# DSA by Shradha Didi & Aman Bhaiya

[Meet us on Youtube (Apna College)](#)

| Easy | Ideal Time : 5-10 mins | |
|---|---|---|
| Medium | Ideal Time : 15-20 mins | **5 Questions each Day** |
| Hard | Ideal Time : 40-60 mins (based on Qs) | |

| Topics | Question (375) | Companies | Remarks |
|---|---|---|---|
| Arrays | Maximum and Minimum Element in an Array | | |
| Arrays | Reverse the Array | | |
| Arrays | Maximum-Subarray | Microsoft + Facebook Interview Qs | use Kadane's Algorithm |
| Arrays | Contains Duplicate | | |
| Arrays | Chocolate Distribution Problem | Amazon Interview Qs | |
| Arrays | Search an Element in a Sorted and Pivoted Array | | |
| Arrays | Next Permutation | Uber + Goldman Sachs + Adobe Interview Qs | |
| Arrays | Best time to Buy and Sell Stock | | |
| Arrays | Repeat and Missing Number Array | Amazon Interview Qs | |
| Arrays | Kth-Largest Element in an Array | | |
| Arrays | Trapping Rain Water | Samsung Interview Qs | |
| Arrays | Product of Array Except Self | Microsoft + Facebook Interview Qs | |
| Arrays | Maximum Product Subarray | | |
| Arrays | Find Minimum in Rotated Sorted Array | | |
| Arrays | Search in Rotated Sorted Array | Microsoft + Google + Apple Interview Qs | |
| Arrays | 3Sum | | |
| Arrays | Container With Most Water | Flipkart + Dunzo Interview Qs | |
| Arrays | Given Sum Pair | Infosys + Amazon + Flipkart Interview Qs | |
| Arrays | Kth - Smallest Element | | |
| Arrays | Merge Overlapping Intervals | Google Interview Qs | |
| Arrays | Find Minimum Number of Merge Operations to Make an Array Palindrome | | |
| Arrays | Given an Array of Numbers Arrange the Numbers to Form the Biggest Number | Barclays Interview Qs | |
| Arrays | Space Optimization Using Bit Manipulations | | |
| Arrays | Subarray Sum Divisible K | | |
| Arrays | Print all Possible Combinations of r Elements in a Given Array of Size n | | |
| Arrays | Mo's Algorithm | | |
| | | | |
| Strings | Valid Palindrome | | |
| Strings | Valid Anagram | | |
| Strings | Valid parentheses | Google Interview Qs | use Stacks (if possible) |
| Strings | Remove Consecutive Characters | | |
| Strings | Longest Common Prefix | Adobe + Grofers + Dunzo Interview Qs | |
| Strings | Convert a Sentence into its Equivalent Mobile Numeric Keypad Sequence | | |
| Strings | Print all the Duplicates in the Input String | Ola + Amdocs IQ | |
| Strings | Longest Substring without Repeating Characters | Morgan Stanley + Amazon IQ | |
| Strings | Longest Repeating Character Replacement | | |
| Strings | Group Anagrams | Samsung + Adobe + Amazon Interview Qs | |
| Strings | Longest Palindromic Substring | Microsoft + Google + Samsung + Visa IQ | |
| Strings | Palindromic Substrings | Microsoft IQ | |
| Strings | Next Permutation | | |
| Strings | Count Palindromic Subsequences | Myntra Interview Qs | |
| Strings | Smallest Window in a String Containing all the Characters of Another String | Microsoft + Amazon IQ | |
| Strings | Wildcard String Matching | Microsoft + Amazon + Ola IQ | |
| Strings | Longest Prefix Suffix | Flipkart + Swiggy IQ | |
| Strings | Rabin-Karp Algorithm for Pattern Searching | | |
| Strings | Transform One String to Another using Minimum Number of Given Operation | | |
| Strings | Minimum Window Substring | | |
| Strings | Boyer Moore Algorithm for Pattern Searching | | |
| Strings | Word Wrap | | use Dynaming Programming |
| | | | |
| 2D Arrays | Zigzag (or diagonal) Traversal of Matrix | | |
| 2D Arrays | Set Matrix Zeroes | | |
| 2D Arrays | Spiral Matrix | Flipkart + Apple + Societe Generale IQ | |
| 2D Arrays | Rotate Image | | |
| 2D Arrays | Word Search | Google + Ola + Goldman Sachs IQ | |
| 2D Arrays | Find the Number of Islands | Set 1 (Using DFS) | Microsoft + Uber + Apple + Amazon IQ | Read about DFS |
| 2D Arrays | Given a Matrix of 'O' and 'X', Replace 'O' with 'X' if Surrounded by 'X' | | |
| 2D Arrays | Find a Common Element in all Rows of a Given Row-Wise Sorted Matrix | | |
| 2D Arrays | Create a Matrix with Alternating Rectangles of O and X | | |
| 2D Arrays | Maximum Size Rectangle of all 1s | | |
| | | | |
| Searching & Sorting | Permute Two Arrays such that Sum of Every Pair is Greater or Equal to K | | |
| Searching & Sorting | counting sort | | |
| Searching & Sorting | find common elements three sorted arrays | | |
| Searching & Sorting | Searching in an array where adjacent differ by at most k | | |
| Searching & Sorting | ceiling in a sorted array | | |
| Searching & Sorting | Piar with given difference | | |
| Searching & Sorting | majority element | | |
| Searching & Sorting | count triplets with sum smaller that a given value | | |
| Searching & Sorting | Maximum Sum Subsequence with no adjacent elements | | |
| Searching & Sorting | Merge Sorted Arrays using O(1) Space | | |
| Searching & Sorting | Inversion of Array | | |
| Searching & Sorting | Find Duplicates in O(n) Time and O(1) Extra Space | | |
| Searching & Sorting | Radix Sort | | |
| Searching & Sorting | Product of Array except itself | | |
| Searching & Sorting | Make all Array Elements Equal | | |

| | | | |
|---|---|---|---|
| Searching & Sorting | Check if Reversing a Sub Array Make the Array Sorted | | |
| Searching & Sorting | Find Four Elements that Sum to a Given Value | | |
| Searching & Sorting | Median of Two Sorted Array with Different Size | | |
| Searching & Sorting | Median of Stream of Integers Running Integers | | |
| Searching & Sorting | Print Subarrays with 0 Sum | | |
| Searching & Sorting | Aggressive Cows | | |
| Searching & Sorting | Allocate Minimum number of Pages | | |
| Searching & Sorting | Minimum Swaps to Sort | | |
| | | | |
| Backtracking | Backtracking Set 2 Rat in a Maze | | |
| Backtracking | Combinational Sum | | |
| Backtracking | Crossword-Puzzle | | |
| Backtracking | Longest Possible Route in a Matrix with Hurdles | | |
| Backtracking | Printing all solutions in N-Queen Problem | | |
| Backtracking | Solve the Sudoku | | |
| Backtracking | Partition Equal Subset Sum | | |
| Backtracking | M Coloring Problem | | |
| Backtracking | Knight Tour | | |
| Backtracking | Soduko | | |
| Backtracking | Remove Invalid Parentheses | | |
| Backtracking | Word Break Problem using Backtracking | | |
| Backtracking | Print all Palindromic Partitions of a String | | |
| Backtracking | Find Shortest Safe Route in a Path with Landmines | | |
| Backtracking | Partition of Set into K Subsets with Equal Sum | | |
| Backtracking | Backtracking set-7 hamiltonian cycle | | |
| Backtracking | tug-of-war | | |
| Backtracking | Maximum Possible Number by doing at most K swaps | | |
| Backtracking | Backtracking set-8 solving cryptarithmetic puzzles | | |
| Backtracking | Find paths from corner cell to middle cell in maze | | |
| Backtracking | Arithmetic Expressions | | |
| | | | |
| | | | |
| Linked List | Reverse Linked List | | |
| Linked List | Linked List Cycle | | |
| Linked List | Merge Two Sorted Lists | | |
| Linked List | Delete without Head node | | |
| Linked List | Remove duplicates from an unsorted linked list | | |
| Linked List | Sort a linked list of 0s-1s-or-2s | | |
| Linked List | Multiply two numbers represented linked lists | | |
| Linked List | Remove nth node from end of list | | |
| Linked List | Reorder List | | |
| Linked List | Detect and remove loop in a linked list | | |
| Linked List | Write a Function to get the Intersection Point of two Linked Lists | | |
| Linked List | Flatten a linked list with next and child pointers | | |
| Linked List | Linked list in zig-zag fashion | | |
| Linked List | Reverse a doubly linked list | | |
| Linked List | Delete nodes which have a greater value on right side | | |
| Linked List | Segregate even and odd Elements in a Linked List | | |
| Linked List | Point to next higher value node in a linked list with an Arbitrary Pointer | | |
| Linked List | Rearrange a given linked list in place | | |
| Linked List | Sort Biotonic Doubly Linked Lists | | |
| Linked List | Merge K Sorted Lists | | |
| Linked List | Merge sort for linked list | | Important |
| Linked List | Quicksort on singly-linked list | | Important |
| Linked List | Sum of two linked lists | | |
| Linked List | Flattening a linked list | | |
| Linked List | Clone a linked list with next and random Pointer | | |
| Linked List | Subtract two numbers represented as linked lists | | |
| | | | |
| | | | |
| Stacks & Queues | Implement two stacks in an Array | | |
| Stacks & Queues | Evaluation of Postfix Expression | | |
| Stacks & Queues | Implement Stack using Queues | | |
| Stacks & Queues | Queue Reversal | | |
| Stacks & Queues | Implement Stack Queue using Deque | | |
| Stacks & Queues | Reverse first k elements of queue | | |
| Stacks & Queues | Design Stack with Middle Operation | | |
| Stacks & Queues | Infix to Postfix | | |
| Stacks & Queues | Design and Implement Special stack | | |
| Stacks & Queues | Longest Valid String | | |
| Stacks & Queues | Find if an expression has duplicate parenthesis or not | | |
| Stacks & Queues | Stack permutations check if an array is stack permutation of other | | |
| Stacks & Queues | Count natural numbers whose permutation greater number | | |
| Stacks & Queues | Sort a stack using Recursion | | |
| Stacks & Queues | Queue based approach for first non repeating character in a stream | | |
| Stacks & Queues | The Celebrity Problem | | |
| Stacks & Queues | Next larger Element | | |
| Stacks & Queues | Distance of nearest cell | | |
| Stacks & Queues | Rotten-oranges | | |
| Stacks & Queues | Next smaller element | | |
| Stacks & Queues | Circular-tour | | |
| Stacks & Queues | Efficiently implement k-stacks single array | | |
| Stacks & Queues | The celebrity problem | | |
| Stacks & Queues | Iterative tower of hanoi | | |
| Stacks & Queues | Find the maximum of minimums for every window size in a given array | | |

| | | | |
|---|---|---|---|
| Stacks & Queues | lru cache implementation | | |
| Stacks & Queues | Find a tour that visits all stations | | |
| | | | |
| | | | |
| Greedy | Activity selection problem greedy algo | | |
| Greedy | Greedy algorithm to find minimum number of coins | | |
| Greedy | Minimum sum two numbers formed digits array-2 | | |
| Greedy | Minimum sum absolute difference pairs two arrays | | |
| Greedy | Find maximum height pyramid from the given array of objects | | |
| Greedy | Minimum cost for acquiring all coins with k extra coins allowed with every coin | | |
| Greedy | Find maximum equal sum of every three stacks | | |
| Greedy | Job sequencing problem | | |
| Greedy | Greedy algorithm egyptian fraction | | |
| Greedy | Fractional knapsack problem | | |
| Greedy | Maximum length chain of pairs | | |
| Greedy | Find smallest number with given number of digits and digit sum | | |
| Greedy | Maximize sum of consecutive differences circular-array | | |
| Greedy | paper-cut minimum number squares | | |
| Greedy | Lexicographically smallest array-k consecutive swaps | | |
| Greedy | Problems-CHOCOLA | | |
| Greedy | Find minimum time to finish all jobs with given constraints | | |
| Greedy | Job sequencing using disjoint set union | | |
| Greedy | Rearrange characters string such that no two adjacent are same | | |
| Greedy | Minimum edges to reverse to make path from a source to a destination | | |
| 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 | | |
| | | | |
| | | | |
| Binary Trees | Maximum Depth of Binary Tree | | |
| Binary Trees | Reverse Level Order Traversal | | |
| Binary Trees | Subtree of Another Tree | | |
| Binary Trees | Invert Binary Tree | | |
| Binary Trees | Binary Tree Level Order Traversal | | |
| Binary Trees | Left View of Binary Tree | | |
| Binary Trees | Right View of Binary Tree | | |
| Binary Trees | ZigZag Tree Traversal | | |
| Binary Trees | Create a mirror tree from the given binary tree | | |
| Binary Trees | Leaf at same level | | |
| Binary Trees | Check for Balanced Tree | | |
| Binary Trees | Transform to Sum Tree | | |
| Binary Trees | Check if Tree is Isomorphic | | |
| Binary Trees | Same Tree | | |
| Binary Trees | Construct Binary Tree from Preorder and Inorder Traversal | | |
| Binary Trees | Height of Binary Tree | | |
| Binary Trees | Diameter of a Binary Tree | | |
| Binary Trees | Top View of Binary Tree | | |
| Binary Trees | Bottom View of Binary Tree | | |
| Binary Trees | Diagonal Traversal of Binary Tree | | |
| Binary Trees | Boundary Traversal of binary tree | | |
| Binary Trees | Construct Binary Tree from String with Brackets | | |
| Binary Trees | Minimum swap required to convert binary tree to binary search tree | | |
| Binary Trees | Duplicate subtree in Binary Tree | | |
| Binary Trees | Check if a given graph is tree or not | | |
| Binary Trees | Lowest Common Ancestor in a Binary Tree | | |
| Binary Trees | Min distance between two given nodes of a Binary Tree | | |
| Binary Trees | Duplicate Subtrees | | |
| Binary Trees | Kth ancestor of a node in binary tree | | |
| Binary Trees | Binary Tree Maximum Path Sum | | |
| Binary Trees | Serialize and Deserialize Binary Tree | | |
| Binary Trees | Binary Tree to DLL | | |
| Binary Trees | Print all k-sum paths in a binary tree | | |
| | | | |
| | | | |
| Binary Search Trees | Lowest Common Ancestor of a Binary Search Tree | | |
| Binary Search Trees | Binary Search Tree | Set 1 (Search and Insertion) | | |
| Binary Search Trees | Minimum element in BST | | |
| Binary Search Trees | Predecessor and Successor | | |
| Binary Search Trees | Check whether BST contains Dead End | | |
| Binary Search Trees | Binary Tree to BST | | |
| Binary Search Trees | Kth largest element in BST | | |
| Binary Search Trees | Validate Binary Search Tree | | |
| Binary Search Trees | Kth Smallest Element in a BST | | |
| Binary Search Trees | Delete Node in a BST | | |
| Binary Search Trees | Flatten BST to sorted list | | |
| Binary Search Trees | Preorder to Postorder | | |
| Binary Search Trees | Count BST nodes that lie in a given range | | |
| Binary Search Trees | Populate Inorder Successor for all Nodes | | |
| Binary Search Trees | Convert Normal BST to Balanced BST | | |
| Binary Search Trees | Merge two BSTs | | |
| Binary Search Trees | Given n appointments, find all conflicting appointments | | |
| Binary Search Trees | Replace every element | | |
| Binary Search Trees | Construct BST from given preorder traversal | | |
| Binary Search Trees | Find median of BST in O(n) time and O(1) space | | |
| Binary Search Trees | Largest BST in a Binary Tree | | Important |
| | | | |
| | | | |

| | | | |
|---|---|---|---|
| Heaps & Hashing | Choose k array elements such that difference of maximum and minimum is minimized | | |
| Heaps & Hashing | Heap Sort | | |
| Heaps & Hashing | Top K Frequent Elements | | |
| Heaps & Hashing | k largest elements in an array | | |
| Heaps & Hashing | Next Greater Element | | |
| Heaps & Hashing | K'th Smallest/Largest Element in Unsorted Array | | |
| Heaps & Hashing | Find the maximum repeating number in O(n) time and O(1) extra space | | |
| Heaps & Hashing | K-th smallest element after removing some integers from natural numbers | | |
| Heaps & Hashing | Find k closest elements to a given value | | |
| Heaps & Hashing | K'th largest element in a stream | | |
| Heaps & Hashing | Connect Ropes | | |
| Heaps & Hashing | Cuckoo Hashing | | |
| Heaps & Hashing | Itinerary from a List of Tickets | | |
| Heaps & Hashing | Largest Subarray with 0 Sum | | |
| Heaps & Hashing | Count distinct elements in every window of size_k | | |
| Heaps & Hashing | Group Shifted Strings | | |
| Heaps & Hashing | Merge K Sorted lists | | |
| Heaps & Hashing | Find Median from Data Stream | | |
| Heaps & Hashing | Sliding Window Maximum | | |
| Heaps & Hashing | Find the smallest positive number | | |
| Heaps & Hashing | Find Surpasser Count of each element in array | | |
| Heaps & Hashing | Tournament Tree and Binary Heap | | |
| Heaps & Hashing | Check for palindrome | | |
| Heaps & Hashing | Length of the largest subarray with contiguous elements | | |
| Heaps & Hashing | Palindrome Substring Queries | | |
| Heaps & Hashing | Subarray distinct elements | | |
| Heaps & Hashing | Find the recurring function | | |
| Heaps & Hashing | K maximum sum combinations from two arrays | | |
| | | | |
| | | | |
| Graphs | BFS | | |
| Graphs | DFS | | |
| Graphs | Flood Fill Algorithm | | |
| Graphs | Number of Triangles | | |
| Graphs | Detect cycle in a graph | | |
| Graphs | Detect cycle in an undirected graph | | |
| Graphs | Rat in a Maze Problem | | |
| Graphs | Steps by Knight | | |
| Graphs | Clone graph | | |
| Graphs | Number of Operations to Make Network Connected | | |
| Graphs | Dijkstra's shortest path algorithm | | |
| Graphs | Topological Sort | | |
| Graphs | Oliver and the Game | | |
| Graphs | Minimum time taken by each job to be completed given by a Directed Acyclic Graph | | |
| Graphs | Find whether it is possible to finish all tasks or not from given dependencies | | |
| Graphs | Find the number of islands | | |
| Graphs | Prim's Algo | | |
| Graphs | Negative Weighted Cycle | | |
| Graphs | Floyd Warshall | | |
| Graphs | Graph Coloring | | |
| Graphs | Snakes and Ladders | | |
| Graphs | Kosaraju's Theorem | | |
| Graphs | Journey to moon | | |
| Graphs | Vertex Cover | | |
| Graphs | M Coloring Problem | | |
| Graphs | Cheapest Flights Within K Stops | | |
| Graphs | Find if there is a path of more than k length from a source | | |
| Graphs | Bellman Ford | | |
| Graphs | Bipartitie Graph | | |
| Graphs | Word-Ladder | | |
| Graphs | Allen Dictionary | | |
| Graphs | Kruskals MST | | Important |
| Graphs | Total number spanning trees graph | | |
| Graphs | Travelling Salesman | | Important |
| Graphs | Find longest path directed acyclic graph | | |
| Graphs | Two Clique Problem | | |
| Graphs | Minimise the cash flow | | |
| Graphs | Chinese postman | | |
| Graphs | Water Jug | | |
| Graphs | Water Jug 2 | | |
| | | | |
| | | | |
| Tries | Construct a trie from scratch | | |
| Tries | Print unique rows in a given boolean matrix | | |
| Tries | Word Break Problem | (Trie solution) | | |
| Tries | Given a sequence of words, print all anagrams together | | |
| Tries | Find shortest unique prefix for every word in a given list | | |
| Tries | Implement a Phone Directory | | |
| | | | |
| | | | |
| DP | Knapsack with Duplicate Items | | |
| DP | BBT counter | | |
| DP | Reach a given score | | |
| DP | Maximum difference of zeros and ones in binary string | | |
| DP | Climbing Stairs | | |
| DP | Permutation Coefficient | | |

| | | | |
|---|---|---|---|
| DP | Longest Repeating Subsequence | | |
| DP | Pairs with specific difference | | |
| DP | Longest subsequence-1 | | |
| DP | Coin Change | | |
| DP | LIS | | |
| DP | Longest Common Subsequence | | |
| DP | Word Break | | |
| DP | Combination Sum IV | | |
| DP | House Robber | | |
| DP | Houe Robber 2 | | |
| DP | Decode Ways | | |
| DP | Unique Paths | | |
| DP | Jumps Game | | |
| DP | Knapsack Problem | | |
| DP | nCr | | |
| DP | Catalan Number | | |
| DP | Edit Distance | | |
| DP | Subset Sum | | |
| DP | Gold mine | | |
| DP | Assembly Line Scheduling | | |
| DP | Maximize The Cut Segments | | |
| DP | Maximum sum increasing subsequence | | |
| DP | Count all subsequences having product less than K | | |
| DP | Maximum sum increasing subsequence | | |
| DP | Egg dropping puzzle | | |
| DP | Max length chain | | |
| DP | Largest Square in Matrix | | |
| DP | Maximum Path Sum | | |
| DP | Minimum Number of Jumps | | |
| DP | Minimum removals from array to make max – min <= K | | |
| DP | Longest Common Substring | | |
| DP | Partition Equal Subset Sum | | |
| DP | Longest Palindromic Subsequnce | | |
| DP | Count Palindromic Subsequences | | |
| DP | Longest Palindromic Substring | | |
| DP | Longest Alternating Sequence | | |
| DP | Weighted Job Scheduling | | |
| DP | Coin Game | | |
| DP | Coin Game Winner | | |
| DP | Optimal Strategy for a game | | |
| DP | Word Wrap | | |
| DP | Mobile numeric keypad | | |
| DP | Maximum Length of Pair Chain | | |
| DP | Matrix Chain Multiplication | | |
| DP | Maximum profit by buying and selling a share at most twice | | |
| DP | Optimal BST | | |
| DP | Largest Submatrix with sum 0 | | |
| DP | Largest area rectangular sub-matrix with equal number of 1's and 0's | | |
| | | | |
| | | | |
| Bit Manipulation | Count set bits in an integer | | |
| Bit Manipulation | Find the two non-repeating elements in an array of repeating elements | | |
| Bit Manipulation | Program to find whether a no is power of two | | |
| Bit Manipulation | Find position of the only set bit | | |
| 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 | Copy set bits in a range | | |
| Bit Manipulation | Calculate square of a number without using *, / and pow() | | |
| Bit Manipulation | Divide two integers without using multiplication, division and mod operator | | |
| Bit Manipulation | Power Set | | |
| | | | |
| | | | |
| Segment Trees | Range Sum Query - Immutable | | |
| Segment Trees | Range Minimum Query | Google Interview Qs | |
| Segment Trees | Range Sum Query - Mutable | | |
| Segment Trees | Create Sorted Array through Instructions | | |
| Segment Trees | Count of Range Sum | | |
| Segment Trees | Count of Smaller Numbers After Self | | |