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Amazon Interview | Set 54 (For Internship)

- Difficulty Level :[Hard](#)
- Last Updated :18 Jun, 2019

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:

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

- Creating a segment tree
- Performing range minimum query in a segment tree
- 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 parenthesisization.

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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.

[All Practice Problems for Amazon !](#)

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