



# TCS NQT

## Programming - 4

Sliding Window 

$$a_{\sigma\sigma} = [100, 200, 300, 400]$$

$$\underline{k=2}$$

$$SA_1 = [100, 200] \rightarrow 300$$

$$SA_2 = [200, 300] \rightarrow 500$$

$$SA_3 = [300, 400] \rightarrow 700$$

$k=2$   
→

$i=0$     $i=1$     $i=2$     $i=3$   
1000, 2000, 3000, 4000.

$i=0 \rightarrow i=1 \Rightarrow 3000$   
 $i=1 \rightarrow i=2 \Rightarrow 5000$   
 $i=2 \rightarrow i=3 \Rightarrow 7000$

$O(n \times k)$

arr = [1, 2, 3, 4, 5, 6, 7]

Sub.  $\nearrow$

Add.  $\searrow$

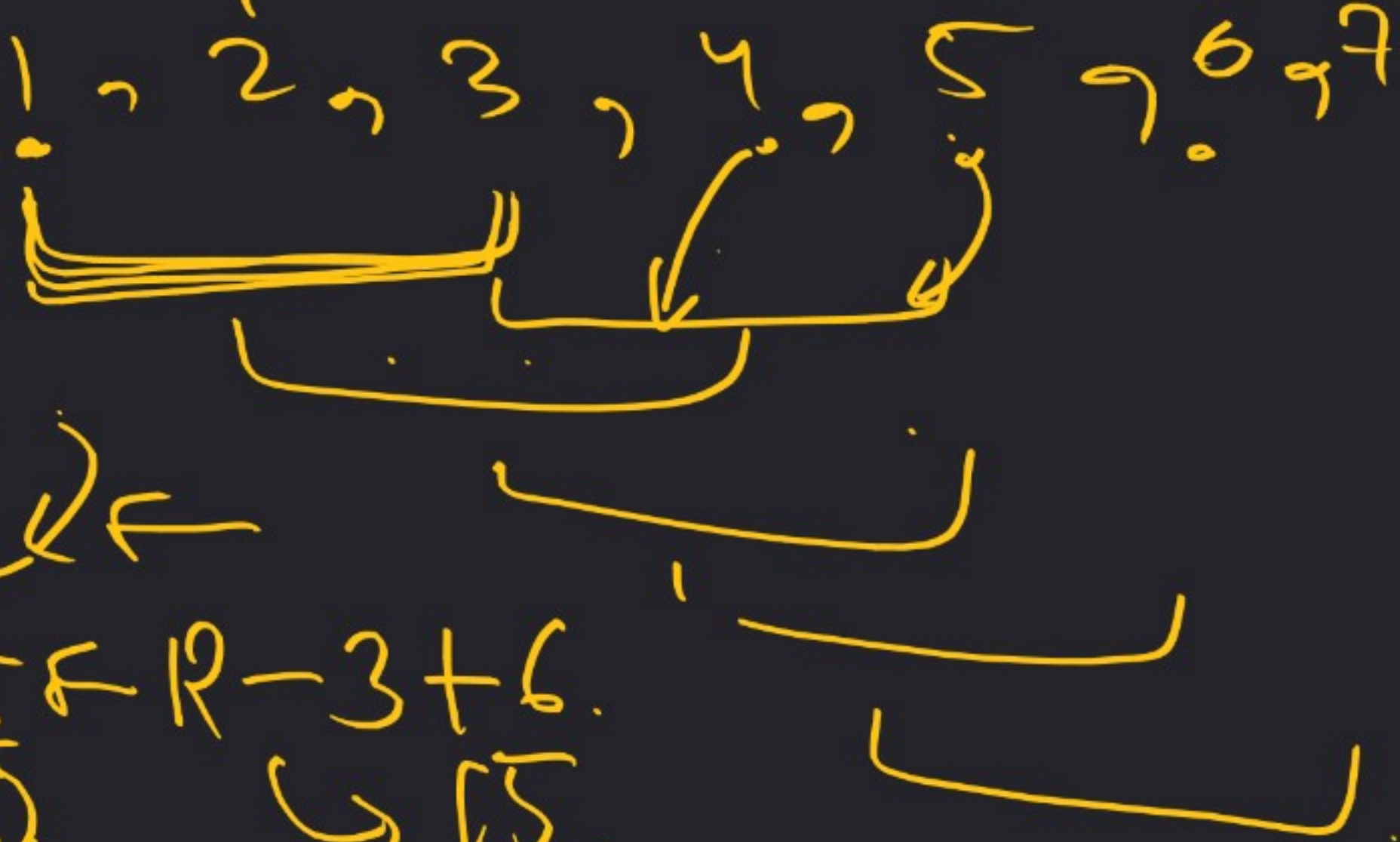
$\rightarrow 1+2+3$

$\leftarrow 2+3+4 \leftarrow$

$X \leftarrow 3+4+5 \leftarrow R = 3+6$

$Y \leftarrow 4+5+6 \rightarrow 15$

$5+6+7 \rightarrow$



$$\text{arr} = [1, 2, 3, 4, 5]$$

$K=3$

$$1+2+3 \Rightarrow 6+4-1$$
$$\hookrightarrow 9+5-2$$
$$\hookrightarrow \textcircled{12}$$

val  $\rightarrow i-k$ .

arr =



Delete 0.  
Delete index 1.  
index 2.

Start i  
i = 4. 5.

k = 3.

$i = k-1 \rightarrow$  first complete window.

For a Fixed Size Window.

↳ If window ends at  $i$ .

↳ then it will start with index  $\underline{i-k+1}$

↳ Delete the index  $\rightarrow (i-k)$

# First Complete Window  $\rightarrow (k-1)$

arr = [6, 7, 4, 3, 2]

k = 3



ending  $\rightarrow i$



Delete  $\rightarrow$   $i - k$

$$a\sigma\sigma = \left[ \underbrace{3, 1, 4}_K, \cdot, \underbrace{1, 2, 4, 4}_K \right]$$

$$K=3.$$



$$ans = \left[ 3, 2, \cdot, \underbrace{3, 2}_K \right]$$

arr = [1, 1, 2, 3, 4]

SA = [1, 1, 2]

mp →

[1, 2, 3]

2 → 1  
3 → 1

[2, 3, 4]

③ ←

4 → 1

remainder  
→

$$SA = [1, 1, 2, 2, 3].$$

$$\text{Distinct} = (1, 2, 3).$$

arr = [1, 3, 1, 2, 5]

$i = 0$        $i = 1$        $i = 2$        $i = 3$

k = 3

mp → [1 → 1  
3 → 1  
2 → 1]

ans[i] →  
ans[3] →  
2

→  $i \geq k$  (No)  
 $3 \geq 3 \rightarrow$  Yes  
 →  $i \geq k-1$

$3 \geq 2 \rightarrow$  Yes [

ans → [2, 3,



$j = \text{neg. index}$

In subarray there  
is no negative integers  
present.

ans = [ [-8, 2], [3, -6, 10] ] K=2

i=2, i=3.

i ≥ k-1.

j = 1

ans[i] → ans[2]

i-k

j ≥ 1

3-2=1

neg → 0, 3, -6

[neg[j] ≤ i-k]

ans → -8, 2, 0, -6

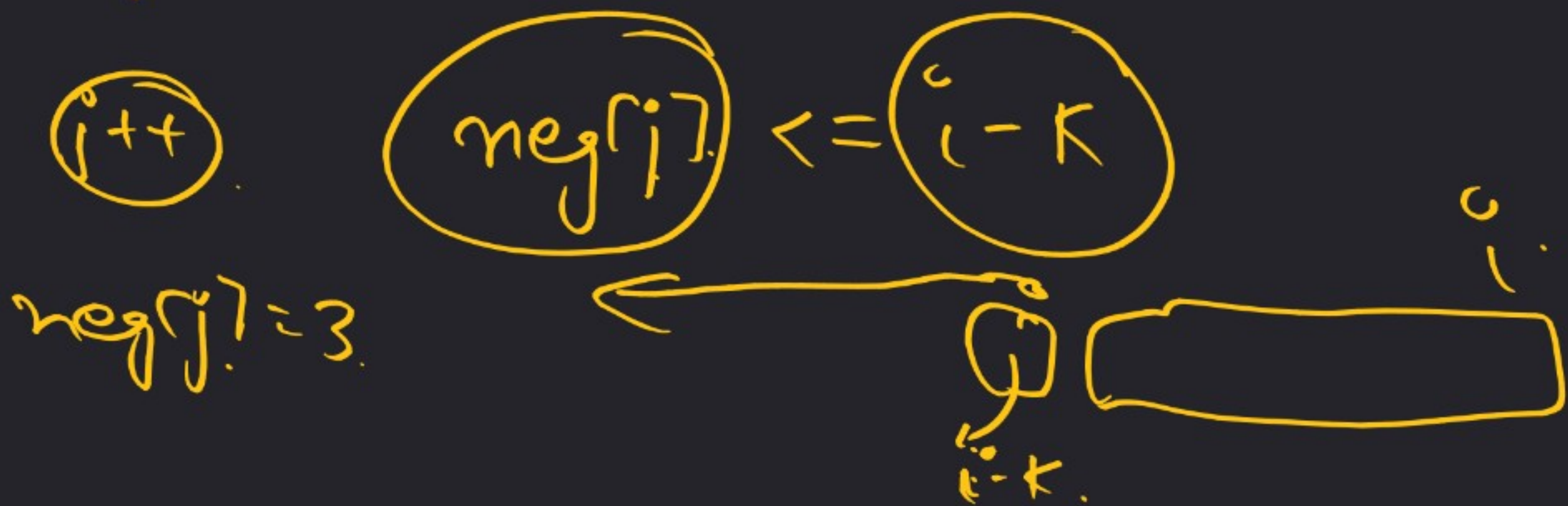
{ans[neg[j]]} ans[2]

neg[1] → 3

3 ≤ 1

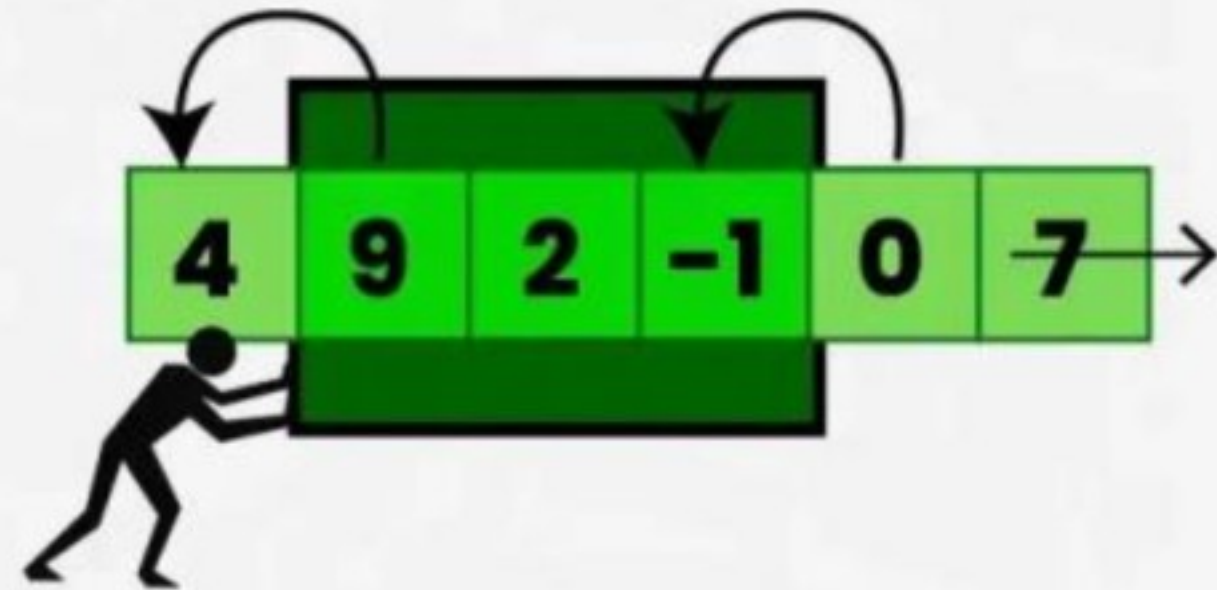
False

$neg[j]$  = value of index where a  
negative element.  
 $neg \rightarrow [0, 3]$





# SLIDING WINDOW TECHNIQUE



**THANKYOU**