DSA SHEET

S.No	Topic	Problem	Difficulty	Solved (Yes/No)
1	**Two Pointer Technique**			
1.1		Find Pair Sum in a sorted Array	Easy	
1.2		Remove Duplicates from sorted array	Easy	
1.3		3Sum Closest	Medium	
1.4		Dutch national flag problem	Medium	
1.5		Subarrays with product less than a target	Medium	
1.6		Trapping rain water	Hard	
1.7		Longest mountain in array	Hard	
2	**Sliding Window**			
2.1		Maximum sum subarray of size K	Easy	
2.2		Longest substring with K distinct characters	Medium	
2.3		Smallest subarray with a greater sum	Easy	
2.4		Longest substring with no repeating characters	Medium	
2.5		Maximum of all subarrays of size K	Medium	
2.6		Minimum window substring	Hard	

2.7		Longest subarray with absolute difference ≤ limit	Hard	
3	**Fast & Slow Pointer**			
3.1		Linked list cycle detection	Easy	
3.2		Find the middle of a linked list	Easy	
3.3		Happy number	Medium	
3.4		Palindrome linked list	Medium	
3.5		Cycle length in a circular array	Medium	
3.6		Find the duplicate number	Hard	
3.7		Circular array loop	Hard	
4	**Merge Intervals**			
4.1		Merge overlapping intervals	Easy	
4.2		Insert interval	Easy	
4.3		Intervals intersection	Medium	
4.4		Meeting rooms	Medium	
4.5		Minimum meeting rooms	Medium	
4.6		Employee free time	Hard	
4.7		Maximum CPU load	Hard	
5	**Cyclic Sort**			
5.1		Find missing number	Easy	
5.2		Find all missing numbers	Easy	
5.3		Find duplicate number	Medium	

5.4		Find all duplicates in an array	Medium	
5.5		Find the smallest missing positive number	Medium	
5.6		First missing positive	Hard	
5.7		Find all duplicates in O(1) extra space	Hard	
6	**In-place Reversal of a Linked List**			
6.1		Reverse a linked list	Easy	
6.2		Reverse a sublist	Easy	
6.3		Reverse every K-element sublist	Medium	
6.4		Rotate a linked list	Medium	
6.5		Palindrome linked list	Medium	
6.6		Reverse nodes in k-group	Hard	
6.7		Flatten a multilevel doubly linked list	Hard	
7	**Tree Breadth First Search**			
7.1		Binary tree level order traversal	Easy	
7.2		Zigzag traversal	Easy	
7.3		Connect level order siblings	Medium	
7.4		Level order successor	Medium	
7.5		Minimum depth of a binary tree	Medium	

7.6		Binary tree right side view	Hard	
7.7		Serialize and deserialize binary tree	Hard	
8	**Tree Depth First Search**			
8.1		Binary tree path sum	Easy	
8.2		All paths for a sum	Easy	
8.3		Sum of path numbers	Medium	
8.4		Path with given sequence	Medium	
8.5		Count paths for a sum	Medium	
8.6		Diameter of binary tree	Hard	
8.7		Maximum path sum in binary tree	Hard	
9	**Two Heaps**			
9.1		Find the median of a number stream	Easy	
9.2		Sliding window median	Easy	
9.3		Maximize capital	Medium	
9.4		IPO (Initial Public Offering)	Medium	
9.5		Next interval	Medium	
9.6		Median of sliding window	Hard	
9.7		Maximize capital with constraints	Hard	
10	**Subset Pattern (Backtracking)**			
10.1		Subsets	Easy	

10.2		Subsets with duplicates	Easy	
10.3		Permutations	Medium	
10.4		Letter case permutation	Medium	
10.5		Balanced parentheses	Medium	
10.6		Word subsets	Hard	
10.7		Combination sum	Hard	
11	**Modified Binary Search**			
11.1		Search in a rotated sorted array	Easy	
11.2		Ceiling of a number	Easy	
11.3		Next letter	Medium	
11.4		Number range	Medium	
11.5		Minimum difference element	Medium	
11.6		Search in a nearly sorted array	Hard	
11.7		Search in an infinite sorted array	Hard	
12	**Top ‘K’ Elements**			
12.1		Top K numbers	Easy	
12.2		Kth smallest number	Easy	
12.3		K closest points to the origin	Medium	
12.4		Connect ropes to minimize cost	Medium	
12.5		Top K frequent numbers	Medium	

12.6		Frequency sort	Hard	
12.7		Kth largest element in a stream	Hard	
13	**K-way Merge**			
13.1		Merge K sorted lists	Easy	
13.2		Kth smallest number in M sorted lists	Easy	
13.3		Smallest number range	Medium	
13.4		K pairs with the smallest sums	Medium	
13.5		Kth smallest element in a sorted matrix	Medium	
13.6		Merge K sorted arrays	Hard	
13.7		Largest range covering elements from K lists	Hard	
14	**0/1 Knapsack (Dynamic Programming)**			
14.1		0/1 Knapsack problem	Easy	
14.2		Equal subset sum partition	Easy	
14.3		Subset sum problem	Medium	
14.4		Minimum subset sum difference	Medium	
14.5		Count of subset sum	Medium	
14.6		Target sum	Hard	
14.7		Partition to K subsets with equal sum	Hard	

15	**Topological Sort (Graph)**			
15.1		Topological sort	Easy	
15.2		Tasks scheduling	Easy	
15.3		Alien dictionary	Medium	
15.4		Minimum height trees	Medium	
15.5		Course schedule	Medium	
15.6		Parallel courses with dependencies	Hard	
15.7		Longest path in a directed acyclic graph	Hard	
16	**Floyd's Cycle Detection Algorithm**			
16.1		Linked list cycle detection (revisit)	Easy	
16.2		Find the duplicate number	Easy	
16.3		Happy number (revisit)	Medium	
16.4		Circular array loop	Medium	
16.5		Detect cycle in a graph	Medium	
16.6		Linked list intersection	Hard	
16.7		Detect cycle in a directed graph	Hard	
17	**Kadane's Algorithm (Dynamic Programming)**			
17.1		Maximum sum subarray	Easy	
17.2		Maximum product subarray	Easy	

17.3		Maximum sum circular subarray	Medium	
17.4		Maximum sum of subarray with at least k elements	Medium	
17.5		Longest subarray with sum ≤ K	Medium	
17.6		Max sum of non-adjacent elements	Hard	
17.7		Maximum sum rectangle in a 2D matrix	Hard	
18	**Longest Common Subsequence/ Substring (DP)**			
18.1		Longest common subsequence	Easy	
18.2		Longest common substring	Easy	
18.3		Edit distance	Medium	
18.4		Longest palindromic subsequence	Medium	
18.5		Shortest common supersequence	Medium	
18.6		Minimum insertions for palindrome	Hard	
18.7		Longest increasing subsequence	Hard	
19	**Union Find (Disjoint Set)**			
19.1		Connected components in a graph	Easy	

19.2		Cycle detection in an undirected graph	Easy	
19.3		Number of connected components in a graph	Medium	
19.4		Redundant connection	Medium	
19.5		Friend circles	Medium	
19.6		Accounts merge	Hard	
19.7		Optimize network connections	Hard	
20	**Trie (Prefix Tree)**			
20.1		Implement a trie (prefix tree)	Easy	
20.2		Word search	Easy	
20.3		Longest word in dictionary	Medium	
20.4		Replace words	Medium	
20.5		Word break	Medium	
20.6		Stream of characters (prefix matching)	Hard	
20.7		Auto-complete system	Hard	