ALL PATTERNS
OF
EVERY DATA STRUCTURE

DYNAMIC PROGRAMMING

1. Longest Increasing Subsequence
2. Longest Common Subsequence
3. Palindrome
4. Fibonacci
5. 0/1 Knapsack (Bounded/Unbounded)
6. Coin Change
7. Matrix Multiplication
8. DP on Grid
9. DP on Trees
10. DP on Graphs
11. DP + Hashmap
12. DP + Bitmasking
13. Digit DP

GRAPH

1. Union Find
2. DFS
    I. Island Problems
    II. Cycle Find
    III. Reach all nodes
3. BFS
4. Graph Coloring / Bipartition
5. Topological Sort
6. Shortest Path (Dijkstra's / Bellman Ford)

TREE

1. Kth Smallest / Largest
2. Ancestor Problems
3. Range Sum
4. Traversals
5. Distance Between Nodes
6. Tree Construction
7. Serialize and Deserialize
8. Searching
9. Root to Leaf Path
10. Depth Problems
11. Check / Compare Binary Trees

LINKED LIST

1. Traversals
2. Addition / Subtraction
3. Fast Slow Pointer
4. Doubled Linked List
5. Override Value
6. Monotonic Stack
7. BFS / DFS
8. Design
    1. Circular Queue
    2. LRU Cache
    3. FIFO Cache

STRING

1. Palindromic Strings
2. Types of String
3. Parenthesis Problems
4. Count Substrings
5. Sorting on String
6. Longest and Shortest
7. Sliding Window Substring
8. Permutation Problems
9. Pattern Print
10. Lexicographic Problems

BINARY SEARCH

1. Search
2. Maths
3. Rotated Array
4. Tricky Invariant
5. LIS Variation
6. Kth Closest / Missing
7. 2D Matrix
8. Binary Search on Answer

STACK

1. Nearest Greater / Smaller on Left / Right
2. Stock Span Problems
3. Histogram Problems
4. Stack/Queue Implementation
5. Traversals
6. Parenthesis Checker
7. Infix/ Prefix/ Postfix Conversion
8. Tower of Hanoi Problem

HEAP

1. Top K Patterns
    I. Nearest / Farthest
    II. Greatest / Closest
    III. Largest / Smallest
    IV. Maximum / Minimum
    V. Expensive / Cheapest
2. Priority Queue + Hashing
3. Course Schedule
4. Median and Math
5. Merge Arrays
6. Sliding Window