1-2 Weeks DSA Brush-Up PLAN

means Leetcode Problem Number

ARRAY

- 1. Kadane's Algorithm (maximum sum subarray)
- 2. N/K Repeat number (ex. N/3 on interviewbit: use stackoverflow)
- 3.3 sum (#15)
- 4. Kth smallest/Largest number (using quickselect)
- 5. All sorting algorithms
- 6. All searching algorithms
- 7. Trapping Rainwater Problem (#42)

LINKED LIST

- 1. Reverse LL in blocks of size K (LL-> Linked List)
- 2. Reorder List (#143)
- 3. Merge 2 sorted lists
- 4. Cycle detection/removal in LL
- 5. Add 2 numbers given as linked list

STACK

- 1. Implement stack
- 2. Stock Span Problem
- 3. Implement Queue using stack
- 4. Valid Parenthesis Problem

QUEUE

- 1. Implement Queue
- 2. Implement Stack using Queue
- 3. Circular Tour Problem

<u>STRING</u>

- 1. KMP Pattern Matching algorithm
- 2. Rabin Karp Algorithm (Rolling Hash)
- 3. Reverse all words in a text
- 4. Prefix->Postfix, Postfix->Infix etc. conversions
- 5. Word break problem (Dynamic Programming)
- 6. Group Anagrams (#49)

<u>HASH (MAP)</u>

- 1. Implement Hash
- 2.4 Sum (#18)
- 3. Longest Substring without repeating characters (#3)

HEAP

- 1. Heap Implementation
- 2. Build Heap
- 3. Heap sort
- 4. Merge K sorted Lists (#23)
- 5. Last Stone Weight (#1046)

2-D Matrix

- 1. Rotate Matrix by 90/180/270
- 2. Rotate matrix spiral rings like a rotating spiral lock

Segment Tree

- 1. Implement Segment Tree
- 2. Range Sum Query
- 3. Range Minimum Query
- 4. Implement Lazy Propagation in Segment Tree

Binary Indexed Tree

- 1. Implement BIT
- 2. The Skyline Problem (#218)

TRIE

- 1. Count number of strings with a given prefix
- 2. Largest duplicate substring (#1044)

Dynamic Programming

- 1. Count Subsets with Sum X (Knapsack)
- 2. Target Sum Problem (#494)
- 3. Coin Change Problem (#322)
- 4. Coin Change 2 (#518)
- 5. Longest Repeating Subsequence (LCS variant)
- 6. Russian Doll Envelope (LIS variant #354)
- 7. Minimum Edit Distance
- 8. Kadane's Algo (#918->Max sum circular subarray)
- 9. Unique Paths 2 (DP on GRID #63)
- 10. Matrix Chain Multiplication (Balloon Burst Problem #312)
- 11. Egg Dropping Problem (MCM variant)

GRAPH

- 1. DFS/BFS algorithm
- 2. Number of islands (#200)
- 3. Topological Sort (Course schedule 2 #210)
- 4. Tarjan's Algorithm (Critical Connections in a network #1192)