1.

Given a string **A** and integer **B**, what is maximal lexicographical stringthat can be made from A if you do atmost B swaps.

2.

The set [1,2,3,…,n] contains a total of n! unique permutations.

By listing and labeling all of the permutations in order,  
We get the following sequence (ie, for n = 3 ) :

1. "123"

2. "132"

3. "213"

4. "231"

5. "312"

6. "321"

Given n and k, return the kth permutation sequence.

3.

The gray code is a binary numeral system where two successive values differ in only one bit.

Given a non-negative integer n representing the total number of bits in the code, print the sequence of gray code. A gray code sequence must begin with 0.

4.

Given a set of distinct integers, S, return all possible subsets.

5.

Given a set of candidate numbers (C) and a target number (T), find all unique combinations in C where the candidate numbers sums to T.

6.

Given two integers n and k, return all possible combinations of k numbers out of 1 2 3 ... n.

7.

Given a collection of integers that might contain duplicates, S, return all possible subsets.

8.

Given a digit string, return all possible letter combinations that the number could represent.

9.

Given a string s, partition s such that every string of the partition is a palindrome.

10.

Given n pairs of parentheses, write a function to generate all combinations of well-formed parentheses of length 2\*n.

11.

Given a collection of numbers, return all possible permutations.

12.

Given an integer n, return all distinct solutions to the n-queens puzzle.

Each solution contains a distinct board configuration of the n-queens’ placement, where 'Q' and '.' both indicate a queen and an empty space respectively.

13.

Write a program to solve a Sudoku puzzle by filling the empty cells.  
Empty cells are indicated by the character '.'

14.

For Given Number N find if its **COLORFUL** number or not

**Return 0/1**

15.

Find the largest continuous sequence in a array which sums to zero.

16.

Given an integer array **A** of size **N** containing **0's** and **1's** only.

You need to find the length of the **longest** subarray having count of 1’s **one more** than count of 0’s.

17.

Given an array of integers, find two numbers such that they add up to a specific target number.

The function **twoSum** should return indices of the two numbers such that they add up to the target, where **index1** < **index2**. Please note that your returned answers (both **index1** and **index2** ) are not zero-based. Put both these numbers in order in an array and return the array from your function ( Looking at the function signature will make things clearer ). Note that, if no pair exists, return empty list.

If multiple solutions exist, output the one where **index2** is minimum. If there are multiple solutions with the minimum **index2**, choose the one with minimum **index1** out of them. Input: [2, 7, 11, 15], target=9 Output: index1 = 1, index2 = 2

18.

Given an array S of n integers, are there elements a, b, c, and d in S such that a + b + c + d = target? Find all unique quadruplets in the array which gives the sum of target.

19.

Determine if a Sudoku is valid, according to: <http://sudoku.com.au/TheRules.aspx>

20.

Given an array A of integers and another non negative integer k, find if there exists 2 indices i and j such that A[i] - A[j] = k, i != j.

21，

Given an 1D integer array **A** containing **N** distinct integers.

Find the number of unique pairs of integers in the array whose XOR is equal to **B**.

22.

Given an array A of integers, find the index of values that satisfy A + B = C + D, where A,B,C & D are integers values in the array

23.

A linked list is given such that each node contains an additional random pointer which could point to any node in the list or NULL.

Return a deep copy of the list.

24.

Given two integers representing the numerator and denominator of a fraction, return the fraction in string format.

If the fractional part is repeating, enclose the repeating part in parentheses.

25.

Given n points on a 2D plane, find the maximum number of points that lie on the same straight line.

26.

Given a stream of numbers **A**. On arrival of each number, you need to increase its first occurence by 1 and include this in the stream.

Return the final stream of numbers.

27.

Given an array of integers **A** and an integer **B**.

Find the total number of subarrays having bitwise XOR of all elements equals to B.

28.

Given are Three arrays **A**, **B** and **C**.

Return the sorted list of numbers that are present in atleast 2 out of the 3 arrays.

29.

You are given a string, S, and a list of words, L, that are all of the same length.

Find all starting indices of substring(s) in S that is a concatenation of each word in L exactly once and without any intervening characters.

30.

Given an array of integers **A** and an integer **B**.

Find the total number of subarrays having exactly B odd numbers.

31.

Given a string S and a string T, find the minimum window in S which will contain all the characters in T in linear time complexity.

32,。

**Max Heap** is a special kind of **complete binary tree** in which for every node the value present in that node is greater than the value present in it’s children nodes.

Find the number of **distinct Max Heap** can be made from **A distinct integers**.

In short, you have to ensure the following properties for the max heap :

* Heap has to be a complete binary tree ( A complete binary tree is a binary tree in which every level, except possibly the last, is completely filled, and all nodes are as far left as possible.)
* Every node is greater than all its children.

33.

Given two integers arrays **A** and **B** of size **N** each.

Find the **maximum N elements** from the sum combinations (Ai + Bj) formed from elements in array A and B.

34.

You are given **K** sorted integer arrays in a form of 2D integer matrix **A** of size K X N.

You need to merge them into a single array and return it.

35.

Given two equally sized 1-D arrays **A, B** containing **N** integers each.

A **sum combination** is made by adding one element from array **A** and another element of array **B**.

Return the **maximum C valid sum combinations** from all the possible sum combinations.

36.

Merge k sorted linked lists and return it as one sorted list.

37.

You are given an array of **N** integers, **A1, A2 ,..., AN** and an integer **B**. Return the of count of distinct numbers in all windows of size **B**.

Formally, return an array of size **N-B+1** where **i'th** element in this array contains number of distinct elements in sequence **Ai, Ai+1 ,..., Ai+B-1.**

**NOTE:** if **B** > **N**, return an empty array.

38.

Design and implement a data structure for LRU (Least Recently Used) cache. It should support the following operations: get and set.

39.

You are given a preorder traversal **A**, of a Binary Search Tree.

Find if it is a valid preorder traversal of a BST.

40.

Given a binary search tree, write a function to find the kth smallest element in the tree.

41.

Given a binary search tree **A**, where each node contains a positive integer, and an integer **B**, you have to find whether or not there exist two different nodes X and Y such that X.value + Y.value = B.

Return 1 to denote that two such nodes exist. Return 0, otherwise.

42.

Given a set of reviews provided by the customers for different hotels and a string containing **Good Words**, you need to sort the reviews in descending order according to their **Goodness Value** (Higher goodness value first). We define the **Goodness Value** of a string as the number of **Good Words** in that string.

**NOTE:** Sorting should be stable. If review **i** and review **j** have the same **Goodness Value** then their original order would be preserved.

You are expected to use Trie in an Interview for such problems

43.

Given a Binary Tree **A** containing **N** nodes.

You need to find the path from **Root** to a given node **B**.

44.

Given a binary tree, determine if it is height-balanced.

**Height-balanced binary tree** : is defined as a binary tree in which the depth of the two subtrees of every node never differ by more than 1.

45.

Given a binary tree, check whether it is a mirror of itself (ie, symmetric around its center).

46.

Given a binary tree **A** consisting of **N** nodes, return a 2-D array denoting the vertical order traversal of **A**.

Go through the example and image for more details.

47.

Given a binary tree, return the inorder traversal of its nodes values.

48.

Given a binary tree **A** of integers. Return an array of integers representing the **right view** of the Binary tree.

**Right view of a Binary Tree:** is a set of nodes visible when the tree is visited from Right side.

49.

Given a binary tree, find its maximum depth.

The maximum depth of a binary tree is the number of nodes along the longest path from the root node down to the farthest leaf node.

50.

Given a binary tree containing digits from 0-9 only, each root-to-leaf path could represent a number.

An example is the root-to-leaf path 1->2->3 which represents the number 123.

Find the total sum of all root-to-leaf numbers % 1003.

51.

Given a binary tree, find its minimum depth.

The minimum depth is the number of nodes along the shortest path from the root node down to the nearest leaf node.

52.

Given an inorder traversal of a cartesian tree, construct the tree.

**Cartesian tree** : is a heap ordered binary tree, where the root is greater than all the elements in the subtree.

53.

Given preorder and inorder traversal of a tree, construct the binary tree.

54.

Given a binary tree **A**, invert the binary tree and return it.

Inverting refers to making left child as the right child and vice versa.

55.

You are given the following :

* A positive number N
* Heights : A list of heights of N persons standing in a queue
* Infronts : A list of numbers corresponding to each person (P) that gives the **number of persons** who are **taller** than P and standing in front of P

You need to return list of actual order of persons’s height

**Consider that heights will be unique**

56.

Given a binary tree, return the **reverse level order traversal** of its nodes values. (i.e, from left to right and from last level to starting level).