Assignment 1 (Searching and Sorting)

1. Count occurence of element in sorted array: https://practice.geeksforgeeks.org/problems/number-of-occurrence/0
2. Find peak element: https://practice.geeksforgeeks.org/problems/find-the-highest-number/0
3. Minimum element in sorted and rotated array: https://practice.geeksforgeeks.org/problems/minimum-element-in-a-sorted-and-rotated-array/0
4. Square root: https://practice.geeksforgeeks.org/problems/count-squares/0
5. Search in matrix: https://practice.geeksforgeeks.org/problems/search-in-a-matrix/0
6. Merge Sort: https://practice.geeksforgeeks.org/problems/merge-sort/1
7. Check if array contains continuous numbers: https://practice.geeksforgeeks.org/problems/check-if-array-contains-contiguous-integers-with-duplicates-allowed/0
8. Chocolate Distribution Problem: https://practice.geeksforgeeks.org/problems/chocolate-distribution-problem/0
9. Quick Sort: https://practice.geeksforgeeks.org/problems/quick-sort/1
10. Relative sort: https://practice.geeksforgeeks.org/problems/relative-sorting/0
11. Find pair with given difference: https://practice.geeksforgeeks.org/problems/find-pair-given-difference/0/
12. Triplet Sum: https://practice.geeksforgeeks.org/problems/triplet-sum-in-array/0
13. Triplet with max sum: https://practice.geeksforgeeks.org/problems/maximum-triplet-sum-in-array/0
14. Triplet with max product: https://practice.geeksforgeeks.org/problems/three-great-candidates/0
15. Find extra element: https://practice.geeksforgeeks.org/problems/index-of-an-extra-element/1
16. Magnet Problem: https://practice.geeksforgeeks.org/problems/magnet-array-problem/0
17. Sort in specific order: https://practice.geeksforgeeks.org/problems/sort-in-specific-order/0
18. Max Distance: https://www.interviewbit.com/problems/max-distance/

Assignment 2 (Recursion and 2 pointers)

1. Strings from phone digits: https://practice.geeksforgeeks.org/problems/possible-words-from-phone-digits/0
2. Parenthesis generator: https://www.interviewbit.com/problems/generate-all-parentheses-ii/
3. Subsets: https://practice.geeksforgeeks.org/problems/subsets/0
4. Permutations of a string: https://practice.geeksforgeeks.org/problems/permutations-of-a-given-string/0
5. N Queen Problem: https://practice.geeksforgeeks.org/problems/n-queen-problem/0
6. Intersection/Union of 2 sorted arrays: https://www.interviewbit.com/problems/intersection-of-sorted-arrays/
7. Remove element from array in place: https://www.interviewbit.com/problems/remove-element-from-array/
8. Subarray with given sum (positives): https://practice.geeksforgeeks.org/problems/subarray-with-given-sum/0
9. Subarray with given sum (include negative numbers): https://practice.geeksforgeeks.org/problems/subarray-range-with-given-sum/0
10. Minimize Absolute Difference: https://www.interviewbit.com/problems/minimize-the-absolute-difference/
11. Remove Duplicate Elements (inplace): https://www.interviewbit.com/problems/remove-duplicates-from-sorted-array/
12. Remove duplicates if they appear more than once (inplace): https://www.interviewbit.com/problems/remove-duplicates-from-sorted-array-ii/
13. Sort array of 0,1,2: https://practice.geeksforgeeks.org/problems/sort-an-array-of-0s-1s-and-2s/0
14. Combination Sum: https://practice.geeksforgeeks.org/problems/combination-sum/0
15. Combination Sum 2: https://practice.geeksforgeeks.org/problems/combination-sum-part-2/0
16. Container with most water: https://leetcode.com/problems/container-with-most-water/description/
17. Word Boggle: https://practice.geeksforgeeks.org/problems/word-boggle/0

Assignment 3 (Stacks, Queues, Linked Lists)

1. Parenthesis Checker: https://practice.geeksforgeeks.org/problems/parenthesis-checker/0
2. Simplify Directory Traversal: https://www.interviewbit.com/problems/simplify-directory-path/
3. Stack with min: https://www.interviewbit.com/problems/min-stack/
4. Trapping Rain Water: https://practice.geeksforgeeks.org/problems/trapping-rain-water/0
5. Stack using 2 queues: https://practice.geeksforgeeks.org/problems/stack-using-two-queues/1
6. Queue using 2 stacks: https://practice.geeksforgeeks.org/problems/queue-using-two-stacks/1
7. Tour to visit all petrol pumps: https://practice.geeksforgeeks.org/problems/circular-tour/1
8. Cycle in Linked List: https://www.interviewbit.com/problems/list-cycle/
9. Find middle element: https://practice.geeksforgeeks.org/problems/finding-middle-element-in-a-linked-list/1
10. Merge Two Sorted Lists: https://www.interviewbit.com/problems/merge-two-sorted-lists/
11. Reverse a linked list: https://practice.geeksforgeeks.org/problems/reverse-a-linked-list/1
12. Remove nth node from end: https://www.interviewbit.com/problems/remove-nth-node-from-list-end/
13. Flatten a linked list: https://practice.geeksforgeeks.org/problems/flattening-a-linked-list/1
14. Clone linked list with random pointers: https://practice.geeksforgeeks.org/problems/clone-a-linked-list-with-next-and-random-pointer/1/?track=Placement
15. Partition List: https://www.interviewbit.com/problems/partition-list/
16. Find length of loop in linked list: https://practice.geeksforgeeks.org/problems/find-length-of-loop/1/?track=Placement
17. Redundant braces: https://www.interviewbit.com/problems/redundant-braces/
18. Intersection Point in Y-shaped linked list: https://practice.geeksforgeeks.org/problems/intersection-point-in-y-shapped-linked-lists/1
19. Add 2 numbers as linked list: https://www.interviewbit.com/problems/add-two-numbers-as-lists/
20. Infix to Postfix: https://practice.geeksforgeeks.org/problems/infix-to-postfix/0
21. Evaluate Postfix: https://www.interviewbit.com/problems/evaluate-expression/
22. Rotten Oranges: https://practice.geeksforgeeks.org/problems/rotten-oranges/0

23. Max Area in Histogram: https://www.interviewbit.com/problems/largest-rectangle-in-histogram/

Assignment 4 (Linked List and Bit Manipulation)

1. Reverse a doubly linked list: https://practice.geeksforgeeks.org/problems/reverse-a-doubly-linked-list/1
2. Reverse Digits: https://www.interviewbit.com/problems/reverse-bits/
3. Check if power of 2: https://practice.geeksforgeeks.org/problems/power-of-2/0/?track=Placement
4. Number of different bits in two numbers: https://www.interviewbit.com/problems/different-bits-sum-pairwise/
5. Missing number: https://www.interviewbit.com/problems/single-number/
6. Find 2 missing numbers: https://practice.geeksforgeeks.org/problems/finding-the-numbers/0
7. Subset using bitmask: https://www.interviewbit.com/problems/subset/ are
8. Median of 2 sorted arrays.
9. HeapSort: https://practice.geeksforgeeks.org/problems/heap-sort/1
10. https://www.hackerearth.com/practice/basic-programming/bit-manipulation/basics-of-bit-manipulation/practice-problems/algorithm/monks-choice-of-numbers-1/
11. https://www.hackerearth.com/practice/basic-programming/bit-manipulation/basics-of-bit-manipulation/practice-problems/algorithm/haaaave-you-met-ted/
12. Number appearing once: https://www.interviewbit.com/problems/single-number-ii/
13. Bleak Numbers: https://practice.geeksforgeeks.org/problems/bleak-numbers/0/?track=Placement
14. Count Reversals: https://practice.geeksforgeeks.org/problems/count-the-reversals/0
15. Divide integers without multiplication, division and modulus: https://www.interviewbit.com/problems/divide-integers/

Assignment 5 (Heaps and Greedy)

1. Merge k sorted lists: https://www.interviewbit.com/problems/merge-k-sorted-lists/
2. Huffman Encoding: https://practice.geeksforgeeks.org/problems/huffman-encoding/0
3. Activity Selection Problem: https://practice.geeksforgeeks.org/problems/activity-selection/0
4. Assign Mice To Holes: https://www.interviewbit.com/problems/assign-mice-to-holes/
5. Bulbs: https://www.interviewbit.com/problems/bulbs/
6. Candy Distribution: https://www.interviewbit.com/problems/distribute-candy/
7. N meetings in one room: https://practice.geeksforgeeks.org/problems/n-meetings-in-one-room/0
8. Kth largest element in stream: https://practice.geeksforgeeks.org/problems/kth-largest-element-in-a-stream/0/?track=Placement
9. Stock Span Problem: https://practice.geeksforgeeks.org/problems/stock-span-problem/0
10. Pairwise Swap Linked List: https://practice.geeksforgeeks.org/problems/pairwise-swap-elements-of-a-linked-list-by-swapping-data/1/?track=Placement
11. Minimum Cost of Ropes: https://practice.geeksforgeeks.org/problems/minimum-cost-of-ropes/0
12. Majority Element: https://www.interviewbit.com/problems/majority-element/
13. Rat Maze Problem: https://practice.geeksforgeeks.org/problems/rat-maze-with-multiple-jumps/0
14. Reverse Linked List from m to n: https://www.interviewbit.com/problems/reverse-link-list-ii/
15. Median of a stream: https://practice.geeksforgeeks.org/problems/find-median-in-a-stream/0
16. Sudoku solver: https://practice.geeksforgeeks.org/problems/solve-the-sudoku/0

Assignment 6 (DP)

1. Stairs: https://www.interviewbit.com/problems/stairs/
2. Number of Ways to Decode: https://www.interviewbit.com/problems/ways-to-decode/
3. Rod Cutting: https://practice.geeksforgeeks.org/problems/rod-cutting/0/?track=Placement
4. Tiling Problem: https://practice.geeksforgeeks.org/problems/ways-to-tile-a-floor/0
5. Count Hops: https://practice.geeksforgeeks.org/problems/count-number-of-hops/0/?track=Placement
6. Sparse Number: https://practice.geeksforgeeks.org/problems/number-is-sparse-or-not/0/?track=Placement
7. Special Keyboard Question: https://practice.geeksforgeeks.org/problems/special-keyboard/0
8. Rearrange Characters: https://practice.geeksforgeeks.org/problems/rearrange-characters/0/?track=Placement
9. Print Bracket Number: https://practice.geeksforgeeks.org/problems/print-bracket-number/0/?track=Placement
10. Reach a given score: https://practice.geeksforgeeks.org/problems/reach-a-given-score/0

Assignment 7 (DP)

1. Stock Buying And Selling: https://www.interviewbit.com/problems/best-time-to-buy-and-sell-stocks-ii/
2. https://www.interviewbit.com/problems/best-time-to-buy-and-sell-stocks-iii/
3. Kadane: https://practice.geeksforgeeks.org/problems/kadanes-algorithm/0
4. Minimum Sum Path: https://www.interviewbit.com/problems/min-sum-path-in-matrix/
5. Count paths: https://practice.geeksforgeeks.org/problems/count-all-possible-paths-from-top-left-to-bottom-right/0
6. LIS: https://practice.geeksforgeeks.org/problems/longest-increasing-subsequence/0
7. Longest Bitonic Sequence: https://practice.geeksforgeeks.org/problems/longest-bitonic-subsequence/0
8. Print all possible Strings https://practice.geeksforgeeks.org/problems/print-all-possible-strings/1
9. Print 1 to n without using loop https://practice.geeksforgeeks.org/problems/print-1-to-n-without-using-loops/0
10. Reverse digits of a number https://practice.geeksforgeeks.org/problems/reverse-digit/0
11. Tower of Hanoi https://practice.geeksforgeeks.org/problems/help-the-old-man/0
12. Number of possible paths https://practice.geeksforgeeks.org/problems/number-of-paths/0
13. https://www.hackerearth.com/practice/algorithms/dynamic-programming/introduction-to-dynamic-programming-1/practice-problems/algorithm/xsquare-and-coin-collection-2/
14. https://www.hackerearth.com/practice/algorithms/dynamic-programming/introduction-to-dynamic-programming-1/practice-problems/algorithm/roy-and-ropes/
15. https://www.hackerearth.com/practice/algorithms/dynamic-programming/introduction-to-dynamic-programming-1/practice-problems/algorithm/xsquare-and-chocolates-bars-2/
16. Longest Valid Paranthesis: https://www.interviewbit.com/problems/longest-valid-parentheses/
17. Coin Change: https://practice.geeksforgeeks.org/problems/coin-change/0

18. http://codeforces.com/problemset/problem/855/B
19. http://codeforces.com/contest/474/problem/D
20. http://codeforces.com/contest/67/problem/D
21. Median of 2 sorted arrays: https://leetcode.com/problems/median-of-two-sorted-arrays/

Assignment 8 (DP)

1. 0/1 Knapsack: https://practice.geeksforgeeks.org/problems/0-1-knapsack-problem/0
2. Subset Sum: https://practice.geeksforgeeks.org/problems/minimum-sum-partition/0
3. Longest Common Subsequence: https://practice.geeksforgeeks.org/problems/longest-common-subsequence/0
4. Longest Palindromic Subsequence: https://practice.geeksforgeeks.org/problems/longest-palindromic-subsequence/0
5. Regex Match 1: https://www.interviewbit.com/problems/regular-expression-match/
6. Edit Distance: https://www.interviewbit.com/problems/edit-distance/
7. Chain Matrix Multiplication: https://practice.geeksforgeeks.org/problems/matrix-chain-multiplication/0
8. Rod Cutting: https://www.interviewbit.com/problems/rod-cutting/
9. Minimum Deletions to Make string palindrome: https://practice.geeksforgeeks.org/problems/minimum-deletitions/0
10. Minimum Jumps to reach end: https://www.interviewbit.com/problems/min-jumps-array/
11. Regex Match 2: https://www.interviewbit.com/problems/regular-expression-ii/
12. Ways to make expression true: https://www.interviewbit.com/problems/evaluate-expression-to-true/
13. Egg Drop Puzzle: https://practice.geeksforgeeks.org/problems/egg-dropping-puzzle/0
14. https://www.interviewbit.com/problems/flip-array/
15. https://www.interviewbit.com/problems/interleaving-strings/
16. Max Rectangle in Binary Matrix: https://www.interviewbit.com/problems/max-rectangle-in-binary-matrix/

Assignment 9 (Binary Tree)

1. Postorder: https://www.interviewbit.com/problems/postorder-traversal/
   Inorder: https://www.interviewbit.com/problems/inorder-traversal/
   Preorder: https://www.interviewbit.com/problems/preorder-traversal/
2. Level Order Traversal:
   https://practice.geeksforgeeks.org/problems/level-order-traversal/1
3. Reverse Level Order Traversal:
   https://practice.geeksforgeeks.org/problems/reverse-level-order-traversal/1
4. Left View of Binary Tree:
   https://practice.geeksforgeeks.org/problems/left-view-of-binary-tree/1
5. Bottom View of Binary Tree:
   https://practice.geeksforgeeks.org/problems/bottom-view-of-binary-tree/1
6. Construct Tree from Inorder and Preorder:
   https://www.interviewbit.com/problems/construct-binary-tree-from-inorder-and-preorder/
7. Tree from Inorder and Postorder:
   https://www.interviewbit.com/problems/binary-tree-from-inorder-and-postorder/
8. Mirror: https://practice.geeksforgeeks.org/problems/mirror-tree/1
9. Full BT Check: https://practice.geeksforgeeks.org/problems/full-binary-tree/1
10. Complete BT check: https://practice.geeksforgeeks.org/problems/complete-binary-tree/1
11. LCA:
    https://practice.geeksforgeeks.org/problems/lowest-common-ancestor-in-a-binary-tree/1
12. Diameter: https://practice.geeksforgeeks.org/problems/diameter-of-binary-tree/1
13. Count Leaves: https://practice.geeksforgeeks.org/problems/count-leaves-in-binary-tree/1
14. Depth: https://www.interviewbit.com/problems/max-depth-of-binary-tree/
    https://www.interviewbit.com/problems/min-depth-of-binary-tree/
15. https://www.interviewbit.com/problems/vertical-order-traversal-of-binary-tree/
16. https://www.interviewbit.com/problems/identical-binary-trees/
17. https://www.interviewbit.com/problems/symmetric-binary-tree/

18. Boundary Traversal: https://practice.geeksforgeeks.org/problems/boundary-traversal-of-binary-tree/1
19. Check Path Sum: https://www.interviewbit.com/problems/path-sum/
20. https://www.interviewbit.com/problems/zigzag-level-order-traversal-bt/
21. https://www.interviewbit.com/problems/populate-next-right-pointers-tree/
22. https://www.interviewbit.com/problems/flatten-binary-tree-to-linked-list/

Assignment 10 (Binary Search Tree)

1. Convert Tree to dll: https://practice.geeksforgeeks.org/problems/binary-tree-to-dll/1
2. Serialize and deserialize: https://practice.geeksforgeeks.org/problems/serialize-and-deserialize-a-binary-tree/1
3. BST: Insertion: https://practice.geeksforgeeks.org/problems/insert-a-node-in-a-bst/1
4. BST: Deletion: https://practice.geeksforgeeks.org/problems/delete-a-node-from-bst/1
5. Sorted Array to BST: https://www.interviewbit.com/problems/sorted-array-to-balanced-bst/
6. Check BST: https://practice.geeksforgeeks.org/problems/check-for-bst/1
7. Kth smallest element in BST: https://www.interviewbit.com/problems/kth-smallest-element-in-tree/
8. Check sum in BST: https://www.interviewbit.com/problems/2sum-binary-tree/
9. LCA in BST: https://practice.geeksforgeeks.org/problems/lowest-common-ancestor-in-a-bst/1
10. Merge Two BSTs: https://practice.geeksforgeeks.org/problems/merge-two-bst-s/1
11. https://www.interviewbit.com/problems/balanced-binary-tree/
12. https://practice.geeksforgeeks.org/problems/spirally-traversing-a-matrix/0
13. Find swapped nodes: https://www.interviewbit.com/problems/recover-binary-search-tree/
14. Delete nodes in BST >k: https://practice.geeksforgeeks.org/problems/delete-nodes-greater-than-k/1
15. Largest BST in a BT: https://practice.geeksforgeeks.org/problems/largest-bst/1
16. https://www.interviewbit.com/problems/dungeon-princess/
17. https://www.interviewbit.com/problems/max-sum-path-in-binary-tree/
18. https://leetcode.com/problems/convert-bst-to-greater-tree/description/

Assignment 11 (Graphs)

1. DFS: https://practice.geeksforgeeks.org/problems/depth-first-traversal-for-a-graph/1
2. BFS: https://practice.geeksforgeeks.org/problems/bfs-traversal-of-graph/1
3. Detect cycle in undirected graph: https://practice.geeksforgeeks.org/problems/detect-cycle-in-an-undirected-graph/1/?track=Placement
4. Check if graph is bipartite: https://leetcode.com/problems/is-graph-bipartite/description/
5. Number of islands: https://practice.geeksforgeeks.org/problems/find-the-number-of-islands/1
6. Knight Walk: https://www.interviewbit.com/problems/knight-on-chess-board/
7. Rotten Oranges: https://practice.geeksforgeeks.org/problems/rotten-oranges/0
8. https://practice.geeksforgeeks.org/problems/length-of-largest-region-of-1s/0
9. Check Path: https://practice.geeksforgeeks.org/problems/find-whether-path-exist/0
10. https://www.interviewbit.com/problems/black-shapes/
11. Matrix in spiral order: https://practice.geeksforgeeks.org/problems/spirally-traversing-a-matrix/0
12. https://practice.geeksforgeeks.org/problems/boolean-matrix-problem/0
13. https://www.interviewbit.com/problems/capture-regions-on-board/
14. LRU Caching: https://practice.geeksforgeeks.org/problems/lru-cache/1
15. Snake and Ladder: https://practice.geeksforgeeks.org/problems/snake-and-ladder-problem/0
16. https://practice.geeksforgeeks.org/problems/count-subsequences-of-type-ai-bj-ck/0
17. https://practice.geeksforgeeks.org/problems/maximum-of-minimum-for-every-window-size/0

Assignment 12/13/14/15 (Mixed Bag)

1. Sieve: https://practice.geeksforgeeks.org/problems/sieve-of-eratosthenes/0
2. https://leetcode.com/problems/find-pivot-index/description/
3. https://leetcode.com/problems/sliding-window-maximum/description/
4. https://practice.geeksforgeeks.org/problems/subarray-with-given-sum/0
   https://leetcode.com/problems/subarray-sum-equals-k/description/
5. https://practice.geeksforgeeks.org/problems/row-with-max-1s/0
6. https://leetcode.com/problems/maximal-square/description/
7. https://practice.geeksforgeeks.org/problems/nodes-at-given-distance-in-binary-tree/1
8. https://practice.geeksforgeeks.org/problems/min-distance-between-two-given-nodes-of-a-binary-tree/1
9. https://practice.geeksforgeeks.org/problems/k-anagrams-1/0
10. https://practice.geeksforgeeks.org/problems/the-celebrity-problem/1
11. https://leetcode.com/problems/valid-tic-tac-toe-state/description/
12. https://practice.geeksforgeeks.org/problems/stepping-numberswrong-output/0
13. https://www.interviewbit.com/problems/smallest-sequence-with-given-primes/
14. https://www.interviewbit.com/problems/smallest-multiple-with-0-and-1/
15. https://www.interviewbit.com/problems/wave-array/
16. https://www.interviewbit.com/problems/possibility-of-finishing-all-courses-given-prerequisites/
17. https://practice.geeksforgeeks.org/problems/smallest-distant-window/0

18. https://practice.geeksforgeeks.org/problems/leftmost-and-rightmost-nodes-of-binary-tree/1
19. https://www.geeksforgeeks.org/remove-minimum-elements-either-side-2min-max/
20. https://practice.geeksforgeeks.org/problems/find-all-four-sum-numbers/0
21. https://www.interviewbit.com/problems/pascal-triangle/
22. https://www.interviewbit.com/problems/min-steps-in-infinite-grid/
23. https://www.interviewbit.com/problems/rotate-matrix/
24. https://www.interviewbit.com/problems/maximum-absolute-difference/
25. https://practice.geeksforgeeks.org/problems/find-pair-given-difference/0
26. https://practice.geeksforgeeks.org/problems/help-the-old-man/0
27. https://practice.geeksforgeeks.org/problems/handshakes/0
28. https://practice.geeksforgeeks.org/problems/flood-fill-algorithm/0
29. https://practice.geeksforgeeks.org/problems/sort-a-linked-list/1
30. https://www.interviewbit.com/problems/reverse-link-list-ii/
31. https://practice.geeksforgeeks.org/problems/twice-counter/0
32. https://practice.geeksforgeeks.org/problems/nth-item-through-sum/0
33. https://practice.geeksforgeeks.org/problems/array-pair-sum-divisibility-problem/0
34. https://www.interviewbit.com/problems/distinct-numbers-in-window/
35. https://practice.geeksforgeeks.org/problems/largest-number-in-k-swaps/0
36. https://practice.geeksforgeeks.org/problems/replace-the-bit/0
37. https://practice.geeksforgeeks.org/problems/friends-pairing-problem/0
38. https://practice.geeksforgeeks.org/problems/maximize-dot-product/0
39. https://practice.geeksforgeeks.org/problems/check-if-subtree/1
40. https://practice.geeksforgeeks.org/problems/number-that-are-not-divisible/0

Advanced Topics (Only for some students):

Segment Tree:

1. https://www.hackerearth.com/practice/data-structures/advanced-data-structures/segment-trees/tutorial/
2. http://codeforces.com/contest/339/problem/D
3. http://codeforces.com/contest/459/problem/D
   https://codeforces.com/contest/380/problem/C
   https://codeforces.com/contest/52/problem/C
   https://codeforces.com/contest/558/problem/E

Trie:

1. https://www.hackerearth.com/practice/data-structures/advanced-data-structures/trie-keyword-tree/tutorial/
2. http://codeforces.com/problemset/problem/706/D
   http://codeforces.com/contest/455/problem/B

LCA:

1. https://www.hackerearth.com/problem/algorithm/lowest-common-ancestor/
   http://codeforces.com/problemset/problem/932/D
   http://codeforces.com/contest/832/problem/D

Network Flow:

1. **https://tinyurl.com/flowppt**
2. https://www.hackerearth.com/practice/algorithms/graphs/maximum-flow/tutorial/
   https://www.hackerearth.com/practice/algorithms/graphs/maximum-flow/practice-problems/algorithm/find-the-flow/
   http://codeforces.com/problemset/problem/546/E