

Sys design links

<http://blog.gainlo.co/index.php/2016/06/14/design-a-key-value-store-part-i/>

<https://www.susanjfowler.com/blog/2016/10/7/the-architecture-interview>

<http://atlus.com/persona5/home.html>

<https://www.youtube.com/watch?v=CDXOcvUNBaA>

<https://www.slideshare.net/poonamkenkre/web-crawler-14590800>

LinkedIn Software Engineer Questions

From Glassdoor

sorted character array return next largest character for given input character

{c,f,g,h,k} i/p c o/p f

Valid Perfect Square

1. Task Schedule

Asked basic data structure questions, and it's trade-offs. Emphasized Big-O notations.

Binary tree level traversal and one question related to binary search

Check if string is a number

Compute union, intersection

Find and replace a sequence in a string

Some question involving recursion and binary trees

Roman to integer, Nested List Weight Sum

Design and implement a data structure that can insert, remove, and randomly select an item all in constant time.

Optimize a class for the TwoSum function.

Give a list of numbers, find all non-repeating combination of its element.

1.Nested Integer Sum

2.Is a Valid Number

Isomorphic strings

LCA

String to Integer

Given an array of words and a length L, format the text such that each line has exactly L characters

The system contains N points. Given a point and a value k, find the k closest points in the system.

Edit distance using recursion and dp

Binary search on a sorted array that has been shifted left

How to implement a stack adding 2 more functionality to a regular Stack:

1. peekMax
2. popMax

- TCP, UDP what is it ? What is the difference ? 1 Answer
- Tell me about virtual memory, what it is user for ? 1 Answer
- What do you know about inner classes ? 1 Answer
- Coding problem to reformat input string.

An subarray with maximum sum

Determine whether a number has an integer square root?

0. your research/project. basic knowledge like thread vs process, object class
 1. convert a tree to its mirror
 2. implement a hashtable and make it thread-safe
- Find element in rotated array (has duplicate) Find minimum in rotated array(has duplicate)

LinkedIn Senior software engineer interviews

1. You have n doors in a row that are all initially closed. You make n passes by the doors starting with the first door every time. The first time through you visit every door and toggle the door (if the door is closed, you open it, if its open, you close it). the second time you only visit every 2nd door (door #2, #4, #6. third pass you toggle 3rd, 6th, 9th door.

What state are the doors in after the last pass? which doors are open ?

FaceBook (from glassdoor)

Assume you are given a series of lines. each with a start point and an end point.

Please find the maximal overlap between lines.

Take into account the situation where one line ends and another begins

Please code it!

Try to do it efficiently space wise and runtime wise.

What are the O space and time complexities?

Given the alphabet encoded as numbers (e.g., a=1, b=2, ..., z=26), and a sequence of numbers (e.g., "23413259802"), how many strings can be generated.

Given a 2D array of characters ('-' , 'X' , 'R' , 'T'), find out whether there is a path from the robot 'R' to the target 'T'. The robot can move up, down, left or right. Cells marked with 'X' are blocked and cannot be passed through.

Print all permutations of a given string.

Balance a string with parentheses. "a(b)" -> "a(b)"; "(((((" -> ""; "(()())" -> "(()())"; ")ab(()" -> "ab()"; etc...

Write a C function to merge two sorted linked lists

Do an in-place (without allocating any extra memory) rearrangement of a list of integers, putting non-zero elements first.

Design and write code for a queue system which would include enqueue, dequeue, etc.

1 Question: Given an array of integers find the sum of k largest integers in that array.

Given Binary Tree is Binary Search tree or not.

A dynamic programming problem. Core algorithm is not very difficult but the input are extremely annoying, which are designed to cause problems in my opinion.

I need an algorithm that given a number combination returns me the alphabet(s) denoting that number.

Write a program to detect conflicts in meeting schedules

Tell me about yourself. Write code to check if a BST is valid or not.

Given an array of integers find a contiguous subset that sums to a given number

Given a schedule (array of start and end times) for meetings, provide an algorithm that finds the minimum number of rooms needed for the day.

Given a dictionary, store it in a way where you can implement a search function for a certain word. However, the words may have a character * that stands for any character.

Implement iterator that increments over K sorted arrays in increasing order.

Number pad combinations problem.

Parse a string containing numbers and "+", "-", and parentheses. Evaluate the expression.

-2+(3-5) should return -4.

If you are given an Integer Singly linked list. Print it backwards.

Constraints: 1. Do not manipulate the list. (example: do not make it a doubly linked list, do not add or delete elements, do not change any memory location of any element)

2. $O(n) < \text{time} < O(n^2)$

3. $O(1) < \text{space} < O(n)$

Given a string break it up into meaningful sentence "thesystemisrunning" => the system is running

Given a million a million integers find the kth smallest

LRU cache which gives latest accessed element.

2. Sum of contiguous array elements

2. You have a string of numbers, i.e. 123. You can insert a + or - sign in front of ever number, or you can leave it empty. Find all of the different possibilities, make the calculation and return the sum.

For example;

+1+2+3 = 6

+12+3 = 15

+123 = 123

+1+23 = 24

...

-1-2-3 = 6

...

Return the sum of all the results.

3. How do you design google search auto complete?

Max occurrence letter in a string. [Kept on adding constraints like ignore spaces, special characters, case insensitive..] Later asked about space and time complexities

Output a substring with at most k unique characters.

"aabc" and k=2 -> "aab"

Wildcard Pattern recognition

Search for an item in a sorted, but rotated, array.