1. Arrays

Basics

1. Set Matrix Zeros
2. Sort an Array of 0's, 1's, and 2's
3. Remove Duplicates from Sorted Array
4. Find the Duplicate in an Array of N+1 Integers
5. Repeat and Missing Number
6. Inversion of Array (Pre-req: Merge Sort)
7. Maximum Product Subarray
8. Rotate Matrix (In-place Rotation of NxN Matrix)

Subarray Problems

9. Kadanes Algorithm (Maximum Subarray Sum)
10. Largest Subarray with K Sum
11. Count Number of Subarrays with Given XOR K
12. Maximum Product Subarray

Sorting and Searching

13. Search in a 2D Matrix
14. Search Element in a Sorted and Rotated Array
15. Median of 2 Sorted Arrays
16. K-th Element of Two Sorted Arrays
17. Merge Overlapping Subintervals
18. Merge Two Sorted Arrays Without Extra Space
19. Next Permutation
20. Merge K Sorted Arrays (Using Min-Heap)

Window/Two Pointer Techniques

21. 2 Sum Problem
22. 3 Sum Problem
23. 4 Sum Problem
24. Longest Consecutive Sequence
25. Sliding Window Maximum
26. Max Consecutive Ones
27. Trapping Rainwater
28. Container with Most Water

Matrix Problems

29. Grid Unique Paths

30. Matrix Median

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2. Strings

Basics

31. Reverse Words in a String
32. Longest Palindromic Substring
33. Implement ATOI/STRSTR
34. Largest Common Prefix
35. Rabin-Karp Algorithm
36. KMP Algorithm (LPS Array)
37. Power Set (All Subsequences of a String/Array)

Palindrome Problems

38. Minimum Characters to Make Palindrome
39. Check for Anagrams
40. Palindromic Partitioning
41. Longest Palindromic Subsequence

Pattern Matching

42. Count and Say
43. Compare Version Numbers
44. Longest String with All Prefixes
45. Number of Distinct Substrings in a String

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3. Linked Lists

Basics

46. Reverse a LinkedList
47. Find Middle of LinkedList
48. Merge Two Sorted Linked Lists
49. Remove N-th Node from Back of LinkedList
50. Add Two Numbers as Linked List
51. Delete a Given Node
52. Convert Binary Tree to Doubly Linked List
53. Serialize and Deserialize a Linked List

Cycle and Advanced Problems

54. Detect a Cycle in LinkedList
55. Find Starting Point of Cycle

56. Reverse a LinkedList in Groups of Size K
57. Check if LinkedList is Palindrome
58. Flattening of a LinkedList
59. Clone a LinkedList with Random Pointers
60. Rotate a Linked List
61. Find Intersection Point of Two Linked Lists

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4. Stacks and Queues

Stack Basics

62. Implement Stack Using Arrays
63. Sort a Stack
64. Next Greater Element
65. Next Smaller Element
66. Largest Rectangle in Histogram
67. The Stock Span Problem (Stack-Based)
68. Calculate Histogram Maximum Area (Stack Optimization)

Queue Basics

69. Implement Queue Using Arrays
70. Implement Queue Using Stack
71. Rotten Oranges (Using BFS)
72. Stock Span Problem
73. Sliding Window Maximum

LRU and LFU Caches

74. LRU Cache
75. LFU Cache

Other Stack/Queue Problems

76. The Celebrity Problem
77. Implement Min Stack

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5. Binary Trees and BST

Tree Traversals

78. Inorder Traversal
79. Preorder Traversal
80. Postorder Traversal
81. Morris Preorder Traversal

82. Level Order Traversal
83. Zig-Zag Traversal

Tree Views

84. Left View of Binary Tree
85. Top View of Binary Tree
86. Bottom View of Binary Tree
87. Vertical Order Traversal

Basic Tree Problems

88. Root to Node Path in Binary Tree
89. Diameter of Binary Tree
90. Height of Binary Tree
91. Check if Binary Tree is Height-Balanced
92. Maximum Path Sum in Binary Tree

Advanced Tree Problems

93. Symmetric Binary Tree
94. Flatten Binary Tree to Linked List
95. Check for Children Sum Property
96. Populate Next Right Pointers in Binary Tree
97. Max Width of Binary Tree
98. Boundary Traversal of Binary Tree
99. Construct Binary Tree from Preorder and Inorder Traversals
100. Construct Binary Tree from Postorder and Inorder Traversals

BST Problems

101. Search Given Key in BST
102. Find K-th Smallest/Largest Element in BST
103. Find Inorder Predecessor/Successor
104. Construct BST from Given Keys
105. Construct BST from Preorder Traversal
106. Check if a Binary Tree is BST
107. Floor and Ceil in BST
108. Find Pair with Given Sum in BST
109. BST Iterator
110. Size of the Largest BST in Binary Tree
111. K-th Smallest Element in BST (Heap + Recursive)
112. K-th Largest Element in BST
113. BST Iterator Implementation (in-order traversal optimization)

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6. Graphs

Graph Traversals

114. DFS (Depth First Search)
115. BFS (Breadth First Search)
116. Number of Islands (Grid and Graph)
117. Bipartite Graph Check (DFS + BFS Approaches)

Cycle Detection

118. Detect Cycle in Undirected Graph (DFS/BFS)
119. Detect Cycle in Directed Graph (DFS/BFS)
120. Cycle Detection in Directed Graph (DFS Tarjan's Algorithm)

Topological Sort

121. Topological Sort (DFS and BFS)

Advanced Graph Problems

122. Strongly Connected Components (Kosaraju's Algorithm)
123. Dijkstra Algorithm
124. Bellman-Ford Algorithm
125. Floyd-Warshall Algorithm
126. MST Using Prim's Algorithm
127. MST Using Kruskal's Algorithm
128. Flood-Fill Algorithm
129. Clone a Graph
130. Find Shortest Path in Weighted Graph (Bellman-Ford)
131. Minimum Spanning Tree (Kruskal & Prim Comparison)
132. All-Pairs Shortest Path (Floyd-Warshall Algorithm)

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7. Greedy Algorithms

133. N Meetings in One Room
134. Minimum Number of Platforms Required
135. Job Sequencing Problem
136. Fractional Knapsack Problem
137. Assign Cookies
138. Minimum Number of Coins
139. Assign Cookies to Children (Greedy Fit)
140. Fractional Knapsack with Exact Cost Adjustment
141. Job Sequencing Problem with Dependencies

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8. Dynamic Programming

1D DP

142. Longest Increasing Subsequence
143. Longest Common Subsequence
144. 0-1 Knapsack
145. Edit Distance
146. Maximum Sum Increasing Subsequence
147. Rod Cutting Problem (DP-Based Optimization)
148. Word Break Problem (All Possible Segmentations)

Grid-Based DP

149. Minimum Sum Path in Matrix

Partition Problems

150. Palindromic Partitioning (MCM Variation)
151. Subset Sum
152. Word Break Problem
153. Coin Change Problem

MCM and Variations

154. Matrix Chain Multiplication
155. Egg Dropping Problem
156. Rod Cutting
157. Matrix Chain Multiplication (Recursive Split)
158. 0-1 Knapsack with Variants (Subset Sum Problem Dependencies)
159. Egg Dropping Problem (Recursive + DP Optimization)

Advanced DP

160. Maximum Profit in Job Scheduling
161. Longest Palindromic Subsequence

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9. Tries and Bit Manipulation

Tries

162. Implement Trie (Prefix Tree)
163. Implement Trie-2
164. Longest String with All Prefixes
165. Trie-Based Word Lookup and Matching Extensions

Bit Manipulation

166. Maximum XOR of Two Numbers
167. Maximum XOR with an Element from Array
168. Maximum XOR Between Subarrays Using Trie Lookup

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10. Heap/Priority Queue

169. K-th Largest Element
170. Merge K Sorted Arrays
171. Median in a Stream
172. K Most Frequent Elements
173. K-th Largest Element in a Stream
174. Median Maintenance with Min-Max Heap Pair
175. Distinct Numbers in Sliding Windows Using Custom Priority

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11. Recursion and Backtracking

176. Subset Sums
177. Combination Sum I and II
178. N-Queens Problem
179. Sudoku Solver
180. Rat in a Maze
181. Word Break (Print All Ways)
182. Sudoku Solver Optimized (Min-Filled)
183. N-Queen Problem DP Backtrack

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12. Sliding Window and Two Pointer

184. Longest Substring Without Repeating Characters
185. Trapping Rainwater
186. Container with Most Water

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13. Miscellaneous

187. N-th Root of an Integer
188. Allocate Minimum Number of Pages
189. Aggressive Cows
190. Distinct Numbers in a Window
191. Serialize and Deserialize Binary Tree
192. Find Median in a Stream of Running Integers
193. K-th Largest Element in an Unsorted Array

194. Allocate Minimum Number of Pages (Binary Search Optimization)
195. Aggressive Cows Problem (Placement Using Binary Search)
196. Reverse Preorder-Inorder Trees Traverse

Bonus/Additional Problems

197. Reverse Words in a String
198. Palindrome Partitioning (Recursive + DP)
199. Rabin-Karp Algorithm (Pattern Matching)
200. KMP Algorithm / LPS Array (Efficient String Matching)
201. Serialize and Deserialize a Linked List
202. Median Maintenance with Min-Max Heap Pair
