# DSA by Shradha Didi & Aman Bhaiya

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How to solve this sheet?

| | | | |
|---|---|---|---|
| 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) | 88 Qs | | |

| Topics | Question (375) | Companies | Remarks |
|---|---|---|---|
| Arrays | Maximum and Minimum Element in an Array | ABCO Accolite Amazon Cisco Hike Microsoft Snapdeal VMWare Google Adobe | |
| Arrays | Reverse the Array | Infosys Moonfrog Labs | |
| Arrays | Maximum-Subarray | Microsoft + Facebook Interview Qs | use Kadane's Algorithm |
| Arrays | Contains Duplicate | Amazon Interview Qs | |
| Arrays | Chocolate Distribution Problem | Amazon Interview Qs | |
| Arrays | Search in Rotated Sorted Array | Microsoft Google Adobe Amazon D-E-Shaw Flipkart Hike Intuit MakeMyTrip Paytm | |
| Arrays | Next Permutation | Uber + Goldman Sachs + Adobe Interview Qs | |
| Arrays | Best time to Buy and Sell Stock | Amazon D-E-Shaw Directi Flipkart Goldman Sachs Intuit MakeMyTrip Microsoft Ola Cabs Oracle Paytm Pubmatic Quikr Salesforce Sapient Swiggy Walmart Media.net Google | |
| Arrays | Repeat and Missing Number Array | Amazon Interview Qs | |
| Arrays | Kth-Largest Element in an Array | Amazon Microsoft Walmart Adobe | |
| Arrays | Trapping Rain Water | Samsung Interview Qs | use auxiliary arrays |
| Arrays | Product of Array Except Self | Microsoft + Facebook Interview Qs | |
| Arrays | Maximum Product Subarray | Amazon D-E-Shaw Microsoft Morgan Stanley OYO Rooms Google | |
| Arrays | Find Minimum in Rotated Sorted Array | Adobe Amazon Microsoft Morgan Stanley Samsung Snapdeal Times Internet | |
| Arrays | Find Pair with Sum in Sorted & Rotated Array | Microsoft + Google + Apple Interview Qs | |
| Arrays | 3Sum | Adobe Amazon Microsoft Morgan Stanley Samsung Snapdeal Times Internet | |
| Arrays | Container With Most Water | Flipkart + Dunzo Interview Qs | use 2 pointer approach |
| Arrays | Given Sum Pair | Infosys + Amazon + Flipkart Interview Qs | |
| Arrays | Kth - Smallest Element | ABCO Accolite Amazon Cisco Hike Microsoft Snapdeal VMWare Google Adobe | |
| Arrays | Merge Overlapping Intervals | Google Interview Qs | |
| Arrays | Find Minimum Number of Merge Operations to Make an Array Palindrome | Amazon | |
| Arrays | Given an Array of Numbers Arrange the Numbers to Form the Biggest Number | Barclays Interview Qs | |
| Arrays | Space Optimization Using Bit Manipulations | Amazon | |
| Arrays | Subarray Sum Divisible K | Snapdeal Microsoft | |
| Arrays | Print all Possible Combinations of r Elements in a Given Array of Size n | Amazon | |
| Arrays | Mo's Algorithm | Microsoft | |
| | | | |
| Strings | Valid Palindrome | Amazon Cisco D-E-Shaw Facebook FactSet Morgan Stanley Paytm Zoho | |
| Strings | Valid Anagram | Nagarro Media.net Directi Google Adobe Flipkart | |
| Strings | Valid parentheses | Google Interview Qs | use Stacks (if possible) |
| Strings | Remove Consecutive Characters | Samsung + Adobe | |
| Strings | Longest Common Prefix | Adobe + Grofers + Dunzo Interview Qs | |
| Strings | Convert a Sentence into its Equivalent Mobile Numeric Keypad Sequence | Adobe | |
| 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 | Amazon Google | |
| 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 | Adobe + Goldman Sachs + Uber | |
| 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 | Microsoft | |
| Strings | Transform One String to Another using Minimum Number of Given Operation | Directi | |
| Strings | Minimum Window Substring | Amazon Google MakeMyTrip Streamoid Technologies Microsoft Media.net Atlassian Flipkart | |
| Strings | Boyer Moore Algorithm for Pattern Searching | Amdocs | |
| Strings | Word Wrap | Microsoft | use Dynaming Programming |
| | | | |
| 2D Arrays | Zigzag (or diagonal) Traversal of Matrix | Amazon | |
| 2D Arrays | Set Matrix Zeroes | Amazon Microsoft | |
| 2D Arrays | Spiral Matrix | Flipkart + Apple + Societe Generale IQ | |
| 2D Arrays | Rotate Image | Microsoft Paytm Samsung Adobe | |

| Category | Problem | Companies | Notes |
|---|---|---|---|
| 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' | Google | |
| 2D Arrays | Find a Common Element in all Rows of a Given Row-Wise Sorted Matrix | MAQ Software Microsoft VMWare | |
| 2D Arrays | Create a Matrix with Alternating Rectangles of O and X | MAQ VMWare | |
| 2D Arrays | Maximum Size Rectangle of all 1s | Amazon Microsoft | |
| | | | |
| Searching & Sorting | Permute Two Arrays such that Sum of Every Pair is Greater or Equal to K | Samsung | |
| Searching & Sorting | counting sort | Samsung+ Morgan Stanley+ Snapdeal + EPAM Systems | |
| Searching & Sorting | find common elements three sorted arrays | MAQ Software Microsoft VMWare | |
| Searching & Sorting | Searching in an array where adjacent differ by at most k | TCS Amazon | |
| Searching & Sorting | ceiling in a sorted array | TCS | |
| Searching & Sorting | Piar with given difference | Amazon Visa | |
| Searching & Sorting | majority element | Amazon+ Google | |
| Searching & Sorting | count triplets with sum smaller that a given value | Amazon SAP Labs | |
| Searching & Sorting | Maximum Sum Subsequence with no adjacent elements | Amazon FactSet Oxigen Wallet OYO Rooms Paytm Walmart Yahoo Adobe Flipkart | |
| Searching & Sorting | Merge Sorted Arrays using O(1) Space | Amdocs Brocade Goldman Sachs Juniper Networks Linkedin Microsoft Quikr Snapdeal Synopsys Zoho Adobe | |
| Searching & Sorting | Inversion of Array | Adobe Amazon BankBazaar Flipkart Microsoft Myntra MakeMyTrip | |
| Searching & Sorting | Find Duplicates in O(n) Time and O(1) Extra Space | Amazon D-E-Shaw Flipkart Paytm Qualcomm Zoho | |
| Searching & Sorting | Radix Sort | Amazon+ Microsoft | |
| Searching & Sorting | Product of Array except itself | Accolite Amazon D-E-Shaw Intuit Morgan Stanley Opera Microsoft Flipkart | |
| Searching & Sorting | Make all Array Elements Equal | Amazon | |
| Searching & Sorting | Check if Reversing a Sub Array Make the Array Sorted | Amazon | |
| Searching & Sorting | Find Four Elements that Sum to a Given Value | Adobe Amazon Google Microsoft OYO Rooms | |
| Searching & Sorting | Median of Two Sorted Array with Different Size | Amazon Samsung Microsoft Google | |
| Searching & Sorting | Median of Stream of Integers Running Integers | Amazon + Google | |
| Searching & Sorting | Print Subarrays with 0 Sum | Paytm Adobe | |
| Searching & Sorting | Aggressive Cows | Adobe | |
| Searching & Sorting | Allocate Minimum number of Pages | Google Infosys Codenation Amazon Microsoft | |
| Searching & Sorting | Minimum Swaps to Sort | Amazon + Google | |
| | | | |
| Backtracking | Backtracking Set 2 Rat in a Maze | Microsoft Amazon | |
| Backtracking | Combinational Sum | Adobe Amazon Microsoft | |
| Backtracking | Crossword-Puzzle | Microsoft | |
| Backtracking | Longest Possible Route in a Matrix with Hurdles | Microsoft | |
| Backtracking | Printing all solutions in N-Queen Problem | Accolite Amazon Amdocs D-E-Shaw MAQ Software Twitter Visa Microsoft | |
| Backtracking | Solve the Sudoku | Amazon Directi Flipkart MakeMyTrip MAQ Software Microsoft Ola Cabs Oracle PayPal Zoho | |
| Backtracking | Partition Equal Subset Sum | Amazon + Adobe + Accolite + Traveloka | |
| Backtracking | M Coloring Problem | Amazon | |
| Backtracking | Knight Tour | IBM | |
| Backtracking | Soduko | Amazon + Adobe + Accolite + Traveloka | |
| Backtracking | Remove Invalid Parentheses | Uber | |
| Backtracking | Word Break Problem using Backtracking | | |
| Backtracking | Print all Palindromic Partitions of a String | Facebook Amazon Microsoft | |
| Backtracking | Find Shortest Safe Route in a Path with Landmines | Facebook Amazon Microsoft | |
| Backtracking | Partition of Set into K Subsets with Equal Sum | Amazon | |
| Backtracking | Backtracking set-7 hamiltonian cycle | Amazon | |
| Backtracking | tug-of-war | Google | |
| Backtracking | Maximum Possible Number by doing at most K swaps | Amazon + Adobe + Accolite + Traveloka | |
| Backtracking | Backtracking set-8 solving cryptarithmetic puzzles | Goldman Sachs | |
| Backtracking | Find paths from corner cell to middle cell in maze | Meta | |
| Backtracking | Arithmetic Expressions | Flipkart | |
| | | | |
| Linked List | Reverse Linked List | Sprinklr | |
| Linked List | Linked List Cycle | Accolite Amazon D-E-Shaw Hike Lybrate Mahindra Comviva MakeMyTrip MAQ Software OYO Rooms Paytm Qualcomm Samsung SAP Labs Snapdeal Veritas VMWare Walmart Adobe | |
| Linked List | Merge Two Sorted Lists | Accolite Amazon Belzabar Brocade FactSet Flipkart MakeMyTrip Microsoft OATS Systems Oracle Samsung Synopsys Zoho | |
| Linked List | Delete without Head node | Amazon Goldman Sachs Kritikal Solutions Microsoft Samsung Visa | |
| Linked List | Remove duplicates from an unsorted linked list | Amazon Intuit | |
| Linked List | Sort a linked list of 0s-1s-or-2s | Microsoft Amazon MakeMyTrip | |
| Linked List | Multiply two numbers represented linked lists | Amazon | |
| Linked List | Remove nth node from end of list | Accolite Adobe Amazon Citicorp Epic Systems FactSet Hike MAQ Software Monotype Solutions Morgan Stanley OYO Rooms Qualcomm Samsung Snapdeal Flipkart | |
| Linked List | Reorder List | Amazon Microsoft OYO Rooms Intuit | |
| Linked List | Detect and remove loop in a linked list | Accolite Amazon D-E-Shaw Hike Lybrate Mahindra Comviva MakeMyTrip MAQ Software OYO Rooms Paytm Qualcomm Samsung SAP Labs Snapdeal Veritas VMWare Walmart Adobe | |
| Linked List | Write a Function to get the Intersection Point of two Linked Lists | Amazon | |

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|---|---|---|---|---|---|---|---|---|
| **Linked List** | Flatten a linked list with next and child pointers | Google | | | | | | |
| **Linked List** | Linked list in zig-zag fashion | Micorsoft | | | | | | |
| **Linked List** | Reverse a doubly linked list | Walmart | | | | | | |
| **Linked List** | Delete nodes which have a greater value on right side | Amazon | | | | | | |
| **Linked List** | Segregate even and odd Elements in a Linked List | Walmart | | | | | | |
| **Linked List** | Point to next higher value node in a linked list with an Arbitrary Pointer | GeekyAnts | | | | | | |
| **Linked List** | Rearrange a given linked list in place | Ola Uber | | | | | | |
| **Linked List** | Sort Biotonic Doubly Linked Lists | Morgan Stanley | | | | | | |
| **Linked List** | Merge K Sorted Lists | Microsoft+ Ola+ eBay | | | | | | |
| **Linked List** | Merge sort for linked list | Accolite Adobe Amazon MAQ Software Microsoft Paytm Veritas | Important | | | | | |
| **Linked List** | Quicksort on singly-linked list | Paytm | Important | | | | | |
| **Linked List** | Sum of two linked lists | Accolite Amazon Flipkart MakeMyTrip Microsoft Morgan Stanley Qualcomm Snapdeal | | | | | | |
| **Linked List** | Flattening a linked list | 24*7 Innovation Labs Amazon Drishti-Soft Flipkart Goldman Sachs Microsoft Paytm Payu Qualcomm Snapdeal Visa | | | | | | |
| **Linked List** | Clone a linked list with next and random Pointer | Triology | | | | | | |
| **Linked List** | Subtract two numbers represented as linked lists | Amazon Goldman Sachs | | | | | | |
| | | | | | | | | |
| **Stacks & Queues** | Implement two stacks in an Array | 24*7 Innovation Labs Microsoft Samsung Snapdeal | | | | | | |
| **Stacks & Queues** | Evaluation of Postfix Expression | Amazon + Google + Facebook | | | | | | |
| **Stacks & Queues** | Implement Stack using Queues | Facebook | | | | | | |
| **Stacks & Queues** | Queue Reversal | Amazon + Morgain Stanley | | | | | | |
| **Stacks & Queues** | Implement Stack Queue using Deque | Microsoft +Atlassian | | | | | | |
| **Stacks & Queues** | Reverse first k elements of queue | Microsoft + Amdocs | | | | | | |
| **Stacks & Queues** | Design Stack with Middle Operation | MaQ Software | | | | | | |
| **Stacks & Queues** | Infix to Postfix | Amazon + Samsung + Paytm + Vmware inc | | | | | | |
| **Stacks & Queues** | Design and Implement Special stack | Amazon Google Microsoft Visa Goldman Sachs | | | | | | |
| **Stacks & Queues** | Longest Valid String | Google Microsoft | | | | | | |
| **Stacks & Queues** | Find if an expression has duplicate parenthesis or not | Flipkart Oracle OYO Rooms Snapdeal Walmart Yatra.com Microsoft Google | | | | | | |
| **Stacks & Queues** | Stack permutations check if an array is stack permutation of other | Visa | | | | | | |
| **Stacks & Queues** | Count natural numbers whose permutation greater number | Amazon | | | | | | |
| **Stacks & Queues** | Sort a stack using Recursion | Amazon Goldman Sachs IBM Intuit Kuliza Yahoo Microsoft | | | | | | |
| **Stacks & Queues** | Queue based approach for first non repeating character in a stream | Microsoft Flipkart | | | | | | |
| **Stacks & Queues** | The Celebrity Problem | Google + Visa + Apple | | | | | | |
| **Stacks & Queues** | Next larger Element | Visa | | | | | | |
| **Stacks & Queues** | Distance of nearest cell | Flipkar + Facebook | | | | | | |
| **Stacks & Queues** | Rotten-oranges | Facebook | | | | | | |
| **Stacks & Queues** | Next smaller element | Codenation | | | | | | |
| **Stacks & Queues** | Circular-tour | Codenation Flipkart | | | | | | |
| **Stacks & Queues** | Efficiently implement k-stacks single array | Flipkart | | | | | | |
| **Stacks & Queues** | The celebrity problem | Google + Visa + Apple | | | | | | |
| **Stacks & Queues** | Iterative tower of hanoi | Microsoft Flipkart | | | | | | |
| **Stacks & Queues** | Find the maximum of minimums for every window size in a given array | Amazon Microsoft Flipkart | | | | | | |
| **Stacks & Queues** | lru cache implementation | Microsoft + Uber + Alibaba | | | | | | |
| **Stacks & Queues** | Find a tour that visits all stations | Uber | | | | | | |
| | | | | | | | | |
| **Greedy** | Activity selection problem greedy algo | Facebook Morgan Stanley Flipkart | | | | | | |
| **Greedy** | Greedy algorithm to find minimum number of coins | Accolite Amazon Morgan Stanley Oracle Paytm Samsung Snapdeal Synopsys Visa Microsoft Google | | | | | | |
| **Greedy** | Minimum sum two numbers formed digits array-2 | Google | | | | | | |
| **Greedy** | Minimum sum absolute difference pairs two arrays | Amazon | | | | | | |
| **Greedy** | Find maximum height pyramid from the given array of objects | Flipkart Amazon | | | | | | |
| **Greedy** | Minimum cost for acquiring all coins with k extra coins allowed with every coin | | | | | | | |
| **Greedy** | Find maximum equal sum of every three stacks | Microsoft  Amazon Flipkart | | | | | | |
| **Greedy** | Job sequencing problem | Microsoft + Acolite | | | | | | |
| **Greedy** | Greedy algorithm egyptian fraction | | | | | | | |
| **Greedy** | Fractional knapsack problem | Microsoft | | | | | | |
| **Greedy** | Maximum length chain of pairs | Amazon Microsoft | | | | | | |
| **Greedy** | Find smallest number with given number of digits and digit sum | MAQ Software OYO Rooms | | | | | | |
| **Greedy** | Maximize sum of consecutive differences circular-array | Maccafe | | | | | | |
| **Greedy** | paper-cut minimum number squares | Google | | | | | | |
| **Greedy** | Lexicographically smallest array-k consecutive swaps | Amazon | | | | | | |
| **Greedy** | Problems-CHOCOLA | Flipkart | | | | | | |
| **Greedy** | Find minimum time to finish all jobs with given constraints | | | | | | | |
| **Greedy** | Job sequencing using disjoint set union | Samsung | | | | | | |
| **Greedy** | Rearrange characters string such that no two adjacent are same | Amazon Microsoft | | | | | | |
| **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 | | | | | | | |

| Category | Problem | Companies | | | |
|---|---|---|---|---|---|
| Greedy | Minimum Cost to cut a board into squares | Maccafe | | | |
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| | | | | | |
| Binary Trees | Maximum Depth of Binary Tree | Amazon Cadence India CouponDunia D-E-Shaw FactSet FreeCharge MakeMyTrip | | | |
| Binary Trees | Reverse Level Order Traversal | Amazon + Microsoft + flipkart + Adobe | | | |
| Binary Trees | Subtree of Another Tree | Amazon + Microsoft + Facebook | | | |
| Binary Trees | Invert Binary Tree | Amazon Hike | | | |
| Binary Trees | Binary Tree Level Order Traversal | Accolite Adobe Amazon Cisco D-E-Shaw Flipkart | | | |
| Binary Trees | Left View of Binary Tree | Microsoft + Adobe + Cisco Networking Academy | | | |
| Binary Trees | Right View of Binary Tree | Amdocs | | | |
| Binary Trees | ZigZag Tree Traversal | Amazon Cisco FactSet Hike Snapdeal Walmart Microsoft Flipkart | | | |
| Binary Trees | Create a mirror tree from the given binary tree | Accolite Adobe Amazon Belzabar EBay Goldman Sachs Microsoft Morgan Stanley Myntra Ola Cabs Paytm | | | |
| Binary Trees | Leaf at same level | Amazon | | | |
| Binary Trees | Check for Balanced Tree | Amazon Walmart Microsoft | | | |
| Binary Trees | Transform to Sum Tree | Amazon FactSet Microsoft Samsung Walmart | | | |
| Binary Trees | Check if Tree is Isomorphic | Amazon Microsoft | | | |
| Binary Trees | Same Tree | Amazon Microsoft Flipkart | | | |
| Binary Trees | Construct Binary Tree from Preorder and Inorder Traversal | Accolite Amazon Microsoft | | | |
| Binary Trees | Height of Binary Tree | Amazon Cadence India CouponDunia D-E-Shaw FactSet FreeCharge MakeMyTrip | | | |
| Binary Trees | Diameter of a Binary Tree | Amazon Microsoft OYO Rooms | | | |
| Binary Trees | Top View of Binary Tree | Microsoft + Adobe + Expedia Group | | | |
| Binary Trees | Bottom View of Binary Tree | DE Shaw India | | | |
| Binary Trees | Diagonal Traversal of Binary Tree | Amazon Microsoft | | | |
| Binary Trees | Boundary Traversal of binary tree | Accolite Amazon FactSet Hike Kritikal Solutions | | | |
| Binary Trees | Construct Binary Tree from String with Brackets | Microsoft Morgan Stanley OYO Rooms Payu Samsung Snapdeal Flipkart | | | |
| Binary Trees | Minimum swap required to convert binary tree to binary search tree | Adobe Amazon | | | |
| Binary Trees | Duplicate subtree in Binary Tree | Google | | | |
| Binary Trees | Check if a given graph is tree or not | Microsoft Amazon | | | |
| Binary Trees | Lowest Common Ancestor in a Binary Tree | Accolite Amazon American Express Cisco Expedia Flipkart MakeMyTrip Microsoft OYO Room | | | |
| Binary Trees | Min distance between two given nodes of a Binary Tree | Amazon Linkedin MakeMyTrip Ola Cabs Qualcomm Samsung | | | |
| Binary Trees | Duplicate Subtrees | Ola | | | |
| Binary Trees | Kth ancestor of a node in binary tree | Josh Technology Group | | | |
| Binary Trees | Binary Tree Maximum Path Sum | Samsung + Facebook | | | |
| Binary Trees | Serialize and Deserialize Binary Tree | Flipkart InMobi Linkedin MAQ Software Microsoft Paytm Quikr Yahoo | | | |
| Binary Trees | Binary Tree to DLL | Accolite Amazon Goldman Sachs Microsoft Morgan Stanley Salesforce Snapdeal | | | |
| Binary Trees | Print all k-sum paths in a binary tree | Accolite Amazon Goldman Sachs | | | |
| | | | | | |
| | | | | | |
| Binary Search Trees | Lowest Common Ancestor of a Binary Search Tree | Accolite Amazon Flipkart MAQ Software Microsoft Samsung Synopsys | | | |
| Binary Search Trees | Binary Search Tree | Set 1 (Search and Insertion) | Accolite Amazon Microsoft Paytm Samsung | | | |
| Binary Search Trees | Minimum element in BST | Microsoft | | | |
| Binary Search Trees | Predecessor and Successor | Google + Adobe + Goladman Sachs + Direct | | | |
| Binary Search Trees | Check whether BST contains Dead End | Walmart | | | |
| Binary Search Trees | Binary Tree to BST | HSBC | | | |
| Binary Search Trees | Kth largest element in BST | Accolite Amazon Samsung SAP Labs Microsoft | | | |
| Binary Search Trees | Validate Binary Search Tree | OYO Rooms Qualcomm Samsung Snapdeal VMWare Walmart Wooker Amazon Facebook | | | |
| Binary Search Trees | Kth Smallest Element in a BST | Accolite Amazon Google | | | |
| Binary Search Trees | Delete Node in a BST | Adobe Barclays | | | |
| Binary Search Trees | Flatten BST to sorted list | Microsoft | | | |
| Binary Search Trees | Preorder to Postorder | Amazon Linkedin Flipkart | | | |
| Binary Search Trees | Count BST nodes that lie in a given range | D-E-Shaw Google | | | |
| Binary Search Trees | Populate Inorder Successor for all Nodes | Sap labs | | | |
| Binary Search Trees | Convert Normal BST to Balanced BST | Paytm | | | |
| Binary Search Trees | Merge two BSTs | DE Shaw India | | | |
| Binary Search Trees | Given n appointments, find all conflicting appointments | Samsung | | | |
| Binary Search Trees | Replace every element | Samsung | | | |
| Binary Search Trees | Construct BST from given preorder traversal | Adobe Morgan Stanley Microsoft | | | |
| Binary Search Trees | Find median of BST in O(n) time and O(1) space | Amazon | | | |
| Binary Search Trees | Largest BST in a Binary Tree | Amazon D-E-Shaw Samsung Microsoft Flipkart | Important | | |
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| | | | | | |
| Heaps & Hashing | Choose k array elements such that difference of maximum and minimum is minimized | | | | |
| Heaps & Hashing | Heap Sort | Adobe | | | |
| Heaps & Hashing | Top K Frequent Elements | Amazon Microsoft | | | |
| Heaps & Hashing | k largest elements in an array | Amazon Microsoft Walmart Adobe | | | |
| Heaps & Hashing | Next Greater Element | Amazon + Microsoft + Flipkart + Adobe | | | |
| Heaps & Hashing | K'th Smallest/Largest Element in Unsorted Array | ABCO Accolite Amazon Cisco Hike Microsoft Snapdeal VMWare Google Adobe | | | |

| Category | Problem | Companies | | |
|---|---|---|---|---|
| Heaps & Hashing | Find the maximum repeating number in O(n) time and O(1) extra space | Accolite Amazon | | |
| Heaps & Hashing | K-th smallest element after removing some integers from natural numbers | ABCO Accolite Amazon Cisco Hike Microsoft Snapdeal VMWare Google Adobe | | |
| Heaps & Hashing | Find k closest elements to a given value | Amazon OYO Rooms | | |
| Heaps & Hashing | K'th largest element in a stream | Amazon Cisco Hike OYO Rooms Walmart Microsoft Flipkart | | |
| Heaps & Hashing | Connect Ropes | Amazoon + Oyo + Goldman Sachs | | |
| Heaps & Hashing | Cuckoo Hashing | Amaxon | | |
| Heaps & Hashing | Itinerary from a List of Tickets | Microsoft + Ola + eBay | | |
| Heaps & Hashing | Largest Subarray with 0 Sum | Amazon MakeMyTrip Microsoft | | |
| Heaps & Hashing | Count distinct elements in every window of size_k | Accolite Amazon Microsoft | | |
| Heaps & Hashing | Group Shifted Strings | Oracle | | |
| Heaps & Hashing | Merge K Sorted lists | Microsoft + Ola + eBay | | |
| Heaps & Hashing | Find Median from Data Stream | Adobe Amazon Apple Belzabar D-E-Shaw Facebook Flipkart Google Intuit Microsoft Morgan Stanley Ola Cabs Oracle Samsung SAP Labs Yahoo | | |
| Heaps & Hashing | Sliding Window Maximum | Amazon Directi Flipkart Microsoft Google | | |
| Heaps & Hashing | Find the smallest positive number | Accolite Amazon Samsung Snapdeal | | |
| Heaps & Hashing | Find Surpasser Count of each element in array | Amazon Morgan Stanley Ola Cabs SAP Labs | | |
| Heaps & Hashing | Tournament Tree and Binary Heap | Amazon Ola Cabs Samsung Synopsys Walmart Microsoft | | |
| Heaps & Hashing | Check for palindrome | Amazon Cisco D-E-Shaw Facebook FactSet Morgan Stanley Paytm Zoho | | |
| Heaps & Hashing | Length of the largest subarray with contiguous elements | Amazon Intuit Microsoft | | |
| Heaps & Hashing | Palindrome Substring Queries | Amazon Morgan Stanley Ola Cabs SAP Labs | | |
| Heaps & Hashing | Subarray distinct elements | Microsoft + Ola + eBay | | |
| Heaps & Hashing | Find the recurring function | MAQ Software | | |
| Heaps & Hashing | K maximum sum combinations from two arrays | Amazon | | |
| | | | | |
| Graphs | BFS | Samsung + Delhivery + SAP Labs | | |
| Graphs | DFS | Samsung + Intuit + Goldman Sachs | | |
| Graphs | Flood Fill Algorithm | Google + Adobe + Apple | | |
| Graphs | Number of Triangles | IBM | | |
| Graphs | Detect cycle in a graph | Lenskart | | |
| Graphs | Detect cycle in an undirected graph | Samsung | | |
| Graphs | Rat in a Maze Problem | Sharechat + Directi | | |
| Graphs | Steps by Knight | Samsung | | |
| Graphs | Clone graph | Google + MAQ Software + Apple + Facebook | | |
| Graphs | Number of Operations to Make Network Connected | Samsung | | |
| Graphs | Dijkstra's shortest path algorithm | Amazon | | |
| Graphs | Topological Sort | Amazon + Google + Flipkart + Oyo + Fipkart + Samsung | | |
| Graphs | Oliver and the Game | Sharechat + Directi | | |
| Graphs | Minimum time taken by each job to be completed given by a Directed Acyclic Graph | Amazon | | |
| Graphs | Find whether it is possible to finish all tasks or not from given dependencies | Directi + Sharechat | | |
| Graphs | Find the number of islands | Razorpay | | |
| Graphs | Prim's Algo | Visa | | |
| Graphs |  Negative Weighted Cycle | Amazon | | |
| Graphs | Floyd Warshall | Google + Uber | | |
| Graphs | Graph Coloring | Morgan Stanley | | |
| Graphs | Snakes and Ladders | Goldman Sachs +Makemytrip | | |
| Graphs | Kosaraju's Theorem | Paytm | | |
| Graphs | Journey to moon | Lenskart + Payload | | |
| Graphs | Vertex Cover | Intuit | | |
| Graphs | M Coloring Problem | Uber | | |
| Graphs | Cheapest Flights Within K Stops | Uber + Paypal | | |
| Graphs | Find if there is a path of more than k length from a source | Cisco + Intuit | | |
| Graphs | Bellman Ford | Sharechat + Directi | | |
| Graphs | Bipartitie Graph | Microsoft Flipkart | | |
| Graphs | Word-Ladder | Microsoft | | |
| Graphs | Allen Dictionary | Samsung | | |
| Graphs | Kruskals MST | Amazon Cisco Samsung | Important | |
| Graphs | Total number spanning trees graph | Amazon Cisco Samsung Microsoft Flipkart | | |
| Graphs | Travelling Salesman | Google + Microsoft + Opera | Important | |
| Graphs | Find longest path directed acyclic graph | Google | | |
| Graphs | Two Clique Problem | Microsoft | | |
| Graphs | Minimise the cash flow | Intuit + Uber | | |
| Graphs | Chinese postman | Intuit | | |
| Graphs | Water Jug | Intuit + Uber | | |
| Graphs | Water Jug 2 | MakeMyTrip MAQ Software | | |
| | | | | |
| Tries | Construct a trie from scratch | Accolite Amazon D-E-Shaw FactSet Microsoft | | |

| Category | Problem | Companies |
|---|---|---|
| Tries | Print unique rows in a given boolean matrix | Amazon Zoho |
| Tries | Word Break Problem \| (Trie solution) | Amazon Google Hike IBM MAQ Software Microsoft Walmart Zoho |
| Tries | Given a sequence of words, print all anagrams together | Amazon D-E-Shaw Goldman Sachs Morgan Stanley Snapdeal Microsoft |
| Tries | Find shortest unique prefix for every word in a given list | Microsoft Google |
| Tries | Implement a Phone Directory | Amazon + Microsoft + Snapdeal |
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| DP | Knapsack with Duplicate Items | Amazon |
| DP | BBT counter | Microsoft |
| DP | Reach a given score | Samsung |
| DP | Maximum difference of zeros and ones in binary string | Ola |
| DP | Climbing Stairs | Intuit |
| DP | Permutation Coefficient | Amazon |
| DP | Longest Repeating Subsequence | Google + Amazon |
| DP | Pairs with specific difference | Ola |
| DP | Longest subsequence-1 | Amazon |
| DP | Coin Change | Microsoft+ Samsung + Barclays + Apple + Adobe |
| DP | LIS | Amazon + Google + Facebook + Fidelity International |
| DP | Longest Common Subsequence | Siemens + Amazon + Google |
| DP | Word Break | Amazon + Google + Microsoft + Walmart + Apple + IBM |
| DP | Combination Sum IV | Adobe Amazon Microsoft |
| DP | House Robber | Apple + Uber |
| DP | Houe Robber 2 | Arrays Dynamic Programming |
| DP | Decode Ways | Adobe + Uber |
| DP | Unique Paths | Google + Microsoft |
| DP | Jumps Game | Facebook Amazon Microsoft Google |
| DP | Knapsack Problem | Amazon Directi Flipkart GreyOrange Microsoft Mobicip Morgan Stanley Oracle Payu Snapdeal Visa |
| DP | nCr | Google |
| DP | Catalan Number | Amazon + Google |
| DP | Edit Distance | Google + Goldman Sachs + Citrix |
| DP | Subset Sum | Amazon + Google |
| DP | Gold mine | Samsung |
| DP | Assembly Line Scheduling | Goldman Sachs |
| DP | Maximize The Cut Segments | Amazon OYO Rooms Microsoft |
| DP | Maximum sum increasing subsequence | Amazon Morgan Stanley Microsoft |
| DP | Count all subsequences having product less than K | Goldman Sachs |
| DP | Maximum sum increasing subsequence | Amazon Morgan Stanley Microsoft |
| DP | Egg dropping puzzle | Amazon D-E-Shaw Goldman Sachs Google Hike MakeMyTrip MAQ Software Myntra Nearbuy Opera Oracle Philips Samsung Service Now Unisys VMWare Microsoft |
| DP | Max length chain | Amazon Microsoft |
| DP | Largest Square in Matrix | Amazon Samsung |
| DP | Maximum Path Sum | Amazon + Microsoft + Oyo + Directi |
| DP | Minimum Number of Jumps | Adobe Amazon Housing.com Moonfrog Labs Walmart Microsoft Google Flipkart |
| DP | Minimum removals from array to make max – min <= K | Amazon |
| DP | Longest Common Substring | Webarch Club |
| DP | Partition Equal Subset Sum | Amazon + Accolite + Traveloca + Adobe |
| DP | Longest Palindromic Subsegunce | Amazon Google |
| DP | Count Palindromic Subsequences | Myntra |
| DP | Longest Palindromic Substring | Amazon + Microsoft + Samsung + Visa |
| DP | Longest Alternating Sequence | Ola |
| DP | Weighted Job Scheduling | Intuit |
| DP | Coin Game | Salesforce |
| DP | Coin Game Winner | Ola |
| DP | Optimal Strategy for a game | Google + IBM |
| DP | Word Wrap | Microsoft |
| DP | Mobile numeric keypad | Amazon Microsoft |
| DP | Maximum Length of Pair Chain | Amazon Microsoft |
| DP | Matrix Chain Multiplication | Walmart + Flipkart |
| DP | Maximum profit by buying and selling a share at most twice | Accolite Amazon Microsoft |
| DP | Optimal BST | Google |
| DP | Largest Submatrix with sum 0 | Amazon MakeMyTrip Microsoft |
| DP | Largest area rectangular sub-matrix with equal number of 1's and 0's | Amazon Directi Intuit MakeMyTrip Microsoft Samsung Google Flipkart |
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| Bit Manipulation | Count set bits in an integer | Adobe Apple |
| Bit Manipulation | Find the two non-repeating elements in an array of repeating elements | Accolite Amazon FactSet Google MakeMyTrip Microsoft Qualcomm Samsung |
| Bit Manipulation | Program to find whether a no is power of two | Adobe |
| Bit Manipulation | Find position of the only set bit | Microsoft |

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|---|---|---|---|---|---|---|---|---|---|---|
| Bit Manipulation | Count number of bits to be flipped to convert A to B | Maq Software | | | | | | | | |
| Bit Manipulation | Count total set bits in all numbers from 1 to n | Microsoft | | | | | | | | |
| Bit Manipulation | Copy set bits in a range | Facebook | | | | | | | | |
| Bit Manipulation | Calculate square of a number without using *, / and pow() | Amazon | | | | | | | | |
| Bit Manipulation | Divide two integers without using multiplication, division and mod operator | Microsoft | | | | | | | | |
| Bit Manipulation | Power Set | Google + Adobe + Paytm | | | | | | | | |
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| Segment Trees | Range Sum Query - Immutable | | | | | | | | | |
| Segment Trees | Range Minimum Query | Google Interview Qs | | | | | | | | |
| Segment Trees | Range Sum Query - Mutable | Alibaba | | | | | | | | |
| Segment Trees | Create Sorted Array through Instructions | Samsung + Accolite | | | | | | | | |
| Segment Trees | Count of Range Sum | Walmart | | | | | | | | |
| Segment Trees | Count of Smaller Numbers After Self | Codenation Google | | | | | | | | |

# DSA by Shradha Didi & Aman Bhaiya

## Meet us on Youtube (Apna College)

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

| Topics | Question | Remarks |
|---|---|---|
| | | |
| **Strings** | Edit Distance | use Dynaming Programming (if possible) |
| | | |
| | | |
| **Searching & Sorting** | Sort a Nearly Sorted (or K sorted) Array | |
| **Searching & Sorting** | How to Efficiently Sort a Big List Dates in 20's | |
| **Searching & Sorting** | find a repeating and a missing number | |
| **Searching & Sorting** | sort array according count set bits | |
| **Searching & Sorting** | Minimum Swaps to Make Two Array Identical | |
| **Searching & Sorting** | Insert in Sorted and Non-Overlapping Interval Array | |
| **Searching & Sorting** | 3-Way QuickSort | |
| | | |
| | | |
| **Backtracking** | Find if There is a Path of More Than k Length From a Source | |
| **Backtracking** | Match a Pattern and String without Using Regular Expressions | |
| | | |
| | | |
| **Linked List** | Josephus Circle implementation using STL list | |
| **Linked List** | Find a triplet from three linked lists with sum equal to a given Number | |
| **Linked List** | Pair with given sum | |

| | | | |
|---|---|---|---|
| **Linked List** | Select a random node from a singly linked list | | |
| **Linked List** | First non repeating character | | |
| | | | |
| | | | |
| **Stacks & Queues** | Implement Stack using Queue or heap | | |
| **Stacks & Queues** | Sum of minimum-maximum elements subarrays size-k | | |
| **Stacks & Queues** | Minimum time required so that all oranges become rotten | | |
| **Stacks & Queues** | Efficiently implement k-queues single array | | |
| | | | |
| | | | |
| **Greedy** | Maximize array sum after k-negation operations | | |
| **Greedy** | Program for shortest job first or sjf-cpu scheduling set 1 non-preemptive | | |
| | | | |
| | | | |
| **Binary Trees** | Check Mirror in N-ary tree | | |
| **Binary Trees** | Maximum sum of nodes in Binary tree such that no two are adjacent | | |
| | | | |
| | | | |
| **Binary Search Trees** | Brothers From Different Roots | | |
| | | | |
| | | | |
| **Heaps & Hashing** | Check the condition | | |
| **Heaps & Hashing** | Check if an array can be divided into pairs whose sum is divisible by k | | |
| **Heaps & Hashing** | Design a effective DSA | | |
| **Heaps & Hashing** | Find number of Employees Under every Manager | | |
| **Heaps & Hashing** | Pancake Sorting | | |
| | | | |
| | | | |
| **Graphs** | Bride in a graph | | |
| **Graphs** | Seven Bridges of Königsberg | | |

| Graphs | Minimum edges to reverse to make path from a source to a destination | | |
|---|---|---|---|
| | | | |
| | | | |
| DP | Maximum Sum Rectangle | | |
| DP | Interleaved Strings | | |
| DP | Painting the Fence | | |
| DP | Largest independent Set | | |
| DP | Minimum cost to fill given weight in a bag | | |
| DP | Boolean Parenthesization | | |
| DP | Maximum Profit | | |
| DP | Palindromic Partitioning | | |