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**INSTITUTE OF AERONAUTICAL ENGINEERING**

**(Autonomous)**

DUNDIGAL – 500 043, HYDERABAD

**Problems Challenge**

**Top problems asked in Product Based Companies like Amazon, Google, Microsoft, Flipkart, DBS, Facebook, Intuit, Accolite, Walmart Labs, Paytm, Jp Morgan, Linkedin, Intel, Cisco, Goldmasn Sachs, PayPal, Adobe, Informatica and Oracle**

ARRAYS

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Reshape the Matrix | [**Click here**](https://leetcode.com/problems/reshape-the-matrix/) | **Easy** |
| **2** | 3 sum | [**Click here**](https://leetcode.com/problems/3sum/) | **Medium** |
| **3** | Print Words Vertically | [**click here**](https://leetcode.com/problems/print-words-vertically/) | **Medium** |
| **4** | Partition Labels | [**click here**](https://leetcode.com/problems/partition-labels/) | **Medium** |

Two Pointers

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Replace the Substring for Balanced String | [**Click here**](https://leetcode.com/problems/replace-the-substring-for-balanced-string/) | **Easy** |
| **2** | Intersection of Two Arrays II | [**Click here**](https://leetcode.com/problems/intersection-of-two-arrays-ii/) | **Medium** |
| **3** | Subarray Sum Equals K | [**Click here**](https://leetcode.com/problems/subarray-sum-equals-k/) | **Medium** |
| **4** | Smallest Range Covering Elements from K Lists | [**Click here**](https://leetcode.com/problems/smallest-range-covering-elements-from-k-lists/) | **Medium** |
| **5** | Longest Substring Without Repeating Characters | [**Click here**](https://leetcode.com/problems/longest-substring-without-repeating-characters/) | **Medium** |
| **6** | Container With Most Water | [**Click here**](https://leetcode.com/problems/container-with-most-water/) | **Medium** |
| **7** | Move Zeroes | [**Click here**](https://leetcode.com/problems/move-zeroes/solution/) | **Medium** |

STACK AND QUEUE

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Minimum Remove to Make Valid Parentheses | [**Click here**](https://leetcode.com/problems/minimum-remove-to-make-valid-parentheses/) | **Medium** |
| **2** | Score of Parentheses | [**Click here**](https://leetcode.com/problems/score-of-parentheses/) | **Medium** |
| **3** | Validate Stack Sequences | [**Click here**](https://leetcode.com/problems/validate-stack-sequences/) | **Medium** |
| **4** | Find Duplicate File in System | [**Click here**](https://leetcode.com/problems/find-duplicate-file-in-system/) | **Medium** |
| **5** | Next Greater Element II | [**Click here**](https://leetcode.com/problems/next-greater-element-ii/) | **Medium** |
| **6** | Remove All Adjacent Duplicates In String | [**Click here**](https://leetcode.com/problems/remove-all-adjacent-duplicates-in-string/) | **Medium** |

GREEDY

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Best Time to Buy and Sell Stock || | [**Click here**](https://leetcode.com/problems/best-time-to-buy-and-sell-stock-ii/) | **Easy** |
| **2** | Is Subsequence | [**Click here**](https://leetcode.com/problems/is-subsequence/) | **Easy** |
| **3** | Two City Scheduling | [**Click here**](https://leetcode.com/problems/two-city-scheduling/) | **Easy** |
| **4** | Queue Reconstruction by Height | [**Click here**](https://leetcode.com/problems/queue-reconstruction-by-height/) | **Medium** |
| **5** | Minimum Add to Make Parenthesis Valid | [**Click here**](https://leetcode.com/problems/minimum-add-to-make-parentheses-valid/) | **Medium** |
| **6** | Reduce Array Size to the Half | [**Click here**](https://leetcode.com/problems/reduce-array-size-to-the-half/) | **Medium** |

HEAP

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Kth Smallest Element in a Sorted Matrix | [**Click here**](https://leetcode.com/problems/kth-smallest-element-in-a-sorted-matrix/) | **Medium** |
| **2** | Split Array into Consecutive Subsequences | [**Click here**](https://leetcode.com/problems/split-array-into-consecutive-subsequences/) | **Medium** |
| **3** | Top K Frequent Words | [**Click here**](https://leetcode.com/problems/top-k-frequent-words/) | **Medium** |
| **4** | K Closest Points to Origin | [**Click here**](https://leetcode.com/problems/k-closest-points-to-origin/) | **Medium** |
| **5** | Distant Barcodes | [**Click here**](https://leetcode.com/problems/distant-barcodes/) | **Medium** |
| **6** | The Skyline Problem | [**Click here**](https://leetcode.com/problems/the-skyline-problem/) | **Hard** |
| **7** | Minimum Cost to Hire K Workers | [**Click here**](https://leetcode.com/problems/minimum-cost-to-hire-k-workers/) | **Hard** |

LINKED LIST

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Merge Two Sorted Lists | [**Click here**](https://leetcode.com/problems/merge-two-sorted-lists/) | **Easy** |
| **2** | Palindrome Linked List | [**Click here**](https://leetcode.com/problems/palindrome-linked-list/) | **Easy** |
| **3** | Swap Nodes in Pairs | [**Click here**](https://leetcode.com/problems/swap-nodes-in-pairs/) | **Medium** |
| **4** | Partition List | [**Click here**](https://leetcode.com/problems/partition-list/) | **Medium** |
| **5** | Reverse Linked List || | [**Click here**](https://leetcode.com/problems/reverse-linked-list-ii/) | **Medium** |
| **6** | Sort List | [**Click here**](https://leetcode.com/problems/sort-list/) | **Medium** |
| **7** | Flatten a Multi level Doubly Linked List | [**Click here**](https://leetcode.com/problems/flatten-a-multilevel-doubly-linked-list/) | **Medium** |
| **8** | Add Two Numbers || | [**Click here**](https://leetcode.com/problems/add-two-numbers-ii/) | **Medium** |
| **9** | Split Linked List in Parts | [**Click here**](https://leetcode.com/problems/split-linked-list-in-parts/) | **Medium** |
| **10** | Next Greater Node in Linked LIst | [**Click here**](https://leetcode.com/problems/next-greater-node-in-linked-list/) | **Medium** |

GRAPH

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Sort Integers by The Power Value | [**Click here**](https://leetcode.com/problems/sort-integers-by-the-power-value/) | **Medium** |

BFS

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | [Pacific Atlantic Water Flow](https://leetcode.com/problems/pacific-atlantic-water-flow/) | [**Click here**](https://leetcode.com/problems/pacific-atlantic-water-flow/) | **Medium** |
| **2** | [Minesweeper](https://leetcode.com/problems/minesweeper/) | [**Click here**](https://leetcode.com/problems/minesweeper/) | **Medium** |
| **3** | [Open the Lock](https://leetcode.com/problems/open-the-lock/) | [**Click here**](https://leetcode.com/problems/open-the-lock/) | **Medium** |
| **4** | [Snakes and Ladders](https://leetcode.com/problems/snakes-and-ladders/) | [**Click here**](https://leetcode.com/problems/snakes-and-ladders/) | **Medium** |
| **5** | Shortest Path With Alternating Colors | [**Click here**](https://leetcode.com/problems/shortest-path-with-alternating-colors/) | **Medium** |
| **6** | [As Far from Land as Possible](https://leetcode.com/problems/as-far-from-land-as-possible/) | [**Click here**](https://leetcode.com/problems/as-far-from-land-as-possible/) | **Medium** |
| **7** | [Check if There is a Valid Path in a Grid](https://leetcode.com/problems/check-if-there-is-a-valid-path-in-a-grid/) | [**Click here**](https://leetcode.com/problems/check-if-there-is-a-valid-path-in-a-grid/) | **Medium** |

DFS

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Max Area of Island | [**Click here**](https://leetcode.com/problems/max-area-of-island/) | **Medium** |
| **2** | Number of Closed Islands | [**Click here**](https://leetcode.com/problems/number-of-closed-islands/) | **Medium** |
| **3** | Surrounded Regions | [**Click here**](https://leetcode.com/problems/surrounded-regions/) | **Medium** |
| **4** | Shortest Bridge | [**Click here**](https://leetcode.com/problems/shortest-bridge/) | **Medium** |
| **5** | Keys and Rooms | [**Click here**](https://leetcode.com/problems/keys-and-rooms/) | **Medium** |
| **6** | Jump Game III | [**Click here**](https://leetcode.com/problems/jump-game-iii/) | **Medium** |
| **7** | Evaluate Division | [**Click here**](https://leetcode.com/problems/evaluate-division/) | **Medium** |
| **8** | Is Graph Bipartite? | [**Click here**](https://leetcode.com/problems/is-graph-bipartite/) | **Medium** |
| **9** | Clone Graph | [**Click here**](https://leetcode.com/problems/clone-graph/) | **Medium** |
| **10** | Course Schedule | [**Click here**](https://leetcode.com/problems/course-schedule/) | **Medium** |
| **11** | Course Schedule II | [**Click here**](https://leetcode.com/problems/course-schedule-ii/) | **Medium** |
| **12** | Find Eventual Safe States | [**Click here**](https://leetcode.com/problems/find-eventual-safe-states/) | **Medium** |
| **13** | Course Schedule IV | [**Click here**](https://leetcode.com/problems/course-schedule-iv/) | **Medium** |

DJISKTRAS

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | [Network Delay Time](https://leetcode.com/problems/network-delay-time/) | [**Click here**](https://leetcode.com/problems/network-delay-time/) | **Medium** |

UNION FIND

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | [Number of Operations to Make Network Connected](https://leetcode.com/problems/number-of-operations-to-make-network-connected/) | [**Click here**](https://leetcode.com/problems/number-of-operations-to-make-network-connected/) | **Medium** |
| **2** | [Minimum Size Subarray Sum](https://leetcode.com/problems/minimum-size-subarray-sum/) | [**Click here**](https://leetcode.com/problems/minimum-size-subarray-sum/) | **Medium** |
| **3** | Longest Consecutive Sequence | [**Click here**](https://leetcode.com/problems/longest-consecutive-sequence/) | **Hard** |
| **4** | Couples Holding Hands | [**Click here**](https://leetcode.com/problems/couples-holding-hands/) | **Hard** |
| **5** | Swim in Rising Water | [**Click here**](https://leetcode.com/problems/swim-in-rising-water/) | **Hard** |

TREE

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Search in a Binary Search Tree | [**Click here**](https://leetcode.com/problems/search-in-a-binary-search-tree/) | **Easy** |
| **2** | Maximum Depth of N-ary Tree | [**Click here**](https://leetcode.com/problems/maximum-depth-of-n-ary-tree/) | **Easy** |
| **3** | Sum of Root To Leaf Binary Numbers | [**Click here**](https://leetcode.com/problems/sum-of-root-to-leaf-binary-numbers/) | **Easy** |
| **4** | Leaf-Similar Trees | [**Click here**](https://leetcode.com/problems/leaf-similar-trees/) | **Easy** |
| **5** | Average of Levels in Binary Tree | [**Click here**](https://leetcode.com/problems/average-of-levels-in-binary-tree/) | **Easy** |
| **6** | Same Tree | [**Click here**](https://leetcode.com/problems/same-tree/) | **Easy** |
| **7** | Construct String from Binary Tree | [**Click here**](https://leetcode.com/problems/construct-string-from-binary-tree/) | **Easy** |
| **8** | Diameter of Binary Tree | [**Click here**](https://leetcode.com/problems/diameter-of-binary-tree/) | **Easy** |
| **9** | Binary Tree Inorder Traversal | [**Click here**](https://leetcode.com/problems/binary-tree-inorder-traversal/) | **Medium** |
| **10** | Find Bottom Left Tree Value | [**Click here**](https://leetcode.com/problems/find-bottom-left-tree-value/) | **Medium** |
| **11** | Find Largest Value in Each Tree Row | [**Click here**](https://leetcode.com/problems/find-largest-value-in-each-tree-row/) | **Medium** |
| **12** | Binary Tree Preorder Traversal | [**Click here**](https://leetcode.com/problems/binary-tree-preorder-traversal/) | **Medium** |
| **13** | Binary Tree Level Order Traversal | [**Click here**](https://leetcode.com/problems/binary-tree-level-order-traversal/) | **Medium** |
| **14** | Binary Tree Right Side View | [**Click here**](https://leetcode.com/problems/binary-tree-right-side-view/) | **Medium** |
| **15** | Binary Tree Pruning | [**Click here**](https://leetcode.com/problems/binary-tree-pruning/) | **Medium** |
| **16** | Delete Leaves With a Given Value | [**Click here**](https://leetcode.com/problems/delete-leaves-with-a-given-value/) | **Medium** |
| **17** | All Nodes Distance K in Binary Tree | [**Click here**](https://leetcode.com/problems/all-nodes-distance-k-in-binary-tree/) | **Medium** |

BINARY SEARCH TREE

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Two Sum IV - Input is a BST | [**Click here**](https://leetcode.com/problems/two-sum-iv-input-is-a-bst/) | **Easy** |
| **2** | Convert BST to Greater Tree | [**Click here**](https://leetcode.com/problems/convert-bst-to-greater-tree/) | **Easy** |
| **3** | Kth Smallest Element in a BST | [**Click here**](https://leetcode.com/problems/kth-smallest-element-in-a-bst/) | **Medium** |
| **4** | Serialize and Deserialize BST | [**Click here**](https://leetcode.com/problems/serialize-and-deserialize-bst/) | **Medium** |
| **5** | Binary Search Tree to Greater Sum Tree | [**Click here**](https://leetcode.com/problems/binary-search-tree-to-greater-sum-tree/) | **Medium** |
| **6** | Balance a Binary Search Tree | [**Click here**](https://leetcode.com/problems/balance-a-binary-search-tree/) | **Medium** |

BINARY TREE

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Count Negative Numbers in a Sorted Matrix | [**Click here**](https://leetcode.com/problems/count-negative-numbers-in-a-sorted-matrix/) | **Easy** |
| **2** | Search Insert Position | [**Click here**](https://leetcode.com/problems/search-insert-position/) | **Easy** |
| **3** | Koko Eating Bananas | [**Click here**](https://leetcode.com/problems/koko-eating-bananas/) | **Medium** |
| **4** | Find the Duplicate Number | [**Click here**](https://leetcode.com/problems/find-the-duplicate-number/) | **Medium** |
| **5** | Find Minimum in Rotated Sorted Array | [**Click here**](https://leetcode.com/problems/find-minimum-in-rotated-sorted-array/) | **Medium** |
| **6** | Search in Rotated Sorted Array | [**Click here**](https://leetcode.com/problems/search-in-rotated-sorted-array/) | **Medium** |
| **7** | Pow(x, n) | [**Click here**](https://leetcode.com/problems/powx-n/) | **Medium** |
| **8** | Ugly Number III | [**Click here**](https://leetcode.com/problems/ugly-number-iii/) | **Medium** |
| **9** | Divide Two Integers | [**Click here**](https://leetcode.com/problems/divide-two-integers/) | **Medium** |

MATH

| **S.no** | **Problem Name** | **Source** | **Level** |
| --- | --- | --- | --- |
| **1** | Reverse Integer | [**Click here**](https://leetcode.com/problems/reverse-integer/) | **Easy** |
| **2** | Add Two Numbers | [**Click here**](https://leetcode.com/problems/add-two-numbers/) | **Medium** |
| **3** | Optimal Division | [**Click here**](https://leetcode.com/problems/optimal-division/) | **Medium** |
| **4** | Closest Divisors | [**Click here**](https://leetcode.com/problems/closest-divisors/) | **Medium** |
| **5** | Clumsy Factorial | [**Click here**](https://leetcode.com/problems/clumsy-factorial/) | **Medium** |
| **6** | Fraction Addition and Subtraction | [**Click here**](https://leetcode.com/problems/fraction-addition-and-subtraction/) | **Medium** |
| **7** | Solve the Equation | [**Click here**](https://leetcode.com/problems/solve-the-equation/) | **Medium** |
| **8** | Perfect Squares | [**Click here**](https://leetcode.com/problems/perfect-squares/) | **Medium** |
| **9** | Integer to Roman | [**Click here**](https://leetcode.com/problems/integer-to-roman/) | **Medium** |
| **10** | Prime Palindrome | [**Click here**](https://leetcode.com/problems/prime-palindrome/) | **Medium** |
| **11** | Rectangle Area | [**Click here**](https://leetcode.com/problems/rectangle-area/) | **Medium** |
| **12** | Airplane Seat Assignment Probability | [**Click here**](https://leetcode.com/problems/airplane-seat-assignment-probability/) | **Medium** |
| **13** | Statistics from a Large Sample | [**Click here**](https://leetcode.com/problems/statistics-from-a-large-sample/) | **Medium** |
| **14** | Convert to Base -2 | [**Click here**](https://leetcode.com/problems/convert-to-base-2/) | **Medium** |