

50 DSA Problems (Beginner to Advanced)

Arrays & Strings

1. Reverse an array
2. Find max/min in an array
3. Two Sum Problem (LeetCode)
4. Move all zeros to end of array
5. Check if string is a palindrome
6. Longest substring without repeating characters
7. Rotate array by K positions
8. Merge two sorted arrays
9. Kadanes Algorithm (Max Subarray Sum)
10. Count frequency of elements in array

Linked Lists

11. Reverse a linked list
12. Detect cycle in a linked list
13. Merge two sorted linked lists
14. Find middle of linked list
15. Remove Nth node from end

Stacks & Queues

16. Implement stack using array
17. Balanced parentheses problem
18. Next greater element (Stack)
19. Implement queue using stacks
20. Sliding window maximum

Sorting & Searching

- 21. Implement Bubble Sort
- 22. Implement Merge Sort
- 23. Binary Search (Iterative & Recursive)
- 24. Find first/last occurrence in sorted array
- 25. Kth smallest/largest element

Trees & Graphs

- 26. Binary Tree Traversals (In, Pre, Post)
- 27. Check if tree is balanced
- 28. Lowest Common Ancestor (LCA)
- 29. BFS & DFS implementation
- 30. Detect cycle in a graph

Dynamic Programming

- 31. Fibonacci (Memoization & Tabulation)
- 32. 0/1 Knapsack Problem
- 33. Longest Increasing Subsequence (LIS)
- 34. Coin Change Problem
- 35. Edit Distance

Miscellaneous

- 36. Implement Hashmap from scratch
- 37. LRU Cache Implementation
- 38. Find all permutations of a string
- 39. N-Queens Problem
- 40. Dijkstras Algorithm

Advanced Problems

- 41. Clone a linked list with random pointers
- 42. Serialize & Deserialize a Binary Tree
- 43. Minimum Window Substring
- 44. Trapping Rain Water Problem
- 45. Word Break Problem

Competitive Coding

- 46. Number of Islands (DFS)
- 47. Topological Sorting (Graph)
- 48. Kruskals Algorithm (MST)
- 49. Floyd Warshall Algorithm
- 50. Trie Implementation (Auto-Complete)