## Questions by Love Babbar:

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

Topic: Problem:

Array Reverse the array

Array Find the maximum and minimum element in an array

Array Find the "Kth" max and min element of an array

Array Given an array which consists of only 0, 1 and 2. Sort the array without using any sorting algo

Array Move all the negative elements to one side of the array

Array Find the Union and Intersection of the two sorted arrays.

Array Write a program to cyclically rotate an array by one.

Array find Largest sum contiguous Subarray [V. IMP]

Array Minimise the maximum difference between heights [V.IMP]

Array Minimum no. of Jumps to reach end of an array

Array find duplicate in an array of N+1 Integers

Array Merge 2 sorted arrays without using Extra space.

Array Kadane's Algo [V.V.V.V.V IMP]

Array Merge Intervals
Array Next Permutation
Array Count Inversion

Array Best time to buy and Sell stock

Array find all pairs on integer array whose sum is equal to given number

Array <u>find common elements In 3 sorted arrays</u>

Array Rearrange the array in alternating positive and negative items with O(1) extra space

Array Find if there is any subarray with sum equal to 0

Array Find factorial of a large number

Array find maximum product subarray

Array Find longest coinsecutive subsequence

Array Given an array of size n and a number k, fin all elements that appear more than " n/k " times.

Array Maximum profit by buying and selling a share atmost twice

**Array** Find whether an array is a subset of another array

Array Find the triplet that sum to a given value

Array Trapping Rain water problem

Array Chocolate Distribution problem

Array Smallest Subarray with sum greater than a given value

Array Three way partitioning of an array around a given value

Array Minimum swaps required bring elements less equal K together

Array Minimum no. of operations required to make an array palindrome

Array Median of 2 sorted arrays of equal size

Array Median of 2 sorted arrays of different size

MatrixSpiral traversal on a MatrixMatrixSearch an element in a matriix

MatrixFind median in a row wise sorted matrixMatrixFind row with maximum no. of 1's

Matrix Print elements in sorted order using row-column wise sorted matrix

MatrixMaximum size rectangleMatrixFind a specific pair in matrixMatrixRotate matrix by 90 degrees

Matrix Kth smallest element in a row-cpumn wise sorted matrix

Matrix Common elements in all rows of a given matrix

String Reverse a String

**String** Check whether a String is Palindrome or not

String Find Duplicate characters in a string
String Why strings are immutable in Java?

String Write a Code to check whether one string is a rotation of another

String Write a Program to check whether a string is a valid shuffle of two strings or not

String Count and Say problem

String Write a program to find the longest Palindrome in a string. [Longest palindromic Substring]

String Find Longest Recurring Subsequence in String

**String** Print all Subsequences of a string.

String Print all the permutations of the given string

String Split the Binary string into two substring with equal 0's and 1's

String Word Wrap Problem [VERY IMP].

String EDIT Distance [Very Imp]

String Find next greater number with same set of digits. [Very Very IMP]

String Balanced Parenthesis problem.[Imp]
String Word break Problem[ Very Imp]

String Rabin Karp Algo
String KMP Algo

StringConvert a Sentence into its equivalent mobile numeric keypad sequence.StringMinimum number of bracket reversals needed to make an expression balanced.

String Count All Palindromic Subsequence in a given String.

String Count of number of given string in 2D character array

 String
 Search a Word in a 2D Grid of characters.

 String
 Boyer Moore Algorithm for Pattern Searching.

 String
 Converting Roman Numerals to Decimal

String Longest Common Prefix

**String** Number of flips to make binary string alternate

**String** Find the first repeated word in string.

String Minimum number of swaps for bracket balancing.

 ${\color{red} \textbf{String}} \qquad {\color{red} \underline{\textbf{Find the longest common subsequence between two strings.}}}$ 

String Program to generate all possible valid IP addresses from given string.

String Write a program to find the smallest window that contains all characters of string itself.

StringRearrange characters in a string such that no two adjacent are sameStringMinimum characters to be added at front to make string palindrome

String Given a sequence of words, print all anagrams together

String Find the smallest window in a string containing all characters of another string

String Recursively remove all adjacent duplicates

 String
 String matching where one string contains wildcard characters

 String
 Function to find Number of customers who could not get a computer

String Transform One String to Another using Minimum Number of Given Operation

String Check if two given strings are isomorphic to each other

String Recursively print all sentences that can be formed from list of word lists

Searching & Sorting
Searching & Sorting
Find first and last positions of an element in a sorted array
Find a Fixed Point (Value equal to index) in a given array

Searching & Sorting
Searching & Sorting
Search in a rotated sorted array
square root of an integer

Searching & Sorting Maximum and minimum of an array using minimum number of comparisons

Searching & Sorting Optimum location of point to minimize total distance

Searching & Sorting Find the repeating and the missing

Searching & Sorting find majority element

Searching & Sorting Searching in an array where adjacent differ by at most k

Searching & Sorting find a pair with a given difference

 Searching & Sorting
 find four elements that sum to a given value

 Searching & Sorting
 maximum sum such that no 2 elements are adjacent

 Searching & Sorting
 Count triplet with sum smaller than a given value

Searching & Sorting merge 2 sorted arrays
Searching & Sorting print all subarrays with 0 sum

Searching & Sorting Product array Puzzle

Searching & Sorting Sort array according to count of set bits

Searching & Sorting minimum no. of swaps required to sort the array

 Searching & Sorting
 Bishu and Soldiers

 Searching & Sorting
 Rasta and Kheshtak

 Searching & Sorting
 Kth smallest number again

 Searching & Sorting
 Find pivot element in a sorted array

Searching & Sorting Find pivot element in a sorted array

K-th Element of Two Sorted Arrays

Searching & Sorting <u>Aggressive cows</u>

Searching & Sorting Book Allocation Problem

Searching & Sorting <u>EKOSPOJ:</u>

Searching & Sorting

Job Scheduling Algo

Searching & Sorting

Missing Number in AP

Searching & Sorting Smallest number with atleastn trailing zeroes infactorial

Searching & Sorting Painters Partition Problem:

Searching & Sorting
Searching & Sorting
DoubleHelix SPOJ
Searching & Sorting
Subset Sums

Searching & Sorting Findthe inversion count

Implement Merge-sort in-place Searching & Sorting

LinkedList

Partitioning and Sorting Arrays with Many Repeated Entries Searching & Sorting

Write a Program to reverse the Linked List. (Both Iterative and recursive) LinkedList

LinkedList Reverse a Linked List in group of Given Size. [Very Imp]

LinkedList Write a program to Detect loop in a linked list. LinkedList Write a program to Delete loop in a linked list.

LinkedList Find the starting point of the loop. LinkedList Remove Duplicates in a sorted Linked List. Remove Duplicates in a Un-sorted Linked List.

LinkedList Write a Program to Move the last element to Front in a Linked List.

LinkedList Add "1" to a number represented as a Linked List. LinkedList Add two numbers represented by linked lists.

LinkedList Intersection of two Sorted Linked List. LinkedList Intersection Point of two Linked Lists. LinkedList Merge Sort For Linked lists.[Very Important] LinkedList Quicksort for Linked Lists.[Very Important] LinkedList Find the middle Element of a linked list. LinkedList Check if a linked list is a circular linked list. LinkedList Split a Circular linked list into two halves.

LinkedList Write a Program to check whether the Singly Linked list is a palindrome or not.

LinkedList <u>Deletion from a Circular Linked List.</u> LinkedList Reverse a Doubly Linked list. LinkedList Find pairs with a given sum in a DLL.

LinkedList Count triplets in a sorted DLL whose sum is equal to given value "X".

LinkedList Sort a "k" sorted Doubly Linked list. [Very IMP]

LinkedList Rotate DoublyLinked list by N nodes.

LinkedList Rotate a Doubly Linked list in group of Given Size. [Very IMP]

LinkedList Can we reverse a linked list in less than O(n)?

LinkedList Why Quicksort is preferred for. Arrays and Merge Sort for LinkedLists?

LinkedList Flatten a Linked List LinkedList Sort a LL of 0's, 1's and 2's

LinkedList Clone a linked list with next and random pointer

LinkedList Merge K sorted Linked list LinkedList Multiply 2 no. represented by LL

LinkedList Delete nodes which have a greater value on right side LinkedList Segregate even and odd nodes in a Linked List LinkedList Program for n'th node from the end of a Linked List

LinkedList Find the first non-repeating character from a stream of characters

**Binary Trees** level order traversal

Reverse Level Order traversal **Binary Trees** 

**Binary Trees** Height of a tree **Binary Trees** Diameter of a tree **Binary Trees** Mirror of a tree

**Binary Trees** Inorder Traversal of a tree both using recursion and Iteration **Binary Trees** Preorder Traversal of a tree both using recursion and Iteration Postorder Traversal of a tree both using recursion and Iteration **Binary Trees** 

**Binary Trees** Left View of a tree Right View of Tree **Binary Trees Binary Trees** Top View of a tree **Binary Trees Bottom View of a tree** 

**Binary Trees** Zig-Zag traversal of a binary tree Check if a tree is balanced or not **Binary Trees Binary Trees** Diagnol Traversal of a Binary tree **Binary Trees** Boundary traversal of a Binary tree

Construct Binary Tree from String with Bracket Representation **Binary Trees** 

**Binary Trees** Convert Binary tree into Doubly Linked List

Convert Binary tree into Sum tree **Binary Trees** 

Construct Binary tree from Inorder and preorder traversal **Binary Trees Binary Trees** Find minimum swaps required to convert a Binary tree into BST

Check if Binary tree is Sum tree or not **Binary Trees** Check if all leaf nodes are at same level or not **Binary Trees** 

Check if a Binary Tree contains duplicate subtrees of size 2 or more [ IMP ] **Binary Trees** 

**Binary Trees** Check if 2 trees are mirror or not Binary Trees Sum of Nodes on the Longest path from root to leaf node

Binary Trees Check if given graph is tree or not. [IMP]

Binary Trees Find Largest subtree sum in a tree

Binary Trees Maximum Sum of nodes in Binary tree such that no two are adjacent

Binary Trees Print all "K" Sum paths in a Binary tree

Binary Trees Find LCA in a Binary tree

Binary Trees Find distance between 2 nodes in a Binary tree

Binary Trees Kth Ancestor of node in a Binary tree

Binary Trees Find all Duplicate subtrees in a Binary tree [ IMP ]

Binary Trees <u>Tree Isomorphism Problem</u>

Binary Search Trees
Binary Search Trees

Binary Search Trees

Deletion of a node in a BST

Find min and max value in a BST

Binary Search Trees Find inorder successor and inorder predecessor in a BST

Binary Search Trees Check if a tree is a BST or not

Binary Search Trees Find LCA of 2 nodes in a BST

Binary Search Trees Construct BST from preorder traversal

Binary Search Trees Convert Binary tree into BST

Binary Search Trees Convert a normal BST into a Balanced BST

Binary Search Trees

Find Kth smallest element in a BST

Binary Search Trees Count pairs from 2 BST whose sum is equal to given value "X"

Binary Search Trees Find the median of BST in O(n) time and O(1) space

Binary Search Trees Count BST ndoes that lie in a given range

Binary Search Trees

Replace every element with the least greater element on its right

Given "n" appointments, find the conflicting appointments

Binary Search Trees Check preorder is valid or not

Binary Search Trees Check whether BST contains Dead end
Largest BST in a Binary Tree [ V.V.V.V IMP ]

Binary Search Trees Flatten BST to sorted list

Greedy Activity Selection Problem
Greedy Job SequencingProblem
Greedy Huffman Coding

Greedy Water Connection Problem
Greedy Fractional Knapsack Problem

Greedy Greedy Algorithm to find Minimum number of Coins
Greedy Maximum trains for which stoppage can be provided

**Greedy** Minimum Platforms Problem

Greedy

Buy Maximum Stocks if i stocks can be bought on i-th day

Greedy

Find the minimum and maximum amount to buy all N candies

Greedy Minimize Cash Flow among a given set of friends who have borrowed money from each other

Greedy Minimum Cost to cut a board into squares
Greedy Check if it is possible to survive on Island
Greedy Find maximum meetings in one room
Greedy Maximum product subset of an array
Greedy Maximize array sum after K negations

Greedy Maximize the sum of arr[i]\*i

Greedy Maximum sum of absolute difference of an array

Greedy Maximize sum of consecutive differences in a circular array
Greedy Minimum sum of absolute difference of pairs of two arrays
Greedy Program for Shortest Job First (or SJF) CPU Scheduling

Greedy Program for Least Recently Used (LRU) Page Replacement algorithm

**Greedy** Smallest subset with sum greater than all other elements

Greedy Chocolate Distribution Problem
Greedy DEFKIN -Defense of a Kingdom

Greedy <u>DIEHARD -DIE HARD</u>

Greedy GERGOVIA -Wine trading in Gergovia

Greedy Picking Up Chicks
Greedy CHOCOLA -Chocolate

**Greedy** ARRANGE -Arranging Amplifiers

Greedy K Centers Problem
Greedy Minimum Cost of ropes

Greedy Find smallest number with given number of digits and sum of digits

Greedy Rearrange characters in a string such that no two adjacent are same

**Greedy** Find maximum sum possible equal sum of three stacks

BackTracking Rat in a maze Problem

BackTracking Printing all solutions in N-Queen Problem
Word Break Problem using Backtracking

BackTracking Remove Invalid Parentheses

BackTracking Sudoku Solver m Coloring Problem

BackTracking Print all palindromic partitions of a string

BackTracking Subset Sum Problem
The Knight's tour problem

BackTracking Tug of War

BackTracking Find shortest safe route in a path with landmines

BackTracking Combinational Sum

BackTracking Find Maximum number possible by doing at-most K swaps

BackTracking Print all permutations of a string

**BackTracking** Find if there is a path of more than k length from a source

BackTracking Longest Possible Route in a Matrix with Hurdles

**BackTracking** Print all possible paths from top left to bottom right of a mXn matrix

BackTracking Partition of a set intoK subsets with equal sum

BackTracking Find the K-th Permutation Sequence of first N natural numbers

 Stacks & Queues
 Implement Stack from Scratch

 Stacks & Queues
 Implement Queue from Scratch

 Stacks & Queues
 Implement 2 stack in an array

 Stacks & Queues
 find the middle element of a stack

 Stacks & Queues
 Implement "N" stacks in an Array

Stacks & Queues Check the expression has valid or Balanced parenthesis or not.

Stacks & Queues Reverse a String using Stack

Stacks & Queues Design a Stack that supports getMin() in O(1) time and O(1) extra space.

Stacks & Queues Find the next Greater element

Stacks & Queues The celebrity Problem

 Stacks & Queues
 Arithmetic Expression evaluation

 Stacks & Queues
 Evaluation of Postfix expression

Stacks & Queues Implement a method to insert an element at its bottom without using any other data structure.

Stacks & QueuesReverse a stack using recursionStacks & QueuesSort a Stack using recursionStacks & QueuesMerge Overlapping Intervals

Stacks & Queues

Stacks & Queues

Length of the Longest Valid Substring

Length of the Longest Valid Substring

Stacks & Queues Expression contains redundant bracket or not

Stacks & Queues Implement Stack using Queue
Stacks & Queues Implement Stack using Deque

Stacks & Queues Stack Permutations (Check if an array is stack permutation of other)

 Stacks & Queues
 Implement Queue using Stack

 Stacks & Queues
 Implement "n" queue in an array

 Stacks & Queues
 Implement a Circular queue

 Stacks & Queues
 LRU Cache Implementationa

 Stacks & Queues
 Reverse a Queue using recursion

Stacks & Queues Reverse the first "K" elements of a queue

Stacks & Queues Interleave the first half of the queue with second half
Stacks & Queues Find the first circular tour that visits all Petrol Pumps

Stacks & Queues <u>Minimum time required to rot all oranges</u>

Stacks & QueuesDistance of nearest cell having 1 in a binary matrixStacks & QueuesFirst negative integer in every window of size "k"Stacks & QueuesCheck if all levels of two trees are anagrams or not.

Stacks & Queues Sum of minimum and maximum elements of all subarrays of size "k".

Stacks & Queues Minimum sum of squares of character counts in a given string after removing "k" characters.

Stacks & Queues Queue based approach or first non-repeating character in a stream.

Stacks & Queues Next Smaller Element

Heap Implement a Maxheap/MinHeap using arrays and recursion.

HeapSort an Array using heap. (HeapSort)HeapMaximum of all subarrays of size k.Heap"k" largest element in an array

Heap Kth smallest and largest element in an unsorted array

HeapMerge "K" sorted arrays. [IMP]HeapMerge 2 Binary Max Heaps

Heap Kth largest sum continuous subarrays

Heap Leetcode- reorganize strings

Heap Merge "K" Sorted Linked Lists [V.IMP]

HeapSmallest range in "K" ListsHeapMedian in a stream of IntegersHeapCheck if a Binary Tree is Heap

Heap <u>Connect "n" ropes with minimum cost</u>

HeapConvert BST to Min HeapHeapConvert min heap to max heap

Heap
Rearrange characters in a string such that no two adjacent are same.

Minimum sum of two numbers formed from digits of an array

GraphCreate a Graph, print itGraphImplement BFS algorithmGraphImplement DFS Algo

Graph

Detect Cycle in Directed Graph using BFS/DFS Algo

Detect Cycle in UnDirected Graph using BFS/DFS Algo

Graph Search in a Maze
Graph Minimum Step by Knight

Graph flood fill algo
Graph Clone a graph

**Graph** Making wired Connections

Graph word Ladder
Graph Dijkstra algo

Graph Implement Topological Sort

Graph Minimum time taken by each job to be completed given by a Directed Acyclic Graph

Graph Find whether it is possible to finish all tasks or not from given dependencies

**Graph** <u>Find the no. of Isalnds</u>

**Graph** Given a sorted Dictionary of an Alien Language, find order of characters

Graph Implement Kruksal'sAlgorithm
Graph Implement Prim's Algorithm
Graph Total no. of Spanning tree in a graph

Graph Implement Bellman Ford Algorithm
Graph Implement Floyd warshallAlgorithm
Graph Travelling Salesman Problem
Graph Graph ColouringProblem
Graph Snake and Ladders Problem
Graph Find bridge in a graph

Graph Count Strongly connected Components (Kosaraju Algo)

Graph Check whether a graph is Bipartite or Not

Graph Detect Negative cycle in a graph

Graph Longest path in a Directed Acyclic Graph

Graph <u>Journey to the Moon</u>

Graph Cheapest Flights Within K Stops

Graph Oliver and the Game

Graph Water Jug problem using BFS
Graph Water Jug problem using BFS

**Graph** Find if there is a path of more thank length from a source

Graph <u>M-ColouringProblem</u>

**Graph** <u>Minimum edges to reverse o make path from source to destination</u>

**Graph** Paths to travel each nodes using each edge(Seven Bridges)

**Graph** Vertex Cover Problem

Graph Chinese Postman or Route Inspection

Graph Number of Triangles in a Directed and Undirected Graph

Graph Minimise the cashflow among a given set of friends who have borrowed money from each other

Graph Two Clique Problem

Trie Construct a trie from scratch

Trie Find shortest unique prefix for every word in a given list

Trie Word Break Problem | (Trie solution)

Trie Given a sequence of words, print all anagrams together

Trie Implement a Phone Directory

Trie Print unique rows in a given boolean matrix

Dynamic Programming Coin ChangeProblem

Dynamic Programming Knapsack Problem

Dynamic Programming

Dynamic Programming Edit Distance

Dynamic Programming

 Dynamic Programming
 Subset Sum Problem

 Dynamic Programming
 Friends Pairing Problem

 Dynamic Programming
 Gold Mine Problem

Dynamic Programming
Dynami

Dynamic Programming LCS (Longest Common Subsequence) of three strings

**Space Optimized Solution of LCS** 

**Dynamic Programming** Maximum Sum Increasing Subsequence

Dynamic Programming Count all subsequences having product less than K

Dynamic Programming

Dynamic Programming

Longest subsequence such that difference between adjacent is one

Maximum subsequence sum such that no three are consecutive

Dynamic Programming Egg Dropping Problem

Dynamic Programming Maximum Length Chain of Pairs

Dynamic Programming Maximum size square sub-matrix with all 1s

Dynamic Programming Maximum sum of pairs with specific difference

**Dynamic Programming** Min Cost PathProblem

**Dynamic Programming** Maximum difference of zeros and ones in binary string

Dynamic Programming Minimum number of jumps to reach end
Dynamic Programming Minimum cost to fill given weight in a bag

Dynamic Programming Minimum removals from array to make max –min <= K

Dynamic Programming Longest Common Substring

**Dynamic Programming** Count number of ways to reacha given score in a game

Dynamic Programming Count Balanced Binary Trees of Height h

**Dynamic Programming** LargestSum Contiguous Subarray [V>V>V IMP]

Dynamic Programming Smallest sum contiguous subarray

Dynamic Programming <u>Unbounded Knapsack (Repetition of items allowed)</u>

**Dynamic Programming** Word Break Problem

Dynamic Programming <u>Largest Independent Set Problem</u>

**Dynamic Programming** Partition problem

**Dynamic Programming** Longest Palindromic Subsequence

Dynamic Programming Count All Palindromic Subsequence in a given String

Dynamic Programming
Weighted Job Scheduling

**Dynamic Programming** Coin game winner where every player has three choices

**Dynamic Programming** Count Derangements (Permutation such that no element appears in its original position) [IMPORTANT]

**Dynamic Programming** Maximum profit by buying and selling a share at most twice [IMP]

Dynamic Programming

Dynamic Programming Word Wrap Problem

Dynamic Programming Mobile Numeric Keypad Problem [ IMP ]

Dynamic Programming Boolean Parenthesization Problem

Dynamic Programming Largest rectangular sub-matrix whose sum is 0

Dynamic Programming Largest area rectangular sub-matrix with equal number of 1's and 0's [ IMP ]

**Dynamic Programming** Maximum sum rectangle in a 2D matrix

**Dynamic Programming** Maximum profit by buying and selling a share at most k times

**Dynamic Programming** Find if a string is interleaved of two other strings

**Dynamic Programming** Maximum Length of Pair Chain

Bit Manipulation Count set bits in an integer

Bit Manipulation Find the two non-repeating elements in an array of repeating elements

 Bit Manipulation
 Count number of bits to be flipped to convert A to B

 Bit Manipulation
 Count total set bits in all numbers from 1 to n

 Bit Manipulation
 Program to find whether a no is power of two

Bit Manipulation Find position of the only set bit

Copy set bits in a range

Bit Manipulation Divide two integers without using multiplication, division and mod operator

Bit Manipulation Calculate square of a number without using \*, / and pow()

Bit Manipulation Power Set