2-day prep before Interviews……. Ahhhhhhhhh

-By Khushboo Goel

TOPICSSS

Join this telegram channel,
I am sharing Internship openings
https://t.me/khushboogoel

It's DAY 1

1. Time Complexity revision
    - https://www.interviewbit.com/courses/programming/topics/time-complexity/
    - https://www.geeksforgeeks.org/algorithms-gq/analysis-of-algorithms-gq/
    - Revision- https://medium.com/@manishsundriyal/overview-time-space-complexity-f973513b701e

2. Sorting Searching Revision!!!

Array Sorting Algorithms

Algorithm	Time Complexity			Space Complexity
	Best	Average	Worst	Worst
Quicksort	O(n log(n))	O(n log(n))	O(n^2)	O(log(n))
Mergesort	O(n log(n))	O(n log(n))	O(n log(n))	O(n)
Timsort	O(n)	O(n log(n))	O(n log(n))	O(n)
Heapsort	O(n log(n))	O(n log(n))	O(n log(n))	O(1)
Bubble Sort	O(n)	O(n^2)	O(n^2)	O(1)
Insertion Sort	O(n)	O(n^2)	O(n^2)	O(1)
Selection Sort	O(n^2)	O(n^2)	O(n^2)	O(1)
Tree Sort	O(n log(n))	O(n log(n))	O(n^2)	O(n)
Shell Sort	O(n log(n))	O(n(log(n))^2)	O(n(log(n))^2)	O(1)
Bucket Sort	O(n+k)	O(n+k)	O(n^2)	O(n)
Radix Sort	O(nk)	O(nk)	O(nk)	O(n+k)
Counting Sort	O(n+k)	O(n+k)	O(n+k)	O(k)
Cubesort	O(n)	O(n log(n))	O(n log(n))	O(n)

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- Just read basics about allllll
- https://www.geeksforgeeks.org/sorting-algorithms/
- https://www.geeksforgeeks.org/know-sorting-algorithm-set-1-sorting-weapons-used-programming-languages/

(Must read article)

3. DS Revisionnnnn….

Data Structure	Time Complexity								Space Complexity
	Average				Worst				Worst
	Access	Search	Insertion	Deletion	Access	Search	Insertion	Deletion	
Array	Θ(1)	Θ(n)	Θ(n)	Θ(n)	O(1)	O(n)	O(n)	O(n)	O(n)
Stack	Θ(n)	Θ(n)	Θ(1)	Θ(1)	O(n)	O(n)	O(1)	O(1)	O(n)
Queue	Θ(n)	Θ(n)	Θ(1)	Θ(1)	O(n)	O(n)	O(1)	O(1)	O(n)
Singly-Linked List	Θ(n)	Θ(n)	Θ(1)	Θ(1)	O(n)	O(n)	O(1)	O(1)	O(n)
Doubly-Linked List	Θ(n)	Θ(n)	Θ(1)	Θ(1)	O(n)	O(n)	O(1)	O(1)	O(n)
Skip List	Θ(log(n))	Θ(log(n))	Θ(log(n))	Θ(log(n))	O(n)	O(n)	O(n)	O(n)	O(n log(n))
Hash Table	N/A	Θ(1)	Θ(1)	Θ(1)	N/A	O(n)	O(n)	O(n)	O(n)
Binary Search Tree	Θ(log(n))	Θ(log(n))	Θ(log(n))	Θ(log(n))	O(n)	O(n)	O(n)	O(n)	O(n)
Cartesian Tree	N/A	Θ(log(n))	Θ(log(n))	Θ(log(n))	N/A	O(n)	O(n)	O(n)	O(n)
B-Tree	Θ(log(n))	Θ(log(n))	Θ(log(n))	O(log(n))	O(log(n))	O(log(n))	O(log(n))	O(log(n))	O(n)
Red-Black Tree	Θ(log(n))	Θ(log(n))	Θ(log(n))	Θ(log(n))	O(log(n))	O(log(n))	O(log(n))	O(log(n))	O(n)
Splay Tree	N/A	Θ(log(n))	Θ(log(n))	Θ(log(n))	N/A	O(log(n))	O(log(n))	O(log(n))	O(n)
AVL Tree	Θ(log(n))	Θ(log(n))	Θ(log(n))	Θ(log(n))	O(log(n))	O(log(n))	O(log(n))	O(log(n))	O(n)
KD Tree	Θ(log(n))	Θ(log(n))	Θ(log(n))	Θ(log(n))	O(n)	O(n)	O(n)	O(n)	O(n)

- https://docs.python.org/3.11/tutorial/datastructures.html
- https://www.tutorialspoint.com/data_structures_algorithms/index.htm
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4. Binary trees……..
    - Orders ...pre,post,in
    - https://www.interviewbit.com/courses/programming/topics/tree-data-structure/
    - https://leetcode.com/problemset/all/?topicSlugs=binary-tree

5. Hashing & Hashmaps

- https://www.interviewbit.com/courses/programming/topics/hashing/
- How to implement a hash??
- Coliisionss
- https://www.youtube.com/watch?v=h2d9b_nEzoA
- https://www.youtube.com/watch?v=eMymKAFYaCs
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DAY -2

1. Stacks….&Queuesss
    - https://www.interviewbit.com/courses/programming/topics/stacks-and-queues/
    - https://www.interviewbit.com/problems/stack-queue/
    -

2. Binary trees:

    - https://leetcode.com/explore/learn/card/data-structure-tree/

3. Priority Queue:
    - https://www.interviewcake.com/concept/java/priority-queue
    - https://www.interviewbit.com/problems/priority_queue/

4. Graphs

- https://www.interviewcake.com/concept/java/graph
- https://www.interviewbit.com/courses/programming/topics/graph-data-structure-algorithms/
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- https://www.interviewbit.com/problems/maps-cpp/
- https://runestone.academy/runestone/books/published/pythonds/Graphs/toctree.html
- https://towardsdatascience.com/graph-data-structure-cheat-sheet-for-coding-interviews-a38aadf8aa87

Day - 3

- Time complexity of recursion:
- https://en.wikipedia.org/wiki/Master_theorem_(analysis_of_algorithms)#Case_1_example
- https://www.geeksforgeeks.org/convert-normal-bst-balanced-bst/
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