Heap Applications :→

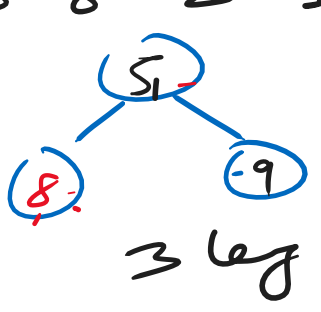
* Print k largest Elements in an array. → min Heap

** Print kth smallest Element in an array. → max Heap

Suppose: 3 largest elements

5 8 2 1 9 ⇒ size = 5

Step 1: Remove smallest till size > k



3 largest

Min Heap:

k-th Smallest in an array :→

arr (7, 10, 4, 3, 20, 15) k = 3

max heap :→

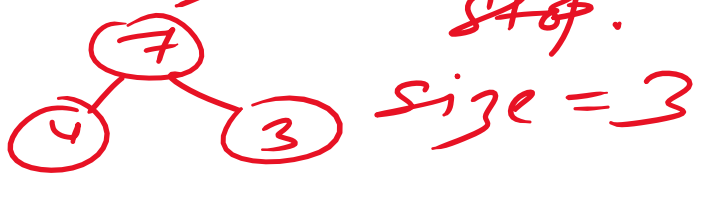
Keep removing elements as long as size > k

20 → Poll → size = 5

15 → Poll → size = 4

10 → Poll → size = 3 → Stop.

The max-heap ⇒



3rd smallest = 7

TCS - Ninja → 2023, 2024, 2025

Coding Round Question :→ 6 - 10 LPA

Given an integer value N, generate all the binary values till N by using a Queue :→

i/p → 5

o/p → 1, 10, 11, 100, 101

Input N = 5 1, 10, 11, 100, 101

Initial Queue : ["1"]

Step 1 : Pop "1" Print → Push ["10", "11"]

Step 2 : Pop "10" Print → Push [11, 100, 101]

Step 3 : Pop "11" Print → Push [100, 101, 110, 111]

Step 4 : Pop "100" Print → Push [101, 110, 111, 1000, 1001]

Step 5 : Pop "101" Print

Post Lunch :→

Back-Tracking + Tries + Graphs