This list covers all the topics of Data Structures and Algorithms. In every topic, all the questions havebeen ranked from low to high with few exceptions. There are more than 330+ problems in this list.

- **Tree Data Structure**

  - Inorder Traversal of a Binary Tree using Recursion
  - Inorder Traversal of a Binary Tree without Recursion
  - Preorder Traversal of a Binary Tree using Recursion
  - Preorder Traversal of a Binary Tree without Recursion
  - Postorder Traversal of a Binary Tree using Recursion
  - Postorder Traversal of a Binary Tree without Recursion
  - Level Order Traversal of a Binary Tree
  - Reverse Level Order Traversal of a Binary Tree
  - Height of a Binary Tree
  - Mirror of a Tree
  - Invert Binary Tree
  - Cousins in a Binary Tree
  - Left view of a Tree
  - Right view of a Tree
  - Top view of a Tree
  - Bottom view of a Tree
  - Boundary Traversal of a tree
  - Diagonal Traversal of a tree
  - Diameter of a binary Tree
  - LCA of a binary tree
  - Convert binary tree into sum tree
  - Sum root to leaf numbers
  - Path sum
  - Min Depth of binary Tree
  - Check if all leaf nodes are present on the same level or not
  - Check if a binary tree is a subtree of another tree
  - Construct Binary Tree from given inorder and preorder traversal
  - Construct Binary Tree from given inorder and postorder
  - Binary Tree into DLL
  - Kth ancestor of a node in a Binary Tree
  - Check if a tree is balanced or not

- **Binary Search Trees**

- Find a value in a Binary Search Tree
- Insertion of a node in a Binary Search Tree
- Deletion of a node in Binary Search Tree
- Find minimum value in a Binary Search Tree
- Find maximum value in a Binary Search Tree
- Find inorder successor in a Binary Search Tree
- Find inorder predecessor in a Binary Search Tree
- Check if a binary tree is a BST or not
- LCA of 2 nodes in a BST
- Kth smallest element in a BST
- Kth largest element in a BST
- Count pairs from 2 BSTs such that given sum is equal to target
- Find the median of BST
- Count BST nodes that lie in a given range
- Largest BST in a binary tree
- Flatten BST to sorted linked list
- Construct BST from preorder traversal
- Convert BST into balanced BST
- Merge two BSTs
- Replace every node with the least greatest node in the BST

- **Graph Data Structure**

  - Construct a graph from given data and run DFS
  - Implement BFS algorithm
  - Detect cycle in directed graph using DFS
  - Detect cycle in directed graph using BFS
  - Detect cycle in undirected graph using DFS
  - Detect cycle in undirected graph using BFS
  - Find the town judge
  - Flood fill
  - Word Search
  - Knight on chess board
  - Word Ladder 1
  - Word Ladder 2
  - Connected Components
  - Count islands
  - Count enclosed islands

- Clone a graph
- Dijkstra's algorithm
- Network Delay Time
- Cheapest flights within k stops
- Bellman Ford Algorithms
- Network Delay Time
- Cheapest flights with k stops
- Detecting negative cycle using Bellman Ford Algorithm
- Floyd Warshall Algorithm
- Implement Topological Sort
- Course Schedule 1
- Course Schedule 2
- Alien Dictionary
- Water Jug Problem using BFS
- Prim's Algorithm
- Min Cost to connect all points
- Min cost to connect all servers
- Disjoint set Union
- Kruskal's algorithm
- Min cost to connect all points
- Tarjan's algorithm
- Find articulation point in a network
- Check whether a graph contains cycle or not using graph colouring technique
- Check whether a graph is a tree or not
- All Paths from source to target
- Bipartite graph
- Ants and the community problem
- Stepping Numbers
- Largest Distance between two nodes of a tree

- **Linked List**

  - Reverse a Linked List
  - Middle of the Linked List
  - Delete Node in a Linked List
  - Merge Two Sorted Linked List
  - Remove duplicates from sorted list
  - Intersection of two linked list
  - Linked List Cycle

- Palindrome Linked List
- Swapping Nodes in a Linked List
- Odd Even Linked List
- Remove nth node from Linked List
- Add Two Numbers
- Swap Nodes in Pairs
- Split Linked List in Parts
- Insertion sort on Linked List
- Merge sort on Linked List
- Copy list with random pointers
- Remove zero sum from consecutive nodes from linked list
- Merge k sorted Linked List
- Reverse nodes in k group
- Doubly Linked List
- Adding a node at the front, at the end, after a node or before a node
- Deleting a node from the front, from the end, after a node or before a node
- Circular Doubly Linked List
- Adding a node at the front, at the end, after a node or before a node
- Deleting a node from the front, from the end, after a node or before a node
- LRU Cache
- LFU Cache

- **Dynamic Programming**

  - Climbing Stairs
  - Min Cost Climbing Stairs
  - Max Cost Climbing Stairs
  - House Robbery 1
  - Fibonacci Number
  - Tribonacci Number
  - 0-1 Knapsack
  - Subset sum problem
  - Target Sum Problem
  - Equal Sum Partition Problem
  - Count the number of subsets with a given difference
  - Unbounded Knapsack
  - Rod Cutting
  - Coin Change 1
  - Coin change 2

- Buy and Sell Stock 1
- Buy and Sell Stock 2
- Buy and Sell Stock 3
- Buy and Sell Stock 4
- Buy and Sell Stock with cooldown
- Buy and Sell Stock with transaction fees
- Count number of ways to reach given score
- Jump Game 1
- Jump Game 2
- Nth Catalan Number
- Combination of Balanced Parenthesis Problem
- Maximum size square sub matrix with all 1s
- Total number of ways to reach last cell
- Minimum Falling Path Sum
- Count number of ways to reach given score
- Jump game 1
- Jump game 2
- Dice Roll With a Target Sum
- Palindrome Partitioning 1
- Palindrome Partitioning 2
- Palindrome Partitioning 3
- Palindrome Partitioning 4
- Counting Bits
- Decode Ways
- LIS
- MSIS
- Maximum Length Chain of Pairs
- Largest Sum Continuous Subarray
- Smallest Sum Continuous Subarray

- Maximum Product Subarray
- LCS
- LPS
- Edit Distance
- LCS (string)
- LPS (string)

- **Backtracking**

- Rat in a Maze Problem
- N- Queen Problem
- Print all solutions of N – queen
- Remove Invalid parenthesis
- Subset sum Problem
- Combinational Sum
- Print all permutations of an array
- Print all permutations of a string
- Tug of War
- The Knight Tour Problem

- **Heap**

  - Implement a Max Heap
  - Implement a Min Heap
  - Implement Heap sort
  - Kth largest element in array
  - Kth smallest element in an array
  - Merge 2 sorted arrays
  - Maximum of all subarrays of size k
  - Merge k sorted arrays
  - Merge k sorted linked list
  - Connect n ropes with minimum cost
  - Check if a binary tree is a heap or not
  - Rearrange characters in a string such that not two characters are adjacent
  - Running median

- **Searching and sorting**

  - Binary Search Iterative
  - Binary Search Recursive
  - Find the index of first occurrence in a sorted array
  - Find the index of last occurrence in a sorted array
  - Find a fixed point i.e. value equal to index in a sorted array
  - Square root of an integer
  - Count of occurrences of x in sorted element
  - Count of 1s in a sorted array
  - Peak element
  - Find an element in an infinite size sorted array

- Find the repeating and missing
- Find majority element
- Insertion sort
- Counting sort
- Merge sort
- Quick sort
- Find a pair with given difference
- Find three values that sum to 0
- Find three values that sum closest to target
- Find four elements that sum to a given value
- Search in a rotated sorted array
- Median of two sorted arrays of same size
- Median of two sorted arrays of different size

- **Array and Matrices**

  - Find the maximum and minimum element of an array
  - Check if array is sorted or not
  - Leaders in an array
  - Maximum difference problem
  - Frequencies in sorted array
  - Given an array of 0s, 1s and 2s, sort it in O(n) time
  - Move all the negative elements to one side of the array
  - Find the union and intersections of two arrays
  - Cyclic rotation of array
  - Find duplicates in array
  - Next Permutation
  - Count inversions
  - Find common elements in 3 sorted arrays
  - Merge intervals
  - Trapping rainwater problem
  - Spiral traversal on a matrix
  - Search an element in a sorted matrix (row and col are sorted)
  - Search an element in a sorted matrix (sorted as 1d)
  - Find row with maximum number of 1s
  - Find a specific pair in a matrix
  - Rotate matrix by 90 degrees
  - Zero matrix

- **Trie**

  - Construct a trie from scratch
  - Design add and search words data structure
  - Replace words
  - Top k frequent words
  - Prefix and suffix search

- **Greedy algorithms**

  - Activity Selection
  - Fractional Knapsack
  - Job Sequencing
  - Water connection
  - Minimum Platforms Problem
  - Split a string in Balanced Strings
  - Minimum Cost to move chips to the same position
  - Delete columns to make sorted
  - Last stone weight
  - Lemonade change
  - Minimum add to make parenthesis valid
  - Reduce the array size to half
  - Two city scheduling
  - Previous permutation with one swap
  - Boats to save people
  - Wiggle subsequence
  - Gas station
  - Jump game
  - Jump game 2
  - Remove k digits
  - Candy

- **Stack and Queues**

  - Implement stack using linked list
  - Implement queue using linked list
  - Balanced Parenthesis
  - Two stacks in an array
  - K stacks in an array
  - Next Greater element

- Next Smaller element
- Min stack
- Largest Rectangular area in a histogram
- Stock span
- Infix to postfix
- Infix to prefix
- Reversing a queue
- Generate numbers with given digits

- **Hashmaps**

  - Count of elements in an array
  - Count distinct elements
  - Intersection of two arrays
  - Union of two arrays
  - Reconstruct itinerary
  - Check if array pairs are divisible by k
  - Distinct element in window of size k
  - Largest subarray with 0 sum
  - Count of zero sum subarrays
  - Longest substring without repeating characters
  - Count substrings without repeating characters
  - Longest substring with exactly k distinct characters
  - Maximum consecutive ones
  - Maximum consecutive ones – 2
  - Count of substrings with at most k distinct substrings
  - Subarray sum equals k
  - Find anagrams
  - Count of subarrays with equal number of zeroes and ones
  - Largest subarray with sum divisible by k
  - Longest subarray with equal 0s, 1s, and 2s
  - Count of subarrays with equal 0s, 1s and 2s
  - Fraction to recurring decimal
  - Rabbits in forest
  - Pairs with given sum in sorted matrix

- **Recursion**

  - Length of an array using recursion

- Searching an element using recursion
- Letter combinations of a Phone number
- Josephus problem
- Kth symbol in grammar

- **Strings**

  - Reverse a string
  - Check whether a string is a palindrome or not
  - Defanging an IP Address
  - Find duplicate characters in a string
  - Check whether two strings are rotation of each other
  - Count Say Problem
  - Given two strings, check if they are anagrams of each other
  - Given a string, find the leftmost character that repeats
  - Unique Morse Code words
  - Increasing Decreasing String
  - Minimum number of steps to make two strings anagram
  - Robot return to origin
  - Check if a word occurs as a prefix of any word in a sentence
  - Number of substrings containing all the three characters
  - Reverse Only Letters
  - Longest Uncommon Sequence
  - Integer to roman
  - Roman to Integer
  - Construct String from Binary Tree
  - Maximum Number of Vowels in a substring of given length
  - Ransom Note
  - Reorganise string
  - Add strings
  - Add Binary
  - Multiply Strings
  - Most Common Word
  - Reverse Vowels of a string
  - Basic Calculator 2
  - Zigzag conversion
  - Decode Ways