DSA Algorithm Roadmap (Beginner to Advanced)

Beginner Level (Foundational Algorithms)

1. Linear Search
2. Binary Search
3. Bubble Sort
4. Selection Sort
5. Insertion Sort
6. Merge Sort
7. Quick Sort
8. Two Pointers Technique
9. Sliding Window Technique
10. Kadane's Algorithm (Maximum Subarray Sum)
11. Prefix Sum and Difference Arrays
12. Flood Fill Algorithm (DFS/BFS for Grid Problems)

Intermediate Level (Core Algorithms)

13. Hashing (Maps, Sets, Frequency Count)
14. Heap / Priority Queue Algorithms
15. Counting Sort and Bucket Sort
16. Binary Search on Answer (e.g., Minimum Capacity to Ship Packages)
17. Union-Find / Disjoint Set Union (DSU)
18. KMP Algorithm (Pattern Matching)
19. Rabin-Karp Algorithm (String Matching)
20. DFS and BFS (Graph Traversals)
21. Topological Sort (Kahn's Algorithm, DFS-based)
22. Dijkstra's Algorithm (Shortest Path)
23. Bellman-Ford Algorithm (Shortest Path with Negative Weights)
24. Floyd-Warshall Algorithm (All-Pairs Shortest Path)

DSA Algorithm Roadmap (Beginner to Advanced)

Advanced Level (High-Impact Algorithms)

25. Backtracking (e.g., N-Queens, Sudoku Solver, Permutations)
26. Dynamic Programming on Subsets (Subset Sum, Knapsack)
27. Dynamic Programming on Strings (LCS, Edit Distance)
28. Dynamic Programming on Grids (Unique Paths, Min Path Sum)
29. Segment Trees (Range Queries, Lazy Propagation)
30. Fenwick Tree / Binary Indexed Tree
31. Trie (Prefix Tree) (For String Problems)
32. Suffix Arrays and LCP Array
33. Manacher's Algorithm (Longest Palindromic Substring)
34. Shortest Path in a DAG (Dynamic Programming + Topological Sort)
35. Bit Manipulation Algorithms (Subset Generation, XOR Tricks)