

Queue - 3

# Doubt Class by Lakshay Bhaiya

Special class



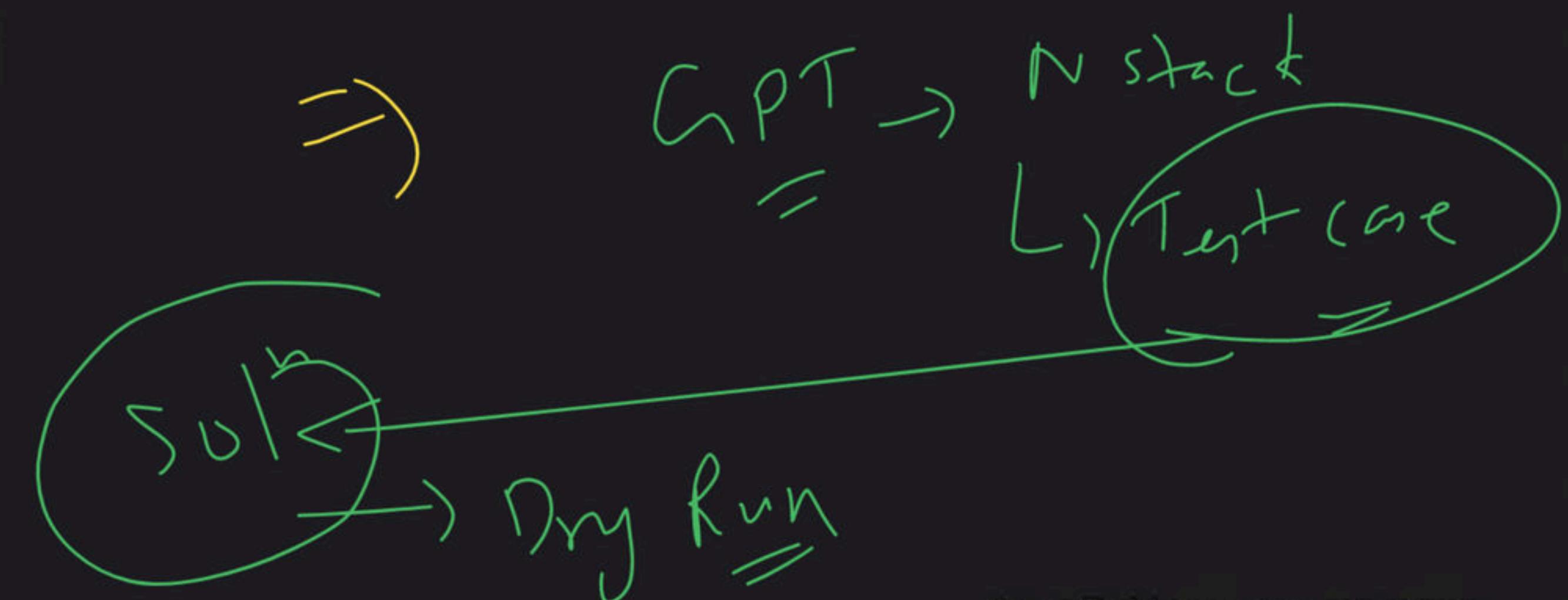


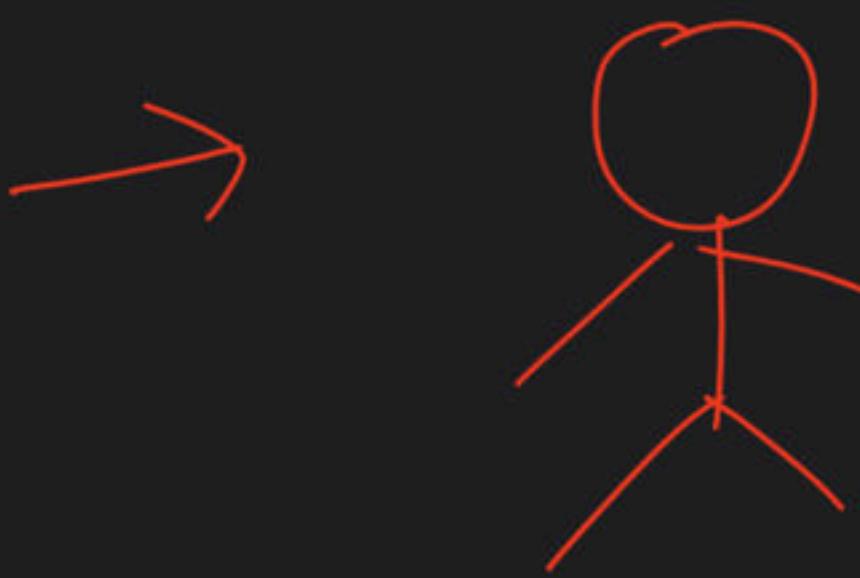
$\Rightarrow$  N-stack

N-stack

## Queue Class-3

Special class





Dry run



Love Lashes

1 hr → 58 min



`Syntax ( begin, end, ( ) )`

`Void fun();`

`Void fun( int,int );`

`Signature`

`static`

`✓`

`✓`

`✓`

`✓`

```
class Solution {
public boolean comp( arr b ) {
    void f( ) {
        // code
    }
    sqrt( √, √, comp )
}
}
```

Solution : Comp

Solution a;

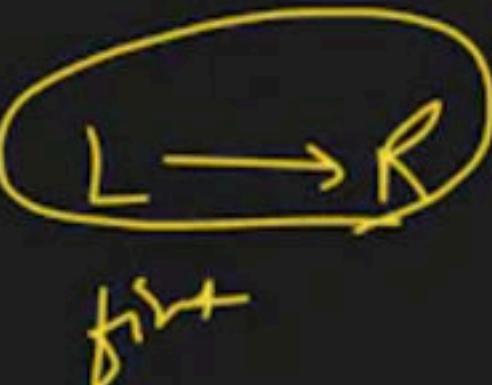
a. comp( )

sqrt( √, √, Comp )

Solution : Comp()

== ==

→ **First** non-repeating character in a stream



ip → 
  
t → 
  
→ → →

$t = \underline{0}^{\textcircled{1}} \Rightarrow \boxed{a}^1 \rightarrow \underline{\underline{\text{ans}}} = a$

$t = \underline{1}^{\textcircled{2}} \Rightarrow \boxed{a b}^2 \rightarrow \underline{\underline{a}}^{'}$

$t = \underline{2}^{\textcircled{3}} \Rightarrow \boxed{a b c}^3 \rightarrow \underline{\underline{b}}^{''}$

$t = 3 \Rightarrow \cancel{\cancel{b a c}} \rightarrow \underline{\underline{b}}^{''}$

$t = 4 \Rightarrow \cancel{\cancel{\cancel{b a c}}} \rightarrow \underline{\underline{c}}^{'''}$

frequency()

Pre-computation

$i\rho \rightarrow a b a b c \dots$



$a \rightarrow / \backslash$   
 $b \rightarrow / \backslash$   
 $c \rightarrow \backslash$

$\rightarrow t=0 \rightarrow \boxed{a} \rightarrow \underline{\underline{a}}$   
 $t=1 \rightarrow \boxed{ab} \rightarrow \underline{\underline{a}}$   
 $t=2 \rightarrow \boxed{aba} \rightarrow \underline{\underline{b}}$   
 $t=3 \rightarrow \boxed{abab}$   ~~$\rightarrow \underline{\underline{b}}$~~   
 $t=4 \rightarrow \boxed{ababab}$   ~~$\rightarrow \underline{\underline{c}}$~~

$a a b \# c$

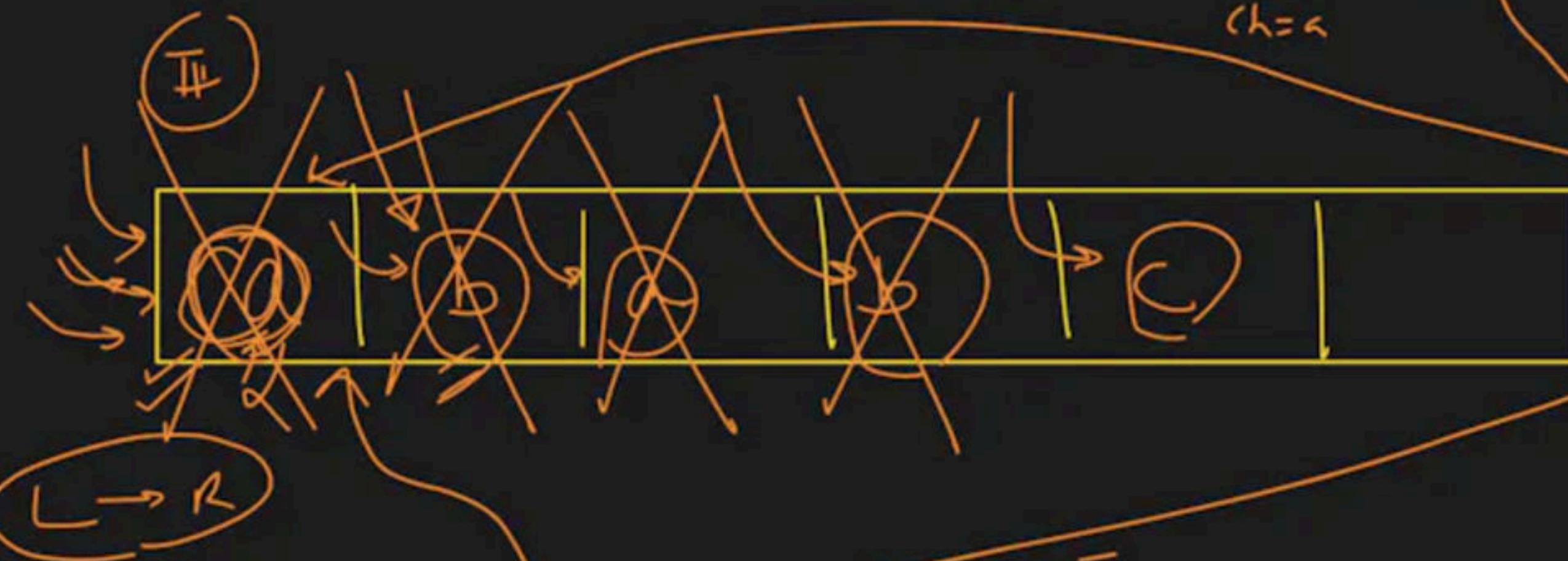
$i/p \rightarrow$

"a b a b c"

$ch = b$

$l = 5$   
 $u = 5$

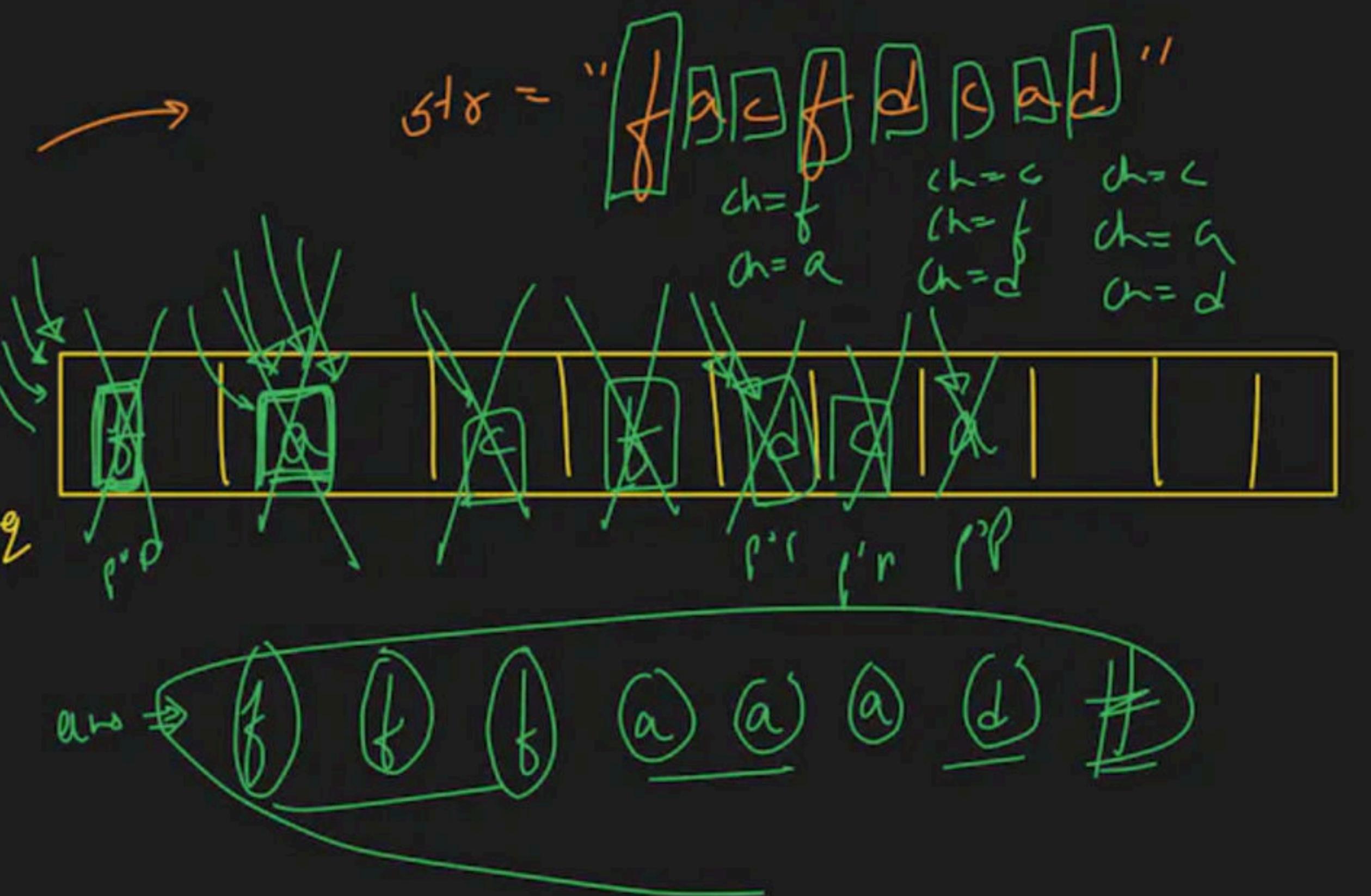
frequency



char	count
a	2
b	2
c	1

II ->



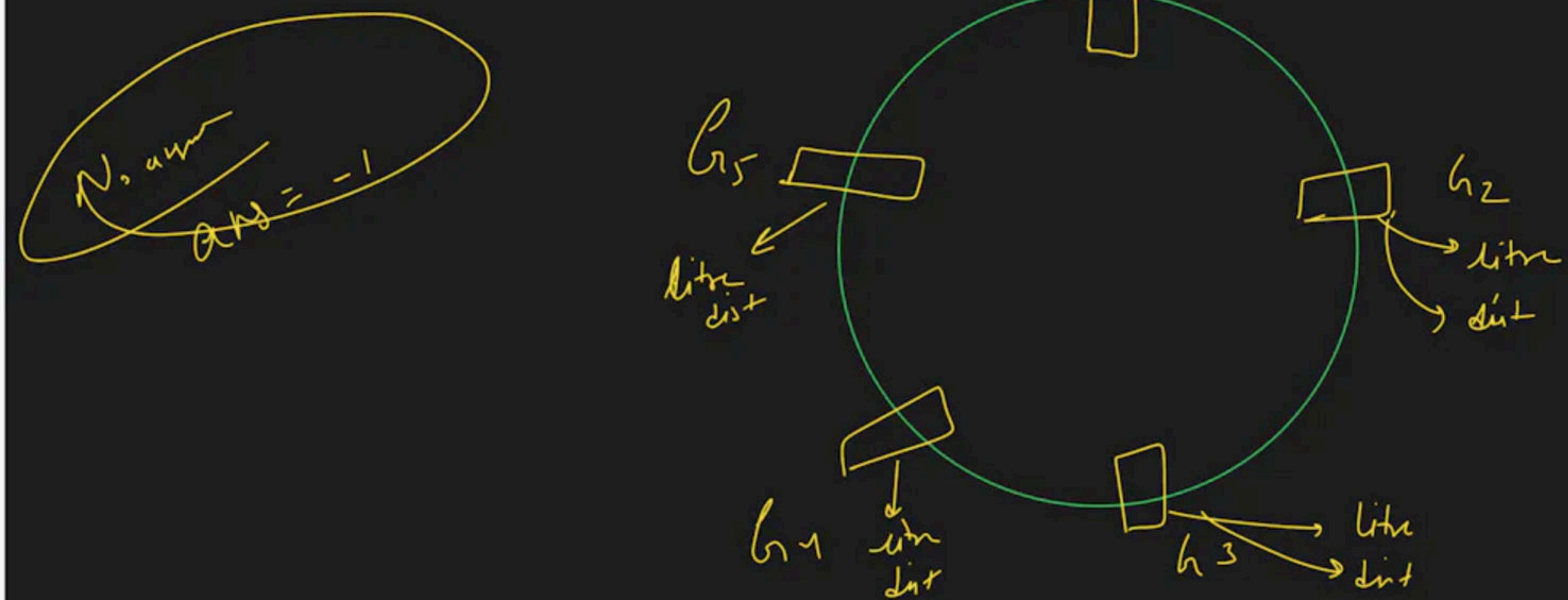


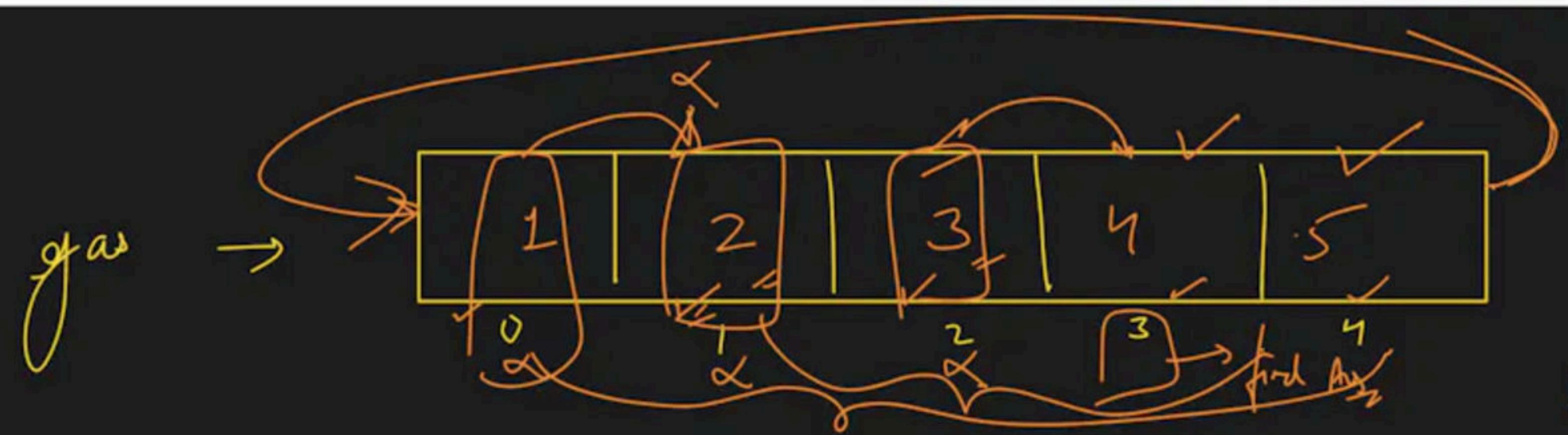
$freq$

char	count
b	2
a	2
c	2
d	2

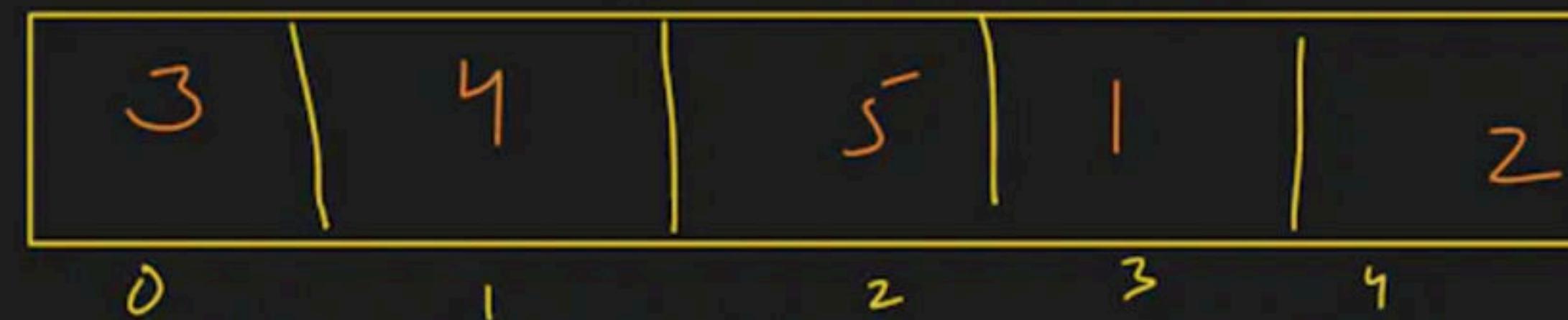
→ Gas

Station-




 $O(n^2)$ 

$\text{cost}/\text{distance}$



#1  
Karto  
Sanku check

$$2^4 = 16 \rightarrow 16/2 = 8$$

bd = 2

3rd index  $\rightarrow$  go =  $\boxed{5}$   
 $\text{dist} = \boxed{1}$

bd =  $\boxed{6}$

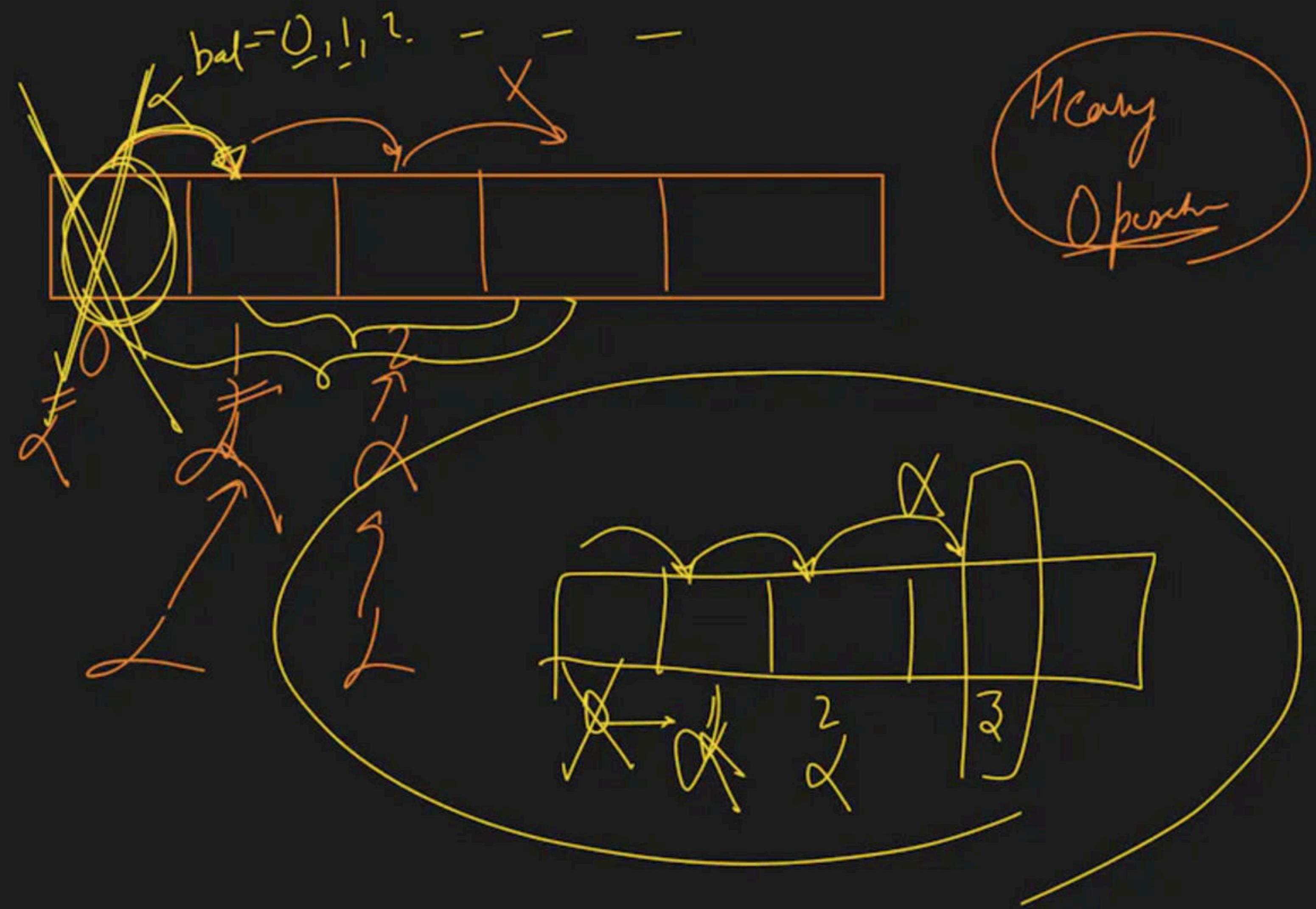
$$0 \rightarrow g \rightarrow 1 + 6 - \boxed{7}$$
 $d = \boxed{3}$

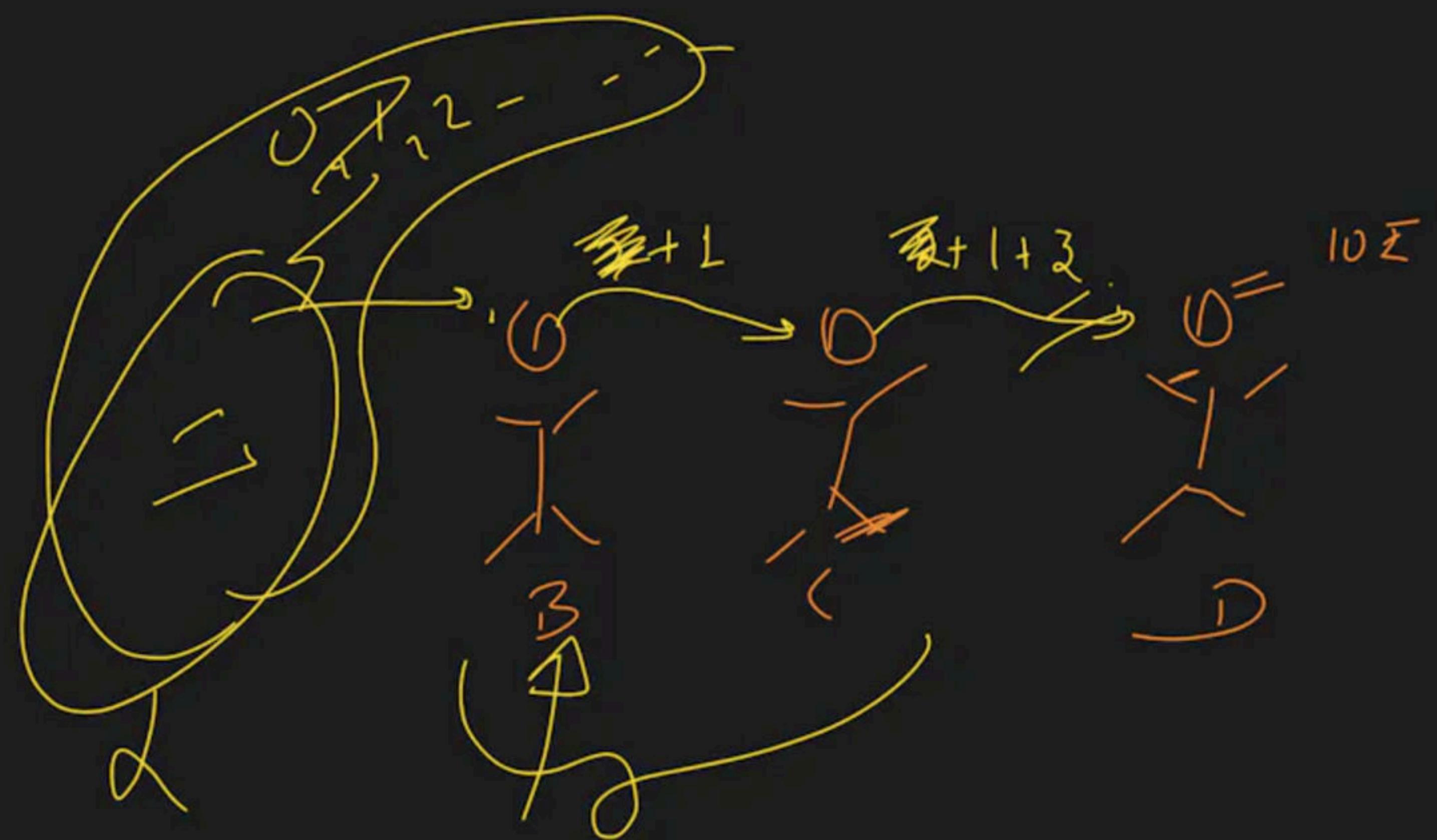
4th ins  $\rightarrow$  go =  $\boxed{13} = 8$   
 $\text{dist} = \boxed{2}$

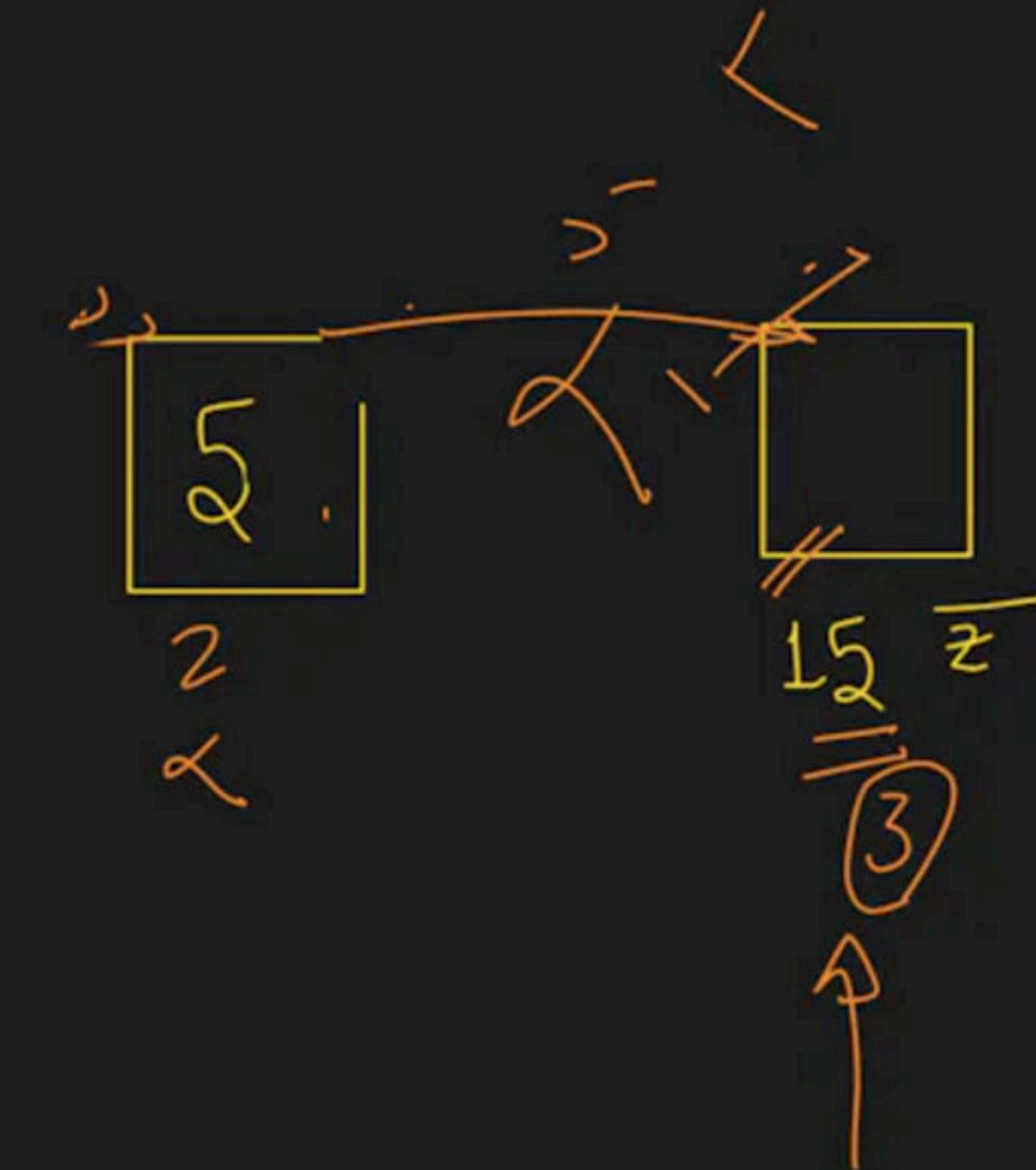
bd =  $\boxed{3}$

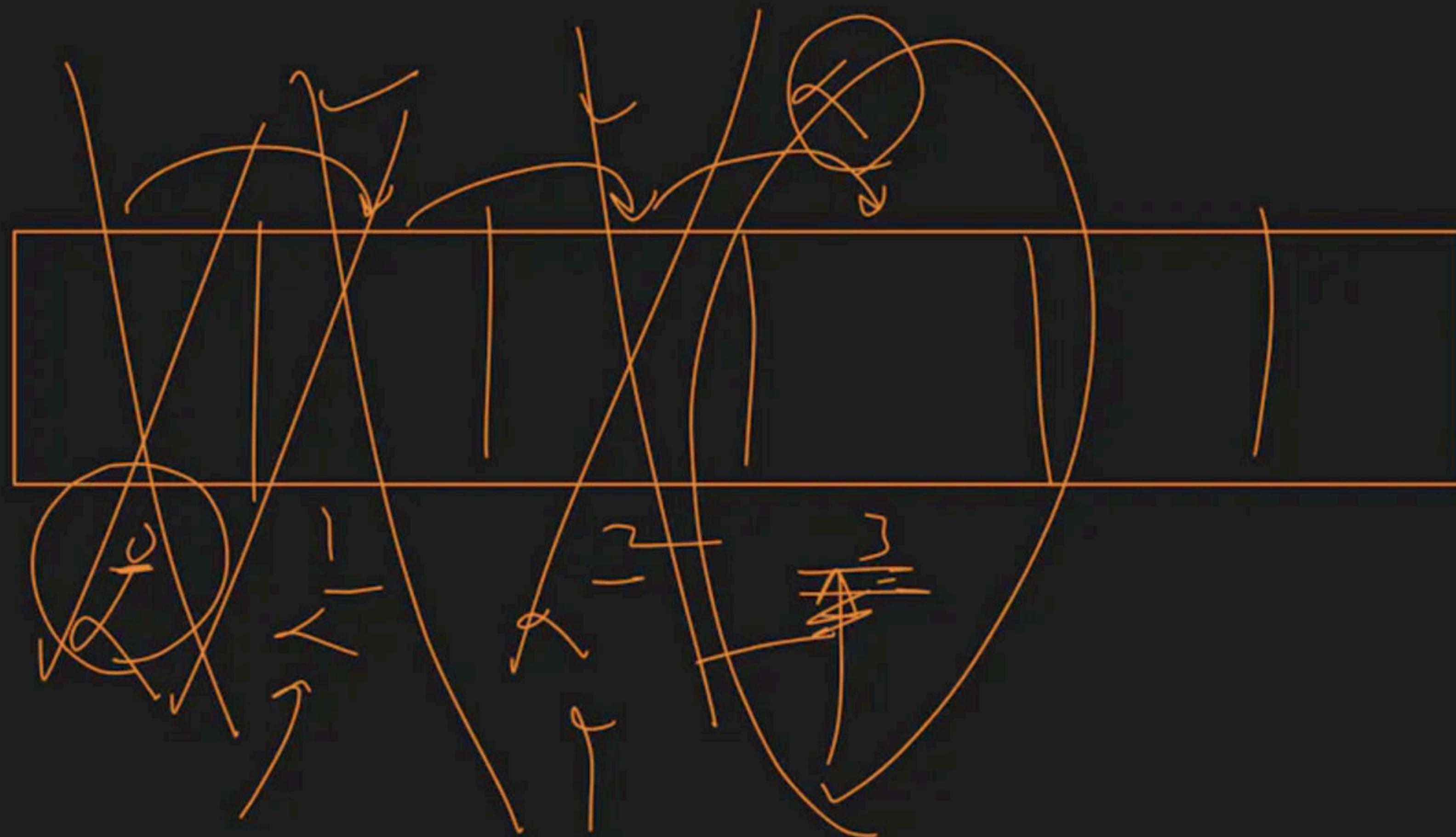
$$1 \rightarrow g \rightarrow 2 + 4 = \boxed{6}$$
 $d = \boxed{1}$

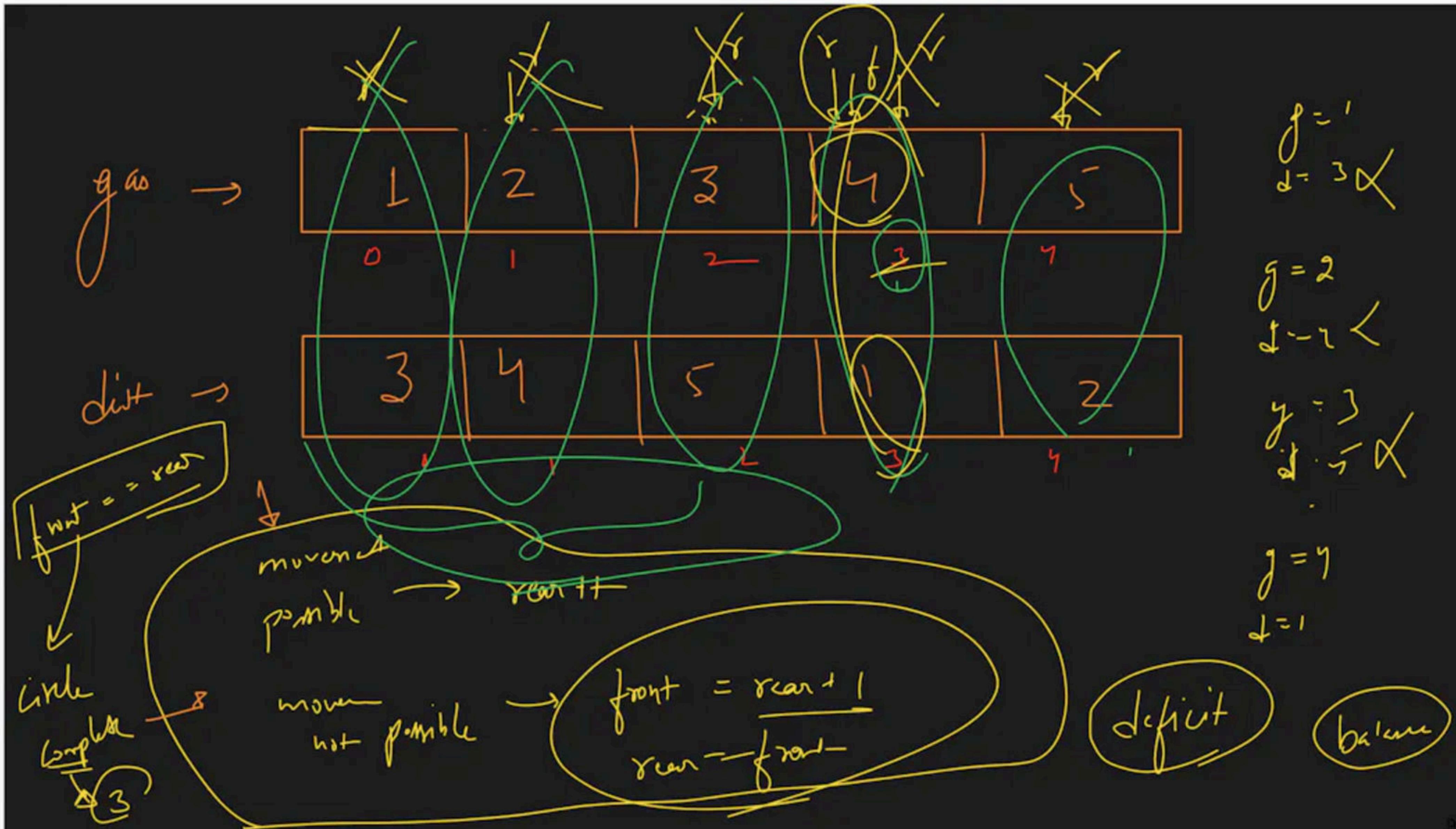
bd =  $\boxed{2}$

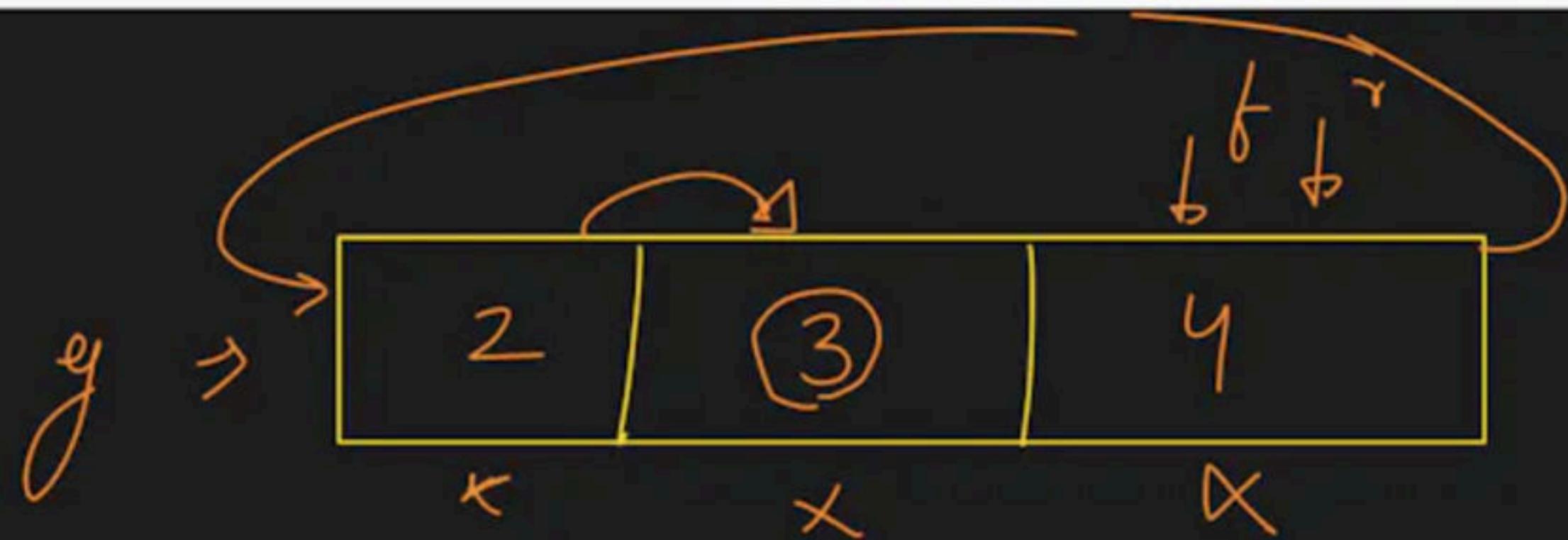












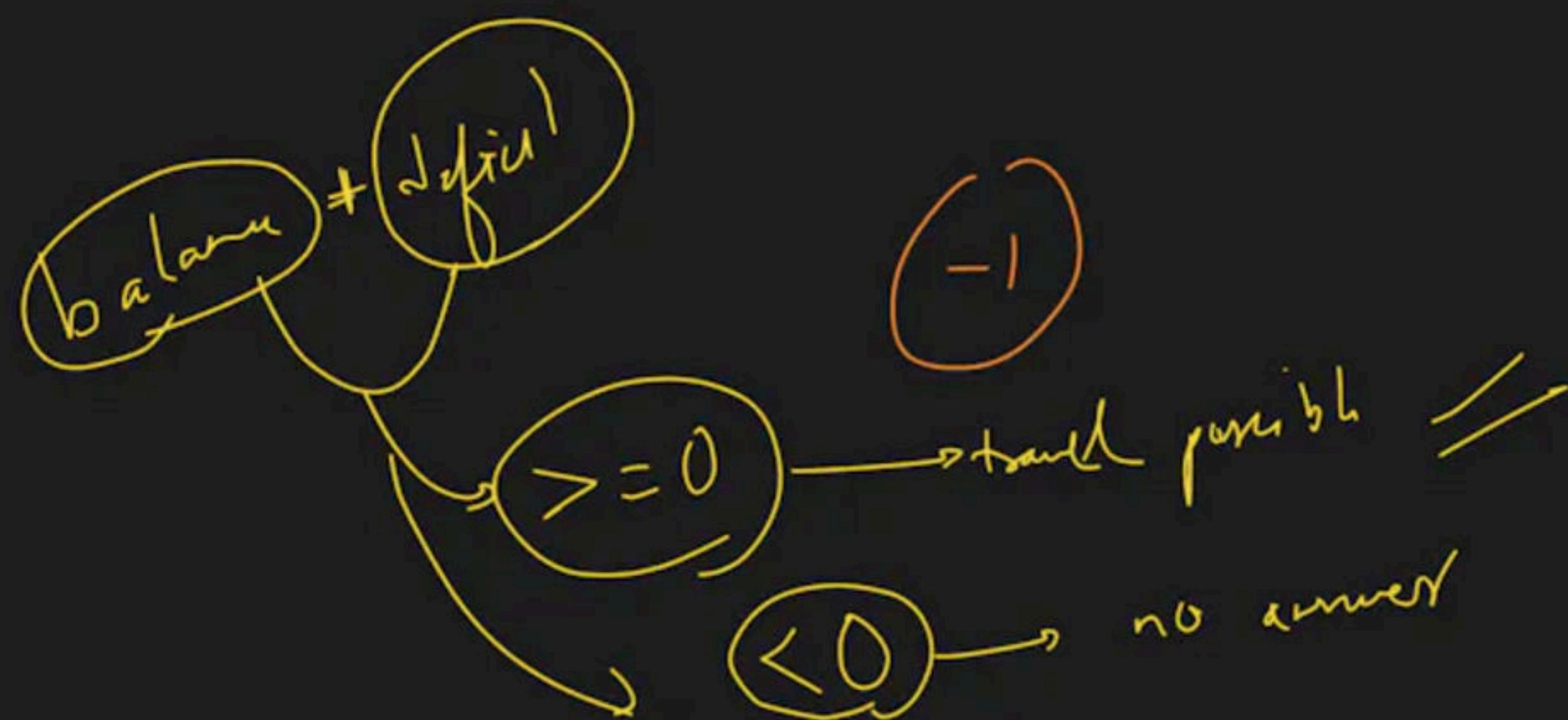
$$\begin{array}{l} g = 2 \\ f = 3 \end{array}$$

$\times$



$$\begin{array}{l} g = 1 \\ f = 3 \end{array}$$

$\times$



$$\begin{array}{l} g = 1 \\ f = 3 \end{array}$$

*gap*  $\rightarrow$

L	2	3	4	5
0	1	2	3	4

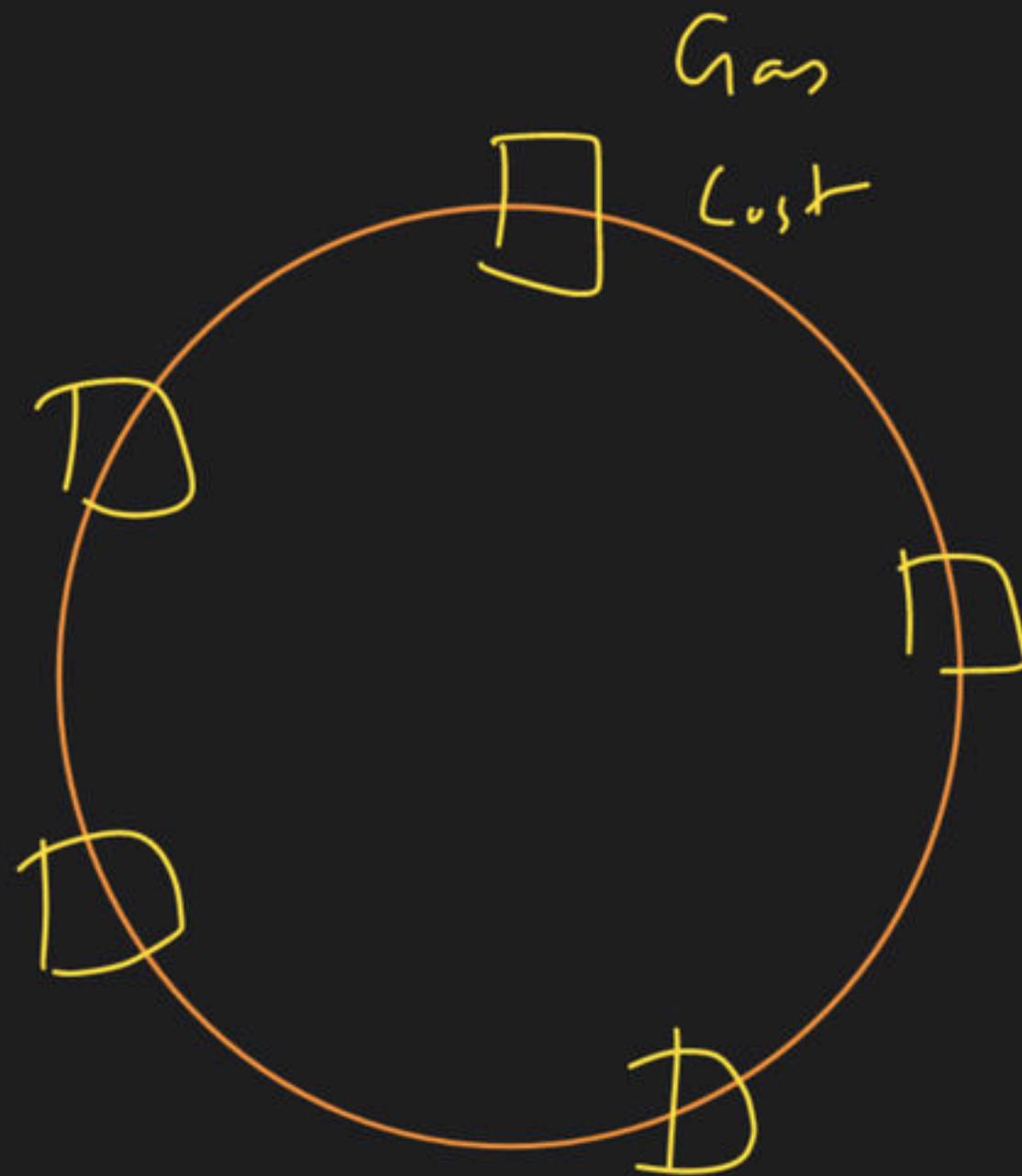
*dist*  $\rightarrow$

3	4	5	1	2
0	1	2	3	4

Gas station  $\rightarrow$

$G_{as} = \boxed{1 \mid 2 \mid 3} \quad 4 \mid 5$

Cust =  $3 \mid 4 \mid 5 \mid 1 \mid 2$



$$\Rightarrow i=6, \quad S = -2 \quad \checkmark \rightarrow \text{deficit} = \boxed{-2 + (-2) + (-2)}$$

$$i=1, \quad S = 0 + (-2) \quad \checkmark \rightarrow 0 \quad \checkmark$$

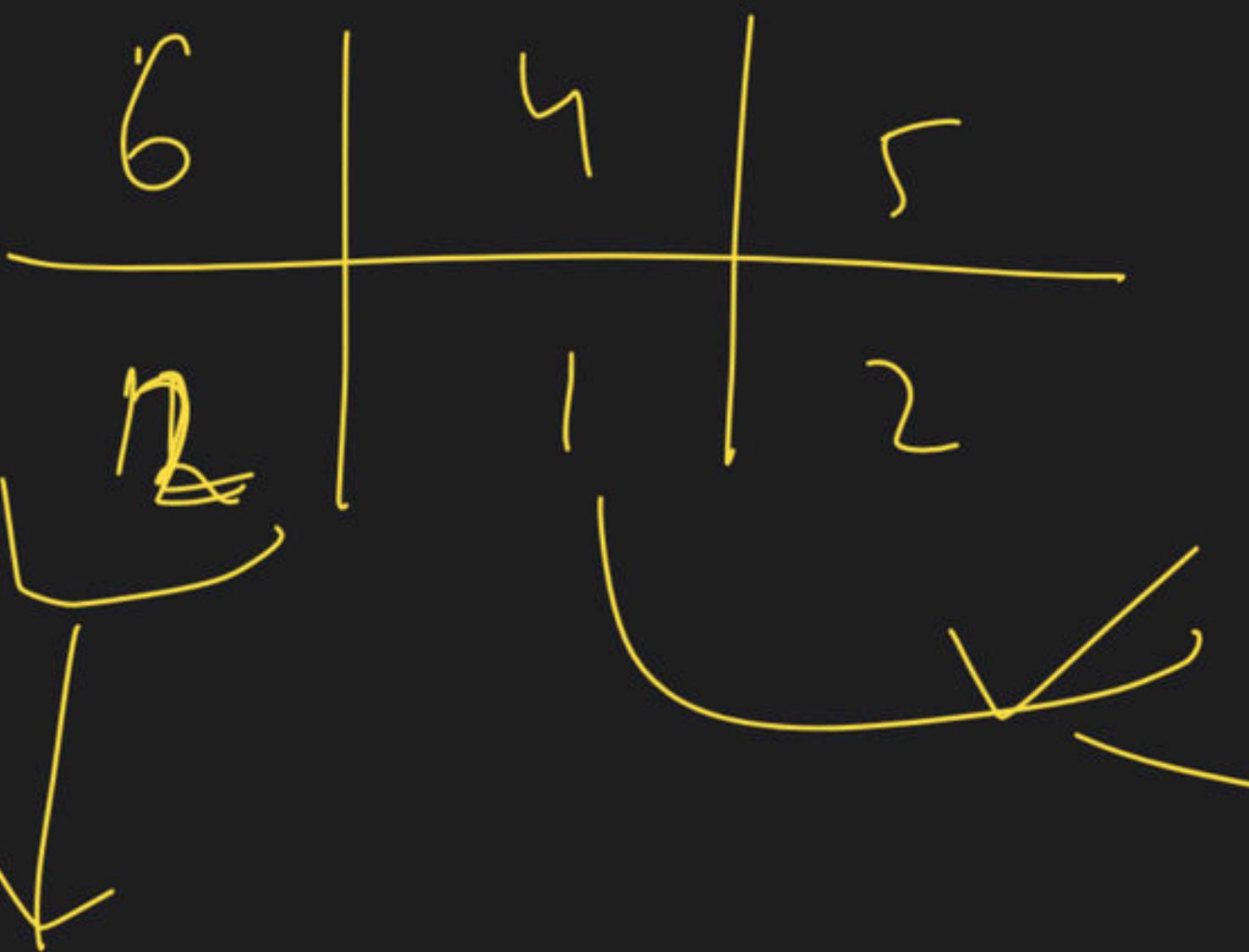
$$i=2, \quad S = 0 + (-2) \rightarrow 0 \quad \checkmark$$

$$i=3, \quad S = 0 + 3 \rightarrow \textcircled{6} \quad \checkmark$$

$i=4, \quad S = 3 + 3 \Rightarrow \textcircled{6} \quad \checkmark$

$G + (-2) \geq 0 \quad \checkmark$

=)



=>

$$S \Rightarrow -\frac{6}{2}$$

S

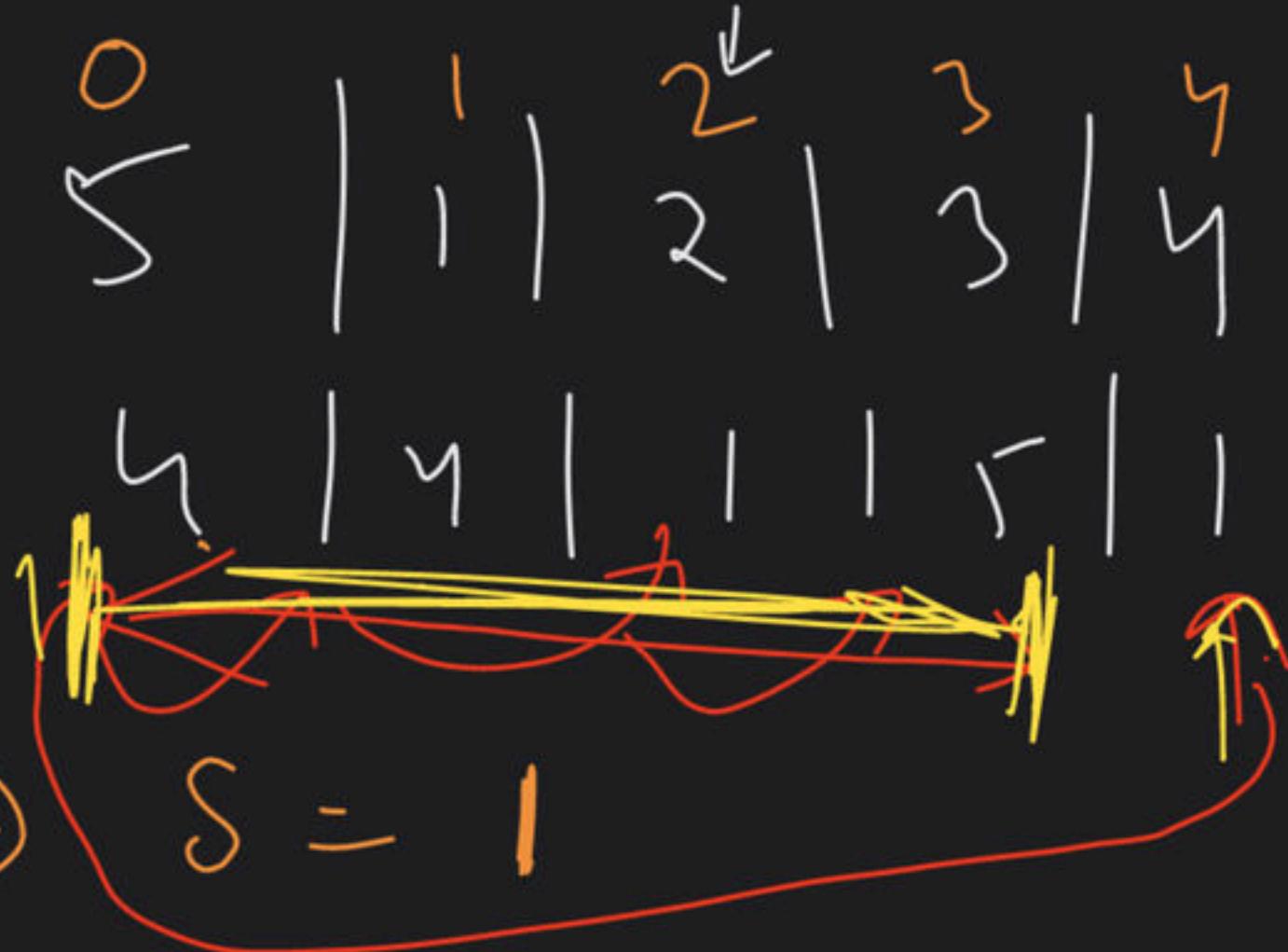
$$3+2$$

~~6~~

$\Rightarrow$  has

cont

$\Rightarrow \textcircled{0} \Rightarrow$



$$\text{deficit} = \cancel{0} - 2$$

$$\text{start} = \cancel{0} 2$$

$$1 \rightarrow S = 1 + (-3) = \underline{\underline{-2}} = \textcircled{0}$$

$$2 \rightarrow S = \cancel{1}$$

$$3 \rightarrow S = 1 + (-2) = \underline{\underline{-1}} = 0$$

$$4 \Rightarrow S = 4 - 1 = \underline{\underline{3}}$$

$\Rightarrow$  Gauß

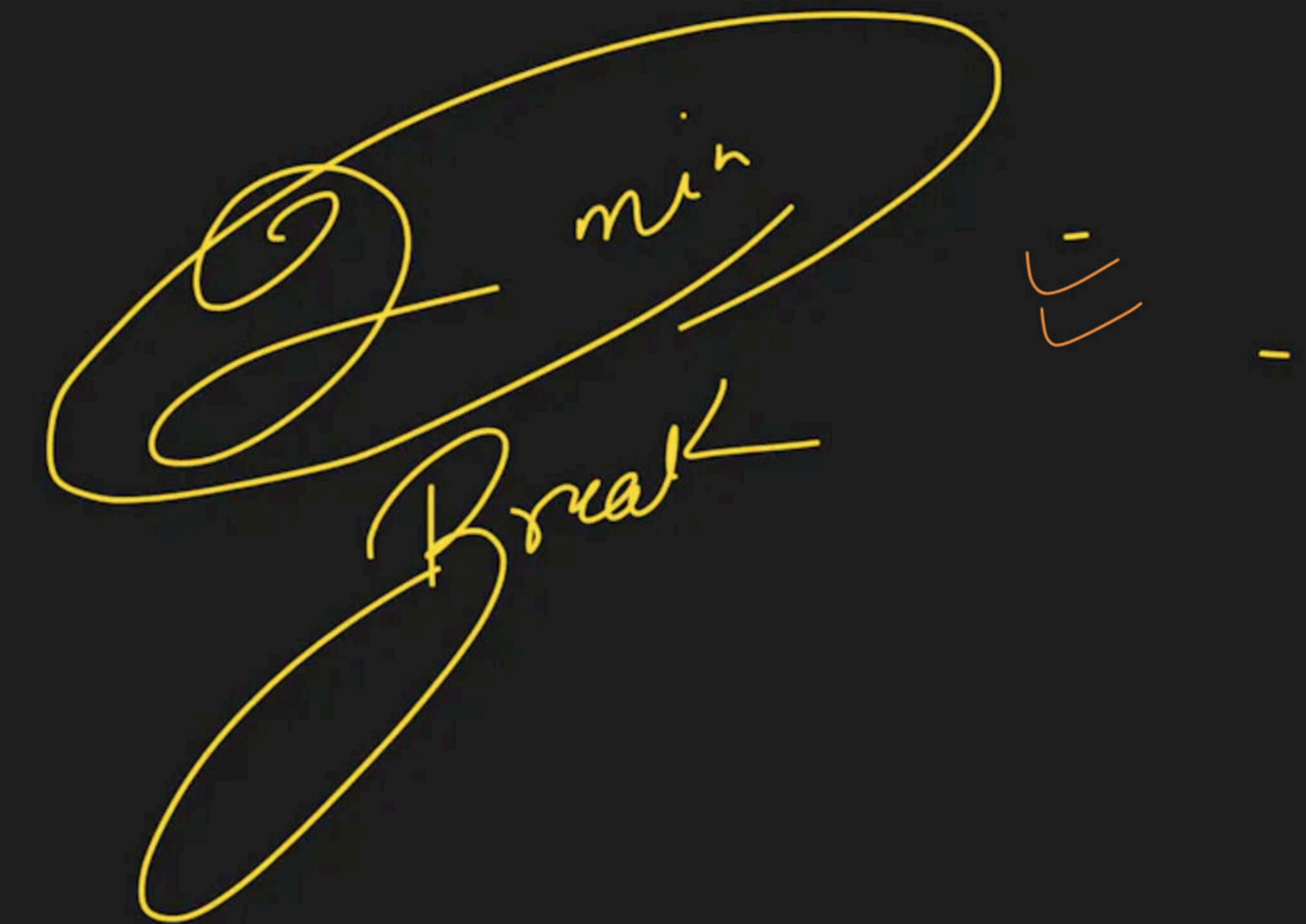
$$4 \mid 5 \mid 2 \mid 6 \mid 5 \mid 3$$

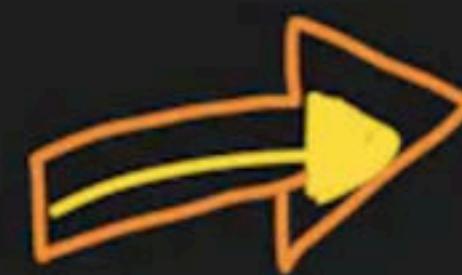
$$(-) \quad 3 \mid 2 \mid 7 \mid 3 \mid 2 \mid 9$$

$$\Rightarrow 1 + 3 + (-5) + 3 + 3 + (-6)$$

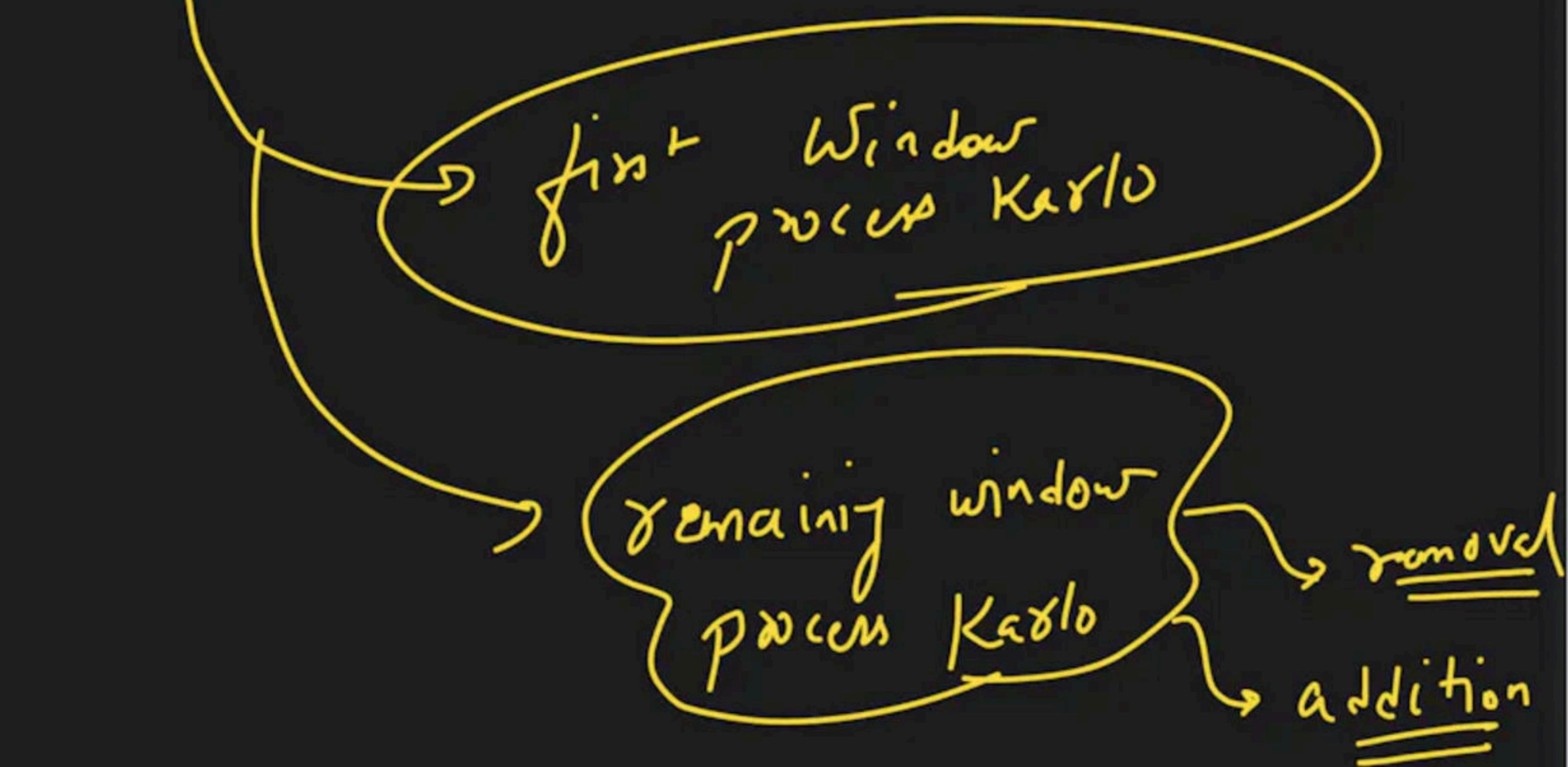


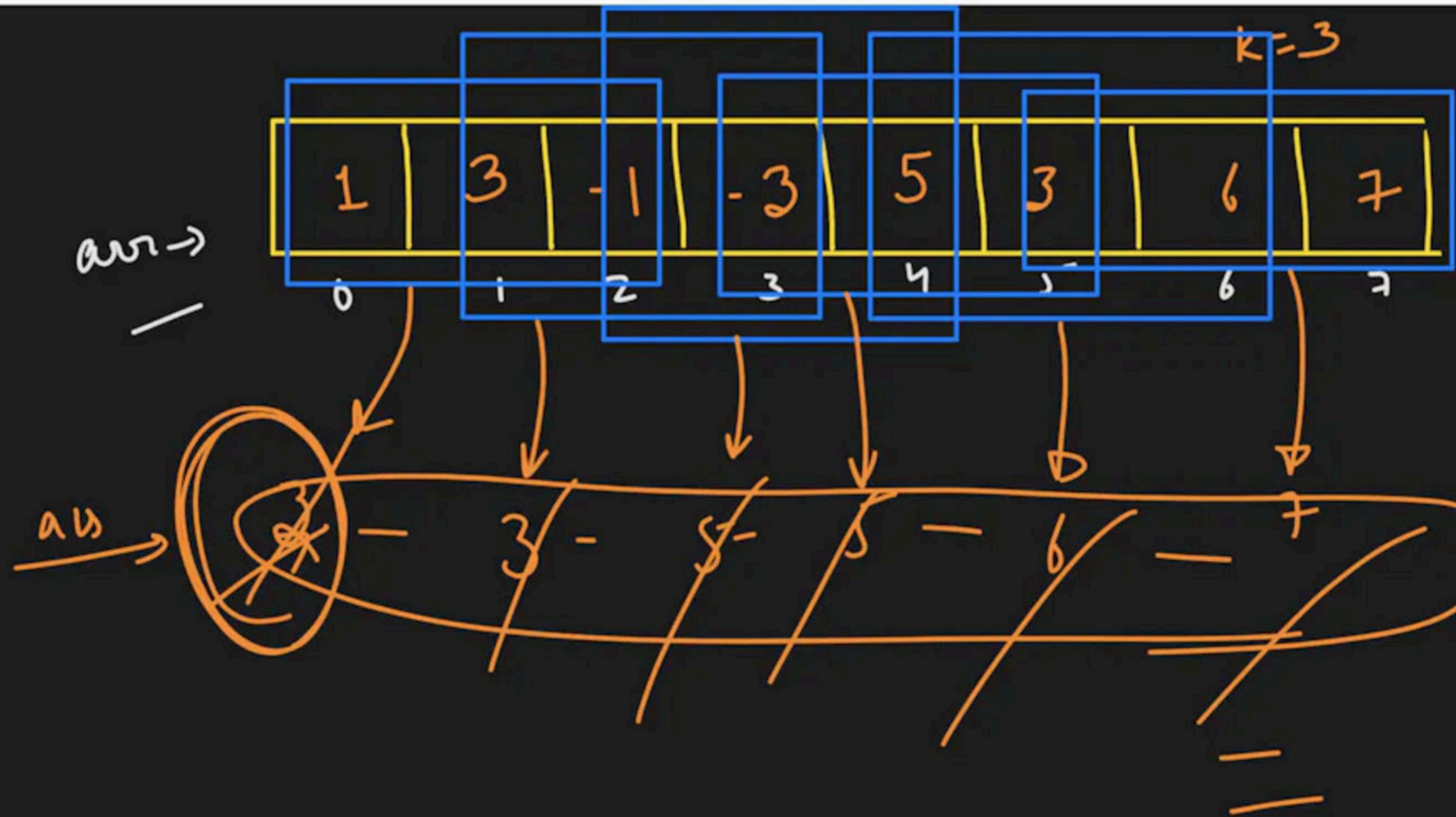


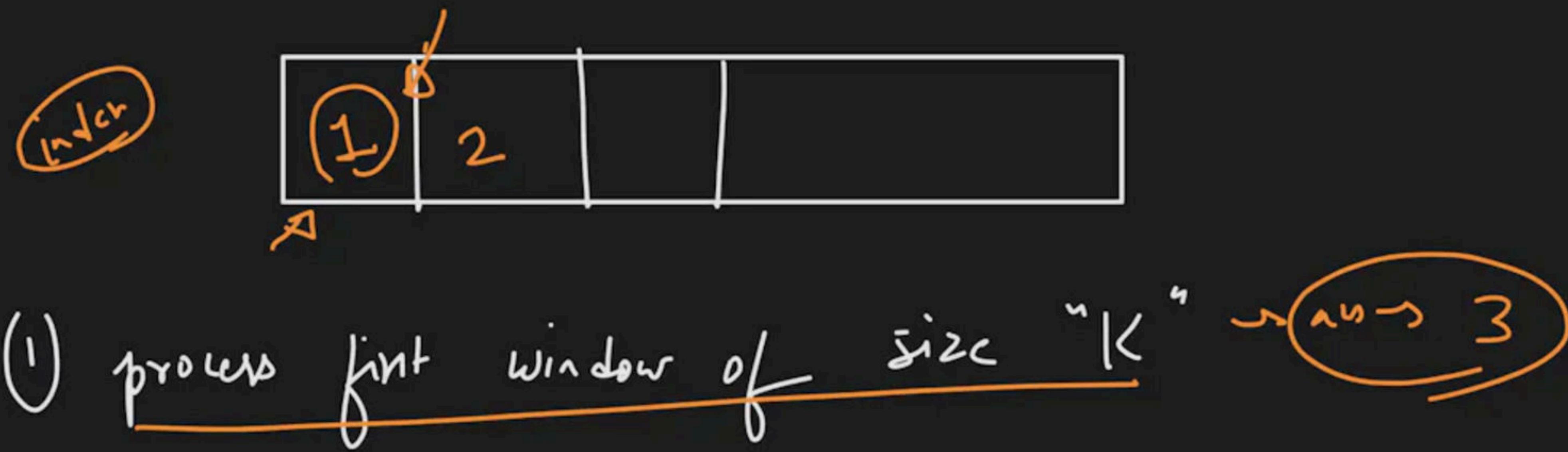
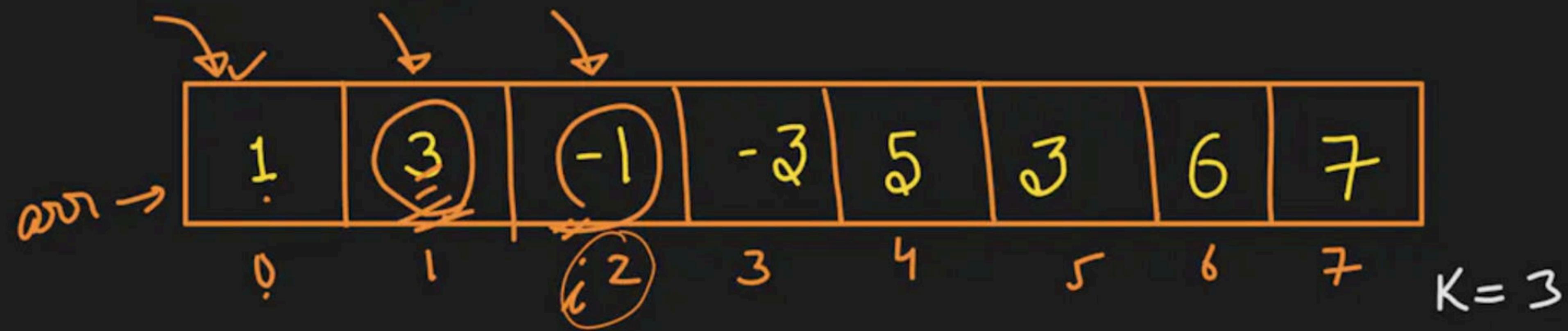


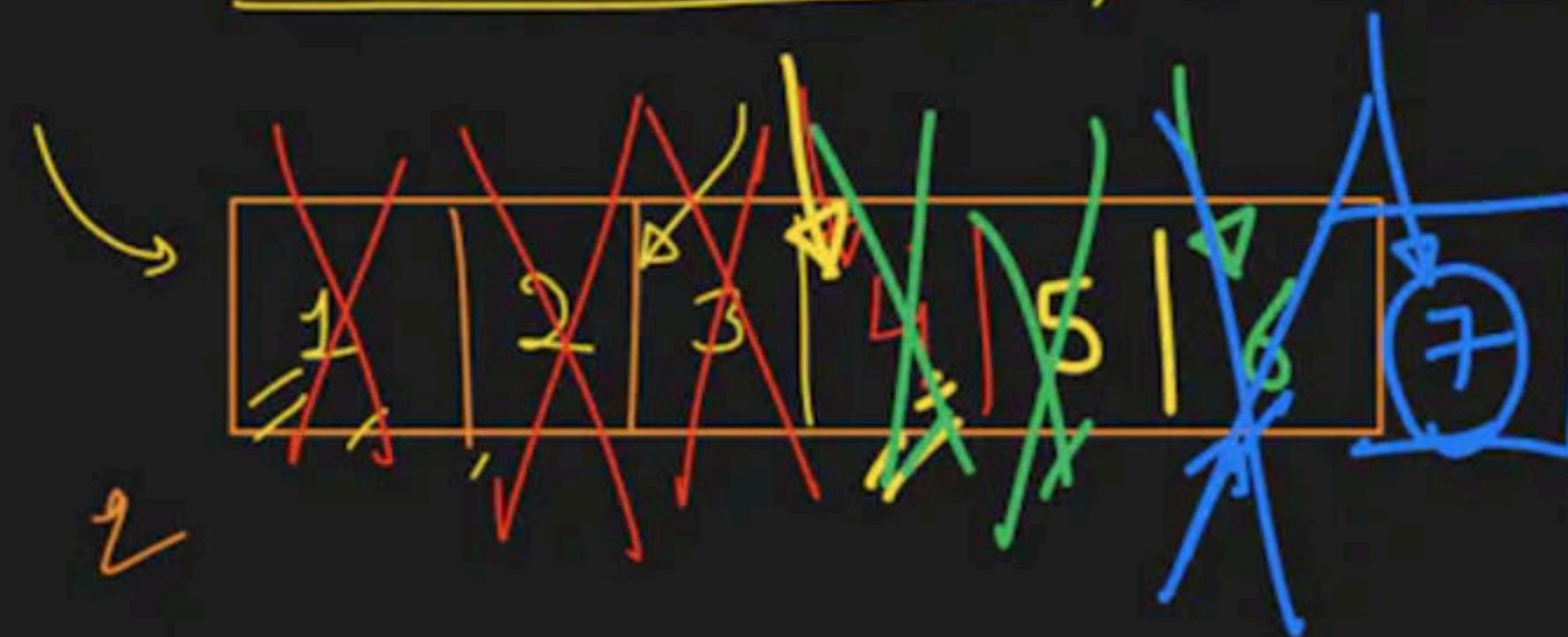
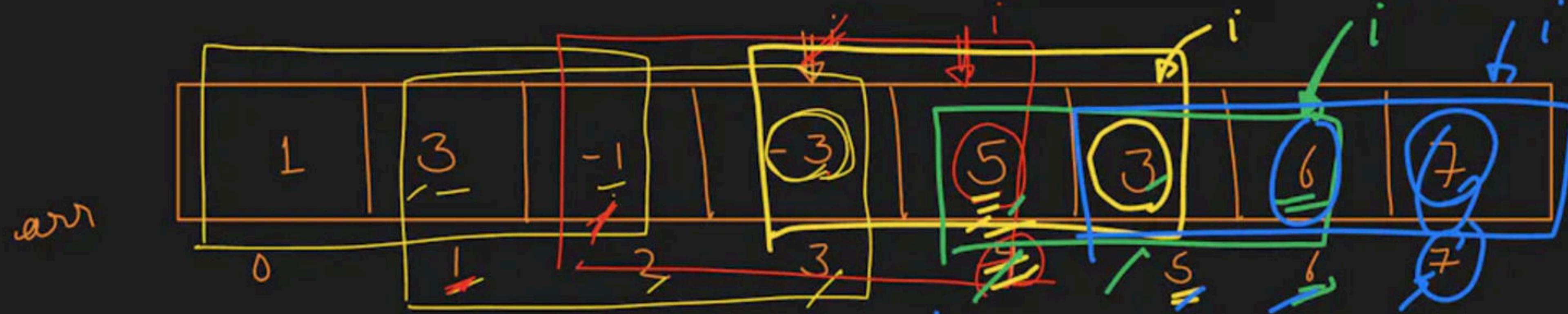


# → Sliding Window Maximum







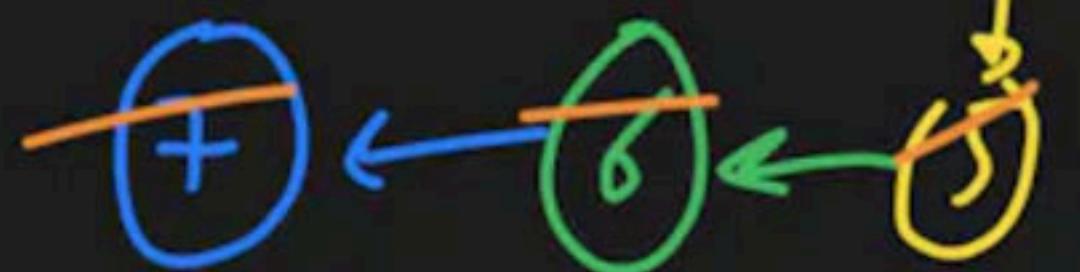


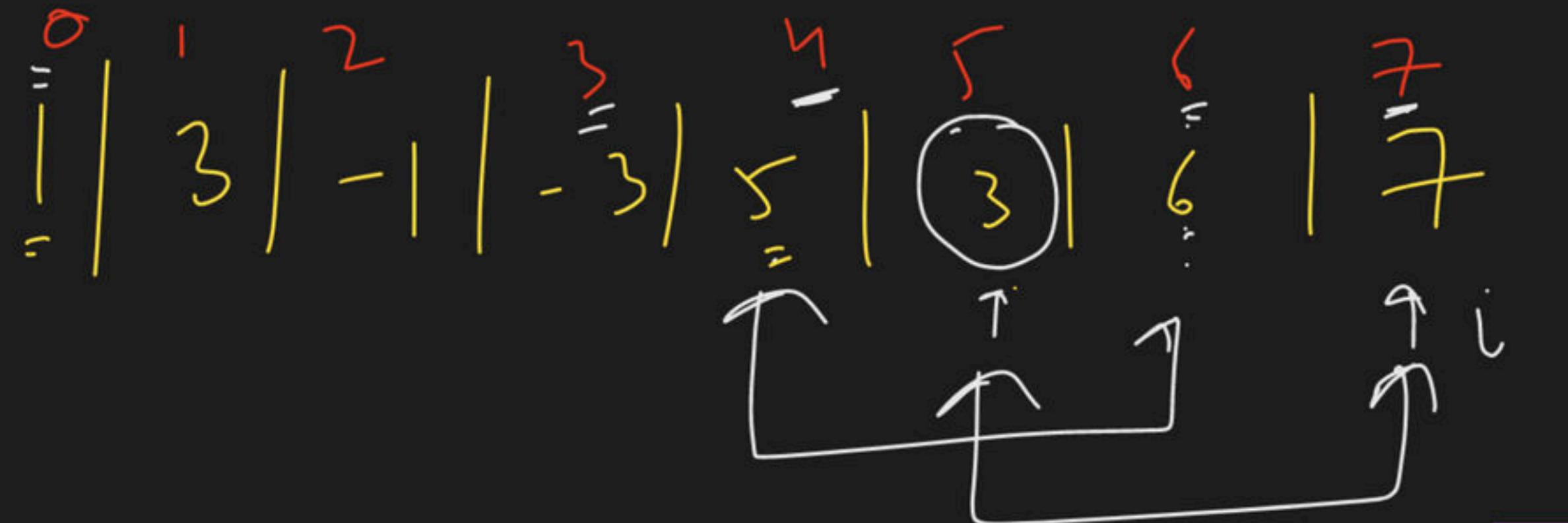
remove

- Out of range
- Ch. Hc elms

remove

addition





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



⇒ Why Popping from Back ??

0 | 1 | 3 | 1 | 2 | 0 | 5

$$k = 3$$

~~2 3~~

$$0 \geq 1$$



~~1 2 3 4~~



3 3 1 5  
=

1 | 3 | 1 | 2 | 0 / 5

0 1 2 3 4 5

↓ ↓ ↑ ↑

$\leftarrow = 3$

$2 > 1$

$0 \geq 2$

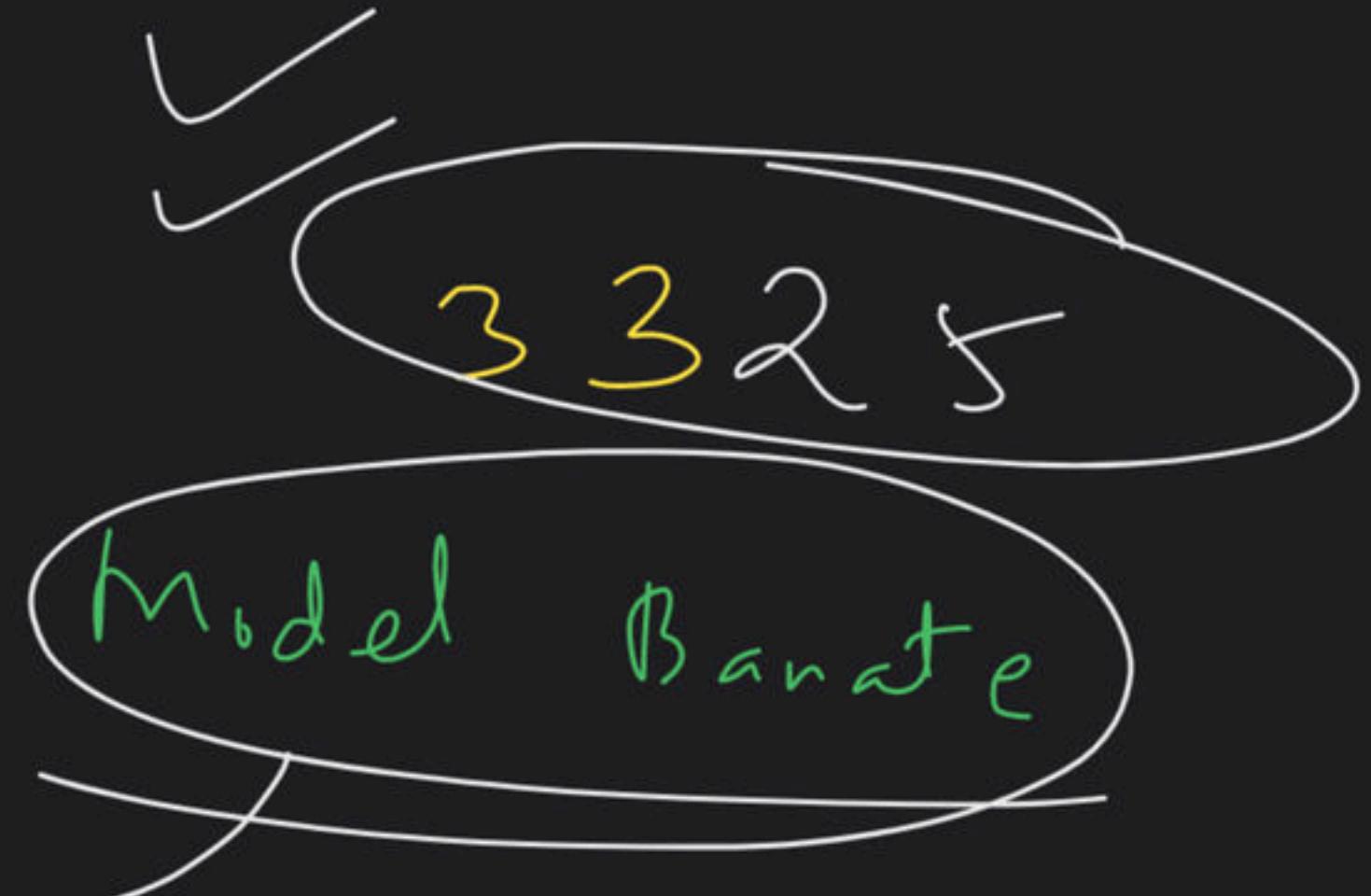


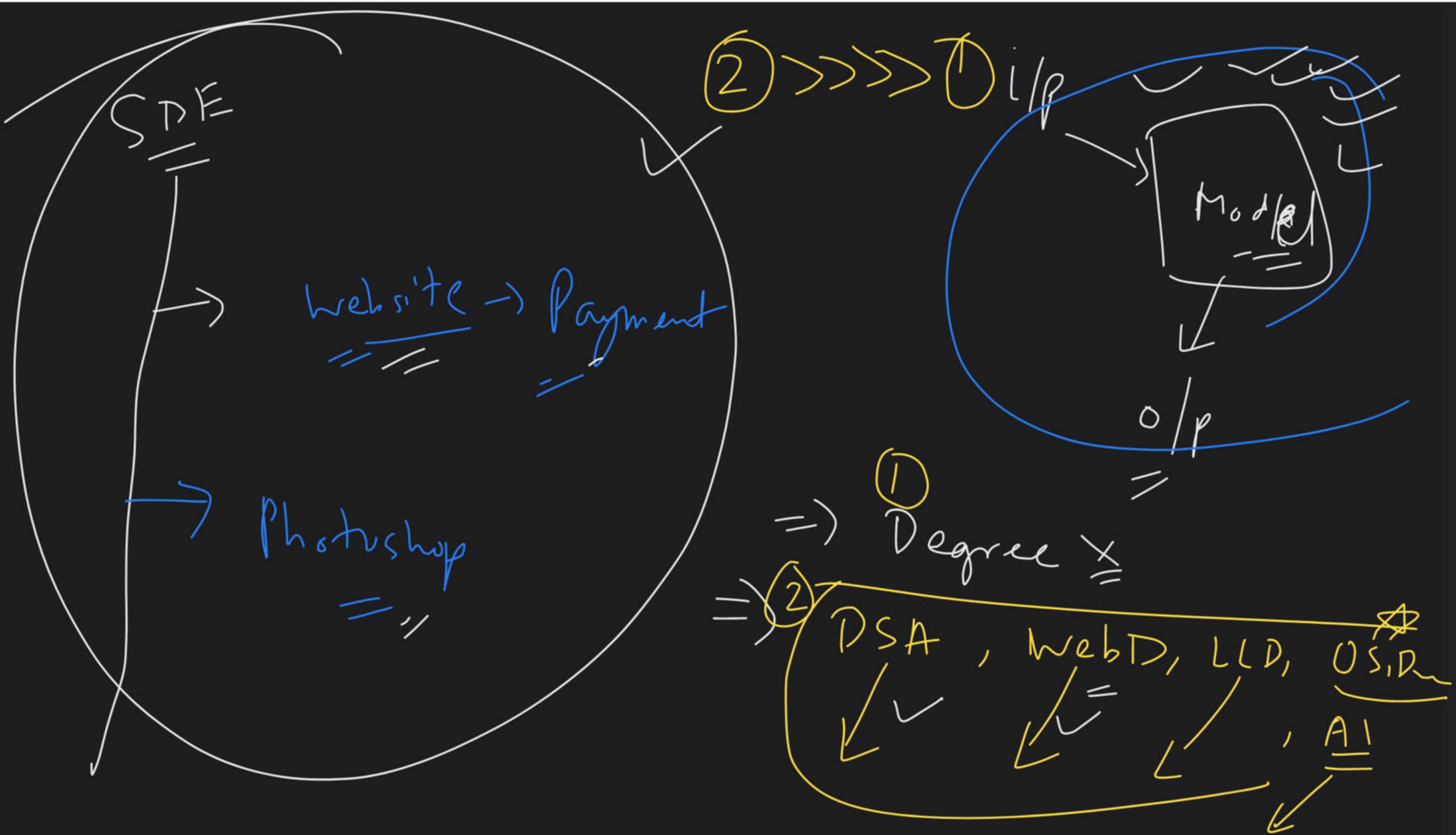
SDE



Researcher

R =





$\Rightarrow$

Swapping Nodes in a LL

Brute force

$\Rightarrow$

Coding MSFT

1  $\rightarrow$  2  $\rightarrow$  3  $\rightarrow$  4  $\rightarrow$  5  $\rightarrow$  array

$\rightarrow$  1  $\rightarrow$  4  $\rightarrow$  3  $\rightarrow$  2  $\rightarrow$  5  $\rightarrow$  array

function LL

ans arr

operations

















