

-1, 1, 7, 8, 10, 2, 4, 11, 10
~~DP~~
 $P = \boxed{f|g|T|f|T|r|f|T|f|T|f|T|f|T|f|T}$
 v
 i

1	1	1 2	
-10 ⁴	0	10 ⁴

~~ans~~ > [1, 2, 4, 7, 8, 10, 11]
~~[3|2|1|4|N|N|N|N|N|N]~~
~~0 1 2 3 4 5 6 7 8 9 10~~

$i = n - 1$ $N = \boxed{\text{HFLAFL...L-L}}$
 σ R D

While ~~ans[i] != null && k != 0:~~
~~if ans[i] != null:~~

~~k -= 1~~
~~ans[i] = null;~~

~~ans[i] = null;~~
~~k -= 1~~
~~ans[i] = null;~~

~~i = i - 1~~

K^{th} -largest element

$[3, 2, 3, 1, 2, 4, 5, 5, 6]$

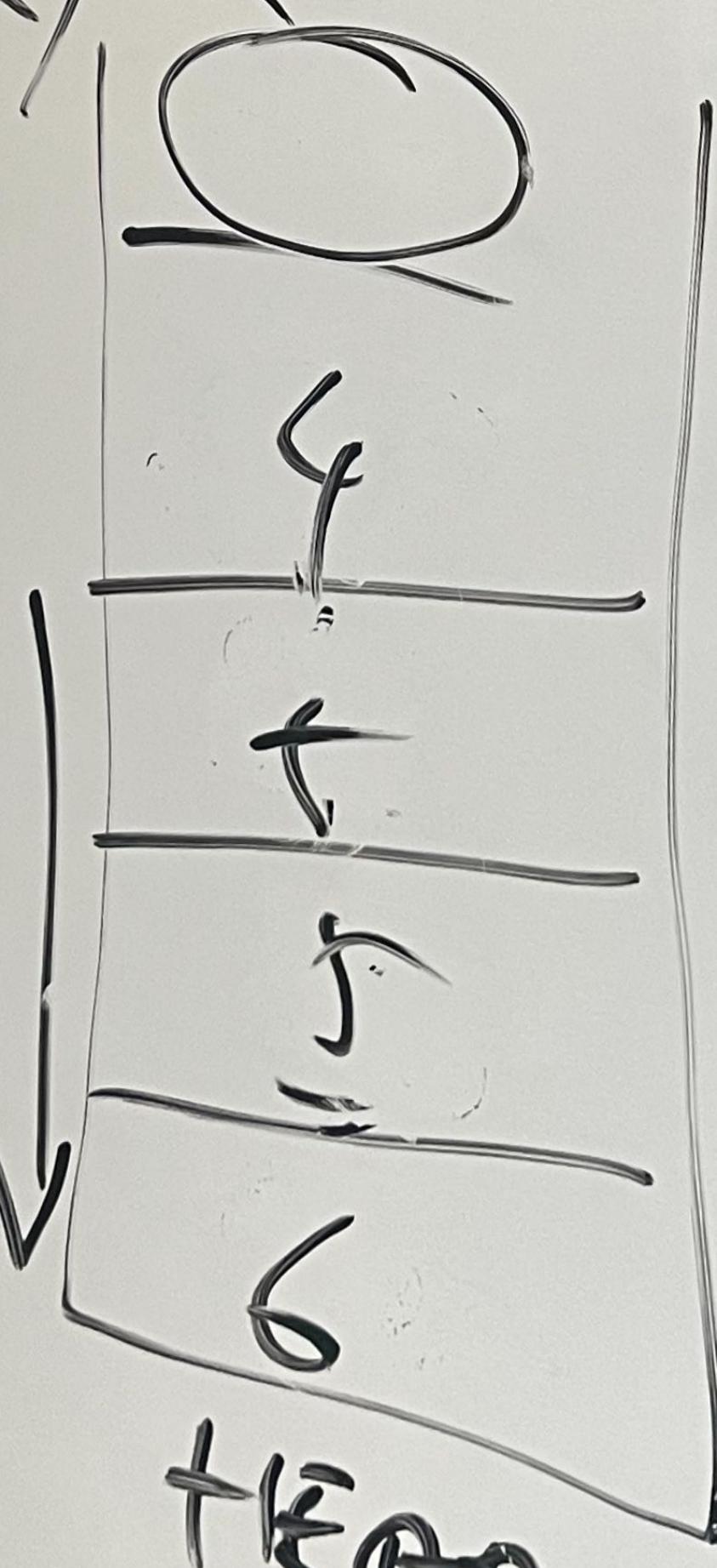
$k=4$ $[1, 2, 2, 3, 3, 4, 5, 5, 6]$

BF- $N \log N$ (Sort) $\leftarrow 4, 5$

Heap- $N \log K$, K

= 1xnum
- 1xnum
MIN

$k=4$



- 1x

↓ 2
↓ 3
↓ 3

HEAP

AP

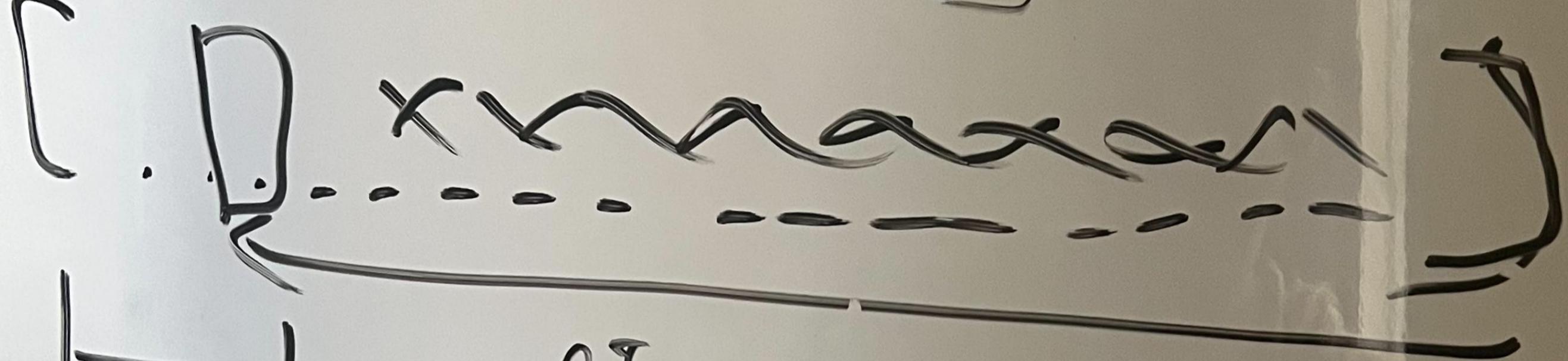
$$h = \lambda_{\text{max}} D \rho \left(\frac{r_{\text{bd}}}{d_{\text{av}}} \right)^{\gamma}$$

big heap

4, 15, 6, 5 $K \log K$ $\log n, N$
 $225 - K$

What if $K = N - 1$?

$\{[a, b] [c, d], [e, f]\}$ 5th Smallest

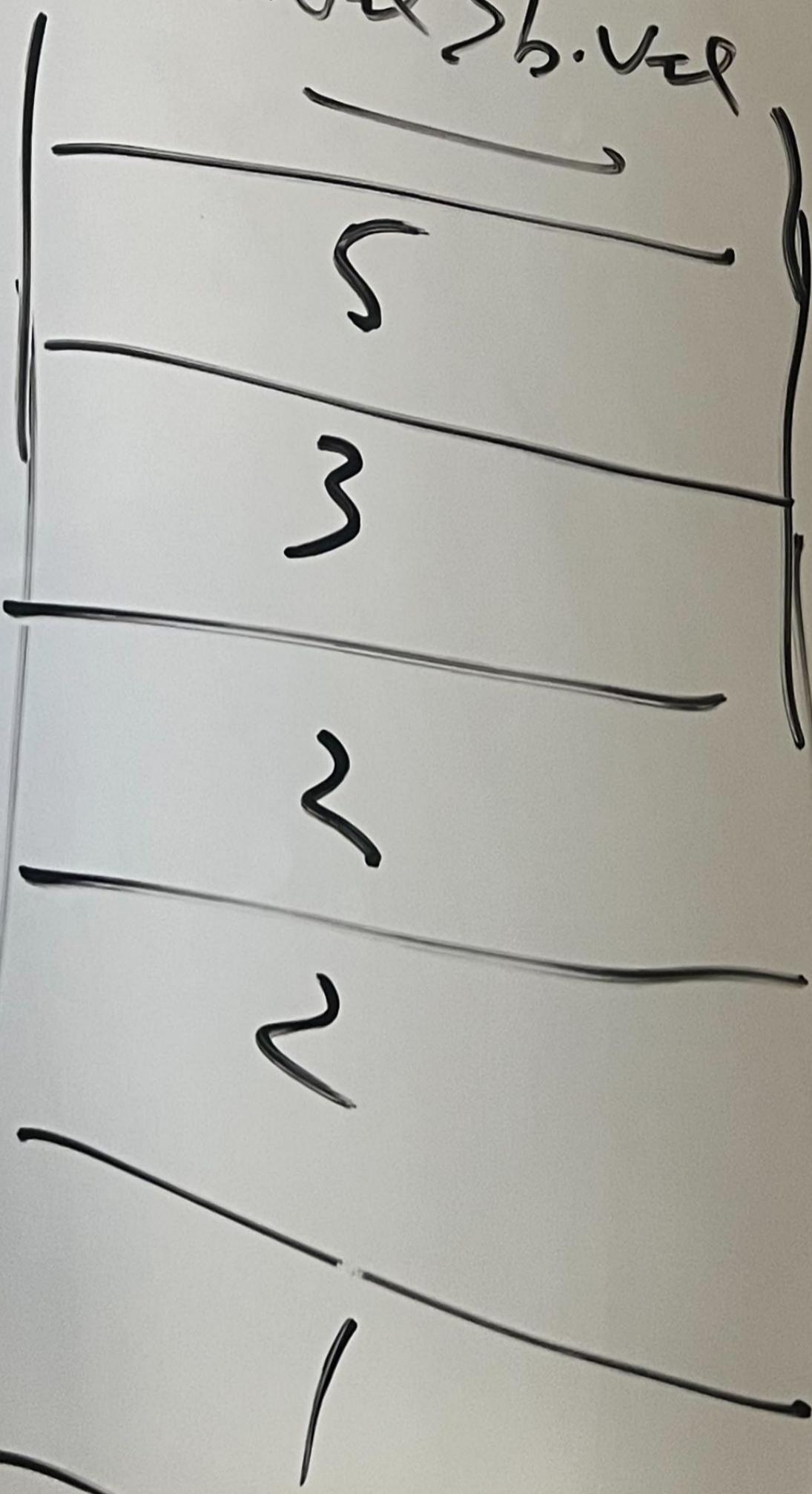


$T \rightarrow D$ \dots \dots

$a \cdot v_{ef} > b \cdot v_{ef}$

$a \cdot v_{ef} > b \cdot v_{ef}$

$\max_{K \geq N/2}$



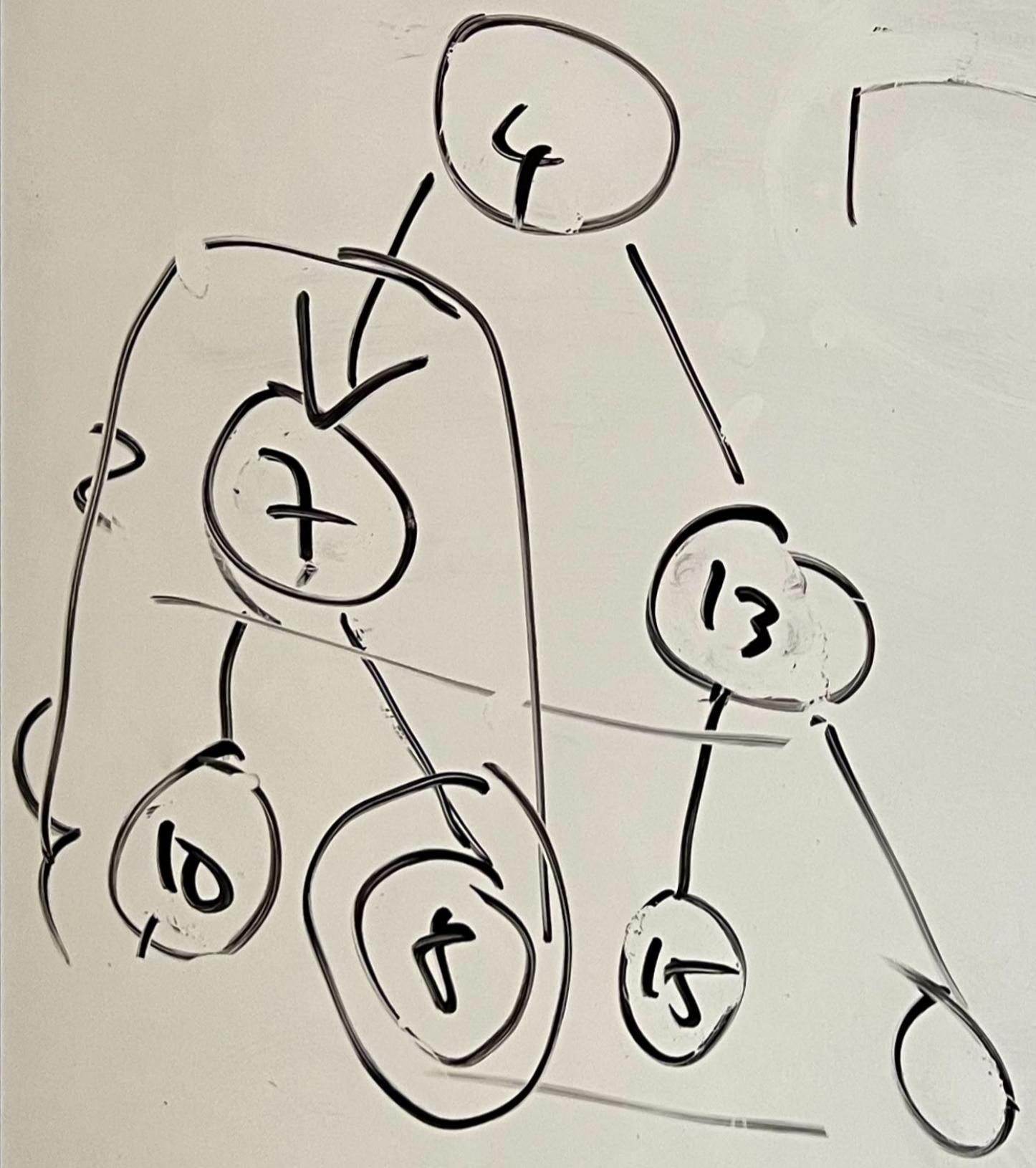
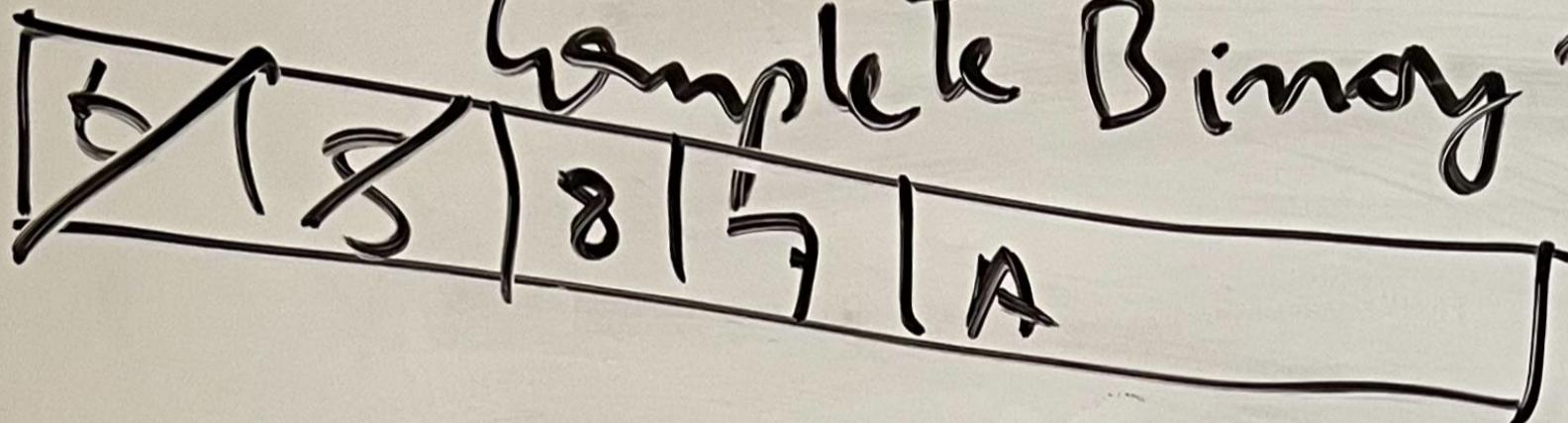
key = $l[0]$

if $b - a$:
 ω^*
 ω^*
 ω^*
 ω^*
 ω^*

Class notes:

Heaps

- Min, Max
- PL Children
- Complete / Almost Complete Binary Tree



1050
1024
26
PL1
PL2

- Sing. Push O(1)
- Push Log_n
- Pop Log_n
- get Min O(1)
- extract Min O(n)
- heapify O(n)

