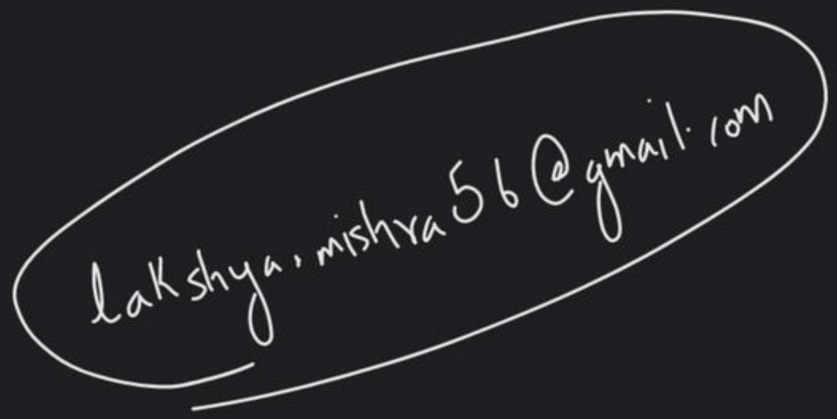
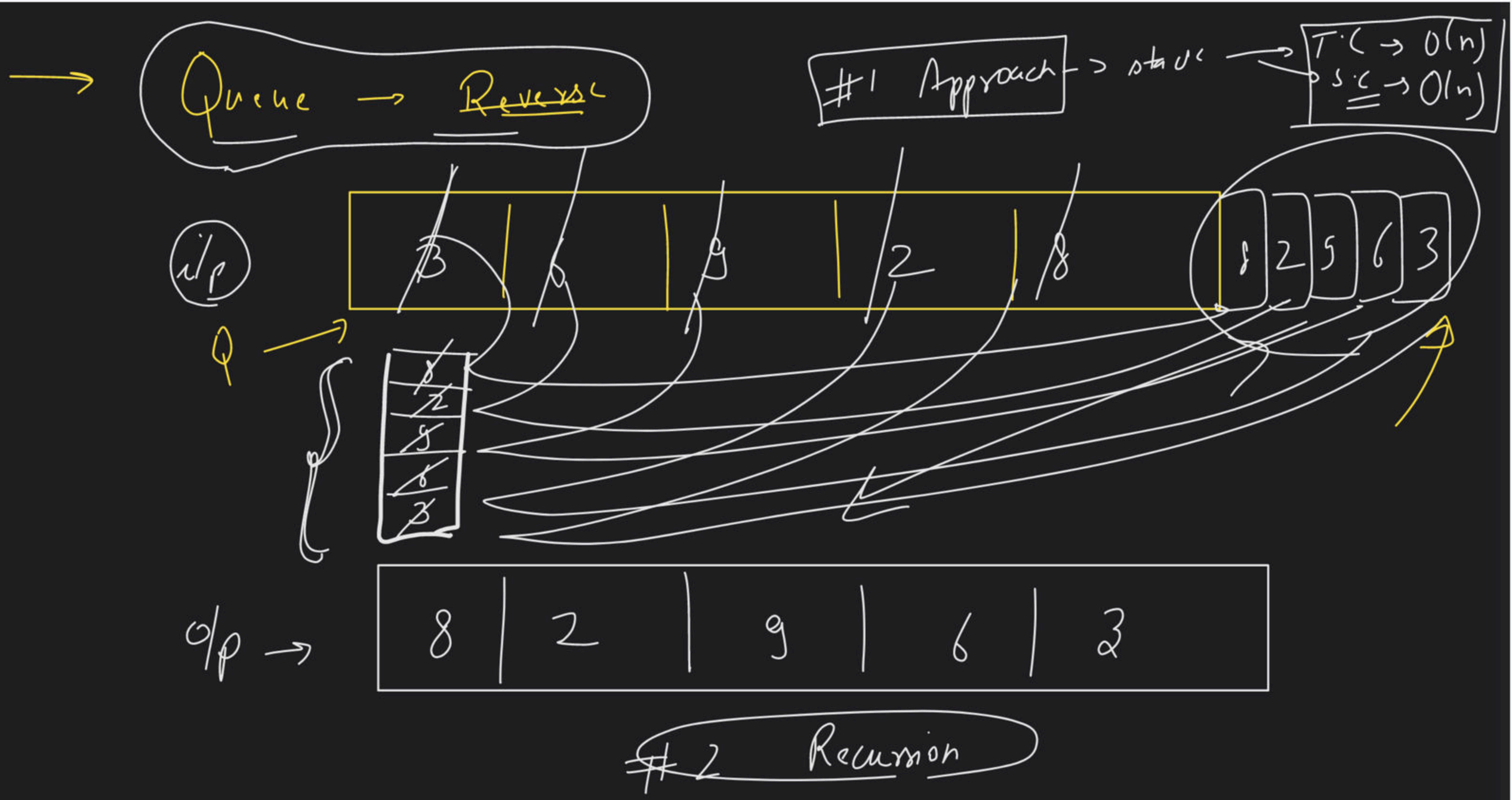
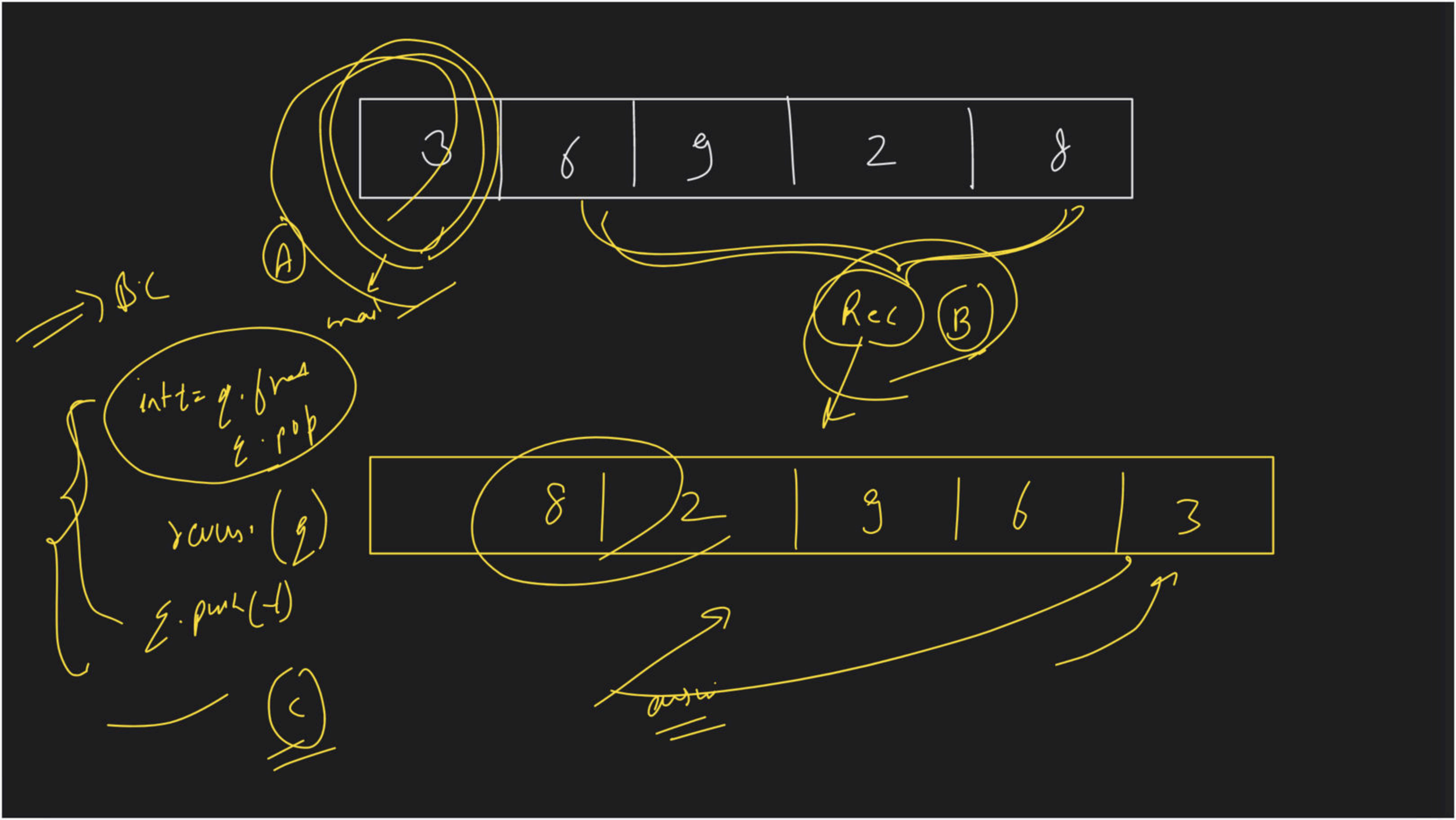
Queue - Class 2

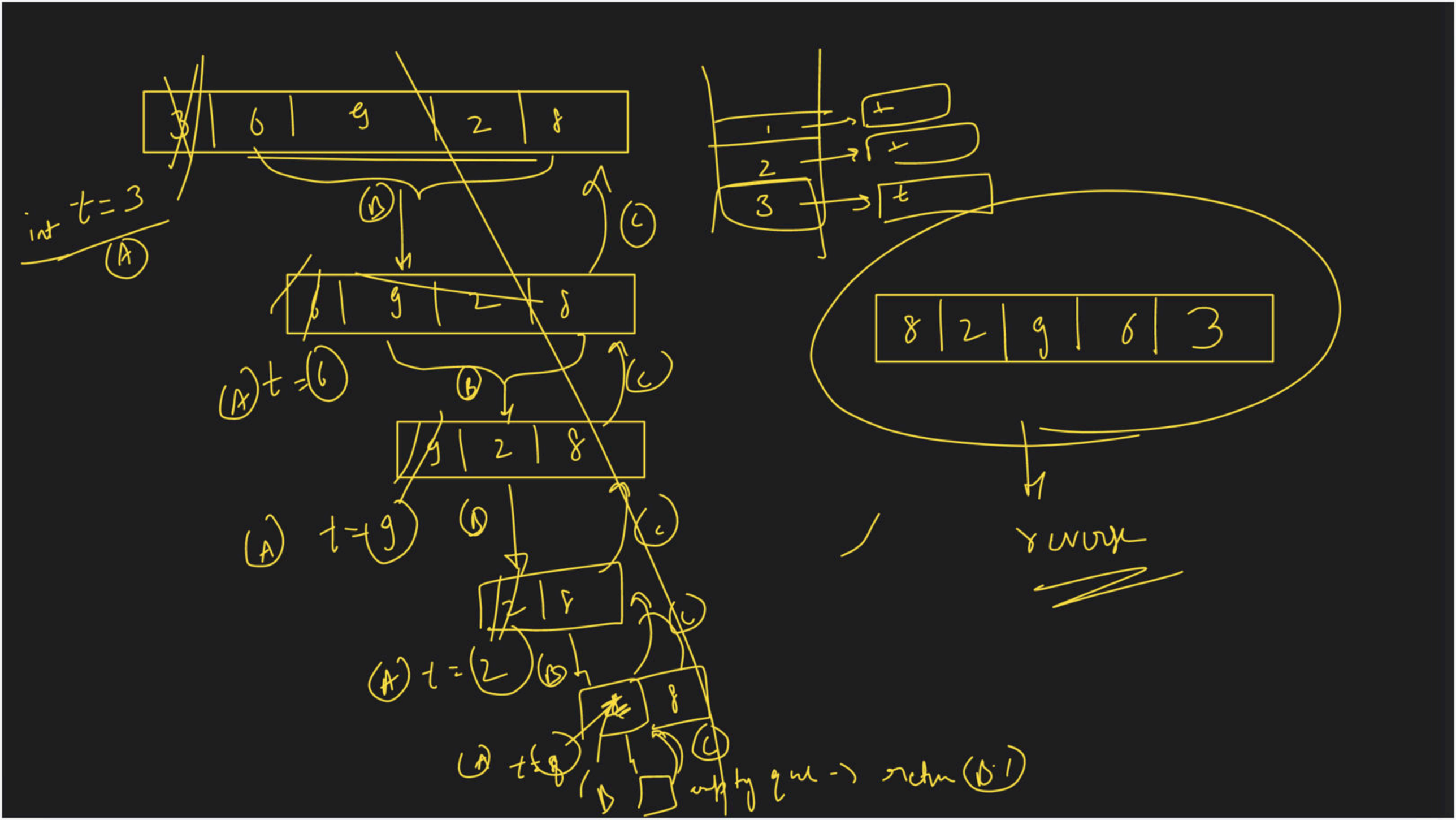
Special class



Love Babbar • Apr 30, 2023


Queue → Reverse
#1 Approach → stack
T.C → O(n)
S.C → O(n)
i/p
Q
3 1 6 1 9 1 2 1 8
8 2 9 6 3
8
2
9
6
3
o/p →
8 | 2 | 9 | 6 | 3
#2 Recursion

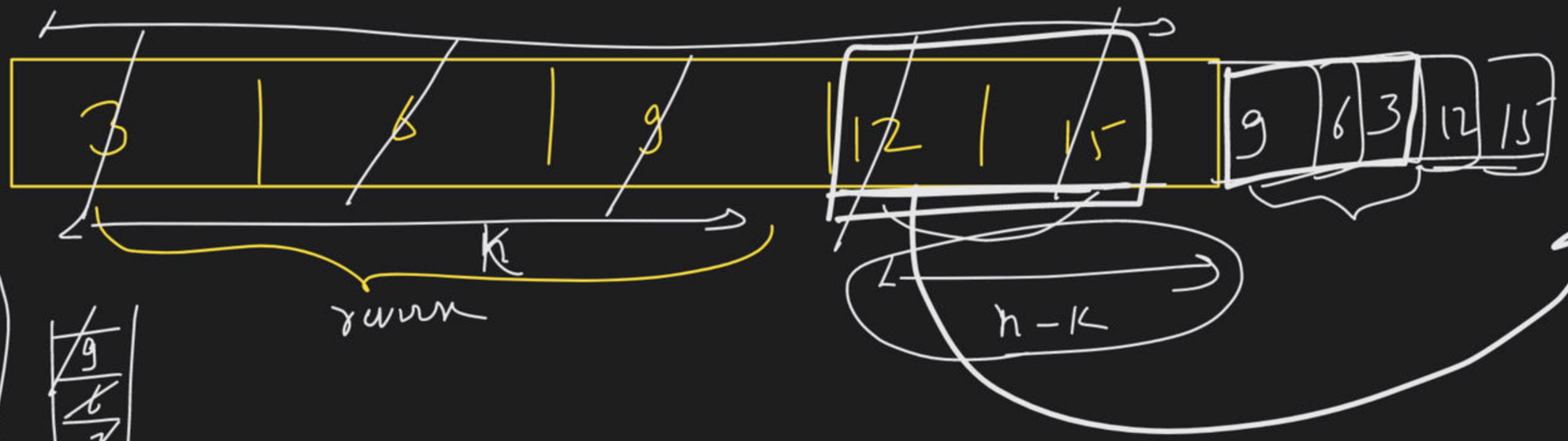

3
6
9
2
8
A
max
B.C
Rec
B
int t = q.front
q.pop
recurs. (q)
q.push(t)
C
8
2
9
6
3

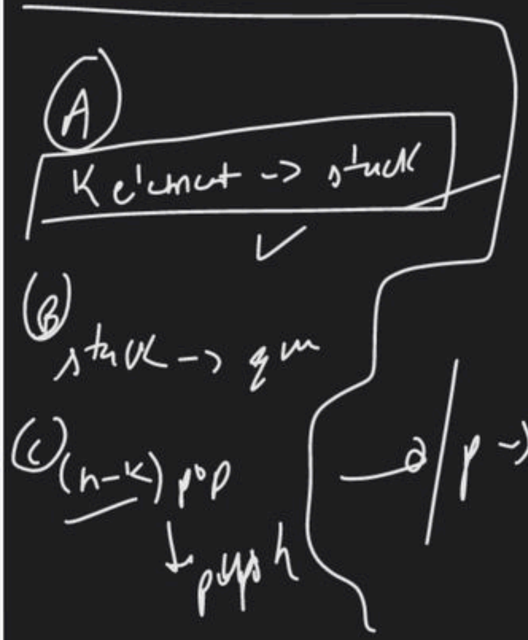

3 | 6 | 9 | 2 | 8
int t = 3
(A)
(B)
(C)
6 | 9 | 2 | 8
(A) t = 6
(B)
(C)
9 | 2 | 8
(A) t = 9
(B)
(C)
2 | 8
(A) t = 2
(B)
(C)
8
(A) t = 8
(C)
1
2
3
t
t
t
8 | 2 | 9 | 6 | 3
return

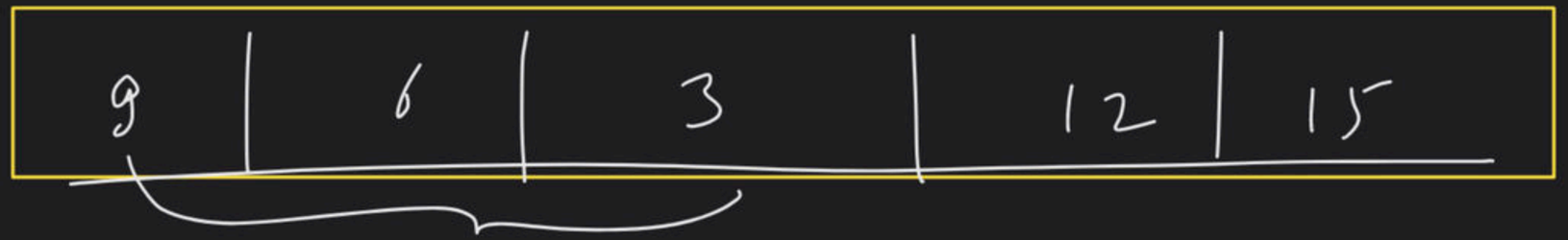
T.C →

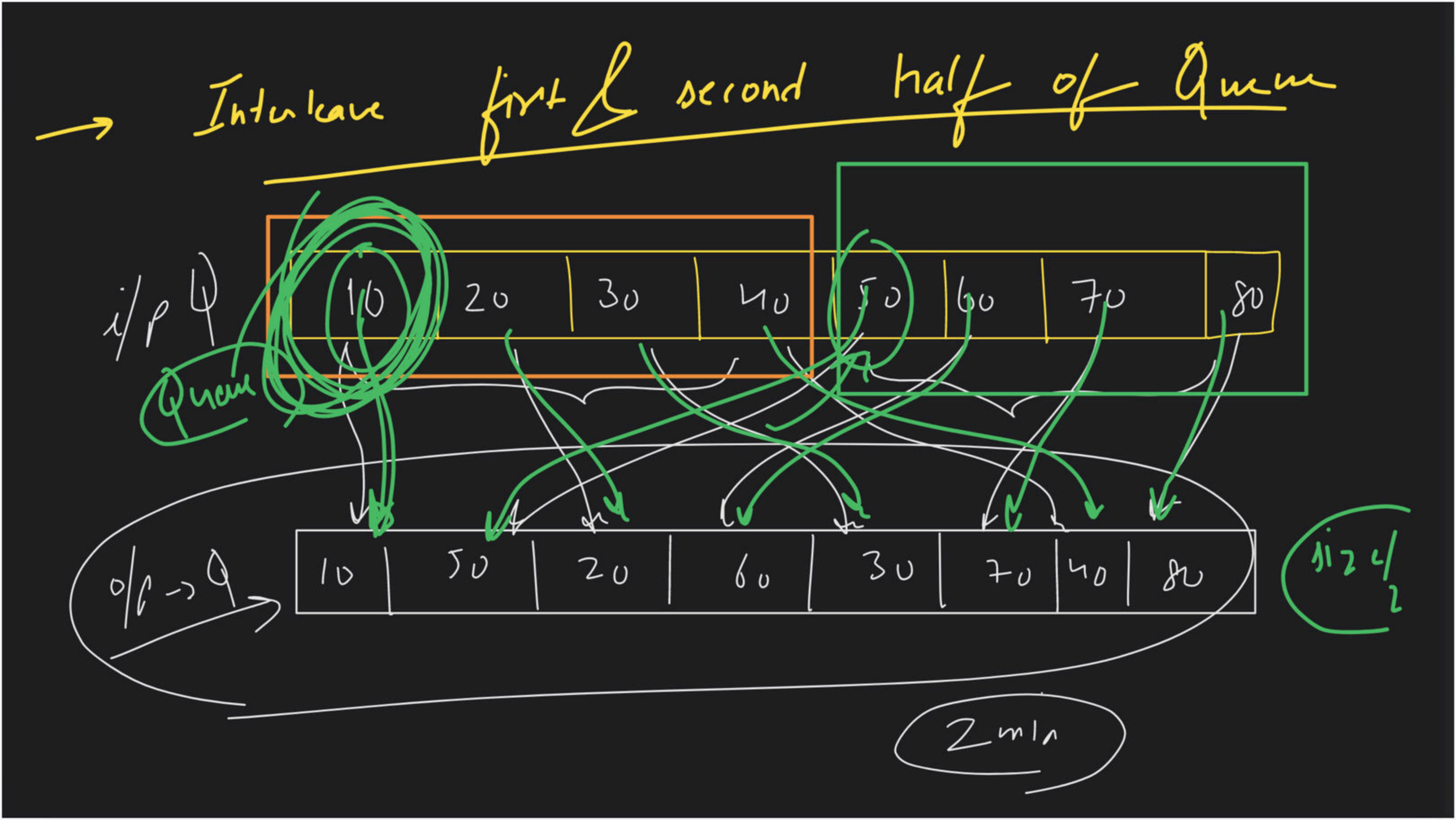
Reverse first K elements of Queue

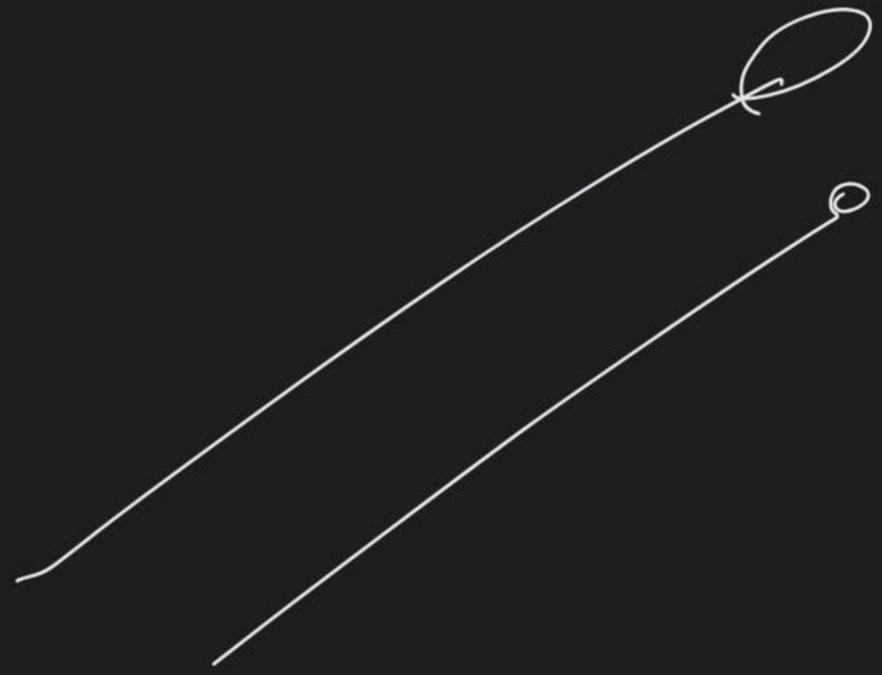
K = 3

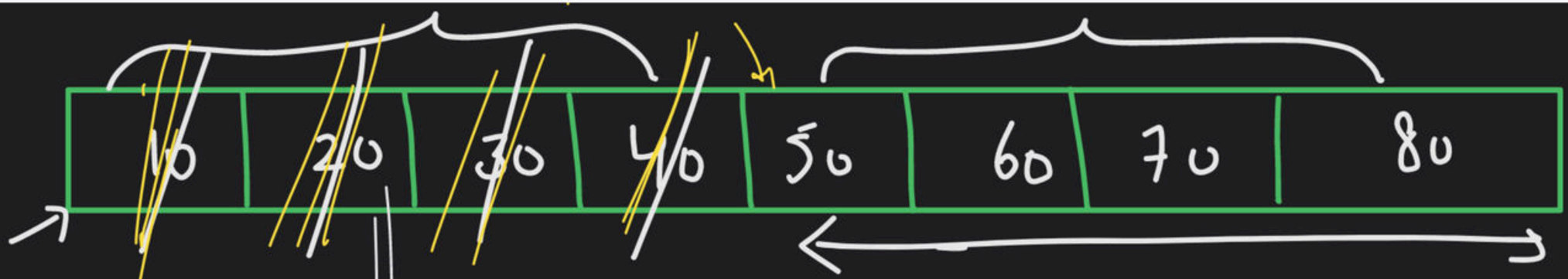






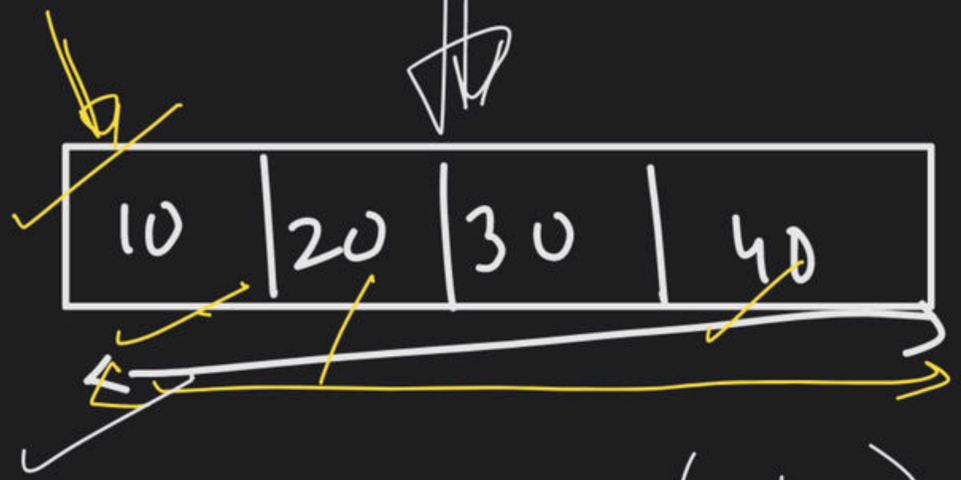

Interleave first & second half of Queue
i/p Q
10
20
30
40
50
60
70
80
Queue
o/p -> Q
10
50
20
60
30
70
40
80
size/2
2 min





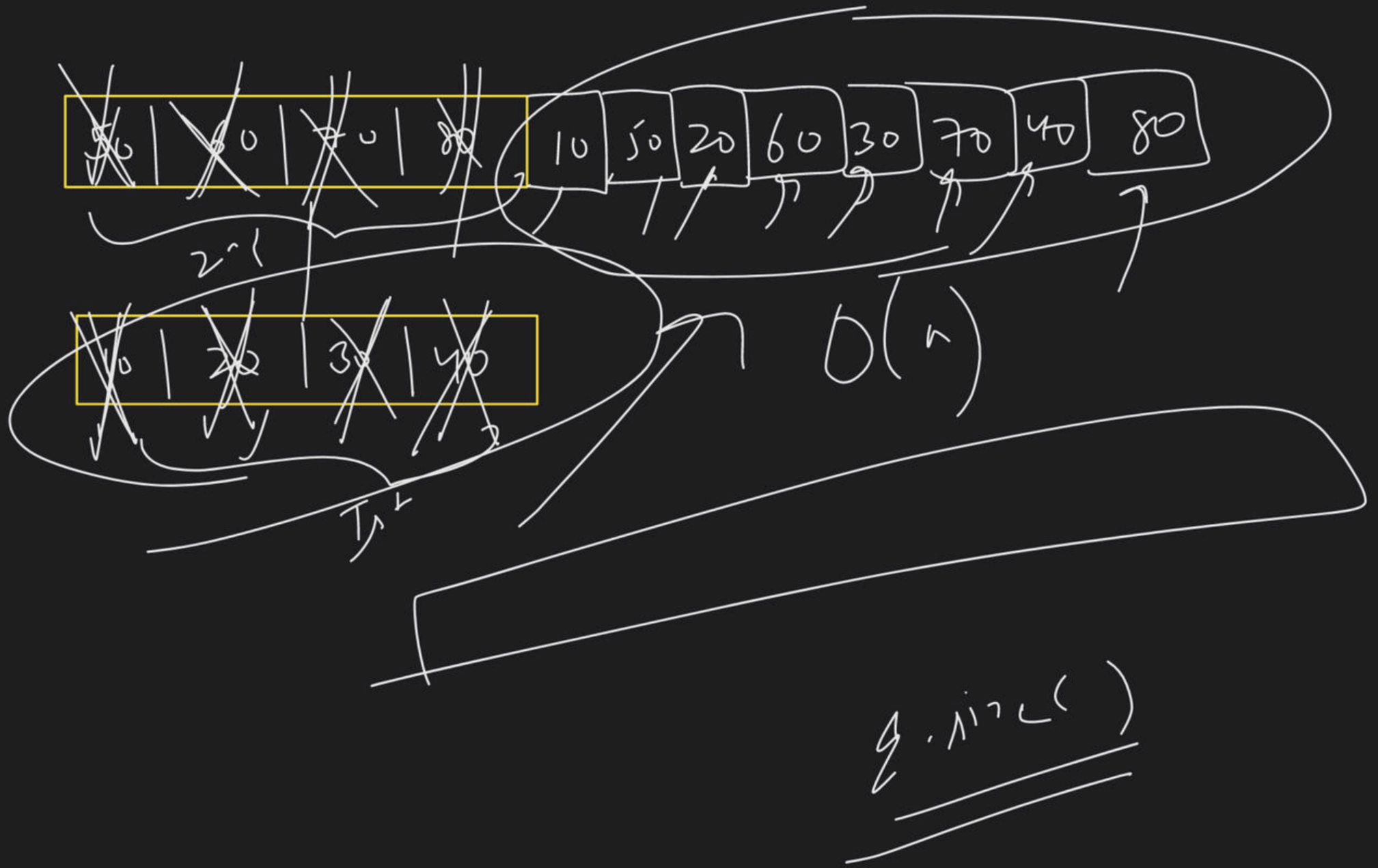
(A)

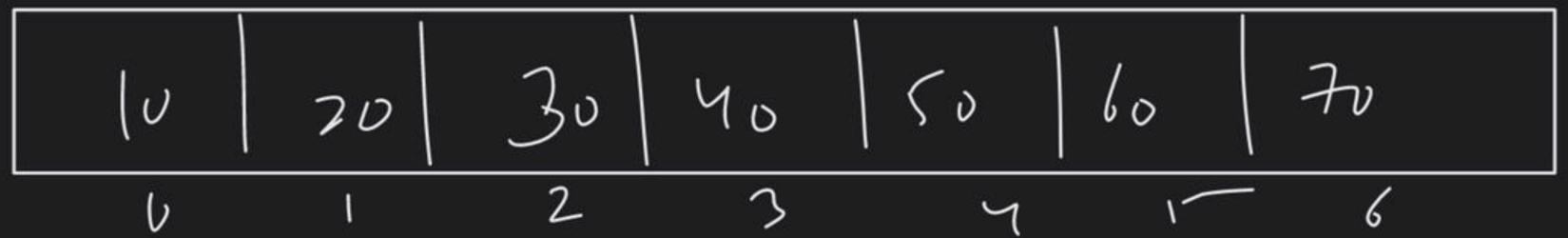
(B)



(A) -> take first half of Q into a new Queue

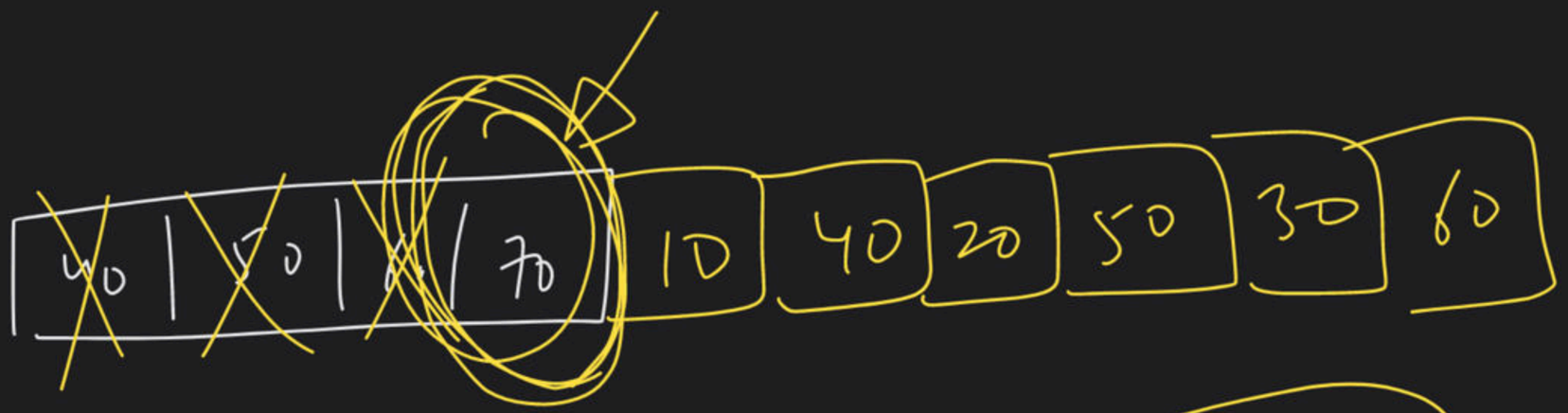
O(n/2)


10
50
20
60
30
70
40
80
O(n)



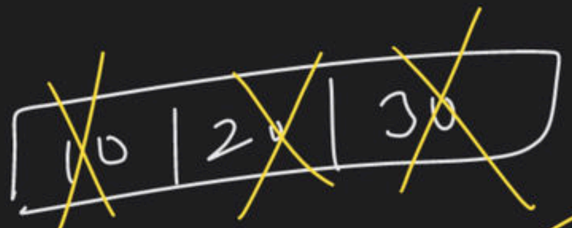
$n = 7$

$n/2 = 3$



q → 2nd half

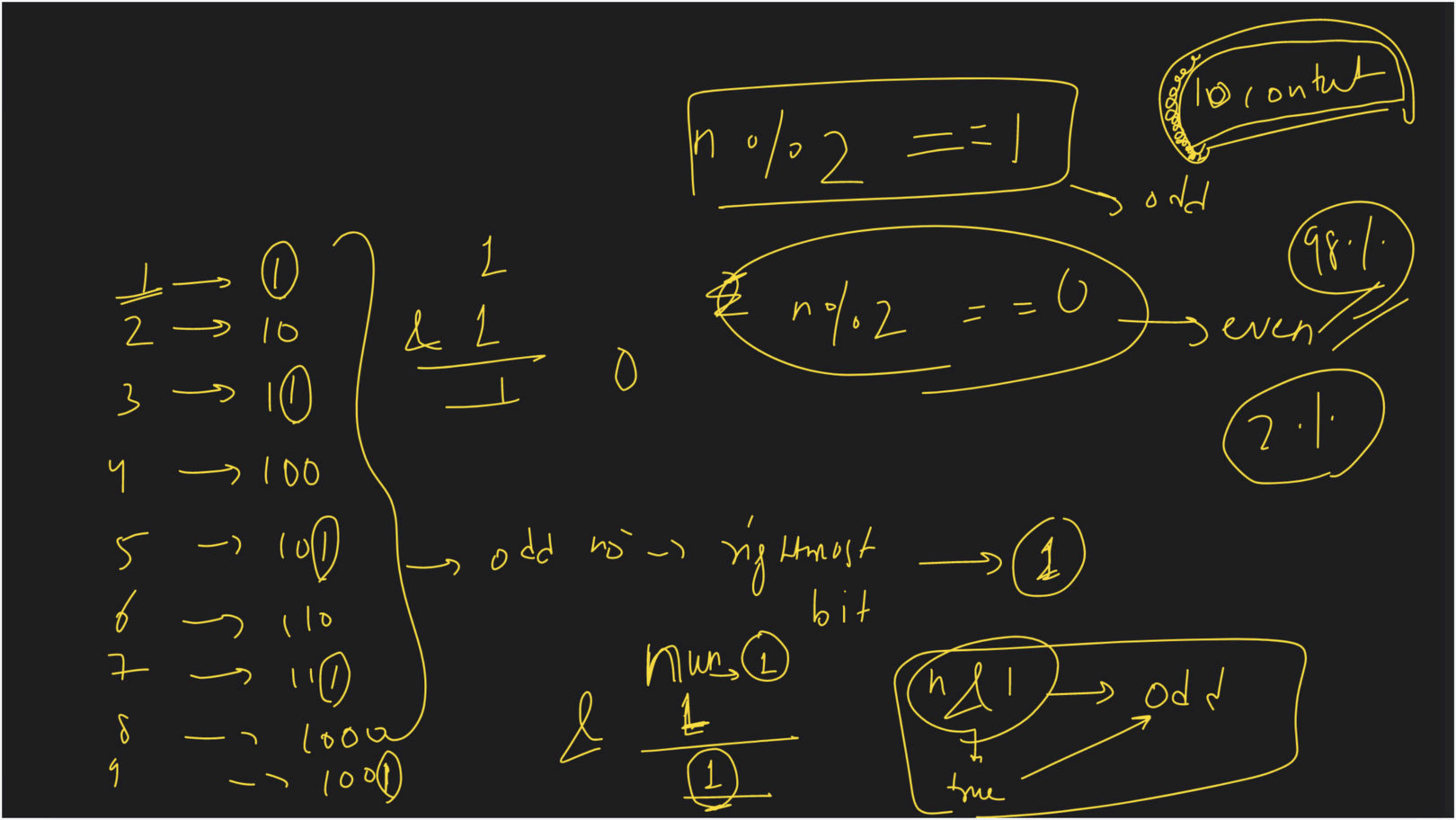
q2 → 1st half

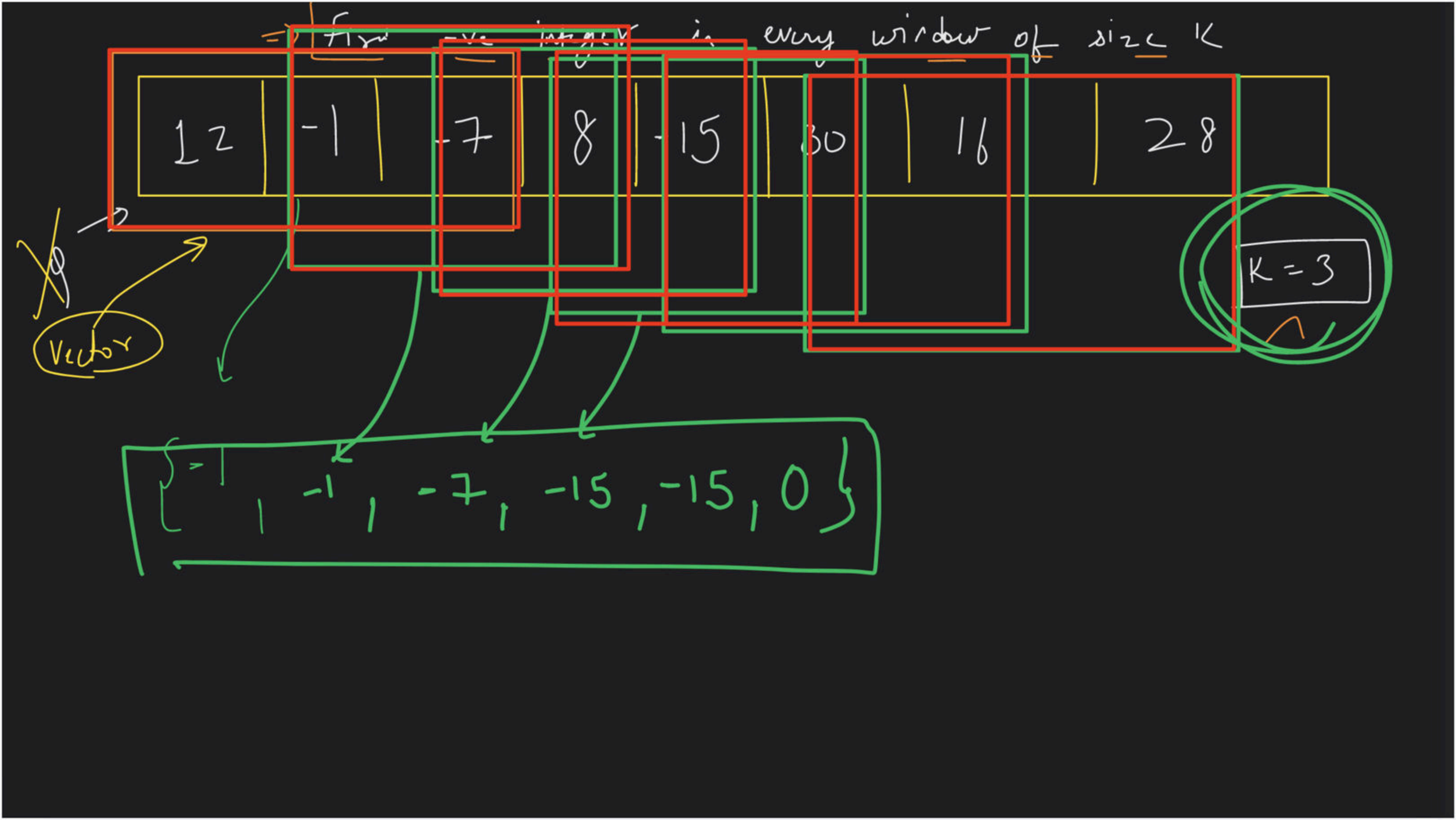


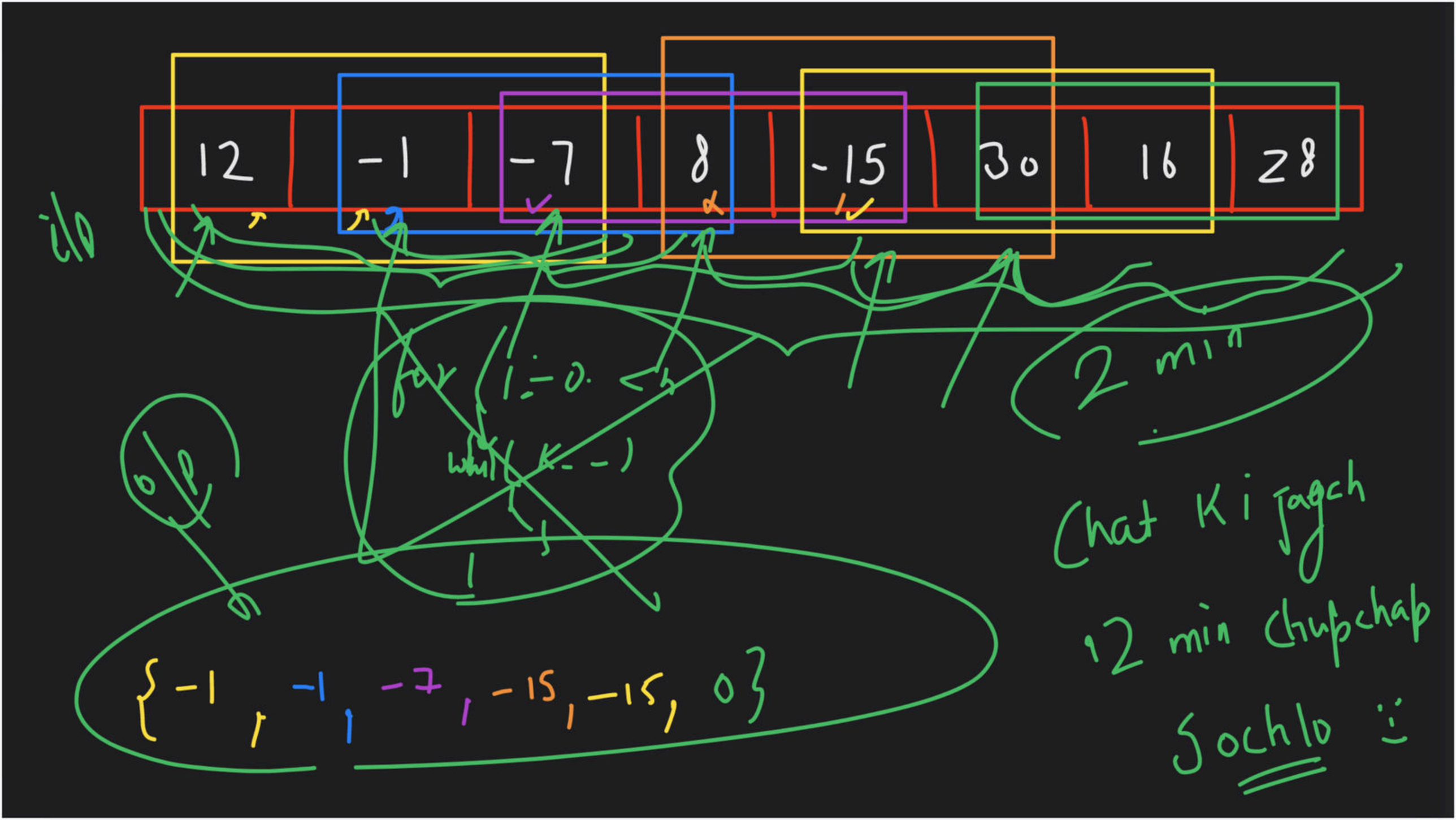
q → odd

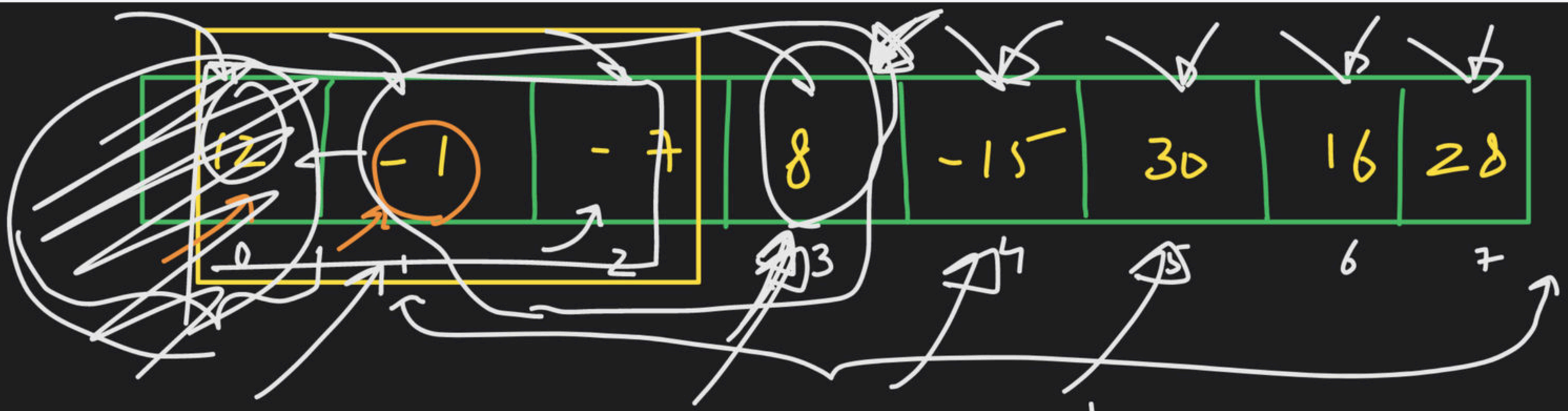
h → odd

q.front -> back


n%2 == 1
odd
10 continue
n%2 == 0
even
98.1
2.1
1 → 1
2 → 10
3 → 11
4 → 100
5 → 101
6 → 110
7 → 111
8 → 1000
9 → 1001
1
& 1
1
0
→ odd no → rightmost bit → 1
num 1
& 1
1
n & 1
true
odd


first -ve integer in every window of size K
12
-1
-7
8
-15
30
16
28
K=3
Vector
{-1, -1, -7, -15, -15, 0}


12
-1
-7
8
-15
30
16
28
i/p
for i=0 <
while(k==-1)
2 min
o/p
{-1, -1, -7, -15, -15, 0}
Chat Ki Jagah
12 min Chupchap
Sochlo :)



(A) First K size → process

-ve no' → index push

loop → K+1 element to n element

① q.front()

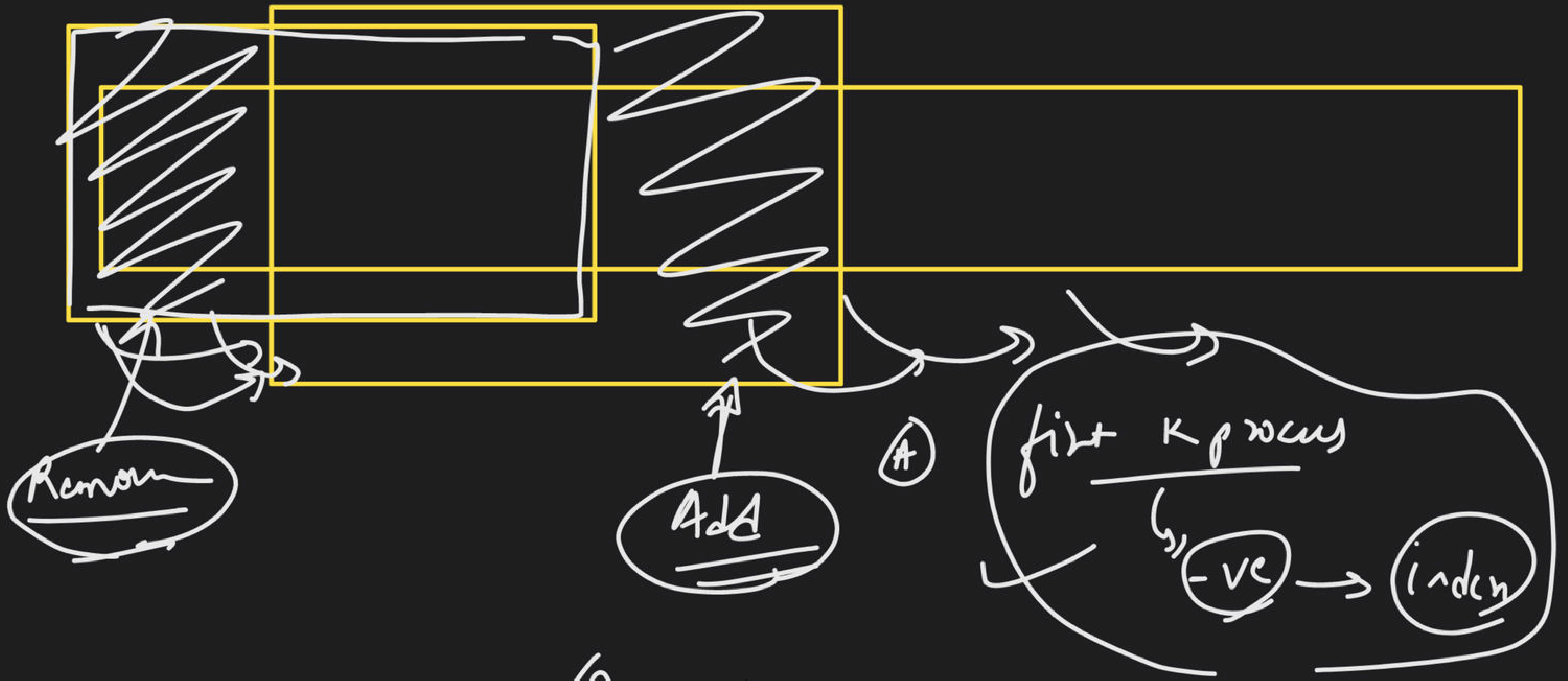
arr[q.front()]

0

② remove out of window elements

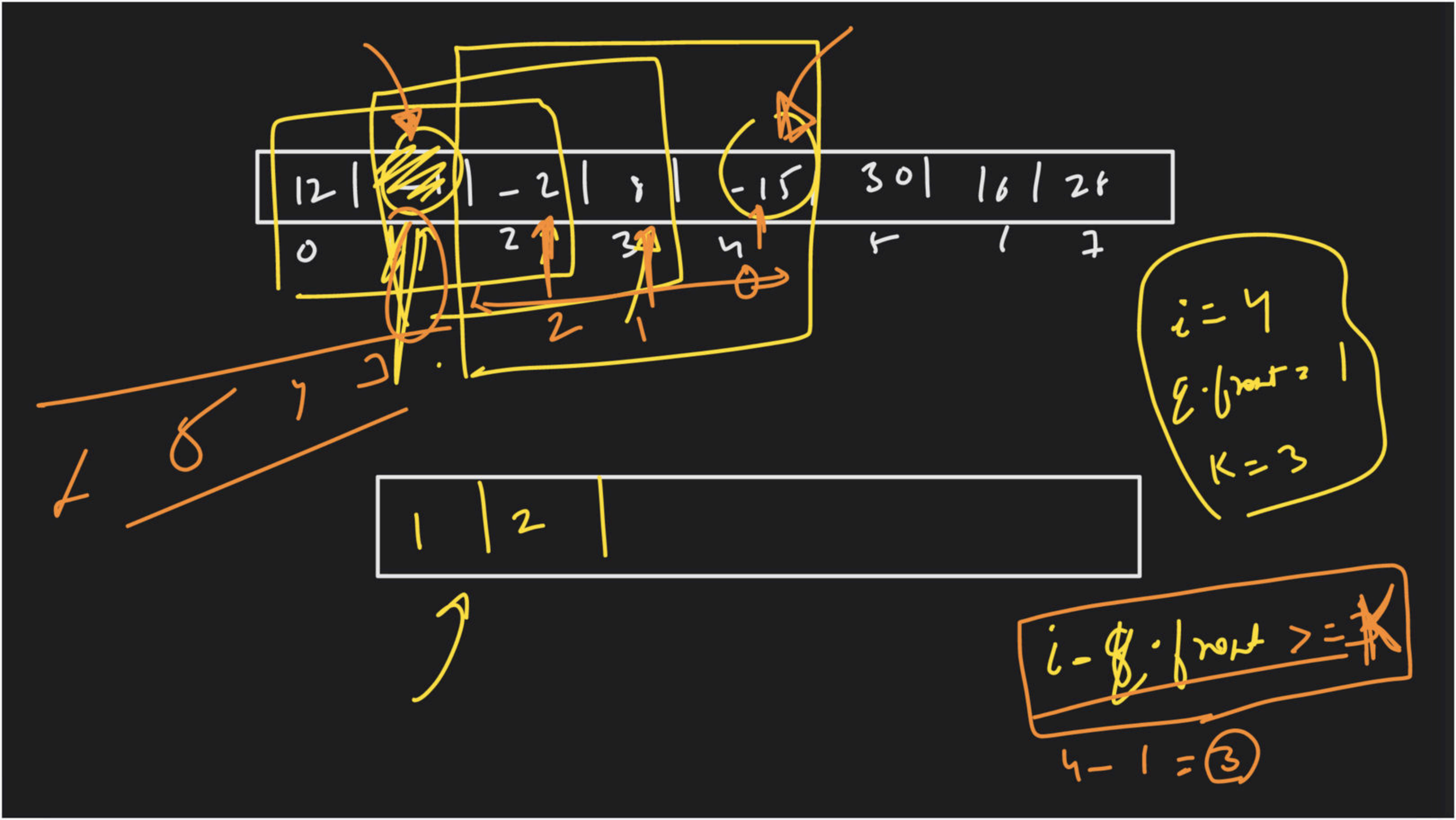
③ new element insertion

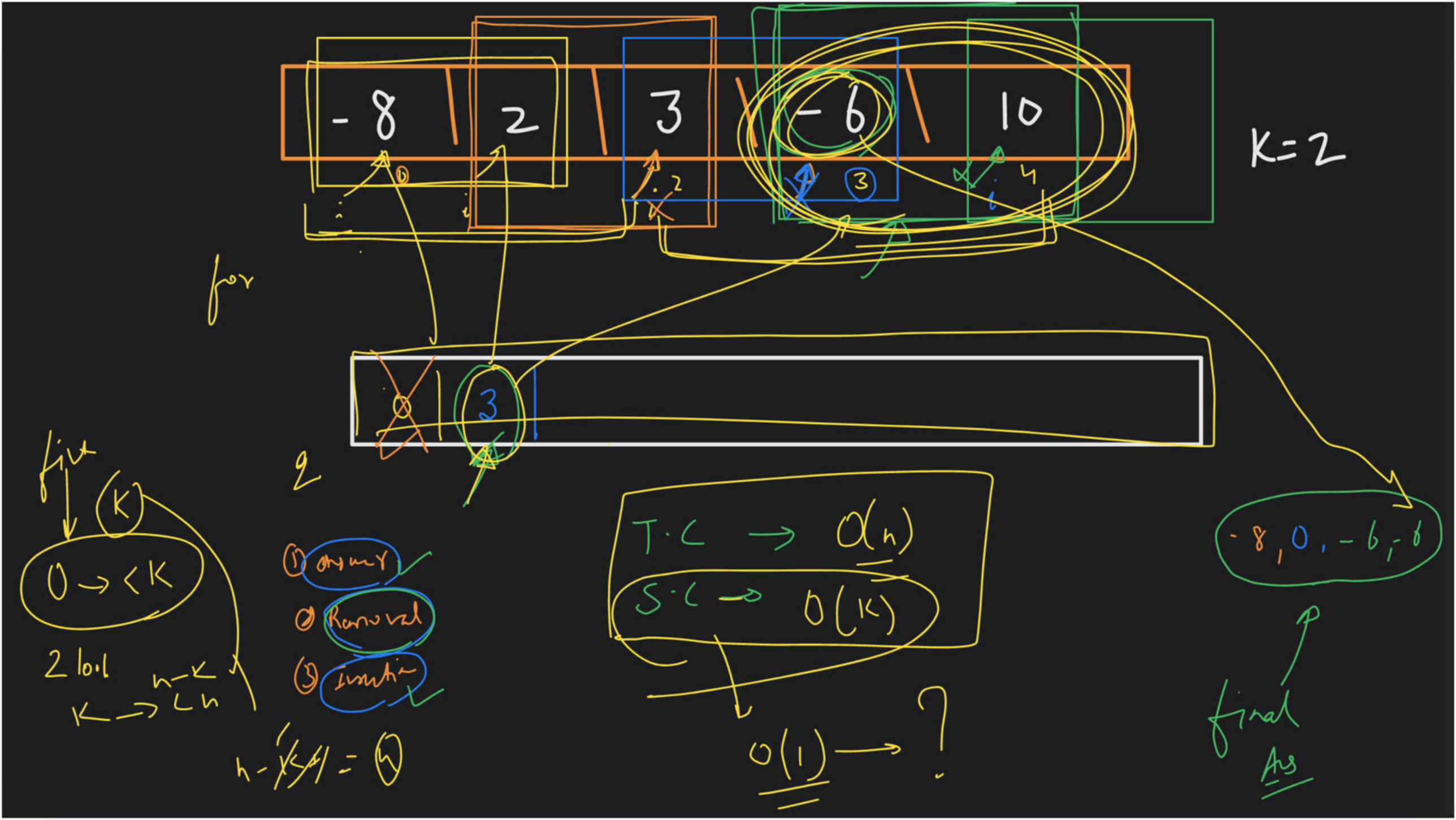
*



(B) Window move

1. answer nikal lo
2. Removal
3. Insertion


12 | 4 | -2 | 8 | -15 | 30 | 16 | 24
0 2 3 4 5 1 7
2 1
1 | 2 |
i = 4
st.front = 1
K = 3
i - st.front >= K
4 - 1 = 3


-8
2
3
-6
10
K=2
0
1
2
3
4
for
3
2
first
K
0 → < K
2 loop
n-K
K → < n
1. enqueue
2. Removal
3. insertion
n - K + 1 = 1
T.C → O(n)
S.C → O(K)
O(1) → ?
-8, 0, -6, -1
final
Ans

Non - Repeated character in a stream