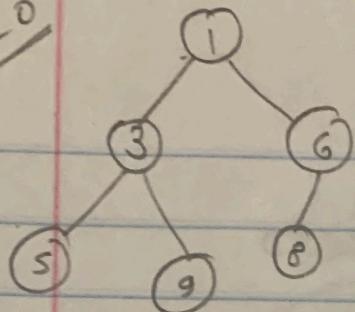


* Heap

21 May 2020

stored as an array. in BFS order.



1	3	5	9	8	
0	1	2	3	4	5

parent of node = $(i-1)/2$.
with i index

left child of = $2i+1$.
 i^{th} index

right child of = $2i+2$.
 i^{th} index

Applications :- heap sort $O(n \log n)$.

Priority Queue.

Dijkstra's shortest path alg.

Interview :- Kth largest element in an array.

Sort an almost sorted array.

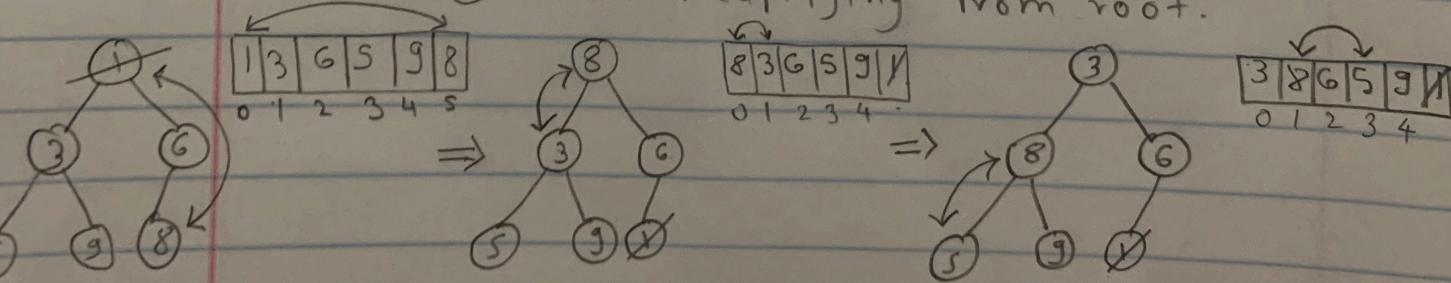
Merge K sorted arrays.

heapify :- there are 2 types max heap & min heap.

To remove root (to get max or min node)

① swap it with last node, and
remove last node.

② Start heapifying from root.



This example shows one node removal from min heap & how to maintain heap property of the node.

