Stack, Queue and Heap

Intermediate Level Questions:

Stack:

- Implement Stack using Queues

[Practice here: https://practice.geeksforgeeks.org/problems/stack-using-two-queues/1]

- How to efficiently implement "k" stacks in an array ?

[Follow here: https://www.geeksforgeeks.org/efficiently-implement-k-stacks-single-array/]

- Design a Stack that supports getMin() in O(1) time and O(1) extra space.

[Follow here: https://www.geeksforgeeks.org/design-a-stack-that-supports-getmin-in-o1-time-and-o1-extra-space/]

- Implement stack and Queue using deque

[Follow here: https://www.geeksforgeeks.org/implement-stack-queue-using-deque/]

- Implement methods for Infix to Postfix, Prefix to Infix, Prefix to Postfix, Postfix to Infix and Postfix to prefix Conversion using stack.

[Follow here: https://www.geeksforgeeks.org/stack-set-2-infix-to-postfix/]
[Follow here: https://www.geeksforgeeks.org/prefix-infix-conversion/]
[Follow here: https://www.geeksforgeeks.org/prefix-postfix-conversion/]
[Follow here: https://www.geeksforgeeks.org/postfix-prefix-conversion/]
[Follow here: https://www.geeksforgeeks.org/postfix-to-infix/]

- Find the next Greater element

[Practice here: https://practice.geeksforgeeks.org/problems/next-larger-element/0]

- The celebrity Problem

[Practice here: https://practice.geeksforgeeks.org/problems/the-celebrity-problem/1]

- Arithmetic Expression evaluation

[Practice here: https://www.geeksforgeeks.org/arithmetic-expression-evalution/]

- Evaluation of Postfix expression

[Practice here: https://practice.geeksforgeeks.org/problems/evaluation-of-postfix-expression/0]

 Implement a method to insert an element at its bottom without using any other data structure.

- Reverse a stack using recursion

[Follow here: https://www.geeksforgeeks.org/reverse-a-stack-using-recursion/]

- Sort a Stack using recursion

[Practice here: https://practice.geeksforgeeks.org/problems/sort-a-stack/1]

- Merge Overlapping Intervals

[Practice here: https://practice.geeksforgeeks.org/problems/overlapping-intervals/0]

- Largest rectangular Area in Histogram

[Practice here: https://practice.geeksforgeeks.org/problems/maximum-rectangular-area-in-a-histogram/0]

- Length of the Longest Valid Substring

[Practice here: https://practice.geeksforgeeks.org/problems/valid-substring/0]

- Expression contains redundant bracket or not

[Follow here: https://www.geeksforgeeks.org/expression-contains-redundant-bracket-not/]

- Find the maximum difference between nearest left and right smaller elements

[Practice here: https://practice.geeksforgeeks.org/problems/maximum-difference/1]

- Remove brackets from an algebraic string containing + and – operators

[Follow here: https://www.geeksforgeeks.org/remove-brackets-algebraic-string-containing-operators/]

- Implement a Simple text Editor using Stack

[Follow here: http://algorithmsforgeeks.blogspot.com/2017/03/implement-text-editor-using-stack.html]

- Minimum number of bracket reversals needed to make an expression balanced

[Practice here: https://practice.geeksforgeeks.org/problems/count-the-reversals/0]

Queue:

- Implement Queue using Stack

[Practice here: https://practice.geeksforgeeks.org/problems/queue-using-two-stacks/1]

- LRU Cache Implementation

[Practice here: https://practice.geeksforgeeks.org/problems/lru-cache/1]

- How to efficiently implement "k" queues in an array ?

[Follow here: https://www.geeksforgeeks.org/efficiently-implement-k-queues-single-array/]

- Check if a queue an be sorted into another queue using a stack

[Practice here: https://www.geeksforgeeks.org/check-queue-can-sorted-another-queue-using-stack/]

- Level Order Tree traversal

[Practice here: https://practice.geeksforgeeks.org/problems/level-order-traversal/1]

- Reverse a Queue using recursion

[Practice here: https://practice.geeksforgeeks.org/problems/queue-reversal/1]

- Reverse the first "K" elements of a queue

[Practice here: https://practice.geeksforgeeks.org/problems/reverse-first-k-elements-of-queue/1]

- Interleave the first half of the queue with second half

[Practice here: https://www.geeksforgeeks.org/interleave-first-half-queue-second-half/]

- Sorting a queue without extra space

[Practice here: https://www.geeksforgeeks.org/sorting-queue-without-extra-space/]

- Find the first circular tour that visits all Petrol Pumps

[Practice here: https://practice.geeksforgeeks.org/problems/circular-tour/1]

- Minimum time required to rot all oranges

[Practice here: https://practice.geeksforgeeks.org/problems/rotten-oranges/0]

- Find maximum level sum in Binary tree

[Practice here: https://practice.geeksforgeeks.org/problems/max-level-sum-in-binary-tree/1]

- Distance of nearest cell having 1 in a binary matrix

[Practice here: https://practice.geeksforgeeks.org/problems/distance-of-nearest-cell-having-1/0]

- First negative integer in every window of size “k”

[Practice here: https://practice.geeksforgeeks.org/problems/first-negative-integer-in-every-window-of-size-k/0]

- Check if all levels of two trees are anagrams or not.

[Practice here: https://www.geeksforgeeks.org/check-if-all-levels-of-two-trees-are-anagrams-or-not/]

- Sum of minimum and maximum elements of all subarrays of size “k”.

[Practice here: https://www.geeksforgeeks.org/sum-minimum-maximum-elements-subarrays-size-k/]

- Minimum sum of squares of character counts in a given string after removing “k” characters.

[Practice here: https://practice.geeksforgeeks.org/problems/game-with-string/0]

- Queue based approach or first non-repeating character in a stream.

[Practice here: https://practice.geeksforgeeks.org/problems/first-non-repeating-character-in-a-stream/0]

Heap:

- Heap Sort

[Follow here: https://www.geeksforgeeks.org/heap-sort/]

- "k" largest element in an array

[Practice here: https://practice.geeksforgeeks.org/problems/k-largest-elements/0]

- K^{th} smallest and largest element in an unsorted array

[Practice here: https://practice.geeksforgeeks.org/problems/kth-smallest-element/0]

- Check if a Binary Tree is Heap

[Practice here: https://practice.geeksforgeeks.org/problems/is-binary-tree-heap/1]

- Connect "n" ropes with minimum cost

[Practice here: https://practice.geeksforgeeks.org/problems/minimum-cost-of-ropes/0]

- Merge "K" sorted arrays.

[Practice here: https://practice.geeksforgeeks.org/problems/merge-k-sorted-arrays/1]

- Largest Derangement of a Sequence

[Practice here: https://www.geeksforgeeks.org/largest-derangement-sequence/]

- Maximum distinct elements after removing "k" elements

[Practice here: https://practice.geeksforgeeks.org/problems/maximum-distinct-elements-after-removing-k-elements/0]

- Median in a stream of Running Integers

[Practice here: https://practice.geeksforgeeks.org/problems/find-median-in-a-stream/0]

- Largest Triplet Product in a stream

[Practice here: https://www.geeksforgeeks.org/largest-triplet-product-stream/]

- Convert BST to Min Heap

[Practice here: https://www.geeksforgeeks.org/convert-bst-min-heap/]

- Merge 2 Binary Max Heaps

[Practice here: https://practice.geeksforgeeks.org/problems/merge-two-binary-max-heap/0]

- K^{th} largest sum continuous subarrays

[Practice here: https://www.geeksforgeeks.org/k-th-largest-sum-contiguous-subarray/]

- Convert min heap to max heap

[Practice here: https://www.geeksforgeeks.org/convert-min-heap-to-max-heap/]

- Why is Binary Heap is preferred over BST for Priority Queue ?

[Answer: https://www.geeksforgeeks.org/why-is-binary-heap-preferred-over-bst-for-priority-queue/]

- Given Level order traversal of a Binary Tree, check if the tree is Min heap.

[Follow here: https://www.geeksforgeeks.org/given-level-order-traversal-binary-tree-check-tree-min-heap/]

- Rearrange characters in a string such that no two adjacent are same.

[Practice here: https://practice.geeksforgeeks.org/problems/rearrange-characters/0]

- Minimum sum of two numbers formed from digits of an array

[Practice here: https://practice.geeksforgeeks.org/problems/min-sum-formed-by-digits/0]

- Leetcode- reorganize strings

[Practice here: https://leetcode.com/problems/reorganize-string/]

- Merge “K” Sorted Linked Lists

[Practice here: https://practice.geeksforgeeks.org/problems/merge-k-sorted-linked-lists/1]

- Smallest range in “K” Lists

[Practice here: https://practice.geeksforgeeks.org/problems/find-smallest-range-containing-elements-from-k-lists/1]