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Amazon Interview Questions | Set 146

- Difficulty Level :\nEasy
- Last Updated :\n26 Jun, 2019

I am happy to contribute to a community that helped me learn so much \xf0\x9f\x99\x82 This mail contains info about a recent interview I had with Amazon.

First round

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 \xe2\x80\x93

\xe2\x80\x9cAmazon is the best company to work for. The amazon is a beautiful forest.\xe2\x80\x9d

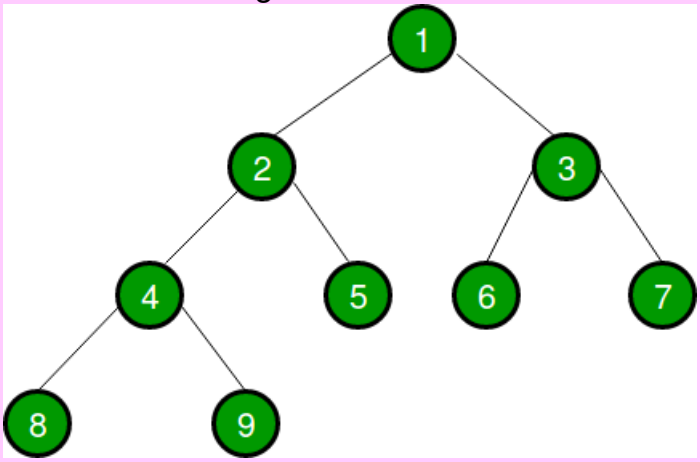
Find the minimum distance between \xe2\x80\x98Amazon\xe2\x80\x99 and \xe2\x80\x98The\xe2\x80\x99

Given: You are given the position of each word in the paragraph. Meaning, you know that word \xe2\x80\x98Amazon\xe2\x80\x99 occurs at positions 1 and 10, and \xe2\x80\x98The\xe2\x80\x99 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 \xe2\x80\x93

Chain length of node 1 = 3 + 2 + 1 = {count of 3 corresponds to node 2 , node 4, node 8 ; 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.

Second round

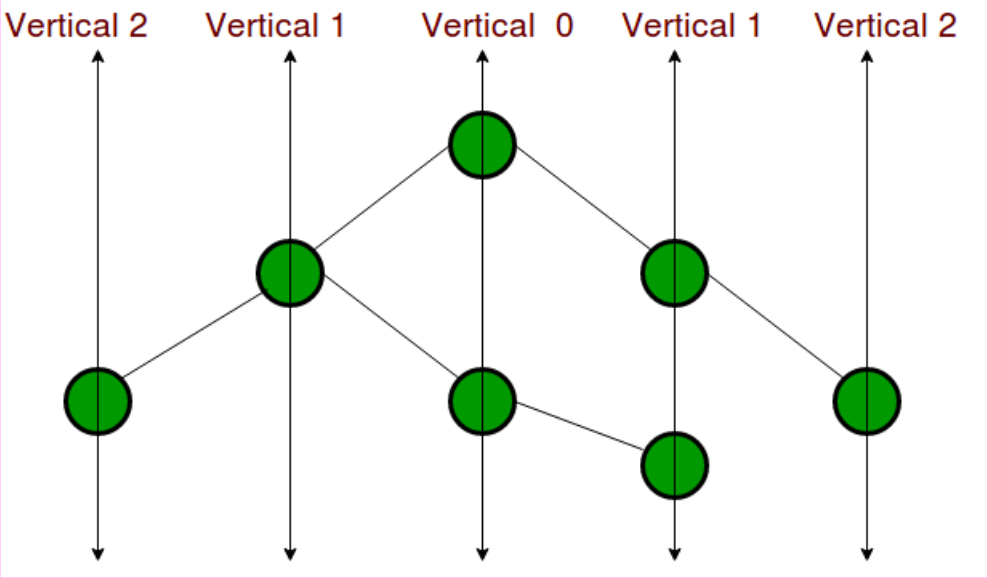
Question 1: Given two valid dictionary words, find the minimum number of steps required to transform first word to second word. Following are the transformation rules \xe2\x80\x93

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 it\xe2\x80\x99s 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.



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Sub questions:
* Provide a solution and also provide a working code for the same.

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