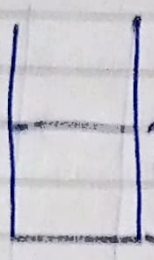
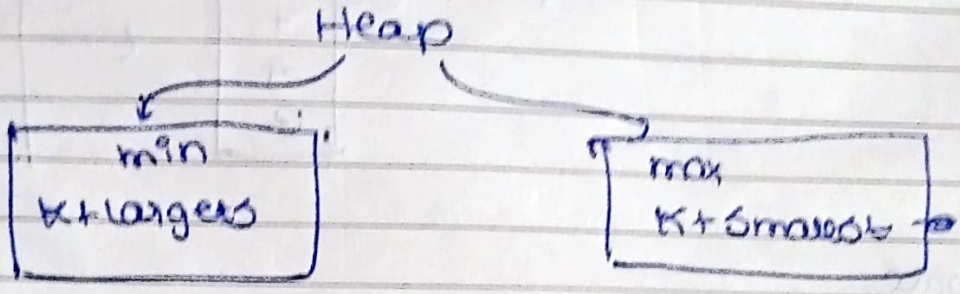
Heap & its Identification

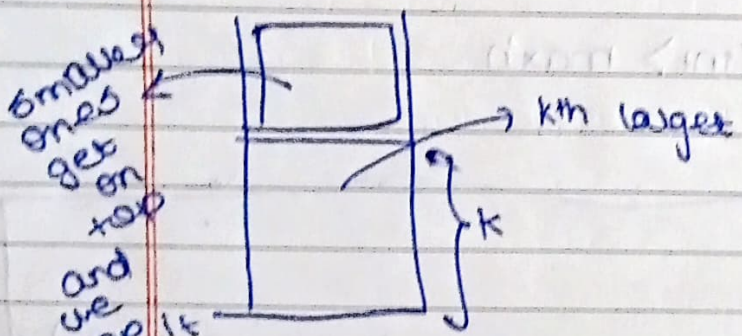


Identification

1) K
2) Smallest k / largest

agar ye dono nai to question heap ka nai





Sorting
↓
(nlogn) by merge
base if we read
K given
↓
n log K

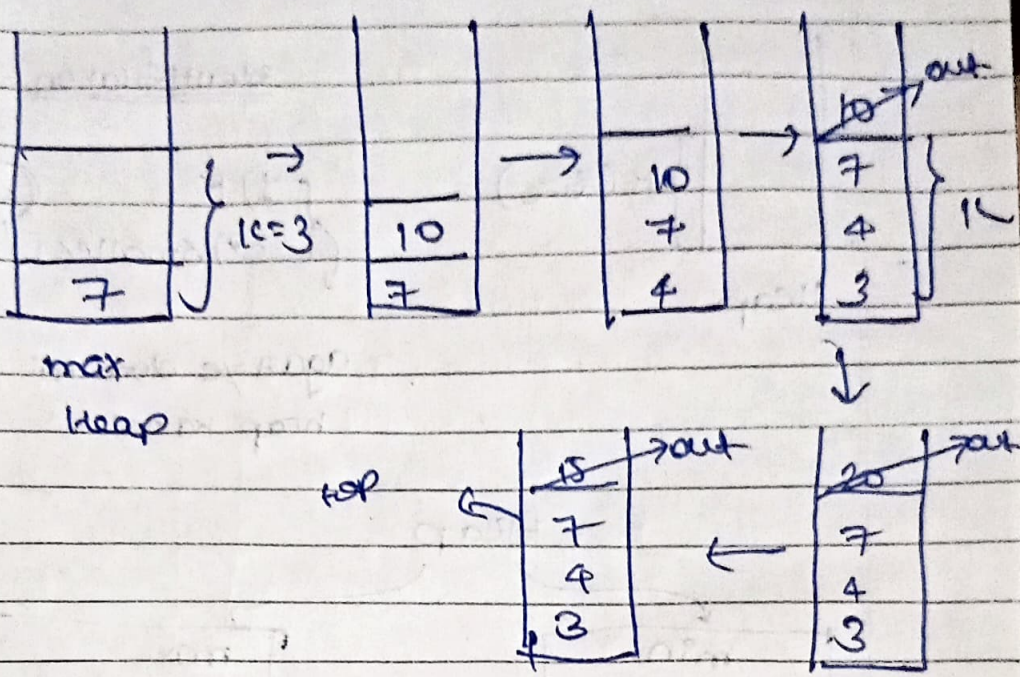
Q. Kth Smallest Element

arr[]: | 7 | 10 | 4 | 3 | 20 | 15 |

Sorting
↓
nlogn

| 3 | 4 | 7 | 10 | 15 | 20 |

7	10	4	3	20	15



code

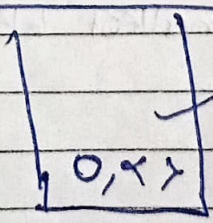
max Heap

priority_queue <int> maxh

min Heap

priority_queue<int, vector<int>, greater<int>> minh;

→ typedef pair<int, pair<int,int>> ppi;



Now we can use for pair

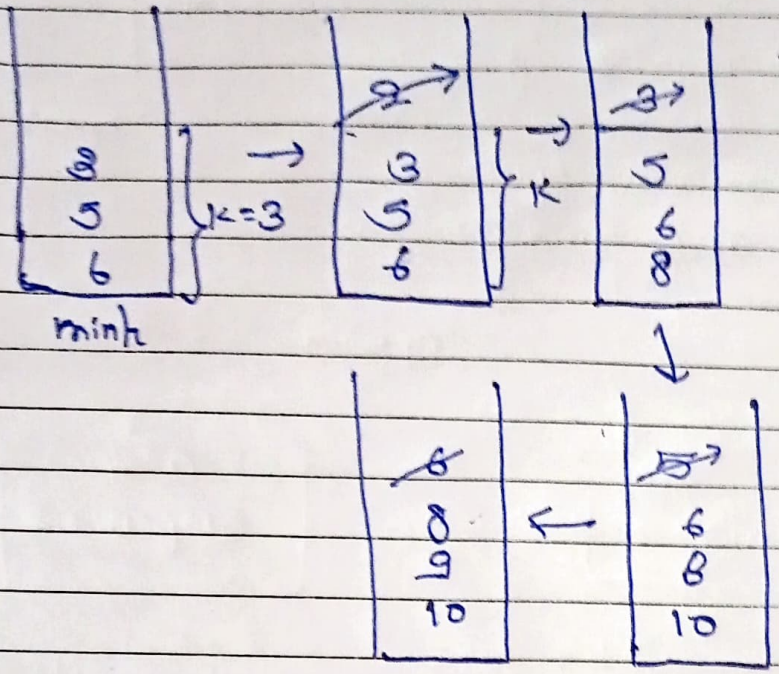
priority_queue < ppi, vector<ppi>, greater <ppi>> minh;

Sort a k sorted array

ans- | 2 | 3 | 5 | 6 | 8 | 9 | 10 |

arr= 6 5 3 2 8 10 9

k=3



basic approach,
→ sorting
→ but then use the use of [k] for k apply min heap kyki hume minimum nikalna hai bas usse pr

K closest number

arr: 5 6 7 8 9

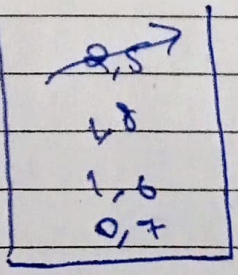
k=3

x=7 → closest to 7

step 1 → abs difference of arr[i] - 7

abs_arr= [2, 1, 0, 1, 2] → This is also key

map key value pair but in heap



which heap → hume min element bottom hai chiye to make heap
Sorting always on basis of first element