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Bit Manipulation
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Questions by Love Babbar:

Youtube Channel: https://www.youtube.com/channel/UCQHLxxBFrbfdrk1jF0moTpw

Problem:

Reverse the array
Find the maximum and minimum element in an array
Find the "Kth" max and min element of an array
Given an array which consists of only 0, 1 and 2. Sort the array without using
Move all the negative elements to one side of the array
Find the Union and Intersection of the two sorted arrays.
Write a program to cyclically rotate an array by one.
find Largest sum contiguous Subarray [V. IMP]
Minimise the maximum difference between heights [V.IMP]
Minimum no. of Jumps to reach end of an array
find duplicate in an array of N+1 Integers
Merge 2 sorted arrays without using Extra space.
Kadane's Algo [V.V.V.V.V IMP]
Merge Intervals
Next Permutation
Count Inversion
Best time to buy and Sell stock
find all pairs on integer array whose sum is equal to given number
find common elements In 3 sorted arrays
Rearrange the array in alternating positive and negative items with O(1) extr
Find if there is any subarray with sum equal to 0
Find factorial of a large number
find maximum product subarray
Find longest coinsecutive subsequence
Given an array of size n and a number k, fin all elements that appear more tl
Maximum profit by buying and selling a share atmost twice
Find whether an array is a subset of another array
Find the triplet that sum to a given value
Trapping Rain water problem
Chocolate Distribution problem

Smallest Subarray with sum greater than a given value
Three way partitioning of an array around a given value
Minimum swaps required bring elements less equal K together
Minimum no. of operations required to make an array palindrome
Median of 2 sorted arrays of equal size
Median of 2 sorted arrays of different size

Spiral traversal on a Matrix
Search an element in a matriix
Find median in a row wise sorted matrix
Find row with maximum no. of 1's
Print elements in sorted order using row-column wise sorted matrix
Maximum size rectangle
Find a specific pair in matrix
Rotate matrix by 90 degrees
Kth smallest element in a row-cpumn wise sorted matrix
Common elements in all rows of a given matrix

Reverse a String
Check whether a String is Palindrome or not
Find Duplicate characters in a string
Why strings are immutable in Java?
Write a Code to check whether one string is a rotation of another
Write a Program to check whether a string is a valid shuffle of two strings or
Count and Say problem
Write a program to find the longest Palindrome in a string.[Longest palindrc
Find Longest Recurring Subsequence in String
Print all Subsequences of a string.
Print all the permutations of the given string
Split the Binary string into two substring with equal 0's and 1's
Word Wrap Problem [VERY IMP].
EDIT Distance [Very Imp]
Find next greater number with same set of digits. [Very Very IMP]

Balanced Parenthesis problem.[Imp]
Word break Problem[Very Imp]
Rabin Karp Algo
KMP Algo
Convert a Sentence into its equivalent mobile numeric keypad sequence.
Minimum number of bracket reversals needed to make an expression balan
Count All Palindromic Subsequence in a given String.
Count of number of given string in 2D character array
Search a Word in a 2D Grid of characters.
Boyer Moore Algorithm for Pattern Searching.
Converting Roman Numerals to Decimal
Longest Common Prefix
Number of flips to make binary string alternate
Find the first repeated word in string.
Minimum number of swaps for bracket balancing.
Find the longest common subsequence between two strings.
Program to generate all possible valid IP addresses from given string.
Write a program tofind the smallest window that contains all characters of s
Rearrange characters in a string such that no two adjacent are same
Minimum characters to be added at front to make string palindrome
Given a sequence of words, print all anagrams together
Find the smallest window in a string containing all characters of another stri
Recursively remove all adjacent duplicates
String matching where one string contains wildcard characters
Function to find Number of customers who could not get a computer
Transform One String to Another using Minimum Number of Given Operatic
Check if two given strings are isomorphic to each other
Recursively print all sentences that can be formed from list of word lists

Find first and last positions of an element in a sorted array
Find a Fixed Point (Value equal to index) in a given array
Search in a rotated sorted array
square root of an integer
Maximum and minimum of an array using minimum number of comparisons

Optimum location of point to minimize total distance
Find the repeating and the missing
find majority element
Searching in an array where adjacent differ by at most k
find a pair with a given difference
find four elements that sum to a given value
maximum sum such that no 2 elements are adjacent
Count triplet with sum smaller than a given value
merge 2 sorted arrays
print all subarrays with 0 sum
Product array Puzzle
Sort array according to count of set bits
minimum no. of swaps required to sort the array
Bishu and Soldiers
Rasta and Kheshtak
Kth smallest number again
Find pivot element in a sorted array
K-th Element of Two Sorted Arrays
Aggressive cows
Book Allocation Problem
EKOSPOJ:
Job Scheduling Algo
Missing Number in AP
Smallest number with atleastn trailing zeroes infactorial
Painters Partition Problem:
ROTI-Prata SPOJ
DoubleHelix SPOJ
Subset Sums
Findthe inversion count
Implement Merge-sort in-place
Partitioning and Sorting Arrays with Many Repeated Entries

Write a Program to reverse the Linked List. (Both Iterative and recursive)
Reverse a Linked List in group of Given Size. [Very Imp]

Write a program to Detect loop in a linked list.
Write a program to Delete loop in a linked list.
Find the starting point of the loop.
Remove Duplicates in a sorted Linked List.
Remove Duplicates in a Un-sorted Linked List.
Write a Program to Move the last element to Front in a Linked List.
Add “1” to a number represented as a Linked List.
Add two numbers represented by linked lists.
Intersection of two Sorted Linked List.
Intersection Point of two Linked Lists.
Merge Sort For Linked lists.[Very Important]
Quicksort for Linked Lists.[Very Important]
Find the middle Element of a linked list.
Check if a linked list is a circular linked list.
Split a Circular linked list into two halves.
Write a Program to check whether the Singly Linked list is a palindrome or n
Deletion from a Circular Linked List.
Reverse a Doubly Linked list.
Find pairs with a given sum in a DLL.
Count triplets in a sorted DLL whose sum is equal to given value “X”.
Sort a “k”sorted Doubly Linked list.[Very IMP]
Rotate DoublyLinked list by N nodes.
Rotate a Doubly Linked list in group of Given Size.[Very IMP]
Can we reverse a linked list in less than O(n) ?
Why Quicksort is preferred for. Arrays and Merge Sort for LinkedLists ?
Flatten a Linked List
Sort a LL of 0's, 1's and 2's
Clone a linked list with next and random pointer
Merge K sorted Linked list
Multiply 2 no. represented by LL
Delete nodes which have a greater value on right side
Segregate even and odd nodes in a Linked List
Program for n’th node from the end of a Linked List
Find the first non-repeating character from a stream of characters

level order traversal
Reverse Level Order traversal
Height of a tree
Diameter of a tree
Mirror of a tree
Inorder Traversal of a tree both using recursion and Iteration
Preorder Traversal of a tree both using recursion and Iteration
Postorder Traversal of a tree both using recursion and Iteration
Left View of a tree
Right View of Tree
Top View of a tree
Bottom View of a tree
Zig-Zag traversal of a binary tree
Check if a tree is balanced or not
Diagnol Traversal of a Binary tree
Boundary traversal of a Binary tree
Construct Binary Tree from String with Bracket Representation
Convert Binary tree into Doubly Linked List
Convert Binary tree into Sum tree
Construct Binary tree from Inorder and preorder traversal
Find minimum swaps required to convert a Binary tree into BST
Check if Binary tree is Sum tree or not
Check if all leaf nodes are at same level or not
Check if a Binary Tree contains duplicate subtrees of size 2 or more [IMP]
Check if 2 trees are mirror or not
Sum of Nodes on the Longest path from root to leaf node
Check if given graph is tree or not. [IMP]
Find Largest subtree sum in a tree
Maximum Sum of nodes in Binary tree such that no two are adjacent
Print all "K" Sum paths in a Binary tree
Find LCA in a Binary tree
Find distance between 2 nodes in a Binary tree
Kth Ancestor of node in a Binary tree

Find all Duplicate subtrees in a Binary tree [IMP]
Tree Isomorphism Problem

Fina a value in a BST
Deletion of a node in a BST
Find min and max value in a BST
Find inorder successor and inorder predecessor in a BST
Check if a tree is a BST or not
Populate Inorder successor of all nodes
Find LCA of 2 nodes in a BST
Construct BST from preorder traversal
Convert Binary tree into BST
Convert a normal BST into a Balanced BST
Merge two BST [V.V.V>IMP]
Find Kth largest element in a BST
Find Kth smallest element in a BST
Count pairs from 2 BST whose sum is equal to given value "X"
Find the median of BST in O(n) time and O(1) space
Count BST ndoes that lie in a given range
Replace every element with the least greater element on its right
Given "n" appointments, find the conflicting appointments
Check preorder is valid or not
Check whether BST contains Dead end
Largest BST in a Binary Tree [V.V.V.V.V IMP]
Flatten BST to sorted list

Activity Selection Problem
Job SequencingProblem
Huffman Coding
Water Connection Problem
Fractional Knapsack Problem
Greedy Algorithm to find Minimum number of Coins

Maximum trains for which stoppage can be provided
Minimum Platforms Problem
Buy Maximum Stocks if i stocks can be bought on i-th day
Find the minimum and maximum amount to buy all N candies
Minimize Cash Flow among a given set of friends who have borrowed mone
Minimum Cost to cut a board into squares
Check if it is possible to survive on Island
Find maximum meetings in one room
Maximum product subset of an array
Maximize array sum after K negations
Maximize the sum of arr[i]*i
Maximum sum of absolute difference of an array
Maximize sum of consecutive differences in a circular array
Minimum sum of absolute difference of pairs of two arrays
Program for Shortest Job First (or SJF) CPU Scheduling
Program for Least Recently Used (LRU) Page Replacement algorithm
Smallest subset with sum greater than all other elements
Chocolate Distribution Problem
DEFKIN -Defense of a Kingdom
DIEHARD -DIE HARD
GERGOVIA -Wine trading in Gergovia
Picking Up Chicks
CHOCOLA –Chocolate
ARRANGE -Arranging Amplifiers
K Centers Problem
Minimum Cost of ropes
Find smallest number with given number of digits and sum of digits
Rearrange characters in a string such that no two adjacent are same
Find maximum sum possible equal sum of three stacks

Rat in a maze Problem
Printing all solutions in N-Queen Problem
Word Break Problem using Backtracking

Remove Invalid Parentheses
Sudoku Solver
m Coloring Problem
Print all palindromic partitions of a string
Subset Sum Problem
The Knight’s tour problem
Tug of War
Find shortest safe route in a path with landmines
Combinational Sum
Find Maximum number possible by doing at-most K swaps
Print all permutations of a string
Find if there is a path of more than k length from a source
Longest Possible Route in a Matrix with Hurdles
Print all possible paths from top left to bottom right of a mXn matrix
Partition of a set intoK subsets with equal sum
Find the K-th Permutation Sequence of first N natural numbers

Implement Stack from Scratch
Implement Queue from Scratch
Implement 2 stack in an array
find the middle element of a stack
Implement "N" stacks in an Array
Check the expression has valid or Balanced parenthesis or not.
Reverse a String using Stack
Design a Stack that supports getMin() in O(1) time and O(1) extra space.
Find the next Greater element
The celebrity Problem
Arithmetic Expression evaluation
Evaluation of Postfix expression
Implement a method to insert an element at its bottom without using any o
Reverse a stack using recursion
Sort a Stack using recursion
Merge Overlapping Intervals

Largest rectangular Area in Histogram
Length of the Longest Valid Substring
Expression contains redundant bracket or not
Implement Stack using Queue
Implement Stack using Deque
Stack Permutations (Check if an array is stack permutation of other)
Implement Queue using Stack
Implement "n" queue in an array
Implement a Circular queue
LRU Cache Implementationa
Reverse a Queue using recursion
Reverse the first “K” elements of a queue
Interleave the first half of the queue with second half
Find the first circular tour that visits all Petrol Pumps
Minimum time required to rot all oranges
Distance of nearest cell having 1 in a binary matrix
First negative integer in every window of size “k”
Check if all levels of two trees are anagrams or not.
Sum of minimum and maximum elements of all subarrays of size “k”.
Minimum sum of squares of character counts in a given string after removin
Queue based approach or first non-repeating character in a stream.
Next Smaller Element

Implement a Maxheap/MinHeap using arrays and recursion.
Sort an Array using heap. (HeapSort)
Maximum of all subarrays of size k.
“k” largest element in an array
Kth smallest and largest element in an unsorted array
Merge “K” sorted arrays. [IMP]
Merge 2 Binary Max Heaps
Kth largest sum continuous subarrays
Leetcode- reorganize strings
Merge “K” Sorted Linked Lists [V.IMP]

Smallest range in “K” Lists
Median in a stream of Integers
Check if a Binary Tree is Heap
Connect “n” ropes with minimum cost
Convert BST to Min Heap
Convert min heap to max heap
Rearrange characters in a string such that no two adjacent are same.
Minimum sum of two numbers formed from digits of an array

Create a Graph, print it
Implement BFS algorithm
Implement DFS Algo
Detect Cycle in Directed Graph using BFS/DFS Algo
Detect Cycle in UnDirected Graph using BFS/DFS Algo
Search in a Maze
Minimum Step by Knight
flood fill algo
Clone a graph
Making wired Connections
word Ladder
Dijkstra algo
Implement Topological Sort
Minimum time taken by each job to be completed given by a Directed Acycli
Find whether it is possible to finish all tasks or not from given dependencies
Find the no. of Isalnds
Given a sorted Dictionary of an Alien Language, find order of characters
Implement Kruksal’sAlgorithm
Implement Prim’s Algorithm
Total no. of Spanning tree in a graph
Implement Bellman Ford Algorithm
Implement Floyd warshallAlgorithm
Travelling Salesman Problem
Graph ColouringProblem

Snake and Ladders Problem
Find bridge in a graph
Count Strongly connected Components(Kosaraju Algo)
Check whether a graph is Bipartite or Not
Detect Negative cycle in a graph
Longest path in a Directed Acyclic Graph
Journey to the Moon
Cheapest Flights Within K Stops
Oliver and the Game
Water Jug problem using BFS
Water Jug problem using BFS
Find if there is a path of more thank length from a source
M-ColouringProblem
Minimum edges to reverse o make path from source to destination
Paths to travel each nodes using each edge(Seven Bridges)
Vertex Cover Problem
Chinese Postman or Route Inspection
Number of Triangles in a Directed and Undirected Graph
Minimise the cashflow among a given set of friends who have borrowed mo
Two Clique Problem

Construct a trie from scratch
Find shortest unique prefix for every word in a given list
Word Break Problem | (Trie solution)
Given a sequence of words, print all anagrams together
Implement a Phone Directory
Print unique rows in a given boolean matrix

Coin ChangeProblem
Knapsack Problem
Binomial CoefficientProblem
Permutation CoefficientProblem

Program for nth Catalan Number
Matrix Chain Multiplication
Edit Distance
Subset Sum Problem
Friends Pairing Problem
Gold Mine Problem
Assembly Line SchedulingProblem
Painting the Fenceproblem
Maximize The Cut Segments
Longest Common Subsequence
Longest Repeated Subsequence
Longest Increasing Subsequence
Space Optimized Solution of LCS
LCS (Longest Common Subsequence) of three strings
Maximum Sum Increasing Subsequence
Count all subsequences having product less than K
Longest subsequence such that difference between adjacent is one
Maximum subsequence sum such that no three are consecutive
Egg Dropping Problem
Maximum Length Chain of Pairs
Maximum size square sub-matrix with all 1s
Maximum sum of pairs with specific difference
Min Cost PathProblem
Maximum difference of zeros and ones in binary string
Minimum number of jumps to reach end
Minimum cost to fill given weight in a bag
Minimum removals from array to make max –min <= K
Longest Common Substring
Count number of ways to reacha given score in a game
Count Balanced Binary Trees of Height h
LargestSum Contiguous Subarray [V>V>V>V IMP]
Smallest sum contiguous subarray
Unbounded Knapsack (Repetition of items allowed)
Word Break Problem

Largest Independent Set Problem
Partition problem
Longest Palindromic Subsequence
Count All Palindromic Subsequence in a given String
Longest Palindromic Substring
Longest alternating subsequence
Weighted Job Scheduling
Coin game winner where every player has three choices
Count Derangements (Permutation such that no element appears in its origi
Maximum profit by buying and selling a share at most twice [IMP]
Optimal Strategy for a Game
Optimal Binary Search Tree
Palindrome PartitioningProblem
Word Wrap Problem
Mobile Numeric Keypad Problem [IMP]
Boolean Parenthesization Problem
Largest rectangular sub-matrix whose sum is 0
Largest area rectangular sub-matrix with equal number of 1's and 0's [IMP]
Maximum sum rectangle in a 2D matrix
Maximum profit by buying and selling a share at most k times
Find if a string is interleaved of two other strings
Maximum Length of Pair Chain

Count set bits in an integer
Find the two non-repeating elements in an array of repeating elements
Count number of bits to be flipped to convert A to B
Count total set bits in all numbers from 1 to n
Program to find whether a no is power of two
Find position of the only set bit
Copy set bits in a range
Divide two integers without using multiplication, division and mod operator
Calculate square of a number without using *, / and pow()
Power Set

Done [yes or no]

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