100 DAYS OF DSA

★ PHASE 1 — ARRAYS (Day 1–20)

Mastering arrays builds your base for all higher DSA.

📑 DAY 1 — Basics

1. Find maximum element
2. Find minimum element
3. Reverse array
4. Check if array is sorted
5. Find index of element (linear search)

📑 DAY 2 — Simple Logic

6. Second largest element
7. Move all zeros to end
8. Count even/odd
9. Compute sum of array
10. Remove duplicates using Set

📑 DAY 3 — Prefix & Basic Thinking

11. Prefix sum array
12. Subarray sum of range L–R
13. Number of elements greater than X
14. Check if two arrays equal (sorting)
15. Rotate array by 1

📑 DAY 4 — Rotation

16. Rotate array by K (using extra space)
17. Rotate array by K (reverse method)
18. Left rotation
19. Right rotation
20. Cyclically rotate by 1

📑 DAY 5 — Searching Basics

21. Linear search
22. Binary search iterative
23. Binary search recursive
24. First occurrence (binary search)
25. Last occurrence

📑 DAY 6 — Searching Patterns

26. Count occurrences of element
27. Find element in infinite array
28. Peak element
29. Floor of X
30. Ceil of X

📑 DAY 7 — Two Pointers

31. Pair sum in sorted array
32. Three sum
33. Remove duplicates (sorted array)
34. Sort 0s,1s,2s (Dutch flag)
35. Count pairs with difference K

📑 DAY 8 — Sliding Window Introduction

36. Max sum subarray of size K
37. Count subarrays with sum < K
38. Longest substring with no repeating characters
39. Longest subarray with sum exactly K
40. Number of subarrays with given sum

📑 DAY 9 — Kadane's Algorithm

41. Maximum subarray sum
42. Maximum circular subarray sum
43. Longest positive subarray
44. Smallest subarray sum
45. Count subarrays with negative sum

📑 DAY 10 — Matrix Basics

46. Print matrix row-wise
47. Print matrix column-wise
48. Transpose matrix
49. Search element in 2D sorted matrix
50. Print diagonals of matrix

📑 DAY 11 — Matrix Patterns

51. Spiral matrix
52. Rotate matrix 90°
53. Largest row sum
54. Boundary traversal
55. Saddle point

📑 DAY 12 — Hashing Basics

56. Frequency counter using HashMap
57. Character frequency
58. First non-repeating element
59. Intersection of arrays
60. Union of arrays

📑 DAY 13 — Hashing Applications

61. Majority element
62. Two sum
63. Subarray with sum zero
64. Longest consecutive sequence
65. Count distinct elements in window

📑 DAY 14 — Sorting Basics

66. Bubble sort
67. Insertion sort
68. Selection sort
69. Merge two sorted arrays
70. Check if array is a permutation

📑 DAY 15 — Sorting Advanced

71. Merge sort
72. Quick sort
73. Count inversions
74. Sort array by frequency
75. Sorting employees by salary (custom comparator)

📑 DAY 16 — String Basics

76. Reverse string
77. Check palindrome

78. Toggle case
79. Count vowels, consonants
80. Remove spaces

📑 DAY 17 — Strings Intermediate

81. Longest word
82. Check anagram
83. Print duplicates
84. Largest substring
85. Remove vowels

📑 DAY 18 — Strings Advanced

86. Implement atoi()
87. Implement strstr()
88. Longest palindrome substring
89. Valid parentheses string
90. Maximum occurring character

📑 DAY 19 — Pattern Printing

91. Print star patterns
92. Print number pyramid
93. Pascal's triangle
94. Print hollow patterns
95. Floyd triangle

📑 DAY 20 — Complete Revision (Arrays + Strings)

96. Subarray problems
97. Sliding window revision
98. Sorting revision
99. Searching revision
100. Matrix revision

★ PHASE 2 — RECURSION + BACKTRACKING (Day 21–35)

📑 DAY 21 — Recursion Basics

101. Print numbers 1 to N
102. Sum of digits
103. Factorial
104. Fibonacci
105. Reverse array using recursion

📑 DAY 22 — Intermediate Recursion

106. Check palindrome
107. Count digits
108. Power of a number
109. Count zeros
110. Product of digits

📑 DAY 23 — Backtracking Basics

111. Generate all subsets
112. Generate all permutations
113. Power set
114. Print all subsequences
115. Subset sum

📑 DAY 24 — Backtracking Hard

116. N-Queens
117. Sudoku solver
118. Rat in a maze
119. Knight tour
120. Combination sum

📑 DAY 25 — Recursion & Strings

121. All string permutations
122. Remove duplicates recursively
123. Print keypad combinations
124. Decode ways
125. Balanced parentheses generator

★ PHASE 3 — LINKED LIST (Day 36–45)

📑 DAY 36 — Basics

📄 DAY 37 — Classic Problems

📄 DAY 38 — Advanced LL

📄 DAY 39 — DLL

📄 DAY 40 — Revision

★ PHASE 4 — STACKS & QUEUES (Day 46–55)

📄 DAY 46 — Stack

📄 DAY 47 — Queue

📄 DAY 48 — Mono Stack

📄 DAY 49 — Stack + String

📄 DAY 50 — Revision

★ PHASE 5 — TREES & BST (Day 56–75)

📄 DAY 56 — Tree Basics

176.   Create tree
177.   Preorder traversal
178.   Inorder traversal
179.   Postorder traversal
180.   Level order traversal

📑 DAY 57 — Depth & Properties

181.   Height of tree
182.   Count nodes
183.   Leaf nodes
184.   Diameter of tree
185.   Balanced tree

📑 DAY 58 — Binary Search Tree

186.   Insert in BST
187.   Delete in BST
188.   Search in BST
189.   Floor in BST
190.   Ceil in BST

📑 DAY 59 — Hard BST

191.   LCA of BST
192.   Kth smallest
193.   Kth largest
194.   Recover BST
195.   Convert sorted array to BST

📑 DAY 60 — Tree Algorithms

196.   Zigzag traversal
197.   Boundary traversal
198.   Vertical order traversal
199.   Top view
200.   Bottom view

📑 DAY 61 — Tree DP

201.   Max path sum
202.   House robber (tree)
203.   Path sum
204.   Sum of left leaves
205.   Cousins in tree

★ PHASE 6 — GRAPHS (Day 76–90)

📑 DAY 76 — Graph Basics

206.   BFS
207.   DFS
208.   Connected components
209.   Bipartite graph
210.   Detect cycle (undirected)

📑 DAY 77 — Directed Graphs

211.   Cycle detection
212.   Topological sort
213.   Kahn's algorithm
214.   Course schedule
215.   Safe nodes

📑 DAY 78 — Shortest Path

216.   Dijkstra
217.   Bellman-Ford
218.   Floyd-Warshall
219.   Shortest path in DAG
220.   Min cost path

📑 DAY 79 — MST

221.   Prim's algorithm
222.   Kruskal's algorithm
223.   DSU implementation
224.   Number of islands
225.   Bridges in graph

📑 DAY 80 — Hard Graph

226.   Articulation points
227.   Euler path
228.   Hamiltonian path
229.   Word ladder
230.   Knight shortest path

★ PHASE 7 — GREEDY + HEAP (Day 91–95)

📑 DAY 91 — Greedy

231.   Activity selection
232.   Fractional knapsack
233.   Job sequencing
234.   Gas station
235.   Candy problem

📑 DAY 92 — Heaps

236.   K largest elements
237.   Sort nearly sorted array
238.   Median in stream
239.   Heap implementation
240.   Merge K sorted lists

📑 DAY 93 — Greedy Advanced

241.   Minimum jumps
242.   Reorganize string
243.   Minimum platforms
244.   Connect ropes
245.   Scheduling tasks

📑 DAY 94 — Heap Hard

246.   Top K frequent
247.   Kth largest element
248.   Sliding window maximum
249.   Minimum operations reduce X to zero
250.   Furthest building

★ PHASE 8 — DYNAMIC PROGRAMMING (Day 96–100)

📑 DAY 96 — DP Basics

251.   Fibonacci DP
252.   Climbing stairs
253.   Min cost climbing stairs
254.   House robber
255.   Subset sum

📑 DAY 97 — DP on Strings

256.   LCS
257.   Edit distance
258.   Longest palindrome substring
259.   Count palindromic substrings
260.   Regex matching

📑 DAY 98 — DP on Grids

261.   Unique paths
262.   Unique paths II
263.   Min path sum
264.   Cherry pickup
265.   Gold mine problem

📑 DAY 99 — DP on Subsequences

266.   LIS
267.   Print LIS
268.   Minimum deletions to make sorted
269.   Rod cutting
270.   Coin change

📑 DAY 100 — Ultimate DP

271.   0/1 knapsack
272.   Partition equal subset
273.   Target sum
274.   Longest increasing path
275.   Hard DP mix (choice question)