F 3:

1.What happens when we type amazon.com

Relating to this the interviewer asked me every step in detail including all 7 layers of networks.

Protocols like: HTTP, HTTPS, DHCP, DNS, IMAP, POP, TCP, UDP etc. Their uses and differences.

2. Describe ACID property of a transaction (DBMS).

Bar Raiser(Telephonic):

1. Given a singly linked list, write a recursive method to reverse every 3 nodes in the list. He asked me to inform if I have seen the question.

And I replied : Yes sir, it is the similar question I faced in coding round of Amazon-internship last year.

But he didn't changed the question.

I solved it with a silly mistake which i corrected when mentioned.

2. Long discussion on my internship and about the projects I have worked on.

3. Tell about your criticism.

4. 3 weaknesses currently i am working.

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375. Amazon interview Experience | Set 132 (For SDE Intern)

Online Round :(Duration – 90 minutes)

20 MCQs to solve and 2 coding questions. 20MCQs were on **Algorithms, Data Structures, C Output**, Quantitative Aptitude, etc.

Coding questions were of 10 marks each.

MCQ's had negative marking.

Correct : +1

Wrong : -0.25

Q1- Given an array of numbers, arrange them in an alternate fashion such that every number is followed by a number of opposite sign. Also the order was to be maintained. If the count of negative numbers is more keep the extra at last in array and same for positive numbers.

Example :

Input: -3 -2 6 0 7 -1 -8

Output: -3 6 -2 0 -1 7 -8

Q2- String of characters as arranged in a cellphone i.e.

1-NULL

2-a,b,c

3-d,e,f

4-g,h,i

.

9-w,x,y,z

0-NULL

Print all combinations for given number of digits(k) in lexicographical order .

Constraint : $1 \leq k \leq 4$

For Example : Input = 234

Output : adg adh adi aeg aeh aei afg afh afi bdg bdh bdi beg beh bei bfg bfh bfi cdg cdh cdi ceg che dei cfg cfh cfj

Round 1 F2F :(Duration – 1 hr)

Introduce Yourself.

Q1- Design a shuffle function which would play songs randomly in your device (unique song_id) and code it.

After i gave him a solution with hash function , he asked me to improve the algorithm such that once a song is played it should be played only when all the other songs are played,

Solution's Complexity : Space – $O(n)$, Time – $O(1)$; $n \rightarrow$ number of songs

After that he asked me to improve my solution and do it without using extra space.

Solution's Complexity : Space – $O(1)$, Time – $O(n)$; $n \rightarrow$ number of songs

Hint : Maintain indices and once a song is played shift it in range of played songs index.

After that i was asked about each part of the hash function and how i came up with that.

Q2- Add two linked lists. And code it.

Input : 1->2->3->4->NULL

8->2->NULL

Output : 1->3->1->6->NULL

First he asked to do it without recursion and then with recursion. We also talked about the problem we face if we store the value of the linked list in an integer or long if the number of digits were above certain limits in the non-recursive function.

Round 2 F2F :(Duration – 1 hr)

Introduce Yourself.

Q1 – Find the largest subtree which is binary search tree in a given Binary Tree.

Then to optimise it and then asked me to code it.

Q2 – Given a linked list with a next pointer and an arbitrary pointer pointing to any node in the list , copy the linked list.

After i gave him a solution which changed the links of the initial linked list, he asked me to do without changing the links.

So i gave him a $O(n^2)$ solution . He asked me to give another way or optimise my solution.He helped me to figure out the solution.

Hint – Hash map.

The interviewers were really helping and supporting and were more interested in seeing the efforts you make and the way you get to the logic.They help throughout by giving hints.

Thank You geeksforgeeks for helping me out.

Best of luck .

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376. Aricent Interview | Set 4 (On-Campus)

There were 3 rounds consisting of Written, Technical Interview and HR round.

Written Round:

Aricent organized an online written test via amcat(aspiringminds). The questions were very easy. There were total 5 sections.

Section 1:

Questions on computer fundamentals were there. It comprised of questions from os, dbms, c etc. for example paging, referential integrity, output based on pseudo codes.

Finding the distance moved by disk head in CSCAN algorithm in processing some requests. Brush up your basic concepts no need to go into details.

Section 2:

This was based on Quantitative aptitude. There were questions based on profit and loss like given SP and profit find CP, averages, HCF LCM, finding unit digits etc. This was an easy section just be through with all the formulas. But don't spend too much time on one question otherwise you are gonna miss some questions.

Section 3:

This section was to test your English. Few questions asked the synonyms and antonyms of a given word. There were questions with fill in the blanks and you need to select the correct option, questions where some part was italicized and you need to replace it with some other phrase preserving the meaning of the word. Comprehensions were given and you need to give the answers.

Section 4:

This was based on logical ability. Questions were based on data sufficiency, blood relations, coding and decoding, direction test, linear arrangement, clocks. This section was easier than aptitude one.

Section 5:

This was based on programming. Pseudocode based questions were there. Output finding, Stacks, queues based questions were also there. Clear all programming and ds concepts. No language specific questions appeared.

This time there was no GD and Critical Incidence Form filling. There was some other form HR asked us to paste a passport size photograph, personal details, educational details, achievements/honors (if any), whether any problem with bond and job location preference, family member details, whether had any criminal history or not. This form was to be submitted with a copy of resume and copies of mark sheets graduation, school etc.

Technical Interview:

He first asked me to introduce myself. Then he asked me to declare a static variable, a global variable and local variable. Then he asked their usage, memory storage, scope, lifetime etc. He asked me the difference between declaration and definition. Then he asked me to write a statement for allocating 40 bytes to an integer. I wrote it using malloc. Then he asked me to deallocate it. I write it using free(). He asked when you allocated memory you specified the size but when you deallocated it you didn't mentioned the size, how come compiler able to deallocate only 40 bytes.

He then asked me to write a code for inserting a node at the end of a linked list where I am provided only with head pointer and handling all the cases. He also asked me to delete a given node from the same list. I did it in two scans. He said can you know how can you do it in only one scan, I said yes then he moved on.

He said an array is given containing only 0's and 1's in random order, you have to sort it. I knew this question so I said that I know this one. Then he moved on. He asked me how to check if there is a loop in a linked list. I knew this one too so he moved on. He then asked me that given two lists you have to merge them in a sorted order and asked me only the complexity. Then he asked me are you comfortable with networks, I said no. So he moved on to DBMS. He said have you used any tables in DBMS. I mentioned him about my project so he asked me which tables I used there and what all attributes were there. He was asking questions from my project. He asked me that any other project I have done, besides websites. Then I told him. Then he asked questions about nfas dfa etc. He then asked me to give a real world example of nfa.

HR interview:

She started with asking me to introduce myself. Then she asked me do you like to work on a specific technology, mobile applications and all. Then she asked me about my project which I explained to her from the scratch by giving examples. Then she asked me about whether I am comfortable in testing, I said yes I am comfortable with both testing and developing but I like to do coding. In the end she asked me if I have any problem with the bond and about job locations. That was it.

Geeksforgeeks helped me a lot. So a big thanks to geeksforgeeks.

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377. BrowserStack Placement Paper

PROFILE: SOFTWARE ENGINEER

PAPER DURATION: 3 hours

NO. OF QUESTIONS: 2 (20 marks each)

MAXIMUM MARKS: $20 \times 2 = 40$ marks

QUESTION 1:

JSON Prettier:-

Write a program which takes JSON as input and gives prettified JSON

1. You need to read JSON from STDIN. Input gives one line of uglified JSON.
2. Output should be formatted JSON. Check the standard output link.
3. Use 2 white spaces (not '\t') for one indentation.

SAMPLE INPUT:

```
{"group": {"list": [1,2,3]}, "list": ["a","b","c"]}
```

SAMPLE OUTPUT:

```
{
  "group": {
    List : [1,2,3]
  },
  "list" : ["a","b","c"]
}
```

EXPLANATION: Input will be uglifiedjson in one line and output will be prettified format of that.

QUESTION 2:

XML parse plus series computation

Evaluate an expression given in XML format. Keys will be Expr- contains the entire expression. Elem – contains the digit, sum, Prod- contains two or more keys whose evaluation needs to be summed or multiplied respectively. Sub will contain 2 keys or more, where the second key onwards will have to be subtracted from the first one. Div- will contain 2 keys in which first key will need to be divided by second.

SAMPLE INPUT:

```
<expr>
<sum>
<elem>4</elem>
<elem>6</elem>
<elem>7</elem>
<elem>3</elem>
</sum>
</expr>
```

SAMPLE OUTPUT:

20

EXPLANATION:

Input will be xml file through standard input. End of xml file marked by </expr>.

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378. [TopTalent.in] Exclusive Interview with Arushi Who Got Into Flipkart

It's not easy getting into one of the hottest companies in India. As company is growing at a crazy pace, Flipkart always looks for best talent out there to keep up with their growth. Arushi could crack it and in her own words, ' When I got placed at Flipkart it was hard to believe. Took almost a day to sink in'. We at [TopTalent.in](#) spoke to Arushi from BITS-Goa about her Flipkart experience and what are her suggestions for aspirants looking to achieve something similar.



TopTalent: What job offers did you have get apart from Flipkart?

Apart from Flipkart.com I had an offer from Housing.com – A mumbai based start up.

TopTalent: How do you feel on achieving this feat?

When I got placed at housing it was hard to believe. Took almost a day to sink in. Getting placed at Flipkart was a similar experience. Felt good that I had offers from 2 such awesome companies.

TopTalent: Why did you choose this opportunity over others?

Choosing Flipkart was but natural having worked there for a year as an intern. Also Flipkart is neither a fully fledged multinational nor a start up any more. This presents a perfect learning opportunity

TopTalent: How was the whole internship experience with Flipkart?

I actually had two internships with Flipkart, for 6 months each. I was pretty raw when I first came. But all the people were pretty patient and their main aim was to teach me. Getting the work completed actually was at a lower priority. The second internship was

better. It was a very open ended and fuzzy problem which involved quite new technology. I was given complete freedom to explore solutions and solve the given problem in the best possible way. It was a very different experience and definitely helped me grow a lot. All the engineers, no matter how busy will always have time to listen and give suggestions regarding any technical problem you go to them with.

TopTalent: What kind of skills do you think helped you in getting this job?

I think apart from the technical knowledge being a fast learner and persistence is important. Also a very important thing seen in Flipkart is the sense of ownership everyone has. No matter what designation a person is at.

TopTalent: What's your advice to students who are aspiring for similar kind of achievement?

The usual technical knowledge and knack for problem solving. The interview at Housing was pretty straightforward. It was mostly based on the work done in Flipkart. And a few puzzle solving.

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379. Intuit Interview | Set 5 (On-Campus for Internship)

Intuit visited our campus for summer internship for positions of Software developer and Software Quality Engineering. I was among the 5 people to be selected for the internship. The details of the process are as follows:

Written Round:

This was a written round. Proper code with correct syntax to be written on paper. There were 4 questions to be solved in 1 hour. Some questions needed test cases and time complexity to be answered as well.

- 1) Binary numbers are given as linked lists. Add and store result in linked list.
- 2) A number starting from 1 can be got by either multiplying 3 or adding 5 to it. Given a number, find the sequence of operations to get it or say it's not possible.
Eg: $13 = 1 * 3 + 5 + 5, 15$; Not possible
- 3) Given an input array of integers. Output an array of same length such that the value at ith position of output array is the product of all numbers in input array except that at ith

position.

Eg: Input: 3, 5, 7 Output: 35, 21, 15

4) Sort a stack in ascending order using another stack.

12 people were shortlisted for next round.

Design Round:

This was NOT an elimination round.

It was a problem solving team exercise to understand their way of working.

The interviewers were making notes though during the exercise, don't know if it affected our selection.

Interview Round 1 (Tech):

General questions based on resume, was asked to explain my internship project.

He asked questions on my written round. Asked me to find the bug in my code for 1st problem. He was extremely happy with me when I gave the correct answer.

He asked me for the code for the last problem since I hadn't solved it.

Asked to reverse linked list using recursion, since I said I did by iteration earlier.

He had written code of second problem, I had to find bugs in it.

Discussion on quality engineering and developer profiles.

Interview Round 2 (HR):

This was more of a general discussion. She told me about what quality engineers do, how their role is more powerful. Asked me how you would test the Google page.

She was extremely impressed by my resume and asked me questions about my electives. She told me in this round itself that I was selected, only need to wait for the official announcement.

I would like to thank geeksforgeeks for all the resources, they really helped me prepare well. I hope this article helps students. One advice, make sure you make a good resume and also try to focus on proper code and explaining your logic well.

Thank you!

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

380. Adobe Interview | Set 15 (For MTS-1)

Recently I got the opportunity to be interviewed for the position of MTS-1 at Adobe. Here is my Interview Experience:

Written Round:

Part A (50 mins):

45 questions based on logical reasoning, DI, quant and geometry. The questions were easy but the real issue was time in this round.

Part B(2 hrs):

13 MCQs on C,C++ basics (referencing and dereferencing of string pointers ,size of union etc.), OS basics

7 coding qustions. Some of which I remember are :

- a)Reverse a linked list.
- b)Check if a number is a Palindrome or not.
- c)Multiply two numbers without using * operator and using minimum number of additions.
- d)Balancing of parenthesis.
- e)Find the row with maximum ones in a 2D array where in each row all 1s occur before all 0s
- f)Check if a given sum is available in an array.

F2F Round 1:

a) I was asked to allocate a 2D array dynamically. I did that. I was then asked to free the allocated memory.

b)Implement an averaging filter assuming a fixed window size on an image. Entire code was required.(We can ignore the border cases). I first did it using a brute force approach. The interviewer then asked me to optimise it. I did it using extra space to store the sum of elements in a fixed window size so that we do not have to compute it for each pixel of the image

c) He told me that for a very large image (2D matrix) the row major traversal is better than column major traversal. Why?

Entire array cannot fit into main memory at same time. Rows are contiguously allocated. Therefore benifits from locality of reference.

d)Questions on virtual memory and paging.

e)Which data structure should we use to represent polynomials and why?

F2F Round 2:

a)Implement queues using linked list. Entire working code with all corner cases was required.

The interviewer was impressed as I had handled all the test cases properly.

b)Most optimal code to calculate the number of set bits in an integer. (i.e. O(no of set bits))

c)Difference between process and threads, multiprogramming and multithreading, multithreading and multitasking.

c) Consider there are 9 balls. One ball is defective (might be heavy or light). Find the defective ball in maximum 3 weighings.

I went into the wrong direction as I thought that I had done this before. But he gave me one or two hints and based on that I was able to come to correct answer.

F2F Round 3:

a) There are 2 people A and B. Both A and B have equal speed of walking. Both A and B have equal speed of running. Now assume that A runs for half the time and walks for half the time. While, B runs for half the distance and walks for half the distance. Can we tell conclusively who will win in a race?

b) There are two arrays. One contains n digits and the other n-1 digits. How to find the missing digit in the second array?

I asked the interviewer if I can assume that the elements are unique. He said yes. Then I solved it using XOR method. He asked what if the nos are negative or fraction. I said that as two negative numbers or 2 decimal numbers will be stored in the same way in memory therefore XOR will work for that cases as well.

c) Find square root of 'N' without using square root function.

d) Find whether the number 'n' is a palindrome or not. He wanted the best optimal solution with all special cases.

Finally after a lot of hints I was able to bring it down to O(1) space complexity and O(log(n/2)) time complexity. He was pretty satisfied !

Fourth Round : HR Round (30 Minutes)

It was an amazing experience as the interviewers were very friendly and made me feel at ease. I would like to thank GeeksForGeeks team for creating such a wonderful portal which helped me a lot in my interview preparations.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

381. Amazon interview Experience | Set 133

Recently had a interview with Amazon, through employee referral. All face to face rounds. I didn't clear, so no offer. ☹

1st Technical Round:

Given an integer, find the next biggest integer whose digits are in increasing order.

Example:

Input: 118

Output: 123

Input: 127

Output: 234

Input: 987

Output: 1234

Designing question: Design a parking space to park a car.

2nd Manager Round:

Explain my current project. Architecture and design flows etc. asked.

Any challenges while working on the project.

Any glitches/cases where you completed got it wrong etc.

After two rounds asked to leave. I guess I didn't answer as per standards.

Thanks anyways GeeksForGeeks.

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382. Amazon interview Experience | Set 134 (Off-Campus for SDE)

I would like to start off by thanking the entire community of GeeksforGeeks for helping me out.

Attempt 1

Round1:

- Given a number N, find the number of correct combination of parentheses possible.

```
Input: N=2 => ()()
```

```
Output: 2 [(()), ()()]
```

```
Input: N=3 => ()()()
```

```
Output: 5 [(), (), ((())), (())(), ((())), ()(())]
```

- Print all root to leaf paths using iterative algorithm in linear time.

Round 2:

- Given 'm' and 'n' ($m < n$), print all nodes between levels 'm' and 'n' in level order.
- Print a matrix in spiral order.

Round 3:

- Check if two trees are mirror images of each other.
- Given inorder and preorder traversals, build a binary search tree.
- Print all the boundary nodes of a given binary tree.

I was rejected after this round. I applied again after few months.

Attempt 2

Written Round(on HackerRank): It contained 3 simple questions on data structures.

Duration 60 mins.

F2F – Round 1:

- Given a singly linked list and a value 'k' such that k Input: A \rightarrow B \rightarrow C \rightarrow D \rightarrow E , $k=2$
Output: E \rightarrow C \rightarrow D \rightarrow A \rightarrow B

Input: A \rightarrow B \rightarrow C \rightarrow D \rightarrow E \rightarrow F , $k=2$

Output: E \rightarrow F \rightarrow C \rightarrow D \rightarrow A \rightarrow B

- What is Paging? What do you mean by page faults? How will you handle page faults?

F2F – Round 2:

- Given a BST and given that 2 nodes are swapped in the tree. Identify the 2 swapped nodes.
- Given a BST and 2 nodes. Identify the length between the two nodes of the tree.

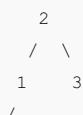
F2F – Round 3:

- Detailed discussion of current projects.
- How would you design the meeting invite feature of Microsoft Outlook? Considering each meeting invite as an object and that Web server is the storage space for the invites, design a data structure to receive and send invites to user in an efficient manner. The message objects must be received in a sorted manner based on the time of meeting. I gave an $O(N \log N)$ solution and he was pretty impressed. I was then asked to code it.
- An array is given whose every i th index is the child node of $a[i]$ as shown in the example below. The root node is represented by -1. Find the height of the tree.I did it in linear time.

Input: parent[] = {1 2 -1 2}

Output: 4

The given array represents following Binary Tree



F2F – Round 4:

1. Cultural info and projects discussion. What errors have you performed in your career path? What are the major challenges that you faced?...and other such questions.
2. Design a parking lot system. She was very much concerned with all the edge cases.
3. How would detect whether a singly linked list is a palindrome or not? I gave a solution with $O(n)$ time and space complexity. But she asked to optimize it further with $O(1)$ space complexity.

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383. Nagarro Interview Experience | Set 2

First Round:

1. Aptitude Questions, basically logical aptitude, Not the standard aptitude questions which we get in other companies, it included some questions of geometry, trigonometry, and puzzle type questions, analytical ability,

Question were like – find the measure of an angle in the figure, solve the trigonometric equation, data interpretation-a data table was given and based on that table question were given, find the sum of a given series, arrange in descending order -sruds ka, etc.. Paper was not so easy 😊

Second Round:

Technical ability test: questions on basic C language, like predict the output, find error, then puzzle type question of queues and stacks, then write level order traversal after insertion in a heap, dry run of bubble sort and quicksort, and some very basic question like no of nodes in binary tree and all... Overall this round was very easy.:):):)

Third Round:

Coding Round: Three questions

1. You're given a $m \times m$ matrix. Write a function to rotate submatrix within the matrix by 90degree clock wise. Function takes x and y as starting row and column coordinate of matrix and N as size of submatrix as argument. Inplace rotation was required. I gave brute force i.e. With extra memory.
2. You are given a sorted array containing both negative and positive values. Resort the array taking absolute value of negative numbers. Your complexity should be $O(n)$

```
Ex. A = {-8,-5,-3,-1,3,6,9}
```

```
Output: {-1,-3,3,-5,6,-8,9}
```

3. Wap to find subsets that contains equal sum in an array:

```
for eg{1,2,3,4,2}->{1,2,3} && {4,2}  
{1,1,3,3,2,8}->{1,3,3,2} && {1,8}  
{1,3,4,7}->no subset
```

Fourth Round:

He started with tell me something about urself. Meanwhile he was going through my coding paper. Then he said lets dry run the first program.. We started, then he was confused in my program, I said should I explain it to u?? He said let me see it.. Then he started asking why this variable, can I use anything else.. Finally, he was done with my first code.. Code was correct. Then he came to second code and again he said lets dry run it.. I used mergesort sort merging technique, so he said ok explain me this, and again why this variable, and can u do any thing else other than this and so on.. Maine third code m kuch nhi likha tha, so he asked the reason. Maine kaha ki mai sol tak nhi pahuch paya tha, toh usne kaha tell me jitna socha tha, then I told him jo maine socha tha.. Then he asked, ki is problem k baare m fir socha ya nhi free time m, I said yes, he said so how it is solved then, I said dynamic programming. He asked nothing..

He gave me a extra question- Given a text string and a sample string. Find if the characters of the sample string is in the same order in the text string.. Give a simple algo..

```
Eg.. TextString: abcNjhgAhGjhfhAljhRkhgRbhjbevfhO
```

```
Sample string :NAGARRO
```

I gave him few solution.. He was done with my interview, and he was happy with my solution.

Fifth Round: HR Round:

Tell me something about urself.

Tell me something about ur family background.

Tell me something about ur educational qualification. Schooling... Graduation... Etc.. Incidentally,

What was ur Rank in MCA enterance??

Tell me about ur all achievements... Scholarshipholder..... second topper graduation.... Second topper matriculation... ranking in technical fests... Maths olympiad... Etc...

Tell me about ur strength and weakness.. PS: Try to give ur weakness such that it is counted as strength... My strength : Hard Working and dedicated to work. My Weakness : Relationship, relationship is the first priority before any work.. Give me incident when u ranked relationship above any other work.

What do u know about Nagarro? PS:For this question just concentrate in the company ppt.. That will be sufficient 😊 Basically Jo ek do line Maine ppt m suni Thi use hi bol Diya Tha Maine.. Kuch lines aur jaise Ki there is small DUCS family there in nagarro, alumni batate hai ki there is time flexibility and a very good working environment..... Outings.... Festivals... Freshers party.... Headquarters... Etc....

Which area of the computer Science u liked most during this course of MCA? I said programming , data structure, Algorithm i liked the most 😊

Which kind of programming u do, i told him him i usually do contests in codechef, geeksforgeeks questions, and off course the curriculum assignments...

Tell me in which language u r comfortable for programming, I told him JAVA. then he said why not C. I said, basically i also work in C but prefer java. But when language is not specified in assign, i prefer only Java. Then i asked , which language is used in company. She said Java, C plus plus, .net... Then i asked, which language will i get, she said it is decided after training. Are u comfortable in working outside your city, i said yes.. Do you have passport, i said No, she said apply as soon as possible.

GeeksforGeeks helped me a lot 😊 Best site to prepare for Technical Interviews..

Big thanks to GeeksforGeeks 😊

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384. BrowserStack Written Test | Set 3

Following is the written round questions for BrowserStack on campus.

Paper Duration: 2 hours

Number of Questions: 2

Maximum Marks: $2 * 20 = 40$ marks

1. Sum all the digits of n!

Write a program that accepts a number n (in the range 1 to 2000) and outputs the sum of all the digits in the decimal representation of n!. For example: if n is 10, n! = 10! = 3628800. The output should be 27 in this case.

Sample Input: 9

Sample Output: 27

2. Regular Expression Match

Given a string and a regular expression pattern, give the number of times the pattern occurs in the string. RegEx example means as follows:

- . – 2 occurrences of the previous character
- + – 4 occurrences of the previous character
- * – more than 5 occurrences of the previous character

Sample Input:

5

aaaaaaannndnnnnnnffffhhfhhgjjjwkkklclic

a.

n+

a*

an.

a.d.

Sample Output:

5

3

2

1

0

Explanation:

Input:

First Line: Number of sample test case (N)

Second Line: String

Next all will contain the RegEx.

The string will not contain the special characters that have already been mentioned. The pattern may contain parenthesis, in which case the special symbol has to apply on all the characters inside the parenthesis.

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385. Linkedin Online Coding Questions for Campus Placement

Online coding 1 hr, 3 Questions.

1. We have to implement getIntComplement() function , that will give complement of an given integer .

2. There are "n" ticket windows in the railway station. ith window has a_i tickets available. Price of a ticket is equal to the number of tickets remaining in that window at that time. When "m" tickets have been sold, what's the maximum amount of money the railway station can earn?

exa. n=2, m=4

in 2 window available tickets are : 2 , 5

from 2nd wicket sold 4 tickets so $5+4+3+2=14$.

3. There is a particular sequence only uses the numbers 1, 2, 3, 4 and no two adjacent numbers are the same.

Write a program that given n_1 1s, n_2 2s, n_3 3s, n_4 4s will output the number of such sequences using all these numbers.

Output your answer modulo 1000000007 ($10^9 + 7$).

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386. Amazon interview Experience | Set 135 (On-Campus for SDE)

Recently, Amazon visited our campus and I was interviewed for SDE position. Here is my Interview Experience:

Online Round: (Duration – 90 minutes)

20 MCQs and 2 coding questions. MCQs were on Algorithms, Time Complexity, Quantitative Aptitude, Probability, Operating Systems, Graphs, Data Structures, Recursion outputs etc.

Coding Questions:

1. In one of Amazon fulfillment centers, there are a no. of empty boxes kept in increasing order in a row. Kiva robots are designed to put a product in a box. The product size is given. Design a program to find the best fit box for given product size. First line contains no. of empty boxes and next line contains size of boxes with space. The next line contains size of given product. The output shows the best fit box size and - 1 otherwise.

For example, Input: 6

2 7 9 11 13 16

12

Output: 13

2. You have to find a string in two-dimensional array. The input contains 2-D array of characters and given string. You can move in one of eight directions . The output

contains location of first letter of string if string found completely, otherwise return -1.

Any one out of multiple answers is accepted, if possible.

For example, Input:

b t g

p a d

r k j

String: rat

Output: (2,0)

F2F Round 1:

Brief introduction about myself and my project.

- Given an array of positive and negative integers, rearrange positive and negative numbers in O(n) time .

First, I solved it using 2 arrays,each for positive and negative integers and place elements of array in these 2 arrays and them combine them back by taking one element from each array. Then he told me to do without extra space. I then segregated positive and negative elements using quicksort .Below is the link:

<http://www.geeksforgeeks.org/rearrange-positive-and-negative-numbers-publish/>

- Program to check whether strings are rotation of each other or not. I approached as below:

<http://www.geeksforgeeks.org/a-program-to-check-if-strings-are-rotations-of-each-other-or-not/>

He then told to solve without using strstr. I used naive searching method.

F2F Round 2 :

Brief introduction and some behavioral questions.

Given a BST and a key sum, design an algorithm to find all pairs of integers whose sum equal to key.

I first approached using an array and placing elements into it in inorder fashion and then find pairs. He told to do in-place and I solved with 2 traversals (inorder and reverse-inorder).

F2F Round 3 :

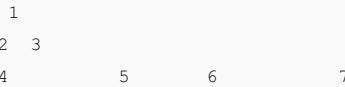
Based on CS Fundamentals and also had 15 minutes discussion on my internship project.

- What happens when we type amazon.com ?
- Describe transaction process in detail if we want to transfer from one account to other. Also design schema for it.
- What happens on server side on receiving HTTP requests and how operating system interacts and then discussion related with threading, thread pool ,synchronization, hashing etc.
- Describe ACID properties in detail .

Bar Raiser Round :

1. Given a Binary tree, full_path_sum is sum of all nodes from root to leaf in a path.
Given a min_sum value, delete nodes if path has full_path_sum less than min_sum .
Delete all such nodes . For example,

Given min_sum =8



So we delete 4.

2. How to find kth- smallest element in BST?

<http://www.geeksforgeeks.org/find-k-th-smallest-element-in-bst-order-statistics-in-bst/>

Thank you geeksforgeeks for helping me a lot during my preparation.

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387. BrowserStack On-Campus Placement Questions

Online coding 3hrs

2 questions

20 marks each.

Problem 1:

Write a program which takes JSON as input and gives prettified JSON

- a) You need to read JSON from STDIN. Input gives one line of uglified JSON.
- b) Output should be formatted JSON.

Given two JSON objects, find the values of fields. whose values are different.

Eg. Input

```
{"Geeks":"Test1","Are":"hey","Cool":"yeah"}  
{ "Geeks": "Test1", "Are": "20", "Cool": [ 'B', 'C' ] }
```

Ans: Are:Cool

Answer shud be in above format ..

Problem 2:

Given a string and a Regular Expression pattern, give the number of the times the pattern occurs in the string. RegEx symbols mean as follows:

- . – 2 occurrences of the previous character, + – 4 occurrences of previous character, * – more than 5 occurrences of the previous character

Sample Input (Plaintext Link)

5

aaaaaannndnnnnnnffffhhgjjjwkkklclc

a.

n+

a*

an.

a.d.

Sample Output (Plaintext Link)

5

3

2

1

0

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388. Nagarro Interview Experience | Set 3 (On-Campus)

Nagarro came to our campus for their placement drive. They took the written test in the campus and called the shortlisted candidates to their Gurgaon office.

Round 1(a): Written test consisted of quant and logical aptitude questions (geometry, trigonometry, pie chart etc). The questions were ranging from easy to average. What really matters in this round is your speed to solve the questions. Very few people were able to solve all the questions. It had negative marking too. Practice from RS Aggarwal.

Round 1(b): C-programming MCQ questions, though most questions were easy, there were few tricky ones as well, macro, pointers, inbuilt functions, errors etc.

Then, there were coding test, followed by technical interview and HR interview.

Round 2: Coding Test-

1. Check if binary conversion of given number is palindrome or not. Ex: 6 (0110) is palindrome.

I used a recursive function for binary conversion and then check for palindrome using a loop. Refrain from using inbuilt functions as they wanna check your logic. O(n) time complexity.

2. Separate 0's and 1's in that order from a array of only 0's and 1's.

I used partition algorithm (Quick Sort) to do the same. O(n) time complexity.

3. One Sentence (string) is given. find out the words, that has length even and greater than equal to 4 (e.g. 4,6,8.. etc.) and separate them with space.

e.g. Given String : "abcd abc abcde abcdef"

Output: "ab cd abc abcde abc def"

I allocated a new string dynamically, and used two for loops to copy one string to another, adding a space at the middle of the word where word length was ≥ 4 and even. O(n^2) time complexity.

It seems easy but it isn't. I got to know that this can be minimized to O(n) time complexity in the next round.

Practice all types of array and string questions.

Round 3: Technical Interview-

He asked me to explain the code I had written in the coding round. Asked to minimize the time and space complexities. Gave extensions to the above programs.

Also, he asked about my projects, discussed my resume.

Round 4: HR interview:

This is a formality. You won't be rejected unless you make a blunder during the interview. The interviewer will mark you on various skills which you filled in the form before the 2nd round and check that you filled the form seriously or not.

All the best.

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389. Amazon interview Experience | Set 136 (For SDE-T)

Phonic Interview

1. Let's start with you introduction

In between introduction he asked me about my some project work experience and How have you done?

2. Take a integer as a input and replace all the '0' with '5'.

For example:

102 - 152

1020 - 1525

(Do not use any array for replacing the '0' to '5')

3. You are given two binary tree and write algorithm to check
Are two Binary Trees mirror image of each other?

Amazon Interview for SDET @ Hyderabad Development Center

1st Round

- 1. Project Detail & past experience
- 2. Current Technology i am working in
- 3. <http://www.geeksforgeeks.org/intersection-of-two-sorted-linked-lists/>
- 4. Maximum Subsequent distinct & contiguous sub array in a character array

2nd Round

This round was purely for checking Test Framework and Test Case Knowledge.

He has given me some scenario and ask to write test cases for them

1. you are given a web page into that simply one browse button and Image Holder is their.Write the Test Cases for this.
2. You are given application like Google Analytics. How will you test this application ?
3. what are the basic features you will add into your own test framework.

3rd Round

This round was purely a discussion based on past project experience.Like which project do you think that was most difficult and you had a nice experience.

He asked me each progress point of the project.

1. how will you check that each page of amazon.com is having its logo or not.he also asked me to write code for this also.
2. Some Test Framework Based question like
3. Have you worked on any automation framework or not?
4. what happen between, when you enter a URL into a browser address bar and hit enter to actually page gets loaded ?

In between he asked me few things about DNS Server,Router etc and some discussion was there.

4th Round

1. <http://www.geeksforgeeks.org/level-order-tree-traversal/>
2. <http://www.geeksforgeeks.org/reverse-level-order-traversal/>
3. Make a stack using 2 given queue.
4. Some Project Experience & Automation Framework Discussion, which i have worked on.
5. There was some situational questions also for Team work.

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390. Axtria Interview Experience

Hello everyone! Axtria Inc. came to our campus for full time hiring of final year students. They had shortlisted candidates for the interviews on the basis of online test which consisted of MCQs. The test was divided into six sections of which the very first section was personality calculator which consisted of 60 questions regarding the perceptions and thoughts of people about different things. Only 10 minutes were given to us for it and rest 80 minutes were given for the other five sections which consisted of Quantitative, Logical, Verbal and Technical questions. The paper was quite lengthy, therefore one is required to have fast reading, interpretation and calculations skills. 54 students were shortlisted for further rounds.

First Round- Technical + HR(F/F) duration 30 minutes

There were two people in the interview panel. They started by asking my introduction, about my family background and areas/fields that interest me. Then they tested my knowledge about big data and analytics and further asked me about Hadoop Technology. After then they asked me to explain my projects and further asked me questions regarding data structures' modifications and algorithms used or that can be used to modify the project as per their requirements. After then they made me to write a code for the data structures that I suggested them.

At the end, they asked me one puzzle. Although I knew the solution, but still pretended as if I am exposed to that puzzle for the very first time and later, after consuming few odd minutes, solved that puzzle successfully.

Some of the students too faced second round which was completely HR.

Note: Most of the company's clients are foreign based, therefore, the company too focused over the communication skills. Try to explain the projects and other related things in the best possible way.

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391. Cisco Interview Experience | Set 8 (On-Campus)

Hello everyone! Cisco came to our campus for full time hiring of final year students. They had shortlisted candidates for the interviews on the basis of written test which consisted of MCQs. There were 50 questions out of which there were 20 aptitude questions, 15 questions on C, Computer Networking and Data Structures and the rest 15 questions were from digital electronics, BJT, CMOS and Microprocessor. We were given only 1 hour for this.

Since, the cutoff was quite high, therefore one has to concentrate both on accuracy and speed.

First Round (F/F)-1 hr

The interview started with the introduction, after which he moved on to my projects and asked about the data structures and algorithms used to implement the project. After that he asked questions from Operating Systems like Coffman's Rule, context-switching, processes versus threads, interrupts, semaphore, mutual exclusion, concurrency, deadlock, etc. After that he asked some questions from Computer Networking like TCP versus UDP, what happens when you type a URL, flags of TCP, ping and traceroute, etc.

After that he asked me how much you rate yourself in C and further asked me to write a code for insertion sort using linked list. Then he asked me to look at the code and search for the corner cases and errors if any. Actually, my function had a void return type and he was worried that my head pointer is not getting updated. But I answered him that it will get updated as my head pointer was globally declared and he was satisfied. Then he asked if I had any questions for him. I asked him 2-3 questions and later I came to know that he was my alumni and then we further talked about the life at Cisco.

Second Round (F/F)-75 minutes

This interview of mine was taken by the Production Manager. He started-off as if the round was HR, by asking me my introduction, strengths and weaknesses, why Cisco? , etc.

He, then, asked me about the questions covered in the last round. Then he had given me a question to code. The question was that you have been given an array of length N and window of length M which slides over the array. You have to compute the average of the elements in the window for each movement. Initially I started off with the brute force and ultimately reached to the solution he wanted. He then asked me the advantage of starting from brute force. I replied that at-least I have a solution to work upon.

Then he asked me the designing questions (I didn't remember what exactly the question was) and further asked me to code a trie. He then asked me about hash-maps and heaps. And ultimately he asked me whether I had any questions to ask.

Third Round (F/F)-15 minutes

The HR was just a formality. The HR manager started-off with my introduction, family background, do you have any problem in relocation? , how do you take personal conflicts? ,strengths and weaknesses, then asked me if I am available for intern in the 8th semester and I indirectly said No to her (As such there are no norms in the college but for you I will ask my T&P department and I will call you back accordingly). And then she asked me to spell my email id and finally asked me to wait outside for the final result.

By then, I was sure that the profile in which she wanted me to fit in had no vacancy and ultimately the result was announced and as expected, my name was not there :(.

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392. Expedia Interview Experience | Set 5 (On-Campus)

Hello everyone! Expedia came to our campus for full time hiring of final year students. They had shortlisted candidates for the interviews by taking an online test comprised of four sections (Quantitative, C, Logical and English). Every section had a timer attached to it, so you need to think and answer quickly. Although, the questions were easy but cutoff was quite high.

This round was followed by a coding round, comprised of two questions:

1. Apply MFU (Most Frequently Used) pages technique and count number of leaks (Given frame size and order of frames).
2. Insertion in a sorted circular linked list.

We were given only 1 hr to code these questions. After that 35 students were shortlisted for face to face interviews

First Round (F/F)-50 minutes

The man who was taking my first round was my alumni. He started-off by asking my introduction and then asked me to code the following questions.

1. Detect loop in a linked list and return the node at which the looping is done. This was quite easy for me as I already knew the solution, but still consumed 15 minutes to answer him. You don't have to answer the stuffs quickly, rather you need to develop some test cases and have some discussion regarding the structure of the problem, and

then answer. I started off with the augmented solution, then tried to break the problem into Y-node detection and later answered him the actual solution. He was happy that I knew the name of the algorithm which I was applying (Floyd's Cycle Detection).

2. You have an array of integers of size N. You have to find the sum closest to zero for any pair in that array. The array is unsorted.

He then navigated on to my Codechef profile and asked a question that I did in the June14 Long Contest. I explained him and he was satisfied (You should be prepared to answer each and everything mentioned or referenced in your resume).

Second Round (F/F)-1hr and 15 minutes

The interviewer asked me my introduction and about the problems that were asked in the previous rounds. He then asked me about my projects. The discussion lasted for 1 hr along with the paper and pen coding for different algorithms and data structures like Heap, B and B+ tree,

red-black tree, map and hash-map and finally he wanted me to code the function for LCA in a binary tree.

HR Round (F/F)-1 hr

When I entered the room, there were two people sitting inside the room. One of which asked my introduction. The other then intervened and asked me to name any five Operating Systems. After that, they both started questioning about the different scenarios and in between they asked me many traditional questions like why should we hire you?, strengths and weaknesses ,why Expedia?, your priorities etc. This all continued for about 1hr and asked me to wait for the result.

Result came after 2 hrs, my name was not there.

Note: The whole process is quite lengthy and one needs to have a sound sleep before interview. Moreover, you need to be more than technical in order to crack Expedia.

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393. Flipkart Interview | Set 15 (For SDE-II)

1st round (machine coding)

You are given a catalog of books, which have following attributes.

Name

Author

Publisher

Publish year

Category

Price

Count (sold)

Implement following APIs on top of this catalog

addBookToCatalog(Book)

searchBook(by partial book name/author)

getMostSoldBooks(by author name/category, limit)

Expectations:

Maintain DB on memory

Code should be readable. Design, handle naming convention, handle exceptions & should be running

2nd round (code evaluation & discussion)

- 1) Discussion on design (interfaces & extension)
- 2) Discussion on data structures (trie)
- 3) Discussion on sorting

3rd round (problem solving)

- 1) Head -> a -> b .. ->Tail

Every node has a random pointer, pointing to a random node or null.

You are given a dice (completely biased – you decide which one you want)

What is the minimum number of dice tosses required to reach Tail from Head?

Hint: Problem can be boiled down to snake&ladder problem, where forward pointer is a ladder & backward pointer is a snake.

- 2) N people are there.

knows(A,B) return true if A knows B, else false.

Celebrity: A is called a celebrity

If A knows none

Everyone knows A

Get celebrity, with less number of knows() method usage.

- 3) Dictionary of words is given

i.e. [“cat”, “dog”, “rat”, “catratdog”, “catter”]

Compound word: A word, which can be split into more than 1 valid words
get compound word, with longest string length.

4th round (Design)

Design notification system (notify the customer with a message)

Client (delivery boy, company updates etc)

Services (Email, SMS, WhatsApp)

Scaling up, fault tolerance & failure management

Flexible modifiability of clients & services

5th round(Senior Manager)

- 1) His info & organization profile
- 2) My intro
- 3) Exciting tasks that did at job? – Discussion technically
- 4) Strengths & weaknesses
- 5) Feedback to the manager, how an ideal manager should be?
- 6) Why flipkart?

6th round (HR – casual)

- 1) How is the day, how are the interviews?
- 2) Any offers?
- 3) Compensation expected?

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394. Myntra Interview | Set 2 (For SDE-II)

1st round(coding)

- 1) Given a tree, in which leaf nodes form a doubly linked cycle Print cycle.
- 2) Tell me if binary tree is BST?

2nd round(problem solving)

- 1) Given a sorted array, being rotated; Find an element in it.
- 2) Given a sorted array, being rotated; Give me sorted array.
- 3) Given a stream of integers, give me median at any time.
- 4) From me:

You look younger, what's your designation & experience?

Where did you work before?

Why you moved to myntra from amazon?

3rd round (problem solving)

Given an array of numbers, give me a wave.

Input: a0 a1 a2 .. an-1

Mathematical expression for wave: $a_i \geq a_j \leq a_k \geq a_l \leq a_m$ for all i, j, k, l, \dots, m belong to $[0, n-1]$

4th round (general discussion)

- 1) His info, team info & company
- 2) My info & work
- 3) What are my favorite tasks & contribution?
- 4) What are technical challenges that you solved?

5) Where do you want to work & what interests you?

6) From me:

 Whats your role?

 Where did you work before?

 What are +ve & -ve's of myntra, you think?

 Why you left your previous job?

 How is work life at myntra?

7) Why myntra?

5th round (VP)

1) His info, teams info & company

2) My info

3) Give me a flow of your work & company

4) Whats your contribution?

5) Tell me something, you haven't highlighted in the previous interviews

6) How you keep yourself information-aware?

7) What you do in free time & whats your initiatives in technology?

8) Discussion of mobile technology

9) Why myntra?

10) Whats your choice of work?

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395. Paxcel Technologies Interview Experience | Set 2

Hello everyone, this is my experience of the selection procedure of Paxcel Technologies.

The first round was a MCQ test with 40 questions covering topics ranging from Data Structures, Operating Systems, Computer System Architecture, Networks, aptitude. Level of questions ranged from easy to moderate. Not very difficult to clear this round although 50% negative marking was tricky.

Coding Round:

There were 2 questions:

- Given a 5 digit number and 2 operators (+ and –), find the minimum and maximum possible positive integers using digits from the number and the 2 operators. Example: 12345,+,-.

Possible combinations may be: 1+2-345, 1-2+345 (344 : Maximum). Absolute values of

results of all operations was to be considered.

2. Given an input string (200 character limit, character set: a – z), find all possible square sub strings.

Square sub string: Strings formed by concatenation of any string. Example: abab(formed by concatenating ab with ab).

Technical Interview 1:

Questions related to arrays, link lists, trees were asked. Operating systems questions was the major focus point. Topics related to memory leak, segmentation, paging were also discussed. Discussions about technologies worked on, projects worked on and general interests were also a major part of the interview.

Technical Interview 2:

More operating systems related questions were asked. Topics included paging, thrashing, framing, schedulers, scheduling algorithms. General concepts like sockets and ports were also discussed. Again interviewer focussed on technologies used and discussions related to devops engineering, automation engineering and tools like ansible, docker, selenium were also discussed.

Later HR related questions were discussed.

Some students also had a HR + technical round with a panel of 5 members!

Overall level of interview was moderate and main focus point being operating systems and projects undertaken and technologies knowledge.

Geeksquiz and other geeksforgeeks questions were of great help. Galvin is the go-to book for operating systems.

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396. Length of the largest subarray with contiguous elements | Set 2

Given an array of integers, find length of the longest subarray which contains numbers that can be arranged in a continuous sequence.

In the [previous post](#), we have discussed a solution that assumes that elements in given array are distinct. Here we discuss a solution that works even if the input array has duplicates.

Examples:

```
Input: arr[] = cc  
Output: Length of the longest contiguous subarray is 4
```

```
Input: arr[] = {10, 12, 12, 10, 10, 11, 10};  
Output: Length of the longest contiguous subarray is 2
```

We strongly recommend to minimize the browser and try this yourself first.

The idea is similar to previous post. In the previous post, we checked whether maximum value minus minimum value is equal to ending index minus starting index or not. Since duplicate elements are allowed, we also need to check if the subarray contains duplicate elements or not. For example, the array {12, 14, 12} follows the first property, but numbers in it are not contiguous elements.

To check duplicate elements in a subarray, we create a hash set for every subarray and if we find an element already in hash, we don't consider the current subarray.

Following is Java implementation of the above idea.

```

/* Java program to find length of the largest subarray which has
   all contiguous elements */
import java.util.*;

class Main
{
    // This function prints all distinct elements
    static int findLength(int arr[])
    {
        int n = arr.length;
        int max_len = 1; // Initialize result

        // One by one fix the starting points
        for (int i=0; i<n-1; i++)
        {
            // Create an empty hash set and add i'th element
            // to it.
            HashSet<Integer> set = new HashSet<>();
            set.add(arr[i]);

            // Initialize max and min in current subarray
            int mn = arr[i], mx = arr[i];

            // One by one fix ending points
            for (int j=i+1; j<n; j++)
            {
                // If current element is already in hash set, then
                // this subarray cannot contain contiguous elements
                if (set.contains(arr[j]))
                    break;

                // Else add currentt element to hash set and update
                // min, max if required.
                set.add(arr[j]);
                mn = Math.min(mn, arr[j]);
                mx = Math.max(mx, arr[j]);

                // We have already checked for duplicates, now check
                // for other property and update max_len if needed
                if (mx-mn == j-i)
                    max_len = Math.max(max_len, mx-mn+1);
            }
        }
        return max_len; // Return result
    }

    // Driver method to test above method
    public static void main (String[] args)
    {
        int arr[] = {10, 12, 12, 10, 10, 11, 10};
        System.out.println("Length of the longest contiguous subarray is "
                           + findLength(arr));
    }
}

```

Output:

```
Length of the longest contiguous subarray is 2
```

Time complexity of the above solution is $O(n^2)$ under the assumption that hash set

operations like add() and contains() work in O(1) time.

This article is contributed by **Arjun**. Please write comments if you find anything incorrect, or you want to share more information about the topic discussed above

397. MakeMyTrip Interview Experience

MakeMyTrip recently visited our campus to hire full time employees. Here's my interview experience:

Round 1: (Online MCQs)

Questions on aptitude, English, logical reasoning, C/C++ and 5 coding ques. (only pseudo code).

Round 2: (Online Coding Round)

1. A prisoner broke out from jail. In order to escape, he will have to jump n no. of walls and length of each wall is given. Maximum height to which prisoner can jump is given. Now since it was a rainy day all the walls are wet and when prisoner makes a jump he slips down l units. Calculate total no. of jumps he will have to make in order to escape. (Simple logical question)

2. Find smallest substring which contains all characters from a given string?

Input string1: "This is a test string"

Input string2: "tist"

Output: "t stri"

3. Given a maze. Drop a mouse in the maze randomly, and place a piece of cheese in any cell. The mouse can move 4 directions

up down left right

There are some walls on the way to block certain directions for certain position.

Design an algorithm for the mouse to find the cheese.

Note: the mouse does not know where he is, and where the cheese is. He cannot find x,y for the position he is right now.

for instance

X X B

D X D

A X X

D is the block with walls on 4 sides.

If the mouse reaches the end of row or column, it gets the dead end.

Mouse is A, cheese is B. Return true if mouse can reach the cheese else return false.

Note: if your code doesn't compile, they will not accept it even if your logic is correct.

Round 3: (Technical Interview)

- A brief intro of yourself and discussion on my projects.
- Then he asked me about my fav. subject and language (DS and C++).
- Questions on OOPS (almost all the concepts were covered like polymorphism, overriding, overloading, inheritance, concept of virtual fns etc.)
- He wrote a C++ code and asked me to write the output.
- Some questions on DS and then he asked me to write algo for reversing a linked list.
- Then he asked me to explain one of the questions that I had attempted in the coding round. (They just want to make sure that you know the logic).

Round 4: (Technical Interview)

- Topics in DS that I am comfortable with and the ones with which I am not.
- Unfortunately this time he asked me questions from the later. They don't want a correct answer but just want to see how you approach in such questions.
- Questions from bit-wise operators
- Then he asked me to explain other one of the two questions I had attempted in coding round.

Round 5: (HR Interview)

A quick intro

Discussion on my projects

What you know about their company apart from ppt. Make sure you study their website inside-out before you go for interviews, this shows your passion to work for their company.

Questions on strengths, weakness and hobbies. Be yourself.

geeksforgeeks.org was of great help throughout my placement process.

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398. Flipkart Written test for Placement

Flipkart recently visited our campus for written test for December placements.

Hosted on : cocubes.com

Time : 90 mins

No objective questions.

Two coding questions only. We have to complete the function only.

Ques:

Given a mxn grid, each of it's element be either '.', 'R', 'G' or 'B',
where '.' -> empty, 'R' -> Red, 'G' -> Green, 'B' -> Blue

A Blue strip has width 1 and length greater or equal to one.

A Red strip has length 1 and width greater or equal to one.

If a Red strip and a Blue strip overlaps, the overlapped portion will become 'G'.

Find the minimum number of strips required to cover the whole grid.

1<= m,n <=100

Ex.

Input

2 4

..B.

..B.

Output

1

Input

5 5

..B..

..GRR

..B..

R....

R....

Output

4

Input

5 5

..B..

..GRR

..B..

B....

B...G

Output

5

Explanation:

Blue strips are vertical.

Red strips are horizontal.

Ex 1:

Only 1 vertical strip from (0,2) to (1,2). [Indexing from (0,0)]

Ex 2:

1 vertical strip from (0,2) to (2,2)
1 horizontal strip from (1,2) to (1,4)
1 horizontal strip from (3,0) to (3,0)
1 horizontal strip from (4,0) to (4,0)
so total — 4

Ex 3:

1 vertical strip from (0,2) to (2,2)
1 horizontal strip from (1,2) to (1,4)
1 vertical strip from (3,0) to (4,0)
1 horizontal strip from (4,4) to (4,4)
1 vertical strip from (4,4) to (4,4)
so total — 5

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399. IBM ISL Interview Experience

IBM ISL On Campus Interview Experience.

Round 1: IPAT Online Aptitude Test

This online test is timed, with each question allocated its own time limit of 2.15 minutes.
About 18 number series questions and 18 numerical reasoning questions were asked.

[*Number series questions were tricky. Numerical reasoning was simple*]

Round 2: Written Technical

30 Questions to be answered in 40 minutes.

Questions mainly included

- Predict C program output (about 15 questions)
- Few questions from C++
- Few question from Operation systems, networking
- One question on design pattern.

[*Prepare predict-C-code output questions. Check out OS and networking GATE questions*]

Round 3: Technical face-to-face interview

This round lasted about One hour.

- I was asked to explain my favorite project.
- He asked if I know compilers – and asked basic question on lex and yacc.

Question from operation systems:

- Inter-process Communications
- Threads
- Critical sections
- Semaphores, Mutex (Asked to explain in detail with code)
- Reader-Writer problem
- DeadLock

Asked to write code to insert a node in its correct location, given a sorted linked list.

Asked to find least common ancestor given two nodes and the root; given a BST.

At the end he asked a puzzle:

- Given scene has some X no: of chairs and Y no: of persons in a room.
- If each person sit on one chair, exactly one person is left with a chair.
- If two people sit on one chair, the we have one empty chair

Find X and Y.

[*My other classmates were asked a lot on system calls, linker & loaders, multi-threading; basically OS concepts in depth*]

Round 4: HR Round

- Tell me something about yourself.
- What all programming languages you know?
- Why do you choose to join our company ?
- How long will you work in our company ?
- What are the latest developments in the industry ?
- Strengths and weakness ?
- What is cutting edge technology emerging in IT industry ?
- What parameter do you look to take up the job; if you had offer from two company for the same profile?
- Did you attend Pre-placement talk?
- What is one thing you liked about the pre-placement talk?

[If you are lucky; you end up filling laborious employment forms]

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400. Amazon interview Experience | Set 137 (Assessment test for SDE)

Coding questions:

1) Given two words, find if second word is the round rotation of first word.

For example: abc, cab

return 1

since cab is round rotation of abc

Example2: ab, aa

return -1

since aa is not round rotation for aa

2) Given two hexadecimal numbers find if they can be consecutive in gray code

For example: 10001000, 10001001

return 1

since they are successive in gray code

Example2: 10001000, 10011001

return -1

since they are not successive in gray code.

Aptitude questions:

1) Some based on finding relationships between given number/strings and find the missing one

Example: VTS: RPO :: AYX: _____

2) Paragraph reading and inferring information from it.

3) Facts provided and making a decision based on it.

4) Combinations possible based on facts provided.

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401. Hike Interview Experience | Set 3 (For SDE 1)

Written round :

We all were required to write a code for LRU implementation with proper Locks and synchronization so as it is thread safe.

Round-1

1. A sorted array is rotated K times. Sort it in $O(n)$ traversal without extra space.
2. Median of a stream of array.

Round-2

1. Pirates and gold puzzle.
 2. Why manhole is round ?
 3. two pair with a given sum in a bst with $O(\log n)$ space.
 4. K random numbers from infinite stream of array with equal probability.
- question from projects were also asked.

Round-3

Lots of question from projects and technology used there.

How you choose tgose technology over the others ??

Given a file with student name and marks .. Print all student whose marks lies within a given range of marks.

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402. Amazon interview Experience | Set 138 (For SDE 1)

Screening round:

Three coding question on hackerEarth to be comiled against the testcases

1. Merge two sorted linked list into single one
2. <http://www.geeksforgeeks.org/difference-between-sums-of-odd-and-even-levels/>
3. <http://www.geeksforgeeks.org/find-first-non-repeating-character-stream-characters/>

Round -1

1. Asked me again the logic for finding first non repeating char from a stream of character.

Then the discussion went how hash map internally works and what is the principle behind it .

How the hash conflict get resolved and write code for the same.

2. Find three triplet with a given sum in an array.
3. Find an element in an row and column wise sorted matrix.

Round-2

1. Find the majority element in an array.
2. Print out all the numbers in sorted order from row and column wise sorted matrix
3. How to find a given key in a sorted stream of array(less than O(n) complexity required)
4. One more ques dont remember

Round-3 (HM round)

Lots of situational question being asked.(conflict with ur manager, ur say , leadership quality in you, ownership of project , problem solving capabiltiy)

Lots of question on your owned projects.(Impact of this on your product and time to implement it)

two tech ques:

1. <http://www.geeksforgeeks.org/stock-buy-sell/>
2. write code to find whether the tree is BST or not.

Round-4

1. In an array find three number which fits into pythagoras theorem($a^2+b^2=c^2$).Find a,b,c
2. Find the number of island in a matrix of 0,1. The island which starts from edge of the matrix will not be considered island

eg: no of island are 0 here

0100

0100

0000

0000

Round-5

Lots of in depth question about your project and its impact on the product.

Was asked to draw the architect diagram of the algorithm used in my project and explain with example.

one tech ques : For a given string and given dictionary. Find all the anagrams of the string which are also present in the dictionary.ie the string shud be a valid dictionary word.

NOTE : I WAS REQUIRED TO CODE EACH AND EVERY QUESTION WITH PROPER SYNTAX AND EDGE TEST CASES on piece of paper after discussing the algorithm.

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403. Amazon interview Experience | Set 139

3 months Experience Candidate.

1. Written test 90 mins which consisted of 2 coding questions and 18-20 MCQ from varied computer science concepts.

2. Telephonic Round

1. Find the number of occurrences of a number in sorted array.
2. LCA in a Binary Tree.
3. Clone a Tree, where each node had 3 pointers left, right and random. Random pointer points to any other node in the tree.

Interview Experience F2F (Onsite):

Round A with HM :

1. Check for a complete cycle in a graph. (A complete cycle is one that covers all nodes)
2. Construct a tree using Preorder and Inorder Traversal.
3. Evaluate a random function.

Since this round was with a hiring manager he asked a few questions like why do you want to leave your organization? Why so early? Plans for further studies and basic discussion of projects.

Round B Tech1:

Half an hour discussion on my projects. Then a question on strings. Write a program to output the minimum size window which contains all the given characters with at-least the given frequency. This was followed by Test Case design.

Round C Tech2 :

1. Given a Node in a tree and a value k , print all nodes at K distances from the given node.
2. Given a string and k, arrange the string so that all the same characters are K distance apart. If not possible print -1.

Round D BR :

1. Given two arrays sort the first array in the order of numbers given in the second array. For the numbers that do not appear in the second array, sort according to face value. Discussed methods and codes. He always pushed to optimize the code.

This was followed by discussion on sorting techniques, there comparisons. In the end he asked a few questions from OS mainly the scheduling algorithms.

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404. Amazon interview Experience | Set 140 (Experienced for SDE)

Hi, Recently i had interviews with Amazon.

1st Round (Telephonic):

- Given an integer array and a constant number X, print all pair of number in the array whose product is equal to X.

follow ups: how will you do in O(n)? how will you handle duplicate pairs?

Code was required on collabedit.

<http://stackoverflow.com/questions/3757393/given-a-number-p-find-two-elements-in-array-whose-product-p>

- He asked do I know level order traversal of binary tree. He ask me to code then, he changed the question and asked about spiral order traversal of binary Tree and asked me to code it.

<http://www.geeksforgeeks.org/level-order-traversal-in-spiral-form/>

2nd Round (Telephonic):

- In a BST two nodes were swapped. Given the pointer to root node find the two nodes and rectify the tree. He asked the approach then asked me to code the same in collabedit.

<http://www.geeksforgeeks.org/fix-two-swapped-nodes-of-bst/>

- Given an integer array, find and print three element in the array whose product is maximum. Code was required.

<http://www.technicalypto.com/2010/05/find-three-numbers-in-array-which-forms.html>

3rd Round (face2face onsite)

- Given a sorted array of n integers, count and display number of triplets such that $a[i] < a[j] < a[k]$ $O(n)$ time. Code was required.

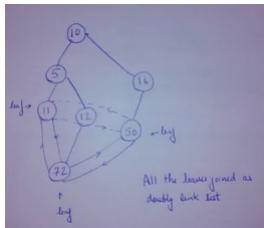
- In a given string some of the characters are replaced by question mark, and you can replace question mark with any character. Given such a string find total number of palindrome that can created. String contains only [a-z] characters and question marks can also be only replaced by [a-z].

Example:

Input String: String str="a??a"

Output: 26

- Given a binary tree all the leaf nodes in the form of a doubly linked list. Find the height of the tree.



4th Round (Hiring Manager Round):

Detailed discussion about previous company work?

Why I want to leave my previous employer?

Why Amazon?

What if I don't like the work?

What are challenges I have faced in my work, how I resolved it?

Weakness and strength?

What does router do, what is static routing? Given a routing table, how would you decrease the time taken by router to decide to which router packet must be forwarded?

Details of algorithm that could be implemented and discussion time and space complexities.

5Th Round (Face2Face Onsite):

1. Given N sorted LinkList of different length, merge them into a single sorted link list.
Pseudo code was required.

2. Given a number d and size of array N. Print all combination of element in the array such that first element of array is d and next element in the array can be +1 or -1 the previous element in the array. Code was required.

E.g. Input: d=4 N=3

Output:

```

4 3 2
4 3 4
4 5 4
4 5 6

```

3. What is LRU and implementation of lru? Write pseudo code for the same.

I would like to thanks GeeksforGeeks for providing us such a learning platform.

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405. Microsoft Interview Experience | Set 39 (On-Campus)

?I like to thanks geeksforgeeks.org for my ?entire journey in placement.

Round->1 (multiple choice questions)

1. Intersection of two linked list.
2. There is a 2 d array. 0 signifies water and 1 signifies land. an island is connected 0s(in all 8 direction) and no 0 should be on the outer edge of two array. You have to count the bumber of such possible array.

You have to solve both coding question to enter in 2nd round

In round 2 interviewer were very cool and supporting. try to shake hand while entering and ask every detail of problem.

Round 2:

1. Explain yourself.
2. A backtrack problem on sudoku.

write full code on paper in any language. write failure case of your code.

3. Discussion on projects.

i had done a project on big data on frequent itemset.they were really interested in each and every detail of big data paradigm.

4. Your strength and weakness and extra curricular interests,

Round 3:

1. there is a 3 million character string. u have to print the count of occurrence of each node.

do not jump on to the question. wait for him to complete. i gave count sort pf O(n) solution but he was focusing on more optimized one.

2. again he jump to my big data project. he gave me a real life scenario and asked to design it.

you are giving the information of about 10,000 sites about their users and the product they had bought. you are a consultant. give a big data solution to find out the places where users had bought the jewellery in large amount. also give the name and details of users who had bought jewellery in large amount.

he was quite impressed by my design. we discuss the design for about 30 minutes. then instantaneously they told me that i am selected for 3rd round.

Round 4: (HR round)

HR was very cool

1. tell me about yourself.

2. why Microsoft.
3. tell any 4 of your favorite product of Microsoft
4. tell 2 good and 2 bad points of Microsoft.
5. Why you opt for your college.
he was trying to check my planning skills to compare 2 entities.
6. Why computer science.
7. Tell any 1 social problem that bothers you the most.
8. Suggest 3 solution to above problem as a technical guy.
9. what is big data
10. what will you do if your colleague is not working
11. what if you are not agreed with your senior

My tips is to stay cool and enjoy the interview. carefully tell your weakness. Don't worry to ask questions from interviewer. Take proper use of the time. Big data helps me a lot in every round.focus on designing problems along with data structure.

geeksforgeeks.org alone is sufficient.

Best of luck to all guys who are preparing.

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406. [TopTalent.in] Interview with Chirag Who Got into DreamWorks



How do they make those Awesome Animation movies? How does it feel to work for a film like 'How to Train your Dragon 2' or 'Penguins of Madagascar'? This guy has an answer to these questions because he worked for those Movies! For him, Experience with every movie is like exploring a new World. This guy from BITS-Pilani, Goa is able to relish this Awesome work experience by passionately working hard towards getting this Awesome Job.

We at [TopTalent.in](#) spoke to Chirag from BITS-Goa about his Dreamworks experience and what are his suggestions for aspirants looking to achieve something similar.

TopTalent: What job offers did you have apart from Dreamworks?

I got a job offered at DreamWorks as a pre-placement offer after an year long internship. This internship was a part of my college curriculum. When I was offered this internship last year, I also had a 2 month summer internship offer from Microsoft IT, Hyderabad. I chose DreamWorks over Microsoft as the dates were quite rigid and I had worked hard for the DreamWorks internship. Plus animation interests me a lot. An year

after my internship at DreamWorks Animation, Redwood City, California, I was offered a job at DreamWorks Dedicated Unit, Bangalore, India. I had not applied for any other job interviews then.

TopTalent: How do you feel on achieving this feat?

It felt really good. Computer Graphics and the Animation industry interest me a lot. I had started learning the concepts out of interest in my sophomore year in college. That's when I learned about the DreamWorks internship program for BITS. I knew it is a tough nut to crack and would require some hard work. I was up for it. I practiced patiently and learned many new concepts along the way. Finally 2 students were selected across the 3 BITS campuses in India for this internship. It did feel wonderful.

TopTalent: Why did you choose this opportunity over others?

I did not have many other opportunities besides DreamWorks. I had a summer internship available at Microsoft IT, Hyderabad. However it was not possible to undergo both the internships and I chose DreamWorks. It was not a very difficult decision for me. I really love and appreciate animated movie and cartoons and all the effort that is put into producing them. I had worked hard to get into DreamWorks and couldn't wait to get started working on my first production feature film.

TopTalent: How was the whole internship experience with Dreamworks?

The internship experience was a lot better than what I had imagined. I was in the PDI/DreamWorks Animation (DWA), Redwood City, California office. There was a 6 week training period at DreamWorks Dedicated Unit (DDU), Bangalore, India prior to this. I was a Technical Director intern in the Animation department, working on the movie How To Train Your Dragon 2. I had never imagined I would be so lucky to be a part of this amazing movie. I am very grateful to my mentors both at DDU and DWA for always being very supportive and patient with me. I was exposed to the different issues and tasks that arise when producing an animated feature film. I was lucky enough to get my first credit as an "Additional Technical Director" in the movie How To Train Your Dragon 2. What a proud moment! After Dragon2 wrapped up I was cast to my next show Penguins of Madagascar. I worked on this show for four months while my internship lasted and I began working as a full time employee at DDU. Besides the work, we interns were provided a decent stipend and a self-drive car during the entire period of the internship. This helped us explore the surroundings a lot and make the most of our time there.

TopTalent: Could you brief us about your interview experience?

The interview process was pretty thorough. All students were eligible to apply for the internship across all BITS campuses in Pilani, Goa and Hyderabad. The students were asked to submit their portfolio, resume, cover letter and recommendations. Based on these a few students were shortlisted for the interview rounds. There were 2 interview rounds. Both were fairly technical rounds with many questions testing your prowess in computer graphics, programming, problem solving ability and general logic. If I am not wrong 3 students made it from Goa after the first interview round. Finally 2 were selected (including me) and both of us were from BITS Pilani, Goa. The entire process

lasted for about a month.

TopTalent: What kind of skills do you think helped you in getting this job?

The position I was seeking was Technical Director. One must realize that a Technical Director's job is purely based on programming and problem solving. It does not involve any artistic work. However it is always an added advantage to know the workflow of an artist. I had started learning 3D Modeling in Autodesk Maya in my sophomore year thanks to the many online resources available. Once I was a comfortable with modeling I started exploring other areas like Rigging, Animation, Lighting and MEL Scripting. I explored a lot of forums and learned a lot about the production pipeline involved in making an animated movie. However the main skills required for this job are your programming and problem solving abilities. My portfolio can be found at www.agarwalchirag.wordpress.com

TopTalent: What is the nature of your job?

A Technical Director (TD) provides critical support to a show's artists and department heads. I design, develop, and implement new tools and processes for a particular show or department. For example, in the Animation department I can develop a tool that copies the animation from one object to another which takes care of all the hierarchies and parenting. We are expected to assist animators and artists with troubleshooting of shots. The issues may include problems with fur, clothing, particle effects, animation, rendering.etc. For example, many a times the animation you see in the software does not reflect in the output renders or it appears broken. We are expected to know what goes on under the hood and fix such issues. We work closely with other Technical Directors, Production Supervisors, VFX Supervisors, and Production Engineering to maintain and further the production pipeline.

TopTalent: How is the job experience so far?

My job experience so far has been excellent. The work culture is great. I have worked on two feature films so far, namely How To Train Your Dragon 2 and Penguins of Madagascar (releasing this November). My next show is Boo. With every show I learn more, which is great. There are times when it gets really busy at work but that's a part of any job. We have frequent workshops by renowned personalities arranged at the studio. These workshops range from basic water color painting to stone sculpting. From writing your first 'Hello World' program to writing a kickass compositing script in Nuke. Everyone is welcome to attend these. We also have talented musicians, dancers and actors at the studio. Cutting it short, I love my workplace.

TopTalent: What's your advice to students who are aspiring for similar kind of achievement?

The first thing every aspirant has to understand that this is not an achievement big enough to subside your other aspirations. This is just the beginning of your career in this industry or in the field of computer graphics. Do not blindly follow others just because the work sounds cool or fascinating. Ask yourself if you would be happy doing this work every day. If you are truly interested then make sure you are prepared before you apply for an interview. I would strongly advise to make your work available online. For

example, you can start a blog. This makes it easier for everyone to view your work and approach you. Stay focused and keep practicing. Remember that there's always, always more to learn.. All the best! =)

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407. Amazon interview Experience | Set 141 (For SDE1)

Online written

20MCQS + 2 coding question in hacker rank

1. Find the pattern in string (Use Kmp)
2. Rotate matrix by 90.

See in this round your code should pass all the test cases given

Telephonic round

Find the loop in linked list and also given the starting node from where the loop starts.

Print the tree in zig zag traversal

They have share the <http://collabedit.com/> link, where i was writing the code.

Solution should be optimized.

Face 2 face Interview at Hyderabad(4 rounds)

1. You have given n point in a coordinate system.What you have to do is to find minimum k distance point from origin.
Sol i have given the solution using insertion sort .i have taken a array of size n and while calculating the distance, entering the distance in the array in sorted fashion.
second solution i have given using heap, storing the first k distance in heap, then iterating the n-k element.

2. Print the tree in zig-zag traversal

3. U have given large stream of m size and you have size of n window . you have to find the k minimum in each window . we are shifting the window by one at every iteration.
sol: I have used self balancing tree.First i have entered n element in tree and do in order traversal upto k to find k minimum element.Now shift the window by one .Now we to remove first element(logn time req) and insert the new element(logn time). Initially i was thinking for solution using big extra space which was not accepted by the interviewer.
Assume for every question they asked what if you have 10 million data so your

approach will fail if you have taken extra $O(n)$ space. Code should be scalable enough

4. N process can write at time in buffer and n process can read through buffer. Design a system for read and write.

5. words are coming through a stream , u have to halt the problem when first repeated words appear.

Used trie data structure.

6. N words are given.u have one source word and one destination word .u have reach to destination in minimum edit with the constraint that intermediate word should be from the words given.i have given the solution using graph and used BFS traversal .complexity discussion

7. what happen when u hit url .I have tried to explain it using Django, he is expecting something from domain name server. Be prepared

Complexity concept should be clear(Recursive+iterative both)

Other than this a lot of question on my company project and my performance rating. experience of professional life.

Should know each and every single word of resume.

Good luck

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408. SAP Labs India | Set 2 (On Campus Interview)

SAP LABS CAME TO OUR CAMPUS FOR BOTH R&D UNIT BANGALORE AND CONSULTANCY GURGAON.

SAP LABS Procedure consists of 6 rounds.

- 1) ONLINE EXAM
- 2) APPLICATION DESIGN ROUND
- 3) TECHNICAL ROUND1
- 4) TECHNICAL ROUND2
- 5) MANAGERIAL
- 6) HR

1st Round: ONLINE EXAM

First round was an online exam round. Exam consisted of multiple sections of objective

questions.1st section was 10 minute 60 questions round in which behavioral question were asked.Besides this, there were 5 more sections- maths, logical reasoning, technical(mostly C output questions), verbal and coding round.Maths section(10 questions) was tough,Logical Reasoning(15 questions) was tougher, technical(10 questions) was relatively easy, verbal(10 questions) was also easy.The coding round had 2 questions.The questions were selected randomly.I guess you had to solve atleast one to qualify for the R&D interview process.One question carried 40 marks and other one 20 marks.You had to write full code for the 40 marks question and partial code was given for the 20 marks one.Just as an advice,learn parsing before appearing for the written test(for coding).

THEY SHORTLISTED TOTAL 55 STUDENTS, 24 FOR R&D AND 31 FOR

CONSULTANCY!

ALL ROUNDS WERE ELIMINATION ROUNDS HEREAFTER!

2nd Round: APPLICATION DESIGN

This round was meant to see your design skills.All the students were divided into groups of 6 and each group was allotted a mentor. We had to design an e-commerce website just like amazon/flipkart.Here it is important to make E-R diagram, class diagram, database table design,testing strategies, transaction details, etc.The time allotted was 30 minutes.Its also important to convey your idea regularly to the mentor allotted to your group who will monitor the progress of each student of the group after every 5 minutes.2-3 students will be selected from each group.

3rd Round-TECHNICAL ROUND1

It was a technical round and I was asked questions from OS,DBMS,DS,OOPS.Questions were also asked related to cloud since SAP is working on cloud these days, cloud security, memory distribution in case of parallel computing,some coding questions,some basic oops concepts and one puzzle.Puzzle was given a rectangular cake,one smaller rectangle cake has been cut,Now if allowed to make only one cut, how will you do so to cut the cake exactly into two equal halves.

4th Round-TECHNICAL ROUND2

The level of questions were raised, so it was slightly tougher than round1.This round again covered questions from all the subjects. Was asked as to how to make your own garbage collector in java.1 puzzle was also asked.Modified version of HAT puzzle.

5th Round- MANAGERIAL

The round was for checking whether you fit in the company's environment or not.The interview ran for approximately 30-45 minutes (more because I was the first student who cleared the above rounds.). The manager asked everything related to the resume,interests, saw my leadership qualities, asked as to whether i will be comfortable with coding,testing or support role. He also gave a puzzle(the common 3 and 5 jug problem) though he wanted more than 1 solution. He also gave a coding question and a database design question for room allotment.

6th Round- HR

HR Round was more of a formality, though it also was also of 25-30 minutes duration. It was a typical HR interview. Was asked behavioral questions and profile related questions!

Finally three students were selected for R&D and 1 for consultancy role.

Thanks to GeeksforGeeks for their awesome content! Contains pretty much everything to land you in your dream job.

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409. Adobe Interview | Set 16 (For MTS-1)

Recently I got the opportunity to be interviewed for the position of MTS-1 at Adobe. Here is my Interview Experience:

Written Round:

Part A (50 mins):

45 questions based on logical reasoning, DI, quant and geometry. The questions were easy but the real issue was time in this round.

Part B(2 hrs):

13 MCQs on C,C++ basics (referencing and de-referencing of string pointers ,size of union etc.), OS basics

Coding Questions were:-

- a) Reverse a linked list.
- b) Check if a number is a Palindrome or not.
- c) Multiply two numbers without using * operator and using minimum number of additions.
- d) Balancing of parenthesis.
- e) Find the row with maximum ones in a 2D array where in each row all 1s occur before all 0s
- f) Check if a given sum is available in an array.

I think it is same from last 3 years and also same for Post Member of technical staff

F2F Round 1:

- a) About my projects. Simple Questions.
- b) How a program compiler and run. He wanted answer from scratch.
- c) C++ Questions for what is cout, Object orientation.

- d) Design a ladder and Snake Problem with TWO Player and Code it. I did not have played earlier. 😊
- e) Code for Directory Structure.

F2F Round 2:

- a) Discussion on Projects. A person can have 1 step, 2 step, or 3 steps. How much combination he can have to climb on a ladder of n and code.
- b) Min, push, pop in Stack.
- c) C++ Question. VIRTUAL CONSTRUCTOR, virtual destructor significance. Design Pattern related Questions.

F2F Round 3:

- a) Basic Projects intro.
- b) In array only 1 element is unique rest are 2 times. How to find that? He further extend if one unique and rest are multiple of 3.
- c) Design rate Maze Problem.
- d) Loop in a list and how to find out. I said it is a standard question and answer. he asked me. Okk, now tell me why are you increasing fast pointer by 2 only. find the value that should be best match for this.
- e) Some of two elements in an Array. Code it.
- d) Random Pointer in Linked list. Clone it.

F2F Round 4: with VP :(:(

- a) A lot of questions about my college. So please be prepare for that too. :P:P:P
- b) He showed me my resume and pointed out grammatical mistakes. Project Questions. He asked me every question with deep. What everything mean to regarding project knowledge.
- c) Asked my computer science topic which i proud of. By Mistake i said MAPREDUCE. :(:(:(. I gave him everything by myself.
He asked me to tell what is it. I explained. He was like you understand that but being a IIT product you should know some mathematical form, and should explain in terms of that.
- d) Write code for inverted index for MapReduce. Mapper and Reducer Functions.
- e) Page-Rank Algorithm, a lot of discussion, asked me to code it. After making a lot of mistake i was successful with his help. He asked me why after running page rank algo, why page rank stabilize after 7-8 turn. (After running page rank algo, page rank of each page become nearly constant, no big change. Why it happens.)
- f) My B.tech project, after explaining everything he asked me for mathematical terms, i explained him.

This was the best interview, i have ever had. I learned a lot.

Fourth Round : HR Round (30 Minutes)

It was scheduled next to next day.

Thanks geeksforgeeks.

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410. Nagarro Interview Experience | Set 4 (Off-Campus)

Written Round:

Paper 1 (20 minutes)

The questions were based on C programming language it consisted of basic output questions. There was 2.5 for correct answer and -1/4 for incorrect answer. Going through test your C skills or any other book is sufficient. This paper was easy.

Paper 2 (40 minutes)

The paper has two sections. The questions were from speed and distance, profit and loss, allegation, ratio and proportion, pipes and cisterns, geometry and mensuration etc. Second section was based on Logical Ability. The questions were based on coding and decoding, clocks, missing number from a pattern etc. This paper was quite difficult.

Subjective Coding Round:

This round was for 75 minutes and there were three questions which have to be coded using any programming language. First question was given an unsorted array find the Fourth largest in it $O(n)$ time complexity. Second was given an array of 0's and 1's sort the array in $O(n)$. Third question was given a string find the longest substring having at most 2 unique characters, if there are multiple longest substrings return them all. Ex: given string "helloworld" then output should contain { "ell", "llo", "owo" }. First two questions were quite easy the last one I did with brute force method and there was no time constraint so I did it in $O(n^2)$ time.

After that there was a lunch break and after that they announced the names of people shortlisted for technical interviews.

Technical Round:

The interviewer asked me to explain each of my code. He started with the sort 0's and 1's and asked me how is it $O(n)$, I explained him. Then he made it complex by saying that if there are numbers from 0 to k in an array of size n then how will you sort them in $O(n)$, I told him the count sort, he agreed with it and then asked me to quickly write down the code, I wrote it down, there was a silly mistake which he pointed out and said that it's good and then moved on to next problem. He saw my code for fourth largest in an array, I did it using heap and time for creating heap is $O(n\log n)$ then he checked the code which was perfectly fine. He then gave me a hint and asked me to do it in $O(n)$ using

something from quicksort. I told him that we can do it using partition algorithm of quicksort and explained him that. He then moved on to finding longest substring having at most 2 unique characters, he asked me to improve the time complexity I explained him that I tried doing it using DP but I'm not able to do it for strings having length more than three, I told him that it seemed to be a variation of longest palindromic substring. I explained my code to him he liked the way I used an integer to mark the presence of characters in string. He then pointed some small mistakes and then for finishing interview asked me the difference between `++i` and `i++`. Results were declared and I was selected for the HR round.

HR Round:

He started by introducing himself and then asked for my introduction. Then he asked me about my family. He asked me about the technology I like and where do I rank myself in programming among my batch mates and where do I rank myself in academics among my batch mates. He then asked me how many rejections I faced till now. What do I dream of and what all I know about company. Am I placed somewhere else, I told him that I am placed in Aricent. He then asked me what you will do of multiple offers. He asked me about the clients of the company, who is the co-founder of the company, the company is at what CMM Level, what information I gathered about company etc. etc. The HR asks you such questions that you may contradict yourself so be truthful until and unless you don't have good sense of humor or convincing power. That's all.

I would like to thank Geeksforgeeks for helping me out.

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411. Amazon interview Experience | Set 142 (Off-Campus for SDE-1)

Round 1: Telephonic

Q1. Implement some functionalities of Minesweeper like connected component search and game termination check etc.

Q2. Linked list random pointer question.

<http://www.geeksforgeeks.org/a-linked-list-with-next-and-arbit-pointer/>

Q3. Given a matrix of 0s and 1s find the row that contains maximum number of 1s.

Q4. Given a node in a binary tree, find all the nodes which are at distance K from it. Root node is also given.

Next day, I got the call for onsite interviews.

Round 2: Onsite round by SDE – 1

Q1. Given very large number of empty crates of varying sizes, we need to find the best fit crate for the given item and allocate it. Need to design a data structure for this scenario. Operations involved:

1. Insert a crate
2. Search the best fit crate
3. Delete the crate after allocating it.

e.g. 3 crates of weight 10, 20 and 30 are there. An item of size 15 appears then we'll allocate crate of size 20 and delete it.

Sol. Use binary search tree (balanced using red-black criteria or any) and implement ceil function.

All operations will be $O(\log(n))$.

Q2. Optimize above data structure for weekends where amazon have lots of crates but very less search operations.

Q3. Given a function boolisValidWord(string str) you need to check whether a string is a proper string or not. E.g. iloveicecream is valid : I love ice cream.

Round 3: Manager of some other Team

Deep discussion on projects.

In one project I used EC2 service so he asked me many details and why I preferred EC2 over other possible options.

Buy and sell stock question.

<http://www.geeksforgeeks.org/stock-buy-sell/>

<http://www.geeksforgeeks.org/connect-nodes-at-same-level/>

General discussion on virtual memory.

Round 4: 2 SDE-1s

Q1. Given matrix of 1s and 0s where 0 is water and 1 is land. Find number of islands.

Q2. Give the size of all islands in above question.

Q3. <http://www.geeksforgeeks.org/maximum-of-all-subarrays-of-size-k/>

Round 5: Dev Manager, 6yrs exp. (May be bar raiser round still I am not sure :P)

Q1. We started our discussion for very general problem where we have a long stream of characters and we need to extract all the patterns from that stream. There can be integers, fractions, words or anything.

I explained the entire process which is used in lexical analysis phase of compiler design

where we give regular expressions and finally they are converted to NFAs and finally a single DFA.

Then a discussion went on how we'll implement this system from scratch.

There are many algorithms for converting regular expressions to NFAs and finally DFAs and some general discussion over Natural Language Processing.

<http://algs4.cs.princeton.edu/54regexp/>

Q2. Given M sorted linked lists of each of size N, we need to merge them to single linked list of size $M \times N$ using no extra space.

Next day I got the call that they would like to extend me the offer for SDE-1 profile.

Important Tips:

1. Prepare data structures thoroughly.
2. Less efficient solution is much better than no solution.
3. Adopt incremental approach for problem solving.

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412. [TopTalent.in] Interview With Amit Who Got Into Flipkart

Nobody could enjoy that moment more than him. He could barely put his feelings in

words in achieving that feat. Such was his joy in getting into the biggest Online store in India, Flipkart. For a guy who is very passionate about coding could not end up in a better company than this. In his own words, 'I felt as if I was at the top of this world'. We at TopTalent.in got a chance to interact with Amit from NIT Kurukshetra about what made this possible and what others can learn from this.



In case you are wondering how the resume of a Flipkart recruit looks like, you can [download](#) the resume by logging in.

TopTalent: What job offers did you have apart from Flipkart?

Placement policy of our college doesn't allow one to sit for the recruitment process of any other company on campus once you get a job in a dream company which Flipkart definitely is. So, currently I don't have any other offer.

TopTalent: How do you feel on achieving this feat?

No words can help me crystallize the feeling that this job offer brought to me. I felt as if I was at the top of this world .My efforts finally paid off and Yes, the feeling is simply unforgettable.

TopTalent: What is the profile offered to you in Flipkart and Why did you choose this opportunity over others?

Profile offered is SDE1 (Software Development Engineer).It wasn't difficult for me to choose this because to me, coding is the passion first, habit next and profession last. Flipkart was looking only for this.

TopTalent: Can you give us a brief account of the whole interview process?

First round was online coding round in which we were supposed to solve 2 coding questions. Second round was machine coding round. In second round we had to design and code one coding question. 50 minutes of time was given for coding which was followed by small interview where interviewer expected the explanation of code. Third round was technical interview which continued for around 40 minutes. In it problems related to data structures and algorithms were discussed. Final round was hiring manager round. It started with some general talk (seemed like some HR interview at the point) but then interviewer shifted to technical aspects and asked some question from tree data structure. After around 30 minutes, this round concluded with interviewer asking me whether I had any query about working in flipkart.

TopTalent: What resources did you refer?

For coding practice:

1. Codechef.com
2. Spoj.com

For studying the data structure and algorithms:

1. Introduction to Algorithms, Thomas H. Cormen
2. Karumanchi
3. Geekforgeeks.org

For Interview process:

1. Careercup.com
2. Cracking the coding interview, Gayle L. McDowell.

TopTalent: What's your advice to students who are aspiring for similar kind of achievement?

Three things are needed to crack technical interview of any software company. Knowledge, Practice and Approach. In my third and fourth round of interview, what I felt was, that both the interviewers were more concerned about my approach than knowledge.

Incase you forgot, you can [download](#) the resume by logging in.

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413. Amazon Interview Experience | Set 143 (Off-Campus for SDE-1)

Experience: 5 months

F2F: 1st round

1. Tell me about your college project.
2. Write a Code to check if linked list is a palindrome without using extra space.
3. Write a Code to print zizzag traversal of tree.

F2F: 2nd round

1. Tell me about your college project.
2. Tell me about your current project.
3. Nodes of a binary tree are randomly inserted in to an array Write a Code to tell the index in array where root of tree is present.
4. Given an array whose size is $\leq 10^8$ and each element of an array is in the range 10^{-18} to 10^{+18} Write a Code to find the largest subset of consecutive integers.

F2F: 3rd round(Hiring manager)

1. Deep discussion about my current project i am working on.
2. Discussion on my college project and how its useful for company like Amazon.
3. write a code to insert an element in sorted circular linked list.
4. write a code to find the nth Fibonacci number.
5. Design an linux file system.
6. Puzzle:Given 9 coins out of which 8 are of same weight except one and you are given a Beam balance.you have to find that one coin in minimum no. of comparasions.

F2F: 4th round (senior Technical manager)

1. Deep Discussion on my current Project.he asked every minute detail of my project.
2. given an sorted array of integers and an element x write a code to find the number of

- occurrences of x in array if not present return -1.
- 3. write a code to find the median in a running stream of integers.
- 4. Some behavioral questions like: why do you want to leave your previous company so early?

Tell me some incidents when you haven't meet the deadline and what do you have learned from that? etc

I would like to thank GeeksforGeeks for providing us such a useful platform for interview Preparation.

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414. Amazon Interview Experience | Set 144 (Off-Campus For SDE-1)

F2F Round 1:

- 1. Tell me about yourself.
- 2. Tell me about any challenging work you did in any of your past projects, why was it challenging?
- 3. Given an unsorted array find maximum distance between two elements considering the following condition:
Arr[i] 4. Given a binary tree add all greater node values in a smaller node value .
<http://www.geeksforgeeks.org/add-greater-values-every-node-given-bst/>
After this was done, he asked to do it without using pointer variable parameter.

F2F Round 2:

- 1. Given an array of words, print all the words which are not anagram of any other word.
For example, Input {"cat", "dog", "tac", "god", "rat", "toy", "act"}, Output{"rat", "toy"}.
Variation of this <http://www.geeksforgeeks.org/given-a-sequence-of-words-print-all-anagrams-together-set-2/>
- 2. Given a tree connect all the nodes at same level in both directions
Variation of this <http://www.geeksforgeeks.org/connect-nodes-at-same-level-with-o1-extra-space/>

F2F round 3(Hiring Manager):

- 1. Tell me about self.
- 2. Why do you want to change your current company? Why Amazon?
- 3. Tell me about your current Projects. What is your role? Tell me architecture of this project?
- 4. Design a class to implement Linux File system.

5. Have you used twitter? Tell me working procedure of tiny URL.
6. How facebook works for following:
What data structure will you use to store friends and friends of friends?
Design structure for friends list, friend request sent list, received friend request list, store message, notification etc.
7. What happens when we type www.amazon.in ?
8. How does DNS work, what protocol does it use DNS what is difference between UDP in TCP. Which protocol will you use when I will ask to design DNS
9. Insert a node in linked list in sorted order; again modify the same code to work for circular linked list.

F2F round 4(Senior Technical Manager):

1. Tell me about yourself.
2. Why do you want to change in your current company. Give two reasons why do you want join Amazon.
3. Deep Discussion on Projects I have worked on, Challenging part in these projects, why was it challenging?
4. Tell me a situation where you did not complete your work in given time.
5. Have you made any mistake any time in your project and what was its impact on projects?
6. Given array of 0's and 1's. All 0's are coming first followed by 1's. find the position of first 1

Ex 0000111 o/p : 4

Again he modified it . Do the same if stream is coming 00000000.....1111111.....

In less than $O(N)$

Thanks to GeeksforGeeks for providing such a wonderful resource for interview preparation.

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415. Citicorp On Campus Interview Experience

Citicorp (Citi Group/Bangalore) came to our campus for Full time Data analyst and intern profile.

Written round-

There were 15 questions from quant's, 10 questions from data interpretation with 1 mark each and -.5 for wrong answer also there were 2 case studies with 10 marks each with

no -ve marks. Total 45 marks question, I did only 9 from quant and 7 from DI total 16 out of 25 questions and didn't touch case studies. Quanta and DI were very basics level. In those 16, 1 question was wrong so basically I did 14.5 out of 45, but with a accuracy of 90%. Didn't expect to get shortlisted but was very tensed and angry upon myself coz it was my level paper. But around 12 mid night shortlist came and I was at 11th position out of 31 students in the list.

There were total around 90 students who appeared for written test. They allowed Mtech and Mca guys not Btech.

First round-

I went there and greeted him. Firstly he told me to introduce myself, later he asked what I like the most. I told analytical thinking and logical reasoning and yeah I relate it with data base.(since I knew they came for Data analyst profile).

He asked me about join, gave me a table and told me to perform all joins. I did that and he asked me about Order by clause and, having clause then asked me normal forms up to bcnf.

Later asked about pl/sql difference b/w sql and pl/sql, what is trigger explain in detail.

Some basics questions of DBMS theory asked me about my 2 projects and at the end he gave me a situation where I have a grocery shop outside nit Surathkal, and from last few days/months I realized a downfall in sales, what possible reasons could I find? I gave him 8 reasons within 2/3 mins. He was impressed...

After 1st round out of 31 only 13 were selected and I was there in d list.

Second round-

As soon as I entered the room, mam told me "Ooo tum aao aao ". I smiled because I was the 1st guy during presentation who asked the first question (she made every1 clap for me there) and she remembered my face. And eventually she did study from IIT Kanpur so yes she was able to speak fluent Hindi (plus point for guys like me :p). with her there was a guy he asked me to write code for taking a no and converting it into binary and 1 question from array- very simple later she gave me a table with employee id, order date and order amount. A customer can place max 1 order in 1 day. I had to find the latest transaction of every customer with amount as well. i did it using max function over date and group by with sub query, she asked me about my resume at the end she gave me 7,9,21,63,100 and told me to find the no of numbers between 1 to 50000 which are exactly divisible by all, i did it in 1 min.

but she was smiling, I thought I made some mistake in hurry, then I asked mam m I doing right or wrong (in curiosity as I find very comfortable there) she smiled and said "Chalo bhago ynhse se ye interview h ".I said sorry but yeah she was impressed with my interview so told ki "you will learn all these things very quickly".

Third round-

After 2nd round 9 were selected and I was one of them. It was basically a Managerial round and it scheduled over Skype. I had to introduce myself as well as my family background. Here comes the harder part when he asked me why you have such a poor academic back ground? I was speechless for a moment but I started telling the truth. I told despite getting 68% marks in my 10th I was the third topper of my class. I got

60.66 % in 12th but yeah there also out of 700 students only 14 got first division. So basically I concluded that in my state board marking is not that much good. He said ok but what happened in graduation(64%) when you studied in Delhi?(what to say now :p) I said sir I did it from IGNOU and you can Google the fact that even less than 5% of student are able to clear the degree in 3 years. Later I explicitly mentioned that I m not blaming my boards but this is the fact which can't be change.

Now He asked what happened in PG here also you scored only 7.50 CGPA which is less than even standard score of 8(Meri to jaan hi nikal gayi :p). Then I told him that sir u can see my pointer in first semester is very less close to 6.5 but after that I constantly improved myself. He was smiling

He asked me about my family background and then I told him how I struggled, I was giving tuition in my grads to continue my education and after grads took a gap of 1 year and cleared all MCA entrance examination and now sitting in front of him.

Later asked about my best qualities....i told him that I can lead group of people very well. I gave example of me being captain of my department cricket team and I was class monitor through 3rd to 12th std and also some stuff regarding my college events. He noted down something .I don't know what.

I was not sure that I could clear that interview. When the result came they called all 9 students and said that they find is difficult to eliminate 4 names .i was sure that I m out of picture now but fortunately my name was at 2nd position. Wowwww

Fourth round-Hr round

It was telephonic round and just my hobbies and all, he asked me about my poetry writing hobby as well as Hindi Shayaris. I was told to recite 1 ...when he listened, he was very impressed...

Key to success: If you wanna come in Citicorp make Dbms and sql strong .you should be good in analytical thinking as well as reasoning capability should be good ..Be yourself and Be Confident

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416. Google Interview Experience

Though I didn't clear google but I want to share my Google interview experience , so it can help other's . Please find my interview experience below:

My Google Interview Experience for Software Developer Position [Android Core Team], London, United Kingdom

Like many other enthusiastic engineers, I too applied for a job at Google. I know that its very difficult that a resume gets noticed by google.

Suddenly, one fine day I received a Mail("Hello from Google !") from Google's HR saying that they are interested in my profile and asked me if I was ready to go ahead with the interview process[Come on! you can't say no to Google].

Round1(Phone interview) :

By:Talent Scout @Google:

*** Questions from Project :**

Spell Corrector:

How it works , Bigram and ngram model approach, etc.

* Why should one use merge sort over quick sort and vice-versa.

* You have a very large array of 'Person' objects .Sort the people in increasing order of age .

General :

Then came the exciting part when he asked me to choose location b/w **Google Paris**(Text-Speech Team) or **Google London**(Android Core Team).

He explained how Google work's on their projects !

About Google interview process (2-3 phone interview + 4-5 onsite interview in London).

Round2:(Phone interview + coding on shared google doc)

By:Software Developer @Google :

*** Questions from Project:**

Bi-directional Sync b/w mysql and sqlite db.

* Given a number , check if it can be represented in 5^n form , where n is positive integer .

* Given a string of words with lots of spaces between the words , remove all the unnecessary spaces like

```
input: I live on earth
```

```
output: I live on earth
```

Round3:(Phone interview + coding on shared google doc)

By:Software developer @Google :

* Optimize a^b

* How would you split a search query across multiple machines?

* You need to develop the game Snake. What data structures will you use? Code your solution.

Some additional hints for the interview:

Clarify the question – make sure you understand everything.

Try to find the most efficient solution.

Come up with solutions quickly; even if its a brute force solution. Always iterate away from the original solution.

Before you start coding explain why you're approaching it that way ,its ok to start off with a naive solution and try to make it more efficient.

Explain the rationale behind the steps you are doing.

Think out loud, keep things technical. The engineers will give you hints: take a hint! They are there to help you!

Always write “compilable” code.

Mind edge cases. Find bugs in your code.

Note: You can know more about me at www.codedoctor.in

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417. Amazon Interview Experience | Set 145 (Off-Campus)

I have been working with Amazon for last 2 years and 4 months. Here, is my interview experience when I was the interviewee:

Off Campus Drive (DCE) – 2012

Written test:

1-> WAP to merge two linked lists like:

```
list1: 1->2->3->4  
list2: 5->6->7  
o/p list: 1->5->2->6->3->7->4
```

2-> Given two trees T1 and T2. WAP to check whether T1 is a subtree of T2 or T2 is a subtree of T1

3-> WAP to find maximum sum sub-matrix from a give matrix.

Round 1:

1-> You are given a sorted but rotated array of integer like: 6 7 8 1 2 3 4 5

You have to search an element...

I answered with an O(logn) solution...

then he asked me to write the code...

2-> What is the diameter of a tree?

I answered...

then he asked me to write the complete code...

3-> He asked me a design problem "you have to design a class "DeckofCards"...with 2 operations: 1:Shuffle 2:Pick"

Pick would pick a random card from the deck and Shuffle will shuffle the cards and give you back the deck of cards.

I answered with 2 options 1.LinkedList 2:Array...then there was a discussion around 15 mins over both the solutions...

Round 2:(I guess it was the bar-raiser round)

1-> My Introduction and My Projects (all 1 by 1 except the last)

2-> How to compute all possible solution of $A^3+B^3=C^3$, where A,B,C belongs to (0 to N)?

Write code...

3-> How to compute A^n where $n < 1$ million

Write code...

4-> A tough "matrix with a mask" problem...I took around 20 mins to solve it.

5-> Why Amazon, what is scalability and questions from my answers...like how would you manage millions of requests...

Round 3:

1-> You r given a matrix of 0s and 1s. WAP that check if an element is 0 or not and places zeros to all the col and row of that element.

eg: i/p:	1 1 1 1	o/p :	1 1 0 1
	1 1 0 1		0 0 0 0
	1 1 1 1		1 1 0 1
	1 1 1 1		1 1 0 1

2-> How to find a largest palindrome from a given string? Write code....

- 3-> How many Data Structures you have implemented by yourself?
- 4-> Given some words(written in lexical order) of some unknown language...You have to find lexical ordering of all the alphabets...
- Like in english lexical ordering is A B C...Z

Round 4

Forth round was just related to my projects and subjects...(Paging, Deadlock, Trashing, JAVA and C, Synchronization, etc) + 1 final algo question “How to find all anagrams in a dictionary” Solution was in O(1)..

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418. Zoho Interview | Set 3 (Off-Campus)

Hi!! I recently attended ZOHO off-campus drive.

ROUND 1: WRITTEN

APTITUDE(1 hr and 20 minutes-20 questions): Problems on average, probability, time & distance, alligation&mixture,ratio, HCF & LCM and few a puzzles.

TECHNICAL(45 minutes-10 questions): Output for C questions. Practice questions in geekquiz.com and C output questions in geeksforgeeks.org. Questions in pointers, strings, matrix etc.

Nearly 60 students were selected out of 600 candidates. They didn't select the top 60. They had a cutoff and those who cleared the cutoff were called for the next round

ROUND 2: SIMPLE CODING(3 hours)

1. Write a program to give the following output for the given input

```
Eg 1: Input: alb10  
        Output: abbbbbbbbbb  
Eg: 2: Input: b3c6d15  
        Output: bbbccccccdddddccccccddddd  
The number varies from 1 to 99.
```

2. Write a program to sort the elements in odd positions in descending order and elements in ascending order

```
Eg 1: Input: 13,2 4,15,12,10,5
```

```
Output: 13,2,12,10,5,15,4
```

Eg 2: Input: 1,2,3,4,5,6,7,8,9

```
Output: 9,2,7,4,5,6,3,8,1
```

3. Write a program to print the following output for the given input. You can assume the string is of odd length

Eg 1: Input: 12345

Output:

```
1      5
```

```
2    4
```

```
3
```

```
2    4
```

```
1      5
```

Eg 2: Input: geeksforgeeks

Output:

```
g           s
```

```
e           k
```

```
e           e
```

```
k           e
```

```
s           g
```

```
f           r
```

```
o
```

```
f           r
```

```
s           g
```

```
k           e
```

```
e           e
```

```
e           k
```

```
g           s
```

4. Find if a String2 is substring of String1. If it is, return the index of the first occurrence. else return -1.

Eg 1: Input:

```
String 1: test123string
```

```
String 2: 123
```

```
Output: 4
```

Eg 2: Input:

```
String 1: testingl2
```

```
String 2: 1234
```

```
Output: -1
```

5. Given two sorted arrays, merge them such that the elements are not repeated

Eg 1: Input:

```
Array 1: 2,4,5,6,7,9,10,13
```

```
Array 2: 2,3,4,5,6,7,8,9,11,15
```

```
Output:  
Merged array: 2,3,4,5,6,7,8,9,10,11,13,15
```

6. Using Recursion reverse the string such as

```
Eg 1: Input: one two three  
Output: three two one  
Eg 2: Input: I love india  
Output: india love I
```

19 cleared this round and they were called for the next round. The next round took place on the next day

ROUND 3: COMPLEX CODING(3 hours)

1) Design a Call taxi booking application

- There are n number of taxi's. For simplicity, assume 4. But it should work for any number of taxi's.
- There are 6 points(A,B,C,D,E,F)
- All the points are in a straight line, and each point is 15kms away from the adjacent points.
- It takes 60 mins to travel from one point to another
- Each taxi charges Rs.100 minimum for the first 5 kilometers and Rs.10 for the subsequent kilometers.
- For simplicity, time can be entered as absolute time. Eg: 9hrs, 15hrs etc.
- All taxi's are initially stationed at A.
- When a customer books a Taxi, a free taxi at that point is allocated
- If no free taxi is available at that point, a free taxi at the nearest point is allocated.
- If two taxi's are free at the same point, one with lower earning is allocated
- Note that the taxi only charges the customer from the pickup point to the drop point. Not the distance it travels from an adjacent point to pickup the customer.
- If no taxi is free at that time, booking is rejected

Design modules for

1) Call taxi booking

```
Input 1:  
Customer ID: 1  
Pickup Point: A  
Drop Point: B  
Pickup Time: 9
```

```
Output 1:  
Taxi can be allotted.  
Taxi-1 is allotted  
  
Input 2:
```

```
Customer ID: 2  
Pickup Point: B  
Drop Point: D  
Pickup Time: 9
```

```
Output 1:  
Taxi can be allotted.  
Taxi-2 is allotted
```

(Note: Since Taxi-1 would have completed its journey when second booking is done, so Taxi-2 from nearest point A which is free is allocated)

```
Input 3:  
Customer ID: 3  
Pickup Point: B  
Drop Point: C  
Pickup Time: 12
```

```
Output 1:  
Taxi can be allotted.  
Taxi-1 is allotted
```

2) Display the Taxi details

Taxi No:	Total Earnings:					
BookingID	CustomerID	From	To	PickupTime	DropTime	Amount
Output:						
Taxi-1	Total Earnings: Rs. 400					
1	1	A	B	9	10	200
3	3	B	C	12	13	200
Taxi-2 Total Earnings: Rs. 350						
2	2	B	D	9	11	350

These were just sample inputs. It should work for any input that they give.
Those who finished both the modules within 3 hours and if it worked for all the inputs they give, those candidates were given extra modules to work with.

Only 9 candidates made it to the next round

ROUND 4 : FIRST FACE-TO-FACE(TECHNICAL)

Questions were on project, c, oops concepts, DBMS and a few puzzles. They might ask you more on new scenarios relating to your project.

ROUND 5: SECOND FACE-TO-FACE(TECHNICAL)

Question were on c, c++, java(like threads, synchronization etc.), Discussion about questions from first, second and third round. He even asked me to solve a few questions from the first round. He gave me a few puzzles to solve

ROUND 6: FIRST GENERAL HR

General questions about my pros and cons and discussion on my resume(be thorough with your resume). She finally asked me if I had any queries.

ROUND 7: SECOND GENERAL HR

She asked me some family details and gave some scenarios and asked me to what I will do in such situations(like if I am given the power to change 3 things in india, what all will I change) and a few general questions.

I didn't get direct placement in ZOHO but I got an internship offer. If I perform well in my internship, I will get an offer. Round 3 was the toughest and if you perform exceptionally well and as they expect in that round, you will definitely make it through. Many thanks to geeksforgeeks.org for helping me out in my preparation.

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419. Adobe Interview | Set 17 (For MTS-1)

Written Round

There were two round technical and aptitude

1. Aptitude round consisted 45 questions (50 minutes) except two passage based on logical reasoning rest were easy, time management was important in this round.
2. 20 Technical question 13 multiple choice from OS and C++ , 7 questions were coding related running code were required.

After almost 15 days I got call that I have been shortlisted for the next round.

F-2-F Round 1:

1. Write a program to search an element in a row-wise and column-wise sorted 2-dimesional array .
2. Write a program to convert a binary tree to binary search tree.
3. Two string are given check whether second string are substring of 1st string or not second string may contain wild card character like '*' and '?'.
4. Many C/C++ related question, concept like virtual function , static variable are discussed.
5. Suggest method to multiply two object(operator overloading , proper code for

overloading was required).

F-2-F Round 2:

1. Write a Recursive function to reverse a link list.
2. You are given a string in which every character is followed by space u have to return $n/2$ string that is each character as a separate string ..extra space were not allowed.
3. Many OS related questions Deadlock,Mutex, Semaphore, IPC etc.
4. Many typical C/C++ declaration, memory allocation difference between new/malloc, free/delete and details about how memory allocation takes place.

F-2-F Round 3:

HR round

1. Your strength

2. Weakness

3. Why adobe

many more HR questions.

F-2-F Round 4:

1. Implement a stack using two queue and queue push, pop operation proper working code were required.
2. Write a function to find 2nd largest element in an array.
3. Reverse a string efficiently.
4. Design a chess game.

3-4 puzzle were discussed one related to time glass, one related to watch , and one related to number this one was really interesting, Puzzle was write an eight digit number in which 0th position represents number of zero in that number, 1st position represents number of 1's in the number , 2nd number represents number of 2's in the number ...so on.

Many C/C++ concept were discussed this interview went on for olmost 1 hour and 20 minutes ..this was director round and fortunately went well ?

F-2-F round 5:

1. U have n vending machine out of which 1 is defected find the defected machine in $O(1)$ on solving this he modified it give general solution for the case in which 2 machine are defected $O(1)$ solution were required.
2. U have given a link list make a new link list which is reverse of original link list.
3. Again many C/C++ and OS related conceptual questions and some general discussion on few data structure .

F-2-F round 6:

1. Write a recursive function to print directory structure. Two function were given isfolder() and openfolder().
2. Write proper running code for heapsort and some discussion related to that.
3. Asked 3-4 puzzle.
4. Again some C/C++ related question.

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420. MakeMyTrip Interview Experience | Set 2 (On-Campus)

MakeMyTrip recently visited our campus. Below is my interview experience:

Round 1: (Online MCQs)

Section A- There were 20 Aptitude and Logical Reasoning questions which has to be done in 30 minutes.

Section B- Basic C , C++ and Java questions. Moreover there were four coding questions for which you have to write the pseudo code or algorithm. Questions were like finding loop in linked list , finding first non repeating character or remove duplicates etc.

Round 2: (Online Coding)

There were 3 question.

1. Find minimum cost path in a Matrix i.e. return the minimum cost path to reach (m, n) from (0, 0). Each cell of the matrix represents a cost to traverse through that cell. It was based on DP.
2. Simple question based on logic.
3. Based on hashing or you can use map in C++. You have given two sentence A and B. Find the length of smallest substring in A that contains all characters of B.

Round 3: (Interview-1)

It consists of general discussion on the programs given in coding round. Then they asked some set of questions based on Database,Projects,Algorithms. Questions were like

1. Merging two linked list . They asked me to write code on paper for merging both sorted and unsorted linked list.
- 2.Add two numbers recursively. I was asked to write the whole code.
- 3.Factorial of large number only concept. Then asked one puzzle and one or two questions from my project.

Round 4: (Interview-2)

Basically in this round interviewer was checking more of your approach and out of box

thinking.

1. Which data structures will you prefer to make a new language. After that a long discussion took place.
2. Find the frequency of each word for a given set of huge data.
3. External Sorting concept.

Final was to explain Segment tree and its complexity which was asked from my project. Then general discussion on BST and he asked complexity of AVL and RB tree.

HR Round:

It was a simple HR round. Just be yourself. Moreover he asked about my Research work and my interests.

Just prepare from geeksforgeeks it will be sufficient.

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421. One97 Interview Experience | Set 2

My Interview Experience with One97

My Experience: 1.5+ year . I am from premium engineering college of India. Apart from my regular job I do freelancing and (sometimes) write articles for CodeProject, if I happen to find something really out of the box

How I Applied?

I saw on Linkedin profile that One97 is hiring people, so I applied for the job and got the call just next day.

Expected number of rounds : 3, (The third interview is taken only if a candidate clears the first two interviews)

Round 1:

Began with the introduction. Why are you looking for another job blah blah.

Then he gave me a puzzle that there are two robots in the air and they have a parachute each with them. On each there is a big infinite assembly of cells units. The robots land on the assembly of chain. Now that cell remembers whether a robot landed and placed

parachute on it or not. Now you have to program the robots in such a way that they meet after some time. There should be only one function which does that (for both the robots). A robot has option to either move left or right or stand still.

Then he asked me a question that there is large array. With 0's initially and 1's at the end. You need to find out the position of first one.

NOTE(Just in the interviewer is reading this): I read somewhere recently that person should always ask questions to the interviewer before start coding. So, I never did that when I was in my college, actually never had to because 99% of the questions are either from geeksforgeeks or careercup or the pdf – How to crack coding interview. Well, I had a genuine question that by large you mean infinite or finite array. The interviewer suddenly looked blanked when he heard infinite and binary search together. I am pretty sure he must be thinking what will the last index and how will I calculate mid in that case. But, binary search can be modified to look for an element even if you don't know 'n'.

Then some questions related to the freelancing work I do. Then another “coding” question to segregate even and odd numbers – again form geeksforgeeks.

One question on ArrayList and LinkList. And few small questions related to Java(like difference between xyz and abc) – which I have no clue, how does that helps the interviewers to judge a candidate's java knowledge. But the interviewer was happy and I was happy.

Round 2:

The weirdest interview I have ever had. First question – What is coupling and cohesion. I told him what I remembered from Sangeeta Sabharwal book I read back in college.

Then he asked me about my resume – that how can I work in two companies (one of which was freelancing) and being a girl how can I be into technology. The idea altogether seemed very confusing to him, plus I was appearing for Dev profile. Well, he asked me to name a few data structures from Java. I answered quite a few like “ArrayList”, “Set”, “Stacks”, “Queues”. Then he asked me to name a data structure in Java which is actual implementation of Queues – this was the only sane question till this point. Then he all of a sudden started shouting – that I don't know Java blah blah. If he ever gives me assignment to get data from database, populate POJOs with it and then convert it into JSON, then I won't be able to do that- because I don't know the difference between ArrayList and List (which he definitely assumed in his head).

Then he asked me to name the library which converts POJO to JSON object. I said there is some third party API, whose name I don't remember. He asked question on database queries and indices-which made sense. Then he asked me any questions- I felt like asking are you the only one insane and dumb here or everybody here is the same, but then I said no and he rushed to HR. The HR came with the feedback but before she could give me the feedback, I told her about the interviewer and asked her to keep the feedback with herself.

The point I want to make is that first of all, a programmer's work can never get limited by a language. Plus Java, C#, Python are something which just translate your thoughts/algorithm into something runnable. Secondly, in my 1.5 year of experience I have never crammed the API documentation of either Java or C# or Python. My idea is to just start writing "Hello World", the associated modules,data structures will automatically come to your head . Even then, I have never fared less than any other computer programmer because ultimately what makes a difference is whether you have the brains to visualize how will data move in the memory, which operation will you mostly use-deletion, insertion, updation, sorting etc , the knowledge of ArrayList, List, LinkList will follow. All you need is to be clear about in your head how threads will access the static variables, how will they work simultaneously keep their own copy of variables, which variable I want to protect and which variable do I need to be updated by all threads. To understand the API and more important to tweak the API is not more than an hour's work.

Most importantly, don't aim to become a crammer, become a programmer.

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422. KLA Tencor Interview Experience

Before my interview scheduled i tried but could not find any recent interview of KLA Tencor, so i am sharing my own to help you guys. For **FRESHERS (MTech(CSE)... software engineer).**

Round one: Written test on hackerrank scheduled by HR on telephone

25 objective + 2 programs.....Level of objective test was good. C/C++/ 5 Aptitude/one ques on self join. I followed geeksQuiz site and manag to do 20 question out of 25. Concentrate more on C++.

Program 1: int fun(char **str1, char ***str1){.....}

A function is given with array of string as input through " **str1 " and return output as " ***str1 ".

Test case: "Abac Cbaa"—————> Out put is PASS else FAIL.

Reasoning: 1)No. of elements after space and before space are equal
2)Same characters are present before and after space so PASS (Do not care about case sensitivitiy).

Output: **Str1[i]=PASS corresponding to *str1[i] string.

Solution: traverse array of strings and for each string elements convert either to lower or smaller alphabet. And then EXOR the elements. If left character after Exoring is " " (space) then result is PASS.

Program 2: Matrix input and a program like K -Map but also consider diagonal elements. count number of groups and output count.

I did Program 1 and got call for telephonic interview.

Guys team of KLA Tencor is like a friend. They will take you very seriously and will help you a lot..so please ignore tension of facing interviewer all you have to do is “**C++**”.

Make your self expert in C++ concepts.

ques 1: How will you add/multiply very large number.

ques 2: why you need operator overloading

ques 3: How default “=” operator and copy constructor is used and why we need to use them explicitly

ques 4: Explain “+” operator overloading.

ques 5: obj2 = obj1....will destructor work for obj2?

ques 6: If new and malloc both allocated in heap then how to access them separately?
How to count number of objects created by new and created by malloc.

ques 7: How to compare two objects. Equal method belong to which class.

ques 8: In which case garbage collector cannot work explicitly.

I only had basic knowledge of C++...so out of first round.

Guys If you want to make in this company.....C++ is must.

Please enjoy reading GEEKFORGEEKS

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Round 1 : Written (Aptitude and Logics)

There were around 30 mcq questions. The questions were based on aptitude and logics.

There were puzzles also, for example given a 8×8 chessboard find the probability that 2 queens are together.

Questions based on time and distance, pipes and cisterns etc. Given a paragraph you have to answer the questions.

This paper was quite difficult.

Round 2: Written (Data Structures)

There were 5 questions out of which first three were of 10 marks each and last 2 consists of 5 mark each.

You have to create a data structure that can do insertion deletion and getrandomelement in $O(1)$ time.

Given linked lists like 4->3->5 and 3->2->6 the third list formed should be 7->5->1->1 and you were not allowed to modify the given lists and you cannot use extra space.

There was a puzzle question based on akbar and birbal and you need to give a subjective answer that was paradox.

Then last question was what is the probability of choosing correct answer from the options given below:

- 1) 1/4
- 2) 1/2
- 3) 1
- 4) 1/4

Round 3: Technical Interview 1

There was only one interviewer. He first asked me to introduce myself. Then he asked me about my projects,

he asked me a to write a function to check for a prime number in an efficient manner.

Then he asked me to reverse

a singly linked list using 2 pointers only. He then discussed a puzzle that was asked in written aptitude paper, I answered that.

Then he asked me a question that given $a(a+b)=c+120$, where $a!=b!=c$ and a,b and c are all prime numbers find a , b and c . He asked me

to find the values in 2 minutes. I was not able to do it. He then asked me questions from operating systems. He asked me about processes

and threads, difference between them, why are threads preferred over processes. If an empty file is created in unix it's file size is still

4 kb why is that? Then he asked if file block size is 1 mb how the performance of the system is affected?

That was for the first round.

Round 4: Technical Interview 2

There were two interviewers this time. Firstly one of them asked me to introduce myself.

Then he asked that given a string and a number k and

we need to perform left circular shift on that string in an efficient way. I did that in O(n) he asked me how's the algorithm is working.

Then other interviewer asked me that given a tree find the largest distance between two nodes. Then they asked me about least common ancestor and asked me to write proper code for that and then he did the dry run and asked me to explain him the code.

I cleared both the technical interviews and then they called me to their office for other rounds.

Round 5: HR Round

The HR was good. She first asked me to introduce myself. What projects I have worked upon. Why I want to join them?

Do I have any offers? What do you do in your spare time? Your interests? Do you take tuitions? How you enjoyed your life in your college?

What will you do if given a very very large amount of money? What is your family background? Who all are in your family? Where do you see yourself in 5 years and what do you expect from life?

Round 6: Written (Coding)

There were two questions to be done in 45 minutes. Given two arrays arr1[] and arr2[], you have to find the largest common subset among the two.

I done it with two approaches. Another question was that given two strings containing characters of the same superset. You are allowed to perform two operations swap adjacent characters and swap first and last characters and operations can be performed on either of the strings. Find the minimum number of swaps to make two strings equal. This question was quite difficult.

Round 7: General Manager Round

I had a meeting with GM. I was the first one called for it. When I went in no one was there and HR asked me to wait there. Then after that he came.

Earlier he was busy in setting up his laptop and putting his things out of the bag. Then he asked me for my resume which was on his table.

He then asked me all the questions that HR discussed with me but he was busy texting someone. Then he was busy on his laptop. He then discussed the two questions I did in last round. I told him what I did and what all approaches that I managed to think off post exam. He then asked me to tell differences between linked list and arraylist, then he asked me to tell difference between hash table and hashmap.

That was the whole process. But the GM didn't selected me, I don't know the reason for not being selected. What I can think off is that he was too busy texting and calling others which might be more important for him than taking interviews.

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424. [TopTalent.in] Interview With Divanshu Who Got Into Google, Mountain View

Even if we were to search around the world, it would be a truly difficult job to find someone like Divanshu. As a Computer Science Graduate of IIT – Allahabad, he successfully bagged job offers from an astounding three companies – all being some of the best and most admired companies – Google, DE Shaw and CodeNation. We at TopTalent.in spoke to Divanshu from IIT Allahabad about the Google Interview Process, how he managed to crack it and what are his suggestions for aspirants looking to achieve something similar.



You can [download](#) his resume by logging in to your account on TopTalent.in.

TopTalent: How do you feel on achieving this rare feat?

I feel elated and happy on cracking the Google, Mountain View offer. It is a dream come true to work for one of the most prestigious IT organization. I am really looking forward to be a part of the organization next year. It was possible only due to constant support of my parents and my elder brother who were more than happy to know that I have achieved this wonderful feat.

TopTalent: What other offers did you get apart from Google?

I had interned at D. E. Shaw during the summer of 2014 and got a PPO afterwards. I also got an offer from CodeNation which is a startup under the Trilogy group.

TopTalent: Can you brief us the interview process?

I participated in the Google APAC Code Jam. I stood first in India and seventh globally by solving three out of four problems. All the problems in this round required good knowledge of Algorithms. Based on the performance, Google called me for onsite interviews at their Bangalore office. There were a total of four interviews and involved questions from Programming, Algorithms, Data Structures and Operating System.

TopTalent: Can you give us a brief account of what you felt was the toughest interview?

According to me, all the four interviews had a similar difficulty level. During all the interviews, the difficulty bar was raised slowly as we approached the end of the interview. The interviewers presented a tougher question than what you have already

answered.

TopTalent: What was your preparation strategy?

I was preparing for the ACM ICPC contest which played a very big role in improving my knowledge of algorithms, data structures and mathematical reasoning. It helped me to code my logic faster and accurately. Apart from that, I revised my Operating System and Database Management System courses. I also went through my past projects to gain an insight into each one of them.

TopTalent: What kind of skills do you think helped you getting this job?

My major skill is Programming and Algorithms. I have a good rank on Topcoder and other websites which was an advantage. Along with that, I have explored many different fields which helped me a lot. I have good knowledge of web development and mobile application development. I have also worked on projects involving Machine Learning, Information Retrieval and Image Processing.

TopTalent: What resources did you consult? Where did you practice problems from?

For algorithms, I practiced on Topcoder, Codeforces and Codechef participating actively in their regular contests. Introduction to Algorithms by [CLRS](#) is a nice book on algorithms. You can also learn from Topcoder Tutorials and various online blogs written by active programmers. For Operating System and DBMS, the course books are enough if you read them thoroughly.

TopTalent: Were grades a factor in you getting selected?

I was required to send all my grade cards after one week of the interview process. Then they reviewed everything and the offer was given. So, I believe that grades were also a factor involved in the selection process.

TopTalent: What's your advice to students who are aiming for similar placement offers as yours?

Everyone has interests in different domains. One must ensure that they learn more and more about their area of interests. One should be very comfortable in expressing a thought process in any programming language of their choice since most of the companies look for your accurate implementation of the given problem. Also, Codeforces and Topcoder are nice websites to regularly practice your algorithmic skills and improve your problem solving as well. Students should also keep a focus on developing good projects to explore a variety of technologies.

In case you missed, you can also [download](#) his resume by logging in to your account on [TopTalent.in](#)

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425. Amazon Interview Questions | Set 146

I am happy to contribute to a community that helped me learn so much 😊 This mail contains info about a recent interview I had with Amazon.

Find

Question 1

Problem statement: Given an Amazon reviews paragraph containing several words, find the minimum distance between two given words.

Example: Following is a hypothetical paragraph in an amazon review –

"Amazon is the best company to work for. The amazon is a beautiful forest."

Find the minimum distance between 'Amazon' and 'The'

Given: You are given the position of each word in the paragraph. Meaning, you know that word 'Amazon' occurs at positions 1 and 10, and 'The' occurs at 3 and 9. You do not have to parse the paragraph to gather this info.

Sub questions :

- *Which data structure will you use to store the given info?
- *Compute the minimum distance in the most efficient way.
- *Give a working code for the same.

Question 2

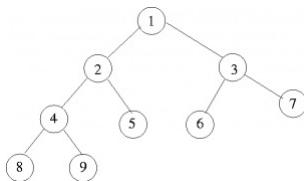
Problem statement: In a binary tree, a chain can be defined as sum of length of the left node series, right node series, and 1. Find the length of longest chain in the tree.

Example: Refer to the image given below –

Chain length of node 1 = $3 + 2 + 1 = \{ \text{count of 3 corresponds to node 2 , node 4, node 8} ; \text{ count of 2 corresponds to node 3, node 7 ; 1 corresponds to node 1 itself}\}$

Similarly, chain length of node 2 = $2 + 1 + 1$

The max chain length here is of node 1 which is 5. So, the output should be 5.



Sub questions:

- * Provide a solution, optimize it, give a working code or pseudo code or an algorithm for the same.

Solution

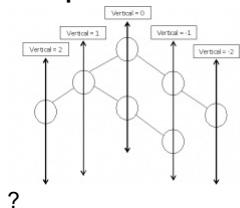
Question 1: Given two valid dictionary words, find the minimum number of steps required to transform first word to second word. Following are the transformation rules –

1. You can, in a single step, change a single letter in the word.
2. Each transition should result in a valid word. Assume you have been provided a helper function boolean isValid (String word) which tells you if a word is valid or not.
3. This must be done with minimum transitions.

Example: Transform CAT to TOY. One of the several possible transformations is CAT
-> CAR > TAR -> TOR -> TOY

Question 2 : Assume you have been given a binary tree such that the angle between horizontal and the line joining node to its left child (or right child) is 45 degree. This essentially means node 5 and 6 in the tree figure above collapse into a single node. A vertical for a tree is defined as shown in the figure below. Given a binary tree of the kind defined above, find the number of verticals that can be drawn.

Example: Refer to the diagram below to get an idea on verticals.



Sub questions:

- * Provide a solution and also provide a working code for the same.

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426. SapientNitro Interview Experience | Set 2 (On-Campus)

Mode:- skype and telephonic interview
written test by:- amcat

1. Recruitment process

There was a written test which had four sections. Technical, Logical Reasoning, Quantitative Aptitude, Verbal Ability.

Shortlisted candidate went for technical interview round.

Then further shortlisted candidate went for hr interview round

Those who got shortlisted after the hr round got the full time offer.

2. Questions and answers

Written test questions

technical:- questions were from C C++. Find out the error type questions and also output type

quantitative apti:- I'm a bit weak at it, never practiced. So, i found them a bit tough, however they were standard

verbal ability:- damn easy, work on synonyms, antonyms and some basic english grammar

logical reasoning:- number series, coded words and very pretty easy thinking questions

Technical Interview

To many of my friends, it was a puzzle round and they faced only puzzles(8-9). But i got lucky, I was asked 4-5 puzzles and jumped into technical questions

puzzles:-

1. I was to imagine a situation where there's is an empty wet, water spilled room(ceiling to floor height- 12 ft), a dead man(7 ft height) hung by a 3 ft rope. I'm asked how could the man hung himself there?

reply:- I said there had been a 2ft ice cube on which he might have stood and tied himself and hung, (ice cube melting away killing him)

2. I'm given 8 sticks to use to make two squares and four right angled triangles

reply:- a rhombus inside a square

3. I was given two non-uniform sticks which burn one hour each. I had to measure 15 minutes using them.

reply:- I set one stick to fire on both ends and the other stick on only end. I let the first stick burn completely which measures me 30 minutes. Then I put the other end of the burning second stick on fire and let it burn completely. Now, the second stick takes 15 minutes to burn completely

4. I was given 9 balls which all are identical except one which is hollow! How many trials would you take to figure out the hollow one!

reply:- logarithmic answer. $\log 9 \text{ base } 3$. i Said its two trials, I don't know if its a right answer

5. There are three ants on three corners of an equilateral triangle. they can move in any direction but only along the triangle edges. probability that any two ants collide each other.

reply:- i gave up. couldn't find out the answer

tech ques:-

1. Difference between C and C++
2. Can one edit standard libraries of C?
3. what is function overloading and overriding (difference between them)

He asked me to explain about my project which was on Service Oriented architecture for building a middleware in JADE. I explained it all to him. I wonder how much he might have understood.

HR Interview

It started with him telling about himself. He told his position and his work role. I couldn't get a single thing of what he was talking about. :p Flew over my head 😊

Then i started to tell about myself, strengths weakness, hobbies.

He asked why i like listening music a lot. I was like- I love it without any reason.

He asked me if i like maths. I said no! 😊 He gave me a small problem

How many squares are there on a chess board.

without further thinking, i spit out 64. He asked for my surity. Then i thought and said no(there are plenty of them inside, bigger and nested squares)

so, i gave up, he finally told me the answer. (sum of squares of numbers from 1 to 8)

He asked about software development life cycle. I gave an honest reply i forgot. Then he started scolding me saying that my pointer is 8.30 and i forgot this! He started saying to go prepared for the next interview.

Then he asked me what if i don't perform well if they hired me.

i said- kick my ass.

He started giving me life lessons in hindi.

Then he asked me what would i want first in process of making tea. (related to software development life cycle)

i said- gas(fire). but he says the first step would be knowing the no. of people who will drink that and what are their requirements(same as a software needs)

That's it. It ended. and after news came over. I got selected :p

Tips:-

In tech interview, be confident about your answers, and don't ever guess any answer. Be honest and say you don't know if you don't and yes if you know.

In HR interview, be what you are. Reflect entirely yourself there. Don't be moody and shy. Try to converse with him as a friend. He's there to select you rather than to reject you.

All the best guys 😊

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427. InfoEdge Interview Experience

Recently I got interviewed by InfoEdge. It was off-Campus drive at Noida.

There were 5 rounds:

1 Aptitude (Quants+Technical)

3 Technical rounds

1 HR round

Round 1 : Written (Aptitude)

There were 30 question to solve in 30 minutes. Questions were from work and time, profit loss, time and distance, pipes and cisterns, probability, Permutation and combination, c,c++,DBMS etc.

Round 2: Technical Interview 1

1. Write a program to find frequency of each character in a string.

2. Briefly explain Class, Object, Methods, Member variables, Encapsulation, Abstraction.

3. Make a Queue using Stack. He asked to optimize number of push and pop operations.

4. Make a Stack using Queue.

Round 3: Technical Interview 2

1. Introduce yourself.

2. Then he asked me about my projects. Detailed discussion on both projects.

3. Write a program which takes decimal number as input and gives Roman number as output.

Ex: i/p: 8 o/p: VIII

i/p: 43 o/p:XLIII

range of numbers can vary from 1 to 1000.

4. Design problem: Design database for facebook page subscribers. Write classes and functions involved to implement this. Further he added to implement facebook notification system.

Round 4: Technical Interview 3

First interviewer asked me favorite subject. I said Data Structure.

1. Write a program which takes a String and an Integer as input and gives output as follows:

i/p: aaaabbcc 2 o/p abcc

i/p: aabbcc 2 o/p aabbcc

i/p: aaabbbbccddd 3 o/p:aaabccd

i/p abcd 3 o/p abcd

2. Given an array of size n. It contains numbers in the range 1 to n+2. Each number in the range is present in array except 2 numbers. Find the missing numbers.

3. Question on Asymptotic Analysis.

4. Difference between compiler and interpreter. Advantage and disadvantage of each. Complete working of compiler and interpreter.

5. What is HTTP, TCP/IP. Detailed discussion on both.

6. Difference between HTTP and HTTPS. What is SSL. Explain in detail.

7. What is fork system call. What will happen to the child process if parent process get terminated.

8. Explain Copy on write.

9. How to count number of objects created by new and created by malloc.

10. What is copy constructor? Why const keyword is used in copy constructor. Why reference is used as parameter in copy constructor. Some more questions on operator overloading, type conversion etc.

Round 5: HR round

Simple behavioral questions

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428. MakeMyTrip Interview Experience | Set 3

I recently got selected in Make my trip . Here is my interview experience.

Round 1-(Online MCQs)

There were 2 sections – Aptitude and Logical Reasoning and MCQ based on Java question ,C++, coding for 20 min and 45 min respectively.

Section A- Not very difficult to clear this round although less time was a problem.

Section B- It contains 15 multiple choice question on c/c++,java and 4 simple coding questions like Sorting words in a large file , pseudo code for detect a loop in linked list and remove it.

Round 2-(Online Coding)

It was an online coding test in which 3 coding question were given.Questions were as follows-

1. Find out the subset of an array of continuous positive numbers from a larger array whose sum of the elements is larger in comparision to other subset. eg: {1,2 5 -7, 2 5} .The two subarrays are {1,2,5} {2,5} and the ans is {1,2, 5} as its sum is larger than{2,5}
2. You have a 8*8 chess board and given a starting and final location of a knight.Find the shortest possible path for the knight.
3. You are given two strings s1 and s2.Now, find the smallest substring in s1 containing all characters of s2.

Round 3-(Interview-1)

It started with a discussion on the programs given in coding round.They asked me about my interest field after that they directly jumped into Networking,Linux and Ethical Hacking part looking my interest domain.

They asked me various question on networking and linux.Question were simple like Explain the OSI model with examples,Port numbers of protocols like FTP,SMTP etc,How to send data of file into another file in linux etc.

Then they asked me to code simple c program to reverse a linked list.

Round 4-(Interview-2)

This round was started with two puzzles.I got stuck in the first puzzle itself but in this round the interviewer was checking our approcah,our logical thinking.

Then I was given one program and was asked to optimize it.Question was simple based on hashmap.

Next question was based on ethical hacking.I was asked to explain SQL attack.

The interview ended with some discussions over my project.

Round 5-(HR Round)

It was a simple HR round. Started with the discussion why do you want to join make my trip and then some general HR questions.

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429. Jabong Interview Experience for Software Development Engineer

Jabong recently visited our campus. About 70 students gave the written test.

Here's my interview experience.

Round 1: (Written)

Part 1(MCQ) – 30 minutes, 25 questions. Questions were from DS,OOPS, DBMS, Quantitative.

Part 2 (coding test on paper) – 30 minutes, 5 questions. Standard gfg questions. 3 questions were easy, rest 2 were of medium difficulty. I was able to do all of them.

Around 20 students were shortlisted after written round.

Interview 1 – Since I had mentioned 'design patterns'in my resume, I was asked about observer, singleton and factory method pattern. I was asked to code them. Questions about my coding approach in written round, discussed about optimizing my approach. I mentioned KMP algorithm during discussion, was asked to explain it.

Interview 2 – Discussion about the projects I had worked on. I had to explain MVC architecture, frameworks that I had used. Explained detail design of my work.

Interview 3 –He was some very senior person from organization. I was again asked about my projects, challenges I faced and how I handled them. How I see Jabong growing in coming years. Any expectations I had in technical field.

Interview 4:

HR round. We had casual discussion about everything other than work.

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430. Amazon Interview Questions | Set 147

Written round:

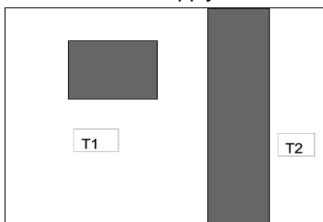
- Given a sorted array. Make a balanced binary tree from this array.
- A row and column wise 2d sorted array is given which only contains 0s and 1s in each row. Find the row which is having maximum number of ones.
- Find the next greater elements in array.

Face to Face 1

- Given a row and column wise 2d sorted array. Find an elements in it.
- Given a row and column wise 2d sorted array. Find the kth element in this array.
- Given a tree T1 and T2. Find whether T2 is subtree of T1 or not. If not return -1.

Face to Face 2

- Given a 2D rectangle. In this rectangle there is some blocked areas which are shown in shaded part. Find the area which is left. Ex-like in this image one unbounded area is T1 and second is T2. You have to find both areas differently and print it. Hint-Take each block as 1*1 and apply dfs for all blocks.



- A big unsorted array of numbers are given. Each number is big of almost 10bits. How to sort these numbers?

Ans-Counting sort

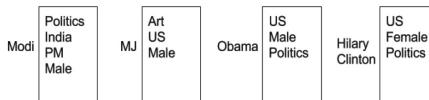
- An Adjacency matrix is given which is represented by 2d array. and each field is having cost associated. You are also given source and destination points. Find the maximum cost to reach from source to destination.

Face to Face 3

- Discussion on work in my current company.
- What is memory corruption, stack overflow, memory not available.
- what is difference between multiprocessing and multithreading? Do all threads of one process is having their own code, bss, stack and heap or it is common for all.
- what is Tail recursion. How tail recursion works.
- Can we overload a function by only changing its return type?
- How virtual table works and lots of c++ concepts.

Face to Face 4 (With Manager)

1. Tell me about yourself.
2. What is the most challenging condition you have tackled in your life.
3. What you will do if you have conflict with your manager.
4. Guys this question brainf**cked me. The question was based on “20 question game”. I never played this game. This was the actual question-



Given a set of words like Modi,MJ,Obama,Hillary Clinton.We need to create a intelligent computer game so that it will popup minimum questions to find out the answer the player thought. For ex- If give user choices to chose any word from Modi,MJ,Obama,Hillary Clinton.Now computer will show popup from any of the tags.Like if user chose Modi then in this case computer should ask minimum questions to find out what will be the guess.so in this case computer only askd "PM" tag and computer will show the popup "Modi".

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431. Amazon Interview Experience | Set 148

Round 1:

1. Incoming stream of characters () defines an onion of depth 1, (()) of 2. Find all onions with their in an incoming stream of characters. Discuss complexity.

Stream can be (()) ()) (((

2. Biggest challenge faced / where you innovated?

Resume Project:

- i. Demonstrate High Level Design

3. Parking Lot Problem A, B , C lots with different car sizes. Efficient way of allocating available slot.

A: Maintain linked list of available slots. Complexity discussion.

Round 2:

1. Matrix of 1s and 0s. 1s are sorted in beginning of each row. Find an efficient way of finding the row with maximum 0s in it.

A: Find row which has lowest sum. Complexity discussion.

e.g.

```
1 1 1 0 0 0  
1 1 0 0 0 0  
1 1 1 1 1 1  
1 1 1 0 0 0  
1 1 1 1 0 0
```

2. How to find two sets(of size m,n) are dis-joint(have no elements common) efficiently

A: Use hash map. Complexity is O(n) in worst case.

Follow up Q: How are hash maps stored in memory?

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432. Amazon Interview Experience | Set 149 (On-Campus for Internship)

Round 1 (Online):

It had 20 MCQs and 2 coding questions for 90 minutes. Questions were from Operating Systems, Data structures, Aptitude etc. Most of them were exactly same as on www.geeksquiz.com.

In MCQs there was – 0.25 marking for every wrong answer and +1 for right answer.
Coding questions were of 10 marks each.

Coding Questions:

Q1. Find the first non-repeating character in a string.

Q2. You are given a phone keypad like following diagram, where each character corresponds to a digit mentioned in the same box.



You are given n strings and you have to find their decimal representation. You have to print the string and corresponding decimal representation in descending order. For example, if you are given “amazon” then its corresponding decimal notation will be 262966. If more than one strings have same decimal notation then you have to print them in the order in which input is given. The given string consists of lower case alphabets only.

Test Case 1:

```
5
Amazon
Microsoft
Facebook
Aa
Bb
```

Output:

```
642767638 microsoft
32232665 facebook
262966 amazon
22 aa
22 bb
```

Round 2 (Face to Face):

Q1. Given a linked list, write a function to reverse every k nodes.

Example:

Inputs: 1->2->3->4->5->6->7->8 and k = 3

Output: 3->2->1->6->5->4->8->7

Inputs: 1->2->3->4->5->6->7->80 and k = 5

Output: 5->4->3->2->1->8->7->6

Q2. Given an array arr[] of integers, find out the maximum difference between any two elements such that larger element appears after the smaller number in arr[]. Print the indices of the two elements also.

Example: If array is [2, 3, 10, 6, 4, 8, 1] then returned value should be 8 (difference between 10 and 2). If array is [7, 9, 5, 6, 3, 2] then returned value should be 2 (difference between 7 and 9).

Round 3 (Face to Face):

There was brief introduction. Then he asked some questions from my resume. He asked me to tell about a project which I loved the most and felt proud after doing it successfully. He was interested in knowing the details of the implementation in that

project.

After that there were 2 coding questions:

Q1. Given a string, find the longest substring without repeating characters. For example, the longest substrings without repeating characters for “ABDEFGABEF” are “BDEFGA” and “DEFGAB”.

Q2. Given a log file of page visits of a website by different users for a day.

Entry in the log file is like this:

User 1 visited Page 4

User 3 visited Page 2

User 7 visited Page 9

.

.

Design an efficient data structure which supports queries like the following:

Which page was visited by exactly 2 users in day?

Which page was visited by only one user exactly 2 times in a day?

Which page was visited by ‘User 3’ more than 5 times in a day?

In 2nd and 3rd round, we had to write code on paper.

The overall interview experience was quite good. They wanted the most optimal solutions and gave hints to think in that direction.

I was finally selected 😊

Tips:

1. First explain the approach, then start coding.
2. Try to interact with the interviewer while coding on paper. They don't want to get bored while interviewing.
3. In case of any doubt, clarify it asap.
4. Never ignore the hints given by the interviewer.
5. Be 100% honest.

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433. Amazon Interview Experience | Set 150 (SDE1 for 1 Year Experienced)

Telephonic:

1. <http://www.geeksforgeeks.org/write-c-code-to-determine-if-two-trees-are-identical/>
2. <http://www.geeksforgeeks.org/convert-a-given-tree-to-sum-tree/>

Round 1

1. <http://www.geeksforgeeks.org/print-left-view-binary-tree/>
2. <http://www.geeksforgeeks.org/find-a-peak-in-a-given-array/>

Round 2

1. <http://www.geeksforgeeks.org/find-number-of-islands/> (all 8 corners)
2. Dont remember

Round 3

- 1.word frequency of a stream of words (no code required, explain trie method)
- 2.code to count no of words in a stream of characters

Round 4

1. <http://www.geeksforgeeks.org/next-greater-element/> (use stacks)
2. <http://www.geeksforgeeks.org/array-rotation/>

Time and space complexity must for all questions

Start from brute force and go to optimized solution.

All edge cases are to be covered in code?

Think out loud all the time (so that even when questions are easy they will catch your thinking with greater importance)

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434. Amazon Interview Experience | Set 151 (For SDE)

Online Round

1. Convert Binary tree to linked list.
2. Rotate a matrix by 90 degree.

There were 2 more questions. But I forgot what were they?

Telephonic Interview

Overview of my resume, current role responsibilities and asked to explain internship project in brief.

1. What is the definition of tree ?
2. What are the differences between graph and tree?
3. When can you say a graph to be a tree?
4. Write a program to show whether a graph is a tree or not using adjacency matrix.

Its always good to ask questions at the end. It shows our interest towards the company.

F2F 1

Overview of current job responsibilities and internship project.

1. Convert a tree to a sum tree.

Example :



Always take care of all the corner cases

2. Print a pascal tree .

3. Given a 2D matrix sorted row wise and column wise . Print the matrix in sorted way.
(Can be done using Min Heap).

For all the questions, complexity of the program was asked and was being asked to improve both time and space complexity.

F2F 2

Many questions regarding my current project, tools and technology I am working on.

1. Convert a binary tree to a sum tree . Here he had a new meaning of sum tree.

Example :

Example :



(I did it with Level Order Traversal) (Complete working code was required)

2. Given an array of integers. Find the largest 3 element. (Can be done using Max Heap in less time complexity)

F2F 3

Lots of questions on my current work and tools which I was using.

Why do I want to leave my current company on such a short interval of 5 months.

Why Amazon ?

What inspires you to join Amazon? Why dream company ?

1. Connect Sibling pointers. I gave a Level Order Traversal solution. He asked to do it in O(1) space complexity. I explained the approach but messed up in writing the working code for that.

2. Explain the approach of LRU cache and implement using object oriented language.

F2F 4

Why Amazon?

Why do you want to leave your current company in such a short interval?

Did u ask your current company to provide that type of work as u r looking in Amazon?

1. Design a system for finding the costliest element always whenever we pick up an element from a box.(concept of Max Heap)

2. A stream of data is coming. Maintain records in a page and mechanism to see

previous and next page. (Concept of Doubly Linked List)

(It is always advisable to ask questions in design questions. The interviewers expect that we will be asking questions for clarification)

What is thread?

What is the meaning of memory leakage?

Followed by many OS questions but I forgot.

In every round , after each question , complexity of the algorithm was asked. Its good to ask questions to get more clarification about the question.

I want to thank the entire team of geeksforgeeks. It is a great portal and it helped me a lot in preparing for Amazon interview.

Reference – GeeksForGeeks and Cracking The Coding Interview

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435. Amazon Interview Experience | Set 152

Amazon written round – Time 1 hour.

- Given an array of 0s and 1s, find the position of 0 to be replaced with 1 to get longest continuous sequence of 1s.

```
Eg: Array- 1,1,0,0,1,0,1,1,1,0,1,1,1
```

```
Output - index 9
```

```
Assuming array index starts from 0.
```

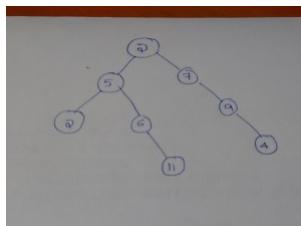
- Given an unsorted array, find the k smallest elements

```
Array {9, 5, 1, 4, 13, 6}
```

```
k = 3
```

```
Output: 1, 4, 5
```

- Find the minimum distance between any 2 given nodes in a tree.



Minimum distance between 2 and 11 is 3

2->5->6->11

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436. MakeMyTrip Interview Experience | Set 4

Round 1 : Written :

Q1. Given a stream of around billion numbers in an array, which has approximately only 1000 unique numbers. Print the unique numbers. Complexity should be less than O(n).

Eg:

Input: 1,1,1,1,...2,2,2,...3,4,4,4,4.....1111,1111,.....

Output : 1,2,3,4,1111

Q2: Write a program to print the frequency of all words in a given paragraph.

Q3: Write a program to reverse the string word wise.

Eg: I/P : "I am a boy"

O/P: "boy a am I"

Q4: Write a program to explain producer consumer program using threads.

Q5: (Only theory) What data structures will you use to design a garbage collector.

Round 2: F2F

Q1: Given an array in which all numbers except two are repeated once. (i.e. we have $2n+2$ numbers and n numbers are occurring twice and remaining two have occurred once). Find those two numbers in the most efficient way

Q 2 : Given a linked list with next and arbitrary pointers, clone it.

Q 3 : A lot of questions around Spring, Hibernate, REST, Dependency Injection, AOP etc.

Q4 : Reverse a linked list in groups of n.

Round 3: F2F

Q1: Vertical level order traversal of a tree.

Q2: Reverse the second half of the linked list in the most efficient way.

Q3: Find the merging point of two linked list.

Q4: Write a function to generate all possible n pairs of balanced parentheses.

For example, if n=1{}
for n=2

{}

{()}

Q5 : Again a lot of drilling questions on Java, Spring, MVC, Singleton, Hibernate, REST.

Round 4 : F2F (Manager/Architect)

This round had questions more around various technology stacks,
Design Patterns (Interceptor, Singleton, Publisher Subscriber, MVC etc etc)

UI Templates

REST

Spring

Java

In memory database

Log appenders

Round 5: F2F (H.R.)

Generic questions like why do you want to join Makemytrip.

What are your career aspirations.

How do you think it aligns with MMT.

Thanks to geeksforgeeks for the awesome database of questions, that helped me clear the interview.

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437. Goldman Sachs Interview Experience | Set 5

Goldman Sachs Interview Experience

Round1:

1. Introduce yourself and what are the projects you have worked on and detail discussion about the most recent project.
2. Implement queue without using any data structure
3. Producer consumer problem
4. In one of the process you are making calls to three APIs. You don't know how much time it will take to return the results from those APIs. Design the system efficiently.

5. Design a parking lot system
6. What is lazy loading? Advantages and disadvantages of the same

Round2:

1. Detail discussion about the most recent project
2. Asked me about the favourite topic in C++. I told polymorphism and memory management. He asked me about when a process starts execution what are the different memory segments allocated to it and how they are managed.
3. Implement smart pointer of your own.
4. Questions regarding virtual functions and its implementation and how it solves different design problems.

Round3:

1. Introduce yourself and detail discussion about the current project
2. How will you implement your own garbage collector in C++?. Detail discussion regarding approaches and their trade offs.
3. Puzzle: there are two candles and each candle takes 30 minutes to burn. How will you measure 45 minutes? You don't have any instruments with you.
4. Design an olympic game

Round4:

1. Design a traffic light system
2. Discussion about the projects done

Round5:

1. What are the different libraries you have used in c++
2. Longest increasing subsequence and its implementation with dynamic programming
3. Quicksort and heapsort and which one of them you will choose
4. Difference between c++ and C#.
5. Why do you want to join Goldman Sachs and what will you bring to Goldman Sachs?

Round6:

1. Tell me about the work which you have done and about which you are most proud of
2. Detail discussion about the current project
3. Different types of collection in C# and difference between hashmap and hashtable and their internal implementation
4. Difference between buffered IO and unbuffered IO. Advantages and disadvantages
5. How ajax works? Difference between angular js and jquery

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438. [TopTalent.in] Interview With Faraz Who Got Into MobiKwik

After 2 hours of gruelling Technical Interview and getting to know that he cleared all the interview rounds, It was a dream come true for him as he got into one of the Awesomest

companies in India, MobiKwik. We at **TopTalent.in** spoke to Faraz, from NIT Kurukshetra about the MobiKwik Interview Process, how he managed to crack it and what are his suggestions for aspirants looking to achieve something similar.



You can also [download](#) his resume by logging in to your account.

TopTalent: How do you feel on achieving this rare feat?

I was elated on achieving what I was actually waiting for , although I have been very choosy during the placement session lately. Right after we got a positive reply from mobikwik my only dream was to make to make it through. Mobikwik is the only Indian company of its type and it would be wonderful to work along its growth.

TopTalent: What other offers did you get apart from Mobikwik?

Our college policy is such that once you have landed up a job in a dream company ,then you are not allowed to sit for any other company. so , MobiKwik is the only dream job offer that I have got on-campus.

TopTalent: Can you brief us the interview process?

The process of MobiKwik started with the online aptitude(quant ,aptitude and logical reasoning) test of duration 1 hour following the pre placement talks.This test was an elimination round.More than half of the candidates were rejected after this. Second round was coding round with main focus on output of the code (it was primarily focussed around Java) with few questions from basic data structures.This was also an elimination round with around 10-12 students called for the technical interview.

The coding round was followed by a technical interview round where the interviewer asked me a lot of questions from the projects in my resume. Some easy questions on core java. Questions around algorithm development and Puzzle solving. The interviewer gave me three questions to code.

He was happy to see Database ,SQL and Unix in my resume and asked me some command from Unix system like nice, touch etc. He asked me to make a normalised

database of Student Database in college (main focus on library and Exam section) right from ER to normalized relational database. He kept me asking questions regarding foreign key, primary key and the entity types and the reason for my choice. Then he asked me to write many sql queries , he looked quite impressed. This database normalisation and sql was followed by a lot of question from DBMS like Indexing, clustering, joins and he kept moving into the details of Indexing and Clustering with other questions popping up in between(cross questions on whatever I was explaining). This interview lasted for around 2 hours and also this was the single longest interview I have seen on campus.

TopTalent: Can you give us a brief account of what you felt was the toughest interview?

I don't think that any round was much difficult but if we compare all I think technical round was difficult as compared to other rounds.

TopTalent: What was your preparation strategy?

I have read

DS and Algorithms Section from geeksforgeeks.org.

Algorithm section from TopCoders.

Thomas H Cormen book for Algorithms.

Head First for Java.

Data Structure and Algorithms made easy-Narasimha Karumanchi.

Cracking the coding Interview.

Fundamentals of Database System Elmasri, Navathe.

Operating System Concepts-Avi Silberschatz

So It was not required of me to read anything specially for MobiKwik.

TopTalent: What kind of skills do you think helped you getting this Job?

Right from the school I have made it a point to focus on the basic concepts of the core subjects that have helped me a lot in deciding what all I should put in my answers at the Interview. Besides this I have done a lot of competitive programming at Codechef.com, Spoj.com and also I am the representative of my college at Hackerearth.com. These two things have really helped me in clearing this interview.

TopTalent: What resources did you consult? Where did you practice problems from?

Besides the one mentioned above , I have been doing competitive programming at

www.codechef.com

www.spoj.com

www.hackerearth.com

TopTalent: Were grades a factor in you getting selected?

Yes , my grades were definitely a factor in getting me selected at the MobiKwik. I have a good pointer record over 9.5 ,my interviewer appreciated my grades . But one should remember that at the end your thought procedure is important for your selection at any good software development company.

TopTalent: What's your advice to students who are aiming for similar placement offers as yours?

Keep your basic concepts clear and don't run after learning complex data structures.
Feel what you learn, and do what you enjoy.

In case you missed, you can also [download](#) his resume by logging in to your account.

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439. Sapinet interview experience | Set 1(On-campus)

1.Round Quant(30), Tech(30), vrb1(15), logical(15).2 hours

Tech.

Tell Me about yourself.

Explain your internship Project.(Related Question)

1.write a function to find nth Fibonacci number.(I used recursion)

-Its complexity?

-Optimize it(I used memoization)

-what's the complexity now?

-what are the Drawbacks of recursion

2.Write a Function to reverse a Linked list Using Recursion.

3.Write a function to find and eliminate circle from linked list.(I used brute-force method).
Optimize it

- 4.Full Working Code for merge Sort.
 - 5.In stack push & pop opration take O(1) time. Write function FindMin() which finds minimum element in stack with O(1) time complexity.
 6. Then they asked me 2 puzzles from the puzzles that I have described below.
- H.R**
1. Tell me about Yourself.
 2. where do you see yourself after 5 year?
 3. Why do you want to join Sapient?
 4. what projects did you do in clg?
 5. Explain your Internship project(how you did it?,tools used? architecture etc.)
 6. What are your hobbies?
- These are the puzzles they were generally asking in the technical interview:
1. 3 men go into a hotel. The man behind the desk says a room is \$30 so each man pays \$10 and goes to the room. A while later the man behind the desk realized the room was only \$25 so he sent the bellboy to the 3 guys' room with \$5. On the way the bellboy couldn't figure out how to split \$5 evenly between 3 men, so he gave each man a \$1 and kept the other \$2 for himself. This meant that the 3 men each paid \$9 for the room, which is a total of \$27 add the \$2 that the bellboy kept = \$29. Where is the other dollar?
 2. If I give you 4 tablets which contain 2 for fever and 2 for cold.All 4 have same size, shape and color, No cover. You have to take 1 cold and 1 fever tablet right now. How will you choose correctly?
 3. How do you cut a circular cake into eight equal pieces in just 3 cuts?
 4. There are 10 black socks and 10 white socks in a drawer.
You have to go out wearing your shoes.
So how many maximum number of times you need to remove a sock from drawer so that you can go out?
You can remove only 1 sock at a time and you can't go outside wearing different socks.
 5. You have three bags and three labels. One bag has only red balls, one has only blue balls and one has both red and blue balls. Three labels are R, B and RB. R label was meant for the bag with only red balls, B label was meant for the bag with only blue balls and RB for the bag with both red and blue balls. Ram by mistake labelled the bags wrongly such that all the labels are wrong, how many minimum number of balls he should pick and from what bags to correct the labels? It is given that each bag has unlimited number of balls to be picked.
 6. You are given 2 eggs. You have access to a 100-storey sapient building. Eggs can be very hard or very fragile means it may break if dropped from the first floor or may not even break if dropped from 100 th floor. Both eggs are identical. You need to figure out the highest floor of a 100-storey Sapient building an egg can be dropped without

breaking. Now the question is how many drops you need to make. You are allowed to break 2 eggs in the process

7. A frog is at the bottom of the well which is 60 meters deep. Everyday the frog jumps 3 meters upwards and fall 2 meters down. How many days it will take for the frog to reach the top?

8. You have two ropes/candels. Each takes exactly 60 minutes to burn. They are made of different material so even though they take the same amount of time to burn, they burn at separate rates. In addition, each rope/candles burns inconsistently. How do you measure out exactly 45 minutes?

9. How to make 10,000 using 8's only.(We can use log,+,-, *,/,etc.)

10. You have three bags and three labels. One bag has only apples, one has only oranges and one has both apples and oranges. Three labels are Ap,Or and ApOr. Ap label was meant for the bag with only Apples, Or label was meant for the bag with only blue Orange and ApOr for the bag with both Apples and Oranges. By mistake labelled the bags wrongly such that all the labels are wrong, how many minimum number of fruit he should pick and from what bags to correct the labels? It is given that each bag has unlimited number of fruit to be picked.

11. You have 4 wine bottles, one of which is poisoned. You want to determine which bottle is poisoned by feeding the wines to the rats. How many minimum rats are necessary to find the poisoned bottle?

12. Rajeev is trapped at top a building 200m high. He has with him a rope 150m long. There is a hook at the top where he stands. Looking down, he notices that midway between him and the ground, at a height of 100m, there is a ledge with another hook. In his pocket lies a knife.how might he be able to come down using the rope, the two hooks and the knife?

13. You are given a 100 integers and these integers are in the range of 1 to 100. There are no duplicates in list. One of the integers is missing.Find the missing integer. What if 2 no is missing?

14. You are at an unmarked intersection... one way is the City of Lies and another way is the City of Truth. Citizens of the City of Lies always lie. Citizens of the City of Truth always tell the truth. A citizen of one of those cities (you don't know which) is at the intersection. What question could you ask to them to find the way to the City of Truth?

15. Three coworkers would like to know their average salary. How can they do it, without disclosing their own salaries to other two?

16. How many runs a single player can score in One day match (50 overs/ 300 balls)... No 'no balls', no wides, no extras, no over throws.So how much runs he can score max?

17. If all players of a cricket team were out first ball, which player would be the last

person not out?

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440. Amazon Interview Experience | Set 152 (Kindle Team SDE-1)

Recently I have participated in Amazon SDE interview for Chennai location Kindle team. Kindle team has arrived Bangalore location to take drive.

I have given 8 rounds

Questions- Answers are as below

R-1) Written Test 1 :

Three codes were asked :

1) Find whether given LinkedList is Palindrome or not

2) Find Whether given Binary Tree is Binary Search Tree or not

Code : www.gohired.in/2014/07/check-binary-tree-is-binary-search-tree.html

3) Create Regular expression and String Matching program for ? and *, where. * means any null or character may appear instead *. and ? means one or more previous character may appear in string.

example

input :

AM*AZO?N*, AMAZON

AM*AZO?N*, ABAZOO

Both are matching as per rules of ? and *.

After removing several candidates from process they conducted second round written.

R-2) Written Test 2 :

1) Stoke prices are given in array. Find for which duration I can buy and sell Shares to get maximum profit.

We need to first explain our method and then start writing code.

– After this round some 20 candidates left.

R-3) Face to Face Round 1 :

They discussed for all this 4 questions and why I choose to write this answer, some

modification in question to see whether u can think more in deep , or several conditions changed, and they asked to redesign/rewrite answer.

R-4) Face to Face Round 2 :

Q1) Class diagram of one system (don't remember question)

Q2) Find Leader in Array (Leader means an element which is higher than all number which are indexed higher than element)

Solution Traverse array from behind to find such elements (simple method)

Q3) K sorted Linked Lists are given sort them in one (write sudeo code)

Then he told me to give logic to solve question without using auxiliary array (result array)

I did with in-place method, searching and storing nodes in one linkedlist only.

R-5) Face to Face Round 3 :

Only One question was asked : Rotate Array "D"times.

Different strategies discued, He was impressed with my another method to find new array location based upon array size N and D.

R-6) Face to Face Round 4 :

Questions were from different topics like

-OS fundamentals

like fork, child process creation and output if I use fork().

What is deadlock, write sample C code to create deadlock.

What is mutex, etc.

SQL Fundamentals.

Data Structure used in Query,

Sample Query like finding Manger's name and Fundamentals of join

-Other General Questions

How Google Search engine works. Where Query goes their server, data storing etc

What happens when you click on website address.

-Design GAME.

GAME is like two players are fighting and (kind of street fighter) and design class diagrams and methods for this GAME, I can think any functionalists(like health, power, help from friend, etc) any extra thing apart from which he mentioned.

– API is given, and this API servers different clients,

Now one client has requirement so that functionality changes, but other clients dont need such functionality, how will you design your system.

– OOPS fundamentals were discussed like

Static, Class can be protected or not, overloading and overriding difference and implementation of them,

Software patterns discussed like Factory and Abstract Factory

Singleton and how to implement it.

Last Question was, If I want to store student data such that some students took Physics, some took Chemistry and some took both. I want to know all details of students, mark, name etc also. which way I'll implement this system, which Data Structure will be used, and which design pattern.

After All this round I was told to go home and Hiring Manager Round will be taken onsite at Chennai, I was told.

for One month my rounds were not scheduled.

One fine day I got chance to give Project Manager round over phone (they said Senior Manager will take onsite round and then HR round will be there)

Round 7) Hiring Manager Round.

Over call he asked me first question

Q1) Array is given which is of 0 and 1, all connected 1 forms island.

Find largest size island in given Array,

I have provided working code, He then asked me to optimize and again writing code.

Q2) Design LRU system. I have explained this

and also class diagram and pseudo working code was submitted.

Again for 20 days I didnt get call from HR and when I used to mail him, He simply replied that my candidature is on hold as Senior Manager is not free to take my next round.

And Today Again I got call that I am rejected. because Hiring Manager is not convinced from my approach in round,

I still don't know what went wrong as both code given to HM were working.

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1st round (machine coding round)

Write down code in any language for a simple employee hierarchy which has 3 types of employees.

1. CEO
2. Manager
3. employee

where an employee can have only 1 mgr, and a mgr has 1+ employees.

We were asked to input employee details(name ,id, salary, rating etc) in any order (employees might be input before his manager), create the hierarchy and implement these functionality:

1. Print hierarchy given any employee/mgr/ceo (used an n-ary tree + hash table)
2. Given a bonus and performance rating of each employee divide it to the lowest level employees(in the hierarchy) in the ratio of their rating. i.e 100 divided among 2:3 is 40 and 60. and print the bonus of each (simple recursive solution)
3. Top 10 employees with ratio of bonus:salary (used maxheap)

Write working code, modular, extensible, corner case handling etc. was arnd 1.5 – 2 hrs

2nd round

discussion on your solution of the 1st round, how can you optimize it, then review of the written code

3rd round

Ds and algo

1. snakes and ladders problem
2. median in a stream of integers
3. string searching (KMP / suffix tree was needed : not code just the logic)
4. Given any language , you use libraries , which might use more lib etc . Find the order of building the libraries (Topological sort)
5. Given a server with a stack with some initial state say 1 Users can modify the stack using regular ops eg push 2 , pop etc and each op causes a version change. i.e version 1 : 1 , version 2 : 2,1 , version 3 : 3,2,1 , version 4 : 2,

You have to design it s.t person can ask for any version of the stack (keep copies every k times and keep the ops in an nonvolatile memory)

4th round

Design a new kind of an online poker game

give all entities and relationships in depth

further in depth discussion of how to make it more HA friendly, how to handle players crashing etc

5th round

HM round

in depth discussion of projects and general questions eg when you disagreed with your mgr etc

Process was crisp and took place from 10am – 5 pm on a weekend in Bangalore

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442. Amazon Interview Experience | Set 153 (For SDE1)

Recently I had interview with amazon.com for SDE1 position for 1+ year experience. It was kindle team.

Round 1: 1 hour – written test at amazon office.

Q1. Given two link list that represents no. write a program to add two given two link list and return new link list that represents sum of no. represented by given two link lists.

Q2. Given a string, write a program to find longest length palindrome from that given string. You can swap the characters of given string.

Q3. <http://www.geeksforgeeks.org/count-possible-decodings-given-digit-sequence/>

Round 2: 1 hour – with SDE1

Q1. find longest common prefix of given set of strings.

Q2. Check whether given link list represents palindrome.

Q3. Given sorted array, write program to generate balanced binary search tree from given array.

Round 3: 2.5 hour – with SDE1 + SDE2

Q1. Count no. of inversion in a given array.

Q2. In a party there are total n persons are there. every person is having one gift with him. Every person will give his gift to another such that every person at the end has exactly one gift. Any one can give his gift to anyone. say 5 people (A,B,C,D,E).

A→D

D→C

C→E

B→A

E→B

write a program to generate a random sequence. for every run, code should generate different sequence with equal probability. lots of discussion was there on various approaches. finally with the help of interviewer i wrote O(n) time solution with O(1)

space. Hint: selection sort

Round 4: 1.5 hour – with SDE2

Q1. Given a file having many words. Given K, find the words appearing $\geq K$ times. Lots of discussion was there, discussed many approaches.

Q2. Design data structure that supports insert(), remove(), find-max(), delete-max() operations. All operations should run in $O(1)$ time. Lots of discussion was there, discussed many approaches.

Q3. Given two link-list that represents polynomial. Write program to multiply both polynomial , return result as new link-list.

Q4. Write program to find max size BST from given binary tree. Algorithm and full working code was required for all the problems. Discussed space and time complexity of every problem.

Still hiring manager round and senior manager rounds are there. Once completed i will post

Tips: Discuss various approaches with interviewer. Try to interact continuously with interviewer. they were very friendly during interview.

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443. Microsoft Interview Experience | Set 40 (Off-Campus)

I got mail one day that I have an Interview scheduled on next day in Bangalore.

Round 1 onsite:

I think this round was just to check whether I take care of all boundary cases for problems and also my speed? Problems were quite easy then what I expected but they made it very lengthy to check my speed

General questions 1 :Tell me about yourself?

GQ 2 : Tell me about your work in your current Organization ?

Q1: You have given an array of 0's and 1's. Write the code to swap only two elements in the array so the number formed by this array keeping all the elements in same order should be largest one.

I/P: 11000101 O/P: 11100100

Now he modified the question: Let's say instead of array, a number is given. Swap two bits of this number find out the maximum number formed after swapping these two bits

Again he modified that Lets the array elements are decimal numbers (Not 0s and 1s). Swap two elements and find out maximum no formed. Write the code.

Again he modified the same questions that lets say a number is given, swap two digits of the number and find the maximum number formed by it.

He was just checking my coding speed and making sure whether I check all boundary cases.

Q2: Pairwise swap elements of a given linked list (of course by changing links). After looking at my code he said that I have made a segmentation fault but I try to convince him that I wrote the code correctly and he was convinced.

After this round HR got a mixed feedback so he decided to go ahead with my next round.

Round 2:

This round was basically focusing on my problem solving abilities. Coding was not tough but thinking and approach was critical.

Q1: A directed graph was given. I had to make a function which takes a value of node as input and print all the nodes which had incident edge on the input node and also print all nodes to which input node has a direct edge. He kept ignoring the solutions I told because he wanted it to solve in a particular way.

Q2 : Find the largest rectangular area in a Histogram. I read this question long before but couldn't remember it but fortunately I was able to solve it with few difficulties.

Round 3:

Q1: basics of computer science: Multithreading, long discussion on dynamic memory allocations, memory leak, some OS fundamentals. Some compiler design questions where he helped me and finally we reached to the solution.

Q2: You have a stream with millions of words in it. Find most frequent 10 words in that stream at every instance

Q3: How will you store a very big number if it can't be stored in any data type?

Round 4:

This was a designed round and interviewer was principal development manager.

Again round started with 'tell me about yourself and the work in the current Organization'.

Question 1: He opened the site msn.com and asked me to design a part of

'stockscreener' hierarchy using my OOPs and MVC understanding. And asked me write a class which will show the user that if stock market is open or closed. If it is closed then I have to print when the market is going to open in future. To find the future date he gave me a list of Holidays, Half days and obviously market will be closed on Weekends. So store this information in a proper Data structure and use it in finding future date.

This question took around 35-40 minutes of time

Q2: For a Sudoku game, I had to design a screen using OOPs and MVC understanding. Where a column can be empty where you can put a editable number in future or an editable number which you can change as per your requirement or a fixed number(inserted by system only and user can't change them). This question was an easy one so hardly took 15 minutes.

Q3: Simplest of all, for a given BST I had to print all the number in ascending order which lies in a given range in best possible optimum way.

Round 5:

This was the last round and the interviewer was 'Partner Development Manager'. I knew he has veto power and today he is the one who will decide my fate, so I was more nervous and conscious but he made me so comfortable and welcomed. For first 10 minutes or so we were just chatting about our views on movies and asked me who do I think most underrated actor in Bollywood? I said Jimmy Shergill and he said he also think the same.

Asked about my college life and achievements? What is the biggest achievement so far? Why do I have less percentage in 10th class? Why are you changing the company?

Then he moved to puzzles.

Q1: There are N people in a room and one of them is a celebrity. In the room everyone knows the celebrity and celebrity doesn't know anyone in the room. You have 1 question 'do you know him?' and you can ask this question N times to anyone in the room. The person to whom you are asking question will reply 'Yes, I know this guy' or 'No, I don't know this guy'. By asking the same question N times to whoever you want to ask you have to figure out who is celebrity in the room. If A knows B doesn't mean B knows A.

After that He asked my 2-3 more puzzles which I knew already and I told him so he asked the solution and moved on.

Q2: A Matrix of 1s and 0s is given, all zeros are water and 1s are land, first find out the number of ponds in the array (Reverse of islands problem). If one change can convert 1s in to zero then find out minimum number of changes that we need to make so that there will be only one pond in matrix.

In the end, he asked me whether I am preparing for other interviews or higher study so I knew all the puzzles. I said No but I like puzzles and I am good in them.

This was all. A big thanks to GEEKSFORGEEKS, you guys made our life so easy. You are Google for me as far as an interview preparation is concerned.?

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444. Hike Interview Experience | Set 4 (Off-Campus for SDE1)

Written round :

We all were required to write a code for LRU implementation with proper Locks and synchronization so as it is thread safe.

Round1:-

1. Interviewer had a look at my CV for about 10 minutes and asked lot of questions of my work in current job.
2. Then a coding question that "Given a cartesian x-y plane and lot of points in that plane with x and y coordinates and 1 more point(say x,y) is given, so we have to find all the points in that plane which are lying in a radius of length r from point (x,y)"
3. Questions on Java :- Why synchronised block needed? and some more questions on Multithreading in Java.

Round2:-

1. Some DB queries to write for the tables provided by interviewer
2. Implement Inorder Traversal with and without using recursion.
3. How does Stack work internally and what data it holds?

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445. Quikr Interview Experience for Software Engineer Position in Bangalore

Round1:-

1. Find the first non repetitive character in a string
2. If there is a website run by 2 servers. These 2 servers balances the load using Load Balancer. So, if 1 session is created on 1 server and say load is shift to another server

immediately, then how session is maintained?

3. Discuss about Design Patterns. Asked to implement some basic Design Patterns like Singleton, etc.

Round 2:-

1. Find missing element in an array of elements from 0 to n-1. Different approaches asked(about 3 to 4 approaches)?

2. What is connection pooling.

3. Asked some questions on multithreading in Java.

4. How to implement Critical section in Java and on which variable?

5. Some Questions on Java, Database, Hibernate in general

6. Stock Buy Sell to Maximize Profit

<http://www.geeksforgeeks.org/stock-buy-sell/>

problem was modification of above problem. I dont remember the actual problem exactly.

Round 3:-

1. Given a wood of some size. It burns from 1 end to another and takes 30 min. How to burn the same wood in 15 min.? (Answer :- Burn the same wood from both end at same time.)

2. Asked many questions about work in current workplace.

Round 4:-

1. How my current job work can be used in Quikr?

2. Some more questions asked related to work done in current job and how can it be useful in Quikr?

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446. Amazon Interview Experience | Set 154 (For SDE2)

Round 1:

1. Print level order traversal of binary tree in iterative & recursive way.

Print each level in next line. → I used 2 variables for this.

2. convert HEAD → TAIL and print all words in successful transformation path.

constraints: Only one character can be changed at a time.

Transformed words should be valid. It can be checked using dictionary.

Round 2:

1. Check if tree T1 is a subset of tree T2.

2. find Kth minimum element in a row-wise and column-wise sorted 2-d array.

Round 3:

1. Project Role and related discussion
2. Find distance between two nodes in a binary tree.

Round 4:

1. Design an Email client. should be having all features of email-client.
2. Transfer one file data from one PC to another PC. To transfer data some network entity is being used which cost some value. You need to reduce this cost of transferring the data. —> I used compression technique to replace repetitive data with some key on first PC and put it back on another PC.
3. How smart mobile/tv apps gets updated
4. Project role.

Round 5 (Hiring Manager):

1. Project Role deeply.
2. Any critical problem you have faced.
3. C++ -> polymorphism, abstract class, abstraction, overloading, compiler given default n copy constructor.
4. Spiral matrix puzzle.

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447. Goldman Sachs Interview Experience | Set 5 (On-Campus)

1

Not many campuses around the world deal with “placement season” as we do in IITs. Only an IITian can understand the significance of December 1, the ultimate day when people from top Indian and international companies start to converge at one place to hire the supposedly best and brightest minds of the country. From toothpaste makers to software developers, there is perhaps no industry which is left unrepresented in the humongous crowd of recruiters who turn up for the event. Although I have personally benefited from this setting, I have strong views against it. But that demands a separate blog which I would write some other day.

On 30th November, things were unexpectedly looking very rosy for me. I was shortlisted for interviews with almost all the companies which I had applied for based on my performance in their tests or my academic profile. I had got interviews with 8 companies in the whole day. It was definitely more than what a sane guy could handle. While

planning for the order in which I would give the interviews, I decided to go based on my realistic chances of selection in them and not get carried away by my fancies and their fanciness. GS had always been my dream company, not only because it pays a hefty sum of money as salary, but because the best among the best had chosen it during previous years. There is no better parameter to judge a company than its people, and GS was definitely ahead of others according to my judgement.

During my school years, I had always known that I was the smartest kid in my classroom. But that was definitely not the case in IIT where everybody comes after passing through a certain filtering process, where CPIs can be deceptive and where the laziest student could be the dark horse in the race. Every student of IIT is a combination of crass intelligence and “ability” to work hard. Since GS had shortlisted 69 candidates other than me, the realistic chances of me making through GS were rather less compared to other companies which had much shorter lists. I placed GS after 2 other companies (which also extended me job offers later) in my preference for interview timings. After revising basics of CS subjects and my projects, I was all set to face the battle with reasonable amount of confidence.

2

On the fateful day, Goldman Sachs started its interview process quite early at 12 am. My name appeared somewhere in the middle of the interview schedule list at 4.00 am which is the time when my body is adapted to go to sleep. I had not slept in 2 days because of the way our placement office had planned technical tests. All this meant that I would go to interview with tiredness from past 3 days. The test venue was highly charged with all sorts of energies. There were many people who had already appeared for few rounds and, by then, had somehow figured out that they had been selected. For many of them, this turned out to be a mere speculation later. I had heard that GS did not take other candidates seriously if they had found suitable ones already (This turned out to be a wrong notion later). I had a reason to worry. Going by their talks, there were many people in the corridor who had landed the job already.

The interview process was running behind scheduled time. The panel took a break, which meant I was not going to be interviewed up until 6 am. At 6:10am, my name was called. My interviewer looked very weary after having participated in 6 hours long process already. A quick tricky question was asked about the Fibonacci series. I understood the question differently and gave solution to a more difficult problem. This got interviewer excited in interviewing me. I gained some confidence and insisted that I be given chance to solve original problem which I solved in no time. General resume discussion happened. I was asked how I thought GS made money. I realized that I had done a blunder by not researching the company properly before coming for the interviews. Nonetheless, reading pink newspapers helped. I answered the question. The interviewer was impressed, and so was I, with myself.

Without a pause, I was called for second round of interview. Since the interviewer was interviewing a filtered candidate, he looked more serious. General discussion on polity issues, macro economics and my course projects followed. Being aware of and having

strong views on many public issues helped. The interviewer looked impressed with my answers. Then interviewer came to the actual business. A puzzle question was asked. I knew that it was a fairly popular puzzle but had never attempted it. This was my second big mistake that I had committed before coming for interviews. Although I like solving puzzles and solve one or two here and there, I had not practiced and mugged them up in a way that other serious candidates would have done. But it seemed that I was destiny's own child that day. The solution struck my mind. I later found out that that was indeed the standard solution to the problem. Interviewer wrote something on my resume and asked me to wait to be called for third round.

In third round, the interviewer laid resume on table without folding and I could see what other interviewers had written about me. "Strong yes" it read on the top. I felt good about it. I told interviewer that I had done a course in algorithmic game theory. He asked some game theory questions which I answered. I knew I had nailed it. I was literally on high.

Between third and fourth(final) round, I gave interviews to some other companies. The difficulty level of those interviews and my interest in them were nowhere close to the GS interviews. In fact, I felt bored during some interviews. I realized how much I wanted to be a part of GS already. I got a call for fourth and final round of GS interview. While chanting Hanuman Chalisa quietly in my heart, I realized that I had forgotten it. I had not prayed in a long time and felt guilt for treating God so selfishly, and took a mental note to make amends later. I needed divine intervention to help me to recall anything that I might need during the interview and to think clearly.

The interview started without any needless talks. Once again, a puzzle was asked. I knew the solution to it and thought that I could bluff my interviewer by pretending that I did not. He called my bluff by asking a more difficult problem. It was loosely phrased. It was the first and only problem which I could not solve. But interviewer did not show any signs of disappointment. A strategy question was asked. I gave an algorithmic solution to it. He asked me to code it which I did. The interviewer looked happy.

Without wasting a moment, I moved to give interviews to other companies leaving everything else in the hands of GS people and God. At the end of first slot of interviews, I came to know that I had multiple offers and more choices in hand than I had imagined. It did not take me even a minute to choose Goldman Sachs. My life had taken a surprising turn which I had not thought about till that moment. I had become a part of the rich legacy which Goldman and Sachs had founded in 1869.

Questions:

Round 1:

1. Given $S(n)$ and $F(n)$, two functions which compute sum of n Fibonacci numbers and n th Fibonacci number respectively in constant time. Write a function which computes sum of odd Fibonacci numbers in constant time.

2. Now write a function to compute sum of Fibonacci numbers at odd indices in constant time.

3. Write down function to select pivot element randomly in Quick Sort.
 4. Probability of comparison of two elements in random quick sort.
- Round 2:
1. N door puzzle. ith user changes state of doors which are multiples of i. Calculate number of doors opened in the end.
 2. Some fairly simple DP coding problem(I don't remember exact one).

Round 3:

Design a game (Automaton) for a betting scenario. Bet is either doubled or lost completely depending on whether you win or lose. Suppose you bet on team A constantly in a 2 team game, how much money you need initially so that you either win \$100 or lose all at the end of game after 4 rounds.

- Round 4:
1. randN function : which generates random number in [1,2,3..N] with equal probability. Given rand5, write a code for rand7 using rand5.
 2. Some number stream puzzle which I don't recall.
 3. A strategy question. It would be asked depending on which team you are being interviewed for. Mine was some apple seller problem. Here knowledge of real world scenario helps. Advice is to observe things around you rationally.

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448. Walmart Labs Interview Experience

There was 1 coding round and 4 F2F interviews. This was for Software Developer Position (Note:-It was not for the research division in Walmart Labs)

Coding Round:-

There were 2 coding questions given in this round. The platform used is Hacker rank and we have to complete both questions in their office only in 1 hour. Usage of internet is strictly prohibited.

1. Find Maximum sum in an array such that no 2 elements are adjacent. In this, 1 more condition was also there that first and last elements should also not be taken together. This question was modification of
<http://www.geeksforgeeks.org/maximum-sum-such-that-no-two-elements-are-adjacent/>
2. In a cartesian plane, there are N tanks and M objects placed. Tanks can fire in 4

directions (N, S, E, W). Position of tanks and objects are given as input and are fixed. We have to find a way to give directions to N tanks such that they will not hit any object and any other tanks. If a tank can fire in 2 directions, then a direction whose ASCII code is lesser will be given preference. Example:-

Input :-

N=2

M=3

Position of tanks

(0,0)

(1,1)

Position of Objects

(0,2)

(0,-2)

(-2,0)

Direction of N tanks should be :-

(0,0) E -> This tank should fire in east direction

(1,1) E -> This tank can fire in all 4 directions. Since E has least ASCII code in all 4 of them, so E

Round 1:-

1. Intersection and Intersection Point in 2 Linked List.
2. Questions on Multithreading in Java. About synchronised block, etc.
3. Why JVM is platform independent.
4. Difference between Java and C++.
5. Write a code for building a heap and explain its time complexity
6. k largest elements in an array
7. Some Questions on String datatype in Java

Round 2:-

1. Design a complete Railway Reservation System. Following things are checked in code:-
 - a. Object Oriented Programming
 - b. Design Patterns used(if any)
 - c. Are use cases are optimised or not?
2. Question on LRU cache implementation

Round 3:-

1. Design a data structure which provides following APIs:-
 - a. insert element in O(1)
 - b. delete an element in O(1)
 - c. find a random element in O(1)
2. Some questions on Java basics.
3. Some discussion on projects done in current job.
4. Got 1 feedback that my knowledge of Java is not so good. So, if we hire you, then

what will be your strategy to improve on your Java skills.

Round 4:-

1. Why do you want to join Walmart Labs?
2. What are the biggest challenges faced by me in my current job.

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449. Goldman Sachs Interview Experience | Set 6

Hi, I recently interviewed with Goldman Sachs, and had 4 rounds of interview with them at their campus in Bangalore.

Round 1 : Technical – F2F

Q1. Check if a linked list with $2n+1$ elements is a palindrome without using any extra space.

Q2. Given an excel sheet with column names mapped to column numbers as follows :

A-1 , B-2.....Z-26,AA-27.....AZ-52 and so on.

Now write a function to return the column name for a given column number.

Q3 : Find if a given binary tree is a sum tree.

Q4: Then a lot of questions around different technologies and languages.

Round 2: technical + manager

This round did not have any DS and algorithm questions. I was asked in detail about my project. Then had a lot of questions around java script and java. About different design patterns and web services.

Round 3: Technical F2F

Q1: Given a stack of unsorted characters, and an empty stack, without using any extra space sort the stack elements and place them into the empty stack.

Q2: Print all nodes at a distance k from a given node.

Q3: A lot of questions around java, collections frameworks, multi threading and so on.
(This took a good 25-30 minutes)

Round 4 : Senior manager cum HR- F2F

Q1. Why do you want to join Goldman Sachs.

Q2. Career goals.

Q3. Compensation discussions.

Thank you geeksforgeeks for making it so simple and easy.

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450. Amazon Interview Experience | Set 155 (On-Campus)

Recently Amazon came to our campus as a part of our campus recruitment.

Online Round:

- 1) Given a linked list of zeros and ones, sort the list.
- 2) You are given three numbers. Each number is represented by a linked list. Write a function that returns sum list.

Example: $1 \rightarrow 2 \rightarrow 3 + 2 \rightarrow 1 \rightarrow 3 + 3 \rightarrow 2 \rightarrow 1 = 6 \rightarrow 5 \rightarrow 7$.

This was conducted on hacker rank. Test duration was 1.5 hrs

There were around 22 MCQs related to OS, OOPs C Input/Output questions.

GeeksQuiz is sufficient to answer these questions.

They shortlisted 25 people for the interviews.

There were 4 technical rounds in total. Every round is an elimination round. In each round interviewer asks you to explain the algorithm as well as implement it on the paper.

First Round:

Started off with a basic “Tell me about yourself” question. This round is just to check if you really are capable. He asked me three questions and asked me to implement all of them on paper.

- 1) You are given an array and a number c. Output all pairs a, b whose sum is equal to c. $O(n)$ is expected.
- 2) You are given a number represented by a linked list add one to it.
I told him the obvious reversing the list and add one to it. But he wanted me to do it without reversing and using recursion.
- 3) You are given a sorted array, find majority element in it. If there is no such element output -1. You have to do it in single $O(\log n)$ operation.
Extension to the third question: What if the array is not sorted? Provide an $O(n)$ solution.

Second round:

This was for about 2 hours. Although there were only two questions but the interviewer is checking if we have enough knowledge on all the data structures.

- 1) You are given a long array and window size w. You can only view elements that are currently in the window. Window starts at the extreme left and moves one position at a time to the right. You are required to output minimum numbers in the current window. All the possible approaches were discussed. Starting from brute force, $O(nw)$ to $O(n \log w)$ using heaps, BSTs. He asked me to implement them. But he was not satisfied with $O(n \log w)$ solution. He wanted me to give a $O(n)$ solution. Finally after few hints I've solved it using doubly linked lists.
- 2) You are given a binary tree. Print the vertical order traversal starting from the root element.

Third Round:

Started off with the question "Explain one project of yours". Few technical questions were asked on the project.

Few questions on OS, Multithreading vs Multiprocessing were asked. Also he asked me to tell if I have implemented any program that used multi threading. Few questions on semaphores and mutexes were asked.

Only one coding question in this round

- 1) You are given a very large binary tree, return the root node of the largest BST in the given tree. Single traversal solution is expected. Implementing it on paper was little difficult than expected.

Fourth Round:

By this time, job offer was almost confirm.

He asked questions on my projects. He asked me to implement few algorithms from my project on a paper.

- 1) Implement a graph and one graph traversal using oops.
- 2) Given an immutable(non editable) linked list and a number k, remove all occurrences of the number in the list.

Few questions on OOPs were asked.

They gave me the result after 20 minutes 😊

I would like to thank geeksforgeeks which helped me enormously in getting placed.

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451. Nvidia Interview | Set 3 (On Campus)

I had a campus interview of Nvidia Software profile for their infrastructure team at Bangalore and here is my experience.

Written Test

15 questions on C/C++ that dealt with Bit manipulations, C++ concepts, Virtual functions, abstract classes, output programs, extern variables, Compilation errors etc.

Around 10 questions on Data structures that had questions from sorting, heaps, and other concepts of DS.

Around 8 questions on OS that included questions on semaphores, TLB, threads, process scheduling etc.

8 questions on analytical ability that included a few quantitative puzzles and some logical reasoning.

Overall the level of questions were good as all of them made us think.

20 students were shortlisted for interviews. I had topped this list 😊

Interviews were conducted by 2 separate teams. Each team interviewed a candidate at most once.

Round 1:

Before entering the room they had analyzed my CV.

- 1) Why are your grades low in the first few sems? I explained that I did a few projects that diverted my focus from academics.
- 2) They noticed that I had published a paper in electronics so they asked me to explain in depth the work done for it.

3) Questions on a few more projects.

4) Find the 3/4th node in a linked list.

5) Which of the following sorting algorithms uses the least number of swap operations.
a. Heapsort b. Selection sort c. Quicksort d. Insertion sort

I had answered this question incorrectly in my written test so had to find the correct solution in front of them.

6) Memory map of a C program.

7) Concepts of C++ like Virtual functions, Inheritance, Constructors, static variables etc.

8) How are virtual functions actually implemented. Ans- Virtual pointer table

9) Given two different processes wanting to read each others variables that were defined in their source code. How can we implement that?

10) Do you want to go for higher education?

11) I was asked that even though I had a strong hardware profile why was I interested in NVIDIA software. I replied that both of my skillsets were strong and would be put to good use at NVIDIA which works on both of them.

11) A few more DS questions that I don't remember.

I was shortlist for the second round

Round 2:

This was taken by a senior engineer

- 1) Tell me about yourself. I tried to show them that I am passionate for NVIDIA.
- 2) What is NVIDIA CUDA? I was asked this as I had mentioned it in my resume.
- 3) Write a sample program in CUDA. I wrote a reduce function to sum an array.
- 4) How do we synchronize threads in CUDA?
- 5) Find output of a given program which had static variables in recursion.
- 6) I had mentioned that I simulated multi-planetary orbits in a project and interviewer looked particularly interested in it so I was asked questions about ellipses, their foci. radius and eccentricity.
- 7) Explain how virtual functions works by writing a sample program.
- 8) What are virtual destructors? (I had no idea)
- 9) Give an example of runtime polymorphism in C++. I said we can achieve this using function pointers. Not sure if correct.

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452. My Interview experience of Service Now USA

Service Now visited our campus for both offers at Hyderabad and USA. I sat for the international interview procedure on day 0 of our campus. Here is my interview experience.

1st round (Written) :

MCQ questions were from all core subjects (30 questions : 45 Minute) The questions I remember I updated here

<https://docs.google.com/document/d/1L1IxEp4ZS8F72t6QqeT8zEYVVe8c7M5ndQWi3J0K1Q>

2nd round:

1. Describe internship work.
2. <http://www.geeksforgeeks.org/dynamic-programming-set-11-egg-dropping-puzzle/>

What is the solution to the problem with 100 storeys and 2 eggs?

3. How do we find count of numbers between (a,b) both inclusive with no consecutive

ones in the binary representation? They asked me 3 different approaches for this problem.

4. Difference between object oriented programming, functional programming, logic programming ?

5. A question about builder pattern where I had to create a pizza having veg or non-veg crust , different sauce topping , different crust draw the class diagram and write a code calculating total cost?

6. Difference between abstract class and interface what is the problem if I use abstract class when there are no implemented methods?

7. If a variable is protected in parent class and another variable with same name with public is declared in child class is this allowed is the reverse also allowed and how would you access parents variable in child class?

8. Detecting a loop in a singly linked list what are the stopping condition if there is no loop?

9. In a circularly linked list how would you ensure at least one node is left always even if you remove all the nodes ? Ans :insert a dummy node at the start.

3rd round (HR+puzzles) :

1. Given a container and 3 shapes of balls small , medium , large using each type of ball at least once how do you fit these balls so that the space wasted is minimized he was looking for a programmatic way of solving the problem?(I couldn't answer this question)

2. How to reduce the time of booting of the processor where we have no control on hardware devices but can only modify software (he was looking for more points here)?

3. There are 9 balls one ball is lighter out of them and we have a balance how would you find lighter ball in 2 weightings? (I told i knew this question so he moved on)

4. As all of my internship projects are on the back end with no design projects he asked me if I Had done any front end design projects? I said no.

5. General HR questions like Introduce yourself, Why would you want to join Service Now, Where do you see yourself after 5 years?

I would like to thank Geeks for Geeks very much which helped me during the time of preparation for placements.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

453. VISA Inc. Interview Experience (On-Campus)

Visa Inc. came to our campus for placements. There was one written round (mettl.com) and 3 PI rounds.

Written Round

The written tests covered almost every aspect of computer science – Programming, CO, OS, DBMS, ML etc. In addition to just using it as a cutoff for interview shortlist, they had also done an extensive analysis of each and every candidate (We could see pie charts for each section during our interviews).

Coding questions were:

1. Given a plane and n lines, what are the maximum number of regions formed (Solution: Lazy Caterer's Sequence)
2. Given an array of numbers, find the largest subarray of numbers to be negated to obtain the maximum sum.

Only one subarray can be negated while calculating the sum

for ex: -1 -2 7 -8 10 -3 -4 -5

Ans = 3 (negate -3 -4 -5 to get maximum sum)

PI Rounds:

Round 1

- 1) What do you think about Mobile Apps for Visa? (They had exactly one US position for this domain)
- 2) Detailed discussion about each and every project
- 3) What is Concurrent programming (Based on course taken)

Round 2 (Software Engineering)

- 1) What is Agile methodology?
- 2) What is your project? If you are going to deploy this for commercial use, what additional aspects to be taken care of?
- 3) Different types of testing?
- 4) What types of testing used in project?

- 5) What is QA? How can you ensure QA?
- 6) What kind of bugs were fixed in project? How were they fixed?
- 7) What programming language used for project?
- 8) About python programming language – advantages and disadvantages (based on my answer to the previous question)
- 9) Questions based on my previous work experience

Round 3 (About VISA)

- 1) Applications of Data Mining, Machine Learning for a company like VISA.
- 2) What kind of data mining can be done on VISA data? What are the uses?
- 3) What kind of position, are you interested in? (Multiple profiles were available. It is important to know atleast one or two of them)

Final Note: Resume is very important. I was questioned about each and every point, I had written in my resume.

I would like to thank the GeeksForGeeks admins for maintaining such an awesome website.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

454. InMobi Interview Experience | Set 2 (On-Campus)

InMobi visited our campus twice, once for the written round, then for the personal interviews of the shortlisted candidates.

So here is the written + PI experience of mine for InMobi.

Written Round :

Time : 1:30 hours.

25 MCQ's, coding questions.

MCQ's were easy, coding questions –

1) Kth Optimal path in a matrix.

<http://programmers.stackexchange.com/questions/260972/kth-optimal-path-in-a-matrix>

2) Given a string, evaluate it and return the integer answer.

Eg. Input : “1+2+3*(4+5)*9+4-5*2”

Output : 240

Oncampus-

First round of Personal Interview

- * Tell me about yourself
 - * Tell about the projects done
 - * Find the first repeating element in an array of integers.
 - * Discussion on 8-Queen's problem
 - * Find if there is a triplet in a Balanced BST that adds to zero.
-

Second Round of Personal Interview

- * General discussion on BigData, as I have worked on Hadoop.
 - * Add 3 linked lists.
 - * Serialize and Deserialize a Binary Tree
-

Third Round of Personal Interview

- * Wildcard Matching
<https://oj.leetcode.com/problems/wildcard-matching/>
 - * Some bhaukaal question on graph.
 - * Discussion about Trie data structure, T9 dictionary.
-

Finally HR Round

General HR questions like-

- * Tell me about yourself
- * What you learned during your summer internship
- * 3 strengths and 3 weakness (Very tricky Question)
- * What do you know about InMobi
- * Why InMobi
- * Plan for further studies

Then the HR started telling me about the company, its policies, etc.

I follow GeeksforGeeks religiously and it helped me a lot! Hope this experience helps you too 😊

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455. Interview Experience at Optimus Information Inc.

The company conducted an off-campus drive.

Round 1 – Written Test.

Well, it was quite easy.

Total number of questions – 35.

Aptitude – 33.

Operating System – 1.

C – 1.

Aptitude questions were mainly related to amount of work done, colored cube questions and so on.

Round 2 – HR interview.

It was just a lookup to see if the candidate isn't dumb.

After this, candidates who cleared the two stages were called in the office.

Rounds at Optimus –

Round 1 - Surprisingly, another written test followed but the pattern was exactly the same. Difficulty level was also similar.

Round 2 – Small Technical Interview

By small I mean, it wasn't much extensive. It was just to see if you are a candidate capable enough to go for a higher level Technical interview. Basic DBMS questions (Normalization), SQL queries were actually difficult (nested), virtual function question in C++, method over-loading in Java and same stuff.

Important thing is projects. They can make you write the code for your project.

Round 3 – Machine Round.

In this, a basic question is given and you have to implement it programmatically. String and arrays are important topics for questions.

Round 4 – Technical round with Team Leader.

This is really tricky round. Learn your project's code by heart and I mean this. You must be ready to even write the whole project's code, literally. Be ready to defend your design pattern and SQL table structure (if any) in your project. Projects are a key for this round.

Round 5 – Technical round with the Co-founder

This is basically the same. Projects are the key. Be ready to tell what projects you are going to make after 6 months and what design pattern you have thought to implement. Also, you must prepare for a future project in terms of programming. This will make him happy. though, you must literally be prepared of the design pattern.

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456. VISA Inc. Interview Experience | Set 2 (On-Campus)

Visa Inc. (On – Campus, Day 1)

Preliminary Round :

75 minutes Test on Mettle.

Assessment Composition:

1. Coding Skills: 2 Questions
2. Programming: 10 Questions
3. Machine Learning Hadoop MCQ: 6 Questions
4. Networking MCQ: 6 Questions
5. Operating System: 6 Questions
6. Infrastructure: 6 Questions
7. Application Security: 6 Questions

On Campus procedure :

Round 1 :

- Projects, Internship
- Asymmetric and Symmetric encryption with some real world usage
- Concepts behind Digital Signature and Digital Certificates
- Detailed discussion on HTTPS
- Basic OS concepts : Threads, Mutex , Semaphores
- Basic OOPS concepts : Virtual functions , Function overloading and overriding , encapsulation.

Round 2:

- Projects , Internship
- Some discussion on Testing and how you would design a unit test case and a complete project test case. Discussion on Automated Testing.
- How does a Web application work.
- Software Development Models
- Discussion on interpreted language and compiled language
- Some DBMS basics for efficiency :- Indexing viz. B+trees , Hashing.
- Some discussion on Apple Pay , VbV (Verified by Visa) (informal)

Round 3 :

- Typical HR questions.

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457. LinkedIn Interview Experience | Set 3 (On-Campus)

LinkedIn Interview Experience (On Campus – Day 1)

Online Round :

3 coding Questions in 1 hour :

1. We have to implement int getIntComplement(int N) function , that will give complement (bitwise complement.) of b a given integer . Start unsetting from the left most set bit of the number. $0 \leq N \leq 50000$

Example:

Input: 10 (1010)

Output: 5 (0101)

2. There are "n" ticket windows in the railway station. ith window has a_i tickets available. Price of a ticket is equal to the number of tickets remaining in that window at that time. When "m" tickets have been sold, what's the maximum amount of money the railway station can earn?

exa. $n=2$, $m=4$

in 2 window available tickets are : 2 , 5

2nd window sold 4 tickets so $5+4+3+2=14$.

3. There is a particular sequence only uses the numbers 1, 2, 3, 4 and no two adjacent numbers are the same.

Write a program that given n_1 1s, n_2 2s, n_3 3s, n_4 4s will output the number of such sequences using all these numbers.

Output your answer modulo 1000000007 ($10^9 + 7$).

Interview Rounds :

Round 1 : Completely Resume based and Design problems

1. Design a work flow model of the entire work done in your internship.
2. Design a workflow model of any one of the projects you did. Grilling session.
3. A design problem of the sorts : You need to present a ppt to say N users who are viewing it live in their browsers. What you have is a web page where the ppt is opened and has say two buttons : next and previous. You need to design basically what will happen / how will pressing of the buttons reflect a change across all the users.(He wanted something as to how the DNS on processing the next request would change the URL and convey it to all connected users)
4. A map based design for implementing a code to check for isomorphic words in a file. Efficient approach.
5. <http://www.geeksforgeeks.org/design-and-implement-special-stack-data-structure/>

Round 2 : Projects and Coding

1. Discussion of the BTP project (especially asked)
2. <http://www.geeksforgeeks.org/connect-leaves-doubly-linked-list/>
3. <http://www.geeksforgeeks.org/dynamic-programming-set-12-longest-palindromic-subsequence/>
4. Given a word , you need to check if any permutation of the word would be a palindrome. eg) BALL : false , HANNA : true

Round 3 : Coding

1. <http://www.geeksforgeeks.org/serialize-deserialize-binary-tree/>
2. <http://spin.atomicobject.com/2014/08/11/fisher-yates-shuffle-randomization-algorithm/>
(Algorithm + mathematical aspects related to equal probability)
3. http://www.wikiwand.com/en/Rolling_hash —> Had used this in my algorithm project and was hence asked

Round 4 :

Don't remember all the questions I was asked. Large set of questions pertaining to DBMS.

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ONLINE ROUND:

3 coding Questions in 1 hour :

- 1) Given a binary search tree and a key, if found return 1 else -1.
- 2) Given a string find the number of distinct substrings (should optimise time and space complexity)
- 3) Given a string finf the number of distinct palindromic substrings(should optimise time complexity)

INTERVIEW ROUNDS:

Interview 1:

- 1) Given a boolean expression find the number of ways to paranthesise it so that it evaluates to true
- 2) <http://www.geeksforgeeks.org/dynamic-programming-set-31-optimal-strategy-for-a-game/>
- 3) Given n stairs , you climb 1 , 2 or 3 stairs at a time . Find the number of ways to reach the nth step

Interview 2:

- 1) Given the pointer to the root of the tree and two values val1 and val2 . Find the length of path between the values val1 and val2 in the binary tree. { handle corner cases where both the values are on the same path}
- 2) Given a mapping between numbers and alphabets . Find the number of ways to decode a sequence of numbers

eg: a - 21 b - 2 c - 54 d - 5 e - 4 f-1

2154

- 1) ac
- 2) ade
- 3) bfc
- 4) bfde

4 ways to decode

Interview 3:

- 1) Given a matrix of 0 s and 1 s Find the number of connected components having 1s

0	0	1	0	1
0	1	1	0	1
0	0	0	1	1
0	0	1	1	0

The above matrix has 2 components

constraints: Time complexity O(N) space complexity O(1)

- 2) Given a tree check if it is a binary search tree or not constraints: space complexity O(1)

Interview 4: (HR+Technical)

- 1) Asked questions on my resume and challenges faced in my project
- 2) Showed me www.amazon.com page and asked me how to design the backend database so that it supports functions like displaying entire information about a product , its average rating and number of customers who gave each rating etc.

Overall the experience was good and the interviewers were friendly. I would like to thank geeksforgeeks.org which helped me throughout my preparation.

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459. Microsoft Interview Experience | Set 41 (On-Campus)

MCQ Round:

15 MCQS were asked on c,c++, OS.

Coding Round:

- 1) Given a linked list of co-ordinates where adjacent points either form a vertical line or a horizontal line. Delete points from the linked list which are in the middle of the line

Eg :

```
(0,10) -> (1,10)->(5,10) -> (10,10)
          |
(10,5) -> (20,5) -> (40,5)
```

should be changed to

```
(0,10) -> (10,10)
          |
(10,5) ->(40,5)
```

- 2) Given a sorted array,convert it into bst

Group Fly Round:

<http://www.geeksforgeeks.org/a-linked-list-with-next-and-arbit-pointer/>

The code should be written on paper and should be error free. No extra space should be used.

Interview 1:

- 1) Given a linkedlist of moves of 2 players in tic-tac-toe game . Find who has won the game.

Interview 2:

- 1) Given a pile of 9 objects. 2 players take turns to pick 1 , 2 or 3 objects . The last one to pick is the looser. What is the winning strategy? Wining strategy for 9 coins
- 2) Asked to how to design a cache for dns records. I have told different approaches like First-in-First-Out, less frequently used, least recently used... He asked me to tell the strategy and code it. I told LRU and implemented this.
<http://www.geeksforgeeks.org/implement-lru-cache/>

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460. Amazon Interview Experience | Set 156 (On-Campus)

Written Round:

There were 21 mcqs and 2 coding questions hosted on hackerrank.

Time: 1 hr 30 mns.

The mcqs were from c, c++, os, networks for example

1. LDAP stands for ?
2. $2^{30} + 2^{30} + 2^{30} + 2^{30} = ?$
3. Given three process P, Q, R . P requests resources A, B, C, Q requests B, C, D and R requests C, D, A which of the following orders is deadlock free
4. Given a postfix expression find the value of expression
5. Which of the following is the inorder traversal for the given pre order traversal
- 6 Question based on the precedence order of operators

Coding questions:

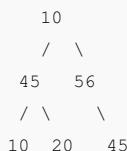
- 1) Given a graph. Find if a cycle exists and print the nodes in the cycle. If multiple cycles exists print the cycle starting from the lowest index
- 2) Given a string S and a string T, count the number of distinct subsequences of T in S.
S = "rabbbit", T = "rabbit"
- 3

Interview 1:

- 1) Find the diameter in given tree which can start at any node and can end at any node and should have only single turn.



5-10-8 has two turns



10-45-10-56-45 has 1 turn

20-45-10-56 has 2 turns

2) <http://www.geeksforgeeks.org/find-number-of-islands/>

Interview 2:

- 1) <http://www.geeksforgeeks.org/dynamic-programming-set-32-word-break-problem/>
- 2) <http://www.geeksforgeeks.org/given-array-strings-find-strings-can-chained-form-circle/>
- 3) What datastructure will you use for designing lift
- 4) Efficient data structure for minimising the following operations if we have an array arr[0 . . . n-1].
 - a) Add a value x to array from index l to r where $0 \leq l \leq r \leq n-1$
 - b) Find the value of a specified element of the array arr[i] where $0 \leq i \leq n-1$.

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461. Accolite Interview | Set 2 (On-Campus)

Accolite came to our campus for recruitment.

First Round Written Test:

30 MCQs in which question related to DS Networking OS Unix commands DBMS.

Questions were easy.

They selected 7 students out of around 60 students for next rounds.

Tech Round 1: First of all interviewer see my resume then asked about the projects that I have done.

1. He asked to write a program to print right view of binary tree. First he asked me approach. I told him two approach one iterative and other recursive .Then he asked to write code for iterative version considering all corner cases.
2. He write an array A[n][2],where n is no row , 1st column contains child node and 2nd column contain parent node. A node can have any no of child. You have to find no of distinct groups.e.g.

```
A1 A  
A2 A  
A3 A  
A21 A2  
A31 A3  
A22 A3  
A33 A3  
B1 B  
C2 C
```

O/P is 3 because when we create graph between parent and child then no of disconnect graph will be 3.I

told him to create a graph then find no of disconnect components using DFS but he asked to solve without creating graph i.e. only using the given matrix. Then I told him an approach he was satisfied with that.

One more ques that I forget.....

After this round 4 were left.

Tech Round 2: In this round interviewer was a very cool and friendly person. When I entered into the room he was doing something with his laptop and then he asked about me after that he draw a picture and asked my opinion on that.

1. Row and column wise sorted matrix was given you have to find kth smallest element. I know the solution but I said him push all elements to min heap and then pop min from heap k times then he asked me to optimize it .Then I told him using min heap of size k then asked me write the code I couldn't write complete code he said ok u.

2. 3 balance are given and weight on each balance and weight of each balance is given .then 3rd balance is kept on right side of 2nd balance and 2nd balance is kept of right side of 1st balance .I have to find how weight I need to balance all the 3 balances.

I told him approach then he said write the code as quick as possible. I completed the code and then go through my code and said go for next round.

After this round 2 were left.

Tech Round 3: In this round interviewer was very serious. 1st he go through my resume and then asked about myself. Then he asked do u know java I said NO .then asked about my projects that I've done.

1. He asked to find root to leaf path having path sum equal to K.
2. Merge two sorted linked list.

HR ROUND: This round was just for formality. She(HR) asked me that what do u know about ACCOLITE,

I told him something about the company and asked why ACCOLITE ,my strength weakness etc.....

And then she asked to wait for results.

After this round only I was left and waiting for results

Finally she called me, all the interviewer were present in room and they said u have done well up to this level but they some doubts choose a language JAVA C OR C++ I choose C.I was given a plane paper asked me solve it.

THIS WAS JUST A PRANK AND THE EVERY LAUGH AND SAID U R SELECTED
AND then everyone congratulated me and gave me some goodies.....

I would like to thank geeksforgeeks which helped me enormously in getting placed.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

462. Target Corporation Interview Experience | Set 1 (On-Campus)

ONLINE ROUND

31 Questions in 60 minutes.

30 Quantitative and Computer Fundamentals Questions

1 Coding Question:

Obtain the number of Trailing zeroes in the factorial of a given number N.

About 27 students were Shortlisted for interviews after this.

Interview 1: (Technical)

- 1) Remove Duplicate from an array.
- 2) Explain Merge Sort and Quick Sort.
- 3) What Data Structure does Quick Sort remind you of?
- 4) Given a number N find the nearest perfect square.

eg:

i/p : 17

o/p : 16

- 5) Questions about my projects.

Interview 2: (HR Questions)

- 1) Problems faced during the project.
- 2) Biggest achievement of life.
- 3) And some 3-4 more questions(Don't Remember exactly)

Interview 3:(Mixed Questions)

- 1) Questions related to resume(About 4-5).

- 2) Was asked my favourite subject in my department(Not CS).
- 3) Questions on how would I use that knowledge in Retail Industry.
- 4) And a few more Questions from my Resume(Don't Remember Exactly).

Overall Experience was Very Good and the Interviewers were the very friendly.

I would like to thank www.geeksforgeeks.org which helped me throughout my preparation in such a short duration of time.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

463. ServiceNow Interview Experience | Set 3 (On-Campus)

1st Round:

MCQ test consisting of 30 questions to be done in 30 minutes with from topics like Trees, Graphs, SQL, Data bases, Computer Architecture, Operating Systems & Computer Networks.

2nd Round: (45 minutes)

1. AVL tree balance checking.
2. Median of 2 sorted arrays in $O(\log N)$ time complexity and $O(1)$ space complexity.
3. Strings Anagram in $O(1)$ space complexity
4. Level order traversal of a tree using Queue.
5. Reverse level order traversal of a tree using Queue.
6. BFS and DFS Difference.
7. OS Concepts – Starvation, Demand Paging, Virtual Memory, Deadlocks

3rd Round: (45 minutes)

1. Find product of each element of an array except that element in $O(N)$ time complexity without using / operation.
2. Recursively deleting linked list.
3. Recursively deleting linked list from end
4. Recursively deleting tree
5. Recursively deleting from end
6. Difference between Floyd Warshall and Djikstra.
7. Shortest path between 2 points in 2-D space in $O(\log N)$ time.

4th Round: (30 minutes)

1. Design a system for putting newspapers using classes and functions taking different aspects into account.
2. SQL commands.

3. Machine learning concepts: Clustering, SVM

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464. Amazon Interview Experience | Set 157 (On-Campus)

Online Round

Initially a test was conducted on hackerrank on the basis of which students were shortlisted. The test contained 22 questions, 20 Gate like MCQ's and 2 Programming questions. The MCQ's were on OS(page replacement policies), output, trees etc.

The programming questions are as follows :

1) <http://www.geeksforgeeks.org/maximum-of-all-subarrays-of-size-k/>

10 Bonus marks were there if one could solve in $O(n)$ time.

2) Given 3 numbers in the form of linked list. Give the sum of the 3 numbers as another linked list.

Example: $1 \rightarrow 2 \rightarrow 3 + 2 \rightarrow 1 \rightarrow 3 + 3 \rightarrow 2 \rightarrow 1 = 6 \rightarrow 5 \rightarrow 7$.

A slight variation to this question :

<http://www.geeksforgeeks.org/sum-of-two-linked-lists/>

They shortlisted around 30 people for the interviews. Since some of them got placed on day 1, they were extending the shortlist on realtime also. There were 4 rounds in total. Every round was an elimination round. In each round, I was asked to explain the algorithm as well as implement it on the paper. Every interview started with the typical "tell me about yourself" ice-breaker.

Round 1 (Technical)

1) Finding LCA in BST.

<http://www.geeksforgeeks.org/lowest-common-ancestor-in-a-binary-search-tree/>

2) Finding LCA in Binary tree

<http://www.geeksforgeeks.org/lowest-common-ancestor-binary-tree-set-1/>

3) <http://www.geeksforgeeks.org/a-product-array-puzzle/>

Round 2 (Technical)

1) <http://www.geeksforgeeks.org/print-a-given-matrix-in-spiral-form/>

2) You are given 'n' appointments. Each appointment contains starttime and endtime. You have to return all conflicting appointments.

3) Some basic discussion on memoization and dynamic programming.

Round 3 (HR + Technical)

- 1) Tell me about yourself.
- 2) Why Amazon?
- 3) Where do you see yourself after 3 years.
- 4) What are your weaknesses? I said one, he asked me one more?
- 5) Lot of questions on my internship project and on the technology used in it, challenges that I faced, best thing I liked about the technology etc etc.
- 6) Some question on my hobbies.
- 7) Finding LCA of a tree whose nodes has only parent pointers.
- 8) Implement a stack from 2 queues.
- 9) Implement a queue from 2 stacks.
- 10) Design classes for a Snake and Ladder game. The focus was on OOPS concepts.
- 11) Some more question on my projects and resume that I don't remember.

Round 4 (Technical)

- 1) Rotating an array. (All approaches)

<http://www.geeksforgeeks.org/program-for-array-rotation-continued-reversal-algorithm/>

<http://www.geeksforgeeks.org/array-rotation/>

- 2) <http://www.geeksforgeeks.org/search-an-element-i-n-a-sorted-and-pivoted-array/>

In all the interviews, the approach is seen, so taking out loud what you are thinking is must. Its good to point out the problem(s) that are the crux of the question and solving it would lead to the final solution. The interviewers are always very helpful, they give hints whenever required. Just being calm, composed and patient during & between interviews and studying geeksforgeeks will do the work.

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465. Interview Experience with Synopsys – On Campus

1st Round:

MCQ test consisting of 60 question from Quantitative Aptitude, Logical Ability, C, C++, Algorithm, Data structures, Digital Design.

2nd Round: (20 minutes)

1. Discussion on my internship projects and thesis projects.
2. Courses done during the study period.
3. Explain shortest path algorithms and minimum spanning tree algorithms.
4. Applications of BFS and DFS

3rd Round: (30 minutes)

1. Discussion on my internship projects and thesis projects.
2. Courses done during the study period.
3. Balanced tree checking
4. Tree Rotations
5. Machine Learning : Clustering, SVM
6. OS Concepts: Deadlock, Scheduling
7. Constructors and Inheritance fundamentals.

4th Round: (30 minutes)

1. Closing cluster of points within a boundary (NP-Hard Problem). Suggested a solution for this.
2. Bounding box solution for the cluster of points.
3. Disadvantages of Macro
4. BST and applications.
5. Loop in a linked list and how is a loop different from circular linked list.

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466. Snapdeal (Software) Interview Experience | Set 1 (On-Campus)

Prelims: 1 hr online test (held in all IITs at the same time). 25 questions of which 22 MCQs (puzzles, P&C, coding..basically all those genres you expect from any standard Software Developer profile test) and 3 coding questions (typical geeksforgeeks questions). You might think time is less, but if you're very thorough with geeksforgeeks, the coding questions shouldn't take more than 15 mins.

Interview :

It was a three rounds affair. Two technical followed by an HR (good thing is they let you know who all are there for the next round, so that you don't waste your time much around there).

Round 1: It'll range from the very very basics of programming to the toughest of DPs. In between questions were being popped up on your projects. If you've some worth-discussing development projects in your resume (like I've my BTP and an Android game), substantial amount of time goes in discussing that. The questions I was asked were :

- fibonacci series (both recursion and memoisation and why memoisation solution is better than recursion).

- Tree traversals and write the codes for inorder and postorder WITHOUT RECURSION (prepare very well for this without recursion solution as many companies ask).
- simple 0,1 – knapsack DP
- <http://www.geeksforgeeks.org/largest-rectangle-under-histogram/> (I managed a O(n²) solution there)
- Propose a datastructure which you'll use to implement the swipe feature in today's keyboards (came with a decent enough solution though the complexity was bad)

The last two questions were almost unanswerable from my side, but the key thing is DON'T GIVE UP. They're looking for people who don't give up a fight. And at the end, if interview went decent enough, ASK for the solutions of the unsolved questions.

Round 2: Director (search) had come along with the recruitment team this time. So, he was only taking the rounds for all the candidates in this round. Summary, two questions, one I managed somehow other one way beyond my comprehension.

- You've a universe of infinite points separated by finite measurable distances. Give me the most efficient solution to find a pair of points that have the minimum distance in the entire universe. (I proposed Floyd Warshall, but these are infinite points, not finite)
- I've to find a point in a 2D matrix which is sorted row-wise left to right and column-wise top-bottom. This has to be done in O(n + n) complexity. This is a standard question, but I just couldn't remember the procedure. And since he was sitting in front of me all the time, pressurized, I came up with some solution using Binary search.

After these two, he asked me if I'd any questions for him. I asked about the work culture and what kind of people he was looking for. It'll give you an idea whether you're selected or not. Be eager to hear the answer he gives and feel attracted to the prospects he puts forward about the company! **AGAIN IMPORTANT, DON'T GIVE UP ANY QUESTION. UNTIL HE DECIDES TO MOVE ON TO THE NEXT.** If you're not able to come up with a solution. Don't panic. Show your fighting spirit.

Round 3: HR. Be well prepared with your strengths and weaknesses. Be prepared with questions like:

- if your colleague is slow in catching up and deadline is fast approaching, what will you do?
- your manager from the beginning has set high expectations on you and you've proved your worth to him. But one time, he assigned you something which no matter how much you try you just can't understand and you've gone blank! What will you do in this case then?

MOST IMPORTANT here is DO NOT FAKE your personality here. They're HR guys, they're trained to catch the FAKE ones. So, be genuine and APNI DIL KI BAAT

BOLNA!

BEST OF LUCK!

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467. Amazon Interview Experience | Set 158 (Off-Campus)

Recently I appeared in for off-campus Amazon Interviews for SDE position and here is my experience.

Round 1: 1 hour written test

Q1. Given a string you need to print all possible strings that can be made by placing spaces (zero or one) in between them. For example : ABC -> A BC, AB C, ABC, A B C

Q2. Given a tree where there are three pointers (`left_pointer`, `right_pointer` and a `next_right_pointer`). Left and right pointers are set like that of any general binary tree. We were asked to set the `next_right_pointer` to the next node in the level order traversal for the same level. This implies means for the last node in every level it will be null for rest it will be pointer to the next node in level order traversal.

Round 2: 1 hour technical

Q1. There is a 12 km road and a contractor who is in-charge of repairing it. Contractor updates you about the work which is done in patches. Like “Road between 3.2 km to 7.9 km repaired”, “Road between 1.21 km to 3.2 km repaired”. You have a manager who enquires about the longest continuous patch so far. It was a long discussion and I gave solution in $O(n \log n)$ where n is the number of updates by the contractor.

Q2. Several Questions were asked from my project.

Round 3: 1 hours 20 mins

Q1. There are billions and billions of stars and at any point of time you need to tell the closest million to earth. In what way I should take input for the stars and what all do I need to represent one. I used heap of a million size. Then he also asked about the different approach when I can't use so much of physical memory for heap.

Q2. Implementation of Least Recently Used Cache. I started with $O(n)$ solution using queue and ended up with $O(1)$ solution using heap and doubly linked list.

Q3. Basically it was from snakes and ladders game. There is $n \times n$ matrix and you are at

starting position. What is the no. of ways to reach n-square position if your next move will be dependent on number on dice? You have been given information about ladders (there are no snakes J). I used DP.

There were few others that we didn't discuss as I told him that I know solution to them.

Round 4: 1 hour

Q1. Write an efficient program to count number tree structures that can be made using n number of nodes.

Basically $T(n) = \sum T(i) * T(n-i-1)$. I used DP as there are a lot of sub-problems used again and again. $O(n^2)$.

Q2. There are n nuts and n bolts represented in two different arrays and a function `is_fit(nut_i, bolt_j)` which returns 0 if its perfectly fit, 1 if it's a tight fit and -1 if its loose fit. I was asked to arrange them so that every nut fits perfectly with the bolt in the same position (there is one nut for every bolt that fits perfectly). I suggested $O(n\log n)$ solution.

Q3. Find the kth largest element in a BST. Well that was easy J

We discussed about projects and he asked reasons for leaving present company.

Round 5: 1 hour hiring manager round

Most of the questions were behavioral questions like dealing with manager in case of conflicts, reasons for leaving present company, why would you choose Amazon and not Flipkart if you have offers from both, about my projects and contribution to present company.

Round 6: Technical + Behavioral

Q1. How to know the time between someone writes Amazon.com and the page appears on his browser for a particular user. I impressed him by suggesting to use dummy request packets after the page is loaded completely sending the time J.

Q2. He showed me the Amazon page they were working at that time and I asked me to suggest 5 changes in 5 minutes.

Q3. <http://www.geeksforgeeks.org/find-a-tour-that-visits-all-stations/>

I messed up with the solution in the beginning but reached to solution eventually.

Many behavioral questions were asked too.

TIPS:

1. Don't jump into solutions, ask about the type of input that is given and output that is expected.
2. The interviewer always tries to take you to the most optimal solution so listen to what all he says. Many a times they are big hints !!!
3. Be honest.

4. Keep believing that you will get the job J.

I would like to thank geeksforgeeks team for such an amazing platform to learn and discuss with other geeks.

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468. Bharti SoftBank (Portal Team) Interview Experience (Off-Campus)

I was interviewed for Android Developer.

Round 1 :

Discussion about Android basics and Java.

Optimized technique to fetch ListViews from database v(assuming you have no temp buffer)

ListView Recycling

Image caching

Questions on cache in Android

Inheritance in Java, Interfaces

Comparison of C++ and Java interms of Inheritance

Memory allocation for 2D array using pointers in C++

Alternative for pointers in Java

SoftReference and Weakreferences in Android

Activity lifecycle in android

Fragments, Fragment lifecycle in android

Find if two linked list merge, get the merging point

Calculate the velocity of a swipe done by user on mobile screen.

Round 2 : (Simulation Round)

They give you a problem to implement in 3 hours. We can use any language, any library or any framework.

I was given to develop a Broken Link Detector :

1. A URL good be given as seed URL
2. Fetch all the pages on this webpage

3. Check all broken links (those link are broken which give HTTP code other than 2xx OR 3xx)
4. If the link is not broken and is of the same domain, repeat steps 2-4 for this.
5. The final output should be txt file which stores all broken links corresponding to which webpage they occurred.

After the implementation, the interviewer saw the whole code, discussed the whole logic. Asked about optimizations which can be added.

I was even asked to implement the optimization (adding Thread Workers and concurrency) after going back and send him the code.

Round 3 : (with CTO)

Behavioral questions – Tell me about yourself, your projects, why do you join BSB, etc.

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469. [TopTalent.in] Exclusive Rapid Fire Interview with Deepali Who Got Into Facebook

Even if we were to search around the world, it would be a truly difficult job to find someone like Deepali. As a Computer Science Graduate of IIT Bombay, she successfully bagged a job offer from an astounding company – Facebook. Even though it's a rare feat, she doesn't consider it a rare one. We at [TopTalent.in](#) got a chance to interact with Deepali Adlakha from IIT Bombay about what made this possible and what others can learn from this.



In case you are wondering how the resume of a Facebook recruit looks like, you can [download](#) the resume by logging in.

TopTalent: How do you feel on achieving this rare feat?

I don't consider it as a 'rare' feat, many people have got such good offers in both present and past.

TopTalent: What other offers did you get apart from Facebook?

Facebook was one among my top preferences, I got the offer from Facebook and hence I was out of the placement process. So, one does not get more than one offer.

TopTalent: Can you brief us the interview process?

Facebook had one coding test, after which there were three rounds of interview. All the interviews tested your technical knowledge.

TopTalent: Can you give us a brief account of what you felt was the toughest interview?

I gave interviews to Facebook, Google and Microsoft. In all interviews, the student is tested on his/her thought process, how he/she arrives at the answer rather than just the answer.

TopTalent: What was your preparation strategy?

I practised coding, answering algorithmic design questions. I had a rough overview of all my courses, hence I didn't spend much time revising them.

TopTalent: What kind of skills do you think helped you getting this job?

A student should know how to code, both on paper and on the system, that is it.

TopTalent: What resources did you consult? Where did you practice problems from?

I used Hackerrank and Codechef for practicing problems.

TopTalent: Were grades a factor in you getting selected?

Good grades is definitely a plus point, but it is neither necessary nor sufficient.

TopTalent: What's your advice to students who are aiming for similar placement offers as yours?

Relax and prepare hard. You will get what you wish for.

Incase you forgot, you can [download](#) the resume by logging in.

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470. Amazon Interview Experience | Set 159 (Off-Campus)

I recently got an offer from Amazon Delhi. Here goes my interview experience.

Telephonic Round

Q1. Find kth element from the end of a singly linked list.

Q2. Given an array (not sorted) of integers and a number S, find a pair in the array whose sum is equal to S. I gave the sorting solution and was asked to write the code for the sorting algorithm I used. I had used in-place merge sort.

F2F Delhi

1st round:

Q1. Detailed discussion on all possible data structures which can be used to implement a set with no duplicates and which supports add, delete and find operations in minimum space & time complexity. I suggested using hashing, BST or array. They asked me to give an example of a hash function which supports uniform distribution but is not collision free. Was asked to write codes for add, delete and find operations using BST.

2nd Round:

Q1. Rotate an image represented by a 2D matrix by 90 degree.

Q2. Given a singly linked list of 0s and 1s, sort it keeping the order intact. I gave O(N) time and O(1) space complexity solution.

3rd Round:

Q1. Discussion on projects and previous work.

Q2. Given stock prices of several days, find the two days so that buying the stock on 1 and selling it on another gives the maximum profit. O(N) time and O(1) space soln was expected.

Q3. Given a doubly linked list, reverse every 2 nodes. E.g. 1->2->3->4 will become 2->1->4->3

Q4. Several questions on OS, OOP, A few are what is segmentation fault, describe the design patterns you know.

4th Round:

This round was Bar-raiser round. A bit tricky.

Q1. Detailed discussion on projects, best project you have got, the most challenging work, strengths, weaknesses etc.

Q2. Given a dump of items sold in a file (not organized), give the top n items sold. Eg. the file looks like:

```
< item1 sold >  
< item2 sold >  
< item1 sold >  
< item9 sold >
```

Also, there might be same items sold but they might have different names because of different vendors. So you also need to count them together (Hint: Use ids of the items).

Hint: Use grep command to get the counts.

Q3. Collect email-ids of all the persons above 18 yrs in a city. He wanted to see my way of thinking and how do I use software approach towards daily life problems.

Q4. There is a signal and two way traffic. Cars are coming @rate 10 cars/sec. Signal remains green/red for 10 secs and when the signal is green, 10 cars/min can cross the

signal. You need to tell how many cars are in the line waiting behind the signal on both sides during a particular time. Say you run the simulator at time 0, now after 1 hour you need to tell the no. of cars waiting on both the sides.

I didn't get selected after this but got a call after 1 month as they wanted to reconsider my profile.

F2F Hyderabad

1st Round:

Q1. Some discussion on previous work.

Q2. Given a sorted array S of characters say $S = \{'a', 'd', 'g'\}$, you need to find the insertion point of a given character in it such that if it is less than 'a', insertion point is 0, if between 'a' and 'd', insertion point is 1 and if greater than 'g', again the insertion point should be 0. $O(\log n)$ time soln was expected.

Q3. Given a complete binary tree, connect nodes at the same level without using any extra space.

Q4. Given a dictionary of unknown language, you need to give the sorted sequence of characters in it.

E.g.

Dictionary looks like:

ABCDE

CF

DG

so the output may look like: ABCDEFG

Hint: Topological sort

2nd Round:

Q1. Given two arrays S1 and S2 of characters. You need to find the smallest length of substring in S1 which contains all the characters of S2. Characters need not be in the same order as in S2. Characters might be repeating in S1.

Q2. Given a dictionary like text file, find n top occurring words in it i.e. n words whose count is the maximum. Hint: Use Hashing and Min-Heap.

I would like to thank geeksforgeeks as it helped me a lot while preparing for the interviews.

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Written:

Question 1. Suppose u have given a string like 123456342184321 and second string like 1234. Find all permutations of second string (1234) in first string. You have to give count of all the permutations. So for above example, first is:1234 second is 3421 third is 4321, hence output shud be 3.

Qestion 2. MS Excel columns has a pattern like A, B, C, ..., Z, AA, AB, AC, ..., AZ, BA, BB, ..., ZZ, AAA, AAB etc. In other words, column 1 is named as "A", column 2 as "B", column 27 as "AA". Find Excel column name from a given column number like 705 AAC.

Interview.

Questions on Redblack tree , binary search tree,maximum continuous subarray, maximum subarray with alternative index, more questions on array.

You have given number of notes like 1,5,10,20..make some amount using minimum number of notes(write code for it), questions on linked list, tree, mirror image of binary tree, Trie data structure, ancestor of a given node in binary search tree,how tcp ip network works complete working ,comparison of tcp and udp where they can be used etc.

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472. Adobe Interview Experience | Set 18 (For WBT Profile)

Following is my Interview experience in Adobe Bangalore for the profile of White Box Test Engineer.

Written Round

There were two parts technical and aptitude

1. Aptitude questions(MCQ) were fairly easy,simple mathematical,geometrical problems,profit and loss etc Also Logical questions with paragraph..(R.S. agarwal is enough)
2. 30 Technical question(MCQ) related to C and C++ , 2 programming questions(String permutation and Reversing linked list) , one question about two phase commit protocol and difference between hub and switch

After 30 days of long wait, I got call that I have been shortlisted for the Further rounds.

F-2-F Round 1:

Starts with Brief introduction.

1. Questions related to my previous company work, meaning of Unit testing, Integration Testing, Which Software Model is used etc.
2. Test Cases of Mobile for rural area for hardware as well as software point of view.
Long discussion on this.
3. Design a clock in which if you want to know about time in any region of this world, you can know . Hardware given is such that it has already built calculation device inside it.
Long Discussion on various approaches.
4. famous Puzzles a) Measuring 4 liter water from 3 and 5 liter. b) 3 bulbs 3 switches, here is the link <http://www.programmerinterview.com/index.php/puzzles/3-switches-3-bulbs/>

After this Next 2 rounds are video conferencing(V.C.) rounds as Hiring was for Noida campus.

V.C. Round 2:(Hiring Manager Round)

Starts with Brief introduction.

1. Write a C/C++ function for removing extra spaces in given sentence.
2. Write a various test cases for checking the functionality of Adobe reader while saving it . Long discussion on it.
3. Find a 3 digit Number abc such that $abc = a! + b! + c!$. Ans is 145. He then ask me the approach how i got it.

After this he briefly explain the Job profile in which I have to work if I got selected. He also asked about testing methodology that I have been doing in my current company.

F-2-F Round 3 H.R.:

After Hiring manager round, There was H.R. round. He was a really cool guy. He asked me about previous interviews how it went. Then he asked me about my long term plans if i got selected, about my family, My qualifications etc.

He also asked me about C.E.O. of adobe.

V.C. Round 4:

1. Write a C code for converting a string from a2b2c5 to aabbccccc. Then make it generalize. Various Test cases of it
2. About testing tool that i used in my current company, Various functionality of It.
3. Puzzle : There is a pond in which there is x kg ice on 1st November, it becomes 2x on 2nd November then 4x,8x,16x,32x and so on. Like this whole pond is filled with ice on last day i.e. 30th November. On which day pond was filled with half the ice ?
4. Puzzle: you have 100 coins on table, 60 heads and 40 tails. With your eyes closed, how can you separate the coins into 2 groups such that each group has same number of tails.

5. Write a C function to convert array {1,3,5,7,2,4,6,8} to {1,2,3,4,5,6,7,8}. Then make it generalize. Various Test cases of it.

Many C/C++ concept were discussed on this round like friend function, Inheritance etc.

F-2-F round 5:

Starts with Brief introduction.

1. About some commands in UNIX , use of wild card character etc. Then he asked me how you open notepad without using mouse.(simple),then he explain the internal logic behind this like what will happen if you press ctrl+s,ctrl+o etc. After this He gave me array of strings such that each string must have '\$' character, I have to write a C code to find whether there exist two strings having same character just after \$.(also simple).
2. Difference object oriented concept like function overloading. why C does not support function overloading as there is a concept of variable number of arguments in C? , explain with example.
3. Different searching methods and its complexity, Hashing. How you search words in dictionary?

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473. PayU Interview Experience | Set 4 (For Fresher)

Here's my interview experience at PayU india (fresher).

Round 1

Firstly, a discussion of projects in resume and a detailed chat on my internship

1. Search for an element in a pivoted array. (Only logic and pseudo code)
2. Find middle node of a linked list. (Tested a lot by asking questions)
3. LCA in binary tree. (Complete code was required).
4. A puzzle which I can't recollect. (Was not common)
5. Was asked to design corpus search engine. He told me the basics and I gave ideas based on what I could think of . (Came close to a good design)
6. Some OS questions like mutex and paging.

This round well and I qualified for next round.

Round 2

Again, a detailed discussion on projects and internship. This round had very less DSA.

1. <http://www.geeksforgeeks.org/given-only-a-pointer-to-a-node-to-be-deleted-in-a-singly-linked-list-how-do-you-delete-it/>

2. <http://www.techinterview.org/post/526370758/100-doors-in-a-row/> (With proof)
3. Asked about semaphores, race conditions, deadlock etc. Asked me to implement a situation.
4. Databases – Gave some data in the form of tables and asked questions on inner join, normalization etc.
5. Again a very hard puzzle, can't remember it. (Was not common)

This round didn't go well as I was not good at OS and DBMS. So, prepare those sections as well apart from DSA. I was rejected after this round.

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474. Qubole Interview Experience

Here's my experience of Qubole interview.

Input:

Was csv files of fb users data.

Questions for above Input:

1. Parse the data and build a graph.
2. Check if two users are friends.
3. Check if two users have a friend in common.
4. Find total mutual friends for a pair of users.
5. Find potential friends based on mutual friend count.
6. How will you do this for large datasets ?

OO code was required which had a good design and was well commented.

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475. Housing.com Interview Experience

Here's my Housing.com interview experience.

Round 1

A discussion on resume, internship and projects. A project on Search engine (was on resume) was spoken in detail and a lot of questions was asked on it.

1. <http://www.geeksforgeeks.org/maximum-of-all-subarrays-of-size-k/>
2. <http://www.geeksforgeeks.org/reverse-a-list-in-groups-of-given-size/> with code.
3. <http://puzzlersworld.com/interview-puzzles/10-black-socks-10-white-socks-puzzle/>
4. OS questions like mutex,semaphore and DBMS ACID property.

Round 2

1. <http://mathoverflow.net/questions/18288/ants-on-a-rod-puzzle> (A variation of this)
2. <http://www.geeksforgeeks.org/dynamic-programming-set-14-variations-of-lis/> . The bridge problem of LIS.
3. <http://www.geeksforgeeks.org/level-order-traversal-in-spiral-form/> with full code.

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476. Global Analytics Interview Experience

Written:

Question on files and hash table (it was a kind of dfs searching ..).

Essay writing :

2 topics were there write any one of them (300 words).

Interview:

1 hrs discussion on the code given in written round, explain complete code ,find any mistake correct it (i did one mistake so i corrected that).

Question on DBMS like normalization , join..etc

Synchronization, Mutual exclusion , Semaphore its importance, counting and binary semaphore, functions of operating system , Diamond problem in c++ , how u will resolve this , multiple inheritance , interface in java , compiler vs interpreter , pointer vs reference variable , how u will access private member of a class ...and more question from technical subject don't remember write now.

Puzzle :

1. A chess board is given (as we know that it is having black and white color) . Now u

are allowed to choose any shape (like 2 by 2 or 4 by 6) ..if u choose any shape then black color become white and white become black..so now at the end u need complete chess board black colorhow many selections u will do (minimum).

2. You have 3 baskets, one with apples, one with oranges and one with both apples and oranges mixed. Each basket is closed and is labeled with 'Apples', 'Oranges' and 'Apples and Oranges'. However, each of these labels is always placed incorrectly. How would you pick only one fruit from a basket to place the labels correctly on all the baskets?

Thanks geeks for geeks 😊

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477. Citrix R&D Interview Experience | Set 3 (On-Campus)

Written Tests:-

There was a 1 hr aptitude test & 1 hour coding round. The aptitude test had simple questions on c/cpp, Networking, OS etc. and some general quantitative aptitude questions.

The coding round had 2 questions to be done in an hour.

Q1: A matrix of 1s & 0s are given, you have to find no of groups of adjacent 1s. Adjacency was based on 8-connectedness. (Finding no of components in an undirected graph) (Islanding problem :- <http://www.geeksforgeeks.org/find-number-of-islands/>)

Q2: A number is given and you had to translate it to string form (Indian system – lakhs, crores etc. not millions, billions etc.) The word “and” had to be added at the appropriate place (after 100s place if there was a digit in 10s or 1s place)

101 => one hundred and one

2311 => two thousand three hundred and eleven

900020 => nine lakh and twenty

35 => thirty five

3 => three

1<=N<=999999999

Round 1(Technical)(45 mins):-

How are you today?

(While scrutinizing my resume) Tell me about yourself?

Why Software, Why not Electrical?

Which language do you prefer.? C or java(As majority of my work was in Android development, I told her java)

Which data structures do you like most? (I told her Linked Lists and trees)

Write any code of any data structure? (She wanted to check if I'm not bluffing them by writing data structures as my area of interest). I wrote the code in C.

She started to pick some projects of mine and also asking me to explain them

What is a web server?

How do you connect your android app to a web server?

Full form of http? (I dodged that by saying I'm not into networking)

Any Questions for us.?

-> I asked them as the company's name suggests what research work they do.?

-> How would I be contributing to research work, If I'm hired.?

-> Is there any chance of getting promoted to Citrix U.S ?

-> What kind of work environment is there in Citrix.?

She gave me a hint that she was impressed by my work and I'd be interviewed for the second round

Round 2(Technical)(1.5 hrs approx):-

He took a glance at my resume and said "I called you because I liked your resume very much".

I smiled and my confidence level skyrocketed to 200%.

He asked me to describe myself in 5 mins and started a timer of 5 mins.

Explain any project of yours in detail.?

I started explaining it to him. He started going deeper and deeper into my project, asking every basic detail about it.

He wanted to check my basics of java and android.

For ex., he asked

How does an AsyncTask work?

What is encapsulation and polymorphism?

How does encapsulation and polymorphism works?

When I was stuck at one position, he started helping me by giving analogy related to my project. He helped me at every stage, whenever I was stuck.

How does multithreading works?

What is volatile and synchronous in java?

How many methods are there to create threads and how do they work.?

He asked me some simple logical reasoning questions.

For ex.

$yx * 7 = zxx$. Find x,y,z?

a,c,f,h,k,m,? Find the missing alphabet.?

Last he asked me if I have any questions about the company.?

-> Sir, you're having a lot of experience in software industry, any advice for a fresher like me.?

-> What profiles are they offering and what is the work associated with each one of

them.?

Round 3(HR)(45 mins approx):-

How are you.?

Why Software, why not Electrical.?

After seeing many of my projects were self-mentored. She asked how do you manage it?

Strengths and weaknesses.?

What profile you're targeting here in citrix.?

What do you do apart from coding and studies.?

How many apps have you published till date and why you didn't publish the rest.?

Any shortcomings in our interview process.?(I told them, I didn't like the HackerEarth platform on which they take tests.)

Tips/Advices:-

They were mainly looking for guys who had done lots of projects in software. In the whole interview process they only focused on my projects and fundamentals of java. They didn't ask me anything that's not in my resume. So, Don't write anything in your resume that you're not confident about. They just want you to have sound basic concepts.

Thanks GeeksforGeeks.! 😊

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478. Housing.com Interview Experience | Set 2

I was recently interviewed by housing.com and received the offer. Following is my experience.

Applied through Career page

1st Round : Online Written Round

Coding Round on Hackerrank . 4 Coding questions. 2 were easy , 1 medium and 1 difficult.

In each interview , a link was shared where a full running code was required.

2nd Round : 1st Technical Interview

Longest Palindromic substring (Full running code)

Length of longest substring with no repeating character (Full running code)

Discussion on projects

3rd Round : 2nd Technical Interview

Minimum number of jumps to reach the end

All root to leaf paths with sum k

We have n apple tree in a garden(number of apple in each tree is given) and we can choose to take apple from those 3 times (must take apple from all trees). the number apples taken in 1st round should be greater than number of apple in taken in 2nd , similarly for 2nd and 3rd time. In how many ways we can take apples from tree.

4th Round : 3rd Technical Interview

LCA of n-ary tree (Full running code)

Lots of discussion on each and every project.

Few basic Questions on DBMS like indexing and OS

5th Round : 4th Technical Interview

A web crawler is crawling is wiki pages, how to store each page and apply phrase search in all the pages. Lots of discussion on Database schema and search algorithms that can be applied

A Question based on Artificial Intelligence.

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479. Brocade Interview Experience

Recently I attended Brocade Communications Interview. I would like to share my experiences.

First Round: Written round 15 Aptitude + 25 Technical MCQs (c++ (mainly output qs), 2 questions on socket, 1 on IPC, 1 on Database in 1 hour. The qs were little above average.

After 1 hour they announced results. They shortlisted half of the people.

Second Round: Interview

1) merge two sorted linked lists in a third linked list

2) how will you search a sequence of bits over array of bytes

- 3) Design Qs: You have an incoming stream of bits. You have infinite memory, processing power. Design a system that will check for viruses. You have all the viruses signatures.
- 4) Same qs, You have limited processing power. How would you do?
- 5) When do you use Red Black tree, Avl tree
- 6) swap the nibbles in a byte. 0101 0001 -> 0001 0101
- 7) some pointer output qs.
-> void *p=0; p+=2; printf("%d", *p);
-> int **p=0; printf("%d", **p);
- 8) current project in your company

Third Round :Interview (Manager)

- 1) find if a tree is a binary search tree or not
- 2) count the number of set bits in a byte(in the best possible way)
- 3) what is your project in company
- 4) Since I was from a networking company , he told me to explain the full codebase architecture on the whiteboard
- 5) How ping works, What packets it generates
- 6) What packets are generated when a networking device tries to reach another networking device in a different network , connected through intermediate two routers.
Explain in detail
- 7) Why do you want to change your company?

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480. UHG(United Health Group) Interview Experience

UHG (United Health Group) came to our campus for software developer profile.

Written Aptitude Round: 60 min

Contained basic logic based questions. 30 problems. Difficulty Level ->Medium

Written Programming Round: 30 min

- 1) 15 multiple choice questions. Difficulty level -> Medium-Hard
- 2) 3 programming problems: Difficulty level -> Easy
 - a) You have an array of integers. Find that index for which sum of all the elements before it will be equal to sum of all elements after it.
 - b) Implement queue using stacks.
 - c) Find minimum value in a binary tree.

3) There were 2 networking related questions. We need to write the answers in detail. I don't remember the questions.

Technical Interview 1:

Discussed in detail my projects. They thoroughly went through my resume and asked questions.

- a) Whole database design of one of my project. Asked some SQL queries also.
- b) You are given a triangle with height h and base length b and a square of side length a. How many squares can you fit in triangle? Need to derive formula.
- c) A pattern matching problem with special characters. He wanted the full working code.

Similar question: <http://www.geeksforgeeks.org/wildcard-character-matching/>

Technical Interview 2:

This interview was mostly based on my B.Tech Project on Artificial Intelligence. He also asked many fundamental questions related to AI and Machine Learning. For e.g. what is SVM (Support Vector Machines), ANN(Artificial Neural Networks), GP(Genetic Programming) and differences between them and how it is better than linear regression? He also asked few java OOPS questions.

In all, my interview experience was quite nice. Both interviewers were very helpful and cooperative. Practice writing code on piece of paper. That will help a lot.

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481. MAQ Software Interview Experience | Set 3

1) IQ Test:

30 ques in 30 mins consisting of difficult quantitative aptitude questions.

2) Algorithm Test:

2 question, either write the code or pseudo code

1. Write an algorithm for dutch national flag problem
2. Write an algorithm for n-queens problem

3) Technical Round 1:

1. Horse Race puzzle

2. A circle is inscribed in a square(coordinates top left corner (0,0)). Coordinates of a point on the circle is given . Calculate the area of circle
3. Write a code to reverse the sequence of words in a sentence . For eg: Input Array: I_AM_A_BOY Output Array: BOY_A_AM_I , you can't use extra array . Input array is the only array that can be used.
4. Write a code for Expression Evaluation (BODMAS)

4) Technical Round 2:

1. Write a code to add two numbers without using '+' operator.
2. Write a code to find the given linked list is Circular or not ? Then find the node where it is getting circular

Other random questions like on: new technologies like clouding , knowledge about different languages , data structures and algorithms etc.

5) Communication Test

1. Tell me about your self, your family background
2. What is your dream company.
3. Why do you want to join MAQ
4. What skills of yours makes you suitable for this job.

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482. Amazon Interview Experience | Set 160 (For SDE 2)

Amazon sde2 experience:

Telephonic round :

Design a site similar to jumpee.com. Assume you are given a crawler, design a distributed system , what ds will you use , some basic api's etc.

Onsite:

coding round 1:

1. zig zag traversal of binary tree O(n) algo

2. matrix question:

given matrix like :

a b e d

b c f e

a b d d

....

find the longest path of consecutive alphabets given a starting alphabet. You can move in all 8 directions. for eg. a->b(right)->c(down)->d(diagonal down)... len = 4 , find max such len

coding round 2:

1. is binary tree balanced : O(n) time algo

2. given a pre and post order kindof a traversal (2 arrays) create an n-ary treee out of it with struct of the form :

```
struct node {  
    int data;  
    struct node *child[MAX];  
    int child_num;  
}
```

did it using a hash table of linked lists and storing parents . Might be a btr way not sure.

design round + hiring mgr 3:

Design the most recently viewed item for amazon , say 15 most recently viewed item which are scrollable for millions of products and users . scalable and extensible model. give apis , distributed systems, caching , reduce latency : critical

design round 4:

1. Give Object oriented design for the snake game (that was in old nokia phones) . only class and obj diag was needed, no code/implementation. it should have extensibility to accomodate different types of fruits, (eg one gives + 5 len + 10 pts) it should be scalable to diff platforms

2. Give an architecture diagram with all entities and relationships of a multi user wysiwyg editor . basically a web interface to multiple authors who can edit and store their docs . multiple ppl should be able to save it at once . also ownership should be present for documents.

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483. Athena Health Interview Experience | Set 2

Round 1:

10 Aptitude questions with difficulty level hard.

Round 2:

3 programs given. 1st one mandatory.

- 1) Replace wild cards with all possible combinations of zeros and ones.

```
String given: 0?1?
```

```
Result:
```

```
0010
```

```
0011
```

```
0110
```

```
0111
```

- 2) Triplet problem.

Array = {2,3,7,6,8,9} and k=6.

{2,3,6} (2×3 = 6)

{3,2,6} (3×2 = 6)

- 3) Another one dynamic programming problem. I couldn't remember.

Round 3(F2F):

```
if n=3 prepare matrix like  
3   3   3   3   3  
3   2   2   2   3  
3   2   1   2   3  
3   2   2   2   3  
3   3   3   3   3
```

```
and modify my code to print
```

```
1   1   1   1   1  
1   2   2   2   1  
1   2   3   2   1  
1   2   2   2   1  
1   1   1   1   1
```

Questions about previous projects done and my roles on it and my leadership capabilities.

Few technical questions from Threads and multi-processing and.

Discussed about triplet problem done in round 2 and how to tweak my algorithm to avoid getting redundant entries.

Search in row wise, column wise sorted matrix

```
{10, 20, 30, 40}  
{15, 25, 35, 45}  
{27, 29, 37, 48}  
{32, 33, 39, 50}
```

Round 4(F2F):

Level order traversal of a tree and discussed about time and space complexity of both techniques(Using Queue and recursive technique)

<http://www.geeksforgeeks.org/level-order-tree-traversal/>

Array of 0's and 1's. Move 0's to left and 1's to right side.

<http://www.geeksforgeeks.org/segregate-0s-and-1s-in-an-array-by-traversing-array-once/>

Given an array of integers, replace every element with the next greatest element (greatest element on the right side) in the array. {16, 17, 4, 3, 5, 2} = {17, 5, 5, 5, 2, -1}
<http://www.geeksforgeeks.org/replace-every-element-with-the-greatest-on-right-side/>

Find loop in Linked list. <http://www.geeksforgeeks.org/write-a-c-function-to-detect-loop-in-a-linked-list/>

Detect and remove loop in a Linked list. <http://www.geeksforgeeks.org/detect-and-remove-loop-in-a-linked-list/>

Difference between Tree and Trie data structure along with implementation of Trie and real time examples.

Questions on data structure for implementing dictionary and its pros and cons.

Questions on implementation of Linux directory structure.

Discussed about logic I used in 2nd round for wild card permutation question and discussed time complexity of it.

Round 5(F2F):

Given 3 points in below triangle, find wheather these 3 points are forming equalaterial triangle?

```
(5,12,14) = true  
(6,18,22) = true  
(2,11,15) = false
```

		1																					
		2			3																		
	4			5			6																
7		8			9			10															
11		12			13			14			15												
16		17			18			19			20			21									
		and			so on..																		

Questions about previous projects and current one.

Why Athena and shifting from old company in short period?

Aptitude problems from first round and how i understood and approached towards solution

Deep discussion about 8 queens problem and its solution(I used backtracking approach)

Round 6(F2F):

Turing machine problems.(http://en.wikipedia.org/wiki/Turing_machine_examples)

1. There is a sequence of bytes coming. after every instance I need to check wheather that number can be devisible by 3 or not. Need turing machine diagram and approach.
2. Similar turing machine question for prime number.

Tree level order and spiral order traversal and its complexity analysis.

Questions on array split to two halves of equal sum.

Round 7(HR):

Behavioral questions and team skills.

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About Polycom

Polycom is a multinational corporation that develops video, voice and content collaboration and communication technology. Polycom employs approximately 3,800 employees and had annual revenues of approximately \$1.4 billion in 2013. It is the largest pure-play collaboration company in its industry. The company also licenses: H.264 video codecs, Siren codecs, session initiation protocol, Native 1080p high-definition cameras and displays, Native 720p and 1080p high-definition encoding/decoding, low-latency architecture and low bandwidth utilization, wideband advanced audio coding with low delay (AAC-LD), multichannel spatial audio with echo cancellation and interference filters to eliminate feedback from mobile devices, Optimized environmental conditioning to provide the audio and video experience; and inter-operation with legacy video conferencing (Source: <http://en.wikipedia.org/wiki/Polycom>)

Round 1(Written)

So, the procedure started with the written round, it had 60 questions consisting of quantitative aptitude, logical reasoning and technical(c/c++, operating systems, computer networks, data structures and algorithms).

Around 120 sat for this round and they shortlisted 17.

Round 2(Technical Interview 1)

The interviewer started from the basics, and then gradually elevated the difficulty level(overall it was easy), the questions asked by him were-

Q1. You are given a 32 bit unsigned integer and you have to set the 7th bit in the number.

Q2. Create a structure for link list and insert two nodes in it(write the code). (Since i know STL as well, first i coded it in C and then used STL as well)

Q3. You are given a pointer to a node in the link list(starting pointer is not given) and you have to delete that node.

Q4. Clearly explain the TCP/IP protocol stack alongwith the functioning of each layer.

Q5. How does a router routes a packet.

Q6. How does a router uses longest prefix matching to route a packet.

Q7. What is page fault.

Q8. How does a page fault is serviced. (had to tell all about demand paging, modification/dirty bit of a modified page to be replaced)

Then he asked me about any networking course i have taken in my Master's coursework, i told him that i didn't.

Round 3(Technical Interview 2)

The interviewer asked whether i am interested in networking or not, i told him yes i am, but i have only theoretical knowledge about all the protocols and procedures and have very little practical knowledge about it. He said it is enough to answer his questions.

Q1. How ping is implemented(told him about the ICMP)

Q2. How can you calculate the round trip time and bandwidth of the network using Ping.

Q3. Can you measure congestion in the system using Ping and how?

Q4. Explain different algorithms that applies in networking domain.

Q5. How Minimum Spanning Tree is useful in Networking Domain.

Q6. Define Articulation Points and what is its significance in networking.

Q7. You are given an array of 0s, 1s and 2s, you have to sort it. (calculating the number of 0s,1s and 2s is not counted as the solution for this problem).

Q8. What is Denial of Service attack and what is its remedy?

Q9. What is Distributed Denial of Service attack?

He was going through my resume and asked me about my GATE notes.

Round 4(HR)

They shortlisted 6 candidates and asked them to sit in a room and gave two sheets consisting of 50 statements each, the first sheet had 50 positive statements and the 2nd had 50 negative statements and we had to decide whether they are most significant/significant/least significant to us. (we had to answer any 15 of them).

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485. D E Shaw Interview | Set 7 (Off Campus)

I applied in D E Shaw through their online job portal. My profile got selected after 1-2 months. The HR called me and told that they want to have a telephonic round which was scheduled after 4 days.

Telephonic Round: (1 Hour)

1. Tell me something about yourself and Introduction.
2. He asked about the coding language I use and asked questions on OOPs concepts like Abstraction, Inheritance, and Polymorphism.
3. As I told I code in C++ he asked me about Virtual function, what the problem with multiple inheritance is and how C++ resolve that. Some questions on STL and design of the Templates.
4. I told him to ask question from DS and Algorithms as that was the part in which I was prepared.

There is a class of N students and you have to find the top K marks scorers.

(This question was slightly different from the common top K element question, for example we have to find the top 3 marks scorers as that can be the entire class if they all get same top 3 marks, after some discussions I answered the question.)

5. He then asked questions on Indexing in databases. (That day only I read it :P)
6. Again a DS question he told me what data structure you will use to design a google search, having the key words from the respective sites. (I suggested tries with Link Lists, He was happy)

This round went quite well, I knew that they will call me for the In House Interviews. So I started preparing for it. After few days I got a call for the interviews at Hyd.

D E Shaw has awesome office, we were waiting in the room where HR came and guided to the Interview rooms. (All rounds were 2 Interviewers)

Interview Round 1: (1:30 hours)

1. Brief Introduction.
2. They ask some questions from the language you use for coding (They were expecting Java). In C++ they asked from virtual functions, STL, copy constructors etc. (After this, he knew that I know my language well.)
3. I told them to ask me from DS and Algorithms.

They asked the question like you have timing of arrival and departures of the trains you have to find the minimum number of platforms required to accommodate them.

(I told them I know the answer, after this they didn't even ask me single DS questions (I got screwed)????)

4. He asked me to design a database which could handle the quick changes in the shares which happen in the market.(I didn't know how to use indexes and other stuffs)
5. He told me how would you buy the shares of the companies if you know the future for some period of time.(I gave a layman solution)
6. He then started to ask queries, Indexing, Normalization in databases in depth.
(Find the 2nd maximum number in a table)(I used top command after that he told me the case in which it will not work, and then I corrected accordingly)
7. After that came a designing question.

Design a class which has director, HOD, Professor and students. They all are reporting to their respective heads. I have to display the hierarchy structure of the information in a Site.

He also told me that if a new designation comes or new employee comes then your

class should handle those cases without any change. (With help I designed a tree, but he was expecting something else.) After that he told me to design a database for it which I did and he was happy with the solution.

After this round I thought that they would send me home, there was a mixed feeling. But I was waiting for them for a round of DS and Algorithms: P.

Interview Round 2: (1:10 hours)

1. Tell me a brief about yourself.
2. Questions on your language C++(Basics)
3. Various sections of memory stack, heap, data. Explain them using a code.(Answered perfectly)
4. Find the endianess of a machine using a function (I knew the answer).
5. Median of two sorted arrays (I told I know the answer).
6. About semaphores and monitors.
7. Producer consumer problem, reader's writer's problem with proper code using the semaphores.

I wrote the complete Galvin code and explained in detail.

8. Thrashing and why it occurs.(Explained in detail)
9. He was really impressed till then as I answered all questions perfectly, he then asked some real time examples about polymorphisms, inheritance)
10. He then asked about Normalization in databases and by luck I remembered the Normal forms and answered.
11. He then asked me to explain the steps when we enter a URL into a browser.
(I told I know the solution, then he told me answer whether I knew it or I was just saying in every question I know, I explained the answer to them after that both of them became really impressed)
12. Some questions on protocols and layers of OSI model.(Answered)

I answered every question in this round (Gangnam Style).

HR round: (20 minutes)

Some general questions.

Interests, weakness, strength, Package of the current company.

Only 4-6 students of 20-25 had their HR rounds that day, so I thought I may have a chance but I still had very bad 1st round in my mind.

On the next day I got a call for some details of my present company, after that few days later I got a call of the offer from them with a good package.

Some tips:

1. For D E Shaw you need to be good in all the subjects.
2. Be truthful in the interview if you know the answer tell them, they may like your honesty (Depends on individuals).
3. Most of them lack in databases, so come prepared with it thoroughly.
4. Best of luck.

Geeks for Geeks helped me lot in my preparations. I followed GFG thoroughly during my

preparations, hope that my experience would help you in your interviews.

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486. IIT Delhi MS(R) CS Interview

Indian Institute of Technology Delhi Master of Science(Research) Computer Science Interview Questions.

There was one written Test involves 4 questions all were easy if you have prepared for GATE or UGC NET.

1. The probability of getting a head in one toss of a coin is 1/3, if a coin is tossed six times what will the probability of getting at least 2 heads.
2. Plot $y = \log_2(x+8)$
3. Given two inputs a real number x , and a positive number n calculate x^n . Your algorithm must run in $O(\log n)$ time.
4. A complete tree is a tree in which every node has exactly two children. Prove that if a binary tree is a complete binary tree number of children's will be exactly one more than the no. of internal nodes.

Interview :

Q1: You are working in industry why do you want to come back to studies ?

Q2: Do you think that the graph which you have plotted is correct ?

I answered No. He asked me to correct it. Later on he asked me to find the value of y at $x= -7.5, 7.75$ and plot the graph for the same.

Q3: Are you sure your algo runs in $O(\log n)$.

I answered yes. He said what is $\log(x)$. Define $\log(x)$.

Q4: If I divide array size by 3 what will the running time of Binary search.

Q5: How will you find if a graph is bipartite graph. I answered using BFT. He was not agreed. He asked me to define bipartite graph.

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487. Amazon Interview Experience | Set 161 (Off Campus for SDE-1, Bangalore)

Off campus- Delhi drive (SDE-1 Bangalore)

1st round: f2f

Tell me about yourself.

Most challenging task.

<http://www.geeksforgeeks.org/connect-leaves-doubly-linked-list/>

<http://www.geeksforgeeks.org/check-for-balanced-parentheses-in-an-expression/>

Small modification in it. Parenthesis pairs are given in a separate list. You have to optimize the problem by suggesting the method you will need to store the pairs.

2nd round: Hiring manager

What is the angle between hour and minute hand at 12:15. I said 90' but corrected myself immediately.

So he told me the importance that for huge no of clients this small mistake can create a blunder.

He asked me a scenario where I faced this thing and thereby improved the time complexity.

Lot of behavioural questions like conflicts with manager, team collaboration etc.

3rd round: f2f

<http://www.geeksforgeeks.org/level-order-traversal-in-spiral-form/>

<http://stackoverflow.com/questions/20026243/find-2-missing-numbers-in-an-array-of-integers-with-two-missing-values>

He asked me if have heard of nut and bolt problem. I didn't so he moved to next question.

Given an array. Find the maximum number of groups of size of 2 or 3 that can be formed such that sum of the numbers in group is divisible by 3. No number can be reused.

4rd round: Bar raiser

Convert an integer to its roman. He asked me to consider cases with integers containing 4 and 9. I didn't understand properly.

He asked me if I did anything extraordinary apart from my daily work in the office and what challenges I faced.

<http://www.geeksforgeeks.org/largest-subarray-with-equal-number-of-0s-and-1s/>

He did not accept this solution and asked me to optimize. This round didn't go well, so I was not selected.

Tips: Solve all the data structures related problems from geeksforgeeks and start practicing to write perfect code for any problem.

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488. Adobe Interview Experience | Set 19 (For MTS)

Written round:

Same test every-time.

1st round:

He asked me to write code for hello world in C. Then he asked where this printf is stored and how compiler knows where to check that thing. If printf declaration is moved to the program will it get executed. I told him that I am not aware of these things.

<http://www.geeksforgeeks.org/connect-nodes-at-same-level/> without using extra space.

Design a transaction system for a bank with many atms across. He asked me if you want to deal with the bank how will you explain them the model and all the software and hardware requirements. He wanted a multithreaded client- server interaction model and the database requirements.

2nd round:

Reverse a string. Reverse a paragraph word-wise.

Inorder and level order traversal and queue operations complexity.

Why inheritance is used. What is virtual memory and thrashing.

3rd round:

Implement a push pop operations in a stack. Implement a queue using stacks.

Remember there is further optimization, he asked me for that.

Explain virtual memory and how mapping is done.

Explain multithreading and how global, static etc variables are stored and accessed by threads.

Write complete code for the number of ways a frog can reach nth step by jumping 1 or 2 steps.

4th round:

Replace a string with another string in a paragraph. Which data structure you will use. Complete code.

There are balls of red, blue and green color. How will you sort them.

Implement a generic swap function. I wrote a function which swap the pointers but he wanted me to swap the complete memory blocks not just the pointers.

Indirectly he was asking me to implement memcpy function.

5th round:

Implement a contiguous 2-d matrix dynamically in C.

Spiral order traversal of a matrix. Complete code and he ran it for a 4×4 matrix.

Calculate Fibonacci for nth term. He was asking to optimize the traditional solution.

6th round: Director round

Write a function which returns 1 when 2 is passed and return 2 when 1 is passed.

1 number is missing from an array(1 to n). find that

He just wanted sum of n terms minus sum of array solution.

Now correlate the above two problems.

He asked me what I do at my home after office.

I told him that I read news, quora and some articles. So he asked if I remain updated with the news and then asked me questions like J&K election results, CM of some states and latest android version.

What if I do if I would have everything.

Why not go for further studies.

7th round: HR

Tell me about yourself. Current CTC and notice period.

I would suggest to go through pointers and how the things actually work from scratch like they would ask you to implement any generic library in-built function. Also read OS and oops concepts. If you don't know any topic simply tell them.

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489. Amazon Interview Experience | Set 162

Round 1:

Q-1: <http://www.geeksforgeeks.org/dynamic-programming-set-32-word-break-problem/>

Round 2:

Q-1: <http://www.geeksforgeeks.org/search-an-element-in-a-sorted-and-pivoted-array/>

Q-2: Given a string of 0s and 1s, count the number of substring which start and end with 1.

I was rejected after round 2 because I did not do well in round 1, was put on hold.

Was called again

Round 1:

Q-1: <http://www.geeksforgeeks.org/write-c-code-to-determine-if-two-trees-are-identical/>

Q-2: <http://www.geeksforgeeks.org/convert-an-arbitrary-binary-tree-to-a-tree-that-holds-children-sum-property/>

Round 2:

Q-1: In a tennis tournament of N players every player plays with every other player.

The following condition always hold-

If player P1 has won the match with P2 and player P2 has won from P3, then Player P1 has also defeated P3.

Find winner of tournament in $O(N)$ time and $O(1)$ space. Find rank of players in $O(N \log N)$ time.

Q-2: Given N scientists and K black holes, each scientist can query on radius, size and temperature of a black hole, what data structure would you use?

Following queries are important.

Which scientist had queried on which black hole.

What were the queries made by that scientist.

Round 3:

Q-1: <http://www.geeksforgeeks.org/maximum-sum-path-across-two-arrays/>

Q-2: <http://www.geeksforgeeks.org/dice-throw-problem/>

Round 4:

Discussion on current project in company and college problem.

Questions on OS.

Q-1: Given 2 files find common words.

Both files are too large to be loaded in memory.

Q-2: Point of inflexion in an infinite mathematical graph which is strictly increasing then strictly decreasing. Simple binary search was not the solution.

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490. Zoho Interview | Set 4

Round one:

Note: They have two patterns, for me they asked programming pattern, which is really tough.

Time: 2.15 hrs

40 Questions full of programming, first 10 questions have half mark, next 30 Questions have 1 mark, no Compilation Errors.

1) First 10 questions is to find the output of program which contains full of loops, loops inside loops.

2) Next 30 Questions has five parts

....a) To find the input of the program, output will be given.

....b) To find the error in logic and correct it, to provide the expected output.

....c) To find which two program gives the same result among given four programs.

....d) To find the loop condition for the desired output.

....e) To find the order of function in execution..

Round two:

Level One:

1) To find the odd numbers in between the range.

Input:

2

15

Output:

3,5,7,9,11,13

2) To find the factors of the numbers given in an array and to sort the numbers in

descending order according to the factors present in it.

Input:

Given array : 8, 2, 3, 12, 16

Output:

12, 16, 8, 2, 3

3) To output the number in words (0-999)

Input: 234

Output: Two hundred and Thirty Four

4) To find the print the pattern:

Ip: n=5

Op:

1

1 1

2 1

1 2 1 1

1 1 1 2 2 1

5) A man his driving car from home to office with X petrol. There are N number of petrol bunks in the city with only few capacities and each petrol is located in different places For one km one liter will consume. So he fill up petrol in his petrol tank in each petrol bunks. Output the remaining petrol if he has or tell him that he cannot travel if he is out of petrol.

Input:

Petrol in car: 2 Liters

Petrol bunks: A B C

Distance from petrol each petrol bunks: 1, 5, 3

Capacities of each petrol bunk: 6, 4, 2

Output:

Remaining petrol in car is 5 liters

Level two:

1) Print the given pattern:

Input:

N= 3, M=3

Output:

X X X

X 0 X

X X X

Input:

N=4 M=5

Output:

X X X X X

X 0 0 X

X 0 0 X

X 0 0 X

X X X X

Input:

N=6 M=7

X X X X X X

X 0 0 0 0 X

X 0 X X 0 X

X 0 X X 0 X

X 0 X X 0 X

X 0 0 0 0 X

X X X X X X

2) To find the number of groups and output the groups:

Explanation: To find the sum of the elements in the groups and that sum should be divisible by input X and the groups should be limited to range with X numbers.

If X is 3, then the group should have only 2 elements and 3 elements from the array whose sum is divisible by 3.

Input:

Array: 3, 9, 7, 4, 6, 8

X: 3

Output:

3, 9

3, 6

9, 6

3, 9, 6

No of groups: 4

Level three:

1) To output the given string for the given input which is an integer.

Input: 1

Output: A

Input: 26

Output: Z

Input : 27

Output: AA

Input: 28:

Output: AB

Input: 1000

Output: ALL

2) Input:

Number of elements in set1: 4

Elements are: 9, 9, 9, 9

Number of elements in set 2: 3

Elements are: 1,1,1

Output:

1, 0, 1, 1, 0

Input:

Number of elements in set1: 11

Elements are: 7,2,3,4,5,3,1,2,7,2,8

Number of elements in set 2: 3

Elements are: 1,2,3

Output: 7,2,3,4,5,3,1,2,8,5,1

Round three:

Real time programming and analysis:

Note: Showing output does matter need to show the output as soon as possible. And also need to solve the constraints very fast, since you know what you have done in your program. After finishing the program always explain the logic behind it and the constraints about the processing and how you solved those constraints to the technical people.

1) To form a structure which has few elements:

```
struct product {  
    char productname[20];  
    int product_price;  
    int product_id;  
}
```

Get the product name, price and id and display the product name and price in descending of the price.

2) For the same above structure, now add another structure which is the category. That category will have products in it.

```
Struct category  
{  
    char category_name[20];  
    int cat_id;  
}
```

According the category get the product name, product price and id, then display all the products category wise in descending order.

3) For the same structure which as category and product, get the category id from the user in the product structure and save to the category list. Then display them all in category wise.

4) A sheet full of data will be given with inventory stock list, which as different categories and different products as input with category capacity and product availability in the structure. Now we need to add a new category or new product with capacity and

availability. Need to check whether the product availability is exceeding the category capacity, if yes the output rack is full or else tell how much free space is available and add the product to list.

5) Constraints in the above in question will be given, need to solve all the constraints, so that the Technical HR gets satisfied.

After these rounds, if they get satisfied, they will call you for Technical HR, followed by General HR. If you solved every single question and you were really fast in problem solving, then HR interview will be easy. Or else HR interview will be very tough especially the Technical HR (The Technical HR round as lots of logical questions)

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491. Amazon Interview Experience | Set 163 (For SDE II)

Recently I attended amazon bangalore interview for SDE 2 position. All f2f and no phone/written screening as i had attended one before and cleared those. Total 5 rounds and below are the details.

1) Coding

Given 2 nodes in a binary tree, find the length of the path connecting them (standard)

2) Coding

Given an continuous input stream of characters, find a method to get the earliest/oldest non repeated character at any time in O(1). (solved using a doubly linked list and array combo)

3) Hiring Manager

Questions regarding the past projects, challenges (Important! please search google for preparation grid and fill it up, be honest, be concise, your interviewer has gone through hundreds of films, shaky and all kinds of project descriptions and don't think you can fool him.)

4) Design round

Design a system where a buyer puts a notification to the social networking site about his transaction.

5) Bar raiser

Past project discussion, design a cab service system, how would you define the standards to be ahead of your customers, how to handle scalability issue.

Note:

Brush up coding style, you may know the logic, but don't keep much hope if the code is messy, lengthy and without boundary checks, practice writing code on paper which can run without any modification.

Think loud, the interviewer is ready to help you, even to the extent of going into your code and finding bugs, and that does not make you look bad.

Think all possible angles when designing. If the line goes down, if there's a meteor hitting the server, someone is using the design after 20 years, so what might happen.

Scalability is important for Amazon. Prepare your project details and think of your real fault, real problems to tell the manager.

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492. Oracle Interview | Set 10 (For Server Technology)

Hi all. I would like to share my experience about my recruitment process with ORACLE. Oracle procedure consists of.

- 1) Online aptitude Round
- 2) Coding Round
- 3) 2-3 Technical Rounds and 1 HR Round

Written Round (90 minutes)

The written round was common for Server Technology, Application Developer & OFSS profiles. It was an online round having the following sections:

- a) Quantitative Aptitude
- b) Data Interpretation
- c) English & Vocabulary
- d) Technical (C/C++, Java, DS, Algo, OS, DBMS, Networking)

The questions were of moderate difficulty. Some were tricky but easy and some pretty hard.

Coding Round (30 minutes)

The next round was an online coding round. One question was given and we were required to solve that question in 30 minutes. The languages allowed were C, C++ and Java.

There was no elimination in this round.

Based upon the performance in the above two online tests people were shortlisted for the interview process for different profiles.

Interview Round 1 (Tech + Project – 90 minutes)

This round began with my introduction. After that the interviewer asked me various data structures based problems and algorithms. He then shifted his focus towards sorting algorithms and asked the space and time complexities of each along with their pseudo codes and explanation in detail as to why one algorithm was better than the other . It is very important that you take into account all the corner cases and write the code as efficient as possible because precision is what the interviewer expects from freshers like us.

My projects were his next cynosure. He asked every infinitesimal description of my projects as possible. He asked the technologies that I used the shortcomings I faced and also asked me how I swamped them. After about 2 hours I was called for the next round.

Interview Round 2 (Tech – 90 minutes)

This round was mainly conducted to test my Object Oriented Concepts. Starting from inheritance to polymorphism to encapsulation everything was asked to me in detail expecting not only the concepts but also real life examples. Code snippets were also asked in certain places. This round also focused on my projects.

Interview Round 3 (Tech – 60 minutes)

This round focused on my puzzle solving skills. What they expect out of this round is smartness , swiftness and efficient solution. They also expect us to stick to our solutions and give them appropriate justification for our stand. After about 10 minutes I was called for the next round.

Interview Round 4 (HR – 30 minutes)

This round was mainly conducted to know about my interest in their offer and in my field (Computer Science). She read my resume completely and asked me about almost everything in it- my hometown, the details about my summer internship, my current rank (in my branch), my hobbies etc. Then she asked me whether I would try for other companies even after getting the offer from Oracle. I obviously said no with decent explanation. Finally she told me about some formalities about joining and location and if I have any problems with it, again and obviously I said no.

That was All !!

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I am doing my final year B.E CSE. I would like to thank geeksforgeeks. It helped a lot for cracking the interview. I applied online for the post of a Associate software Engineer Intern at Red hat, Bangalore.

The first round was a written test round. We had nearly around 30 questions in aptitude as well as coding and a C program to write.

Aptitude: The aptitude questions were moderate and it covered all most all of the topics. It is not necessary for you to remember any formula. Most of the problem involved solving it logically. If you know the concepts you can solve. Majority of the questions were on probability, permutation combination, work and time, average, ratio, and few which combined the concepts. One could crack easily if you brush up the Apti concepts.

Programs: You need to be strong to answer this programmatic questions. All the questions were either from C or C++. some of the questions I remember was on Macro functions With different signatures

Operators precedence checking snippet

Main within main function

Switch special cases

Loop exceptional cases

Storage classes and so on

Program: It was a file program read input from a file and say the occurrence of each string i.e output the occurrence of each word along with the count to a different file.

I solved aptitude and programs. I am sure of getting 23+ in both. We were given only 1 hour and 15 mins. So I solved 23 each qns in Apti and pgms. Then I started writing code. To get additional points I have written a C program as well as a Shell Script program for that. After writing the code they still gave us some time and I did few questions in Apti and code. Since there was no negative marks I just marked some option for the remaining qns.

The results were announced and only 3 of them were selected for the next round. I was the one to clear first with higher marks. So we were asked to wait and after ten minutes they asked me to attend Technical Hr 1

The HR was very friendly and cool. He asked me about the first round and there was an ice breaking session. Then he started technical questions. He asked why pointers, usage, advantage, disadvantage, discussed many cases, malloc, calloc, dangling pointer, null pointer, a code for implementation, be strong in your project, asked to draw use case, he stated some flaws and asked how would I rectify it in project, I had around 4 projects, which means I included 2 C programs that solved a real world problem. So he went discussing all these. Asked about data structures, A linked list programs just to find the middle node in single access, I just said use two pointers , one move once and the other move twice, approach , which was so easy. He asked if I knew it earlier. I said yes. code was asked to write for all pgms.

The next program was to find the intersection of linked lists. I know it already but just

took little time to solve.Even if you know the programs earlier take few time to answer.

Then simple C programs

Sort an array with 0 and 1 in O(n) complexity. first i said merge sort then I said keep one pointer at start and the other pointer at end.If you find any 1 from start, then start decrementing the end pointer til you find a 0 and exchange those.If I and j points to adjacent positions then stop the program.

A matrix program to print for any n*n order.

1 2 3 4

5 6 7 8

9 10 11 12

13 14 15 16 and the output is

1 2 3 4 8 12 16 15 14 13 9 5 6 7 11 10.

I wrote the code and made lot of changes to make it efficient. Then he asked few questions from OOPS and web technologies and questions from my Resume about paper presentations, memberships clubs etc..

I was confident enough that I would clear this round.One of them was eliminated and two of us was asked to attend the next round after having lunch in their office.

The second technical round was with a hiring manager. He asked about data structures.Given family tree problem and asked how would I solve. I proposed graph and he was satisfied with the data structure and told how would I have a structure for it and few exceptional cases how would I solve.

Questions were on projects. He asked many questions from each of the project. About each ppt that I have done.He also asked C programs involving storage classes,pointers,Ascii values.Asked commands and pgms in shell scripting,he asked in detail about testing and asked to say test cases.I told all the functional and non functional test cases.He asked if I know to work with any testing tool.I said no.He asked in Python.I could answer only one question,then I said I have just started learning python and I am not familiar.i said I will learn well before I would join. Then he asked few HR questions.

Why red hat

What is the post that I am going to join

The tool that I am going to work.it would be mentioned in the job requirement post

Will I be able to work wel continuously and so on

What are you proud about yourself

About my family

And few more common questions and asked me if I have any questions

I asked a question about the tool I am going to work what kind of work will I be having,

Then I thanked him for having a nice session and for meeting him. We were asked to leave for the day and said results would be announced later.

Tips:

Be confident ,express yourself,
Take your project reports to add up,
Express that you want the job.
Most of the programs were on geeksforgeeks.

All the best!!

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494. Snapdeal Interview Experience | Set 2 (For Software Engineer 2)

Round 1: About 1:30 min

1. Introduction.
2. How will you decide what data structure should use?
3. Circular linkList meeting point and proof.
4. Reverse link list of given chunk k.
5. Print Left view of tree.
6. Explanation of Opps Concepts.

Round 2: More than 2 Hrs

1. Why HTTPs.
 2. About Cookie.
 3. You are receiving 0/1 in the left side of previous number dynamically and for each insert you have to print whether decimal of new generated number is divisible by 3. Print "YES" or "NO" accordingly.
 4. Same above question if you are receiving number from right.
 5. Binary Search in Rotated sorted array.
i.e. 567891234
 6. Binary Search in Biotonic sorted array.
i.e. 1234567898765432
 7. You have given two arrays, all the elements of first array is same as second array except 1, You have to find out distinct pair.
- In this ques I told solution using hashing, He asked me to write complete code for proper hashing.
- I have written code using bucketing then he asked other concepts also.

Round 3 : About 30 min only – In this round he asked what I have written in Resume.

1. Introduction.
2. Coin change problem of DP.
3. Write query for second max salary, then asked to optimise it.
4. Concept of group by and having in sql.
5. Asked about Git, what? why? and some git commands.
6. About selenium.
7. about access specifiers.
8. About previous projects.

Note : In each round :

1. They were asking runnable code and were checking each and every corner case by dry run.
2. They were asking multiple solutions for a single problem. i.e. they were asking for a better solution until you drop.
3. They were giving more than enough time to write the code.

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495. One Convergence Device Interview Experience | Set 1 (On-Campus)

One Convergence Device (Hyderabad) came to our campus with a handy package on for Full time Software Engineer profile. MCA and Mtech were allowed.

There was one written and two technical interviews round. Second technical interview also included HR interview. No separate HR round.

Written round-

There was only one written round after ppt presentation. It was pure technical based paper consisting of c, java, datastructure, network and operating system.

There were around 60 questions to be done in one hour. All questions were easy but conceptual and little bit tricky.

1. In C.

Most of the questions were based on bits manipulation and string and union.

2. In Data structure.

Questions on tree , heap, red black tree and balanced tree and complexity.

3. In Operating System

It was really conceptual. Most of the questions were on virtual memory concept and

scheduling and semaphore.

4. Network

Questions on layers and their protocols. Numerical that needed transmission ,propagation and bandwidth formula. Some general conceptual question including switch, hub and gateway.

I attempted every section since sectional cutoff was there. I didn't attempt any question that I was not sure for, since there was negative marking. I also didn't attempt any numerical.

So, attempt each section such that you can clear cut off. No need to attempt all questions of each section.

First round-

After written test , only 4 from Mca and 4 from Mtech were selected for next round. It was also pure technical round.

Interview started just after result was declared. Since there was only two panels, It was taking time.

Questions.

1. Tell me about yourself in brief.
2. Write program to reverse string.
3. Write program to reverse bits of number.
4. Write program to check common sequence in two string.
5. Write program to the bits which is set.
6. Describe switch in n/w and how will you implement its s/w.
7. What is NAT and its functions ?
8. What is VLAN ?
9. How client and server establish their communication. How to create socket , explain step by step?
10. What is socket buffer?
11. What is function of bridge?
12. What is IPC(inter process communication) and ITC(inter thread communication) and how it happens and how to implement it.

Second round-

1. Tell me about yourself and your achievement briefly and your family background.
2. What is linking? Explain in detail.
3. What is little endian ,big endian. How to implement it's code?
4. What are different types of memory segment and tell about different parts of program and where they are stored?
5. Explain zombie, daemon and orphan processes and how they are different?
6. How to create parent and child process and different threads?
7. What are common segment used by parent and child processes?
8. What are common segment used by threads?
9. What is symbol table and what is it used for?
10. How to use gcc to compile program and what are different options available?

Ex: -g etc..

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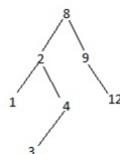
496. Amazon Interview Experience | Set 164 (For SDE I)

Applied for Chennai Kindle team, cleared few rounds but not happy with the overall interview process. Contacted again by Hyderabad office and scheduled an interview, asked me about my previous experience with Amazon. No telephonic, all F2F as I have already cleared few rounds earlier.

Round 1

1. Questions on my project with previous employer
2. <http://www.geeksforgeeks.org/add-two-numbers-without-using-arithmetic-operators/>
3. Given an unsorted array of integers, assume the elements are inserted into BST. Search for an element and print the path if found. If the element is left of previous in BST then path variable is 1 else 0. Eg:

```
Input: Given array[] = {8, 2, 4, 9, 12, 3, 1}
```



Corresponding BST would be

```
Output: Search key = 3 should print "101",
key = 11 shouldn't print any.
```

Round 2

1. Count the decoding for a given digit string. Let say 'A' -> 1, B -> 2 and so on
Eg :

```
Input: digits[] = "123"
Output: 3 // "ABC", "LC" , "AW"
```

2. There is a printer printing characters continuously on paper, you need to cut the required message character by character from the printed paper efficiently

Round 3

1. <http://www.geeksforgeeks.org/largest-sum-contiguous-subarray/>

- Given a 2D matrix consists of only 0's and 1's find the longest diagonal of all 1's
- Optimization on above question with slight variations.

Round 4 (Bar Riser from US telephonic)

- Given an array and an integer k, find the maximum for each and every contiguous subarray of size k Eg:

```
Input: array[] = [1,2,3,4,5,6], k = 3
```

```
Output: 6, 9, 12, 15
```

- <http://www.geeksforgeeks.org/maximum-of-all-subarrays-of-size-k/> asked for minimum instead of maximum
- Given an array of positive integers, form a largest decimal number by concatenating integers. Such that the largest number should be divided by 2, 3 and 5.

Final Round (Manager)

- Given a BST and a node (say target), find K nearest neighbors (<http://www.geeksforgeeks.org/print-nodes-distance-k-given-node-binary-tree/>)
- As my work with previous employer is very similar to the team I am interviewed for, not much questions rather it was more like a discussion

Production level code on paper with all corner cases handled is expected in all rounds. The interviewers especially Hyderabad team are very friendly and helpful, talk out loud, they are ready to help and guide you to right direction.

Finally, I would like to thank GeeksforGeeks as it helped me a lot in cracking algorithm questions. It's a great portal, keep up the great work, cheers 😊

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

497. Synopsys Interview Experience | Set 2

Reached out via referral in November, team I was interviewed for develops in house software. The overall process took 2 weeks, 2 telephonic followed by F2F. In all the rounds minimum 3 puzzles were asked, listed down only algorithm and programming questions.

Telephonic

Round 1

- Fibonacci sequence expecting DP solution and corner cases like negative input, etc.

2. Implement strcpy library function from C. Priority is on heap allocation, checking null terminated string, etc
3. Strcpy() vs Memcpy()

Round 2

1. Given a huge file of strings, print words from EOF to start

F2F

Round 3

1. Height and Balance factor for binary tree.
2. <http://www.geeksforgeeks.org/a-program-to-check-if-a-binary-tree-is-bst-or-not/>

Round 4

1. Size of a binary tree
2. #define Vs typedef
3. int main() Vs void main() Vs main(), why return statement is necessary in main()
4. Merge two sorted array, recursive approach for the same using LinkedList
(<http://www.geeksforgeeks.org/merge-two-sorted-linked-lists/>)

Round 5

1. How negative numbers are represented in memory
2. What is integer overflow, how to avoid it
3. <http://www.geeksforgeeks.org/maximum-size-sub-matrix-with-all-1s-in-a-binary-matrix/>

Round 6

1. Pascal triangle based question
2. <http://www.geeksforgeeks.org/maximum-difference-between-two-elements/>

Round 7

1. Given a student table with marks, find Nth rank student
2. What is the possible pattern for static variables
3. Initialized and uninitialized static variables, where are they stored in memory expecting explanation with BSS and Data segment
4. <http://www.geeksforgeeks.org/detect-and-remove-loop-in-a-linked-list/>
5. String is represented in a linked list, how to effectively check whether the string is a palindrome (<http://www.geeksforgeeks.org/function-to-check-if-a-singly-linked-list-is-palindrome/>)

Round 8 (HR)

1. Usual HR questions, Why Synopsys, What will you do if you get offer from Google/Facebook, etc
2. 2 more puzzles again

Pseudo code on paper with proper handling of corner cases is expected. All F2F happened in a day each round typically lasted an hour. Puzzles are given equal importance as that of algorithm design.

Thanks GeeksforGeeks for providing a wonderful platform to share and learn, keep up

the great work, cheers 😊

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498. Amazon Interview Experience | Set 165 (For SDE I)

Each of the rounds were of more than 1 hour and they mainly focused on logical thinking and approach. DS and algorithms were the topics asked.

First round –

At first round, there were two interviewers. First, they asked about me. Why do you want to leave your present company and join Amazon?

Then after brief discussion, he went on to questions.

There is a 2-d matrix with rows sorted. Convert it into 1-d sorted array. Also specify space and time complexity.

Given two binary trees, check whether two trees are identical or not. Write working code for it.

Using the previous solution, check whether one tree is subtree of another or not. Also specify time complexity (Average and worst case) with proper code.

Second round –

General discussion about present company's work.

Given a number of friends who has to give or take some amount of money from one another. Design an algorithm by which the total cash flow among all the friends is minimized. Specify the data structure which you will use and write the code for it.

Given an array, find the index of first occurrence of a number 'x'. First, I gave $O(n)$ solution, after that he asked to optimize it and find it in less than $O(n)$. There was long discussion in this question.

Third Round –

General questions like – tell me about yourself.

What are your strengths?

Why Amazon?

Why do you want to leave your current company so soon?

Did you ever been in any kind of disagreement with your management?

Work in current company ?

Design snake and ladder game. What data structure would you use, with design was needed. He then asked to optimize it further.

Given two linked list , find the sum of those linked list . With recursion and without recursion. Lists may be same or different lengths. Complete code was needed with space and time complexity.

Fourth round –

General discussion and Introduction. Work about current company?

What is the major challenging task that you have faced till date? Then more discussions and questions on the task.

Any disagreement with manager and any good or innovative idea that you have come up with and worked on it?

One technical question – Given a word and the dictionary, find all the anagrams of the particular word present in dictionary (That are valid words). Propose the data structure you have used and time complexity of the solution.

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499. Huawei Interview Experience

OnSite Interview (5 years experienced)

Round 1 – (40 mins)

1. You are getting a running stream of integers. This running stream is a input to a multithreaded environment and many thread are working parallelly on this running stream of integers to print the numbers but the number printed by one thread should not be printed by other threads.

2. Find a loop in singly linked list.

3. Design problem: –

you have 3 files and you need to print the output of operations inside those files onto log files.

Like some other 4th files come , then your code should be able to print its operation output with minimal change in code.

4. why do you want to change company?

5.Brief about yourself

Round 2. (40 mins)

1. how you deploy web applications .
2. what tools you use to manage software product life cycle
3. How you optimize your code containing 1000s lines of codes
4. an observer design pattern problem
5. why do you want to change company?
6. Brief about yourself

Round 3 (40 mins)

1. How to take care of memory leak in your program execution?
2. how you configure JVM on unix
3. How to increase the limit of JVM memory in Unix
4. A deadlock probability problem.
5. why do you want to change company?
6. Brief about yourself

Round 4 (Director's round) (30 mins)

1. Brief about yourself
2. why do you want to change company?
3. Salary Discussions

Round 5 (HR Round) (30 mins)

1. Brief about yourself
2. why do you want to change company?
3. Salary Discussions.

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500. Gramener Interview Experience | Set 1 (For Visualization Developer)

Round 1-Coding test:-(3 questions) based on parsing of a file and extracting some values from it.

Round 2-(1 hour)

Q1>Calculate no. of Thursdays between two given dates. Day of the first date will be provided.

Ex: between 1st Jan 1976 to 31st December 2009 assuming 1st Jan 1976 is Monday.

Q2>Print all numbers between 1 to 1000 in words(only pseudo code required).

Q3>Calculate Nth prime number in most optimal way.

Q4>Print all permutations of a given word.

Q5>Few mysql queries.

Round 3-(45-60 min)

Discussion on resume. And few questions on data visualization.

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501. MAQ Software Interview Experience | Set 5

1st round - 30 min,30 MCQs (IQ test)

2nd round - Coding test(30 min)

Q1-> Insertion sort

Q2-> Reverse a number using recursion

Q3-> Didn't remember

3rd round-1 hour

Q1->Some questions from resume

Q2->print x to y using recursion.

Q3->Check whether a given BT is BST or not?

Q4->Code for merge sort of a singly link list.

Q6->Discussion on Encapsulation, Virtual functions.

Q7->Questions on normalization.

Q8->Order of execution for sample queries.

Q9->Given two candles. Each can burn for 60 minutes. Both candles can burn from both sides.

How will you measure 45 minutes?

4th round-45 minutes

Q1->Deep discussion on resume.

Q2->A trick question on mysql queries.

Q3->Given 2 jars, 4 red balls and 4 blue balls. You can put any number of balls in any jar. You have two select one ball out of any jar. How will you make sure that probability of getting a red ball is maximum?

Q4->Why MAQ?

5th round-30 minutes-manager round

Q1->solve $1+2X3+3X4X5+4X5X6X7\ldots$using recursion for an input 'n'.

Q2-><http://www.programmerinterview.com/index.php/puzzles/25-horses-3-fastest-5-races-puzzle/>

Q3->Questions on resume.

Thank you geeksforgeeks for your help 😊

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502. Amazon Interview Experience | Set 165 (For SDE I)

I received interview call from amazon.com (Bangalore) for SDE1 position for 1.5 year experience.

Round 1: 1 hour – written test at amazon office.

Q1. Given a set of strings, find the alphabets common to all strings.

<I used Hashmaps>

Q3. Longest Palindromic subsequence in a given string.

<<http://www.geeksforgeeks.org/dynamic-programming-set-12-longest-palindromic-subsequence/>>

Q3. Find LCA of two nodes in a binary tree

<<http://www.geeksforgeeks.org/lowest-common-ancestor-binary-tree-set-1/>>

Round 2: F2F 1.5 hour

Given a huge file with large number of words, code a function that would take a word as input and print all anagrams of that word present in the file as output. Function has to be really really fast also O(1) run time. You are allowed to take as much time and resources for pre processing the file once. But after pre-processing function should perform in O(1) time.

<Use hashmap, and fact that all anagrams have similar alphabetical order of letters>

Create a hash function for above.

He then asked, another way instead of Hash ?

How to optimize searching among this linked list of heads of other linked lists.

Round 3: F2F 1 hour

Only one question – Print leftmost and rightmost node at every level of binary tree.

Round 4: F2F 1 hour

Given a string with some ‘?’ where ? can be 0 or 1. Print all possible strings by substituting ? with 0/1.

Eg: I/p Amaz??n,
o/p Amaz00n, Amaz10n, Amaz01n, Amaz11n

Connect all nodes of a binary tree which are at same level.

<<http://www.geeksforgeeks.org/connect-nodes-at-same-level/>>

<I used level order traversal, with extra variable level>

Round 5: Telephonic 1.5 hour

Write a code (online shared collab document) to check whether a tree satisfies children-sum property.

<<http://www.geeksforgeeks.org/check-for-children-sum-property-in-a-binary-tree/>>

Write a code (online shared collab document) to convert a given tree to a tree that satisfies children-sum property.

<<http://www.geeksforgeeks.org/convert-an-arbitrary-binary-tree-to-a-tree-that-holds-children-sum-property/>>

Some questions related to Operating Systems

Major difference between thread and process

CPU Scheduling difference between process and threads.

Necessary and sufficient conditions for a deadlock Deadlock

Suppose you have a list of 1 billion integers, find 1 million largest integers in this list.

List can have repetitive elements, max memory limit is 1 million numbers

Asked to calculate time complexity for my algorithm

Round 6: F2F 1 hour

Discussion on current work. You must know what you are working on in detail as you would be grilled

Top 3 features I would put on a website portal if I'm launching a cab service. (Non-technical)

Write code for scheduling algorithms for such a cab services provided you have a list of future bookings, and list of cabs in your fleet.

<I was asked to write OOP paradigm code>

Tips:

Try to interact continuously with interviewer. Keep thinking aloud and keep discussing with interviewers your ideas and approaches

Prepare Data structures, in particular binary tree very thoroughly.

Hope this helps. 😊

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503. Microsoft Interview Experience | Set 42 (For SDE1)

I received interview call from Microsoft (Bangalore) for CRM team, SDE1 position for 1.5 year experience.

Round 1: 1 hour

It was a GD like interview, with multiple people in same room given same question and interviewer was discussing individually with every person.

Given 2 arrays of integers, sort the first array based on order of 2nd array.

<<http://www.geeksforgeeks.org/sort-array-according-order-defined-another-array/>>

I started with brute force approach, then optimized to binary search and then hashmap

Round 2: 1 hour

Same as previous round, one interviewer, multiple candidates same question individual discussion.

If you have a stream of incoming characters, reverse and print the string as soon as input is finished. Write a code for same

Round 3: F2F 1 hour

One-on-one

Flatten a multi-level linked list

<<http://www.geeksforgeeks.org/flatten-a-linked-list-with-next-and-child-pointers/>>

Took a while to solve this one.

First I used a stack and then formed an algo without stack and without recursion.

Round 4: F2F 1.5 hour

A printed sheet of a C-program was given, had to find syntactical and logical error in

program.

Connect all nodes of a binary tree which are at same level.

You can not store level information

<<http://www.geeksforgeeks.org/connect-nodes-at-same-level/>>

<I used a variation of level order traversal>

Round 5: Hiring Manager <1 hour

Detailed discussion on current work, was grilled a lot

Reasons to leave current company

Reasons to join Microsoft

and other such questions

Tips:

Keep thinking loud and discussing your thought process with interviewer. They will keep giving hints for you to reach solution.

Find a solution, any solution, and keep optimizing it.

Hope this helps. 😊

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504. Payu Interview Experience | Set 5 (On-Campus)

Online Round

1 hour coding contest, different set of coding problems were given. They were manually evaluated. I was able to score 2nd highest score in my batch. They were judging you on these factors proper Algorithm, and clear code.

20 people were shortlisted after this round.

Round 1

<http://www.geeksforgeeks.org/find-first-non-repeating-character-stream-characters/>

N -ary tree given ,print the zig zag order traversal

<http://www.geeksforgeeks.org/level-order-traversal-in-spiral-form/>

Link list consist of 0 and 1 ,arrange it in such a way that all 0's on the left and

all 1's on right

Given an sorted array find a pair such that their sum is equal to key value.
My friend gave me the solution in order(n), he told him tell the solution in O(logn) , just to test his temperament.

6 were shortlisted out of 20

Round 2

There was discussion on my project for about 15 mins . Since my project was based on web crawling he asked me

Find top 10 urls used by clients and 10 clients accessing the urls for 1 day of data . I answered by using heap ,he asked to me ,how insertion works in a heap .

Puzzle : 25 horses race, he modified it to 30 horses

Given a string without spaces and a dictionary return or print all possible ways that the string can be broken so that only valid words are formed.

Eg. "programmerit", dict = { "pro", "gram", "merit", "program", "programmer", "it" }

ans: { {"pro", "gram", "merit"}, {"program", "merit"}, {"programmer", "it"} }

3 were shortlisted

Round 3

Position of knight and king in a Chess board, find the minimum no of moves knight can move to reach king position.

Boundary traversal of Binary tree

All permutation of string ,with and without duplicates

HR round

Tell me about yourself.

3 Strengths,3 weaknesses, 3 things you like and hate about your college, why payu, why coding?, motivation, challenging moment.

Things we were judged was effort and all codes were asked to code .

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Hello guys, I recently appeared in Snapdeal interview for Java profile in Bangalore office. Here is my experience.

The interview had 5 rounds out of which 3 technical and one manager and one HR round. Last two rounds are just for normal discussion.

Round 1: Technical round: 1:30 to 2 hour

The interview start from some normal behavioral questions followed by DS algo and Java.

1. Tell me about yourself.
2. How much you rate yourself out of 10 in DS &Algo. Followed by Java.
3. You are given a Binary Tree and you are asked to convert Binary tree such that it reverse its subtree. She meant to Mirror image of it.
4. She asked me now you have a linked list (singly) and you are asked to reverse every 3 node in linked list. For example 1 2 3 4 5 6 7 8 9 => 3 2 1 6 5 4 9 8 7. She asked that code should be at production level.
5. From now onward she asked me lots of java questions as follows (she also asked me follow up question based on my answers)
 1. What is thread and how you can create a new thread.
 2. What are the different way to create a thread.
 3. Hashcode and equals method. How it affect. How you manage this method.
 4. Hashmap related question based on above question and new question.

Rest I forget.

Round 2: Technical round: 1:30 to 2 hour

This round mainly focused on only java and how in depth I've knowledge in java. He asked me various questions as follows

1. About my project
2. Multithreading questions in very deep. (Every think in multithreading in java) How java handle threads, when thread alive, when dies, how dies, what happen when dies, what happen when alive, What JVM does etc.
3. Then he gave me different scenario to check my programming skills in Java in multithreading env.
4. How hashmap work and its implementation in java. How collision resolve by java in hashmap.
Followed by what happen when collision happens, how does get() and remove() methods behave. What will be the complexity of Hashmap for get(), remove() and put() method etc .
Lots of question on JAVA

5. What is BST, what is binary tree, Node structure what else can be done in node structure to make it more efficiently n all.

6. How will you check does a binary tree is BST or not. Write code for it.

-> I explain how one can think to check does a given Binary tree is BST or not. Then I gave him simplest solution using inordertraversal. Then he asked me to code it.

I wrote code in Java using inorder traversal and waiting for him meanwhile I thought he would may ask me to solve without inorder traversal justsimilar way how I explain the approach to check binary tree is BST or not. So meanwhile I also wrote code for it too

 I wrote code based on min/max value and check recursively.

7. Then he asked me Print matrix in Spiralform followed by code. Meanwhile he asked me what is2D arrays and how they behave and how memory assigned to them.

Round 3: Technical round: 1 to 1:30 hour

This round is the best round because this round lead me to push myself to next level.

This round has all new questions that I've never heard or solve. It goes like this;

1. Ask me about myself, my project, what I'm working on... etc.

2. Various java questions.

3. You are given a two dimension array of character and a set of words (dictionary).

Your task to return all the words which are valid and available in given array.

-> I explain him different approaches start from backtracking to solve the above question. Then he asked me about complexity which was exponential. Followed by asking to optimize it further level.

I optimize my algo in various way (with or without Dynamic programming) one by one and try to combine my optimization to result better approach. I keep telling him that in this case this is the complexity n all. He asked me to further optimize my algo and bravo I reach where he wants me to reach. That is Prefix tree based solution. After giving this solution I further optimize it to discard so many path that does not lead to the solution(that gave me a + point). Then he asked me code (I was become little nervous because that algo now become complex, I said the implementation could be little tricky, he told me to take your time). I told him that this is the way I approach for prefix tree based solution implementation and then he told me that assume following helper method are available in PrefixTrie implementation but he asked me that first explain him that how I can implement those method efficiently and I answered).

Then It took 25 minutes to write that code. He was happy but he again asked me to more optimize a particular section of code (I was using visited Boolean array to trace my path). I again optimize that portion with various ways from bad complexity to awesome complexity and he became very happy.

I would like to thank geeksforgeeks to provide such awesome platform to learn DS algo.

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506. Amazon Interview Experience | Set 166 (For SDE I)

Telephonic 1:-

1. Light is falling on a tree from left side you have to find all the nodes on which this light will fall.
2. Check whether a link list is palindrome or not.
3. Minimum Edit Distance.

Telephonic 2:-

1. ZigZag traversal of tree
2. Pair wise elements which sum to a given value
3. Intersection point of two linklists

F2F round 1:-

1. Maximum in sliding window

F2F round 2:-

1. You have a list of program files, how will you decide which file to compile first and which later, what data structure you will use for storing these dependencies.
2. Best Fit
3. You have been given time intervals of a you tube video watched mostly. You have to find out the most watched time interval, so that you can put an ad in between that section.

F2F round 3:-

1. Find a number in an infinite stream of sorted numbers.
2. What happens when a computer starts?
3. Write a hashing function for storing stream of words.

F2F round 4:-

1. A lot about my projects, what is the best thing you have done so far.
2. Populate sibling pointers in a tree.
3. TCP/IP, http/https, how to establish a secure connection or send an encrypted data, PPP protocol.
4. Virtual memory.

Thanks a lot geeksforgeeks for helping me a lot in my interview preparation.

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507. Knowlarity Interview Experience

Hi, Recently I attended Knowlarity Interview.

Round1:

1) swap the even bits and odd bits in the number.

I/P: 01010101 O/P:10101010

2) convert a binary tree in Double Linked list. He then asked, how will you handle the case when the parent left and right pointers are changed, but children has not been processed yet

3) Find the min element in Stack in O(1) time, without affecting Push and Pop operation.

Round 2:

1) Left view of a Binary tree

2) Puzzle: Using all(8,8,3,3) and only operators(*,/, -, +), make 24

3) I/P: "My lt India lt is great"

O/P: great is India My

The string can contain many spaces,tabs between the words, but you have to output with 1space between the words.

Next he modified the problem, told to it inplace, without using an auxillary array.

4) There are two arrays.All the elements in the array are same, except one pair. Find that pair. I told Hashing. He told to improve it. It can be done as an equation.

Sum of first array – Sum of second array = x-y

Sum of squares of first array – Sum of squares of second array = $x^2 - y^2$

Round 3:

- 1) How do you implement LRU cache
- 2) Your current project in Company
- 3) I don't remember

Round 4:

- 1) You have a stream of numbers. At any time , find the maximum and the unique number at any time.

I/P: 5 6 7 7 6

O/p:5 6 7 6 5

- 2) There is a Binary Tree. Find the min and max of the binary tree , without using Global variable

- 3) Check if a Binary tree is BST or not

Round 5 (Director Round):

- 1) Print the maximum subsequence in the 1d array

- 2)

```
A1 = ()  
A2 = ()  
A3 = (A1 + A2) => (( ))  
A4 = (A3+A2) => ((( )))  
A5 = (A4+A3)=> ((((( )))))  
Similarly An= An-1 + An-2
```

Given n and k, find the kth bracket in nth term in O(n)

I did in O(n+logn). He told to improve it. Then he told the solution in O(k). And then he told to code in computer and gave the inputs to check it.

Round 6 CTO Round:

- 1) Merge two sorted linked list
- 2) Puzzle: You are given two eggs. There is a 100 floor building. Find the minimum floor from which if the egg is thrown , breaks , in minimum number of throws. Answer=> 14

Then he asked if I had any questions for him.

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508. Amazon Interview Experience | Set 167 (SDE I for 1 year 6 months experience)

Round1: Online Coding Round

There were 4 coding question. Was asked to answer 2 out of 4.

- Given a list of N coins, their values (V_1, V_2, \dots, V_N), and the total sum S. Find the minimum number of coins the sum of which is S (we can use as many coins of one type as we want), or report that it's not possible to select coins in such a way that they sum up to S.

Example: Given coins with values 1, 3, and 5.

And the sum S is 11.

Output: 3, 2 coins of 3 and 1 coin of 5.

- Given two rectangles, find if the given two rectangles overlap or not

- Given two strings string1 and string2, find the smallest substring in string1 containing all characters of string2 efficiently.

For Example:

Input string1: "this is a test string"

Input string2: "tist"

Output string: "t stri"

- I don't remember the question.

Round 2: F2F Technical (Hyd)

- Print zig zag of tree

- Longest Palindromic subsequence of a given string.

Was asked to write complete code.

Round3: F2F Technical (hyd)

- Lots of Question on my projects.

Since my project relates to multiprocessing, lots of questions were asked why multiprocessing/why not multithreading, difference, what is thread/process, producer consumer problem, etc.

- Design a file structure in Linux.

- I was asked to write flawless code for inserting an element in sorted linked list which should cover all corner cases.

Round3: F2F Technical (hyd)

- Given an array of words, print all anagrams together.

2) You have an array which the ith value is the price of a given stock on day. You can buy only one share of the stock and sell one. Design an algo to find the best times to buy and sell. Also he asked me to give start date and end date.

3) Graph problem:

Critical node: If a node reaches another node only through one node.

Eg: A-C-B and A-E-B are critical nodes. (A reach B through one node which is C or E)

If A reaches B through more than one node, then they are not critical nodes.

1) A-C-B

A-D-E-B (A reach B thro c which might lead to critical node but A has another path to B thro D and E, so they are not critical nodes).

2) X-Y-Z

X-A-Z (X and Z are critical nodes)

Now find all critical nodes.

Round4: F2F Technical (hyd)

1) Many questions on my projects. He asked me to write pseudo code for one of my project.

2) Outlook:

A server receives meeting objects from multiple senders. Meeting object contains meeting time, sent time, recipient(s), sender id,etc. When recipient comes and checks the server, he/she should get requests based on meeting time and not based on sent time. Many discussions on space complexity and time complexity.

Eg:

```
12 PM      From: A  To: B,C,D    meeting time: 4 PM    meeting Id: 1  
12.30 PM   from: A  To C,D      meeting time : 2 PM    meeting Id:2  
1:PM       From B  To: C        meeting time: 1.30PM   meeting Id:3
```

When C requests the server, C should get ID3 as 1st, ID2 as 2nd and ID1 as 3rd meeting.

3) Many behavioural questions.

I would like to thank geeksforgeeks for helping me to crack the interview.

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For Microsoft Bangalore CRM team.

Experience: 1.8 years.

Round 1:(Written test)

1. Given a sentence say, “these are twelve pens and thirty two sheets” convert this sentence to “these are 12 pens and 32 sheets”. We were asked to do it inline. The interviewer called each one of us and asked us to explain the approach. we were asked to minimize the space and time complexity.

Round-2(Technical)

He asked me to Introduce myself and then started asking me what do I know about CRM.(Go through the website before attending the interview)

1. Given a client and a server and each of them has a queue in it. Client has to copy the contents of the queue to the server once the internet connection is up. The amount of data which it can copy at one go is fixed(Say 5 units). Design an approach for this. Let's say input queue is partitioned as 2MB,4MB,10MB,6MB and the fixed size of the window is 5MB. The output queue also has the same partitions as the input queue. (He was basically testing how i can use operating systems concepts, designing approach and data structures together).

2. Deep discussion on the current project which i'm working on currently.

3. Permutation of string with test cases.

Round-3(Technical)

He asked me to introduce myself.

1. He asked me about the current project which im working on.. and a few questions on the technologies which were used in the project.

2. Given N prisoners who are standing in a line and M hatred relationships among them say,P1 hates P2, P3 hates P1, P3 hates P5 etc.. If any of the hate relation contains invalid cases like P1 hates P3 and P3 hates P1 then return false. Output the final order in which the prisoner should stand in the line so that they don't hurt each other. say, if P1 hates P3, P3 should stand behind P1 so that P1 cannot hurt him. He asked me to code for the same.

3. Given a root, particular node and distance in a binary tree,.. say (struct node *root, struct node *n,int k) print all nodes which are at a distance of 'K' from node 'n'. He asked me to write the code.

Round-4:(Technical)

He asked me to walk him through my resume.

1. Why Microsoft?

2. Why do u want to leave your current company?

3. Deep discussion on the current project which I'm working on.

4. Given a binary tree how to construct the mirror tree out of it. I gave a recursive solution. He asked me to write the code for it. He asked me to write the same without using recursion and test cases for the program.

Round-5 (HR)

1.Discussion on current compensation etc.

Overall, it was really a good experience. GeeksForGeeks, you guys have made our lives so easy! Thanks a lot. 😊

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510. Amazon Interview Experience | Set 168

Interview 1:

The interviewer asked me about my resume which was followed by the following question. Given a function mapped from integers to real numbers, which strictly increases upto a certain point say A and strictly decreases after it, write a function to find this point. The solution was a simple binary search, the trick being to reach the other side of the peak. This can be achieved iteratively increasing 'x' and checking for a downward slope condition. The step could be constant, but an exponential increase would let to the point faster. I was asked to prove this by giving the recurrence relation and hence showing the complexity. I was further asked to code the entire algorithm using any language of my choice where I used c.

Interview 2

The interviewer asked me about networks in relation to sockets and ports when he saw an academic project that was mentioned in my resume.

The interview questions were as follows:

1) Given a binary tree where value at each node is a single digit, find the sum of numbers generated by each root to leaf path. He also asked to code the primary function for the same. I couldn't find the exact question on geeksforgeeks, but this one is close enough <http://www.geeksforgeeks.org/find-the-maximum-sum-path-in-a-binary-tree/>

2) Given a numpad such that every number is associated with a set of letters, give all combinations of strings that could be formed given a string of numbers. He also asked to code the primary function for the same.

Solution: <http://www.geeksforgeeks.org/find-possible-words-phone-digits/>

Interview 3

- 1) Given an array of integers, find a subset of numbers from this array such that, after negating the elements of this set, the total sum of all elements would be equal to zero. I could not solve the problem and he moved on to the next one after giving me a hint to use Dynamic Programming
- 2) Given two sorted arrays find the median of the merged array without using extra space. I gave an O(N) Solution and he asked me to give an O(log(N)) solution, which I gave after I put in some thought
- 3) Print a binary tree in a zigzag order level wise. I gave an implementation using a doubly ended queue, he wasn't satisfied as this would lead to extra space complexity for storing the levels in the d-queue. He was pleased when I decided to use 2 queues for the same. He further asked me to code it up

Interview 4

- 1) The interviewer asked me about the types of database I knew and elaborated a bit on non-relational databases like mongodb and JSON.
- 2) Next, he asked me the need for indexing in databases and its implementation.
- 3) In an auctioning system, the bidder with the highest bid wins but charged at kth highest price. Develop a system for it. Solved it using a hashmap. Was asked to write a code for the same.
- 4) Given an array such that all elements except one are duplicate, find this element.
Solution: <http://www.geeksforgeeks.org/forums/topic/finding-non-duplicate-element-from-array/> He tweaked the problem to add the condition that instead of one there are 2 such elements. I couldn't arrive to a solution even after he gave me some hints. In the end he gave me the answer but immediately said that it may not work. I realized why it did work and explained the reason for the same.

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511. Amazon Interview Experience | Set 169 (For SDE 2)

Recently I was interviewed for the position of SDE 2 I have 4 years of work experience .Following were the asked.

Note: For all of the question production level code was required.

Round 1:

1. Write a program to convert an integer to its form in a given language .
For example 112345 Could be one hundred twelve thousand three hundred forty five or
One lac twelve thousand three hundred forty five.

2. Find the top k frequent items in a stream of numbers Space O(k)

Round 2:

It was basically a design round .

1. Design a Chess board so that two players can play. Each of the play can make any
warrior move. Class Diagram and basic functions were asked to be written.

2. Design a key value pair storing system in a distributed system

Questions on types of caching in distributed systems , Sharding

How will you handle scalability , failover and latency.

Round 3:

Given a 2 D array with m Entry points (which are on the edges) and n exit points which
are on the edges give the total number of paths that are possible . Complete production
level code was to be written

Round 4: Bar Raiser Round

1. Given a large file with contents like

- 1.CAT
- 2.DOG
- 3.TAC
- 4.ACT
- 5.GOD
- 6.ODG

Re-arrange it such that every line has the index of all of its anagrams

Eg Output

- 1.CAT 1,3,4
- 2.DOG 2,5,6
- 3.TAC 1,3,4
- 4.ACT 1,3,4
- 5.GOD 2,5,6
- 6.ODG 2,5,6

2. Given inorder and postorder traversal of a tree give the preorder traversal without
creating the tree.

Round 5 Hiring Manager Round

1. Nut and Bolts Problem

2. Given a million list of co-ordinates in the form of longitude and latitude just as Google
maps . How will you print closest k cities to a given location .

After that a few behavioural questions

I was not able to come up with a good answer for second question.

I thank geeksforgeeks for creating this amazing platform.Great job guys.

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512. Subex Interview Experience

Recently i was interviewed for the position of Software Engineer(Fresher) in Bangalore.

Round 1:

In the first round there was some aptitude questions and one coding paper in which we have to write 2 Programs.

The Coding part was as follows:

- a) Write a program to reverse a linked list and make another list when node value is less than or equal to 2.

```
i/p: 6->5->4->3->2->1
```

```
o/p: 3->4->5->6
```

```
1->2
```

- b) Write All the operations of Doubly Linked List Using only Single Pointer.

- c) I don't remember but it was from Matrix.

After the first round very few have been called to get a face to face interview and i was one from them.

Round 2:

- a) Introduce yourself.
- b) Explain Object Oriented Concepts in detail.
- c) What is the difference b/w Pass by Value and Pass by Reference.
- d) What is Inline Function why we use it.
- e) Explain Normalization.
- f) What is Friend Class.
- g) Some questions from Unix(which i don't know).
- h) Write a program to reverse a Linked List in size of 3.

After that interviewer asked me again about Unix which i don't know very well. And told me that we're hiring for Unix profile.then he asked me some more questions and asked

me to wait for the result, unfortunately i didn't clear the round.

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513. Practo Placement Experience

There were total 3 rounds.

First Round: It was online coding round, conducted through hackerrank. There were total 6 questions, in which every type of question was there(easy, medium,hard), no need to attend all question I did 2 submission successfully and got selected for next round.

Note: for clear first round practice program from hacker rank website.

1. Frog Racing
2. Chocolate cut into 1X1 size
3. how many character should be added to make string palindrom.
4. Music play list
5. given a number A find the smallest number B . such that AXB in contain 4 and 0 only, zero must not appear before any 4. for ex:- 4440000 is valid but 404004 is not valid.

Second Round: It was a designing round

In this round we have to make a design of app we need to tell how we make that app following all aspects.

We have to design a cricket app, in which we need to show all running matches, how many member playing in each team, their record, strike rate, required run rate , ball by ball record each and everything. We have to visualize how app will look, what extra option you want to add etc.

Third Round:

It was technical round, question were asked from coding, sql,os,ds, some puzzles, project.

1. Describe you project
2. write a code to check if two given string are anagram or not .

3. By tossing a coin we can get either head or tail, i have a function toss() which return head or tail with equal probability.

You have to write a function for dice which will return number from 1-6 with equal probability.

constraints : you can not use random function, you can use only toss function.

4. Write a query to fetch duplicate email from table,

5. find second max value from a total column.

6. Mango, Apple, mixed puzzle

and many more....

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514. Visa Interview Experience | Set 3 (On-Campus)

I had three rounds of interviews for Visa on campus (all technical).

First round majorly focused on the projects I had done as part of my curriculum. Then some basic coding stuff where the interviewer was mainly trying to see the approach. Some questions related to sorting techniques.

He was also interested in the real time projects that I worked on during my interns at Amazon. So I was asked about all that I did there and then some questions on spring framework and dependency injection (amazon intern project related stuff).

Second Round:

Here the discussion started with OS and networking. General questions on race condition, semaphores, raid structure, deadlocks as well as network layer, data-link layer and transport layer (One who is well acquainted with all the basics of subject can easily answer them all). Some machine learning discussion on classifiers, Artificial Neural Networks, and genetic algorithms as well as assembly language programming. A code for a problem which could be solved using BST and then optimizing it.

Third Round:

First the interviewer started with explaining kind of work Visa does and their plans for the technology hub they are opening up in Bangalore and my interests and all. Then some questions related to writing POJO(Plain Old Java Objects) classes and tests for the code (unit tests, integration tests) based on what I mentioned in my resume as part of my intern project. Some aptitude questions and programming stuff again and then about

Object Oriented Programming (OOPs) concepts.

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515. Microsoft IDC Interview Experience| Set 44

I recently got an internship offer from Microsoft IDC and would like to share my interview experience. It's a little long because I'm sharing my experience, not just the questions.

First round (Online): This was common for both Microsoft IT and IDC. There were 2 coding questions (1 hour) and 20 MCQs (30 minutes). MCQs were mostly based on data structures, C/C++ and a few on OS. In the coding questions we were given the main function, we just had to fill in the code for the functions.

Coding Question 1: Find the point of intersection of two linked lists. (Bonus points for checking if the given linked lists are circular)

Coding Question 2: Given a matrix which consists of 1's and 0's, a pool is defined as a collection of 0's completely surrounded by 1's. Example,

1 1 1 1 1 1 0 0 0 0 1 1 1

1 1 1 0 0 1 1 0 0 1 1 1 1

1 1 0 0 0 1 1 1 1 1 1 1 1

1 1 1 1 1 1 1 1 0 0 0 0

This matrix contains only one pool since only one group of 0's is completely surrounded with 1's

Find the number of pools in a given matrix

I solved both the questions but could not pass all the test cases for the second question. But I solved the bonus problem in the first question and my overall score became high. So if you get any bonus questions, do not ignore them. They may help you score really well.

Second Round (Telephonic): The interviewer started with talking about Indore (my hometown), my weaknesses, my hobbies etc. So basically he was trying to calm me down (Tough I wasn't panicking. I've no idea why he thought I was :-P). Then he began with the questions.

Question 1: Suppose you are the in-charge of a project in which you need to develop an online railway ticket reservation system. What are the things that you would consider while planning out the project and why?

I was excited since I had prepared this answer already. Basically it's the kind of question where they wish to check the scale at which you think and how much you keep yourself updated with the latest technology. Firstly I talked about how our requirements would help in determining which technology to use. I told him about my projects in php & ASP.NET and then compared the two in terms of cost, scalability, support, ease of use etc. Then I told him a little bit about UI/UX and then finally about the factors that could cause our website to crash. We talked about database backup, restore etc. in short. There is no perfect answer to this question, you just need to show them that you think about the "Big Picture" while designing the system. When he was fully convinced, we moved on to the next problem

Question 2: You are given a pointer to a node in a linked list (Not the pointer to the Linked List!). How will you delete this node?

Frankly, I never heard this question before. It came to me as a big surprise that this question was quiet common but I missed it during my preparation! I got nervous at this point. But I remembered that I should let the interviewer know what's going on in my mind, so I kept talking. But after 5 minutes he moved on to the next question and told that we would come back to this question again.

Question 3: You are a project manager & you have 100 hours to complete a project. How much time will you give to planning, coding and testing?

At this point I regretted sleeping during the Software Engineering Lectures. I thought making wild guesses would give a very bad impression. So instead of giving him numbers I told him that according to my experience coding would take maximum time, followed by planning and then testing. He laughed at my answer (Ohh yeah... they do that -_-). But maybe he thought of me as a kid who hardly has any experience and was kind enough to tell me that it's not how projects in industry work. They give maximum time to planning because if the planning is done properly then coding hardly takes any time! (I know most of you are with me on this :-P)

But while he was telling me all this, I got the time to think about the second question. But the problem was that my answer wouldn't work when the node was the last node in the list. And this is exactly what I told him before answering the question. Surprisingly my answer was correct. He asked me what I will do in case the node was at the end? I said I had no idea. Then he told me about "dummy node" but he told me that he was satisfied with my answer.

So my interview took more than 45 minutes (unlike my friends' which went for 20-30 minutes! :-O). I thought I messed up a lot & won't be selected for the next round. But I was (I guess others messed up more than I did ;-))

Round 3 (Face-to-face in Microsoft IDC, Hyderabad Campus): So the campus is huge, great interior, facilities etc. Within half an hour, I was called for my first round.

F2F 1: The interviewer himself came in the waiting area and took me to the interview room. Well it was a big hall with 8 interviewers sitting far away from each other. They all had their laptops, pens and few blank sheets with them.

Interviewer: Why don't you tell me something about yourself?

I gave him a brief introduction about myself (laid special emphasis on the fact that I am a Microsoft Student Associate ;-))

Interviewer: Okay so let's jump on to the questions... You are given a string that consists of Rs, Gs and Bs. You need to sort the string so that all the Rs come towards the front, Gs in the middle and Bs towards the end.

Approach 1: Brute force i.e. simple selection sort

Approach 2: Use 3 counters r, g, b and count the number of Rs, Gs and Bs in the first parse and put those many Rs, Gs and Bs in the second parse. (he smiled and said it's a good solution but he wants a different answer)

Approach 3: In the first parse, bring all the Rs towards the front. The remaining string would have only Gs and Bs. Similarly, in the second parse, collect all the Bs at the end (he said I can do better)

Approach 4: It took me a little time to think about this but he gave me hints and I finally came up with an algorithm. He asked me to code it and started doing his own work. I walked him through the code (and tried highlighting how I took care of the invalid inputs, corner cases etc. :-P)

Interviewer: Well... that's all from my side. Do you want to ask me any questions?

Well I didn't mind a bit of chit chat 😊 So I started asking him about the most challenging project he did in MS and about the development strategy that they follow for development of cross platform apps. He was nice and told me everything with a lot of interest.

F2F 2: 2 of my friends were rejected in the first round itself, while the rest 3 of us went to the next round. This interviewer looked very serious.

Interviewer: Tell me something about yourself...

With his expressions he didn't seem to be interested in my answer at all and quickly gave me a question.

Interviewer: Okay so you are given a string that consists of vowels, consonants and

other chars. You need to sort the string so that all the vowels come towards the front, consonants in the middle and other chars towards the end.

I couldn't be more happier at that moment 😊 I didn't tell him that I had been asked this question in the previous interview & told him my approach (Approach 4 from last interview). But he understood that I knew the answer and so he changed the question 😊

Interviewer: You are given a matrix that consist of chars and you need to search for a string in that matrix. Now the string can be formed by going into any direction from a particular matrix position. So the only constraint is that the cells' corners must touch.

This was an easy problem and I told him my method

Interviewer: Now I'm putting one more constraint over this. You can not traverse an element more than once.

This was again easy. I just used a dummy character (*) in place of the chars that had already been visited and restored the char back after the recursive step. He got a little confused by this dummy char concept but then I explained him why it would work and he was satisfied with my answer. He asked me to code it then. I made a few mistakes which I corrected later but overall this round was good 😊

F2F 3: This was the final round & was supposed to be an HR round. But since they had to finish off the interviews they sent me to a technical person! (I peeked into his laptop and saw that he had the feedback of my previous rounds and also the questions which were asked to me!)

Interviewer: Tell me something about yourself

I again gave the same answer (ofcourse with emphasis on MSA thing :-P)

Interviewer: What could you have done better in any of your previous interviews?

I told him about a small bug in my code. I forgot to increment a variable and the interviewer ignored it.

Interviewer: So I see you have worked on Hadoop. Can you tell me what you did in your project?

I was expecting this question and gave him a good explanation on this. My project was on network intrusion detection systems using big data.

Interviewer: Since you've worked on IPs, let me give you a small problem. Convert the following number into IPv4 format.

It was fairly easy and I wrote the code. I made a few mistakes in my code (I was really nervous this time) but corrected them later

Interviewer: Okay so tell me something about garbage collection...

Told the definition

Interviewer: In which language do we have garbage collection?

I told C++ (yes... that's what you do when you are under so much of pressure -_-) He gave me a strange look and then I realized what I told him! But I guess he understood that I was panicking

Interviewer: Okay... what are unicode strings?

I never expected this question in an interview and I gave a very bad definition. He didn't look impressed at all.

Interviewer: Umm... let me give you a coding problem. You are given a canvas and you have to draw a line from point A to B. How would you go about doing this problem?

Phew... this question would save me (atleast that's what I thought). But I didn't consider the corner cases. He gave me a hint and luckily I could solve the problem successfully.

Interviewer: That's it from my side. Do you have any questions for me?

Yes ofcourse! I asked him about the most challenging project that he did but he seemed to be a bit confused about what to answer. So I explained him my question again and gave him a few examples of what other interviewers answered (It felt awesome at that moment because he was in the same position as I was 10 minutes back then :P)

The experience was good because they focused only on technical stuff & the questions were also good. I really liked the helping attitude of people there.

I would like to thank geeksforgeeks for helping me out in the preparation for this interview. I think you guys are doing a great job helping out students 😊

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516. Oracle Interview | Set 11 (For Server Technology)

I was interviewed recently and got through Oracle ST. I can't remember many questions but I will try to tell as much as I can.

Online round

This was a 90 minutes test in 4 sections

1) Quantitative Aptitude

- 2) English & Vocabulary
- 3) Data Interpretation
- 4) Technical (C/C++, Java, DS, Algo, OS, DBMS, Networking)

The questions were really easy. You just need to have some basic knowledge for CS concepts to attempt the 4th section

Written Round

Due to shortage of time on the day of interview, they asked one coding question to be written on a paper in 30 minutes and that would was to be discussed in 1st round. They didn't really care about the working code but wanted to know how you approached the question.

The question was:

1st line of input had some N numbers and next line had one integer. Using basic mathematics operations(+, -, *, /), you had to determine if the number in next line could be formed or not. If yes, print the combination. Else print not possible.

Case 1:

Input:

4,2,3

11

Output:

$4*2+3$

Input:

1,1,1

1

Output:

$1*1*1$

Input

1,2,3

124

Output:

Not possible

Input:

2,5,7,3

-7

Output:

$2-5-7+3$

Round 1

- 1) The 1st question was the usual ice breaker “Tell me something about yourself”.
- 2) Then he asked me to explain about the android app I had written in my resume. I explained him each and every thing in detail, drawing the flow of the app on sheet,

explaining how the app connected to the server and triggered a php script. He was quite impressed with the app which I could see on his face.

3) Then he asked me to write the conditions to be taken into consideration while deleting any node from a tree on a sheet of paper.

4) He asked me if I had any questions for him. This is pretty important because it shows how much you are interested in the job. Ask some sensible question here.

Round 2

He asked me how much I was comfortable in Networks and asked me many questions.

1) How is a file transferred via ftp and how exactly does FTP work? How many sockets would be required for one file transfer? (I could not really get what he tried to ask)

2) What is the path followed if my system wants to connect to some given IP of another system?

3) What algorithm is used for garbage collection in Java?

4) IPv4 packet structure

5) How DHCP works?

Round 3

1) What is the difference between a graph and a tree?

2) Find a path between two given nodes in a binary tree. Write proper code for this. Also check if any of the nodes is actually present in the tree. (wrote the code to find LCA(lowest common ancestor) and print path from NODE1 – LCA – NODE2)

3)

```
main() {  
    printf("hello\n");  
    main();  
}
```

What will be the output of this code?

4)

```
main() {  
    fork();  
    if (fork() || fork()) {  
        printf("heyy\n");  
        fork();  
    }  
}
```

How many times “heyy” will be printed?

This round went more into discussion than an interview. The team was really chill and made me feel really relaxed during the round.

HR round

This was just a formality. It did not last even 5 minutes.

- 1) She asked me about my background.
- 2) Why should I choose you?
- 3) Why Oracle?
- 4) Any location preference between Hyderabad, Bangalore and Noida?
- 5) Any questions for the team? I asked if I could extend my joining date by 15-20 days 😊

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517. Amazon Interview Experience | Set 170

Round 1 – Telephonic

1. Find element in an array which have elements in first increasing and then decreasing order. (code)
2. Find if two nodes in a tree are cousins or not. (code)

Round 2

1. Find sum of all numbers that are formed from root to leaf path (code) expected time complexity $O(n)$
2. Zig-Zag level order traversal.
3. Preorder traversal without using recursion.

Other questions related to my work in my current company

Round 3

1. Grilled me about my current company and current work.
2. Print top view of a binary tree (code)
3. Why amazon?

Round 4

1. Find median of an unsorted array. (code)

2. General discussion on heaps
3. A stream of characters is coming, at any moment you have to tell 'k' elements closest to a given number (code)

Round 5 (Bar raiser)

1. Design a system which would make a schedule for a user to complete a book in given number of days. A pre condition is that the schedule for every day should end at the end of some chapter.

Ex – 3 chapter with 10 pages each and user has to complete this book in 2 days, then the schedule should be either be 2 chapters on first day and 1 chapter on second or 1 chapter on first day and 2 chapters on second. (code)

2. Tell me about a time when you couldn't implement the best solution because of a close deadline.
3. What did you do about it afterwards.
4. General design pattern related questions like what if we use singleton design pattern for question 1

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518. Komli Media Interview Experience

I recently attended Komli media interview and wanted to share the experience.

First Round(Written)

1. Midas has boxes in three sizes: large, medium, and small. He puts 11 large boxes on a table. He leaves some of these boxes empty, and in all the other boxes he puts 8 medium boxes. He leaves some of these medium boxes empty, and in all the other medium boxes he puts 8 (empty) small boxes. Now, 102 of all the boxes on the table are empty. How many boxes has Midas used in total?

See the answer here : <https://www.easycalculation.com/puzzles/hard/boxes.php>

2. You are given a file which contains a very bit sequence of 0 and 1 and it is sorted. Hence all the zeros are in front of the ones. One needs to find the first occurrence of 1 in the file(return the position).

The only method to access the file is through a method whose signature is — int

`getBitAtPosition(int position)` — which returns the bit at the specified position in the file.

3. Given a string find the short version of the string depending on the given parameter.
method signature : `shortenString(String s, int n)`

ex:

```
s = aaabbbaa    n=2    output = aabbaa  
s= aaabbaacccc n=1    output = abac
```

Basically truncate the consecutive run of a character if it exceeds n.

4. write a function to divide two numbers upto a precision of 4 decimal places.
One can only use the addition/subtraction operators.

5. Charles walks over a railway-bridge. At the moment that he is just ten meters away from the middle of the bridge, he hears a train coming from behind. At that moment, the train, which travels at a speed of 90 km/h, is exactly as far away from the bridge as the bridge measures in length. Without hesitation, Charles rushes straight towards the train to get off the bridge. In this way, he misses the train by just four meters! If Charles would, however, have rushed exactly as fast in the other direction, the train would have hit him eight meters before the end of the bridge.

Answer : <http://dailybrainteaser.blogspot.in/2011/08/train-puzzle.html>

Second Round :

Discussion on the problems in the first round and optimization.

Lot of discussion on the projects mentioned in the CV.

Third round :

1. Given an array of integers, for each position find out the product of the remaining elements in the array.

You are not allowed to use the division operator.

Calculate the same thing for all the positions and out in a different array.

```
ex: input = {4,3,2,4}  
     output = {24,32,48,24}
```

2. Give a number n, find the all the possible sets of number whose sum will be n. A number can repeated within a set.

```
ex : input n=4  
      output : {1,1,1,1}, {1,1,2}, {1,3}, {2,2}, {4}
```

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519. Amazon Interview Experience | Set 171

Hi, I recently got an offer from Amazon, here is my interview experience:

Round-1: (Written)

Q-1: Search element in infinite sorted array.

Q-2: Find LCA (lowest common ancestor) of given two nodes in Binary Tree. Handle all corner cases like one element exists and other not.

<http://www.geeksforgeeks.org/lowest-common-ancestor-binary-tree-set-1/>

Q-3: Find next greater number with same digits. Handle corner cases.

<http://www.geeksforgeeks.org/find-next-greater-number-set-digits/>

Round-2: (F2F)

Q-1 : <http://www.geeksforgeeks.org/median-of-stream-of-integers-running-integers/>

Discussed corner cases. Proper code was required.

Q-2 : <http://www.geeksforgeeks.org/clone-binary-tree-random-pointers/>

Discussed different approaches. Proper code was required.

Round -3 (F2F)

Q-1: <http://www.geeksforgeeks.org/dynamic-programming-set-32-word-break-problem/>

I don't have Idea about problem initially then he asked to make some test cases, some tricky one. I gave recursive algorithm then, after this came on DP solution but time doesn't permit so moved to second question. Code was required.

Q-2: Given inference rules and some input tokens find all tokens which can be possible with given rules. Example :

Rules :

AàB

BàD

CàE

DàF

Input Tokens :

1. A,C then all A,B,C,D,E,F are possible.
2. A then A,B,D,F are possible.

Ask me what data structure you will use, how processing will happen. Pseudo code was required.

Round -4 (F2F)

Long discussion on my current work. Biggest challenge and how you solve it.

Technology challenge.

Q-1: Suppose you receive 10 million mails in 10 seconds. How will you process them and find what is problem to receive these many mails. Discussed different approaches.

Q-2: longest palindromic substring of given string. I gave DP solution, he asked me don't use DP. Proper code was required.

<http://www.geeksforgeeks.org/longest-palindrome-substring-set-1/>

Round-5 (Telephonic)

Long discussion on my current work again, Challenges faced. What you did when some mess-up happens and deadline is very strict. Conflict with manager.

Q-1 : Outlook:

A server receives meeting objects from multiple senders. Meeting object contains meeting time, sent time, recipient(s), sender id, etc. When recipient comes and checks the server, he/she should get requests based on meeting time and not based on sent time. Many discussions on space complexity and time complexity.

Eg:

```
12 PM      From: A  To: B,C,D    meeting time: 4 PM    meeting Id: 1
```

```
12.30 PM   from: A  To C,D       meeting time : 2 PM    meeting Id:2
```

```
1:PM       From B   To: C        meeting time: 1.30PM   meeting Id:3
```

When C requests the server, C should get ID3 as 1st, ID2 as 2nd and ID1 as 3rd meeting.

Q-2 : <http://www.geeksforgeeks.org/add-greater-values-every-node-given-bst/>

I gave solution using temp array, then he asked me to do it in constant space in single traversal. Condition: don't use pointer for sum or call me reference. Proper code was required.

Tips: Be yourself . Practice writing code on paper. Never give up.

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Thanks Geeksforgeeks for providing very good platform to well prepare. A knowledge repository J

520. BrowserStack Interview Experience | Set 5 (Fresher)

First Round(Telephonic)

Two questions of coding. They were easy to program. A link was shared on my email of google docs.

Questions were :-

1. Return an array of fibonacci sequence

2. String to number mapping is given find the smallest mapping of number.

for ex. 1=>a, 2=>b , 3=>c

input is 234

find the smallest corresponding to it

brute force solution was required

Second round of interview(Telephonic)

1. Basic questions on projects and resume.

2. Basic questions on sql and table like find second set of top 10 elements in a table

Third round

Three questions were asked which were tough to handle

1. HTML parser

2. SQL parser

3. forgot but something on parser

HTML parser

A long file was given and we have to find the given html response code and the count of the code in the file

SQL parser

A long file with data about the table formats and the entry in the tables with sql queries to extract the rows count from them that satisfy the criterion

Python language will help you to implement the questions easily. (A suggestion)

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521. Microsoft Interview Experience | Set 45

Round 1:

Written coding test:

Given a number in a linked list find the next greater permutation.

Round 2:

F2F 1:

With senior developer:

1. given an array. write a function to find if the array satisfies the condition $\min^2 < \max$ is satisfied. That is it should return 0 or 1 accordingly
2. Given an operation `delfirst()` which deletes the first element of the array. Given an array. how many such operation is needed to get an array which satisfies the condition 1.
3. Given an operation `delfirst()` and `dellast()` which deletes the first element and last element of the array respectively. Given an array. how many such operations is needed to get an array which satisfies the condition 1.

F2F 2:

with hiring manager:

1. Given a SLL find the longest palindrome in it.

F2F 3:

with director:

non technical. about myself why i am interested in a switch etc etc

It was a hiring drive for MBS group bangalore location.. The interview process was easy and well structured. Though the questions are easy the interviewer explored all the intricacies and I had to write full code for all the cases. Taking care of corner cases and optimizing time and space complexities. Each round went for 45min to 1 hr.

My suggestion will be brush up your basics. Don't try to write down the optimized code at the very beginning. give a simple solution first and gradually optimize it.

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522. Intuit Interview Experience | Set 6

Experience – 1.8years

Round-1:(Technical-1:10 min)

1. Introduce yourself.
2. Deep discussion on the current project which I'm working on.(project high level architecture, questions on design, frameworks used etc..)
3. Write a clean code to find the median of incoming stream of integers(I started with brute force approach and with a little help from the interviewer I could come up with the optimized solution,discussion on complexities)
4. Find the top 'K' repeating elements in a given file.
5. Basic questions on java.
6. What do you know about spring frame work?
7. Questions on Hadoop,hive,sqoop etc.,

Round-2(Technical-2hrs)

1. Introduce yourself.
2. Deep discussion on the projects that I have worked on.(High level design, Technologies used etc.,)
3. What are the object oriented features present in java?
4. What is polymorphism?
5. Difference between run time and compile time polymorphism with example.
6. What are the different types of exceptions that you have faced till now?
7. Difference between array out of bounds and array out of index exception?
8. Exceptions hierarchy.
9. Difference between checked and unchecked exceptions with example?
10. What are the different collection which you have used till date?
11. Collection hierarchy.
12. Difference between arraylist and list?
13. Difference between set and map?
Which of them can contain null values?
14. Equals and hashCode with example?
15. Write a clean program which takes input as "entuet" and converts it to "Intuit". She was basically checking if I know how to code in java.
16. Write a program which takes input as a file containing few sentences and outputs in descending manner the list of repeated keywords.
17. Questions on map-red in Hadoop with an example
18. few SQL queries.
19. MVC design Pattern with example.
20. How to send the username and password of a database securely when you use sqoop?
21. Difference between equals and hash code? When to override etc?
22. What is single ton design pattern?
23. Give me a real life example of where we use Singleton pattern?
24. How hash table works internally?
25. Why do u want to leave your current company?
26. Why do you want to join Intuit?
27. Do you have any questions for me?

Though I couldn't make it after this round ..it was super duper exhausting interview experience. It was a back to back interview and I was scribbling on the board these 3hrs. Thank you geeksforgeeks. 😊

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523. [TopTalent.in] Interview With Naveen Who Got Into Bloomreach

Even if we were to search around the world, it would be a truly difficult job to find someone like Naveen. As a Computer Science Graduate of IIIT – Bangalore, he successfully bagged job offer from Bloomreach. We at TopTalent.in spoke to Naveen from IIIT Bangalore about the Bloomreach Interview Process, how he managed to crack it and what are his suggestions for aspirants looking to achieve something similar.

TopTalent: How do you feel on achieving this rare feat?

I feel absolutely great. Very few words can truly describe the high you get when your name is called out at the end of a long, tiring day filled with interviews.



TopTalent: What other offers did you get apart from Bloomreach?

As part of our curriculum here at IIIT-B, we have a 6 month long internship. I'll be interning at Dreamworks India as part of the internship.

TopTalent: Can you brief us the interview process?

The interview process for Bloomreach was very interesting. Firstly, we had a pre-interview round where we were given an open ended machine learning problem to implement programmatically, as well as explain logically. The basic idea was to test the different ways in which a single problem can be approached. As the question was open ended, there were many different techniques people used to get equally valid answers. This round was meant to stress on the open ended nature of most questions being solved in industry. The concept of bounded rationality almost always applies for these questions. Post this, we had an online programming round followed by multiple rounds of interviews. Each interview focussed on optimization. In no round was my answer accepted without having gone through multiple iterations to improve the time/space complexity.

TopTalent: Can you give us a brief account of what you felt was the toughest interview? All the rounds of interviews were of a very good level. None of the rounds had the

(relatively) simpler questions from placement preparation sites like GeeksforGeeks. All rounds were more logic oriented, and majorly focused on data structures and algorithms. The toughest round for me was a round in which there was a strong mathematical basis. I'm not really that strong with Math, so I found this round particularly challenging. The central problem asked in this round also used a different number representation system than what we usually use and that made it all the more confusing. I was given time to understand both the question and the representation. The interviewer was very supportive of the attempts I was making and kept providing hints on what direction I should be thinking on. It took lots of scribbling on papers and white boards before the problem was finally solved to the interviewer's satisfaction. Needless to say, finally getting to the (near)optimal answer was an awesome feeling. This was also the round that took the longest time (or atleast felt like it :P).

TopTalent: Can you brief about your profile which Bloomreach offered?

Bloomreach works with a large amount of data to generate insights into data that are next to impossible to manually generate. I will be working mainly in the fields of Web Information retrieval, large scale Data mining and Machine learning, and implement algorithms to extract meaningful information from crawled web pages. Generating models that can be used for querying/prediction purposes is another area I will be working on at the company.

TopTalent: What was your preparation strategy?

Honestly, my preparation is very minimal. I didn't really have a preparation timetable. I avoided spreading myself too thin by trying to study everything and mainly concentrated on the fields of Algorithms (both basic and advanced), Data Structures, Operating Systems, Compiler design and read through a couple of other resources. I'm a complete code-monkey and code for an hour or so every day, and that also became part of my preparation.

TopTalent: What kind of skills do you think helped you getting this job?

Computers have been a core part of my life for well over a decade now, so I'm naturally fascinated by most things computing related. I code regularly and contribute to open-source projects as well. I'm a HackerNews (a technology news site) addict , and try to stay in touch with as many latest trends in the world of tech as possible. I've burnt motherboards and RAMs attempting to overclock systems. I've bricked systems, I've modded systems, I've broken systems. I've coded on and off in over half a dozen programming languages using different paradigms, and many more libraries/frameworks. I've played around with practically every component of a computer system, both on the software and hardware side. So I know what's going on not just from a technical standpoint but a practical standpoint too. The main "skill" is simply being inquisitive about and innovative in the field of Computers, which is pretty much a no-brainer. It is truly an amazing time to be in the field of Computer sciences, with it's far reaching effects.

TopTalent: What resources did you consult? Where did you practice problems from?

I've used a couple of books and lots of online videos for understanding different concepts. CLRS, Knuth, Sedgewick, Vazirani are some of the names at the top of my head. It would be great injustice not to mention all my Algo/Advanced Algo faculty: Prof. Laxminarayana, Prof. Prasanna, Prof. Murali and Prof. Raghavan for doing a brilliant job clearing the concepts of algorithms for us. I used to sit with a couple of friends to try to solve some practice questions. The source for these questions ranged from CareerCup to TopCoder. I've been active on SPOJ as well, and that's helped develop a coding mentality.

TopTalent: Were grades a factor in you getting selected?

My CGPA is what most would consider slightly above-average. I don't think grades are a good measure to judge anyone anywhere, let alone in a field like Computer Science where some of the biggest names are people who didn't fit the mold of traditional education. Thankfully, most big companies also understand the same.

TopTalent: What's your advice to students who are aiming for similar placement offers as yours?

The biggest mistake that people make is "preparing" for placements. I've never really understood the concept. College life is a one-time opportunity to explore the world, and most importantly, yourself. Don't "prepare" for something which really doesn't determine your life (contrary to popular thought). Prepare for your life up ahead. Don't be afraid to fail when you try something new. Keep doing new things. Keep learning. Make the best use of your college years to gain as much knowledge of the world as you can. As cheesy as it sounds, the Baba Ranchoddas' "gyan" gets it perfectly right: "Success ke piche mat bhago, excellence ke piche bhago, phir success jhak marke tumhare piche bhagega" 😊

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524. Written Test Of “National Instruments”

Hi, Recently i have taken written test from “National Instruments”, Please check the

following questions.

Question 1)

Brand, Coop and Murph are scientists and are conducting n distinct experiments of various difficulties. All three want to do the experiments in the order of the difficulty of the experiment but there's a catch. They are currently in different time dimensions but are connected by one thing – gravity! If at least two of them end up doing the experiment in the same order then due to gravitational anomaly all the experiment will fail.

Now given the number n and a list of difficulties di for each experiment, is there a way to order the experiments such that:

All 3 do the experiments in the order of difficulty from least difficult (denote by a lesser difficulty value) to most difficult.

The order of these experiments should be unique i.e no two scientists can do the experiments in the same order.

Input

$1 \leq n \leq 2000$

$1 \leq d_i \leq 2000$

Output

YES or NO

Question 2)

Skynet has grown to become the dominant force on earth and has almost completely wiped out the human race. Skynet has been building robots ever since it's inception and has been updating it's models every year while making them better. Skynet wants to annihilate humanity completely. It plans to remove one last band of humans lead by John Connor. Skynet thinks it can destroy these humans using only two of it's robots. But Skynet doesn't want to send two robots with the same model number lest John Connor finds out a weakness in that model and easily destroy both of them.

Skynet has at its disposal N robots and to save space Skynet has stored information about pairs of robots belonging to the same model. If it doesn't have any info stored for a particular robot then it is implied that the robot is the only one in that model.

Given these constraints, in how many ways can Skynet pick two robots to destroy John Connor and his rag tag group of humans.

Inputs

N – Total number of robots. Each robot is assigned a number from 0 to N-1

P – Number of pairs for which Skynet has information

This is followed by P pairs. Each pair has two numbers P1 and P2 each where $0 \leq P1 \leq N-1$ and $0 \leq P2 \leq N-1$ and $P1 \neq P2$

Output

Number of ways in which Skynet can select 2 robots such that both the robots are different models.

Example Input:

4 2

0 1

2 3

Example Output:

4

Explanation:

Here robots 0 and 1 are of one model, say model A. And 2 and 3 are of another model, say B. Therefore the total number of possibilities of picking 2 robots such that no two robots are of the same model are – (0, 2), (0, 3), (1, 2) and (1, 3) = 4

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525. Magic Bricks Interview Experience

First Round:

Ten MCQ and 1 coding question.

Technical Round:

- 1) Array based questions.
- 2) How to find total number of tables in ur data base.
- 3) About projects.
- 4) find duplicate in an array
- 5) what is diffrence between multiprocessor and multi cpu system.
- 6) what is ip address.
- 7) Reverse a given array.

Technical HR Round

- 1) print pattern.
- 2) fibonnaci numbers code
- 3) find substring in a given string
- 4) count duplicates
- 5) strength and weakness
- 6) projects
- 7) Qualities u want in ur boss
- 8) why should we hire u

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526. Intuit Interview Experience | Set 7 (For 3.5 Years Experienced)

1st Round : (2 hrs)

1. Implement LRU Cache,
2. Implement your own Blocking Queue.
3. Questions on Collections ,
 - a. How AtomicInteger works
 - b. Hierarchy of Collection
 - c. Internal Functioning of Hashmap.
 - d. Fail fast and Fail Safe Iterator.
 - e. Write different ways in which you can traverse over a map.
4. Print odd and Even Numbers using Threads
5. Questions on Concurrent API, Executor Class, Executor Service, ThreadFactory.
6. Questions on Serialisation/Deserialisation
7. Questions on Design Patterns – Composite, Observer, Decorator etc

I dont remember other questions, but the interviewer grilled me completely in Java.

2nd Round: (1.5 to 2 hrs)

1. Search in a rotated sorted array.
2. Implement Heap Sort.
3. Given an Alien Language , with all sorted words , find the order of alphabets.
4. Find median in a stream of numbers.
5. Implement Producer Consumer Model with Threadpool, without Executor Framework.
6. Garbage collector design discussion

3rd Round: (1 hr)

1. Find the Median in two sorted arrays.
2. OS questions
 - questions related to memory management and allocation.
 - Fragmentation.
3. Design Question
 - Bus Seat booking System.

Later i was informed that i was not selected, but i was really impressed with the nature of the interviewers, they were very friendly and cooperative, I was happy that i realised how hard i need to work. Thanks GeeksforGeeks because of which i could solve few of them.

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527. Adobe Interview Experience for MTS-1 (1.5 Years Experience)

2 Rounds of online test, one related to aptitude and other is related to c++. Aptitude one had around 39 questions and 2hours was given. C++ one had 19 questions and 2 hours was given. 7 coding questions and others basic c++ questions.

Round 1(Technical):-

- 1) There are N nuts and N bolts, u have to find all the pairs of nuts and bolts in minimum no. of iteration (comparison). All the nuts/bolts might have different diameter.
- 2) There is a paragraph having million characters. You have to find out the first non – repeating character in the complete paragraph. For example:- aab cld jb then answer should be :- c
- 3) Any base to any base conversion i.e base 11 to base 7
- 4) Questions related to Multi-Threading i.e synchronization or usage of Volatile (Basic questions)
- 5) Questions related to projects from my resume

Round 2(Technical):-

- 1) Questions related to Multi-Threading i.e synchronization or usage of Volatile (Basic questions)
- 2) Questions related to projects from my resume
- 3) Garbage collection algorithms
- 4) As I had Java background, so he asked me New features in JAVA 8
- 5) There are chocolates each worth x. You have total amount y with you. And you can exchange z wrappers for 1 chocolate. So in this way how many chocolates he can eat.

Round 3(Technical):-

- 1) Declare a 2D array using pointer notation.
- 2) A brief discussion about my work.
- 3) Suppose there are packages having volume m and there are n packets having volume a,b,c.... each having volume less than m. So you need to find out the minimum no. of

packets required to wrap up the products.

4) There are N cities spread in the form of circle. There is road connectivity b/w city 1 and 2, then city 2 and 3 and so on till city n and 1. Each ith city has a petrol pump where you can pick pith petrol and distance between ith and i+1 th city is di . Assume you car has a mileage of 1km/litre. You have to find out if there exist any city, if you start from that city then you can visit all the cities either in the clockwise or anticlockwise fashion.

Round 4(HR Round):-

Normal HR questions

Round 5 (Director Round):-

- 1) Questions a bit related about my personal life i.e schooling activites or hobbies.
- 2) Questions pertaining to the best work(projects) that I did
- 3) Things that every software programmer should know and he asked me to convince him.
- 4) What do you do to keep urself updated on the technology.
- 5) Asked me about any open source projects which I had and put in GIT..... told him about all of my projects.
- 6) Few more questions related to technology.

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528. Rockstand.in interview experience

Recently i applied online at rockstand the process took three days to complete.

There were 4 rounds for this process at their office.

1st round- shortlisting from resumes. They shortlisted who have good hand in each technology (c/c++ java asp php mysql html css)

2nd round – it was technical MCQ round. There were 7 sets of paper each containing 15 question (level – difficult)
those sets were c,c++,java,php,asp,mysql,python.
cut off was moderate.

3rd round – coding round tie breaker.

10 coding questions i remember few. we have to do 3 questions and 1 question was compulsory to do.

1. <http://www.geeksforgeeks.org/a-program-to-check-if-strings-are-rotations-of-each-other-or-not>
2. find intersect of two sets containing digits
3. swap kth node from beginning of the linked list to the kth node from the end.
4. return second largest element from an array.
5. implement linked list addnode() at last deletenode() count() middle element()
6. create GUI and data base connectivity in mysql and show it on page(i did on php)
7. implement BST.
8. Merge sort and find median of sorted array
9. implement Cache

based on this round shortlisting was done.

4th round – F2F technical plus HR

1. discussion of project deeply
2. ask me to code a module of my project.
3. asked for favourite language in web development i said php so asked to me design GUI and database connectivity. retrieve data show it in the form of table.
few mysql commands.
for loop in php
4. discussion of my coding round question. he was impressed because i attempted 8 out of 10 questions.

i thanks geeksforgeeks for helping me in every step.

tip- learn the things don't cram them because interviewer is smart enough to catch you out tho.

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529. MAQ Software Interview Experience | Set 6 (On-Campus)

I recently sat in on-campus interview for MAQ Software. The whole interview process comprised of the following rounds.

Round 1:

It comprised of general aptitude questions and two coding questions. It was an offline test. The coding questions were:

- Given an array A[] consisting of 0's, 1's and 2's, give an algorithm for sorting A.
- N-Queen Problem.

After this round around 40 students were shortlisted from around 150 students.

After this there were three more rounds and each round was an elimination one.

Round 2:

- The interviewer started by having a look at my CV. He asked for a firm technical introduction.
- He asked question about my projects. As I have had my intern from a very good place, he appeared impressed from the very start.
- After having a technical discussion about my CV. He gave me two questions to code as following:
 - Given a linked list find whether loop exists or not. Find the starting point of loop.
 - Given a very big string, find whether the given substring exists or not in minimum time and space complexity.

After this round around 15 students were shortlisted.

Round 3:

- The interviewer was a young guy. He too had a look at my CV and appeared impressed.
- He discussed in detail about the two major projects done during my internship.
- He sat smiling at me with a friendly look and said that yes you have had actually done a lot of work. In the end for formality sake he gave me one question to code. The question was to find the in-order successor in a binary tree. He later told me that the tree is BST.

After this round around 5 students were shortlisted.

Round 4:

This was supposed to be the HR round but out of surprise the interviewer started by giving me a question to code. The question was to print all the combinations of balanced parenthesis for a given value n. For example if n=2, we will have ()(), (()) as two balanced pairs possible.

After I approached this question with the right solution he just asked about my family.

After that he said to wait.

After half an hour the results were announced. A total of three students were hired and I was amongst one of them. 😊

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530. SAP Labs Interview Experience | Set 3 (Campus-Pool)

Recently I sat in a campus pool for SAP. The whole interview process comprised of following rounds.

Round 1:

It was an online round that took place on-campus. The round comprised of general aptitude, analytical reasoning, verbal ability and computer science questions. There were two questions to code as well. The round on a whole was good, seeing the time limit they had provided. The results were out in a few days. Out of a total of around 100 students, 17 students from our college were shortlisted. 10 for R&D profile and 7 for Technical or Developer consultant profile.

After this round we 17 students from our college were called at a college where the campus pool had to take place. There were around 100 students from four different colleges there. We all were first given a presentation about the company and then we all were divided into a group of two for R&D and Consultancy profile respectively.

The R&D group as told, had to first undergo a first case-study round then two technical interviews and last HR round. Each round was an elimination round. The consultancy group has to undergo one technical, one managerial and one HR round.

I was in the consulting group.

Round 2:

This was a technical round. There was a panel of two interviewers. They looked through my CV and started by asking an introduction. After introduction they asked me in detail about my projects. As I have had a quite a lot of projects on my CV they seemed impressed. After discussion about the projects they asked a probability question in due of the fact that I had won a gold medal in one of the IMO. After that they asked general questions on DS, OS, DBMS and Java. At the end they gave me one question to code. They asked for if I have any questions. I asked the difference between R&D and consultant profile. They said R&D is a technical profile while consultant is a techno-managerial profile.

I was the first amongst my group to be called for the next round.

Round 3:

Two senior interviewers took this interview. They started by letting me give an introduction. Again that gold medal thing in IMO hit them and they gave me a question to first solve mathematically and then approach it via programming. The question was to form all the weights from 1-40 kg by using minimum number of base. I started from the very base and reached up to a satisfactory solution as I had no clue about this question earlier. Then they asked me to design FlipKart with all functionalists.

After this question they asked me about how many offers I already had. I told them I have one. They asked me about why SAP and why not which you already have. I gave them the answer which was suitable according to me.

They asked me to wait. After sometime I was told that I was not shortlisted for HR round. May be my reason for not joining the earlier company didn't go down well with

them.

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531. Housing.com Interview Experience | Set 3 (On-Campus)

I was interviewed by housing.com through campus placements. Here is my interview experience.

Round 1:

Resume based and 1 coding question. Briefly discussed about projects in resume and questions were completely related to projects mentioned.

Coding question: How will you determine the repetition element in the array? How can you do with least space complexity?

Round 2:

This round was completely pen and paper coding round. 3 coding questions were asked.

Question 1: Root to a node path sum equals give number. With least space complexity. Problem similar to this <http://www.geeksforgeeks.org/root-to-leaf-path-sum-equal-to-a-given-number/>

Question 2: There are buildings near a beach, which were of different height and placed one beyond the other. How many buildings can see the beach.

Input will be the height of the buildings.

Example: Input: 3, 1, 4. output: 2

Input: 4, 5, 2, 3, 6. output: 3

Question 3: Given a stream of bits which are 1's and 0's . Find the contiguous subsequences where number of 0's equals the number of 1's

Round 3:

Only one coding question was asked with time limit of 10 minutes.

There is a function getWord() which takes word as input and checks whether word is present in the dictionary. Given a long word as input find all the meaning full (i.e getWord() is true) that can be made from the given input .

Example : Input : antin
output : a , an , ant , tin, in.

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532. Snapdeal Interview Experience | Set 4 (On Campus)

Hi, Recently Snapdeal visited my campus and I got an offer from Snapdeal, here is my interview experience:

Round 1:

First round was online written round. It consists of 25 Questions.

22 MCQ's and 3 Coding questions

- 1) Check for balanced parentheses in an expression.
- 2) Find next greater number with same set of digits.
- 3) Given an array where each element is the money a person have and there is only Rs. 3 note.

We need to check whether it is possible to divide the money equally among all the persons or not.

If it is possible then find Minimum number of transactions needed.

Round 2:(45 min.)

F2F Technical Interview 1:

1) Largest contiguous subarray sum in an array containing both positive and negative numbers.

2) Merge two sorted arrays of integers.

3) Merge Sort for integer array.

4) Counting Sort.

5) Given 100 weights having weights 1,2,3,4—100 and also given a number K.

You have to choose the minimum number of weights such That you can measure each quantity from 1 to K.

6) 3 couples crossing the river puzzle with many more constraints.

7) Dbms queries SELECT,CREATE TABLE,JOIN, VIEWS etc.

Round 2: (1 hr 45 min.)

F2F Technical Interview 2:

1) Tell me about yourself.

2) Difference between Process and Thread.

3) Find 3 elements in an array having sum K.(different approaches)

4) Implement stack using Queue. I gave him 2 queues solution. he said do it using 1

queue only.Lot of discussion
on it ,Different approaches

- 5) Given an array having 0,1,2 only sort it.Different approaches.
- 6) What is cascading effect.
- 7) How many permutations are there for a string.
- 8) Mathematical proof for the above question.
- 9) Print all the permutations of string.Also dry run on given test case.
- 10) Binary tree to DLL.

Round 3: (20-25 min.)

F2F HR Interview:

Basic behavioral questions and Some situational questions.

I would like to thank GeeksForGeeks which helped me to improve my knowledge and understanding of Data structures and Algorithms 😊

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

533. Monotype Solutions Interview Experience

Hello friends, I am sharing my placement experience at Monotype Solutions India Pvt Ltd whose recruitment process was conducted in my college. The process consisted of a written (online)test followed by technical and HR interviews.

Online Test: NO negative marking (1.5 hrs. Test)

The test was conducted on Mettl and consisted of C (about 20 questions), C++(5 questions), Aptitude questions(about 10 questions) and programming problems.

1.

```
char *str1 = "monotype";
char *str2 = "monotype";
if (str1==str2)
    puts ("Same");
else
    puts("Not same.");
```

2. One of them was something regarding scope of variables.

3. From Linked lists quiz on geeksquiz: Q2 and Q4. GATE questions.

C++ questions were purely conceptual. Aptitude questions were of mixed difficulty level.

3 programming problems and we had to do 2 (randomly assigned to us).

- a) Find and delete all occurrence of pattern ab ba (something like that) from a given string.
- b) Given a linked list and two integers M and N. Traverse the linked list such that you retain M nodes then delete next N nodes, continue the same till end of the linked list.
<http://www.geeksforgeeks.org/delete-n-nodes-after-m-nodes-of-a-linked-list/>
- c) One problem based on concept of finding “Next greater element”. (given on geeksforgeeks). Out of these, 1st and 3rd had to be run and compiled while 2nd to be submitted as plain text. They were manually checking it.

Technical interview (1.5-2 hrs approx., mine was 2.5 hrs. Long)

It began with formal introduction.

Questions asked were:

1. Given a character string containing “How are you” and char*a =”Monotype”. Store “Monotype, How are you” in single statement. I suggested doing it by for loop but he was not satisfied by this and asked to do it using “sprintf” function.
2. What is the use of pointers? How are 2D arrays stored in memory? Simulate 2D array using double pointers. I explained him $\ast(\ast(a+2)+2)$ for $a[2][2]$ but he was not satisfied with my answer. I finally did it by allocating memory for each 1D array using malloc and then creating an array of pointers to store the address of each such 1D array. This was correct.
3. Discussion about Big and Little Endian pcs, how to find which PC is which, interconversion using bitwise operators.
4. Coding problem to find how many times a number continuously appears in an array.
Eg: 123333345, 3 appears
five times in $O(n)$.
5. Searching algorithm: binary search concept.
6. Check if binary pattern of a number forms a palindrome using Bitwise operators.
7. Memory map of a C program, heap memory.
8. Definition vs declaration. You have two .c files each containing a function having only one statement of static variable declaration. Include those files in a new .c file and compile the project. Now he asked various questions based on this that were based on storage classes’ concept. I don’t remember the exact questions. 😊
9. Rotation of bit pattern of a number. Edge cases were given like for a 32 bit number, if we have the numbering of bits’ index from RHS (opposite to what we generally do in arrays, start index 0,1,...n-1 starting from left) and concerned bits lie from B9 to B0 i.e.

Left most 22 bits are random and not required. Rotate so that B9->B8, B8->B7...B0->B9. Use bitwise operators.

10. 25 horses are running in a race. 5 can run at a time. Find min races to find top three.

Some more questions were there which I don't remember. Questions like accessing array in spiral manner was asked from other student too. Logic and not the exact code was his priority.

Logical/Technical Round (approx. 45 minutes)

He asked me about my college, branch and subjects that I know being a non-IT student. He asked me to explain what I know about Fluid mechanics, Heisenberg Principle, Atomic Models etc as I had said that I like Science. He then asked simple puzzles like calculating 15, 30, 45, 60 minutes by burning a rope. Correctly mark the labels on three fruit boxes having either orange, apple or a combination of both. You can pick only one at a time. What do you know about fonts, web fonts. I told him something about fonts family: Sans, Serif etc. (it was hinted in ppt that they will ask such things.) some questions from resume.

HR interview(20-25 minutes)

Common HR questions from resume and as found on indiabix.com.

I would like to thanks geeksforgeeks for being such a good resource for placements preparation. Thank You.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

534. Snapdeal Interview Experience | Set 5 (On Campus)

Hi, Recently Snapdeal visited my campus (Jamia Millia Islamia) and I got an offer from Snapdeal, here is my interview experience:

Round 1:

First round was online written round. It consists of 25 Questions.

22 MCQ's and 3 Coding questions

1) Check for balanced parentheses in an expression.

<http://www.geeksforgeeks.org/check-for-balanced-parentheses-in-an-expression/>

2) Given an array where each element is the money a person have and there is only Rs.

3 note. We need to check whether it is possible to divide the money equally among all the persons or not. If it is possible then find Minimum number of transactions needed.

3) Find next greater number with same set of digits. <http://www.geeksforgeeks.org/find-next-greater-number-set-digits/>

They shortlisted 18 people for the Personal interviews.

Round 2:(30 min.)

F2F Technical Interview 1:

1. Diameter of binary tree. <http://www.geeksforgeeks.org/diameter-of-a-binary-tree/>.
2. C++ concept like polymorphism, inheritance, function overloading, virtual function, virtual destructor etc.
3. Next greater Element (full code) <http://www.geeksforgeeks.org/next-greater-element/>.
4. A sorted Array has been rotated r times to the left. find the minimum in least possible time($O(\log n)$ expected). <http://www.geeksforgeeks.org/find-minimum-element-in-a-sorted-and-rotated-array/>.
5. You have an sorted array, you have to make a balanced binary search tree from it (only approach) and basic insertion and deletion in BST.
6. Detect and remove loop from linked list(only approach).
<http://www.geeksforgeeks.org/detect-and-remove-loop-in-a-linked-list/>.

Round 3: (35 min.)

F2F Technical Interview 2:

1. Tell me about yourself.
2. Check if anagram of a string is palindrome or not.
3. N stair problem.(Dp approach) <http://www.geeksforgeeks.org/count-ways-reach-nth-stair/>.
4. Search in a row wise and column wise sorted matrix.
<http://www.geeksforgeeks.org/search-in-row-wise-and-column-wise-sorted-matrix/>.
5. Difference between Process and Thread.
6. find the number occurring odd number of time (xor solution).
<http://www.geeksforgeeks.org/find-the-number-occurring-odd-number-of-times/>.
7. 25 horse puzzle. <http://classic-puzzles.blogspot.in/2011/11/25-horses-puzzle.html>

Round 4: HR round(10 min.)

F2F HR Interview:

Basic behavioral questions. why snapdeal etc.

I liked the way interviewers were interacting, they were very supportive and friendly as well.

TIPS:

1. Don't jump into solutions, ask about the type of input that is given and output that is expected.
2. The interviewer always tries to take you to the most optimal solution so listen to what all he says. Many a times they are big hints !!!
3. Be honest.
4. Keep believing that you will get the job.

I would like to thank GeeksForGeeks which helped me to improve my knowledge and understanding of Data structures and Algorithms.

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535. Snapdeal Interview Experience | Set 6 (On Campus)

Hi, Snapdeal visited our campus recently, and here's my interview experience!

Written Round:

20 Aptitude Questions.

2 Coding Questions – 1. Given points of two lines A(x1,y1 x2,y2) & B(x3,y3 x4,y4) find whether the points intersect or not!

2. Overlapping paintings, find no. of paintings that can be seen distinctly, extreme co-ordinates of paintings are given!

First Round Interview :

Formal Intro!

Coding :

1. Given a binary search tree, and a number k, find two nodes in the tree such that their sum adds upto k!
2. Print a binary tree in zig-zag order!

I was asked to code both using Java!

Some simple puzzles.

Second Round Interview :

1. Tell me the logic of the program written in the first round! Improve it, try for $O(n)$ complexity!

2. Write a recursive function for nth fibonacci number!

Now make some changes in the same code in order to get $O(1)$ complexity in most cases.(Use Dynamic Programming!)

3. Given a 2-d array with sorted rows and columns, write efficient code for searching a number!

Puzzle : a glass, a tap given! fill the glass half without the use of any measuring instruments!

Third Round Interview :

Write a program to print “Hello” and “World” infinitely using two threads, such that one thread prints the String “Hello” and the other prints “World”!

- Why sleep() cannot be used?
- Why have you used synchronized keyword?
- How will a deadlock occur in this program?
- What will be the solution for breaking the deadlock?

Write a program in Java to find whether a given tree is a subtree of another one or not! both iterative as well as recursive!

Fourth Round Interview : HR Round

Tell me something about yourself!

How were the interviews?

How were the interview questions?

What are the demerits in SnapDeal?

Rank SnapDeal?

Suggestions?

Questions?

I would like to thank geeksforgeeks for a exhaustive set of interview questions and study material, which indeed has helped me a lot!

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

536. Snapdeal Interview Experience | Set 7 (On Campus)

Snapdeal visited our campus recently and here's my interview experience.

Round 1 (Online):

Same questions were asked in every NIT and test was on hackerrank. We had to do 22 MCQs and 3 coding problems which are as follows:

- 1) Given a string of parenthesis only, check if it's valid or not.

<http://www.geeksforgeeks.org/check-for-balanced-parentheses-in-an-expression/>

- 2) Find next greater number with same set of digits. <http://www.geeksforgeeks.org/find-next-greater-number-set-digits/>

- 3) Given an array where each element is the money a person have and there is only Rs. 3 note. We need to check whether it is possible to divide the money equally among all the persons or not. If it is possible then find Minimum number of transactions needed.

Round 2 (Pen paper test):

Around 32 students were selected for a written coding round. 2 ques were asked in this round:

- 1) Print the power set of a given set. <http://www.geeksforgeeks.org/power-set/>

- 2) Output the no of binary strings of length n having no consecutive 0's

<http://www.geeksforgeeks.org/count-number-binary-strings-without-consecutive-1s/>

Round 3(F2F) :

16 students were selected for PI.

This round was basically focused on the technical part.

- 1) Tell me about yourself.
- 2) Little discussion on the project.
- 3) Find the LCA of a binary tree in place.
- 4) About virtual constructors and destructors.
- 5) Design a recommendation system as you see on e-commerce sites recommending the items for you to buy. You just have to tell the ideas and design the classes accordingly.
- 6) Design a product review system with posts being categorized as a review, question or an answer. Also consider the case of upvotes, downvotes, like, share, comment.

He was done after this and then I asked some questions.

ASK QUESTIONS. It shows that you are really interested in the company.

P.S- These ques were asked to my friends-

- 1) Given a dictionary you have to list the anagrams.
- 2) In array find sum closest to zero.
- 3) Knapsack and coin change problem.
- 4) In array find max product of three numbers.

5) DBMS queries on SELF JOIN and Cartesian Product.
and standard geeksforgeeks questions were asked. Focus will be on time complexity.

Round 4:

I was called for 2nd PI within 5 minutes.

- 1) Which e-commerce site you normally purchase from and why?
- 2) If a shipment is changed in between i.e. product is replaced by say, a soap how will you tackle this problem?

Nothing technical was asked to me although be prepared with concepts of Threading. This was actually more of a conversation than an interview. The interviewer was very friendly. We discussed the elements in and about Snapdeal.

Round 5(HR):

- 1) Tell me about yourself.
- 2) What is your real goal in life.
- 3) Your manager is being bossy. How will you tackle this situation.
- 4) Toughest challenge you faced in your college.
- 5) You are the favourite of your manager but others are being jealous. What will you do?

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537. Cadence Interview Experience | Set 2

I applied through cadence home -> careers ->. I uploaded my linkedin link as resume. I got a call within a week and was asked to give a telephonic round.

Round 1 – Telephonic

1. Tell me about yourself
2. What is the difference between C and C++
3. Is a C program faster than a C++ compiled program.
4. What is UNION in C?
5. What all type of sorting algorithms do you know?

6. What does the term “object oriented programming mean?”
7. What is the difference between overloading and overriding?
8. About my present work.

I was then called for face to face interviews; I did not delay and fixed it the day after today.

Round 2 – F2F

1. What does your current company’s software do? About the current company?
2. Compilation of a C/C++ code. He gave me a dummy program. He then asked me to use #ifdef #endif in the header files, then asked its uses.
3. Different segments of memory. Where all can a variable be allocated?
4. There is a stack where push and pop operation are happening. At any point of time user will query secondMin(). This API should return second minimum present in the stack.
5. Given a number, tell number of bits set in the number in its binary representation. Ex. N = 5, Ans – 2 (101 has 2 1’s in it)
6. Reversing a string recursively, iteratively. He then asked me to rewind the whole stack or trace the recursive version for examples – “hello” and “ABCD”.
7. Cell padding concept in struct/class.
8. Traversal in a tree. Made me code iterative and recursive version of in-order traversal.

Round 3 – F2F

1. Difference between static and dynamic bindings.
2. Concept of virtual function in C++. How is a vtable maintained? What are its entries? Example code where virtual function is used.
3. What is auto, volatile variables? Scopes of variables.
4. References in C++.
5. What is a static function in a C++ class? Why is it used? How to call a static function of class from any part of the code.
6. Given an array of numbers (+ve and -ve), tell the subarray with the highest sum.
7. Height of a tree, diameter of a tree.

Round 4 – F2F (Manager/Director round)

1. Allocate a 2-D array using C/C++.
2. Why does a program crash? Valgrind issues etc.
3. Puzzle: 100 floor building and 2 eggs given, find the minimum/maximum number of tries required to find the floor where the egg will break. The answer I gave was 19. He asked me to normalize the solution; we then came up with answer 13.
4. Puzzle: Jumbled N pens and N caps, all caps separated from their pens, all pens have some thickness properties. How would you cap all the pens?
5. Given a dictionary, how can you represent it in memory? What will be the worst case complexity of a search done on the DS designed?
6. About my current work

Round 5 – HR

1. Why do you want to leave your current company?
2. What do you know about us?

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538. Persistent Systems interview experience (on campus)

Persistent system came to our campus for recruitment. I faced so many problems before the interview because i searched a lot about the interview process and type of question asked in the written paper as well as in the interviews in persistent sys but I didn't find anything about it, meanwhile my seniors helped me a lot. Hope that my experience would be definitely help u in all the selection process.

First Round Written Test:-

- There was a written test having 50 question in 1 hour in which every topic had been covered. 5to8 questions were asked from the aptitude part those were avg level ques and rest of the questions were asked from the software section.
- There was no verbal reasoning question.
- Most of the question asked from networking, Dbms, OS. also software testing ques are important.
- Some of questions were from ds and algo, those were quite easy.

- Keypoint :time management plays a vital role because question were not tough but provided time was less.

Coding round

A simple data structure question was asked ,need to write full code for it.If u got selected in the objective paper only then coding paper would be checked.

Total 30 students selected out of 200 students. I ws one of them 😊

1st Technical interview:

It was about 50 min interview. started with C , gradually increases the level of qu .

1. As i entered in the room, He said me to have a seat and then started to see my resume meanwhile asked me “tell me about yourself”.
2. Deep dissussion on my projects those were mentioned in the resume.He was quite impressed to my projects and the way of explaining it.
3. Basic oops concepts like what is polymorphism,abstraction, encapsulation and give the daily life examples of it.
4. what is buffer overflow?
5. How to implement queues using stacks?
6. How to implement stack using queues. Only he wanted to know my approach.
7. Difference between c++ and java?
8. difference between tcp and udp?
9. some basic sql queries like join (inner ,outer).
10. reverse a linked list with recursion full code was needed.
11. He asked 2 standerd puzzles, i knew both of the puzzles but i pretended like it was the first time i m soving it . I took 10 mins in solving it. He was fully satisfied with my answers .
12. asked some basic qu of OS like difference between process and thread, what is paging ,page fault, thrashing.

he was happy at the end 😊 as said really nice talking to you.

2nd Technical and HR interview:

1. Tell me about yourself
2. U are a electrical engineer then how could you prove your interest in softwere field?
3. What are your future plans?
4. some simple c questions like what is the use of static,auto variables
5. compiler vs interpreter
6. Segregate 0s and 1s in an array? expecting atleast 2 methods.
7. what do you know about us ?
8. he said if u wanna ask smthing you can then i asked about my job roles and type of projects I will be dealing with. He explained everything vividly

Total 6 students are selected . I was one of them 😊

keypoint:-

Resume is very important. You should prepare each and every point that is written in the resume and feel free there, don't be nervous. Show your confidence . Always remember "they're here for your selection, not for your rejection". All the very best 😊

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539. Goldman Sachs Interview Experience | Set 7

Telephonic Round(1st Round) (Manager):

- 1) Swap two variables without using third variable.
- 2) There's an array with every element repeated twice except one. Find that element.
- 3) Implement LRU cache
- 4) How will you implement State Machine
- 5) Design Problem: You have a database of million records, that needs to be accessed for each operation. That database is updated very rarely. And there are multiple processes that query the database and operate on the values. How will you design this?
- 6) How do you write a callback function?

2nd Round(Written):

- 1) 15 qs(65 mins) on C++ OOPS , namespaces, inheritance, dynamic_cast, static_cast . The difficulty level was above average.
- 2) C++ program to implement a container class.

```
struct StudentRecord
{
    int id; string name;
}
```

You have to implement algorithms:-

- 1) add a new record. This operation fails, if there is any element with the same id.
- 2) Delete a record
- 3) Edit a record
- 4) Find a record
- 5) provide iterators begin() and end()

3rd Round(F2F):

- 1) You have the co-ordinates of two rectangles. Find in minimum number of comparisons, if they are overlapping or not.
- 2) Write code for implementing Tower of Hanoi problem. What data structures you will

use? How will you implement the Move function(that moves the disc).

4th Round(F2F):

- 1) Discussion on Important c++ concepts: Virtual functions, Run time polymorphism, Static polymorphism, Function overloading, Function overriding, Types of cast in C++, Static_cast, Dynamic_cast, difference between new and malloc, Copy constructor, operator overloading, Templates
- 2) Program for Anagrams. Different approaches(hashing, sorting)
- 3) Code for first non-repeating character in the string
- 4) Least Common Ancestor for n-ary Tree.

5th Round(Video conference from UK (2 persons)):

- 1) About my projects

Puzzle: You have two train carriages situated at a different point on a infinite train track. The carriage can move up and down , and given that they can only know whether the other train has started from this point or not. Write an algorithm which will make the train carriages meet. The same algorithm should run on both the carriages.

- 2) virtual functions, auto_ptrs, ordered_map, Hashing, Chaining , Linked list vs array, Inheritance Concepts, static functions, generic programming, Some advanced concepts: CRTP(Curiously Recurring template problem), run time polymorphism

6th Round(TeleConference from UK(2 persons)):

- 1) Deep discussion on the current project in my current company

7th Round(With Manager):

- 1) Deep Discussion on my current role in company, and what will be your role in the company, about the team, about the work. I said that I have other offers in hand, then he said to evaluate the pros and cons of each offer compared. Then he discussed deeply about the current work.

8th Round(Telephonic with MD for the division from UK):

- 1) Deep discussion on the current project in my current company

9th Round(Telephonic with Senior Director of the division from UK):

- 1) Deep discussion on the current project in my current company
- 2) Use of Static keyword in different circumstances
- 3) Design problem: You have a socket connection on client side. And that socket connection receives million ticks per second for every stocks. Suppose you have 50 stocks. So the value of each stock is changing 10,000 times in a second. So this needs to be shown to the client in the GUI. And also Mean, Median,Highest, Lowest needs to be shown. How will you design in the most efficient way

The Interviewers were very nice. If you would get stuck in any problem, they would drop hints. And if you did any mistakes, they would prompt you and tell you to correct yourself.

Also only if all the interviewers involved will give positive feedback, then only they will

move ahead with the candidature. So they make it a point that all the team members meets the interviewee.

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540. Works Applications Co., Ltd. Japan Interview | Set 2

Here is the hiring process they followed (in my case):

Round-1: (Online Coding Round)

Question-1:

Abstract

An orienteering map is to be given in the following format.

```
######
#@....G#
##.##@##
#..@..S#
#@....#
######
```

Calculate the minimum distance from the start(S) to the goal(G) with passing all the checkpoints(@).

Specification

'.' means an opened-block that players can pass.

'#' means a closed-block that players cannot pass.

It is allowed to move only by one step vertically or horizontally.

$1 \leq \text{width} \leq 100$, $1 \leq \text{height} \leq 100$

The maximum number of checkpoints is 18.

Return -1 if given arguments do not satisfy specifications, or players cannot arrive at the goal from the start by passing all the checkpoints.

Input

The input is to be given in the following format, from the standard input.

```
W H
Row1
Row2
...
RowH
```

The first row is to describe the width and the height of the orienteering map, sectioned

by a space.

Output

Output into the standard output, and put a return.

Question-2:

Implement a Immutable Queue in Java.

In both of these question Code skeleton was provided.

Round-2: (Interview)

After this, we had to select our location and dates of the interview also.

It was 13th September and we went there for the interview. Interview was further taken in 4 different rounds.

1. Live Coding – In this round the interviewer asked to optimize and code the first problem in the given assignment and print the complete path from source to goal in 45-60 min.

2. Aptitude – 30 MCQs from P&C, Probability, Contribution, Profit – Loss, Time and Work etc. to be done in 1 hour.

3. Live Coding & Technical Discussion – In this round an engineer discussed the technologies I have worked on and then gave me another problem to code. It was to print all the permutations of a string in sorted order. He gave me a software designing problem and asked me how will you proceed with that and what ideas are you proposing for that kind of a design? And then he asked me about my internship experience with Oracle and what work I was doing that time.

4. H.R. –

Not to mention but it was the best round among all. She asked me some usual questions like how their interview process was, the differences I found in the process, why I want to work with them, how I fit in their organization.

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541. Belzabar Software Interview Experience | Set 4

I recently had interview at Belzabar.

After aptitude round only 69 students were shortlisted out of 256.

First Round(F2F):

He started asking questions about data structure. Questions were easy. Graph and heap sort were mainly focused topic.

Second Round(F2F):

In second round, he asked one puzzle(Haretown and Tortoiseville are 45 miles apart. A hare travels at 7 miles per hour from Haretown to Tortoiseville, while a tortoise travels at 2 miles per hour from Tortoiseville to Haretown.

If both set out at the same time, how many miles will the hare have to travel before meeting the tortoise en route?).

Then he focused on java basic questions.

Third Round(F2F):

In this round he asked me 2 code reverse a string without using temp variable.

then asked one query(DBMS query to print the nth largest salary in baghel table). Two 2 linked ques and 3 tree questions he asked like(mirror of tree).

HR:

1.tell me about yourself.

2.why do you want to join Belzabar.

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542. Microsoft Interview Experience | Set 46 (Onsite)

I had my onsite rounds with Microsoft.

There were 4 interviews.

Round 1. Given a circular buffer, write Get() and Post() methods . Get(n) should return the n characters in the string, if 'n' elements are not present, it should throw an exception. Put(string s) should put each of the characters of string s into the buffer without overwriting anything which hasn't been read by Get()

Round 2 Longest common substring from 2 given strings. As I couldn't give optimal solutions, asked me to write a strcmp(str1, str2) method

Round 3 Write a secure and safe strcpy() method . Asked me some theoretical questions about indexing and triggers for sql

Round 4 Write a program which generates XLS column numbers given the column number in decimal.

e.g.

Input	Output
1	A
2	B
26	Z
27	AA
52	AZ
53	BA
...	

Good Luck to future interviewers

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543. Amazon Interview Experience | Set 173 (On-Campus)

Recently I appeared for Oncampus Amazon Interviews for SDE position and here is my experience.

Round 1: 1.30 hour Online Written Test

It had 20 MCQ questions on C/C++ and 2 coding questions. The coding questions were:

Q1. You are given a string that represent an expression of digits and operands. Eg. $1+2*3$, $1-2+4$. You need to evaluate the string or the expression. NO BODMAS is followed. If the expression is of incorrect syntax return -1.

Test cases :

- a) $1+2*3$ will be evaluated to 9.
- b) $4-2+6*3$ will be evaluated to 24.
- c) $1++2$ will be evaluated to -1(INVALID).

Also, in the string spaces can occur. For that case we need to ignore the spaces. Like :- $1*2 -1$ is equals to 1.

Q2. You are given an array of both negative and positive integers. You need to rearrange the array such that positive and negative numbers alternate. Also, the order should be same as previous array and only $O(1)$ auxiliary space can be used and time complexity $O(n)$.

eg. -2 3 4 5 -1 -6 7 9 1

result – 3 -2 4 -1 5 -6 7 9 1.

Round 2:

Q1. Given a Linked list , print yes if it is palindrome else print no.

Q2. Print the level order traversal of the binary tree in the spiral form.

Round 3(F2F):

Discussion about project.

Some question on DBMS, OS.

Q1: Maximum of all subarrays of size k(Expected Time Complexity O(N)).

Input :

arr[] = {1, 2, 3, 1, 4, 5, 2, 3, 6}

k = 3

Output :

3 3 4 5 5 6

Q2: Given Two sorted array of size n each. Find the Kth largest element in these two array (Expected Time Complexity Log(n))

Round 4(F2F)

Detail Discussion about project

Q1. website having several web-pages. And also there are lot many user who are accessing the web-site.

say user 1 has access pattern : x->y->z->a->b->c->d->e->f

user 2 has access pattern : z->a->b->c->d

user 3 has access pattern : y->z->a->b->c->d

user 4 has access pattern : a->b->c->d

and list goes on for lot many users which are finite and numbered.

Now the question is we have to determine the top 3 most occurring k-Page-sequence.
for the above example result will be : (k=3) a->b->c , b->c->d , z->a->b.

Q2: Given two array , one of size m+n and contains m element and other position are empty , 2nd array is of size n and contains n element.

both array are sorted , now merge the second array to first one such that the resultant array is sorted. Expexte time complexity(m+n).

I would like to thanks geeksforgeeks for providing such a platform to learn algorithm and data structures... 😊

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544. Amazon Interview Experience | Set 174 (For SDE)

Recently I went through Interviews for SDE position in Amazon Development Centre, Chennai. Here is my Interview experience:

Telephonic round:

- Given an array with lengths, you have to select 3 lengths (a, b and c) for a triangle such that it satisfies condition $a+b>c, b+c>a, a+c>b$. Find the number of possible triangles can be created from the given array.

ex: 3 5 6 9 10

(3,9,10), (3 5 6), (5 6 10), (5 9 10), (5 6 9), (6 9 10)

so number of possible triangles is 6

- Count Inversions in an array

Inversion Count for an array indicates – how far (or close) the array is from being sorted. If array is already sorted then inversion count is 0. If array is sorted in reverse order that inversion count is the maximum.

Formally speaking, two elements $a[i]$ and $a[j]$ form an inversion if $a[i] > a[j]$ and $i < j$

Example:

The sequence 2, 4, 1, 3, 5 has three inversions (2, 1), (4, 1), (4, 3).

In house Interview 1(F2F):

- Next Greater Element

Given an array, print the Next Greater Element (NGE) for every element. The Next greater Element for an element x is the first greater element on the right side of x in array. Elements for which no greater element exist, consider next greater element as -1.

Examples:

- For any array, rightmost element always has next greater element as -1.
- For an array which is sorted in decreasing order, all elements have next greater element as -1.
- For the input array {4, 5, 2, 25}, the next greater elements for each element are as follows.

Element	NGE
4	--> 5
5	--> 25
2	--> 25
25	--> -1

- For the input array {13, 7, 6, 12}, the next greater elements for each element are as follows.

Element	NGE
13	--> -1
7	--> 12
6	--> 12
12	--> -1

4)Sorted Array to Balanced BST

Given a sorted array. Write a function that creates a Balanced Binary Search Tree using array elements.

Examples:

Input: Array {1, 2, 3}

Output: A Balanced BST

```

    2
   / \
  1   3
  
```

Input: Array {1, 2, 3, 4}

Output: A Balanced BST

```

    3
   / \
  2   4
  /
 1
  
```

Inhouse Interview 2(F2F):

5) Detect Cycle in a Directed Graph

Given a directed graph, check whether the graph contains a cycle or not. Your function should return true if the given graph contains at least one cycle, else return false. For example, the following graph contains three cycles 0->2->0, 0->1->2->0 and 3->3, so your function must return true.

6) Convert a BST to a sorted circular doubly-linked list in-place.

Telephonic Round with Hiring Manager:

Introduction about me.

Then he asked about my college project. we discussed the OO design for the project.

Then he asked me about my current company's latest Invention

Then he asked me about Virtual memory and some in depth discussion on that.

Then he came to my current project I am working

Then he asked me why are you coming out of my current company??

Then he gave a question to solve.

7) Given an array A[] and a number x, check for pair in A[] with sum as x

Given an array A[] of n numbers and another number x, determines whether or not there exist two elements in S whose sum is exactly x.

He asked about various possible solutions for the above one.

Bar raiser round(F2F):

8) Given a binary tree, find the diameter of the tree.

The diameter of a tree (sometimes called the width) is the number of nodes on the longest path between two leaves in the tree.

After solving the above one, he added a constraint on the above problem: (i.e) To find the diameter of the tree with atmost one turn

Examples of turns in tree:

In tree1-> start from 1 and there is a turn at root 2 towards right,

In tree2-> starts from 3 goes in left and there is a turn at 1 towards right ,

In tree3-> starts from 1 goes in right and there is a turn at 3 towards left,



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545. OLA Cabs Interview Experience (Bangalore)

I attended the interview for OLA Cabs in Bangalore for SDE position recently. Here is my interview experience.

Round 1

Written Coding Test (1 hour)

We were asked to design a Bowling game and write code for it with proper OOPS concepts . The problem statement was not difficult . Main focus was to check coding skills and writing good quality code pertaining to OOPs concept .

Round 2 (45 mins)

Tell me about yourself . Discussion about project

Coding test discussion with Interviewer

Round 3 (1 hour 15 mins)

Tell me about yourself . Discussion about project

A lot of technical questions .

Mirror Tree (Full code).

some questions on Arrays.

Suppose there is a parking lot with 3 entrances . U need to find the best parking space

for a particular vehicle to park when entered from any entrance .

Initially used Hashmap to solve it .

Then came up with Heap solution with hints eventually.

U can refer this Question

<http://www.geeksforgeeks.org/a-data-structure-question/>

Asked me great deal about Hashmap and its internal working and Hashing when I talked about Hashmap.

Implementation of Heap and its complexity (just the explanation not full code)

Asked about my preferred language . I said Java , so lot of basic Java questions followed along with classes , interfaces design.

Why do you want to join StartUp ?

Round 4 (45 mins)

Hiring manager

Why do u want to leave current org. ?

Why do you want to join StartUp ?

Current project details .

Should be thorough with the projects u have done.

Module diagram with complete explanation for one of the project .

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546. Flipkart Interview Experience | Set 17 (For SDE II)

I was interviewed for SDE – II position @ Flipkart. Below is my experience.

Round 1 : Telephonic Round (around 90 minutes)

He started with his and mine introduction, the products i have worked on, the challenges i have faced during its development (basic questions). Then he asked me 2 questions.

1. Find the LCA (least common ancestor of 2 nodes) in a Binary Tree node structure – > data, left child, right child, parent.
2. Design a data structure which would allow you to perform the following 2 operations supported in O(1) complexity.
 - a. Insert an element.
 - b. Return a random number from the numbers inserted so far. A random function is given which generates a random number.
 - c. Delete(int num) finds and delete a number from the ones inserted so far.

Round 2 : Machine Coding round. (90 – 120 minutes)

Design the snake and ladder problem.

Full working code was required. They gave us more than 2 hours to complete.

Discussion on the code written and how i have implemented.

Round 3 : Problem Solving Round (45 – 60 minutes)

1. Level order Traversal of a Binary Tree.

2. You are given a string of 0's and 1's you have to find the number of substrings in the string which starts and end with a 1.

eg : input : 0010110010

output : 6

3. You are given a mapping like a -> 1, b-> 2... z-> 26.

You have to print all possible combinations of a given number using the above information.

eg : input : 121

output : aba,la,au

4. String Compression Algorithm.

You have to compress a string in the following format.

eg : input : aasasatb

output : 2a2sa1t1b

Round 4 : Hiring Manager (40 minutes)

General talk around what they do and what they expect from an engineer.

Gave me a puzzle : <http://www.mathsisfun.com/puzzles/planes-around-the-world-solution.html>

I would like to thank GeeksForGeeks for helping me in the preparation, i dont know the result so far but am very content with my overall experience during the interview.

Thanks and best of luck to all other geeks.

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For Microsoft Bangalore CRM team.

Experience: 1.7 years.

Round 1:(Written test)

Question 1 : Given a binary search tree . Print its level order traversal in reverse order level wise .eg if level order is 1234567 then required output was 1327654

Question 2: Given a binary search tree , Print its zig zag traversal .

Complete syntactically correct code was required with all corner cases covered .

Round-2(Technical)

He asked me to Introduce myself and then started asking me about my project

1. Print the given matrix in spiral order .

<http://www.geeksforgeeks.org/print-a-given-matrix-in-spiral-form/>

Code should be syntactically correct with all corner cases handled in a single attempt.

2.Count all possible decodings of a given digit sequence .

<http://www.geeksforgeeks.org/count-possible-decodings-given-digit-sequence/>

Initially I started off with a recursive solution and came up with Dynamic programming solution afterwards. Full working code was required without any corner case missing.

He asked to list down all the possible test cases for the given scenario . He was very particular about the Test cases .

Round-3(Technical)

He asked me to introduce myself.

1.He asked me about the current project which i m working on.. and a few questions on the technologies which were used in the project.He was very particular about my project discussion.

2. Given a linked list consisting of String in each Node . Given just a pointer to the head Node , I was required to find whether the resultant String formed by combining all the Nodes of the linked list is a palindrome or not .

eg – Consider this linked List structure

“aba” -> “cd” -> “efe” -> “d” -> “caba”

Hence this structure is palindrome . Was required to check for palindrome online as Linked List length could be infinite at any point of time .

I was required to discuss and write full code on the whiteboard starting from Node structure to the end logic .

After that i was required to list down Test Cases for the same .

Round-4:(Technical)

He asked me to walk him through my resume.

1. Why Microsoft?
2. Why do u want to leave your current company?
3. Deep discussion on the current project which I'm working on.
4. Write code for the crossword puzzle game .I said I have not played it earlier .

He then asked me to discuss and write code for Sudoku game in whiteboard. I wrote it using Backtracking

<http://www.geeksforgeeks.org/backtracking-set-7-sudoku/>

5. Suggest some improvement which u can carry out in Microsoft Office .

Round-5 (HR)

- 1.Discussion on current compensation etc.

A big Thanks to GeeksforGeeks for providing such a brilliant platform for interview preparation .Keep up the good work 😊

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548. Flipkart Interview Experience | Set 18 (For SDE I)

I have recently attended Flipkart for SDE 1 @ Bangalore. Thanks to geeksforgeeks team which has been the only single source of my preparation and helped me a lot. Below is my experience.

Machine Coding Round:

- 1) Design a book catalog search (api's were given for the search,full needs to be implemented as running application)

Second Round:

- 1) Discussion on the design and optimization of the application
- 2) Basic DS questions (Eg:which ds to be stored to increase search efficiency ...
Ans:B+ tree)

Data Structures and Problem Solving Round:

1) Given two unsorted arrays A and B in which B can accommodate in A

How will you merge the two arrays.

Time complexity and space complexity were also given importance .

2)Perimeter of the binary tree in clockwise direction(All kind of possible approaches

and efficient approach were discussed)

Time complexity and space complexity were also discussed.

Second DS Round Skipped

Hiring Manager Round:

1)Problem Statement

Sid is obsessed about reading short stories. Being a CS student, he is doing some interesting frequency analysis with the books. He chooses strings S1 and S2 in such a way $|len(S1)| \neq |len(S2)|$.

Your task is to help him find the minimum number of characters of the first string he needs to change to enable him to make it an anagram of the second string.

Input Format

The first line will contain an integer T representing the number of test cases. Each test case will contain a string having length $|S1|+|S2|$ which will be concatenation of both the strings described above in the problem.The given string will contain only characters from a to z.

Output Format

An integer corresponding to each test case is printed in a different line i.e., the number of changes required for each test case. Print ?1 if it is not possible.

Constraints

1?T?100

1? $|S1|+|S2|$?104

Sample Input

5

aaabbb

ab

abc

mnop

xyyx

Sample Output

3

1
-1
2
0

Explanation

Test Case #00: We have to replace at least three characters from any of the string to make both of strings anagram. Here, a = "aaa" and b = "bbb". One possible solution is to replace all character 'a' in string a with character 'b'.

Test Case #01: Either replace 'a' with 'b', which will generate "bb". Or replace 'b' with 'a' to generate "aa". Both of the solution are valid.

Test Case #02: It is not possible for two strings of unequal length to be anagram for each other.

Test Case #03: We have to replace both the characters of any string to make it anagram of other one.

2) Five Years from now

3) Expectations from Flipkart?

4) Hobbies and weekend plans and location related questions

5) Any questions for me?

Keep up the good work guys.

All the best for other geeks 😊

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549. OLA Cabs Interview Experience | Set 2 (For Android – 1.5 Years)

First Round

Written Test

1) Implement Stack Operations. Also maintain count of Largest Integer present in Stack at any given point of Time.

- 2) Implement Minesweeper Game.
- 3) Design an Android application to emulate Countdown .. Take Input from the User and start counting down from entered value till Zero with Updating App UI at every count..Show Countdown end message when reached at Zero

1st Round.

Lots of Java basics

Android Activity lifecycles and detailed discussions about it
Services and Fragments Lifecycle .

Difference methods of Creating Threads

One fragment Related Coding problem where UI of Fragment B has to be update from fragment A.

How Garbage Collector Works in Android.

Questions on Dalvik Virtual Machine.

Different types of BroadCasts and Broadcast Receivers

2nd Round

DS Questions

Find Total number of leaf Nodes in B-tree

Clone Linklist with random pointers.

Find Missing number in AP.

Print Left View of B-Tree.

Some Java Questions based Exceptions

3rd Round

Current Project Discussion.

Few questions related to that.

Questions on Telephony Class and Geofencing.

Problem related to Reverse geocoding.

Persistent Storage types in Android.

Discussion on Content Providers and Shared Preferences.

Coding on Content providers

Given a rotated array 'K' times (K unknown), find a number in most efficient way.

Scheduling algorithms in OS. (Implement LRU using choice of your language)

BFS traversal of B Tree.

Key is to Stay ultra confident ,smile and try solving each problem with whatever way you know.

Good Luck.

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550. Snapdeal Interview Experience | Set 8 (On Campus)

Snapdeal conducted placement drive at my campus in January last week for Software Developer. Eligibility- All CSE (no pointer criteria)

Online Test-

21 (MCQ) +2 (Coding) in 1 hr. Test conducted on hackerrank

21 MCQ had almost 10 aptitude and 11 C output based questions.

Give preference to coding questions. Try to solve both questions (Pass all test cases for one of the questions and do attempt the other question (even brute force would pass many test cases)

Aptitude can't be solved just within a minute. Solve C o/p based questions first.

Questions-

1. Overlapping paintings, find no. of paintings that can be seen distinctly, extreme co-ordinates of paintings are given. Ordering of paintings matter. (Assume heights of all paintings are same, start and end coordinates are given)

E.g.

5
1 4
2 6
3 4
8 10
7 10

XXXX

XXXXXX

XX

XXX <- This painting is hidden completely

XXXX

Simple O(N^2) solution. Starting from rightmost painting, check if it completely hides any painting or not based on start and end coordinates. (modification of interval selection problem)

2- Given points of two lines segments A(x1,y1 x2,y2) & B(x3,y3 x4,y4) find whether the 2 segments intersect or not.

Simpler approach (short code)-

http://community.topcoder.com/tc?module=Static&d1=tutorials&d2=geometry2#line_line_intersection

Length / complicated soln-

<http://www.geeksforgeeks.org/check-if-two-given-line-segments-intersect/>

Expected cut-off -

I solved 2nd question and passed 1 test case for first question (misunderstood the question during online round !! :p) and solved 4 MCQ's only (all fluke)

So my advice, do solve both coding questions for sure and solve C o/p questions in last 15 min

Round 1 – F2F Technical

Avg 20-30 mins. 22 shortlisted

My went on for 1 hr to 1hr 15 mins

Internship based dicussion (20-30 mins). Based on Cloud, Virtualization, Networking

Q1- Given N, find LCM from of all numbers from 2 to N. Give the complexity expressed in the form of Number of prime numbers <= N. Had to be really precise in terms of complexity (in terms of prime factors, maximum recurrences, each recurrence complexity). Long dicussion on complexity. Don't say any method whose complexity you cannot prove. (E.g saying that i can use Sieve of Eratosthenes for prime pre-processing will lead to question of complexity of Sieve which is O(Log LogN), that cannot be proved trivially.) So avoid using any such terms

Q3- Spring / Hibernate in JAVA

Told him i work in C/C++ only. No experience in JAVA

Q2- Types of SQL- NoSQL and SQL(Relational DBMS). Why the need of NoSQL- Big Data Analytics

Q3- How would you design DBMS for Snapdeal's website's shoe section.

Now if you want to further break it into Sports and Casual Shoe would you break the DB into two or add another entity ? Full justifidcation

I initially answered with a multi-level indexed structure for DBMS storage. Could not answer on the second part of the question. He asked if i knew DBMS and i told him I do not know DBMS. He skipped the question and ended the interview. Told him i had advanced DBMS lab in my course currently and would learn it before graduating.

Round 2- Coding Round (2 Hrs)

10 shortlisted

Q1- <http://www.geeksforgeeks.org/turn-an-image-by-90-degree/>

Q2- <http://www.geeksforgeeks.org/given-a-sequence-of-words-print-all-anagrams-together/>

Q3- <http://www.geeksforgeeks.org/find-a-triplet-that-sum-to-a-given-value/>

I was the first one to solve all 3 in 45 mins roughly and went for next interview.

Shortlisting criteria- 2 questions in 1 hr – 1hr 15 mins even though they said that we had 2 hrs to solve all 3 questions !!

Round 3- F2F Technical

4 shortlisted. This round went for almost 1hr 45 min - 2 hrs for me since I solved the Round 2 question earliest. Other 3 had almost 45 mins interview.

Q1- Variation of

<http://www.geeksforgeeks.org/find-possible-words-phone-digits/>

Given a dictionary of words and a number n. Find count of all words in dictionary that can be formed by given number n.

I started by exponential solution and reduced it to polynomial. We discussed various approaches and tried a variety of methods and after 1-1.5 hrs of discussion finally ended up with an O(1) solution with some pre-processing overhead. After achieving O(1) time complexity, he asked to further optimize the space complexity.

Usage of Trie / TST. Internal Implementation of Hashing structure and replacing the hashing mechanism using Trie / TST.

Q2- Given an array of elements. We can perform following operation only- Increase an array element. Cost of operation is the amount of increment made per array element. Now for a given H, we need to make any H (not necessarily consecutive) elements of array equal with minimum cost.

E.g.

N=6, H=4

2 3 5 6 4 4

changes to -> 4 4 5 6 4 4

Cost is (4-2 + 4-3 = 3)

N=6, H=3

2 3 5 6 4 4

changes to -> 2 4 5 6 4 4

Cost is (4-3 = 1)

Optimal complexity- O(N)

Round 4 -F2F (HR)

3 shortlisted

Typical HR round.

I would like to thank geeksforgeeks for an exhaustive set of interview questions and study material on data structures-algorithms.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

551. Snapdeal Interview Experience | Set 9 (On Campus)

Snapdeal visited our campus recently and here's my interview experience.

Round 1 (Online) :

Test was on hackerrank. We had to do 22 MCQs and 3 coding problems which are as follows:

- 1) Given a string of parenthesis only, check if it's valid or not.

<http://www.geeksforgeeks.org/check-for-balanced-parentheses-in-an-expression/>

- 2) Find next greater number with same set of digits.

<http://www.geeksforgeeks.org/find-next-greater-number-set-digits/>

- 3) Given an array where each element is the money a person have and there is only Rs.

3 note. We need to check whether it is possible to divide the money equally among all the persons or not. If it is possible then find Minimum number of transactions needed.

Round 2 (Technical F2F-1) :

- 1> The interviewer introduced himself and then told me tell about myself.

2> Discussion on the languages I am familiar with [C,C++ and C# in my case], then whether or not I'm strongly familiar with Java or any other Web Development Languages.

3> Little discussion on Final Year Project and the summer training.

4> Basics of DBMS, difference between RDBMS and DBMS, Keys and its types, indices, joins and its types with example, normalization and denormalization. [Some of my friends were asked about OOP Concepts as well]

5> A simple program to check whether a number is palindrome or not.

6> Different types of traversals of a tree, with example.

7> Codes for Post-Order, In-Order and Level-Order Traversal of a binary tree.

P.S : These questions were asked to my friends

1> Intersection of 2 linked lists.

2> Check whether or not a linked list has a loop.

3> Left [or Right] view of a tree.

4> Kth element from the end, of a linked list.

5> Check if a linked list is palindrome or not.

6> Boundary of a tree

Round 3 (Technical F2F-2)

1> Why e-commerce and not others.

2> Find the number of connected components [islands] in a matrix formed with only 0's and 1's. [With Code]

<http://www.geeksforgeeks.org/find-number-of-islands/>

3> In a matrix of only 0's and 1's, where in each row, there are only 0's first and then 1's, find the row with maximum number of 1's. [Start with right top corner $O(m+n)$] [With Code]

4> About a language apart from C and C++, so I said C#, and then discussion about

Collections and Exception Handling in C#.

Round 4 (HR F2F)

All students who got selected for Technical Round 2, were selected for HR Round.

This round was a really good one, because the HR interviewer asked different questions to different people

A few puzzles like 25 horse puzzle were asked and a few maths problems like number of rectangles in a chess board.

He asked me to tell something about myself, which isn't there in the resume.

And mind well each and every word you speak, each and every conscious or subconscious gesture of yours is taken into account. [The HR round was one of the bests I've ever had, gave some feeling of the Roadies Interview XD]

The most important thing for SnapDeal is that, don't give up on the questions at all, because even if you don't hit the solution, the interviewer provides lots of hints, and in the end, even though you give him an inefficient solution, but provide the proper code, you will be through :).

I'd like to thank GeeksForGeeks community for sharing their knowledge which helped me secure this interview.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

552. Snapdeal Interview Experience | Set 10 (On Campus)

Round 1 : Online Test

Duration : 1 hr

Content : 22 MCQs , 2 codes

Platform : HackerRank

22 MCQs : (Non trivial)

Quantitative Analysis : Time Speed Distance , Races , Percentage , Ratio Proportion , Probability , Number System

Code Snippets :

Some very good questions which require an in depth understanding of pointer concepts, increment decrement operators, printf function, union etc

Examples :

```
->for(sprintf("1" ; !printf("0");printf("2"))
      printf("Snapdeal");
->int a=-6
      cout<<(a>>2);
->printf("%s","snap" "deal");
->union u1{
      int a:2;
      int b:3;
      int c:4;
}var;
int main() {
    var.a=2;
    var.b=-6;
    var.c=4;
    cout << var.a << " " << var.b << " " << var.c;
}
```

Codes :

1) Overlapping paintings, find no. of paintings that can be seen distinctly, extreme co-ordinates of paintings are given. Ordering of paintings matter. (Assume heights of all paintings are same, start and end coordinates are given)

E.g.

5

1 4

2 6

3 4

8 10

7 10

XXXX

XXXXXX

XX

XXX <- This painting is hidden completely

XXXX

2) Given points of two line segments A(x1,y1 x2,y2) & B(x3,y3 x4,y4) find whether the 2 segments intersect or not.

<http://www.geeksforgeeks.org/check-if-two-given-line-segments-intersect/>

I solved 2nd code (all test cases), all mcqs, 1st code (2/6 test cases) [ranked 3rd in online test]

Its very important to solve atleast one code.

My advice :

->Before the test : check geeksforgeeks snapdeal interview archives and solve all the online coding questions ->During the test : (If you think you cannot do both the codes) Find the easier one and 'complete' it within 20 mins,solve as many mcqs in 30 mins , in last 5-10 mins try to pass the sample test case of the 2nd code (something is better than nothing)

Day of interview:

Round 2 : Group Fly : Major Elimination Round (Paper-pen)

3 coding questions (any language)

duration : 1 hour

Only function to be written (no main())

1) Check for balanced parentheses in an expression (STL allowed)

<http://www.geeksforgeeks.org/check-for-balanced-parentheses-in-an-expression/>

2)Given an array of positive and negative numbers , find the maximum sum of any subsequence.

Return both the sum and the subsequence.

Ambiguous Question:

Maximum sum of any subsequence (note: it's not increasing subsequence)will be sum of all the positive numbers in the array [Trivial]

Therefore, I interpreted subsequence as subarray <http://www.geeksforgeeks.org/largest-sum-contiguous-subarray/>

3)Check if Btree is a BST

<http://www.geeksforgeeks.org/a-program-to-check-if-a-binary-tree-is-bst-or-not/>

Round 3 :1st F2F Technical

1)Detailed Discussion on projects -> Note : He didn't ask anything related to the content of my project but the actual use of the project in the real time world , the pros and cons of it , the scope in future , where is the technology applied presently etc

2) code : There are two sorted arrays. First one is of size m+n containing only 'first' m elements. Another one is of size n and contains n elements. Merge these two arrays into the first array of size m+n such that the output is sorted.

This question was a modified form of <http://www.geeksforgeeks.org/merge-one-array-of-size-n-into-another-one-of-size-mn/>

But this solution is of $O(m + n)$ for merging + $O(m)$ for shifting : he asked me to optimize without shifting

Don't give the optimized solution first : My plan of action : $O(n^2)$, $O(n\log n)$, $O(m) + O(m+n)$, $O(m+n)$

He was very happy with the way i approached the problem.

3) DBMS concepts : Indexing : why is it required , how is it achieved , why B+ tree , difference between B tree and B+ trees , types of indexing , difference between them ,

advantages and situations where they can be used , can we make an index for a group of tuples (ans : yes) , why do we need such an index , multilevel indexing.

4)DNS – Domain name servers : what are they , how do they operate , what is iterative dns search , recursive dns search , TLD servers , Authoritative servers , why do we need them , how are they maintained , what are proxy servers , why do we need them , what are mail servers , under which server are they maintained (ans : under authoritative servers)

Round 4 : 2nd F2F Technical

1)Design a placement software

Requirements

- a)Choose a group of panelists for a particular college.
- b) panelists have different expertise
- c) colleges may have engineering , arts , science sections as well
- d) A panelist can be out for recruitment max 3 days in a fortnight (I asked him to give access to the personal calenders of all panelists)

He asked me to draw the ER diagrams first

Than asked me to show the normalized tables

Then he asked me to code the whole thing especially the 4th requirement : time constraint (i did it using boolen vectors and kmp algorithm)

He was happy with my design.

Advice for design question : Ask for requirements first and keep writing them on a paper , and keep cross questioning on the available data.

2) code : Find square root of a number

I gave an interative O(n) solution ,

He told me to optimize : I did it in O(logn) with binary search

Further optimize to O(1) : I got stuck ,after a lot of discussion on different techniques he gave me a hint that he would be using my function a lot of times then I immediately told him to use hash maps and save the previous results.

He started smiling and asked me if i had any questions for him 😊

3)OOPs concepts :Aggregation , composition, encapsulation , abstraction , inheritance , polymorphism.Went further deep into the concepts of encapsulation and abstraction, difference between them , a real world example (i used mobile phone : mobile phone blue print is abstract class , blueprints for different versions of the same mobile i5,i6 etc are derived classed , actual mobile phones are objects encapsulated.),what is data hiding , relation between data hiding , encapsulation , abstraction.

Round 5 : HR round

If you have made till here that means you are selected.The HR guy in snapdeal is the coolest HR I have met .He asked me name of the campanies that have hired me till now,i gave him both their names and he was like ‘tab toh tum rejected ho bhai ’.

(non)Typical HR questions followed :D.

I would like to thank geeksforgeeks for its exhaustive set of questions with optimal solutions and explanation, for the company archives, and the various interview experiences and success stories. Keep updating.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

553. Snapdeal Interview Experience | Set 11 (On Campus)

SnapDeal visited to my campus recently. Below is my interview experience.

Round 1(online)

20-23 MCQ Questions: Questions were mixture of Quantitative aptitude and Computer Science.

Three Coding Question.

1) Given a string of parenthesis only, check if it's valid or not.

<http://www.geeksforgeeks.org/check-for-balanced-parentheses-in-an-expression/>

2) Find next greater number with same set of digits. <http://www.geeksforgeeks.org/find-next-greater-number-set-digits/>

3) Given an array where each element is the money a person have and there is only Rs.

3 note. We need to check whether it is possible to divide the money equally among all the persons or not. If it is possible then find Minimum number of transactions needed.

Selection for the next round was depends on the number of programing question you solved and number of test cases passed.

Round 2(F2F) 30-min

Only 1 or 2 Questions were asked to each of us and all of them were from DATA STRUCTURES.

1>Check weather a given Binary tree is Binary Search Tree or not.

<http://www.geeksforgeeks.org/a-program-to-check-if-a-binary-tree-is-bst-or-not/>

2>In an array of integers, find out maximum value of $(j-i)$ such that $A[j] > a[i]$ in $O(N)$ time.

<http://www.geeksforgeeks.org/given-an-array-arr-find-the-maximum-j-i-such-that-arrj-arri/>

For both the question they were looking for full optimization and proper code starting from scratch.

They asked lots of Questions on Dynamic Programming and Advance Data Structure to my friends.

Round 3(Coding round) 1-hour

Three Question were given to all of us to solve within 60 mins.

1> Print Maximum Contiguous Sum in an array.

Sample: 5, -1, 3, 7

ANS= 12 (3, 7, 5)

<http://www.geeksforgeeks.org/largest-sum-contiguous-subarray/>

2> Find Longest Increasing A.P in a Sequence of numbers.

<http://www.geeksforgeeks.org/length-of-the-longest-arithmetic-progression-in-a-sorted-array/>

3> Check whether a denomination of given money is possible or not from the given denomination. (Note: only one instance of each note), if possible then print yes and number of notes require else print No.

Sample 1:

I/P: 10, 100, 50, 200, 150

50

Output: yes, 1

Sample 2:

I/P: 10, 60, 50, 100

121

Output: NO

Hint: Last two Questions are DP.

Round 4(F2F) 30 min

Two Puzzle Questions.

1> 5 pirate problem.

2> A bias coin of which probability of Head is 0.6 and tails is 0.4. This coin is going to be used in Cricket Match, so task was to suggest a method to unbiased the coin.

For some of my friends, they asked programming questions and 90% of them were on Dynamic programming.

Round 5(HR) 10 min

Standard HR Question.

Suggestions: Prepare Data Structure and Algorithm properly, they were looking for people having good coding skill, so CODE each question while preparing.

Most of the questions were from Dynamic Programming, prepare DP. First tell them recursive solution and then how you are going to solve the question using DP, after that start coding.

Don't panic, if you are not getting optimal solution, try to optimize as much you can (DON'T GIVE UP). Then try to code your solution (most important part).

Thanks to GeeksforGeeks for proving such awesome platform for preparation. This is the best site for interview preparation for any company. Friends try to utilize this platform as much you can.

To GeeksforGeeks team please add puzzle problems. We need a section for puzzles.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

554. Myntra Interview Experience | Set 3 (On-Campus)

Recently Myntra visited our campus for hiring full timers as well as interns . I would like to share my experience as a full time applicant.

Online Round

This was a 2 hour round consisting of 5 mcqs and 2 codes

The mcqs were pretty much simple based on DS, DBMS, OS, OOP, C

The codes were as follows

1> Given N leaves numbered from 0 to N . A caterpillar at leaf 0, jumps from leaf to leaf in multiples of $j(j,2j,3j \text{ like this})$. j is specific to the caterpillar,until it reaches the end . On whichever leaf it jumps it eats a little bit . You have to find out how many leaves ,from 1 to N, are left uneaten after k caterpillars have reached the end,each with their own jump factor (j).All the caterpillars begin at leaf 0.

example :

N=10

k(number of caterpillars)=3

jump factors are 2 ,3,4

then all the leaves eaten by the first caterpillar are (2,4,6,8,10)

those eaten by the second one are (3,6,9)

those by the 3rd one (4,8)

so the uneaten leaves are 1,5,7

output=3

2> Given a number $n > 0$, you have to find the number formed by just inverting the bits of the number .

for example: binary of 5 is 101 ,inverting the bits we get 010 =2

so input=5 output=2

PS : merely $\sim n$ wouldn't work 😊

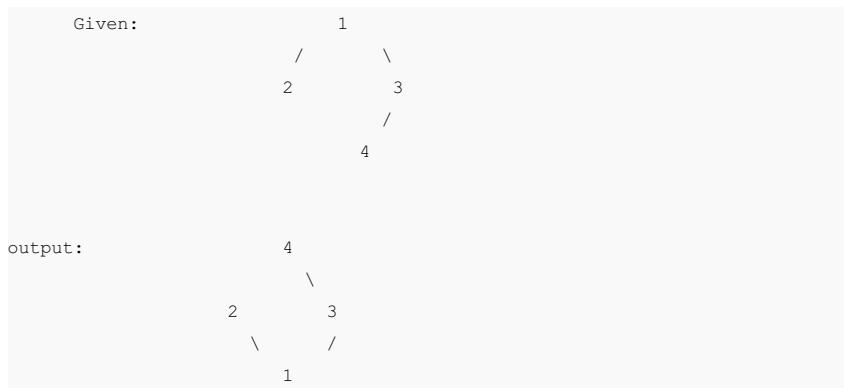
PI round 1

A brief discussion on my projects and internships.A thorough discussion on whichever languages,frameworks,i had used in my projects.

Code 1

Given a binary tree ,you have to invert the tree ,i.e. the parents would become children and the children would become parents

for example



Code 2

Given a set of numbers ,you have to find the max and the second max in minimum number of comparisons.

Apart from the codes there were some questions on OS,process stack, heap memory in Java, Garbage collection,OOP principles and comparison based sorting

PI round 2

Code 1

Given a very large number (10^7-10^9) and a small number (5000-10000).

I have to calculate the product. It was up to me how i would represent the large number.

Code 2

Given a set of integers ,you have to find the largest number possible by rearranging the contents in the array

for example :

input: {78,99,101}

the largest number possible by rearranging the contents of the array is 9978101 .

Discussion on DBMS , what is indexing? ,on which attribute should we have an index for efficient retrieval... what data structures are used for indexing ..advantages of B+ tree
When should we not use indexing? some basic questions on SQL

PUZZLE

Two boys A and B enter a tunnel . At 2/3rd of the tunnel,they see a train coming towards the tunnel ,the train is still at a distance from the tunnel . A runs back to that end of the tunnel from which they entered the tunnel,B runs towards the other end of the tunnel. Both of them just make it without being run over by the train . The train is travelling at a speed of 60kmph.

Find the length of the tunnel

Hint: We need one more variable to solve this question.But that wont be told at the beginning,. We have to find out which variable that is.

PI round 3 (Managerial)

Puzzle 1

Given a biased coin,how would you take an unbiased decision .You don't know whether it is biased towards heads or tails.

Puzzle 2

Given a cylindrical glass of water,how would you conclude whether it is more than half filled ,or less than half filled. The glass is not transparent and you do not have any measuring instrument. And you cannot spill out or add anything.

Puzzle 3

A man lives on the 12 th floor . Everyday he uses the lift ,comes to the ground floor and goes to office.On his return ,three cases are seen

1> whenever he is with someone in the elevator he takes the lift directly to the 12th floor
2>whenever its raining he takes the elevator to the 12th floor.

3> on any non-rainy day when he is alone ,he takes the elevator to the 10th floor and walks up the stairs 2 floors.

Explain the situation.

Puzzle 4

A and B are twin brothers. A is older than B by 5 minutes . A celebrates his birthday each year on 16th march whereas B celebrates his birthday on 15th march . Explain the situation.

Apart from this ,he asked questions like ,what are my career goals,what do you look forward to in a boss ,how do you see yourself in 5 years ,etc etc (you all know it :P)

HR Round

If you have made it this far,it means you are doing pretty great . The HR round was kind of a normal chitchat session,..

Thank You Geeksforgeeks! \m/

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

555. Microsoft interview Experience | Set 48 (For 1.5 Years Experienced)

Here goes my experience.

Skype Round:

- 1) Level order traversal of a binary tree. Extend or modify the code to zig zag traversal.

<http://www.geeksforgeeks.org/level-order-tree-traversal/>

<http://www.geeksforgeeks.org/level-order-traversal-in-spiral-form/>

Face to Face Round 1 :

- 1) Questions about my previous work.
- 2) Sort an array of 0's, 1's, 2's.

<http://www.geeksforgeeks.org/sort-an-array-of-0s-1s-and-2s/>

Face to Face Round 2 :

- 1) Print last n lines of a file

<http://www.geeksforgeeks.org/print-last-10-lines-of-a-given-file/>

- 2) Right and Top view of a binary tree

<http://www.geeksforgeeks.org/print-right-view-binary-tree-2/>

<http://www.geeksforgeeks.org/print-nodes-top-view-binary-tree/>

Face to Face Round 3 (Hiring Manager) :

- 1) Questions about my previous company work and why would I want to shift.
- 2) Given a matrix which is spirally sorted. Remove an element and insert another element without messing up with the sorted order. More importance was given to coding

Face to Face Round 4 (Bar Raiser) :

- 1) Given an array filled up with 1 to n^2 in randomized order. Fill it in a square matrix of

size n.

2) Give test cases for atoi function.

A big Thanks to GeeksforGeeks for providing such a brilliant platform for interview preparation. Keep up the good work 😊

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

556. Flipkart Interview Experience | Set 19 (For SDET)

Telephonic 1:-

- 1) Given string s and string t find whether all permutation of t is present as substring in s.
- 2) Find kth node from last in single linked list

F2F 1:-

Deep discussion about automation framework and project.

F2F 2:-

Discussion about testing framework

Find middle of linked list

Find last cell visited in 2D matrix traversed in Spiral Fashion

Find if one table is replica of other table in SQL

Discussion about Cookies,access code,HTTP status code

F2F 3:-

Discussion about project.

How will test a feature assuming you cant have production data in QA.

What are shorting of above.

F2F 4:-

Given a login page come up with all possible test case from login API point of view and UI point of view.

Given two string find whether two are anagram of each other or not. Write clean and runnable java code with covering all possible test cases.

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mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

557. Visa Interview Experience | Set 4 (On-Campus)

Prelims : Online Test in Mettl.com

75 minutes Test on Mettle.

1. Coding Skills: 2 Questions
2. Programming: 10 Questions
3. Machine Learning Hadoop MCQ: 6 Questions
4. Networking MCQ: 6 Questions
5. Operating System: 6 Questions
6. Infrastructure: 6 Questions
7. Application Security: 6 Questions

Coding round , which consisted of 2 questions , was very easy questions (From DP , arrays , Strings) . The questions was selected from a pool . So don't expect every candidate to get the same questions (all sections). Hadoop questions were mostly code related .

1st Round Interview :

Basic Questions from OS , Networks and Software Engineering .

OS: Race condition, Semaphore , Job Scheduling

Networks : Very basic like TCP handshake etc

Soft Engg : Diff testings , Design pattern (definition) , SDLC

Nothing on Projects and Internship

2nd Round Interview :

Since I am Interested in Info Sec , this panel asked questions from Security only : DDoS , how would you propose a solution to DoS , network attacks , etc . The guy who was in the panel was heading a security division , so we were practically talking about a lot of stuff regarding InfoSec.

3rd Interview :

It was entirely non technical for me but for others it was an HR+ Technical Round . The panel was not an HR guy . He was technical head of a division in Visa San Francisco . So he talked about technical stuff to other but for me nothing. We talked for a bit and that was the end of last round .

Hope this helps some Visa Inc aspirants . All the best .

If you like GeeksforGeeks and would like to contribute, you can also write an article and

mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

558. Amazon Interview Experience | Set 175 (For SDE)

Here's my interview experience for Amazon, Bangalore for SDE

Round 1 (F2F)

Q1.) Given a function rev(int i) which reverses the segment of array ar[] from 0-i, Implement a function sort() using rev().

Q2.) Given an array ar[] of length 'n' and an integer 'k' such that k < n. You need to maintain a window of size 'k' starting from i=0 to i=k and print the MAX of that segment. The window moves forward by 1 element.

Round 2 (F2F)

Q1.) (Variant of Children-Sum Problem)

Given a tree, implement a function which replaces a node's value with the sum of all its childrens' value, considering only those children whose value is less than than the main node's value.

Eg: input = 60->50->80->40 , output = 90->40->40->0

Q2.) There are millions of string in the database. How would you store them for efficient searching. You also need to print all anagrams together many times, now how would you store them and insert if a new string is added to database ?

Round 3 (F2F – Hiring Manager Round)

- * Why are you leaving the company so early ?
- * Discussions on project and current work in the previous company.
- * Discussion on college projects.

- * Design a game 'fifteen' – http://en.wikipedia.org/wiki/15_puzzle
Game me to write code of various moves, discussed optimization strategies and time-complexity if computer is given to solve it.

- * Behavioral questions.

Round 4 (Telephonic)

Q1.) Most challenging problem faced (obviously in projects), how you solved it.

Q2.) Discussion on Design patterns.

Q3.) Design Uber – [http://en.wikipedia.org/wiki/Uber_\(company\)](http://en.wikipedia.org/wiki/Uber_(company))

He was trying to judge what all aspects the person considers

Classes, Objects, search and booking cab algorithms, implementation and technology

Q4.) Extension of previous question – Write code to search nearest 10 cabs.

Code is required in all questions. Practice code on paper.

Thanks Geeksforgeeks for providing such a good platform to prepare.

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559. BrowserStack Interview Experience | Set 6 (On-Campus)

BrowserStack visited our campus during the placement season of IITs.

Round 1: Online test

There were 2 programs mainly related to app dev which were to be coded in 3 hours.

1. Write a program which takes JSON as input and gives prettified JSON
2. C Comment parser.

Round 2: Online Test

There were 3 problems to be solved in 5 hours.

Problem 1:

Consider the following series:

A := 1

B := A*2 + 2

C := B*2 + 3 and so on...

Write a program that:

- outputs the number corresponding to a given letter;
- given a string of letters like 'GREP', computes the sum of the numbers corresponding to all the letters in the string (i.e., G + R + E + P), as given by the above series; and
- given a large number (that would fit into a standard 32-bit integer), finds the shortest string of letters corresponding to it.

You may use a greedy approach for the last part. Compute the values of the numbers corresponding to letters as and when required and DO NOT pre-compute beforehand and store them in a data structure

Problem 2:

The program will be given a folder named (optional, if not passed assume cwd). The program will print something like this:

```
$ tree
.
|-- README.md
|-- closure
|   |-- currencySymbols.js
|   |-- datetimeSymbolsExt.js
|   |-- datetimesymbols.js
|   |-- numberSymbols.js
|   `-- pluralRules.js
|-- e2e
|   |-- i18n-e2e.js
|   |-- localeTest_cs.html
|   |-- localeTest_de.html
|   |-- localeTest_en.html
|   |-- localeTest_es.html
|   |-- localeTest_sk.html
|   |-- localeTest_zh.html
|   `-- runner.html
|-- generate.sh
|-- run-tests.sh
|-- spec
|   |-- closureI18nExtractorSpec.js
|   |-- converterSpec.js
|   |-- parserSpec.js
|   `-- utilSpec.js
|-- src
|   |-- closureI18nExtractor.js
|   |-- closureSlurper.js
|   |-- converter.js
|   |-- parser.js
|   `-- util.js
`-- update-closure.sh

4 directories, 26 files
```

An optional second parameter supports filtering the tree with grep like filter, only matching nodes. Eg:

```
$ tree . src
.
`-- src
    |-- closureI18nExtractor.js
```

```
|-- closureSlurper.js  
|-- converter.js  
|-- parser.js  
`-- util.js
```

It should be possible to use arbitrary regex expression for filtering.

Problem 3:

In this program you have to consume Twitter.com's REST API.

Write a program that, given a hashtag H and a number N,

- fetches the N most recent images (no duplicates) associated with that hashtag
- and generates a web-page (an HTML file would do) which displays these images as a simple slideshow

You may attempt this problem in any programming language but you may NOT use a third-party library like twitter4j. You may have to create a new Twitter account if you don't already have one. Visit [Twitter App Management](#) to register a new app and obtain an API key. See [Twitter REST API](#) docs for more details.

Problem 3(replacement)*:

Write a library in any programming language, that provides a systematic wrapper around the [BrowserStack REST API](#) (something similar to twitter4j, which is a Java wrapper around Twitter's official REST API).

You will be judged on your choice data structures and methods for your library. You can create a test account at https://www.browserstack.com/users/sign_in. If you then go to your [account profile](#) to find your username and authentication key.

Bonus points for packaging the library as a publishable module.

*Due to proxy servers in my college,it was not possible to submit a request to the twitter's server(at that time who would like to waste time configuring his local machine to handle the issue) so I asked them to give another problem,They were nice and gave me a replacement problem.

Round 3: HR Interview.

Most of the questions were related to my projects and internship.He also asked me to rate the knowledge of the programming language I'm most comfortable with and then he asked some very basic but tricky questions from the language.

I'd say BrowserStack is one of the company where you don't work rather you learn exponentially. I'm glad that now I'm a part of it.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

560. AXIO-NET Recruitment Process Experience

Hello guys, I am sharing the recruitment process experience of Axio-Net.

I got a call from Axio-Net by email. After that, I had appeared for their first round.

First round was a aptitude round. Their are bunch of simple basic numerical questions, 1 Sudoku problem and few basic technical questions. I had selected in the first round and was waiting for the second round.

After 7 days from the 1st round, they again called me for the 2nd round. In that 2nd round, the interviewer was the director of axio-net, he is a nice guy. He asked me few basic numerical and few basic programming questions. That's it. They told me that if I'll be selected by them, they'll call me.

If any fresher will appear for axio-net recruitment process, then prepare well your aptitude skills and basics of the technical. If possible try to solve the Sudoku problem.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

561. Visa Interview Experience | Set 5

Written Round:

75 minutes Test on Mettle.

Assessment Composition:

1. Coding Skills: 2 Questions (One que is from DP(easy one like 0-1 knapsack) and other is array)
2. Programming: 10 Questions
3. Machine Learning Hadoop MCQ: 6 Questions
4. Networking MCQ: 6 Questions
5. Operating System: 6 Questions
6. Infrastructure: 6 Questions
7. Application Security: 6 Questions

First Round (20 min):

- First he told me about himself, then he asked about project.

– My one project was basic UNIX shell, so he asked me to make one and try to illustrate (mainly focus on FORK and EXEC).

– SDLC from software engg.

Second Round (1 Hour):

– Tell me about yourself and then project..(try to elaborate project as much as u can).

– Digital Signature (Don't start with its definition, always start with situation/example considering there is no digital signature and then its use and importance).

– D-dos attack and how to stop it.(i told it with help of IDS and IPS)

– Explain working of IDS and IPS.

– Context switching, Starvation , aging (Again try to explain).

– Difference b/w Micro kernel and macro kernel.

– Difference b/w argument and parameter.

– Indexes in DBMS.

-Diff b/w Interface and Abstract class.

– Different topology in networking.

– Where should u prefer BUS topology instead of ring topology and vice versa.

– Que from unix-

1-Mode switching

2-Single User system(i had no idea about this que, but i tried to explain it with pseudo terminal and we restrict its value to 1).

3-Find a pattern in a file(use grep).

4- cat command and how can we use it for input to a file (explain).

– SDLC and different type of model and steps in different model.

– Situation que – Client want his project in very small time span, then which SDLC model will u prefer...(i answered him PROTOTYPE model but this was wrong , correct is RAD model, but try to explain any model u choose to develop project).

– Analytic que- Two trains start from equator and start running in different direction and they will never collide...so which train will have more wear n tear first...use concept of rotation, relative motion and air resistant).

– Lateral thinking que- A man went to a bar and as he reached to bar-tender, bar-tender

showed him a gun and that man left that bar...explain scenario.

I had only two technical rounds but some of my frndz had three.Following ques r asked from my frnds

- XSS attack
- JSON.
- Digital Certificate.
- OOPs concept

HR Round:

Tell me about yourself. Tell something about school life (Prepare some fiction out of box story for this que). Why should we hire you.Where do you see yourself in next 5 yr. Any plan for Post-graduation(M.S)..(play diplomatically in this ans). One puzzle of 8 balls containing one defective ball and then some condition like u don't know whether defective ball is light or heavy than others.

That's all about my experience.

TIP: Prepare CRYPTOGRAPHY and try to ans as much as u can and in details, even if u dont have enough knowledge about that que...ALL THE BEST

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562. Hike Interview Experience | Set 6

Hi, Recently I was interviewed by Hike. I have 4 years of experience.

Round 1

Machine Coding round to create an android application to take pictures from and upload to a server.

Designing , thread safety and performance was evaluated

Round 2

1.Given a sorted array of m size with m elements

and another sorted array of m+n size with n elements starting from the 0th index .

Merge these two arrays in linear time without using extra space

Round 3

questions on hashmap working ,concurrent hashmap and Collections.synchronize

Round 4

How to analyze usage history of a application

Reverse alternate levels of a binary tree

Round 5

Designing a LRU Cache which is thread safe and can be scaled

Designing a file sharing mechanism between two users .

Concepts of distributed systems were asked.

I thank geeksforgeeks which helped a lot in my preparation.

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563. Amazon Interview Experience | Set 176 (For SDE 1)

Telephonic Round 1:

- 1) You are given an integer array. Create a Binary Search Tree from it.
- 2) You are given a Binary Search Tree. Write an algorithm to print the Path Array of a given key.

PATH ARRAY:

- a) If the given key is not present in the tree than the Path Array is equal to “-1”
- b) If the given key is present in the BST, path array tells you the path (in terms of left & right direction) that you take from root to reach the given key. If you go towards right add “0” to the path array and if you go towards left add “1” to Path Array.

Telephonic Round 2:

- 1) You are given an array as an input. The array is organized in such a way that its element are arranged in increasing order up till a certain index and in decreasing order after that. Write an algorithm to search an element in such a array.

<http://www.geeksforgeeks.org/search-an-element-in-a-sorted-and-pivoted-array/>

Face To Face 1:

- 1) You are given two array of “n” length. First array contains the arrival time of various trains on a particular station. Second array contains the departure time of those trains. Write an algorithm to find out the minimum number of platforms that will be required to accommodate all the trains.

<http://www.geeksforgeeks.org/minimum-number-platforms-required-railwaybus-station/>

- 2) You are given a binary tree. A light source is placed on the right of the tree. Print the list of all the nodes over which the light is falling directly.

Face To Face 2:

1) A new feature is to be implemented in Kindle. FEATURE : The user inputs the no. of days in which he would like to complete a particular book and the Kindle will create a reading plan for the user.

Write an algorithm which will output the reading plan to the user. The reading plan should be created keeping in mind that the user would like to begin and end reading a particular "chapter" of the book on the same day.

2) Some general questions:

- a) Tell a project where you had faced tight deadlines and you had to skip a few things.
- b) How did you decide, which things should be skipped?
- c) If given a chance to implement the same project again, how will you implement it?

I gave all the answers with respect to a college project.

Face To Face 3:

1) A very brief discussion of what my current responsibilities are. It was a 5-10 minutes discussion only. I feel that the discussion was brief as my experience was just a little over 1 year.

2) Given a binary tree write an algorithm for spiral traversal of the tree.

<http://www.geeksforgeeks.org/level-order-traversal-in-spiral-form/>

3) You have N documents, where N is very large. Each document has a set of words lets say w₁,w₂..w_m where m might differ for each document. Now you are given a list to K words lets say q₁,q₂..q_k.

Write an algorithm to print the list of document which have the K words in them.

This question required a number of hints. I finally came up with the solution of creating a combined trie for all the documents. After listening to my solution he said that it was good but could have been better with B-Tree. I told that as of now I am not able to memorize the concept of B-Tree and he said he was satisfied with the trie solution that I had given.

Face To Face 4:

1)

- a) What are various types of tree traversals and diff between them?
- b) Which of the traversals would you require for creating the tree (unique) back?

2) You have a very large array, but the array can contain only three elements: 0,1 & 2.

Write an algorithm to sort the array.

Count Sort was one option, but it didn't strike to me at that point of time. So I came up with a trivial algorithm which sorts by putting all the 2's to the right and all the 0's to the left, 1's get sorted by themselves.

For all the questions in all the interviews I was asked for the time complexity of the problems. However they didn't expect me to do some calculation and then come up with a very tight bound solution. They just wanted a rough estimate of the time complexity of the solutions.

Allocated time for all the interviews was 1 hour.

I would like to thank GeeksForGeeks for helping me with the preparations.

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564. Symantec Interview | Set 2

Hi, Recently I was interviewed by Symantec.

Round 1, Telephonic, 1 Hour

- 1) Project related stuff from current company and from internship, all the questions were from Resume itself.
- 2) OOPS using C++, was asked almost everything from definition of class to pure virtual functions.
- 3) Basic Linux commands
- 4) General bootup process when computer is turned ON.

Round 2, Online(Screen shared), 1.5 Hours

- 1) Function to reverse a string.
- 2) How to implement fopen, fseek and other file handling functions in Linux, went to discuss various techniques and various constraints like handling a large file.(Almost discussed it for 50 mins)
- 3) Converting a number from one base to another, like decimal to hex, binary to hex etc etc

Round 3, Online(Screen shared), 1.5 Hours

- 1) How to handle the case when we have a if statement in the macro.
<http://stackoverflow.com/questions/154136/do-while-and-if-else-statements-in-c-c-macros>
- 2) <http://www.geeksforgeeks.org/reverse-a-list-in-groups-of-given-size/>
- 3) calX(n) = calX(n-1)*calX(n-2)+calX(n-3), for n > 3
calX(n) = n, for n<=3
Upto what value of n we can find the correct value of calX(n) in C++
- 4) Hex representation of -17
- 5) Xor of 0xFE and 0xEF
- 6) <http://www.geeksforgeeks.org/find-the-missing-number/>
- 7) Basic questions on networking like:-
 - a) IP address, Static IP, Dynamic IP
 - b) DHCP, TCP, UDP
 - c) HTTP, Subnet Mask
- 8) Number of nodes having NULL children in binary tree with N nodes and reason for

this value.

Round 4, Online(Screen shared), 1 Hour 40 Mins

- 1) Design a class Elevator, should be scalable.
- 2) Lot of concepts of C++ and comparison with C
- 3) Same question from Round 3, about the if statement in Macros
- 4) One line codes, which can cause runtime exceptions
- 5) Design Patterns(Strategy, Observer and Singleton)
- 6) <http://math.stackexchange.com/questions/183282/puzzle-there-are-two-lengths-of-rope>

Round 5, Telephonic, 35 mins, Director of Engineering

- 1) Brief intro about projects.
- 2) Discussion about my future interests.
- 3) Where do I see myself, 5 years from now.
- 4) Cloud computing
- 5) What was the hardest challenge I faced in my current project
- 6) Which all software practices that I follow in my current project

After this I got a mail from HR, that I was not selected.

It was a sad but nice experience.

I thank geeksforgeeks which helped a lot in my preparation.

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565. Computer Sciences Corporation (CSC) Interview Experience (On-Campus)

Hello everyone! CSC came to our campus for full time hiring of final year students. Here is my interview Experience. It consists of three rounds. Each round was an elimination one.

First Round (Written)

There were 99 (MCQs) and 1 essay writing question, Total time was 90 minutes.

Test was on paper. There were three sections

- (i) Aptitude (30 questions) (difficulty level: easy)
- (ii) Technical (69 questions) : It consists all subjects like Operating systems(mostly file systems questions), DBMS, cloud computing +Big data ,Networking, Questions related to some latest technologies(for eg: Google glass and some more) and

C,C++,Java(Output type questions). (difficulty level: Moderate)

(iii) Essay Writing: 4 topics were given; we need to choose any one of them.

As of now i remember only one topic. It was "Youth of India is confidence or confuse".

After this round 14 were shortlisted for the next round.

Second Round (Technical Interview)

First question was as obvious "Tell me about yourself". People usually take it lightly but it is the first impression that we make in interviews. Then he asked about my NIMCET rank and some more detail about NIMCET.

He asked detail description of both of my projects and one Data structure (Area of interest) full code for "Insertion in linked list in sorted order". Then he asked me that "What you understand by the word 'Innovation', did you ever had an idea or did you implement any innovative project". We had a long discussion on this question. He was very impressed with my interview and just after 2 minutes called me for next round.

Third Round (HR)

It was just a formality, interviewer asked me again about my understanding about "Innovation" and preference for the job location. They told me in the interview itself that we selected you for this job and gave some suggestion to improve myself. 😊

Suggestions:

Prepare "Tell me about yourself" in well format and don't tell things which you already mentioned in your resume. Present your projects in impressive way.

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566. Nagarro Interview Experience | Set 5 (Pool Campus Drive)

Nagarro Software Pvt. Ltd. came for pool campus drive. There were two rounds.

First round had two sections technical (20 Minute) and aptitude (40 Minute) of one hour. In Technical Section we have 20 single choice objective programming question from Basics of C Programming Language. Questions are quite easy. Some of them needs to select correct output of given program and some need to select correct program for given output in question.

In aptitude section we have 40 single choice questions. Questions are typical from Math and Logical Reasoning.

Second round had three subjective Programming questions.

Q1. Write a Program to print the given matrix in wave like form.

```
Input Matrix: - 0      1      2      3      4  
           5      6      7      8      9  
           10     11     12     13     14  
           15     16     17     18     19
```

Output :-

```
0  5  10  15  16  11  6  1  2  7  12  17  18  13  8  3  4  9  14  19
```

Q2. Write a Function to check if the given string contains the given number of unique characters (You should ignore case of character so 'R' & 'r' should be counted as same character.).

```
Input :- String : "NagarroisBestSoftwareCompany".
```

```
N = 17
```

```
Output :- True or False
```

Q3. Write a Function to find the Increasing Subsequence whose sum is highest in which each number is greater than previous by one in the given array. If the difference is less than or greater than one then it is not considered as subsequence. Print the subsequence array and sum of the subsequence array. Time complexity of program must be O(n).

```
Input array :- 1 , 2 , 3 , 4 , 5 , 3 , 4 , 5 , 6 , 7 , 9 , 10 , 11 , 12 , 8 , 9 , 10 , 21 , 35 , 36 , 37  
, 22
```

```
Output :- Longest Subsequence : 35,36,37
```

```
Sum = 108
```

I think result is not declared yet or I didn't clear because I didn't get any mail from them till date.

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567. Cisco Interview Experience | Set 9 (For Experienced)

Written Test:

1) 15 Aptitude Questions

2) 25 CS Fundamentals & Couple of output questions.

3) Coding Question: A thief trying to escape from a jail has to cross 'N' walls each with varying heights. He climbs 'X' feet every time. But, due to the slippery nature of those walls, every times he slips back by 'Y' feet. Now the input is given as (N, {H1, H2, H3},

....Hn}, X, Y}. Calculate the total number of jumps required to cross all walls and escape from the jail.

F2F 1

- 1) Calculate the number of bits set to 1 in a binary number.
- 2) Unsorted array and a position 'P'. Return the element that is likely to come to the given location upon sorting the array. Do it O(n).
- 3) Many question regarding UNIX N/W programming. Doesn't need to worry. If you know already is advantageous.
- 4) Shared memory, OS concepts, IPC mechanisms. Which among is the fastest IPC

F2F 2

- 1) Questions related to projects.
- 2) Given a big C program, point out various storage classes.
- 3) Explain the DS which is well suited to implement UNIX commands like PWD, LS, MKDIR, CD in an imaginary OS. No code required. Just the DS.

F2F 3

Entire round is dedicated to projects.

F2F 4:

With team manager: Why you want to switch. Explained the work. Which team you want to join.

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568. National Instruments Interview Experience | Set 2

Interplanetary trade:

Hober Mallow wants to setup an inter-galactic trade which would allow trade between different planets. Each planet has its own set of currencies in which they trade. As there

are too many currencies, Hober decided to declare a set of M currencies (numbered from 1 to M) as the official currencies that can be used to trade between planets. Two planets can trade if and only if they have a common official currency or if there is another planet with which each of these planets share a common official currency. For example, let's say planet A has currencies – 1, 3, 4, planet B has currencies 5, 6 and planet C has 6, 4. It is still possible for planet A and B to trade via planet C (planet A -> C via currency 4 and then planet C ->B via currency 6 and vice versa). This type of trade can be done with more than one planets acting as intermediary as well (i.e. planet X and Y can trade via A, B, C if X<->A share a common currency, A<->B share a common currency, B<->C share a common currency and finally C<->Y share some common currency). Hober observes that even with these rules there are planets which have no official currencies or planet groups which do not share any currency with other planet groups. To enable trade among all the planets he has to implement system of new currency for each of such planets which have no official or common official currencies. Implementing a new currency system costs him 1 platinum unit per planet. You have to help Hober minimize the cost for enabling trade between all the planets.

You will be given N ($2 \leq N \leq 50$) which indicates number of planets that want to be part of the inter-galactic trade. You will be given M ($2 \leq M \leq 50$) which indicates the number of official currency numbered from 1 to M. This will be followed by N lines, each consisting of a number C_i , the number of official currencies supported by planet i , followed by C currencies which are in trade for the i th planet. You have to output the number of platinum units required to enable trade across all planets.

Example Inputs

```
5 5
1 2
2 2 3
2 3 4
2 4 5
1 5
```

```
5 5
0
3 4 1 5
2 3 4
0
1 2
```

Expected Outputs

```
0
```

Planets #1 and #2 can trade through currency 2. Planets #2 and #3 can trade through currency 3. Planets #3 and #4 can trade using 4. Planets #4 and #5 can trade using currency 5. This makes it possible to trade between any two planets via zero or more intermediary planets. Thus there is no need to setup a new currency and hence the cost

is 0.

3

Planet #2 and #3 can trade through currency 4, but planets #1, #4 and #5 do not share any currency with one another or with #2 and #3 and hence can not trade with anyone else. One of currencies from planets #2 or #3 can be set up in planets #1, #4 and #5 which would make trade possible among all the planets. As currency will have to be setup on 3 difference planets, the cost is 3.

Example Inputs and Outputs

Testcase Input Output Download Link Run Link(Also saves the code)

1

5 5

1 2

2 2 3

2 3 4

2 4 5

1 5

0

Download Input File Run against code

2

5 5

0

3 4 1 5

2 3 4

0

1 2

3

Download Input File Run against code

Time limit per test case:

2 second(s)

If you have a machine with GCC/G++ and want to work offline, download the template here and submit

Code templates:

C Template: Trade.c

C++ Template: Trade.cpp

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569. Juniper Networks Interview Experience

Written Test: Aptitude + CS Questions (mostly DS + Networks and some OS) + 2 Code questions.

F2F 1:

- 1) C Language questions. Learn C thoroughly.
- 2) Implement insert in a binary tree

F2F 2:

- 1) Explain C programming stack.
- 2) What is segmentation fault. What is core dump. How to debug from core dump files
- 3) Count number of set bits in a binary number.
- 4) Most questions on C and debugging.

F2F 3:

Completely on projects. Also explained the kind of work they are doing there.

F2F 4: With team manager

Explain TOP command. Same discussion regarding projects

F2F 5:

Repeat of 3rd round. I think he is a VP. More in depth discussion on projects and stuff.

Poor communication from company side. Very irresponsible. If you are appearing, check with them regularly regarding the status of your interview and candidature.

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570. Vizury Interactive Solutions Interview Experience

No written test for me.

F2F1:

- 1) Next greater number with same set of digits.
- 2) Find a number in a sorted array rotated left. Ex: 5 6 7 8 9 1 2 3 4, Find 9

F2F2:

- 1) Level order traversal code. Also solve this problem without using null pointer
- 2) Find the shortest path between two elements in a matrix with some Null elements.
Means you cannot choose XY path since some location are not traversable (Dijkstra's Shortest Path algorithm)

Round 3:

- 1) Project Specific questions
- 2) Implement DB copy from one system to another taking foreign key constraints into consideration (Table B is having a foreign key constraint to table A. So B can't be copied before A. Imagine the I/P as a list of list i.e. adjacency list of graph. Now devise a way to copy the DB)

Got eliminated here. Never felt so bad over losing something in last few years. Good company. Try on LinkedIn and apply.

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571. Amazon Interview Experience | Set 177 (First Round in Pool Campus)

Today Amazon Took a Pool campus drive, including our college and many other. In which the First round was Online in our campus itself, those selected students would go for further rounds in other campus.

The First Round Was very Standard, first we had to open its Hiring test portal, in which it had 20 MCQ and 2 coding questions, which we had to complete in 1:30 Hrs.
MCQ:

- It had question from OS, DBMS, Algorithm, Infix, postfix
- OS basically from scheduling, and process management in UNIX
- DBMS questions some simple query in my SQL
- questions asking Complexity of some give Algo. number of swaps in Bubble sort, best technique to sort partial sorted list etc
- finding output of prefix expression, given Postfix finding prefix of BST etc
- full form of LDAP, qustions including privileges of User, kernel in UNIX etc

Coding:

1: given 3 Numbers in Linked list, we had to return the Linked List of representing sum of all three, covering all base and condition of addition.

```
eg:    for addition of
      234+993+1 :
      input Linked Lists are: 4->3->2->NULL, 3->9->NULL, 1->NULL
      output linked list : 8->2->2->1->NULL
```

2: Simple and same Vertical traversal of a BST as given in Geeksforgeeks.org

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572. Interview Experience at Compro Technologies, Delhi

I recently had an interview with Compro Technologies, Delhi based firm, for Associate Software Developer. <http://www.comproto-technologies.com/#home>

The process took 4 rounds .(via TalentGrids)

1) Online Aptitude and Technical Round

Aptitude test had 30 questions to be done in 30 mins. There were regular aptitude questions.

Technical round was flooded with java based questions and C and DS based questions.

2) On Site Screening Round

2.a) Write a program to find a given substring in a string.

I told him the regular $O(n^2)$ approach and then about KMP algorithm. He seemed impressed.

b) find number of vowels in string

c) reverse a given string

d) Sum of all the numbers present in a string

- 2.b) Sequence solving 2 , 7 , 28, 63 , 126, 215 , ?
- 2.c) PUZZLE :- given 25 balls and one with a defect such that weight is less, find in minimum measurements, given a weighing balance.
- 2.d) given 3 boxes containing labelled BLACK, WHITE or BLACK WHITE , having only either BLACK, WHITE or BLACK WHITE balls in each. Initially they were all correctly labelled, but someone messed up the labels such that they are all in the wrong place. How many balls u need to draw and from which box so that u can tell the exact position of each label.
- 2.e) U are at the intersection of a road that forms a fork (Y) . One path leads to the city of Truth speaking people and other to the city of Liars. A liar stands at the intersection, what question would you ask him to reach the city of truth speaking people.
- I cleared this round for another F2F round at Delhi.
- Third Technical Round:-**
- 3.1) Tel me about yourself
 - 3.2) What data structures have u studied.
ans :- Int, Char, float,(YES , they are also data structures) arrays , Linked List ,Stacks , Queues, Trees
 - 3.3) What is the difference between array and linked list ?
 - 3.4) Write program to reverse a given string.
 - 3.5) Reverse the string only word wise. i.e “I am a good person ” -> “person good a am I ”
 - 3.6) Puzzle :- in a strange island, there are three different colored toads, Blue, Green , and Red , such that whenever two toads of different color meet they change their color to the third color. Is it ever possible that all of them will become of same color, if initially there are 12 B , 17 G , 19 R
 - 3.7) some friends went for a holiday at a hill station. In total , there were 13 days it rained and 12 lovely evenings and 11 lovely mornings. If it rained in the morning, the evening was lovely, if it rained in the afternoon , the morning was lovely. How many days did the trip last.
 - 3.8) he asked to measure a time of 15 minutes from two sand timers of 11 minutes and 7 minutes.
- Fourth Technical Round**
- 4.1) Walk me through your Resume.
 - 4.2) Explain the difference between call by value and cal by reference.
 - 4.3) Is this a valid expression for function declaration void fun(int &a, int &b); ?

4.4) write a program to find a loop in a linked list. i had to find the element where linked list was looped.

4.5) write a program to find the intersection of two linked list

<http://www.geeksforgeeks.org/write-a-function-to-get-the-intersection-point-of-two-linked-lists/>

4.6) Puzzle :-

8 people want to cross a river via boat only. They are mother , father, policeman, criminal, 2 daughters, 2 sons.

The boat can be driven by Police, mother or father only.

The boat carries only 2 people at a time.

The criminal if left without police can hurt someone but wont run away if he is alone.

The daughters left without mother would be hurt by the father.

The sons left without Father would be hurt by the mother.

If one a riverside mother is absent and father arrives by boat, he can still hurt the daughters and vice versa.

Find a way to take them all to the other side safely, without hurting anyone.

4.7) Delete a node from a BST.

<http://www.geeksforgeeks.org/avl-tree-set-2-deletion/>

Thanks Geeksforgeeks for providing a sensible collection of questions with proper solutions.

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573. LinkedIn Interview Experience | Set 5 (On campus)

Online round (1 hour on hackerrank):

1. There are 'n' ticket windows in the railway station, ith window has a_i tickets available. Price of a ticket is equal to the number of tickets remaining in that window at that time. When 'm' tickets have been sold, what's the maximum amount of money the railway station can earn?

e.g.

INPUT: n=2, m=4

$a_1=2, a_2=5$

OUTPUT: 14(2nd window sold 4 tickets so $5+4+3+2$).

2. You are given a 2-D matrix with M rows and N columns. You are initially positioned at (0,0) which is the top-left cell in the array. You are allowed to move either right or downwards. The array is filled with 1's and 0's. A 1 indicates that you can move through that cell, a 0 indicates that you cannot move through that cell. Return the number of paths from top-left cell to bottom-right cell.(i.e. (0,0)to(M-1,N-1)). Since answer can be large thus you have to return ans%(10^9+7).

Constraints: Best time and space complexity were required to cover all the test cases for both questions.

INTERVIEW ROUNDS:

Round 1 (40 mins Skype):

One coding question to be done on shared screen.

1. Given a string of characters , parse the numeric values in it ,add all of them and return the result.

Lot of discussion regarding the various test cases around this question(e.g, handing of -ve numbers , decimals , overflow etc).

Main concentration was just to get as many as test cases possible and an efficient solution as well.

And Some common question like why you coding in C++? Advantages of OOP?

Round 2 (45 mins Skype):

Again one coding question to be done on shared screen.

1. Given an array of positive integers, find all possible triangle triplets that can be formed from this array.

eg: 9 8 10 7

ans: 9 8 10, 9 8 7, 9 10 7, 7 8 10

Note : array not sorted, there is no limit on the array length.

Again the main concentration was to work around all possible test cases and an efficient solution as well.

Round 3 (50 mins Skype):

Design round basically :

Design a complete system for “Traffic enforcement camera”

(http://en.wikipedia.org/wiki/Traffic_enforcement_camera).

He asked to tell as many as test cases possible for the scenario. I managed somehow to 15-20, later he told there can be many more viz. weather conditions, fog etc.
what type of testings should be performed on this system?

Then by going through my resume, he asked details from my first project as it was related to Image processing then some basic stuff about system calls and Unix commands.

Then some other question :

- 1) Do you know about any software testing framework? (like Selenium)
- 2) What is the best protocol to store images?

- 3) How JSON(JavaScript Object Notation) works?
- 4) which database to use and when ? (he was try to ask about NOSQL databases).

Round 4 (40 mins Telephonic HR+Tech):

This round was with the hiring manager from their head office. He just started with the basic introduction. Asked my area of interest. Then questions accordingly.

Like:

- 1) One liner command to kill all process in the system which were using JAVA?
- 2) Difference between TOP and PS commands? why TOP is called TOP?
- 3) Explain XSS attacks and how to prevent it? and the same for sql? Any experience with them?
- 4) Algorithmic : <http://www.geeksforgeeks.org/find-a-repeating-and-a-missing-number/> gives as many solutions you can? Then ..tell about their time and space complexity?
- 5) Explain your final year project?
- 6) Why should I hire you , not others?
- 7) Experiences with automated and manual testings ?

Then he asked me if I had any questions, I asked some company stuff. That's all !! Hope that helps. Best of luck.

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574. CouponDunia Interview Experience

I recently got an offer from CouponDunia, here is my interview experience:

There were four rounds.

Round 1: Coding Test on HackerRank.

Three question in 90 minutes.

Round 2: Telephonic Interview

1. Let's say that you have 25 horses, and you want to pick the fastest 3 horses out of those 25. In each race, only 5 horses can run at the same time because there are only 5 tracks. What is the minimum number of races required to find the 3 fastest horses without using a stopwatch?
(<http://www.programmerinterview.com/index.php/puzzles/25-horses-3-fastest-5-races-puzzle>)
2. Implement queue with the help of two stacks.

3. Given a table "student" of with columns Name and Marks. You have to write a SQL query to get the 2nd highest marks from the table. Also write a query to find the nth highest marks, where n can be any number.
4. What is left join. Give example.
5. What is magic functions and autoloading in PHP?
6. What is SQL injection?
7. Given three arrays sorted in non-decreasing order, print all common elements in these arrays.
Examples:
ar1[] = {1, 5, 10, 20, 40, 80}
ar2[] = {6, 7, 20, 80, 100}
ar3[] = {3, 4, 15, 20, 30, 70, 80, 120}
Output: 20, 80
ar1[] = {1, 5, 5}
ar2[] = {3, 4, 5, 5, 10}
ar3[] = {5, 5, 10, 20}
Output: 5, 5
8. Difference between program, process and threads.
9. How will you display the most popular coupons on the CouponDunia website? What approach will you follow?

Round 3: Assignment(Java project)

Imagine we have an Email Queue table in our database with each row representing an email that needs sending. Table Name: EmailQueue Columns: id, from_email_address, to_email_address, subject, body (you can also add columns as you wish, but at minimum it should have these columns). Write a java program that will read from this table and send the emails over an SMTP server (not local unix mail). For the SMTP sending you can use a pre-existing library of your choice, if you wish. Please take into consideration the following:

- a. Speed is of the utmost concern. Imagine we have 1 million emails to send. Your code should not sequentially send one email after another.
- b. Your solution should scale. In other words, if we determine the fastest we can send emails from a single server is 300 emails/second I should be able to run the same Java program on another server and be able to send another 300 emails/second.
- c. Your code should be careful to ensure that it is not possible for the same email to be sent twice (especially when running multiple processes of the program).
- d. Don't worry about whether the SMTP server can handle the load. It can.
- e. Order emails are sent is not necessarily important. In other words, even though I'm calling this a "queue" it's not important to guarantee that emails are sent in the order they are queued.
- f. Comment your code extensively.
- g. Once again, speed is the primary concern. So do remember to think about what the slow points in the email sending process could be and take efforts to minimize those pain points.

- h. Send me instructions on how to compile/run/test your code along with the code itself. Also the sql statements for me to create the table that you are working with and the sql statements to insert a few test emails.

Round 4: Skype Interview

1. Tell me about yourself.
2. About my projects (in detail).
3. What is AJAX? Explain the working of AJAX in detail.
4. Given an array, print the Next Greater Element (NGE) for every element. If it doesn't exceed then print -1. They asked me to write full code.
5. There is a dictionary with few words each of length 3 and start and finish word is given. You can reach from one word to another word by changing only one digit. Like from cat, you can reach to hat or bat or cap. What is the minimum number of steps should be taken to reach finish word from start word.
6. There is a hotel with 100 rooms in it and some check in and check outs of different guests are given. You do not want to use all the rooms. So you have to make the arrangement in minimum number of rooms. What is that minimum number?
7. Explain Auto Complete system (like Google search suggestion). You have a database table and a search box. As you type in the search box, it should show the suggestions from that database table. How will you do that? Explain in detail.

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575. First India Interview Experience

Total 5 rounds: Cleared 3 and reached upto 4 round and then got rejected :(.

1st Round : 20 MCQ 45 mins with 1 min/2 min dedicated question wise.

=====

Got 85% correct and selected for Next telephonic round.

2nd Round: Telephonic Interview mostly on Java and use of multi-threading/logical

=====

Q) How will you save Blogs & Comments & Sub-comments in a database?

Q) What is serialVersionUID ? How will you transfer Objects between two different Objects in Java (Answer: Serialization) ?

How will ensure the version of transferred object is same across both the systems?

Q) How Hashmap works in java?

Q) How ArrayList work in java?

Q) You have two large files having GB's of data. How quickly compare them and tell if they have identical data?

3rd Round : Online Test

=====

Q) Design an application which stores millions of key-value pairs and uses commands to create, retrieve, update, delete, retrieve all key-value pairs.

Sample example(CREATE , GET , UPDATE , DELETE, GETALL, QUIT are commands):

Enter Commands:

```
CREATE FOOD = APPLE
GET FOOD
APPLE
CREATE FOOD = BANANA
## Key 'FOOD' already exists ##
UPDATE WEATHER = RAIN
## Key 'WEATHER' does not exist ##
CREATE WEATHER = SUN
DELETE FOOD
GET FOOD
## Key 'FOOD' does not exist ##
GET WEATHER
SUN
GET ALL
## Key 'ALL' does not exist ##
QUIT
```

Further add following functionalities/Enhancements if possible:

- 1) Adding key hierarchy support such as food/meal/dinner & food/snack/midnight etc..
- 2) Adding Cache mechanism.
- 3) Reading commands and key value pairs from File instead of console.

Solution : I used Trie DS(and not Tree DS) to accomplish this and the 1st enhancement is very easy with this DS with less memory usage. [Here](#) is the code for reference in [test.zip](#)

Q) Given an array in ascending followed by descending order. Find out the max from the array?

4th round: Call from US , Online Live whiteboard test

=====

Q) Given an array in ascending followed by descending order. Find out the max from the array in less than O(N) complexity.

Could not complete this and got rejected 😞

This article is contributed by Mayank Mukherjee. If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

576. Microsoft interview Experience | Set 49 (For Internship)

Recently Microsoft visited our campus for SDE intern. The process took over 4 months.

Round 1 (Online MCQ's)

time- 30 minutes.

This was conducted on CoCubes.com ,there were around 25 questions of varying level of difficulty. Topics: C , C++ , Aptitude.

Around 60 students out of 150 were shortlisted for the next round.

Round 2 (Online Coding Round)

time – 90 minutes

This was conducted on the same day. There were two questions of data structure.

1) Write a function to check whether the parenthesis (“()” , “{ }” , “[]”) in a given string are balanced or not.

<http://www.geeksforgeeks.org/archives/6547>

2) Write a recursive function to make a list from two given Linked lists, that contain intersection of the elements present in the given lists inplace.

37 students were shortlisted for the next round.

Round 3 (Telephonic interview)

time- 33 minutes

1. I was asked to introduce myself.

2. Then there were couple of questions on the project i was working on. As my project was in java as the front end and oracle as the back end, i was asked few questions on multithreading and sql.

3. I was then asked to explain the logic and the code to traverse a binary tree level by level but in spiral form.

<http://www.geeksforgeeks.org/level-order-traversal-in-spiral-form/>

4. Logic and the code for the lowest common ancestor in a binary search tree.

<http://www.geeksforgeeks.org/lowest-common-ancestor-in-a-binary-search-tree/>

5. Complexity of both the above codes and why such complexities.

6. i was asked questions on OS-

- Differentiate between mutex and semaphore variables?
 - What does a thread and a process share in common?
 - What is a deadlock ?
7. There were few questions on C++.
- Polymorphism and runtime polymorphism.
 - What is a virtual destructor?

I was asked if I had any queries and I asked about the work that interns will get to do in Microsoft and the interview ended.

Only 9 were shortlisted for the further interviews. I was lucky enough to be one of them. We were called to Microsoft India Development Center, Hyderabad.

Round 4 (Technical)

Time- 35 mins

The interview started with my introduction. Then there was a long discussion on my project. He told me the flaws in my project and asked me to tell how would I deal with them.

- 1) Given two arrays of integers(in random order), how would you determine the rank of an element.

For ex: let the two arrays be

46 32 16 73 57 2 and

86 7 98 3 75

$$\text{rank}(46) = 6$$

$$\text{rank}(86) = 10$$

$$\text{rank}(2) = 1$$

I don't remember the exact question but it was similar to this. Fairly simple. I suggested some approaches and I was expected to come out with the best approach.

Then I was asked to code my solution and design the test cases for the same.

- 2) I was asked about my favorite subject.

- 3) Write and explain the code to connect nodes at same level in a binary tree.

<http://www.geeksforgeeks.org/connect-nodes-at-same-level/>

Soon after the fourth round some of us were called for the next round.

Round 5 (Technical) (30 mins)

- 1) Given a Y-linked list. Find the node at the intersection point.
- 2) Given a string containing lower case letters and upper case characters. Find the number of occurrences of each character.

The question was further modified to include the special characters as well. I was asked to design the test cases for the same.

- 3) Remove duplicate characters from a given string keeping only the first occurrences (i.e. order should not change). For ex- if the input is 'bananas' the output will be 'bans'.

<http://www.geeksforgeeks.org/remove-all-duplicates-from-the-input-string/> (second method).

5 of us were called for the next round.

Round 6 (HR) (30 mins)

There were questions like-

- 1) Brief me about your academic history.
- 2) The project you are currently working on and why did you choose this?
- 3) What improvements can you do in your project? Are you working under a professor or just out of interest?
- 4) How would your peers describe you?
- 5) How would your professors describe you and what are your weaknesses according to them?
- 6) How are you trying to improve?
- 7) What keeps you motivated?
- 8) What are your Short term and Long term goals?
- 9) Why Microsoft?

There were few other questions which i can't recall now :p

It was the last round. It went pretty well.

The experience was awesome and i found that the people over there are very humble and i really liked their helping attitude.

Some interview tips-

Stay calm, CONFIDENT and keep yourself motivated.

Be honest.

Try to keep your approach clean and don't mess up things in your's as well as interviewer's mind.

Don't think about the results, just enjoy the interview process with a free mind 😊

Focus on building your concepts strong.

A big thanks to GeeksforGeeks for providing such a brilliant platform for interview preparation. Keep up the good work 😊

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Hi everyone, Recently i had wonderful interview experience with Sap Labs India. I would like to share the interview experience with all the readers and hope it will help all of you in your preparation for SAP Labs.

First of all, i got the mail from SAP about there opening for developer position and was asked to attend one online test. Online test had 6 parts-psychometric test, aptitude, logical, English, computer skills and 2 coding questions. Time given to us was 90 minutes. Paper was quite lengthy and of average difficulty level. I was able to complete all the sections, but only one coding question. My coding question was- to reverse a string, second i don't remember.

After one week i got the mail that i cleared the online test round and was asked to attend the interview rounds on 14th Feb 2015.

Interview round consisted of 5 rounds-4 technical+1 managerial (including HR).

1st Round-

Firstly the interviewer asked me to introduce myself after he introduced himself. Since i went there as experienced guy he asked me about my workings in the current company. Later on he asked me few coding questions like BFS and to print prime numbers between two intervals. Then he asked question about normalization(BCNF) and some queries like 2nd max and 2nd min(as we all know.:)) . After that he asked me some basic questions related to C,C++,Java and difference between each of them. In the end he asked me 4 puzzles(cut the cake into 8 equal parts in 3 cuts,bulb-switch problem,calculate 45 mins using 2 candles etc.).

After that i was called for the second round.

2nd Round-

Again 2nd round started with an introduction from both sides. Then he started asking questions from resume itself. Working in the current company and all the projects that i have done. Few simple puzzles,OOPs concepts (with proper explanation and coding) and some database related questions(questions were easy you just need to brush up the basics). Some keywords related questions from C,C++,Java(usual questions like static,final,abstract etc.). That was the 2nd round.

Then i was called for the 3rd Round. Before 3rd round they also served tasty lunch.

3rd Round-

Introduction. After that he asked me what i knew about SAP and there products(Please do read all about SAP and there products-not all but at least some famous products like ERP). Then he asked me one puzzle-EGG-DROP-100 STAIRS puzzle(we all know). Then he asked me to code the puzzle(I used the binary search approach-easiest one. :P). That was the 3rd round.

Then i was called for the 4th Round.

4th Round-

Introduction. After that interviewer asked me whether i do online shopping or not. I said yes then he asked me to design the online shopping portal using ER-Diagram . Then he asked me to create all the tables and populate it with data. Later on he asked me to normalize it. After all of this he asked me some simple puzzles and current salary and notice period. That was the 4th round.

After that i was asked to attend the final round and before 5th round they served snacks and tea to all of us-

5th Round-

5th round was kind of mixture of managerial and HR. Two people came to take the interview. They asked me questions related to projects that i have done and working of my current company. I was asked to tell them about my current company for at least 2 minutes. Then he asked me one simple arithmetic puzzle- Using 3 only for six times or five times i have to generate 28 or 31 using world's any operator. That was the 5th round.

Over all it was a great experience. I loved being interviewed at SAP Labs. People at SAP are highly cooperative and helpful.

At last but the most i would like to thank geeksforgeeks. You really helped me a lot to achieve my goal. Thank you so much.

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578. Amazon Interview Experience | Set 178 (For SDE-1)

In-house interview with Amazon Bangalore for SDE 1. Here's my experience.

Round 1:

My first round was the HM round because no other panel members were free.

1. Lots of questions my current project. Why I am looking for a job change.

2. Write a calculator web application just like the one that comes with MS windows.

Trick was to evaluate the expression according to the BODMAS

Lots of discussion on different approach using 2 stacks, arrays, lists, Tree with and without postfix conversion.

Asked to explain all the approach on the White Board.

Round 2:

1. Link all the level order nodes to makes a linked list with the first node of each level acting as the root of that linklist.

```

      10
     /   \
    6     17
   /   /   \
  4   14   19

So the Linklist will be
  10->null
  6->17->null
  4->14->19->null

```

Gave the answer using the 2 queue. (Level order transversal) with alternate queue for the alternate level

Than interviewer asked to solve the problem without using any other data structure (No stack or queue)

2. Question on Baggage claim token generations.

You have three containers, small, medium and large. Passenger comes in, checkin the luggage. You have to store the baggage in the appropriate container and generate a unique token number. Then passenger should get back the bag using the same token number. Trick was if small container is full store in medium if available or large. Now if the large bag comes in and there is now a empty space in small, than move the small bag back to small & store the large bag. How to generate the unique token number and move the baagage internally without changing the token number?

Lookup should be in constant time complexity and insertion in minimum complexity.

It looks easy but kind of tricky if you start solving because token number shouldn't get changed if you move the baggage internally and space should not get wasted in the memory if baggage is removed.

Round 3:

1. Find the size of the smallest substring in a given string that contains all the characters in given set in any order.

Ex:

```

INPUT:
String: "abfugtabecddcca"
Character Set: a,b,c
Output: 4 ("abec")

```

2. Convert a sorted doubly linklist into Binary search tree (Inplace)

Round 4(Bar Raiser Round):

1. Again Lots of questions on current project. My contributions.

Most complicated problem I have ever encountered in my recent project and how I solved it.

Subject I liked the most in the college and why and what I learnt from it.

In my previous rounds, which question I found the most difficult one and why?

If I will be given a chance to change any of the my answers to the questions asked in previous round, what question it will be and why?

Was I satisfied with my interview.

Technical question:

Do a spiral transversal of a 2D matrix

Ex:

```
a b c d  
l m n e  
k p o f  
j i h g
```

output: a b c d e f g h i j k l m n o p

Both iterative and recursive approach.

Lots of discussion on Complexity.

Thank you geeksforgeeks for providing the awesome platform for preparation.

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579. Fiberlink (maas360) Interview | Set 2 (Written Test Question)

Write a function “runCustomerSimulation” that takes two inputs – an integer: total number of computers in a cafe and a string: a sequence of uppercase letters. Letters in the sequence occur in pairs. The first occurrence indicates the arrival of a customer; the second indicates the departure of that same customer. A customer will be serviced if there is an unoccupied computer. No letter will occur more than two times.

Customers who leave without using a computer always depart before customers who are currently using the computers. There are at most 20 computers per cafe.

Output:

For each set of input the function should output a number telling how many customers, if any walked away without using a computer. Return 0 if all the customers were able to use a computer.

runCustomerSimulation (2, “ABBAJKZKZ”) should return 0

runCustomerSimulation (3, “GACCBDBBAGEE”) should return 1

runCustomerSimulation (3, "GACCBGDDBAEE") should return 0

runCustomerSimulation (1, "ABCBCA") should return 2

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580. VMWare Interview Experience | Set 2 (On-Campus)

First round was Online Test. There were totally 32 Questions divided into 3 categories with no negative marking.

- 1) Aptitude & Logical Questions (10 Questions)
- 2) Computer Science Questions (15 Questions) [C, OS, Data Structures, Microprocessors, Unix]
- 3) Questions on Java or C++ [We had to choose between Java & C++](7 Questions mainly on OOP Concepts)

They Shortlisted 22 people from 200+ people. There were 3 Technical Rounds + 1 HR Round.

1st Round:

- 1) Write a program to Reverse a number in Java without using builtin methods.
- 2) Write a program to Reverse a String in Java without using builtin methods.
- 3) He combined the above questions such that, no matter what we provide string or an integer or a double, the program should reverse it. Basically He was expecting method overloading concept.
- 4) A puzzle. You will be given with a 3 Litre container & a 7 Litre Container. Measure exactly 5 Litres of water.
- 5) Reverse a linked list.
- 6) Asked about one of my projects I mentioned in my resume.

2nd Round:

- 1) Detailed discussion about all my projects that I mentioned in my resume.
- 2) Find the common elements from 3 Lists.
- 3) Some questions on Object Oriented Programming Concepts.
- 4) Some Questions on Multi-Threading.
- 5) Asked in detail about 'volatile' variables.

3rd Round:

- 1) Which protocol is used by telnet?
- 2) Difference between telnet and ssh
- 3) What happens when we open a file using one tab and delete it from the other tab of

the terminal

- 4) Some questions from Software development life cycle.
- 5) Basics about Virtualization & Hypervisors.
- 6) Explain Cloud computing in layman's language. (Thanks to Balaji Vishwanthan for an amazing answer for a similar question Quora) 😊

HR Round:

- 1) About my family background.
- 2) Roles played by me in my various projects
- 3) Typical HR Questions like, Strengths, weaknesses and Hobbies.

After this the HR told that the manager of the team for which they wanted me to select has not come for the interview process that day, so, I will be having one more round with the Manager within couple of days in their office.

I waited for 2 weeks and still they haven't called. I thought it's better to give up. Then one morning the HR called and asked me to come to their office for the interview with the manager. Uff! A relief..

At VMWare Office, before the manager takes the interview, one more person from that team took a technical Interview.

They asked me to write the code in Java for the following questions:

- 1) Given an array with repeated numbers, print the frequencies of each number.
- 2) There are 3 kinds of balls in a big array. Red, Green, Blue color balls. Arrange them in such a way that all the red balls to the left, Green balls in the middle and Blue balls to the right of the array.
- 3) Modified the above question such that, the arrangement should be like, [R,G,B,R,G,B,R,G,B]. And discussed various boundary conditions.

At last, The interview with the manager:

- 1) Some questions on Software Development Life Cycle

Then it was a casual discussion about what their team does, and what are my roles if I get selected.

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581. Practo Interview Experience | Set 2 (Off-Campus)

First Round

1. There were 5 Programming Questions and the test was conducted on HackerRank.
2. I solved 3 out of them.

Mostly the questions consisted of all levels from easy to tough mostly on Dynamic Programming.

After 1 week I got a mail saying that i cleared the first round.

Second Round :

1. It was an Online Technical Interview at Hacker Rank.
2. 2 coding questions were asked:
 - a) Find total number of unique palindromic sub sequences from a string.
 - b) Find if a number is a power of 2 or not.
3. Then a designing and database question was asked. He wanted to know how well are you able to design tables and establish relationships between them.
4. Then he asked me some front end related questions as I was working as an intern on front end development at a company.

The interview lasted about 2 hours.

Overall it was a very good experience. They test you from every aspect. In the End I would like to say that Practo is one of the best companies to work for.

Thanks Geeks for Geeks for providing a platform to prepare for such stuff. Thanks

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582. Microsoft interview Experience | Set 50

R1 Telephonic

- 1) Given a large int array, sort it. The ints are in the range 1-10.
- 2) In a 2-D array of 0's and 1's find the row with max 1's, given that the array is sorted row wise.

R2 F2F

- 1) Find the maximum contiguous sum in an array. Had to write test cases as well.
- 2) don't remember

R3 F2F

- 1) On a screen, there are multiple rectangles drawn, when a user clicks on any point, find

the smallest rectangle enclosing this point.

2) Design poke feature in Facebook

R4 F2F

- 1) Implement file read operation asynchronously.
- 2) there are N large log files in sorted by timestamp. Merge them.
- 3) there are N large files containing operations sorted based on name to be done on an address book.

Address book is stored as name value pair in another file which is sorted based on name. Apply these operations and store in a new address file.

Had to write code and test cases for this.

R5 F2F (Hiring Manager)

- 1) some discussion on foreground and background thread.
- 2) What is common in 2 threads of the same process and what is the difference.
- 3) how would you communicate between 2 processes.
- 4) can we create connection between 2 processes similar to tcp connection.
- 5) difference between tcp and udp.
- 6) are packets lost in tcp if network is never lost.
- 7) create a macro for reversing an int in terms of byte e.g. an int has 4 bytes numbered 1234 the macro should return 4321.
- 8) in a 2-D array of chars, if a user selects any 4 boxes, check if these are continuous or not. continuous boxes are those which lie in 3×3 sub array surrounding the box.
- 9) design auto complete feature.

Some other OS questions on threads only.

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583. CouponDunia Interview Experience | Set 2 (Fresher)

Since there is only one interview experience of CouponDunia i think this gonna help students who will opt for it.

You must be good enough in writing the codes at the moment because in each interview they made us write full functions.

Interview process had 3 rounds. 1 coding round of 90 min. with 3 questions. And then two skype interviews.

Round 1:

Q1. fishes of different length are given. you have to find out how many fishes can she

get of length 10 by making cuts on fish, where number of cuts are limited? ex. 20 30 15(lengths) and number of cuts=3
Ans. : 5 (20—2(one cut of 10 10) and 30—(2 cuts of 10 10 10))

Q2. minimum jump to reach the destination problem.

round 2:

Q1. tell me about yourself?

Q2. given a string, find the length of longest string where no character repeats twice?

Q3. There is a dictionary with few words each of length 3 and start and finish word is given. You can reach from one word to another word by changing only one digit. Like from cat, you can reach to hat or bat or cap. What is the minimum number of steps should be taken to reach finish word from start word.

Q4. given an array. find the pattern it follows?

there can be 4 patterns only: increasing, decreasing, increase then decrease and decrease then increase.

round 3:

Q1. tell me about yourself?

Q2. print the bottom view of the tree?

Q3. given a bst, convert it to a binary tree such that each element is replaced by the sum of all the elements greater than it+ its own sum?

Q4. add two numbers without using arithmetic operators?

Q5. quicksort takes $O(n^2)$ when elements are sorted what is the solution to reduce it to $O(n\log n)$?

the interview was quite easy. GUYS I WOULD LIKE TO FOCUS THAT PREPARE “tell me about yourself” VERY WELL. Tell them about why u r so excited about joining there company, whether they ask you or not.

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584. Amazon Interview Experience | Set 179 (For SDE-1)

Telephonic

- 1) Given an array which has elements in increasing order first , and then decreasing, suggest an algorithm for searching an element in it.
- 2) Check whether a given tree is a BST or not.

3) do not remember

F2F 1

1) Number of hops required to reach the end of an array , where the maximum hop is the value at index.

Tweaked question after this, to reach any node.

2) print the path between any two given nodes in a binary tree

F2F2

1) Project and resume discussion.

Problems faced and how you approached them.

2) A large number of emails coming into the system, at any given time find the top k issues being faced by the users. Problem reduced to find the top k trending words in a large file.

3) Implement a vector in c, using any available data structure

F2F3

1) Given a pre-order traversal of a binary tree represented by , I for internal node and L for leaf, build the tree.

2) Find the next smallest element for all the elements in a given array.

F2F4

Started off with a lengthy discussion on current project, was asked to draw a schematic of the same, and then was asked to discuss my roles and responsibilities as well as suggest what improvements could be made to it.

1) Given a 2-D array, in which all the elements are either 0's or 1's, and all the rows are sorted, Give an algorithm for finding the row having the maximum number of 1's. Was asked to code and analyse time complexity as well.

2) There is a given set of colours , say [1-N]. Now , people are coming into a stadium wearing t-shirts of any of these colors. Write an algorithm to find the first person to come in, to have worn an unique color.

The question wasn't clear to me at first, so after a few examples , got what he was trying to ask.

For eg. Suppose we have colors R G B

and the stream of people are as,

G R B G G G G

the output should be R.

Hope this helps some people.

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mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

585. SAP Labs Interview Experience | Set 5 (Experienced)

First of all, i got the mail and was asked to attend one online test. Online test had 6 parts-psychometric test, aptitude, logical, English, computer skills and 2 coding questions. Time was 90 minutes. I cleared the online test round and was asked to attend the interview rounds.

Interview round consisted of 4 rounds-2 technical+1 managerial +1 HR

1st Round-

First the interviewer asked me to give my introduction. Then he asked about the projects which i am doing in my current company. C,C++ basic concepts, real life examples for inheritance etc. As my project was on web programming he asked me questions related to web like why we use backend, how to troubleshoot problems, about performance issues, client and server.

After that i was called for the second round.

2nd Round-

Again 2nd round started with an introduction . Then he started asking questions from resume. Working in the current company and all the projects that i have done. Few OOPs concepts (with proper explanation and coding) and some database related questions. That was the 2nd round. He asked me to find a number which when divided by 2 ,3 ,4 ,5 ,6 ,7 ,8 , 9 ,10 individually gives remainder 1 and when divided by 11 gives remainder 0. Then he told me to draw E-R diagram of shopping site like flipkart.

Then i was called for the 3rd Round.

3rd Round-

Introduction. After that he asked why i wanted to join Sap. He asked me two SQL questions. one was related to joins and normalization and the other was related to the aggregate functions used in SQL. Then he asked me simple linked list question which was to find the (k/n) th node where k is the size of the linked list and n is a given number. After that he asked me a puzzle to find the average salary of number of persons without disclosing their salary to anyone.

Then i was called for the 4th Round.

4th Round-

It was just a formality and it was of 20-25 minutes.

I would like to thank geeksforgeeks. You really helped me a lot.

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586. Amazon Interview Experience | Set 180 (Telephonic Interview)

I had a telephonic interview. It was of 90 minutes.

Questions asked by me.

1. Tell me about yourself.
2. What was your college project as well as what type of platforms used?
3. What is TRIE?
4. Write the function for insert and search for TRIE?
5. DFS and BFS .
6. How to get the shortest path from (0 , 0) to (r , c) in a rectangular grid in which some cells are blocked.

Overall awesome telephonic interview.

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587. CouponDunia Interview Experience | Set 3 (For Android Developer)

These are questions asked for Coupondunia Android Developer Interview

Primarily an email to get to estimate you.

Then a task is given for you to solve.

Then comes the technical Interview through skype.

What changes to Android app you would like to make incase you become a developer

there.

What do you know about a service why kind of background work can be done in them.Why not an AsyncTask

Differences between a Service and activity

When do you use a Location Service

Questions related to my projects.

When is a getView in a ListAdapter called

Suggestions are Become thorough with all the Lifecycles of elements.

Best Implementations used for reducing runtime and memory.

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588. Amazon Interview Experience | Set 181 (For SDE 1)

Recently I was interviewed by Amazon for SDE 1, here is my Experience. Hope this will help others:

Written Round :

there where 3 coding question , out of which 2 where DS related and 3 rd one was Problem solving

1. Count no of words in given string .
2. Find first non repeating character in a stream of characters
3. related to slot machine and its working

Interviews

F2F 1.

1. firstly some non technical questions where there , such as tell me about yourself , Why Amazon etc
2. followed by 2 coding questions
 1. Given a sorted dictionary of alien language , find order of characters.
 2. find minimum number of characters needed to be added to the end of a string to make it palindrome.

F2F 2.

was a senior guy ,

- 1.started with discussion on previous interview questions , as I had used DP in second question so a brief discussion on DP , tried to test me that does I really know the concept of DP.
2. asked few puzzles , One should be prepared for some out of box questions as they want to check the thought process . even they change puzzles and try to get different solutions. Think loud always.

F2F 3.

was also a senior guy,

1. Started with general induction and asked about till then my interview experience and related stuff.
2. Simple Matrix multiplication problem ,with only 2 double pointer are given , we need to check sizes of both matrix , multiplication feasibility and then do multiplication .
3. Design Question from DataBase point of view , asked about table structure for the problem and had a good discussion on it , concept such as normalisation was discussed

Telephonic 4th

He was a very senior guy from different team ,

1. Started with general introduction followed by many Behavioural hr questions .
2. Followed by Design Question, a feature of Outlook

A Server receives meeting objects from multiple senders. Meeting object contains meeting time, sent time, recipient(s), sender id,etc. When recipient comes and checks the server, he/she should get requests based on meeting time and not based on sent time. Many discussions on space complexity and time complexity.?Eg:

12 PM From: A To: B,C,D meeting time: 4 PM meeting Id: 1

12.30 PM from: A To C,D meeting time : 2 PM meeting Id:2

1:PM From B To: C meeting time: 1.30PM meeting Id:3

When C requests the server, C should get ID3 as 1st, ID2 as 2nd and ID1 as 3rd meeting.

Small set of Suggestions :

1. Practice writing code using pen and paper .
2. Try to be interactive as they are very much interested in candidate's thought process , think loud , be confident .
3. Firstly explain the logic and when interviewer is satisfied then start coding .
4. Have few questions prepared for the interviewer as it shows interest of candidate towards the company .Do proper home work about the company.

Thanks GeeksforGeeks for such a great content , Keep doing the great work 😊

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589. Commonfloor Placement Questions 2014

Company : commonfloor.com (MaxHeap Technologies)

Criteria : Open to CSE , EE , EC , MA ; No CGPA Criteria

Qualifier Round: on hackerearth.com

1 hr 30 min : 5 Objective Questions and 1 Coding Question.

- 1) Definition of Foreign Key (DBMS).
- 2) No. of colors needed to colour any Planar Graph
- 3) Minimum Hamming Distance to detect error
- 4) No of nodes in a complete binary tree of height h
- 5) Equality of two regular expressions (Identity based).

Coding Question :

You are given the vertices , edges , start vertex and end vertex of a graph .The graph is directed and can have loops .Each edge is of length 1 . You task is to find the min distance b/w start and end vertex if it is reachable , else print (-1)* (#Vertices reacheable from start vertex)

```
#Vertices <= 100000  
#Edges <= 100000
```

BFS is obvious .Only thing is that Graph must be implemented as Adjacency List rather than Adj Matrix else it causes Memory Limit Exceeded error.

Tech Interview Round 1: (Approx 1 hr)

- 1) Problem Statements of N Queens Problem , Sudoku Problem and strategies for solving them
- 2) Problem Statement of Tower of Hanoi , Write Code to solve it and extended it to 4 towers
- 3) Sort an array of zeros and ones
- 4) Find the first non repeating element in an array and Various Approaches (Like No additional mem , one traversal)
- 5) 25 horses - Minimum Races Puzzle
- 6) Find all the triplets from an array that sum to a given number.Report their indices. Discuss various approaches like naive , sorting etc..
- 7) Problem which can be mapped to Finding maximum Lexicographical subsequence

from a string.

Tech Interview 2: (Approx 1 hr)

OS Funda :

- 1) Def of Process , Threads , their diff ,Multi Threading and a discussion about them
- 2) What is Virtual Memory and discussion on Memory Management techniques
- 3) What is Race Condition? What is Shared memory ?
- 4) What is Critical Section ? Peterson sol?
- 5) 2 Processes and their codes are given . (Indirect)Find the Critical Section

Android (I had my intern and BTP on Android):

- 1) General discussion abt Android app that I did and my project
- 2) Activity Life Cycle and diff methods

DBMS :

- 1) Indexing and types
- 2) Primary Index and Composite Index
- 3) Discussion about SQL

ALGO :

- 1) Find whether a string is a substring of another .[I tried KMP but ended up explaining the Naive Approach].
- 2) Discussion on why my code didnt pass all test cases ==> Ways of representing a graph , pros and cons of diff ways, Several situations and suitable rep of graphs.
- 3) Question which can be mapped to finding Longest Common Subsequence. Write Complete working Code.
- 4) Basics of Binary Search Trees , Defined a new bst with an additional attribute size (sum of nodes of left child , right child + 1). Find the Kth smallest node . Explain and write working code {Time Constraint : 2 min }

HR Interview : (2 HR ppl , Appprox 1/2 hr)

1. Introduce yourself , What do you know abt Commonfloor , Why do you want to join?
2. Suggest Some changes and also new features to add to Commonfloor website .
3. Detailed Discussion about my internship
How did I develop the ecommerce application ?(Like division of work , Coordination of work, Asked me to show the app live on my Phone !!!!)
Discussion abt Apache Cordova vs Android { Basically it was like my talk }
4. Discussion about my B Tech Project (about Power Consumption by Android Applications) and basic questions about Gantt Chart and Gantt Project (Part of my BTP)
5. Questions about my DBMS Academic Project "Carpooling" .Enhance it into a business model leading to maximum profits (I told features to make it better and the other business that can be created from Carpooling data)

6. Personality Questions like "Tell me one quality why I should hire you ?" , "Your quality which you dont like the most"

My Turn: I asked about work culture , timings , etc..

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590. Flipkart Interview Experience | Set 20 (For SDE-II)

I was recently interviewed for SDE-II in Flipkart. A lot of emphasis was on designing and geeksforgeeks has been a lot of help. These are my interview questions:

Round 1 : Machine Round (2-3 hours)

Company hierarchy/bonus question.

Write down code in any language for a simple employee hierarchy which has 3 types of employees.

1. CEO
2. Manager
3. employee

Where an employee can have only 1 mgr, and a mgr has 1+ employees.

We were asked to input employee details(name ,id, salary,rating etc) in any order (employees might be input before his manager), create the hierarchy and implement these functionality:

1. Print hierarchy given any employee/mgr/ceo (used an n-ary tree + hash table)
2. Given a bonus and performance rating of each employee divide it to the lowest level employees(in the hierarchy) in the ratio of their rating. i.e 100 divided among 2:3 is 40 and 60. and print the bonus of each (simple recursive solution)
3. Top 10 employees with ratio of bonus:salary (used maxheap)

Had a discussion on the solution with various variants and edge/faulty cases.

Round 2 : Problem Solving Round (1.5 hours)

1. A solution was required to make a fantasy league with some budget allocated.

Players will have some score/rating and the cost of player. Maximum score was to be achieved with eleven players.

Had a lot of discussion on various approaches like backtracking, modified knapsack etc.

2. A set of tasks is given of which some are dependent tasks. Solution was required to enable parallel processing of the tasks. (Used topological sort)

Round 3 : Designing Round (1 – 1.5 hours)

A library for game 2048 was to be designed. The game can have constraints/variations which shall be defined by the game designer. The variations can be adding same numbers or adding Fibonacci numbers etc. APIs were to be exposed to the game designer.

Round 4 : Manager Round (45mins)

A lot of behavioral questions. Discussion about the product and the work I do. Challenges faced etc.

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591. Myntra Interview Experience | Set 4 (For Senior Software Engineer)

I was recently interview for Senior Software Engineer @Myntra. This is my interview experience.

Round 1 : Online Test (90 mins)

Online test was help at their office on HackerEarth.

Need an efficient solution for the problem.

Given an array $a[]$, find three indices (triplets) i,j,k such that:

1. $i < j < k$
2. $a[i] < a[j] < a[k]$
3. $a[i] + a[j] + a[k] \leq t$, where t is a given sum

Array is not necessarily sorted. Have to count number of such triplets.

Few days after online test I was contacted for further rounds of interviews.

Round 2: Technical Round (1-1.5 hours)

1. Deletion in a binary search tree
2. Construct a BST with preorder and inorder traversals given
3. Couple of more questions on trees.

Round 3: Technical Round (1 hour)

1. Discussion about certain implementations in my project.
2. Implementation of $O(1)$ insertion, deletion and finMin through stack.
3. Couple of questions on trees.

Round 4: Problem Solving round (1 hour)

1. Find the intersection point of two merging linked lists.
 2. Identify Trending Topics with many constraints like demographic regions/gender/religion etc. Discussion on the best methods.
 3. An iron rod is given that has to be cut in a manner such that the cost is maximized. Different rod sizes have different costs and there is a cutting cost involved.
- Last round was a telephonic round with VP after few days.

Round 5 : VP/Designing Round (Telephonic – 50mins)

1. Discussion on projects.
2. Behavioral questions. Interests, why willing to change etc.
3. Design a bus reservation system defining classes and member functions.

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592. Microsoft Interview Experience | Set 51 (For SDE Intern)

Recently Microsoft visited our campus for SDE intern. The process took over 4 months.

Round 1 (Online MCQ's)

Time-30 mins

This round consisted of 25 questions on C,C++,Aptitude(Probability) and OS.
60 students out of 150 were shortlisted for the next round.

Round 2 (Online Coding Round)

Time-90mins

1) Write a function to check whether the string is valid or not.(Check Balanced Parenthesis{},[],(),).
/header Stack.h was added in C++/

<http://www.geeksforgeeks.org/archives/6547>

2) Write a recursive function to form a list containing intersection of two given linked list without creating new nodes.

<http://www.geeksforgeeks.org/intersection-of-two-sorted-linked-lists/>
<http://www.geeksforgeeks.org/union-and-intersection-of-two-linked-lists/>

Students who solved both the questions were selected and some who solved one question were selected too.

37 students were shortlisted for the next round.

Round 3 (Telephonic interview)

Time-27 Min

-Firstly , the interviewer introduced himself. Then asked me to do the same.He asked to me bring a pen and a paper.

-He asked me to briefly describe everything I had written in my resume.

-Questions on my project

-Random Function

-Questions on Sql and Oracle

-What difficulties I faced during my project

-Asked me to whether I would like to answer Question on DS or puzzles.I said both.

-DS

-Height of tree in $O(n)$.

- Find the minimum level where leaf node is found.

-When would height of tree and minimum level leaf node be equal.

-What is a height balanced tree.

-Puzzle

-Given a tray of red and blue balls.Separate red on left and blue on right with minimum swaps.

-Solve the same with Red, blue and green balls.(traversing only once!)

Only 9 were shortlisted for the further interviews. I was lucky enough to be one of them. We were called to Microsoft India Development Center, Hyderabad. There were total 23 students from IIT indore, IIT hyderabad,

IIT hyderabad and some other institutes.

There were 3 f2f interviews.

Round 4 (Technical) (30 mins)

1)Resume discussion.

2)Write an algorithm to merge two sorted linked list in place.I wrote an algorithm then he asked me to

-do it without using double pointer.

-without a dummy node

-asked me how would i test my solution.

-all possible test cases and how would my code respond to them.

<http://www.geeksforgeeks.org/merge-two-sorted-linked-lists/>

General discussion about project.

*\\Simplest round!**

Soon after the fourth round some of us were called for the next round.

Round 5 (Technical) (35 mins)

1)Nodes at K distance from the root.He asked me to write the test cases. I wrote around 15.He was satisfied.

2) What is deadlock?

Conditions of deadlock.

Write a code to show deadlock.

Explain Bankers Algorithm.

3) Given a column number, find its corresponding Excel column name.

<http://www.geeksforgeeks.org/find-excel-column-name-given-number/>

He told me That i have good coding skills.

Round 6 (Was supposed to be HR but Technical!!) (30 mins)

He asked me how my previous interviews went.

Asked me terms like

-Garbage collector

-Unicode

-Ascii etc.. (around 10!)

1) Given n (no. of elements of array){1,2,3,4,5,6,7,8} , K (no of elements in one row or column as specified)(eg. 3)

and A boolean variable Col & Row. When Col =True We have to print elements of array like-

1 4 7

2 5 8

3 6

And when row= True

1 2 3

4 5 6

7 8

2) Assume a computer screen. All the pixels are colored black. Given (x1,y1) and (x2,y2) you have to color the line joining these

two points Black.

(Hint: The line is not always going to be a diagonal straight line. Sometimes we may have to go vertically up and then sideways)

The interviewer was helpful and patient.

The experience was Grand! The people were so down to earth ! Every interview felt like a simple peer to peer conversation.

All i would suggest is Geeks For Geeks And u need Nothing to do 😊

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593. Practo Interview Experience | Set 3 (Off-Campus)

Applied for practo off campus in February, call came for first round on 20th February.

Round 1 (Coding Round):

The first round was coding. It was hosted on hacker rank. Had 6 questions which need to be solved in 2 hours. The level of questions were nice and contained 3 DP and 3 adhoc questions.

The level of the questions were high. The catch is you don't need to solve all the questions. I solved 2 questions completely and 2 questions partially($\frac{1}{2}$ and $\frac{4}{8}$ testcases) and that was enough to clear this round. You can download and see the questions that were asked from the following link :

<https://www.dropbox.com/sh/aoxkayew1x0aamj/AAC5kjRVcodxYgdfnjd7133Ua?dl=0>

Round 2 (Skype Interview):

This round took place on skype. The interviewer shared a link for the scratchpad, it was hosted on hacker rank. This round was divided into 3 parts :

1. He gave me the following question to code:

Given a string, calculate the number of distinct palindromic substring. e.g. if the string is aabaa, then distinct palindromic substrings are a, aa, aba, b, aabaa. So the answer is 5.

Cleared 6/9 testcases, took 20-25 minutes to code this.

2. He was going through my resume and asked me to discuss any project of my liking. So I discussed "Sentiment Analysis" and how it can be connected to the kind of work Practo does. He showed interest in the project and to some extent was kind of impressed about the work. Discussed about all the algorithms and technologies involved in the project.

3. In the end he gave me a design question. He asked me to design a database schema for the ongoing cricket world cup which would be able to answer queries like "which bowler took how many wickets in a particular match", "how many runs were scored by batsman abc in xyz match", "how many no-balls were bowled in xyz match and at what position in the match and how many runs were scored off those balls", "ball by ball update, the kind of delivery", etc.

Hint : took idea from the way espncricinfo displays an ongoing match summary.

This was it, this round took 1.5 hours, in the end he asked me whether i have any questions, i didn't have. He said I will receive a call from HR next day. The call didn't come, instead a mail came and i was lucky to get selected.

The complete procedure took 20 days.

Tip : Be thorough with your resume and the projects you do, it matters a lot. Needless to say about Competitive programming. Practice on Hackerrank, Codeforces and leetcode.

P.S. : Practice Dynamic Programming as much as you can.

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594. Pubmatic Interview Experience

I was interviewed at pubmatic. this was interview experience

Round 1.

1. Print the circumference of the tree
2. given an array as stock prices find the day when should user buy and sell to maximize the profit.
3. Create mirror tree from a given tree.
4. Given a Binary tree of strings. Return the stream of string as char* so that when reverse parsing the same string gives back the same tree.
5. Given a sorted and rotated array, find a given number in that.

Round 2:

1. Signature and return type of malloc.
2. How does free() knows the size of the block to be freed because malloc only returns the starting address.
3. Given a service provider(idea, airtel) design DB schema for storing all the information . (more focused to see how will you create schema normalised and use of indexes)
4. Given a table employee(id, name , manager id) write a query to return employee name and manager name .
5. given a stream of billion numbers find top 100 number at any instant of time,

Round 3.

1. Given a stream of 200 billion numbers (each no > 50000) , find the average of numbers.
main focus was how you store the avg.
2. Crossword puzzle algorithm. given a dictionary and a a mXn grid. find how many possible words can be formed from the grid.
3. Given an array of size m (m < n) and number from 1 to n. n-m numbers are missing in the array. for eg n = 10 and m = 5 arra= [1,6,4,8,7] find the missing numbers in array. in this case missing numbers are (2,3,5,9,10)

4. Use cases of storing a tree in to stream.
5. Given two dices . and numbers 0-9. give every side of dice a number so that they can be used to display dates of all the months.

Final Round with VP

1. why do you want to join pubmatic ?
2. where do you see yourself down the line in 5 years.
3. Given an array, find the no of triangles that can be formed.
4. what do you prefer array or link list?
5. what do you prefer between link list and doubly link list.
6. what is your unique talent that distinguishes you from others.

Round 5:

Normal HR questions.

Big Thanks to geeks for geeks.:)

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595. Amazon Interview Experience | Set 182 (For SDET 1)

Round 1: (Written Test)

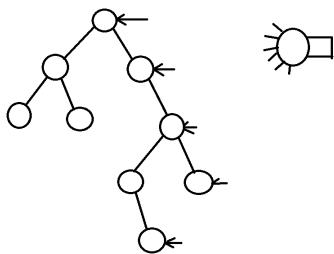
1. Given a sorted array construct a Balanced Binary Search Tree.
2. Given a linked list, find whether linked list is palindrome or not without using any extra space.
3. Given set of strings find longest common prefix. If no common prefix present print null
Example: {abcd, abbd, abdy, az}
Answer: a

Round 2: (F2F – Problem Solving)

1. Given sorted array of unique elements. Find an element which is having value equal to its index.
{-4,-2,2,4,6,9}
Ans: 2
2. Given a brick of size 1 x 4, how many ways you can construct a wall of size N x 4

Round 3: (F2F – Data structures and Algorithms)

1. Give a binary tree, print all the nodes in spiral order with constant space
2. Give a binary tree and a light source fixed placed right side of the tree. Print all the nodes where the light directly falls.



3. Merge two sorted linked lists without using extra space

Round 4: (Telephonic – Hiring Manager from Seattle – All Questions on Testing and Projects)

1. Tell me about yourself
2. Roles and responsibilities of your current role
3. How do you test a search box
4. Did you ever have a fight with developer over a defect? If you had how did you solved ?
5. Few behavioral questions

Round 5: (F2F – Test Automation and Testing)

1. Design an automation framework
2. Given a function InsertNode() which inserts a node to a linked list. Write all scenario's to test the function.

Round 6: (F2F –Bar Raiser)

1. Tell me about yourself
2. Why Amazon
3. Hardest bug you found
4. Given an array of integers. Write a program to find interval with largest producing maximum sum. You should print sum as well as first and last index of the interval.
5. Your strengths
6. Your weakness

Useful sources for Technical Preparation:

1. GeeksForGeeks
2. Data Structures and Algorithms Made Easy by NarasimhaKarumanchi
3. Data Strucutures videos by Prof Naveen Garg from IIT Delhi

Use Cracking the Coding Interview book by McDowell Lakmen for behavioral as well as technical questions.

Tips:

1. Think loud in front of interviewer.
2. Never keep quiet during interview
3. Prepare well on the projects which you are currently working on.

4. Be honest in behavioral questions

The beautiful part of the entire interview process was in none of the interviewer looked at my resume.

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596. MakeMyTrip Interview Experience | Set 5 (Online Coding)

Question 1: Given an array with n elements consisting of numbers between 1 to n-1 with some numbers being repeated multiple times in the array.

Give a result[] array as output containing all the repeated/duplicate elements.

```
Code: package arrays;
=====

import java.util.ArrayList;

public class MultipleDuplicateValues {

    public static void main(String[] args) {

        int arr[] = { 1, 2, 3, 1, 3, 6, 6 };
        int[] result = getduplicates(arr);
        for (int i = 0; i < result.length; i++) {
            System.out.println(Math.abs(result[i]));
        }
    }

    private static int[] getduplicates(int[] arr) {
        ArrayList<Integer> l = new ArrayList<Integer>();
        int[] result;
        for (int i = 0; i < arr.length; i++) {
            if (arr[Math.abs(arr[i])] >= 0) {
                arr[Math.abs(arr[i])] = -arr[Math.abs(arr[i])];
            } else {
                l.add(arr[i]);
            }
        }
    }
}
```

```
result = new int[l.size()];
int i = 0;
while (i < l.size()) {
    result[i] = l.get(i);
    i++;
}

return result;
}
}
```

Question 2: Given an array containing a sequence of numbers , you need to identify whether that sequence is Fibonacci , Arithmetic Expression or Geometric Expression
===== And give it's next term as output.

Total time for the above two questions : 45 Minutes

Mode of interview : Online Coding

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597. Myntra Interview Experience | Set 5

Attended coding interview for myntra. Question was based on the movement of Robot.

G-GO one unit

L-Turn left

R-Turn right

Given an input of string have to find whether there exists a circle which the robot would traverse. Input of string is the set of G,L,R have to return yes or no.

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598. Snapdeal Interview Experience | Set 12 (For Senior Software

Developer)

I gave this interview for Senior Software Developer Role.

Round 1:

Lots of puzzles and algo's. The interviewer didn't let me write code for anything, the moment I say efficient algorithm he moved next question.

Q1. A tree is represented in the form of array. Where index(i) of the array represent value of a node and the value inside(A[i][j]) represent the parent index of the tree.

Value corresponding to root is -1. Construct the tree.

For Eg: 1,-1,1,2,3,1 index 1 is root, with three children at indexes (0, 2 and 5) and index 3 is a child of 2, index 4 is a child of index 3

Initially I did it O(n*n) and later with the help of extra space O(n), I did it in O(n)

Q2. We played a game, there are n coins where each player has to pick up coins min 1 and max 6 one by one and the person who picks the last coin is the looser

something like <http://www.quora.com/Given-n-coins-for-two-players-playing-a-game-Each-player-can-pick-at-least-1-and-at-most-5-coins-in-one-turn-The-player-who-picks-the-last-coin-loses-the-game-If-they-play-optimally-which-player-will-win-the-game>

We played two such sets and both times the interviewer won and he asked me to find the logic behind it, luckily I could crack it using the two sample games I played.

Q3. <http://www.braingle.in/brainteasers/teaser.php?op=2&id=9653&comm=0>

After long discussion I could answer this as well, with some hints.

Round 2:

This round was a mix of core java and Designing

Q1. Categories of different books in a library is stored in database as

Category => String Name ,String Id, String ParentCategory_Id

Null ->Physics->Electronics->Current

Categories are infinite and sub categories are infinite

All Categories with the parentCategory_Id null are the first level categories, and under each such category we will have multiple sub categories.

He will give me an array_list with these tuples and I have to generate entire tree.

I wrote a class Node{ String Id, String name, List children } and I return a node with null name and null Id as the root.

Q2. A user logged in a page and the load balancer is sending each request of a user to different servers(instances). I want session_data in all servers, how to do this?

Q3. He asked me, if I know this. Collections.SynchronizedList(ArrayList lis)

I said no and then explained what it is and asked me to implement.

Round 3:

This round went pretty good

Q1. How java files are loaded into tom cat server

Q2. How different versions of the dependency package resolve

Q3. Two classes with same name in diff package, do they overload

Q4. Two classes under same package(I told him compiler will throw error) and then asked which class will throw error first and few more generic java questions.

Q5. Asked me to design a app like ola cab.

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599. Accolite Interview Experience | Set 3 (On-Campus)

Written MCQ

There were 20 multiple choice questions to be done in 30 minutes time and most of the technical questions were from [geeksquiz](#) , one blood and relation question and one simple probability question.

There was no negative marking.

Paper Coding round

21 students were shortlisted from the 1st MCQ round and in this round we were asked to write the codes (function only) of 3 questions in 1 hour time.

Q1. You are given a matrix of size MxN and only possible values in the matrix are

0 – representing empty position

1 – representing a fresh apple

2 – representing a rotten apple

A rotten apple converts all the fresh apples to rotten ones which are adjacent to it in 1 unit of time. Given an input the matrix and you have to calculate the amount of time in which all the fresh apples become rotten. Also determine whether all fresh apples could be made rotten in finite time or not. (20 marks)

Input

2 1 0 2 1

1 0 1 2 1

1 0 0 2 1

After 1 time unit, the matrix will be transformed to

2 2 0 2 2

2 0 2 2 2

1 0 0 2 2

After 2 time units the matrix will look like

2 2 0 2 2
2 0 2 2 2
2 0 0 2 2

Hence output should be 2 time units. (Definition of adjacent only included the left , right, bottom and upper cell and NOT diagonal cell)

Q2. You are given a Binary tree and you need to find out the maximum path sum between any 2 leaf nodes of the binary tree (The maximum path sum may or may not pass through root of tree). To be done in O(n) time (20 marks)

<http://www.geeksforgeeks.org/find-maximum-path-sum-two-leaves-binary-tree/>

Q3. You are given an unsorted array of integers and you need to find out whether there exists a majority element in it. (Majority element is one which appears more than $n/2$ times in an array of size n). To be done in O(n) time (10 Marks)

<http://www.geeksforgeeks.org/majority-element/>

The result of this round was declared late in the night. Some 7 or 8 students were called for the face to face interview rounds. I was the first one to be called and F2F rounds started at 11.30 PM and ended up in 5 AM in the morning :-p I was lucky to be free around 1.15 AM 😊

Face 2 Face Round 1

Q1. I couldn't complete my Paper coding round question 1 (rotten apples). She (the interviewer) asked me to rectify the problem in it. I did it with the help of MxN extra space for visited[][] matrix. She said do it inplace. I did by modifying the Matrix values to 3 , 4 , etc. 😊

Q2. Find 5th from last element in a singly linked list. Firstly I gave a solution which took two traversals. She said to do it in 1 traversal only. I did it by taking two pointers and maintaining a distance of 5 nodes between them. Q3. You are given a string for example if input string is "I am abc xyz". Output should be the modified string as "xyz abc am I". This was to be done inplace and in O(n) time.

Q4. You are given a unsorted array of both positive and negative integers. You need to find out the maximum sum subarray in O(n) time. You need to find the start and ending indexes along with the sum.

Q5. You are given a BST and two keys k1 and k2. You need to find out the lowest common ancestor of the two keys Iteratively. I suggested the solution of storing the path in a vector and finding the 1st mismatch of key value in the root to k1 and root to k2 path.

Face to Face round 2

Q1. Take the example of paper coding round rotten apples question and suggest some algorithm where you are allowed to change the position of rotten and fresh apples in such a way that the resultant matrix converts least number of fresh apples to rotten apples. I suggested an approach where I would first count the number of rotten and fresh

apples initially and arrange all fresh apples in a sub-matrix starting from (0, 0) position and similarly arrange all rotten apples in sub-matrix from (N-1, M-1) position. He was satisfied with this approach

Q2. You are given an elevator system with 3 elevators, you have to suggest some algorithm in which the amount of time that a person waiting on some x floor and has pressed the up or down button should wait for least amount of time and also the person inside the elevator also should not wait for too long to reach his destination floor.

Q3. Asked some general questions as to what are tokens of a language. What is a grammar and production rules. Then he asked me to check whether a given code in some language is syntactically correct or not. You are provided the set of valid tokens for this language and also symbol table.

Q4. You are given a text file storing characters or words. Suggest some way to compress the file such that there is always some amount of space compression possible.

I suggested to use a trie tree as all the prefixes will share the space. He said this approach is dependent on whether the input has common prefixes or not.

Suggest some other way. I then said that we can use Huffman Encoding and assign smallest code to most frequent word in the file and so on. He said again this approach also is dependent on whether your input has frequently occurring words or not.

Then I suggested that since all characters can be represented in terms of 8 bits or 1 byte. We can take the XOR of prev and next character and store it in the current character position. This way I would be able to always get a n/2 size reduction in the encoded file. The idea was similar to <http://www.geeksforgeeks.org/xorlinked-list-a-memory-efficient-doubly-linked-list-set-2/>

He was satisfied and this was the end of my 2nd F2F round. He told me to get some sleep because you will be having a skype interview with our technical manager followed by HR round in the morning.

3rd round (Skype)

Q1. He asked me to define NP and NP hard problems followed by the definition of automata and regular language. He then asked me are regular expressions.

Q2. He shared a google doc with me and gave me a regular expression like abab*(a|b) and an input string s. I needed to write a code to check whether the given input string could be generated from this regular expression or not. Return a Boolean true or false value. I coded it up in 5 minutes :-p

Q3. You are given a N-ary tree and a value K. You need to return true if there exists some root to leaf path having sum = k and false otherwise. I did it using recursion and in O(n) time.

He told me that you'll be having your final HR round in some time. I knew that I was

going well because he seemed to be quite satisfied with my answers.

Final HR round

That was the round for which I've been waiting for hours 😊

She (the HR) started off with some general questions like tell me about yourself and your aims and goals in life. What are your hobbies. I told her that I love art and craft. She asked me what will I make for her if tomorrow is her birthday :-p She was very friendly and nice to talk to. 😊 It didn't seem that I was talking to the HR. It was more like talking to a friend. She asked me what I liked about Accolite and why do I wish to join the company and stuff. Finally we discussed about the pay-scale and work culture in Accolite.

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600. Amazon Interview Experience | Set 183 (SDE – New Grad Position)

Following is my experience. I hope it helps people out there, as I got help from other posts here before my interview.

Duration: 4 hours

interviewer #1: 8 am – 9 am

Q1) tell me your interest

-> Big Data

Q2) what's latest thing you follow in it

-> Apache Spark

Q3) What is it and explain

-> told the standard MapRed and Hadoop vs Spark

Q4) what more features

-> told graph processing and MLLIB

Q5) Actual question starts here, given the binary tree, how will you serialize and deserialize it to the file?

->

answer1: Serialize => do in-order traversal and pre-order traversal and write it to a file

Deserialize => build the binary tree using pre-order and in-order traversal

he was not satisfied, gave me hint of no need to do complex in-order, pre-order thing

answer2: BFS clicked me, told him to do BFS and write to a file level wise

But he found a bug in deserialize method, I changed the serialize method for null

values to speial character in file

he was okay with it, and asked me to write a code for it
asked the complexity
told him, was not convinced wholly, then finally told him, was still not
left the room with think over it 😞

interviewer #2: 9am – 10 am

Q1) bang on target, given 2 timeframes, check if they overlap

-> s1, e1, s2, e2

 ep1 = epoch(s1),

 ep2

 ep3

 ep4

if ep1 <= ep3 <= e2 OR ep3<= ep1 <= ep4:

 return T

return F

Q2) LCA in doubly binary tree !!!

-> I frowned, what is doubly binary tree!!

it's just every node has access to the parent

but you need to find the LCA and you do not have access to root of tree!

some brainstorm, and I got it

what is time complexity:

worst case: $O(n^2)$ in skewed tree

average case: was not sure, gave me hint, and I told him, was okay

told him the 1st way, was convinced but hinted me the better way

Got his hint, and gave the answer, was satisfied

Q3) given 2 strings, how would you find if they are anagrams of each other

-> solution 1: 2 hash (was okay but asked the better way)

hinted me that no of characters are limited

solution 2: told him the way of count sort, i.e. use 2 count sort arrays

but he said no need of other array, you can do in single array

told him the way, was satisfied

Interviewer #3:

- started with his long intro
- asked mine, and then stopped me as I was talking at length
- asked me amour my search project
- asked me the basic design
- how did you deal with data when you cannot fit in memory
- how did you do intersection of posting lists

– what is time complexity

then asked me to design the chase game

stumbled like hell, i guess this is going to be my rejection factor

Interviewer #4: (manager) behavioral round

- gave his long intro
- asked about myself
- when did you feel that something could have been done in better way after delivering it in project
- when did you perform best way, as in what did you come up with that other could not do
- when did you go out of the way i.e. against your managers, or higher authority and deliver the best according to you
- asked the system architecture question: design the TINYURL system in terms of server architecture i.e. HA, scalability and request processing
- was satisfied, and left with good note.

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601. Lenskart Interview Experience for Application Developer

I had recently given Interview at Lenskart.com for Application Developer

First Round

Telephonic with HR on some basic stuff.

Next was the round where i was given some below questions

Q1. Given 2 arrays of integers,find whether they will form the same binary search tree.
Exp :- 2,1,3 and 2,3,1 will form the same binary search tree.

Q2. Given a dictionary of words, find all possible sentences that can be formed from a string with no spaces.

Exp : Iamcoolguy

Answer: I am cool guy.

Q3. Write a code to find all subsets of a given set:-

Exp: {1,2,3} will give {1},{2},{3},{1,2},{1,3},{2,3},{1,2,3}

Q4. Design a parking lot

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602. SAP Labs Interview Experience | Set 6 (Experienced)

1st round online test-

1. Psychometric Test
2. General Aptitude
3. Analytical Aptitude
4. Verbal Skills
5. Computer Skills
6. Coding Skills

Coding ques – 2ques requiring very basic coding skills in C.

After clearing this I was called for interview process.

2nd round- designing round

we were divided into groups and given problem statement, assigned mentors group wise, bt asked to create solution individualy. Given around 3040 mins to design a banking system with given requirements,

Design should include

- Logic Flow Diagram
- E-R diagram (very important)
- DB tables with relations between them, preferably normalized
- Commands for transaction with tables

A PI with mentor on basis of design/DB tables etc created.

3rd round-Technical

Basic questions on

- C (string, array, bitwise operators)
- C++(inheritance concepts, private/public/protected concepts)
- protocols HTTP,TCP/IP
- current project
- ER diagram for some requirement the create Db tables and write C function for transaction from tables.
- Noramlisation 1NF, 2NF, 3NF BCNF with examples
- Dynamic and static binding
- developement and testing lifecycle and types based ques

- Design patterns used in software development
- OS ques paging etc
- linux commands
- puzzles (find volume of air in a bottle etc)
- difference bet product and project
- diff bet system software and business software
- abstract and interface examples

4th round-Mangerial

- normal ques about college, ranking in class etc
- why should I hire u (justify you characteristics which u mention in this ans), why do you want to join SAP.

Then he asked me do i have any ques, I asked about Onsite opportunities, and then while discussing I told him about my interest in visiting Heritage places, so he told me about an organization which conducts Heritage walks in delhi for places not so famous but with rich historic significance and then gave me contact details. I dont know how much I impressed him, Bt I was flattered by this gesture. 😊

5th round- HR

He asked me how should i weigh Howrah bride and asked to give any answer I like, normal or wacky. My answer was very normal so i not gonna write that. 😊

And then ques about my weakness and strength, my previous company, reason to change etc.

Thanks geeksforgeeks for all content and platform you provide.

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603. SAP Labs Interview Experience | Set 7

A brief documentation of my SAP Labs India interview

Round 1 : Statement Round

We were 5 people and given a problem statement and we were asked to design application or think about how should be the application and present our Idea individually.

my topic was “design parking app which will show the available parking slots and fare in a particular area”

Round 2: Technical Interview 1

1. What are ACID properties with real life examples.
2. what is Linked list and reverse the linked list using single pointer/ 2 pointers.
3. What is RDBMS.
4. what is virtual memory
5. what are primitive data types? what is bitwise operators?
6. what is primary key? unique key?
7. Can unique key be a primary key?
8. What is foreign key? can foreign key be Null?
9. what is normalization? why should we do normalization?
10. normalized form is better or storing in a single table/ 2 tables is better?
11. create database of IPL
12. write a query to find name of a player with maximum number of runs in a match on given date and given venue.
13. query 1 2 3 4 5 6 7 8 9=100 solve this by placing or without placing any operator.
14. one more puzzle of making the probability of ball selecting... etc.

Round 3: Technical Interview 2

1. OOPS concept with real life examples.
2. what is class n object. comparison with real life.
3. program to swap numbers without using temp variable.
4. abstract class, friend class, and other questions related to class concept.
5. Inheritance and types.
6. WAP to print series, with printing characters if divisible by 3, 5, 3&5.
7. Some queries and concepts of RDBMS.
8. OS concepts
9. Puzzle of no of iteration to find light weight ball out of 9 balls.

Round 4: Managerial Round

In this round i was asked about project i worked in and why i want to leave previous company?

kind of work i do in project.

what is SAP and cloud computing

family background and personal info.

Round 5: HR Round

1. Tell me an experience of yours in that you didn't like to do and how you handled it ?
2. What is your negative point that you want to improve?
3. why you want to leave the previous company and why SAP
4. how will you manage when requirement changes at last moment.
5. want to work with team or individually? and why?

Note: At the start of every round you have to give introduction, so make sure that you

are giving all info about you and prepare intro well.

Thanks geeksforgeeks, with your help i was able to crack this interview.

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604. D E Shaw Interview | Set 8 (Telephonic Round Questions)

Recently I got interviewed on phone for De Shaw Hyderabad (1 hr)

1. Tell me about yourself and your current work.
2. Why you like to change?
3. What is a thread? How multithreading is implemented? Its advantages
4. How multithreading improves performance?
5. Difference between process and threads.
6. Can we create multithread in C ? If yes how ?
7. What is mem copy ? Implement memcpy in c/c++
8. What are virtual functions in C++ ? How it is implemented.
9. A problem : There are two stations S (source) and D (destination). In between there are many other intermediate stations whose costs are given in the form of matrix like $cost[i][j]$ from station i to j. Find the minimum cost from source to destination.
10. There are 4 containers each of 10,10, 5 and 4 litres respectively. Both 10 l are full and each 4 and 1 are empty. How will you measure 2 litres each in both 4 and 5 litre container. There is only 20 litres of water available.

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605. Amazon Interview Experience | Set 184 (Off Campus for SDE1)

I interviewed with Amazon, Hyderabad. Interview was in October, 2014. I was 4 months experienced, and was applying for SDE-1 position.

I had 4 interviews, and my experiences are as follows.

1st Round

Q1 – Clone a graph. (Similar Question -> <http://www.geeksforgeeks.org/clone-linked-list-next-arbit-pointer-set-2/>)

Basically while cloning, when you create a new node in the cloned graph, have a hashmap which maps the old node to new node.

So in the hashmap key = old node, value = new node.

Q2 – Given an array of numbers, for each number print the first number to it's left which is greater than the current number.

Example

Input -> 5,3,2,4,8,6

Output-> -1, 5,3,5,-1,8

Use stacks. Simple O(n) solution.

2nd Round

Q1 – Find the row number according to the excel nomenclature -> (the opposite of this, <http://www.geeksforgeeks.org/find-excel-column-name-given-number/>)

i.e given Z, Output -> 26

Given AX, Output -> 50

Q2 – Find the number of islands in a 2d Array -> <http://www.geeksforgeeks.org/find-number-of-islands/>

3rd Round(Hiring Manager)

Q1 – Given a number in words, print the number.

Example 1) Input - "One Hundred and Five", Output should be "105"

Example 2) Input - "One Thousand and two hundred", Output should be "1200"

Example 3) Input - "Twelve hundred", Output should be "1200"

Example 4) Input - "Five Lacs", Output should be "500000"

Example 5) Input - "Five Hundred Thousand", Output should be "500000"

There were a lot of edge cases, and discussion with regards to this. (I took a lot of time and the manager did not seem to pleased. 😊)

Q2- In a sorted array, find two numbers who's difference is k.

Given -> 1,2, 3,4,7,8,9,11 and k=7

Ouput -> 1,8 or 2,9, or 4,11 (Print any one)

<http://www.geeksforgeeks.org/find-a-pair-with-the-given-difference/>

A lot of questions as to Why Amazon, Why do you want to leave so early.

4th Round(Bar Raiser)

Q1 – Given a sorted array find a number. (Simple Binary Search)

Now consider repetitions and find the left most occurrence. (Binary Search to first find number, then again Binary Search to find left most occurrence)

Similarly find the right most occurrence. (Binary Search to first find number, then again Binary Search to find right most occurrence)

Now using the above two functions, find the number of times the element is present.

Note – Cases like where number is NOT present,

Q2- Assembly Line Scheduling. (Very Simple DP.)

<http://www.geeksforgeeks.org/dynamic-programming-set-34-assembly-line-scheduling/>

Result

After three weeks, I got a generic email saying that I could not clear it. I had a really irresponsible recruiter who did not have the courtesy to give me a call and just convey some feedback. Eventually, I think I took too much time with the first question in the manager round.

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606. Amazon Interview Experience | Set 185 (For SDE1)

Hi, Recently i was interviewed for Amazon SDE-1 Position in Hyderabad. There a telephonic round followed by 4 F2F rounds.

Telephonic Round:

1. Inserting an element into a BST
2. A array is increasing and then decreasing find the point where it stops increasing.

F2F Round 1:

1. Replace all the elements in the array with its next highest element to its right
Expected O(n) Solution.
2. Given a binary tree and a value k. A path is called heavy path if the sum of the elements in the path (path from root to leaf) > k remove all the paths from the tree which are not heavy i.e., tree should contain only heavy paths.

F2F Round 2:

1. Given a array find all the triplets which satisfy the triangle preoperty(sum of 2 sides

should be greater than third side)

Sol: sort then $O(n^2 \log(n))$ using binary search.

2. Given a dependency where for example process p1,p2,p3

p1:{p2,p3}

p2:{p3}

p3:{}

This means p1 starts once p2 and p3 are complete

p2 starts p3 is complete

p3 can start as it does not have any dependence.

Figure out strategy to find the order of execution of processes.

Ans:Topological sorting.

F2F Round 3:

1. Design a stack with push pop and find min operations in $O(1)$ time.

Ans:can be done using 2 Stacks

2. Given an input string and a dictionary of words, find out if the input string can be segmented into a space-separated sequence of dictionary words.

Solution <http://www.geeksforgeeks.org/dynamic-programming-set-32-word-break-problem/>

F2F Round 4:

Discussion of projects and current work experience.

Diameter of a binary tree in $O(n)$.

First devised $O(n^2)$ then optimized to $O(n)$

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607. One97 Interview Experience | Set 3 (Backend/Node js Developer)

Round 1

Q1. Multiply two 2d matrices

Q2 You are given a stack in which element are filled at runtime. And normal push and pop operation. Now write a function min which you minimum element in stack at any particular instance.

Sol. <http://www.geeksforgeeks.org/design-and-implement-special-stack-data-structure/>

Round 2

Q1 Given an array of size n contains element from 1 to n in any order(unsorted). Now one element is duplicate. Find that element without using extra space.

<http://www.geeksforgeeks.org/find-duplicates-in-on-time-and-constant-extra-space/>

Q2 Given an array which contains repeated elements in consecutive order. Now write a recursive function which removes consecutive elements from array.

Q3 Given an array find subarray which has zero sum.

<http://www.geeksforgeeks.org/find-if-there-is-a-subarray-with-0-sum/>

Q4 Some talk on node.js. and its event driven model. Why we use nginx as proxy server.

Q5. Find number of unique visitors on a website having traffic up to 0.5 million daily(let's say). How will you number of unique visitors.

Q6 Given a histogram find maximum area of rectangle.

<http://www.geeksforgeeks.org/largest-rectangle-under-histogram/>

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608. CouponDunia Interview Experience | Set 4 (Off-Campus for Internship)

I applied off campus for the internship. Selection consists of five rounds. I cleared all the rounds.

Round 1:

(Online Coding Test on Hacker Rank)

This round consists of 3 questions out of which two were easy and one was medium

Q1. Run length Encoding of string with slight modification

Q2. It was an easy question didn't remember

Q3. A DP question variation of word break problem

I did all the 3 questions and got call for the telephonic interview.

Round 2:(Telephonic with real time coding with code pair)

Q1. <http://www.geeksforgeeks.org/root-to-leaf-path-sum-equal-to-a-given-number/>

Q2. <http://www.geeksforgeeks.org/root-to-leaf-path-sum-equal-to-a-given-number/>

Q3 sql query to find 2nd highest salary and 6th highest salary

Q4 6 pirate problem

Round 3:(Skype round)

Q1. given two string check if one is sub string of another or not

Q2. given two string check if one is rotation of another or not.

Q3. Alternate level order traversal of a binary tree.

Q4. Heaps and its full code

Q5. Given a file with millions of string sort them

Q6. Given a linked list with millions of node a node will contain character from a to z . Sort them.

Q7. There are 127 player in a knock out tournament how many min no of matches to be played to find out winner.

Q8. DBMS indexing ,left join , outer join etc.

Some concepts of OS. etc

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609. Amazon Interview Experience | Set 186 (For SDE1)

Hi, Recently I was interviewed for the SDE-I for Amazon, Chennai.

Round 1(Online Round):

1. Given two linked lists. Add them.

e.g 1->2->3

3->4

Output: 1->5->7

2. Find if the binary tree has the given sum.

I cleared the online coding round and I was asked to come down for the face to face discussions.

Round 2(F2F):

1. Find if the given binary tree is height balanced.

Round 3(F2F):

1. Find if the given tree is the subtree of the big tree.
2. Given a sorted matrix (row-wise and column wise) , find kth smallest element.
3. Given an array. Pop min element in O(1) time.
4. Implement increment operator for the array.

Round 4(F2F):

1. Print the level-order traversal from bottom to up in a given binary tree.
2. What is process and thread?
3. What is copy constructor?
4. Design parking lot.

Round 5(F2F) (Hiring manager round):

1. Questions on achievements, challenges faced, area of improvement.,etc.
2. Given a file with millions of URLs. Some URLs repeating , some unique. Find the first unique URL.

Coding was required in each and every round. Think loud. Tell the interviewers what you think. Give them different approaches. Be confident about your solution.

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610. Nirvana Financial Solutions Interview Experience | Set 1 (Off campus for Internship)

I applied off-campus for internship. I got a call that my resume is shortlisted. Selection procedure consist of 4 rounds.

Round 1: Online Coding Round on Hacker Earth.

1. <http://www.spoj.com/problems/ADDREV/>
2. How many string of length n can be made using 3 characters a,b,c?
3. It was easy question simple adhoc problem. didn't remember

I did 2 questions out of 3 in 90 mins and got a call for a face to face interview in Gurgaon office.

Round 2.

It was simple aptitude round which consist of all type of questions It have to be done in 30 min. It was just to check aptitude of candidate. Selection will not be affected by the result.

Round 3. Face 2 Face interview with Technical Head

He was a cool guy with the matter of luck we both have same name.

In this round he covered almost every subject of Computer Science.

He started with giving me a paper and asked to rank my self in the languages mentioned in resume. I ranked my highest in C++ and Java.

1.Diff b/w malloc and calloc.

2.Diff b/w Java and C.

3.Implement stack and queue full code

4. ER diagram of University and Database Tables.

5. Normalization

6.OOPs Concept.

7 He asked me to apply all the oops concept on the table which I have written previously

8. Two simple coding questions

9.Why I want to do 2 months internship.

Round 4 (F2F HR with company Manager)

1.Tell me about yourself.

2.What kind of a person you are explain?

3.Why do I want to do a job when my father own has a very good business?

4.He gave me a puzzle to solve I have to plant 10 trees in 5 rows each row must have 4 trees.

Round 5(f2f with Head of the company)

It was just a formality He asked me which sport I follow and who is better Ronaldo or

Messi?

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611. Interview experience at Ignite World (Formerly Bharti Softbank Portal)

I was interviewed for windows developer.

Round 1 – telephonic

- About yourself
- Work done on windows platform
- What is mvvm
- What is data binding
- Difference between Observable collection and List
- INotifyPropertyChanged
- ICollectionChanged
- Why and where do we use “using” statement
- Do you know socket programming? (I said no)
- ListBox vs LongListSelector

Round 2 – f2f DS

- About yourself
- About projects n questions from projects.
- What are priority queues?
- How to implement priority queues data structure wise?
- Dynamic allocation of 1D and 2D arrays
- Find middle element of linked list
- Find nth element from last in a linked list
- Reversing a linked list
- Finding n/m element of a linked list
- 100 people in a circle with gun puzzle where 1st kills second and passes the gun.

Round 3 – simulation round

Building an app in 3 hours using Flickr api where the user can search for a tag and it returns photos with that tag. The feed needed to have infinite scrolling where more photos are loaded on reaching the end of the current set of photos.

Things that mattered-

- Virtualization
- Background creation of images
- MVVM implementation
- Virtualization
- Json parsing

Round 4 – f2f with Director of Engineering(DOE)

I was just asked a single question here, a puzzle, asked in form of a programming problem. I was asked to suggest solutions considering both, DS and the logical solution of the puzzle.

There's a circular hotel lobby with doors that leads to different rooms. There light inside the room can be on/off. You need to check and turn off light in every room. Number of rooms is not known, you can travel in both directions.

Identifying the starting point holds the crux here as the lobby is circular and number of rooms is not known.

Round 5 – HR

- About yourself
- Why windows
- Why engineering
- How you got into app development
- And mostly behavioral questions and compensation discussion.

I would like to thanks geeksforgeeks that helped me immensely in my preparations for this interview.

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612. CouponDunia Interview Experience | Set 5 (For full time Software Engineer)

I applied here from their career page and was asked to attend 5 rounds and I cleared all of them and landed into a full time Software Engineer job 😊

Round 1:

It was 5 question screening round which was meant to know about my expectations from the organization.

Round 2:

Online Coding round on Hackerrank

3 coding coding questions:

- Run length Encoding of string with slight modification
- Finding buying day and selling day for a given set of days such that the profit of the buyer is maximum .
- Given a set of keywords and a long string, break the long string such that the split words are from the keywords only

Questions were fairly simple but test cases were very nice.

Round 3:

1st Interview

The interview went for about 1 hr and was completely technical. The questions asked were:

- Given a binary tree how would you identify whether it is a Binary Search tree or not? I gave the answer using inorder traversal.
- given a bst, convert it to a binary tree such that each element is replaced by the sum of all the elements greater than it?
- Given an employee table with employee name and salary find the 2nd highest salary. I gave the vague answer of using inner query then he asked if instead of 2nd its nth highest then what would I do. After sometime I asked for the keyword (which was LIMIT) and then I wrote the query which was almost syntactically correct.
- The answer to the question of binary tree, he asked me if I could solve it without using any space (my previous solution took $O(n)$ space)?
I was writing the solution and in between he said to stop and asked me if I have any question.

Round 4:

Java application development

Imagine we have an Email Queue table in our database with each row representing an email that needs sending. Table Name: EmailQueue Columns: id, from_email_address, to_email_address, subject, body (you can also add columns as you wish, but at minimum it should have these columns). Write a java program that will read from this table and send the emails over an SMTP server (not local unix mail). For the SMTP sending you can use a pre-existing library of your choice, if you wish. Please take into consideration the following:

1. Speed is of the utmost concern. Imagine we have 1 million emails to send. Your code should not sequentially send one email after another.
2. Your solution should scale. In other words, if we determine the fastest we can send

- emails from a single server is 300 emails/second I should be able to run the same Java program on another server and be able to send another 300 emails/second.
3. Your code should be careful to ensure that it is not possible for the same email to be sent twice (especially when running multiple processes of the program).
 4. Don't worry about whether the SMTP server can handle the load. It can.
 5. Order emails are sent is not necessarily important. In other words, even though I'm calling this a "queue" it's not important to guarantee that emails are sent in the order they are queued.
 6. Comment your code extensively.
 7. Once again, speed is the primary concern. So do remember to think about what the slow points in the email sending process could be and take efforts to minimize those pain points.
 8. Send me instructions on how to compile/run/test your code along with the code itself. Also the sql statements for me to create the table that you are working with and the sql statements to insert a few test emails.

Round 5:

Final interview

It was of about 1 hr on soft and technical skills. Questions asked include:

- Tell be about yourself?
 - given an array. find the pattern it follows? there can be 4 patterns only: increasing, decreasing, increase then decrease and decrease then increase.
 - Given an array of distinct positive numbers find the maximum sum of elements such that no 2 elements occurring in the maximum sum set is adjacent to each other.
- I gave an incorrect answer and then I realised it, so I asked to rectify and she allowed me to do so.
- How can you improve suggestions of coupons to the users?

This discussion went for about 20 mins.

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613. Flipkart Interview Experience | Set 21

I was interviewed at Flipkart. Following was my interview experience.

Initially there was one telephonic screening round. then I was called at their bangalore office.

Telephonic round:

Given an unsorted array find an entry in array where arr[i]= i; modified it to if array is sorted.

find median of a long stream of numbers at any instant of time.

implement LRU cache. (DS used in it and explanation)

Round 1. Machine coding round

Maintain an employee hierarchy with attributes

Print complete hierarchy of given employee.

find top 10 employees on the basis of salary ,at any instant of time .

Perform CRUD opérations on the hierarchy.

they measure you performance on following

Code should be running

time limit is 1:30 minutes.

Appropriate data structures used.

optimized and modular code.

Round 2: Technical

Optimize the code done in machine coding round

A lot of discussion on the approach i used. Various edge case discussions.

Round 3. Technical

print the top view and right view if tree.

create a mirror tree from the already existing tree inplace.

How many ways a 4*n wall be filled with 4*1 sheets so that the wall ends uniformly.

Round 4: Hiring Manager Round

A lot of discussions on my previous work. asked me to draw the architectural diagram of my latest project and explain thoroughly.

What is a columnar database. why we preferred redshift over mysql for data warehouse.

Why Flipkart.

what is you passion and aspiration

Where do you see yourself down the line in 2-3 years.

what kind of work motivates you.

what was the toughest project you ever received. problems faced in that. how you solved it.

Any questions if I had for him.

Basically Hiring manager wants to check if you are a good asset to his team and will fit in the company culture.

Thanks a lot to GeeksForGeeks for such an awesome platform for geeks like us 😊

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614. SAP Labs Interview Questions | Set 8 (Bangalore)

Round One:

1. Find Min and Max of an array in only one traversal.
2. Given a chessboard find maximum number of squares present.
3. Job description.
4. Difference between deep and shallow copy.
5. What is C++
6. What's "preinitialization"

Round Two:

1. reverse a linked list
- 1.1 Use Recursion
2. Copy constructor, operator = different used cases, code
3. Deep Copy, Shallow Copy Used cases
4. Different versions of polymorphism, how to solve the problem of multiple inheritance.
5. Deep look into Virtual concepts, inheritance.
6. Template classes, WAP operator= for template class such that it behaves differently for int and char *
7. Given a tree, WAP such that a matrix is generated so that:

Tree:

```
    1
   / \
  2   3
  |   / \
 4   5   6
```

```
 1 2 3 4 5 6
1 0 1 1 1 1 1
2 0 0 0 1 0 0
3 0 0 0 0 1 1
4 0 0 0 0 0 0
5 0 0 0 0 0 0
6 0 0 0 0 0 0
```

Hint: Preorder

8. Given an array, 1 2 0 5 4 88 0 0 0 6
make it, 1 2 5 4 88 6 0 0 0 0
9. Give me class hierarchy, List the number of VTables created
10. When to use List and when to use Vector of STL

11. Given a string “I LOVE INDIA”, print “INDIA LOVE I”

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615. BrowserStack Interview | Set 7 (Online Coding Questions)

Three questions asked. The test duration was 3 hours and was conducted on hackerearth.

1. Write a sql parser to properly parse queries for a particular table. The input will consist of several lines: the first line is of two values, N and M, separated by a comma. The next line has the names of the columns of the table. The next N lines will contain N rows of the table (each column delimited by a comma). After that, the next M lines will contain where clause of sql query which you are supposed to execute and return their output (one in each line).

Table input will be in the following format:

“ID”,“Name”,“Date” 1,”Narendra Moody”,”2014-10-23 12:21” . . . 100,”Rahul Pandey”,”2013-11-02 13:01”

Query input will be given in following format: ID > 99 and Name = “Rahul Pandely”

You are supposed to evaluate query and print the number of rows that come under the criteria. For example solution for above query will be 1.

Sample Input (Plaintext Link)

6, 1

“ID”,“Name”,“Date”,“Score”

1,”Aditya Moody”,”2014-10-23 11:55”,20

2,”Utsav Moody”,”2014-10-24 15:18”,21

3,”Jon Doe”,”2014-10-23 02:51”,62

4,”Foo Bar”,”2014-10-23 12:00”,98

5,”Rahul Moody”,”2014-10-23 12:31”,61

6,”Umang JarJar”,”2014-10-23 11:21”,33

Date > “2014-10-23 12:00”

Sample Output (Plaintext Link)

2

Time Limit: 5 sec(s) for each input file.

Memory Limit: 256 MB

Source Limit: 1024 KB

Marking Scheme: Marks are awarded if any testcase passes.

Allowed languages: C, C++, Clojure, C#, Go, Haskell, Java, JavaScript, Objective-C, Perl, PHP, Python, Ruby

- 2.** Given HTTP request or response headers, write a program that prints the “request” or “response” based on the input.

Also,

In case of a “response”, print the following:

- Response code
- Content-Type of the body

In case of a “request”, print the following:

- Value of Accept-Language header, if present
- Resource requested

For eg:

Given the input:

GET /index.html HTTP/1.1

Host: www.browserstack.com

The output will be:

request
/index.html

Sample Input (Plaintext Link)

GET /index.html HTTP/1.1

Host: www.browserstack.com

Sample Output (Plaintext Link)

request
/index.html

Time Limit: 5 sec(s) for each input file.

Memory Limit: 256 MB

Source Limit: 1024 KB

Marking Scheme: Marks are awarded if any testcase passes.

Allowed languages: C, C++, Clojure, C#, Go, Haskell, Java, JavaScript, Objective-C, Perl, PHP, Python, Ruby

- 3.** You will be given lines of a web server log as shown in example below. You are supposed to parse it and for all the HTTP codes that occurred in the file, print in each line the HTTP code that occurred followed by how many times did it occur. Output should be sorted in descending order of occurrences.

Sample Input (Plaintext Link)

185.12.15.89 -- [23/Nov/2014:03:33:03 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
185.12.15.93 -- [23/Nov/2014:03:33:07 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
54.243.188.61 -- [23/Nov/2014:03:33:08 -0500] "GET /ip HTTP/1.1" 503 323 "-" "check_http/v1.4.16 (nagios-plugins 1.4.16)"
87.255.53.44 -- [23/Nov/2014:03:33:52 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.19.7 (universal-apple-darwin10.0) libcurl/7.19.7 OpenSSL/0.9.8r zlib/1.2.3"
87.255.53.45 -- [23/Nov/2014:03:33:54 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.19.7 (universal-apple-darwin10.0) libcurl/7.19.7 OpenSSL/0.9.8r zlib/1.2.3"
208.52.180.116 -- [23/Nov/2014:03:33:58 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.24.0 (x86_64-apple-darwin12.0) libcurl/7.24.0 OpenSSL/0.9.8y zlib/1.2.5"
185.12.15.90 -- [23/Nov/2014:03:33:58 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
208.52.145.6 -- [23/Nov/2014:03:33:58 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
185.12.15.78 -- [23/Nov/2014:03:33:58 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
185.12.15.91 -- [23/Nov/2014:03:33:58 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
208.52.180.23 -- [23/Nov/2014:03:33:58 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
185.12.15.80 -- [23/Nov/2014:03:33:58 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
216.126.44.86 -- [23/Nov/2014:03:33:58 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.37.1"
185.12.15.94 -- [23/Nov/2014:03:33:58 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
185.12.15.76 -- [23/Nov/2014:03:33:58 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
208.52.180.115 -- [23/Nov/2014:03:33:59 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.24.0 (x86_64-apple-darwin12.0) libcurl/7.24.0 OpenSSL/0.9.8y zlib/1.2.5"
185.12.15.72 -- [23/Nov/2014:03:33:59 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
185.44.128.160 -- [23/Nov/2014:03:33:59 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.21.4 (universal-apple-darwin11.0) libcurl/7.21.4 OpenSSL/0.9.8z zlib/1.2.5"
87.255.53.54 -- [23/Nov/2014:03:33:59 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.21.4 (universal-apple-darwin11.0) libcurl/7.21.4 OpenSSL/0.9.8r zlib/1.2.5"
185.12.15.92 -- [23/Nov/2014:03:33:59 -0500] "GET /ip HTTP/1.1" 503 323 "-" "curl/7.30.0"
80.77.87.241 -- [23/Nov/2014:03:34:01 -0500] "GET / HTTP/1.1" 200 19606 "-" "curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7 NSS/3.15.3 zlib/1.2.3 libidn/1.18 libssh2/1.4.2"

37.139.8.235 -- [23/Nov/2014:03:34:01 -0500] "GET / HTTP/1.1" 200 7390 "-"
"curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7 NSS/3.15.3 zlib/1.2.3 libidn/1.18
libssh2/1.4.2"
185.12.15.74 -- [23/Nov/2014:03:34:02 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.89 -- [23/Nov/2014:03:34:03 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.93 -- [23/Nov/2014:03:34:07 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
54.243.188.61 -- [23/Nov/2014:03:34:08 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"check_http/v1.4.16 (nagios-plugins 1.4.16)"
198.58.103.36 -- [23/Nov/2014:03:34:36 -0500] "GET /feed/ HTTP/1.1" 304 "-"
"Superfeedr bot/2.0 http://superfeedr.com - Make your feeds realtime: get in touch"
46.113.110.244 -- [23/Nov/2014:03:34:41 -0500] "GET /smallpic.jpg HTTP/1.1" 200
7167 "http://www.inoreader.com/folder/Linux" "Mozilla/5.0 (Windows NT 6.3; Win64;
x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/39.0.2171.62 Safari/537.36"
5.45.179.103 -- [23/Nov/2014:03:34:50 -0500] "GET / HTTP/1.1" 200 7396 "-"
"Mozilla/5.0 (Windows NT 6.2; WOW64) AppleWebKit/537.4 (KHTML, like Gecko)
Chrome/98 Safari/537.4 (StatusCake)"
87.255.53.44 -- [23/Nov/2014:03:34:53 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.19.7 (universal-apple-darwin10.0) libcurl/7.19.7 OpenSSL/0.9.8r zlib/1.2.3"
87.255.53.45 -- [23/Nov/2014:03:34:54 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.19.7 (universal-apple-darwin10.0) libcurl/7.19.7 OpenSSL/0.9.8r zlib/1.2.3"
208.52.180.23 -- [23/Nov/2014:03:34:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
216.126.44.86 -- [23/Nov/2014:03:34:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.37.1"
185.44.128.160 -- [23/Nov/2014:03:34:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.21.4 (universal-apple-darwin11.0) libcurl/7.21.4 OpenSSL/0.9.8z zlib/1.2.5"
208.52.180.23 -- [23/Nov/2014:03:34:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"Python-urllib/2.7"
208.52.180.116 -- [23/Nov/2014:03:34:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.24.0 (x86_64-apple-darwin12.0) libcurl/7.24.0 OpenSSL/0.9.8y zlib/1.2.5"
216.126.44.86 -- [23/Nov/2014:03:34:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"Python-urllib/2.7"
208.52.180.116 -- [23/Nov/2014:03:34:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"Python-urllib/2.7"
185.12.15.90 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
208.52.145.6 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.92 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.91 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"

208.52.180.115 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.24.0 (x86_64-apple-darwin12.0) libcurl/7.24.0 OpenSSL/0.9.8y zlib/1.2.5"
185.12.15.78 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
208.52.180.115 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"Python-urllib/2.7"
185.12.15.80 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.94 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.76 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.72 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
87.255.53.54 -- [23/Nov/2014:03:34:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.21.4 (universal-apple-darwin11.0) libcurl/7.21.4 OpenSSL/0.9.8r zlib/1.2.5"
185.12.15.74 -- [23/Nov/2014:03:35:01 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
80.77.87.241 -- [23/Nov/2014:03:35:01 -0500] "GET / HTTP/1.1" 200 7452 "-"
"curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7 NSS/3.15.3 zlib/1.2.3 libidn/1.18
libssh2/1.4.2"
37.139.8.235 -- [23/Nov/2014:03:35:01 -0500] "GET / HTTP/1.1" 200 19606 "-"
"curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7 NSS/3.15.3 zlib/1.2.3 libidn/1.18
libssh2/1.4.2"
185.12.15.89 -- [23/Nov/2014:03:35:02 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.93 -- [23/Nov/2014:03:35:07 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
54.243.188.61 -- [23/Nov/2014:03:35:08 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"check_http/v1.4.16 (nagios-plugins 1.4.16)"
133.9.84.100 -- [23/Nov/2014:03:35:47 -0500] "GET /2014/08/flock-2014-prague-day-
2/#content HTTP/1.1" 404 10338 "-" "Mozilla/5.0 (compatible; Sonic/1.0;
http://www.yama.info.waseda.ac.jp/~crawler/info.html)"
87.255.53.44 -- [23/Nov/2014:03:35:52 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.19.7 (universal-apple-darwin10.0) libcurl/7.19.7 OpenSSL/0.9.8r zlib/1.2.3"
87.255.53.45 -- [23/Nov/2014:03:35:54 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.19.7 (universal-apple-darwin10.0) libcurl/7.19.7 OpenSSL/0.9.8r zlib/1.2.3"
185.12.15.78 -- [23/Nov/2014:03:35:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.94 -- [23/Nov/2014:03:35:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.76 -- [23/Nov/2014:03:35:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
208.52.145.6 -- [23/Nov/2014:03:35:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"

“curl/7.30.0”
208.52.180.23 -- [23/Nov/2014:03:35:58 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.30.0”
208.52.180.116 -- [23/Nov/2014:03:35:58 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.24.0 (x86_64-apple-darwin12.0) libcurl/7.24.0 OpenSSL/0.9.8y zlib/1.2.5”
216.126.44.86 -- [23/Nov/2014:03:35:58 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.37.1”
185.44.128.160 -- [23/Nov/2014:03:35:59 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.21.4 (universal-apple-darwin11.0) libcurl/7.21.4 OpenSSL/0.9.8z zlib/1.2.5”
185.12.15.72 -- [23/Nov/2014:03:35:59 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.30.0”
87.255.53.54 -- [23/Nov/2014:03:35:59 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.21.4 (universal-apple-darwin11.0) libcurl/7.21.4 OpenSSL/0.9.8r zlib/1.2.5”
185.12.15.90 -- [23/Nov/2014:03:35:59 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.30.0”
185.12.15.92 -- [23/Nov/2014:03:35:59 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.30.0”
185.12.15.91 -- [23/Nov/2014:03:35:59 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.30.0”
208.52.180.115 -- [23/Nov/2014:03:35:59 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.24.0 (x86_64-apple-darwin12.0) libcurl/7.24.0 OpenSSL/0.9.8y zlib/1.2.5”
185.12.15.80 -- [23/Nov/2014:03:35:59 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.30.0”
37.139.8.235 -- [23/Nov/2014:03:36:01 -0500] “GET / HTTP/1.1” 200 7428 “-”
“curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7 NSS/3.15.3 zlib/1.2.3 libidn/1.18
libssh2/1.4.2”
185.12.15.74 -- [23/Nov/2014:03:36:01 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.30.0”
80.77.87.241 -- [23/Nov/2014:03:36:01 -0500] “GET / HTTP/1.1” 200 19606 “-”
“curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7 NSS/3.15.3 zlib/1.2.3 libidn/1.18
libssh2/1.4.2”
185.12.15.89 -- [23/Nov/2014:03:36:03 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.30.0”
185.12.15.93 -- [23/Nov/2014:03:36:07 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.30.0”
54.243.188.61 -- [23/Nov/2014:03:36:08 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“check_http/v1.4.16 (nagios-plugins 1.4.16)”
88.78.165.55 -- [23/Nov/2014:03:36:46 -0500] “GET /smallpic.jpg HTTP/1.1” 200 7167
“http://planet.fedoraproject.org/” “Mozilla/5.0 (iPad; CPU OS 8_1_1 like Mac OS X)
AppleWebKit/600.1.4 (KHTML, like Gecko) Version/8.0 Mobile/12B435 Safari/600.1.4”
87.255.53.44 -- [23/Nov/2014:03:36:53 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.19.7 (universal-apple-darwin10.0) libcurl/7.19.7 OpenSSL/0.9.8r zlib/1.2.3”
87.255.53.45 -- [23/Nov/2014:03:36:54 -0500] “GET /ip HTTP/1.1” 503 323 “-”
“curl/7.19.7 (universal-apple-darwin10.0) libcurl/7.19.7 OpenSSL/0.9.8r zlib/1.2.3”
185.44.128.160 -- [23/Nov/2014:03:36:58 -0500] “GET /ip HTTP/1.1” 503 323 “-”

"curl/7.21.4 (universal-apple-darwin11.0) libcurl/7.21.4 OpenSSL/0.9.8z zlib/1.2.5"
208.52.180.115 -- [23/Nov/2014:03:36:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.24.0 (x86_64-apple-darwin12.0) libcurl/7.24.0 OpenSSL/0.9.8y zlib/1.2.5"
208.52.145.6 -- [23/Nov/2014:03:36:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.90 -- [23/Nov/2014:03:36:58 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.92 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
208.52.180.23 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.78 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.91 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
216.126.44.86 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.37.1"
185.12.15.94 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.76 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
208.52.180.116 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.24.0 (x86_64-apple-darwin12.0) libcurl/7.24.0 OpenSSL/0.9.8y zlib/1.2.5"
185.12.15.80 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
185.12.15.72 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
87.255.53.54 -- [23/Nov/2014:03:36:59 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.21.4 (universal-apple-darwin11.0) libcurl/7.21.4 OpenSSL/0.9.8r zlib/1.2.5"
185.12.15.74 -- [23/Nov/2014:03:37:01 -0500] "GET /ip HTTP/1.1" 503 323 "-"
"curl/7.30.0"
80.77.87.241 -- [23/Nov/2014:03:37:01 -0500] "GET / HTTP/1.1" 200 7368 "-"
"curl/7.19.7 (i386-redhat-linux-gnu) libcurl/7.19.7 NSS/3.15.3 zlib/1.2.3 libidn/1.18
libssh2/1.4.2"
EOF

Sample Output (Plaintext Link)

503 88

200 10

404 1

304 1

Explanation

Log file will be given as input over STDIN. You need to write the output over STDOUT. Input will consist of some lines of web server log given line by line over STDIN. End of input will be given by EOF. In output, print in each line the HTTP code that occurred

followed by how many times did they occur (separate two values by space). Output should be sorted in descending order of occurrences.

Time Limit: 5 sec(s) for each input file.

Memory Limit: 256 MB

Source Limit: 1024 KB

Marking Scheme: Marks are awarded if any testcase passes.

Allowed languages: C, C++, Clojure, C#, Go, Haskell, Java, JavaScript, Objective-C, Perl, PHP, Python, Ruby

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616. Flipkart Interview Experience | Set 22 (For SDE 2)

Telephonic Round – 1:

- 1) Inversion count in an array – <http://www.geeksforgeeks.org/counting-inversions/>
- 2) Iterative pre order traversal.

Telephonic Round – 2:

- 1) Given an array and a number x, check for pair in array with sum as x –
<http://www.geeksforgeeks.org/write-a-c-program-that-given-a-set-a-of-n-numbers-and-another-number-x-determines-whether-or-not-there-exist-two-elements-in-s-whose-sum-is-exactly-x/>
- 2) Some question similar to reversing a linked list

I was called to Bengaluru for In house interviews after two telephonic rounds

Coding Round:

- 1) Word Break Problem – <http://www.geeksforgeeks.org/dynamic-programming-set-32-word-break-problem/>

DS and Algo Round:

- 1) Possible words from phone keypad – <http://www.geeksforgeeks.org/find-possible-words-phone-digits/>

Design Round:

- 1) Design delivery system from city Hub to the customer – There was focus on how to figure out the location of the customer from address, finding the shortest path etc.,
- 2) Design a state machine – Each state can handle n events and based on the event type next state is determined

Hiring Manager Round:

This was mostly based on the work I do and some behavioral questions

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617. Amazon Interview Experience | Set 187 (For SDE1)

Hi, Recently i was interviewed for Amazon SDE-1 Position in Hyderabad. There a telephonic round followed by 4 F2F rounds.

Telephonic Round:

- Given a array find all the triplets which satisfy the triangle property(sum of 2 sides should be greater than third side)

<http://www.geeksforgeeks.org/find-number-of-triangles-possible/>

- Given a array find whether it is majority array or not.

Complexity: O(n) Space complexity O(1)

<http://www.geeksforgeeks.org/majority-element/>

F2F Round 1:

- Given a dependency where for java packages p1,p2,p3

p1:{p2,p3}

p2:{p3}

p3:{}

This means p1 can be compiled when compilation of p2 and p3 done
p2 can compile when p3 is compiled

p3 can start as it does not have any dependence.

Figure out strategy to find the order of compilation of processes.

Ans:Topological sorting

- Discussion on project

Asked all concept related to my final year project.

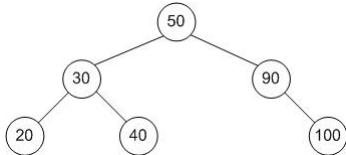
- Current project in company

Challenges faced at company

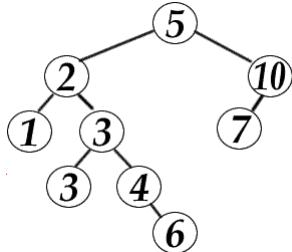
2F Round 2:

- Given a binary tree print its side view from left from bottom to top and right side view as up to downward .

Eg. For image 1 output will be 20,30,50,90,100



and for Example 2(image 2) output should be 6,3,1,2,5,10,7,4,6



2. Given a string find largest palindrome sub string in it.

I gave him <http://www.geeksforgeeks.org/longest-palindromic-substring-set-2/> this answer .

then he asked me using DP

<http://www.geeksforgeeks.org/longest-palindrome-substring-set-1/>

3. What is virtual memory?

4. What is paging in OS?

2F Round 3:

1. Why are you looking for change in 6 months of experience .

2. Discussion on how to send notification to friends when a user post on social network like facebook

The discussion was on when to load friend list of user and he was expecting we should load friend list when user login.

2F Round 4:

1. Discussion on current project challenges faced

Situation when you have to take decision in absence of your team lead/Manager

2. Why are you looking for change in 6 months of experience

3. Given a special binary tree structure given in image 3

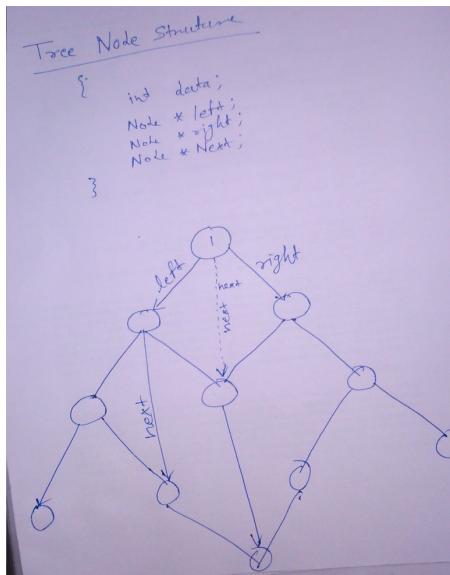
A node have 3 node pointers left,right and next

Two adjacent node share there left and right as shown in tree

Give tree whose node are set with next pointer as null.

you have to set the next pointer as shown in the figure .

If any node is null then the next of its prev node should be next of that eg. a -> b -> c (a's next is b ,b's next is c) if b is null then a's next should be c.



4. What is virtual memory?

5. What is segmentation fault?

Note :- They expect fully working code in all round.

Tips:

1. Think loud they always support you
2. Ask for hint if not getting.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

618. Akosha Interview Experience

I recently got a call from Akosha Bangalore for on-site interview. This Interview had three round, two technical and one manager round.

Round 1: Written Test : 30 Min

*20 MCQ

*Two programming questions : only one need to attend

1. Find Maximum area in Boolean matrix (0/1).

Solution: <http://www.geeksforgeeks.org/largest-rectangle-under-histogram/>

2. I forgot second one, but it was on List of List (very lame question, I did not like the question so I did not solve it)

Round 2: Technical Interview : 1 hour 30 Min

This round totally focused on technical knowledge including data structure, algorithms, web services, Protocols etc.

*Discussion on recent project in detail

*Role and responsibility in recent project

*Linked list random pointer problem: <http://www.geeksforgeeks.org/a-linked-list-with-next-and-arbit-pointer/>

* Restful apis discussion, design etc.

* HTTP protocol discussion

* GET/POST/PUT/DELETE methods discussion

* Difference between POST/GET and POST/PUT when to use what

* (interesting question) You have a rest api for Post method, Suppose you embedded this api in your application and this api usually takes 2 hour to respond back . How will you handle this situation?

— Lots of discussion were done on timeout, sync call, aysnc call etc

But I was not able to give what he was seeking to.

Round 3: Manager Round: 1 hour 30 Min

* General behavioral questions

* Why you want to leave ur current company so early

* What you liked so far in development

etc

I got the offer from company but they were paying sameas what I'm getting currently.

More over HR is very bad, she has no sense of talking.

After few days I reject the offer (due to their bad behavior, they call me 2's in a day(7-8 days) from different sources just to say resign asap)

I would to say thanks to Geeksforgeek for such a wonderful platform for tech guys.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

619. Flipkart Interview Experience | Set 23

I recently had flipkart interview on-site, Bangalore. This interview has 4 rounds. Three technical and one manager.

Round 1: Machine coding: 1 hour 30 min

Very nice question

Questions: You are given some equations which may contain > or = on different-different operand. For example there are valid input and invalid (a=5, b<a=50)

```
String e1 = "a>b=1";
String e2 = "a>b=2";
String e3 = "a>c>e=3";
String e4 = "a>c>f=4";
String e5 = "b>a=5";
String e6 = "a>b>c=5";
String e7 = "b=7";
String e8 = "a>b>c>d=99";
String e9 = "a>b=99";
```

You need to create JSON string from it.

```
{
  'a': {
    'b': [1, 2, 99],
    'c': {
      'e': 3,
      'f': 4
    }
  },
  'b': {
    'a' : 5
  }
}
```

Highlighted one are invalid bec as they come they ask for overwrite the data (a>b>c = 5; C has e and f so we can overwrite).

Input: You are given those string in string array

Output:

1. Construct JSON
2. Print it
3. If you print in same as above (nice manner) +point

I solved this problem using Trie 😊

One can see my implementation at here:

<https://github.com/nitsgupta/practice/tree/master/JAVA/JsonBuilder>

Round 2: Discussion and optimization: 30 min

This round is all about discussion on your previous implementation, why did you use? How did you come with approach, any further optimization? Etc. Interview was impressed with my data structure selection and implementation (though I mentioned him I've assume few things and that can be generalized via different way]

Round 3: DS Algo : 30 min

*You are given a binary tree with extra pointer : next . Populate it

<http://www.geeksforgeeks.org/connect-nodes-at-same-level/>

*Calculate width of binary tree mathematically, what is the maximum width of any tree could have of n nodes.

— I came up with $2^{\log n}$

*Design a data structure with perform following operation in O(1) time

->Enqueue , ->Dequeue , ->Find and ->delete

My Approach1: I answered using hash table(item,boolean) and queue

Then he asked me tell me when ur code will break. [Since he did not mention the item could be repeated so Boolean is not right choice]. I answered instead of Boolean I'll have count. After that I said in that case delete will be not be O(1).

My Approach 2: Queue as doubly linked list, Hashmap (integer, doubly linked of pointer to node of queue]

*Basic fundamental questions.

*Probability question: You are given with PxQ matrix and a point inside the matrix (x,y) where you standing. If you step outside the matrix you'll die. You are allowed to move in all four direction. Movement will be totally random. For Given N steps, what is the probability that you'll alive?

My approach: I tried different approaches from bad to good approach. My last approach based on small problem to big problem i.e. Induction based. But I was not able to bring up to the equation what he was expecting.

<http://stackoverflow.com/questions/16522296/probability-of-death-of-a-man-moving-n-steps-in-a-matrix>

Round 4: Manager round: 2 hour

* Various behavioral questions

*Discussion on Last project

* What problem have you faced in last project, how did you resolved them

* Tell me the architecture design of you last project.

* What was the most critical?

* Various question on Concurrency

* Various question based on my resume [I had taken interviews in IITR from my last company]

etc...

I would like to say thanks to GeeksforGeek for such a wonderful platform for tech guys.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

620. Kritikal Solutions Interview Experience

1st round:

Two sets:

First set consisted of basic C questions (output based)

Second set was MCQ based on computer science subjects like OS, DS etc.

2nd round (Technical interview):

About projects

To delete a node in linked list given pointer to that node only

How to dynamically allocate memory to 2D matrix

Some basic C questions

Difference between malloc and calloc

Difference between semaphore and mutex

Linked list question like reversal, addition

String questions.

3d Round (HR round):

Family background, why Kritikal???, hobbies, what do you do in your weekends,

4th Round (Technical):

To check linked list is palindrome or not

To implement stack using queues

To sort array of 0s 1s 2s

Boundary value traversal of tree

To implement stack.

Level order traversal.

I rejected the offer as there pay scale was not good, In ctc basic salary or not good and was very less.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

621. 24*7 Innovation Labs Interview Experience

I had an interview with 24*7 innovation labs. Their process is telephonic followed by 3 f2f interviews.

Round-1 Telephonic

- 1) Stack reversal in place
- 2) How Hashmap works

I was called for face-2-face interview on March-19th. I had 2 face-2-face technical rounds and 1 round with Hiring manager

Round-II

- 1) About current project and discussion on why few things were used and if they can be done in other ways.
- 2) find length of string(assume there is no inbuilt function to find string length)
- 3) Reverse words in string
- 4) Reverse words in string without changing the input string and without extra memory
- 5) Delete nth node in linked list from beginning
- 6) Delete nth node in linked list from ending
- 7) Mirror image of a tree

Round-III

- 1) About current project and discussion on why few things were used and if they can be done in other ways.
- 2) LRU cache implementation
- 3) Minimum number of platforms required in a railway station
<http://www.geeksforgeeks.org/minimum-number-platforms-required-railwaybus-station/>

Round-IV Hiring Manager Round

- 1) About project
- 2) Behavioral questions like why are you leaving current company, why 24*7, what technologies do you want to learn and work on etc ?
- 3) Current package. Expected package and little negotiation.

On calling the HR couple of times and mailing her about the feedback the HR told that my profile does not suit for their requirements.

I suggested HR to properly screen the profiles based on their resume. Felt bad for being rejected on non-technical reason.

Tips:

Go through the questions in geeks4geeks

Interviews are not specific about programming language as they work on multiple languages so choose whatever language you are comfortable with.

If you like GeeksforGeeks and would like to contribute, you can also write an article and mail your article to contribute@geeksforgeeks.org. See your article appearing on the GeeksforGeeks main page and help other Geeks.

622. BankBazaar Interview Experience | Set 2

I had an interview with BankBazaar.com. Their process is online coding test followed by a telephonic and f2f interviews.

Written test

The person who wrote this problem is going through the bad phase of his life. But, fortunately he won some cash in his last programming event.

Now to make his girlfriend feel special, he wants to buy her some chocolates. As mentioned, he is not having good time so he want to spend as less as possible. Keeping that in mind, he decided to play a game with her. The rule of game is as follows:

- 1) There are N chocolates represented by type 1..N
- 2) He will arrange them in a row in some random order
- 3) Now she (his girlfriend ofcourse) has to pick an index say i, then she will get all the chocolates at index j such that $j > i$ and type of chocolate at j is strictly less than type of chocolate at index i.

He believes that his girlfriend is not that clever and will surely not choose the most optimal index, but he wants to know that if by any chance she picked the optimal index then how many chocolates will he have to buy.

Input:

First line contain N. then next line contain N space separated integers.

output :

A single integer which is the answer.

Constraints :

1 = N = 105

$1 \leq A[i] \leq 10^5$

Sample Input (Plaintext Link)

10

7 6 10 5 2 8 1 9 3 4

Sample Output (Plaintext Link)

7

Explanation

If she chooses $i=3$, then all the elements in right of i have type less than 10, hence ans is 7. In none of the other case she can get more chocolates

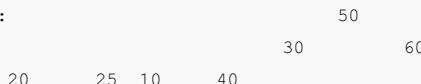
2) Forgot the 2nd question.

Round-1 Telephonic

Given a binary tree find the pairs which violate the BST property.

In BST EVERY element in left subtree must be less than every element in the right subtree

eg:



In above tree the pairs violating BST property are (20, 10), (30, 25), (30, 10), (25, 10), (50, 10) and (60, 40).

Expected time complexity for the problem is $O(n \log n)$ time ?

solution: Make in-order traversal. Store the in-order traversal in an array. Find the pairs which violate the property

I have not cleared this round so no f2f interview questions.

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623. Inmobi Interview Experience | Set 3

I had an interview with Inmobi. Their process is written test followed by 3/4 f2f interviews. It was a drive over weekend.

Written test:

They did not expect any code in this round. An algo or pseudo code is fine.

1) You are given 2 vessels with capacity M liters and N liters capacity and infinite supply

of water. You need to find the minimum number of steps required to get P liters. Any of the below action is considered a step

- a) Filling vessel with water
- b) Emptying vessel
- c) Pouring water from one vessel to another vessel.

2) Given n sets each containing m integers. You need to create MinDiff set by picking exactly 1 element from each set. The difference between the maximum and minimum elements in the MinDiff set should be minimum.

eg: for the sets {30, 20, 10, 40}, {22, 33, 44, 99}, {16, 17, 18, 19} min diff set is {19, 20, 22}. Max and min elements in MinDiff set are 22 and 19 and their difference is 3.

Round-I

- 1) Little discussion on my project
- 2) Given a chessboard and the initial position of horse. If "n" is the number of steps the horse can make then what is probability that it goes out of board ?

Round-II

- 1) you will be given the binary representation of the numbers in the form of 2D array.

```
eg: r1- 00001  
    r2- 00100  
    r3- 01010  
    r4- 00110  
    r5- 00111
```

This means the elements are 1, 4, 10 , 6 and 7.

A number "n" is given. Let us say that n can be formed by doing bitwise OR operation on rows of given matrix. What is the minimum number of rows that needs to be deleted from the matrix so that "n" can never be formed by doing the OR of the rows.

If n is 14(01110) then it can be formed by doing r2|r3 or r3|r4. You can prevent n formation either by deleting {r2,r4} or {r3}. But {r3} has least number of elements so it is the required set.

- 2) Find the average of mid 50% of elements in the running stream of integers

I have not cleared round-II so no further questions.

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I had attended taxi4sure drive. Their process is written test followed by n f2f interviews.

Written test

1) Given an array of students whose ranks can be 0 or 1. Sort the elements so that all the students with rank 0 come before 1.

Bonus points if algo is in-place

2) Find the first student from left side with rank 1

3) Write the algo to sort the students based on rank if the possible ranks are 0,1,2

I have given counting sort algo but looks they did not like my solution so was not proceeded further.

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625. ScaleGrid Interview Experience

Scaledgrid is a start-up providing mongodb as service on cloud. I had a skype interview and below are the questions.

1) You have a single core cpu. Your applications does a lot of I/O operations. Can multi-threading used for making the application more efficient ?

2) A cluster consists of some finite number of server. A cluster is configured to use a DB(mongo db). Given that you have "n"(which can be large) clusters, give the design for a system for taking the periodic back-ups of these clusters.

a) For each cluster, the cluster user would configure the start time to start taking the back-up and how frequently the back-up can be taken

b) Assume you have backupservice.takebackup(Cluster cluster) throws BackUpFailedException method available

c) Can multi-threading be used ?

d) How is timer going to be implemented ?

e) The takebackup() method can throw exception if backing up fails. How is this handled

f) Define required classes with the data and methods

3) Write code for pattern matching of regular expression. Only . and * are the special characters in the pattern

```
boolean isPatternMatched(String inputString, String pattern);
```

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626. OLA Cabs Interview Experience | Set 3

I attended interview for Ola high availability team. Below are the questions.

- 1) Find k distant nodes in given tree. The paths going through parent should also be printed.
- 2) Find the first non repeating character in given string.
- 3) Give design for leader board implementation. 1000 customers with maximum points should be displayed on the leader dashboard. UI should handle real time changes. A customer's points are updated after each ride/order.

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627. MetLife Interview Questions

MetLife is a start-up in medical e-commerce industry. Interview process is 1 online coding test followed by 2 f2f interviews.

Could not recollect the online coding test problems.

Below are the interview questions

Round-1

- 1) Find all anagrams in a given sorted dictionary
- 2) Given pack of cards represented as A1,A2...A13 and B1,B2,..B13, and C1,c2,...c13 and d1,d2..d13.
You are given a file which has 51 card numbers. Only 1 card is missing. Find the missing card.
- 3) How do you write an order service which scales horizontally. Into how many services can you split this. An architecture/design diagram and explanation is required

Round-2

- 1) <http://www.programmerinterview.com/index.php/puzzles/25-horses-3-fastest-5-races->

puzzle/

- 2) <http://www.mathsisfun.com/puzzles/weighing-9-balls-solution.html>
- 3) Write JSON Parser. What are the Data Structures used for this?
- 4) Write DFS code. What are the Data Structures used for this?
- 5) <http://www.geeksforgeeks.org/largest-sum-contiguous-subarray/>
- 6) In an array all elements are repeated twice except one element. Find the element.
eg: 2, 3, 4, 4, 3 — In this 2 is the element which is not repeated.

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628. VMWare Interview Experience | Set 3

I had interview with VMWare. Their process is 1 written test followed by 1 telephonic and 3/4 f2f interviews.

Writtent test

Very basic questions. They just wanted to see if you can code or not.

Round-1 Telephonic- Pair coding

Need to write working code on a shared document so that the interviewer can see if you can put your ideas into code

- 1) Given BST, find the pairs whose sum is equal to given number
- 2) Binary search.

Other basic algo questions i forgot.

Round-2 F2F Interview

I was interviewed for vcloud team so they asked me below questions

- 1) What is cloud ? Why cloud ? Advantages of cloud ? Challenges in cloud ?
- 2) My project

Then started on algos

- 3) Reverse every k nodes in linked list

Write working code

- 4) Reverse the elements in stack-inplace. No extra memory should be used.

I wrote iterative solution code but interviewer asked me to write recursive solution

One more round is supposed to happen after this but the interviewer was not available so it was cancelled.

Have not heard any response from VMWare i also thought of not troubling them.

Tips

In telephonic round they are not bothered about time complexity of your algo. They just wanted to know if you can code whatever you think.

So if you do not find best solution also it is OK but write the code for average case at least.

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629. Interview Experience with Yatra(Hyderabad) | Set 3 (For Senior Software Engineer)

I had a total of 5 rounds. Initially I thought there will be only 3 rounds.

Round 1:

1. Rotate a matrix by 90 degrees clockwise. (He asked me have you heard of question.I said Yes.Then he asked me to code)
2. Find vertical sum of nodes present in same vertical line in binary tree. (He again asked me have you heard of question. I have heard it but didn't remember the approach. It took some time and then I started telling my approach. He asked me to write code and question regarding get sums from left to right , for which I made use of linked hashmap)

Overall It was very cool for me

Round 2:

- 1.Reverse K blocks of nodes in linked list.

There are two interviewers this time, probably, guy was senior he was asking me question. He was very particular in coding. Checked every edge case.and asked me everything. Initially I told the approach and then started coding.

- 2.Find min in stack in O(1)

Pretty straightforward written code. Again he checked all edge cases with my code.

3. Then asked about counting sort and its code.

4. And a simple question on array sorting.

Round 3 (Manager round):

I thought this was last round as they have said like. She asked me about my strengths

and challenges I faced.How I overcame through it

1.Basic question on oops concepts.(runtime polymorphism).

2.Design tables for getting all employees under manager. I screwed it little bit.But some how I got answer which I was not satisfied as well.

I was expecting result either yes/no.But they called me for another round of interview may be because of my expected salary which was high compared to my previous.

Round 4 (Technical):

1.Given “aaabbbccc” it should return “a3b3c3” in place. Initially I explained brute force approach then he said array has $2n$ space.I was able to remember approach for quicksort and started explaining after which I grew confident on it.He was satisfied.Questions on time complexity of algo and space complexity discussions.

2.Again a question on OOPs.This time I was completely wrong in answering it.I thought interview with yatra was closing for me.He was not satisfied much with this.

Luckily, there was another round with manager.

Round 5(Manger)

1.He asked me to find words which are having particular pattern.Then I said it was KMP algo. Can I explain it ?? I started explaining approach, may be he was busy with something, he asked me to write pseudo code.He left the room for 15 mins then he came back I had almost completed the code, which he was satisfied.

Some basic questions on spring (my previous work was related to it). Then my expected salary and my position If I got selected in yatra were discussed.

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630. Question in Amazon Interview

I have gone through few rounds while rest of the round questions are standard ones and already in the internet, I couldn't find this problem and couldn't solve properly.

Problem:

There are Items[I1, I2, I3, I4] available in warehouses [W1, W2, W3, W4, W5] and serviceable by multiple partners with some shipping cost.

I1 available in W1

- serviceable by these partners S1[0.75 -shipping cost/selection cost], S2 [0.74], S3 [0.70]
 - available in W2
 - serviceable by these partners S1[0.75], S2 [0.74], S3 [0.70]
 - available in W3
 - serviceable by these partners S1[0.80], S2 [0.74], S3 [0.70]

I2 available in W4

- serviceable by these partners S2[0.85], S3 [0.94], S4[0.30]
- available in W3
 - serviceable by these partners S1[0.80], S2 [0.74], S3 [0.70]

I3 available in W1

- serviceable by these partners S1[0.85], S2 [0.55], S3 [0.70]
- available in W2
 - serviceable by these partners S1[0.80], S2 [0.54], S3 [0.70]

I4 available in W4

- serviceable by these partners S2 [0.74], S3 [0.70], S4[0.30]
- available in W2
 - serviceable by these partners S1[0.85], S2 [0.80], S3 [0.70]
 - available in W3
 - serviceable by these partners S1[0.80], S2 [0.74], S3 [0.70]

You have to optimally select the items so that total cost will be minimum.

Ex: I can make a shipment from I1, I2, I4 fulfilled by W3 which will cost:

for partner S1: 2.40

for partner S2: 2.22

for partner S3: 2.10

Another Shipment I3 fulfilled by W2 which will cost: S2 [0.54]

Total cost: $2.10 + 0.54 = 2.64$ with Shipment SH1 {I1,I2,I4} By S3 and SH2 {I3} by S2

Another possible way

I1, I3, I4 serviceable by W2 by Provider S2 : 2.08

I2 serviceable by W4 by S4: 0.30

Total cost: 2.38

So the shipments with minimum cost can be delivered/selected.

Write a program for the same to get optimum minimum cost for the number of shipments can be delivered from warehouses with shipping cost?

"If you ship multiple items in single packet, then the cost will be minimum. Assume Shipment Provider charges per packet and not on the weight and packing charges will be minimum. Idea is to consolidate/aggregate as many items as possible to one location

so that packaging cost is minimum and on top of that you should consider warehouse selection cost."

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