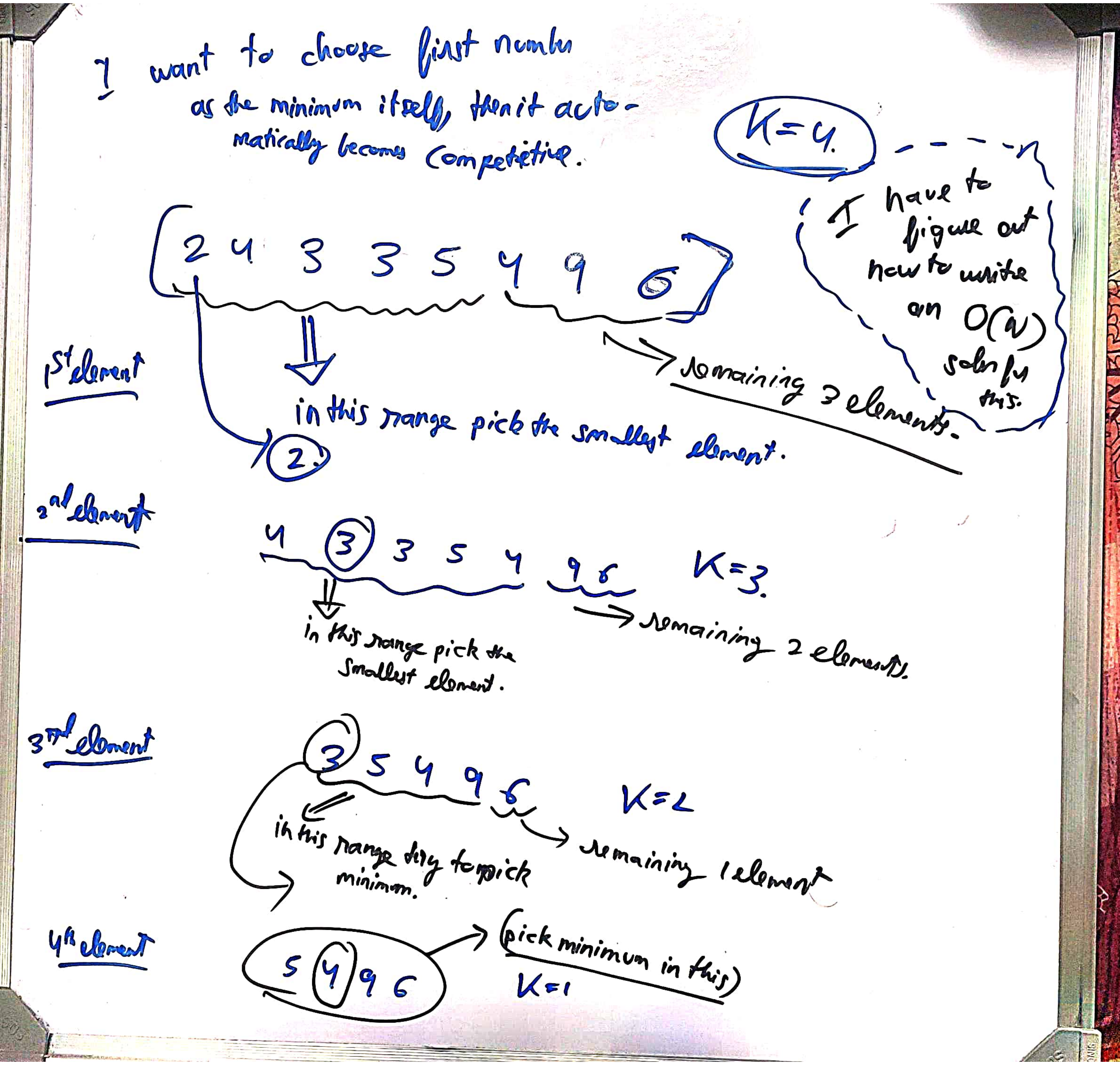


I want to choose first numbr as the minimum itself, then it auto-matically becomes competetive.

K=4.

I have to figure out how to write an O(N) soln for this.

1st element

[2 4 3 3 5 4 9 6]

in this range pick the smallest element.

2.

remaining 3 elements.

2nd element

4 3 3 5 4 9 6 K=3.

in this range pick the smallest element.

remaining 2 elements.

3rd element

3 5 4 9 6 K=2

in this range try to pick minimum.

remaining 1 element

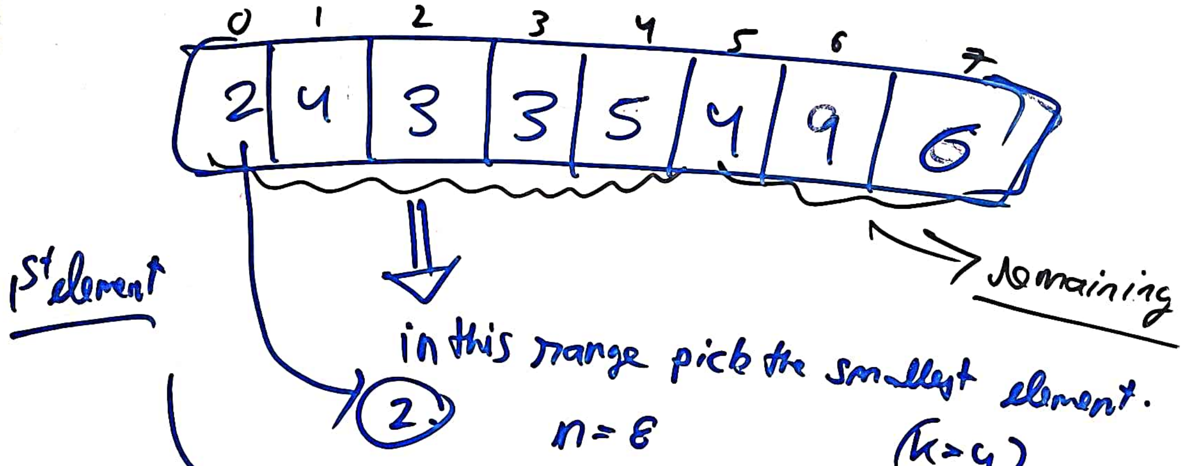
4th element

5 4 9 6

(pick minimum in this)

K=1

I want to choose first numbr as the minimum itself, then it automatically becomes Competetive.



[0 to n-k] { range to pick 1st element.}

[i+1 to n-k+1] {. range to pick 2nd element}

[j+1 to n-k+2] { range to pick 3rd element}

⋮

⋮

[p+1 to n-1] { range to pick last element}

2	4	3	3	5	4	9	6
0	1	2	3	4	5	6	7

K=4.

One approach to solve it using fenwick tree. The approach is v. intuitive

(intuitive approach)

for 1st element → $\min(0, n-k) \rightarrow i$ the index which is having minimum value

for 2nd element → $\min(i, n-k+1) \rightarrow j$ the index which has minimum value in this range.

for 3rd element → $\min(j, n-k+2) \rightarrow m$

⋮

for k^{th} element → $\min(p, n-1) \rightarrow k$

In fenwick tree construct a min fenwick tree which returns the index of the smallest index in the given range.

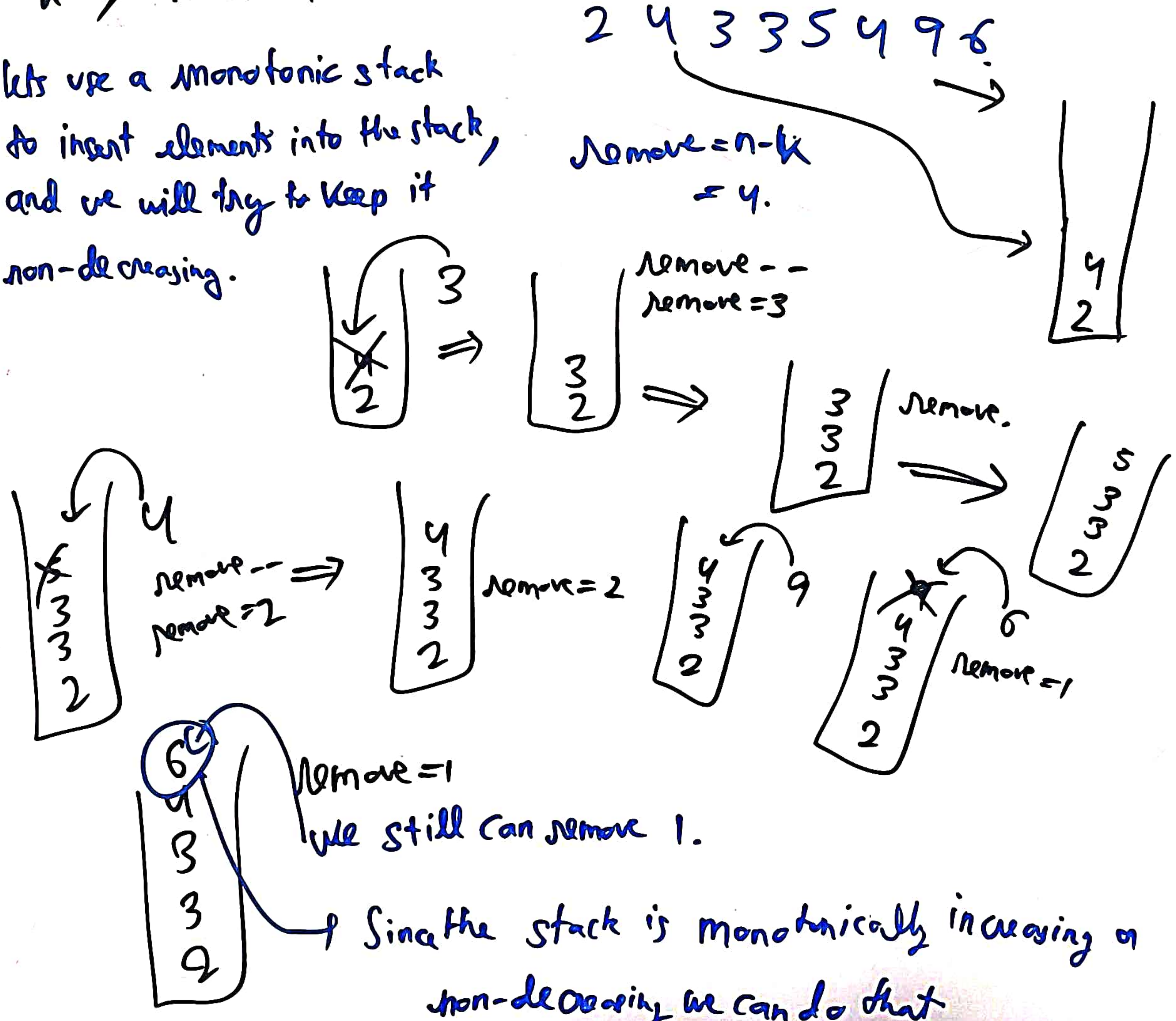
2	4	3	3	5	4	9	6
0	1	2	3	4	5	6	7

K=4. , n=8

If we have to pick K elements, then we have to remove n-K elements.

K=4, n-K=4

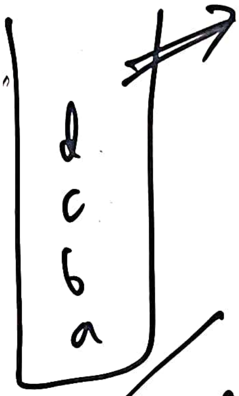
lets use a monotonic stack to insert elements into the stack, and we will try to keep it non-decreasing.



remove=1
we still can remove 1.

Since the stack is monotonically increasing or non-decreasing we can do that

One doubt which I was having.



remove = n-k.

My doubt was that, what if I exhaust all the remove at the start of the stack itself. And at the end a big number appears in the stack like 1000.

Doubt Clearing.

But my doubt was cleared, since

a = 1 2 3 5 1000

b = 1 2 5 3 2

seq(a) < seq(b) this is the index where difference is happening hence we want to apply the removal in the beginning itself.