DSA Questions Topic Wise

// Things you should know about
// Standard Template Library <map> and usage in cpp
// map is a very useful data structure and helps in many ways.
// merge sort, quick sort.

Highlighted questions are newly added.

// as many stl functions which u can use, like sort
// strings have a lot of inbuilt functions like strstr, substr etc.

Arrays/Sorting/Some Math

Easy/Medium (MUST DO)

- https://www.interviewbit.com/problems/add-one-to-number/
- https://www.interviewbit.com/problems/max-sum-contiguous-subarray (vvimp)
- https://www.interviewbit.com/problems/hotel-bookings-possible/ (vvimp)
- https://www.interviewbit.com/problems/maximum-unsorted-subarray/
- https://www.interviewbit.com/problems/max-distance/
- https://www.interviewbit.com/problems/spiral-order-matrix-ii/
- https://www.interviewbit.com/problems/merge-intervals/
- https://www.interviewbit.com/problems/repeat-and-missing-number-array/
- https://www.interviewbit.com/problems/first-missing-integer/
- https://www.interviewbit.com/problems/next-permutation/
- https://www.interviewbit.com/problems/merge-two-sorted-lists-ii/
- https://www.interviewbit.com/problems/intersection-of-sorted-arrays/
- https://www.interviewbit.com/problems/3-sum/
- https://www.interviewbit.com/problems/remove-duplicates-from-sorted-array/
- https://www.interviewbit.com/problems/remove-element-from-array/
- https://www.interviewbit.com/problems/trailing-zeros-in-factorial/
- https://www.interviewbit.com/problems/grid-unique-paths/

Hard

- https://www.interviewbit.com/problems/n3-repeat-number/ (can avoid)
- https://www.interviewbit.com/problems/container-with-most-water/
- https://practice.geeksforgeeks.org/problems/inversion-of-array/0/
- https://practice.geeksforgeeks.org/problems/largest-number-formed-from-an-array/0
- https://leetcode.com/problems/subarray-sum-equals-k/ (impt) (added new)

Linked Lists

Easy/Medium (Must do)

- https://leetcode.com/problems/linked-list-cycle
- https://leetcode.com/problems/linked-list-cycle-ii
- https://leetcode.com/problems/reorder-list
- https://www.interviewbit.com/problems/remove-duplicates-from-sorted-list/
- https://www.interviewbit.com/problems/merge-two-sorted-lists/
- https://www.interviewbit.com/problems/remove-nth-node-from-list-end/
- https://www.interviewbit.com/problems/k-reverse-linked-list/
- https://www.interviewbit.com/problems/swap-list-nodes-in-pairs/
- https://www.interviewbit.com/problems/rotate-list/
- https://practice.geeksforgeeks.org/problems/check-if-linked-list-is-pallindrome/1

Hard

- https://leetcode.com/problems/copy-list-with-random-pointer (vv imp)
- https://www.interviewbit.com/problems/remove-duplicates-from-sorted-list-ii/

Stacks and Queues

Easy/Medium (MUST DO)

- https://practice.geeksforgeeks.org/problems/queue-using-two-stacks/1
- https://practice.geeksforgeeks.org/problems/stack-using-two-queues/1
- https://practice.geeksforgeeks.org/problems/parenthesis-checker/0
- https://practice.geeksforgeeks.org/problems/get-minimum-element-from-stack/1
- https://www.interviewbit.com/problems/rain-water-trapped/
- 71. Simplify Path
- Moving Average from Data Stream
- Design Circular Queue (black box question example)

Hard (vv imp all qs here)

- **https://www.interviewbit.com/problems/sliding-window-maximum/ (very popular)**
- https://www.interviewbit.com/problems/largest-rectangle-in-histogram/
- https://www.interviewbit.com/problems/nearest-smaller-element/
- 1019 Next Greater Node In Linked List
- 739. Daily Temperatures
- Decode String (IMP)
- Evaluate Reverse Polish Notation

Trees

RED marked questions to be done before session on 29/07.
Highlighted questions are newly added.

Easy/Medium (MUST DO)

- Binary Tree Inorder Traversal
- Same Tree
- Symmetric Tree
- Maximum Depth of Binary Tree
- Invert Binary Tree
- Path Sum
- 102. Binary Tree Level Order Traversal
- Count Complete Tree Nodes
- Balanced Binary Tree
- Diameter of Binary Tree
- https://www.interviewbit.com/problems/populate-next-right-pointers-tree/
- https://www.interviewbit.com/problems/construct-binary-tree-from-inorder-and-preorder/
- https://www.interviewbit.com/problems/sorted-array-to-balanced-bst/

Hard (do complete all for thorough practice)

- Path Sum II
- Binary Tree Zigzag Level Order Traversal
- Binary Tree Right Side View
- **https://www.interviewbit.com/problems/recover-binary-search-tree/**

Greedy (Mostly Array based, no new concept)

There are about 8 problems here, try to complete them all. They are not hard. **You might need the concept of heaps and/or maps to have a better shot at these. Please read about std::map and std::priority_queue (heap) in C++. These are extremely useful and efficient data structures for algorithmic problem solving. Some of the problems for heap were there in one of the tutorial sheets I sent. That is good enough for understanding the use case of heaps.**

https://www.interviewbit.com/courses/programming/topics/greedy-algorithm/

JUMP AHEAD ONLY IF ALL THE PREVIOUS SECTIONS ARE COMPLETE THOROUGHLY. BINARY SEARCH, GRAPHS AND DYNAMIC PROGRAMMING WOULD BE FOLLOWED NEXT.

Binary Search

Easy (Must do)

- **https://www.interviewbit.com/problems/rotated-sorted-array-search/**
- **https://www.interviewbit.com/problems/search-for-a-range/**
- **https://www.interviewbit.com/problems/square-root-of-integer/**

Hard (The real binary search :)) (Optional, Advanced)

- **https://www.interviewbit.com/problems/painters-partition-problem/**
- **https://www.interviewbit.com/problems/allocate-books/**
- **https://www.spoj.com/problems/AGGRCOW/**
- **https://www.geeksforgeeks.org/split-the-given-array-into-k-sub-arrays-such-that-maximum-sum-of-all-sub-arrays-is-minimum/**

Dynamic Programming (very important)

Easy/Medium (Must do):

- https://www.interviewbit.com/problems/longest-common-subsequence/
- https://www.interviewbit.com/problems/longest-palindromic-subsequence/
- https://www.interviewbit.com/problems/edit-distance/
- https://www.interviewbit.com/problems/length-of-longest-subsequence/
- https://www.interviewbit.com/problems/longest-increasing-subsequence/
- https://www.interviewbit.com/problems/jump-game-array/
- https://www.interviewbit.com/problems/min-sum-path-in-matrix/
- https://www.interviewbit.com/problems/coin-sum-infinite/
- https://www.interviewbit.com/problems/max-sum-without-adjacent-elements/
- https://practice.geeksforgeeks.org/problems/minimum-sum-partition/0

Hard (Also very important)

- https://www.interviewbit.com/problems/distinct-subsequences/
- https://www.interviewbit.com/problems/interleaving-strings/
- https://www.interviewbit.com/problems/regular-expression-match/
- https://www.interviewbit.com/problems/intersecting-chords-in-a-circle/
- https://www.interviewbit.com/problems/min-jumps-array/
- https://www.interviewbit.com/problems/longest-arithmetic-progression/
- https://www.interviewbit.com/problems/dungeon-princess/
- https://www.interviewbit.com/problems/rod-cutting/

For graphs, do questions from here in the graphs bucket -

https://www.geeksforgeeks.org/must-do-coding-questions-for-companies-like-amazon-microsoft-adobe/

You can leave question number 13 and 14. Try to do the rest.