250 DSA

Wednesday, 4 January 2023 11:55 PM

- https://leadcoding.in/dsa-sheet/
- https://www.techiedelight.com/data-structures-and-algorithms-problems/
- https://docs.google.com/spreadsheets/d/1GZ41tYgR3qtgKe9q4jrw-CeZZ49QEJh4zcJv0/1400835035
- https://takeuforward.org/interviews/strivers-sde-sheet-top-coding-interview-problem
- https://takeuforward.org/strivers-a2z-dsa-course/strivers-a2z-dsa-course-sheet-2/

BFS

- https://www.geeksforgeeks.org/find-a-peak-in-a-given-array/https://www.geeksforge
  shortest-chain-to-reach-a-target-word/
  - https://www.geeksforgeeks.org/word-ladder-length-of-shortest-chain-to-reach-
  - Define the Queue
  - BFS traversal by changing the characters in each position at once and inserting i
  - No of switches(chains) required to form the final expected chain.
  - Each chain equals draining of entire elements in the queue.
- https://www.geeksforgeeks.org/snake-ladder-problem-2/
- https://www.pepcoding.com/resources/data-structures-and-algorithms-in-java-levelup/graphs/as_far_from_land_as_possible/topic
  - https://ideone.com/Ye3O1L
- https://just4once.gitbooks.io/leetcode-notes/content/leetcode/binary-search/778-sw
  - LeetCode 70 Problem 4 - Swim in Rising Water
- https://www.geeksforgeeks.org/find-number-of-closed-islands-in-given-matrix/
- https://aaronice.gitbook.io/lintcode/graph_search/cheapest-flights-within-k-stops
  - https://leetcode.com/problems/cheapest-flights-within-k-stops/solutions/1155
    Queue-Solution/
- https://www.geeksforgeeks.org/inplace-rotate-square-matrix-by-90-degrees/
  - Rotate matrix by 90 degrees
  - Reverse each row
  - And finally transpose the values to reverse it to 90 degrees

Binary Search

- https://www.geeksforgeeks.org/capacity-to-ship-packages-within-d-days/

Cno7834/edit#gid=

ns/

eeks.org/-ladder-length-of-

-a-target-word/

nto the queue

vim-in-rising-water.html

41/JavaPython-Priority-

- https://www.geeksforgeeks.org/capacity-to-ship-packages-within-d-days/
  https://www.geeksforgeeks.org/find-a-peak-in-a-given-array/
- https://www.geeksforgeeks.org/allocate-minimum-number-pages/
  - Lecture 15: Book Allocation Problem || Aggressive Cows Problem || Binary Sear
- Aggressive cows
  - https://takeuforward.org/data-structure/aggressive-cows-detailed-solution/
  - https://www.spoj.com/problems/AGGRCOW/
  - Aggressive Cows | Binary Search
- Koko eating bananas
- Koko Eating Bananas Leetcode 875. Binary Search | Full C++ Code in Comments | Brut
- Sorted and rotated array -> https://takeuforward.org/data-structure/search-element-
  - https://www.geeksforgeeks.org/search-an-element-in-a-sorted-and-pivoted-arr
- https://takeuforward.org/data-structure/search-single-element-in-a-sorted-array/

Binary Heap
• Data structure: array representation
• Complete binary tree
• Minimum heap or priority queue
Max heap
https://www.geeksforgeeks.org/binary-heap/

- • Insertion and deletion in min/max heap: -> https://www.geeksforgeeks.org/insertio
- Insertion:
  - Insert new element in last.
  - Do heapify from child to parent(bottom to top) until big element reaches top
- Deletion:
  - Delete the root element
  - Pick the last element and fit in root.
  - Do heapify from top to bottom(parent to child) until smaller element reaches bo

- https://www.geeksforgeeks.org/k-largestor-smallest-elements-in-an-array/
- https://www.geeksforgeeks.org/kth-smallest-largest-element-in-unsorted-array/
  - MIN-MAX-HEAP
  - Quick sort partition concept
  - Using tree map by maintaining no with its frequency. By default, it will be maint
- https://www.geeksforgeeks.org/building-heap-from-array/
  - Min/max heap
  - Pick the first non leaf nodes and iterate from the reverse level order.
  - **heapify** the complete binary tree formed from the array in **reverse level order**
    - Use **top-down approach for heapify**

rch Advanced Problems

e force to Optimal
in-a-rotated-sorted-array/
ray/

n-and-deletion-in-heaps/

ottom

ained.

- Heapsort -> https://www.geeksforgeeks.org/heap-sort/https://www.geeksforgeeks.o
- MergeKSortedArrays
  - https://www.geeksforgeeks.org/merge-k-sorted-arrays/
  - Use min-heap for the no of arrays present
  - Insert 1 data from each array,
  - Pick the smallest from the heap and store it in result array,
    - Replace the popped element with next element in the same array
- Median of incoming data streams
  - https://www.geeksforgeeks.org/median-of-stream-of-integers-running-integers
    - Use max-heap on the left side of the split
    - And use min-heap on the right side of the split
    - Take the popped value from both the heaps and calculate median
    - If the total size differs by 1, then consider the element from the heap whi
    - If the total size on both heap is same, then pick the top element from both out of it.
  - https://www.geeksforgeeks.org/insertion-sort/
- https://www.baeldung.com/java-kth-smallest-element-in-sorted-arrays
  - https://takeuforward.org/data-structure/k-th-element-of-two-sorted-arrays/
- K-max combinations from 2 arrays -
  - https://www.geeksforgeeks.org/k-maximum-sum-combinations-two-arrays/
  - **Sorting, Max heap, Map**

LRU Cache

- https://www.geeksforgeeks.org/design-a-data-structure-for-lru-cache/
  - Option1
    - HashMap
    - Custom Double Linked List Node implentation
  - Option2
    - LinkedHashMap
    - Protected boolean removeEldestEntry(Map.Entry entry) {
      - Return size()> CAPACITY;
    - }
- https://www.geeksforgeeks.org/lru-cache-implementation/
  - Option1
    - Deque = LinkedList
    - HashSet
    - Refer
  - Option2
    - LinkedHashSet to remove Deque Data structure
- https://www.geeksforgeeks.org/word-ladder-length-of-shortest-chain-to-reach-a-target-wo

rg/heap-sort/

s/

ch is bigger as median
n heaps and take average

ord/

- https://www.geeksforgeeks.org/islands-in-a-graph-using-bfs/
    - https://www.geeksforgeeks.org/find-the-number-of-islands-using-dfs/
- https://www.geeksforgeeks.org/travelling-salesman-problem-using-dynamic-programming/

- **U - Q007852548**