Top 100 DSA Interview Coding Questions

Arrays:

1. Find the missing number in an array of 1 to n
2. Kadane's Algorithm (Maximum subarray sum)
3. Find duplicate numbers in an array
4. Merge two sorted arrays without extra space
5. Rotate an array by K positions
6. Find all pairs in an array that sum up to a given number
7. Trapping Rain Water
8. Find the longest consecutive subsequence
9. Find the majority element
10. Best time to buy and sell stock
11. Merge intervals
12. Next permutation of an array
13. Find the minimum number of platforms required for a train station
14. Maximum product subarray
15. Find subarray with given sum
16. Find median of two sorted arrays
17. Rearrange array elements alternately (maximum, minimum)
18. Find the largest element in an array

Strings:

19. Check if two strings are anagrams
20. Longest common prefix
21. Check if a string is a palindrome
22. Z-algorithm (Pattern matching)
23. KMP Algorithm for pattern matching
24. Longest palindromic substring
25. Convert a string to an integer (Implement atoi)
26. Find the longest substring without repeating characters
27. Rabin-Karp algorithm
28. Roman to integer and vice versa

29. **Group anagrams**
30. **Valid parentheses**

Linked Lists:

31. **Reverse a linked list**
32. **Detect a cycle in a linked list**
33. **Merge two sorted linked lists**
34. **Find the intersection point of two linked lists**
35. **Remove N-th node from the end of the list**
36. **Flatten a multilevel doubly linked list**
37. **Add two numbers represented by linked lists**
38. **Clone a linked list with random pointers**
39. **Palindrome linked list**
40. **Rotate a linked list**

Stacks and Queues:

41. **Implement a stack using two queues**
42. **Implement a queue using two stacks**
43. **Next greater element**
44. **Min stack (O(1) space for minimum element)**
45. **Valid parentheses (using stack)**
46. **LRU Cache Implementation**
47. **Sliding window maximum**
48. **Circular tour (Petrol Pump problem)**

Trees:

49. **Inorder, Preorder, Postorder traversal of a binary tree**
50. **Level order traversal of a binary tree**
51. **Find the height of a binary tree**
52. **Check if a binary tree is balanced**
53. **Check if two trees are identical**
54. **Lowest common ancestor in a binary tree**
55. **Maximum path sum in a binary tree**
56. **Diameter of a binary tree**
57. **Check if a binary tree is a binary search tree**
58. **Convert a binary tree to a doubly linked list**
59. **Zig-zag traversal of a binary tree**
60. **Kth smallest/largest element in a binary search tree**
61. **Serialize and deserialize a binary tree**

62. **Flatten a binary tree to a linked list**

Heaps:

63. **Kth largest element in an array**
64. **Merge K sorted arrays**
65. **Find the median from a data stream**
66. **Top K frequent elements**
67. **Minimum cost to connect all ropes**
68. **Sort a nearly sorted array**

Graphs:

69. **Breadth-first search (BFS)**
70. **Depth-first search (DFS)**
71. **Detect a cycle in an undirected graph**
72. **Detect a cycle in a directed graph**
73. **Topological sort**
74. **Dijkstra's algorithm**
75. **Bellman-Ford algorithm**
76. **Kruskal's algorithm**
77. **Prim's algorithm**
78. **Floyd Warshall algorithm**
79. **Find whether a path exists between two nodes**
80. **Count the number of islands**

Dynamic Programming:

81. **0/1 Knapsack problem**
82. **Longest common subsequence**
83. **Longest increasing subsequence**
84. **Edit distance**
85. **Coin change problem**
86. **Word break problem**
87. **Subset sum problem**
88. **Maximum product cutting**
89. **Rod cutting problem**
90. **Egg dropping problem**
91. **Minimum sum partition**
92. **Palindrome partitioning**
93. **Longest palindromic subsequence**
94. **Optimal binary search tree**

95. **Matrix chain multiplication**
96. **House robber problem**
97. **Paint house problem**

Miscellaneous:

98. **Find the first missing positive integer**
99. **Count inversions in an array**
100. **N-Queens problem**