

In this Video, we are going to solve LeetCode /CodeStudioProblems:

- Find Unique element [<https://bit.ly/3y01Zdu> ]
- Duplicates in Array [<https://bit.ly/3dm6bdZ> ]
- Array Intersection [<https://bit.ly/3Il0c7n> ]
- Pair Sum [<https://bit.ly/3EwlU6e> ]
- Triplet sum [<https://bit.ly/3GbgVs3>]
- Sort 0 1 2 [<https://bit.ly/3DfQW0s>]

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There is a lot to learn, Keep in mind “ Mnn boot karega k chor yrr apne se nahi yoga ya maza nahi para, Just ask 1 question “ Why I started ? “  
Coding Ninjas: <https://bit.ly/3cfdKTe>

Discord Server Link: <https://discord.gg/feSQvVXMrd>

Course Flow: <https://whimsical.com/dsa-4-placement...>

Homework: Added in Video already

Homework question:

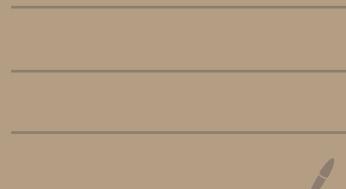
Ques1: <https://leetcode.com/problems/unique...>

Ques2: <https://leetcode.com/problems/find-al...>

Ques3: <https://bit.ly/3GbgVs3>

Ques4: <https://bit.ly/3DfQW0s>

Notes Link: <https://drive.google.com/file/d/1IYPF...>



## Array Problems

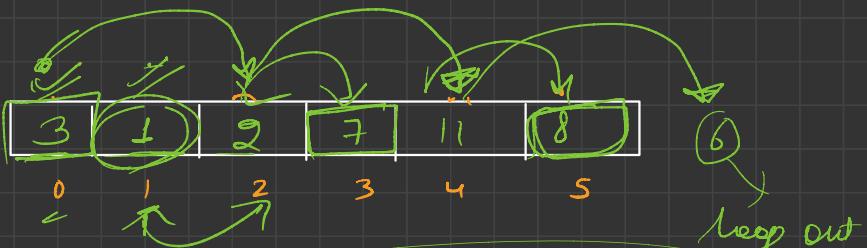
① Swap alternate

$$i/p \rightarrow arr[5] = \{ \overbrace{1, 2}, \overbrace{7, 8}, \overbrace{5} \}$$

$$o/p \rightarrow \{ 2, 1, 8, 7, 5 \}$$

$$\boxed{\{ 1, 2, 3, 4, 5, 6 \}}$$

$$\boxed{ans \rightarrow \{ 2, 1, 4, 3, 6, 5 \}}$$

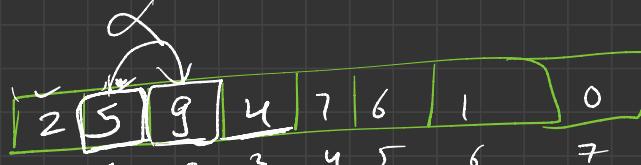


Algo:-

```

for ( index → 0 — 5 ) , i++ ✕
{
    if ( i+1 < size )
        swap ( arr[i] , arr[i+1] )
}
    
```

}



Index

i = 0    1    2    i

$i < size$

size → arr.length

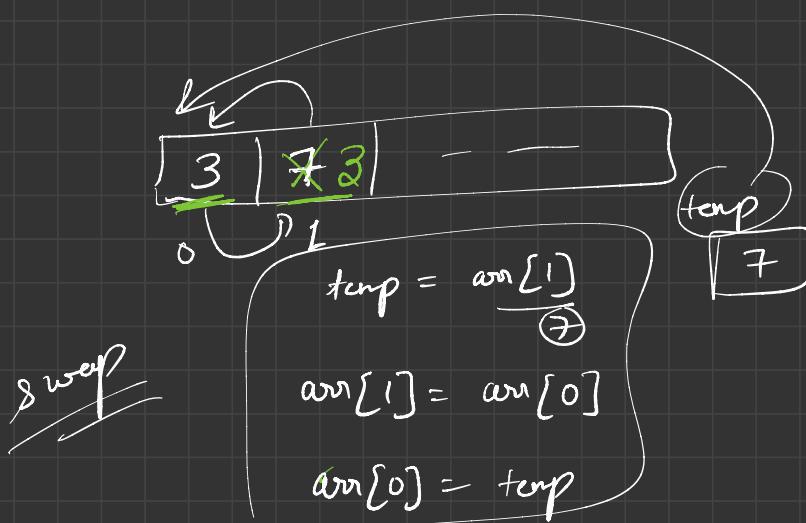
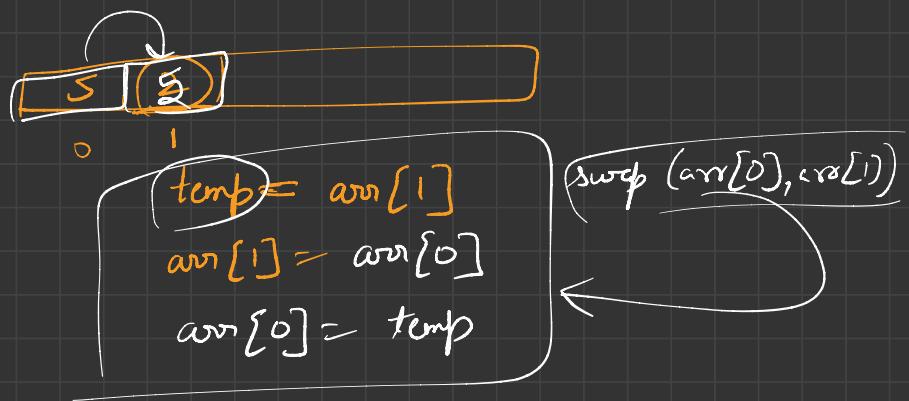
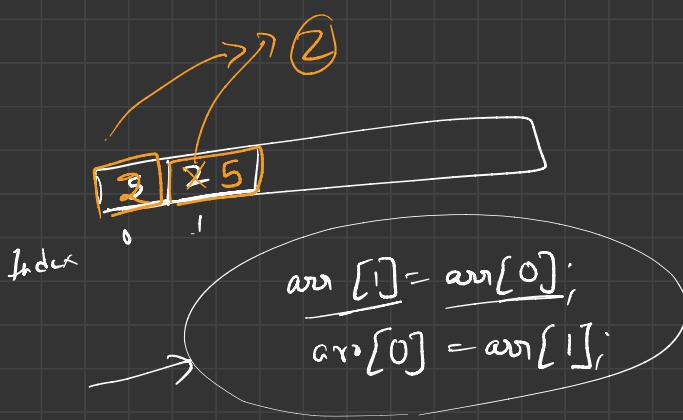
8

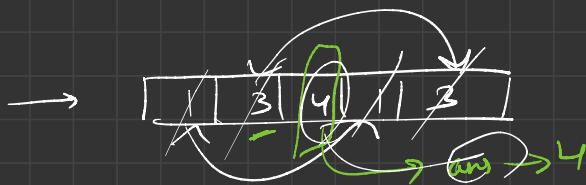
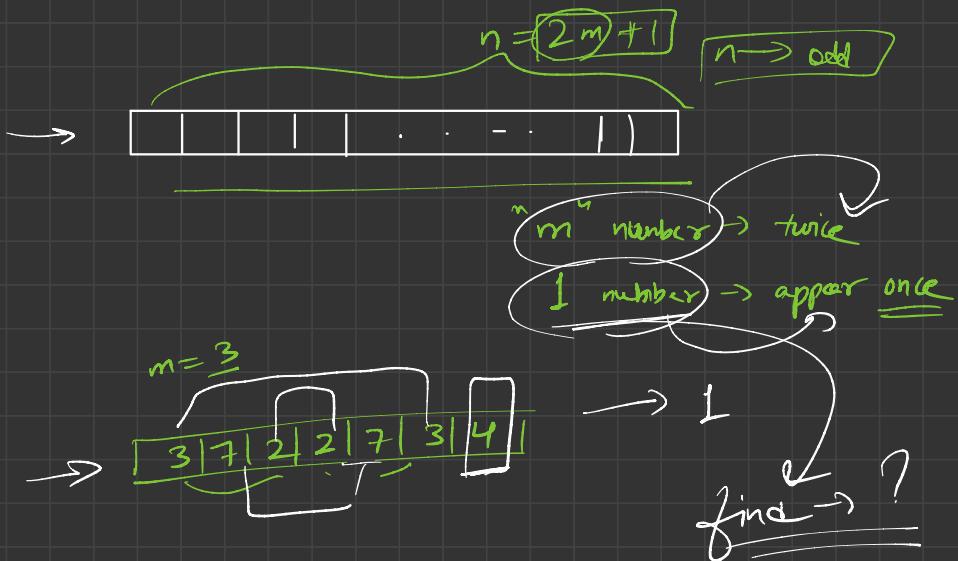
$1 < 8$  → 1 is inside array

$i = i + 2$   
 $i = 2$   
 $i = i + 2$

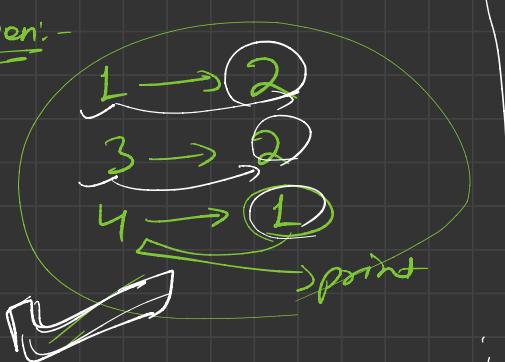
$i = i + 2$

$i = i + 1$  ✕





Solution:-



$$= 3 + 2 - 3$$

$$= 2$$

$$= 10 + 10 - 10 - 10 + 1$$

∴

XOR:-

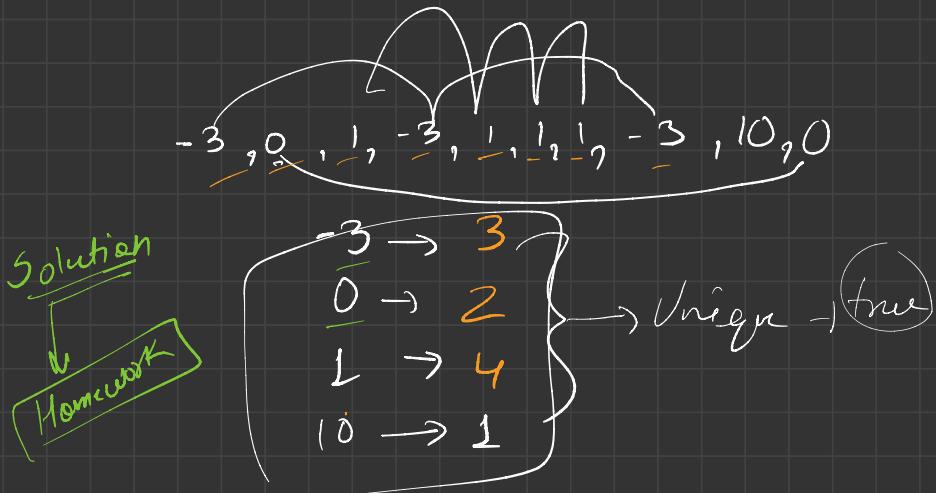
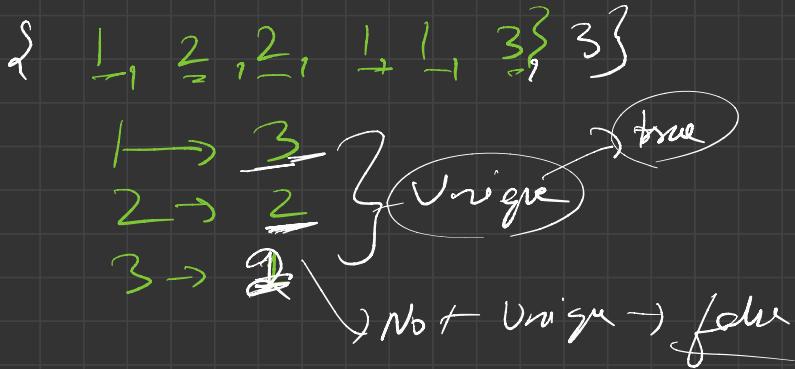
$$\underline{a} \wedge \underline{a} = 0$$

$$\underline{0} \wedge \underline{a} = \underline{a}$$

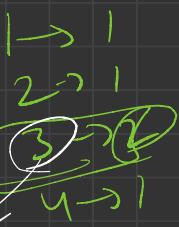
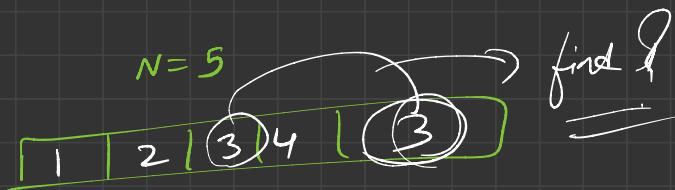
$$\begin{array}{ccccccc}
 & & & & & & 2 \\
 & & & & & & \\
 [1|3|4|1|3] & & & & & & \\
 & 0 & & 0 & \wedge & 4 & \wedge 0 \\
 & & & & & & \\
 & & & & & & 4
 \end{array}$$

$$\begin{array}{r}
 2 \quad 3 \quad 1 \quad 6 \quad 3 \quad 6 \quad 2 \\
 - \quad - \quad - \quad - \quad - \quad - \quad - \\
 \underline{\underline{2}}^{\wedge} \quad \underline{\underline{3}}^{\wedge} \quad \boxed{1}^{\wedge} \quad \underline{\underline{6}}^{\wedge} \quad \underline{\underline{3}}^{\wedge} \quad \underline{\underline{6}}^{\wedge} \quad \underline{\underline{2}}^{\wedge} \\
 0^{\wedge} \quad 0^{\wedge} \quad 0^{\wedge} \quad \textcircled{1} = \textcircled{1} \rightarrow \text{diff}
 \end{array}$$

→ LeetCode → Unique no of Occurrence



① find duplicate



$$[-1, 5-1] \rightarrow [1, 4]$$

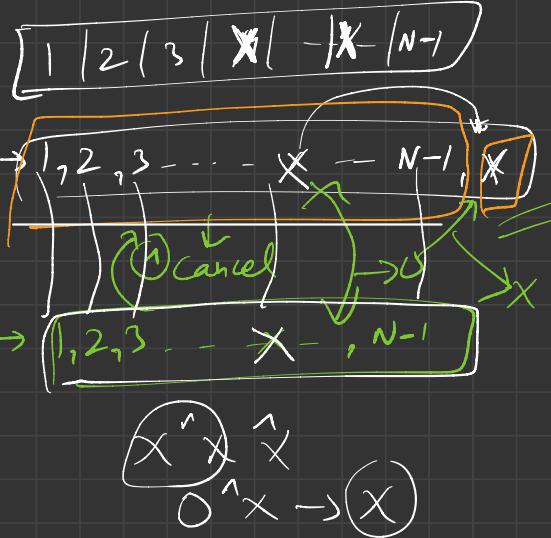
$$[1, N-1]$$

## Solution

## Counting

12 24 56 |

Vector  $\rightarrow$  dynamic



$\{ \}$

$\{ 1, n-1 \} \rightarrow 1$  client dropped

$\{ 1, 2, 3, \dots, \underline{x}, \dots, N-1 \}$ ,  $x$

$\downarrow$   $\text{xor} \rightarrow 0$

$\{ 1, 2, 3, \dots, -x, \dots, N-1 \}$ ,  $x$

Loc lock  $\rightarrow$  find all duplicates in an array

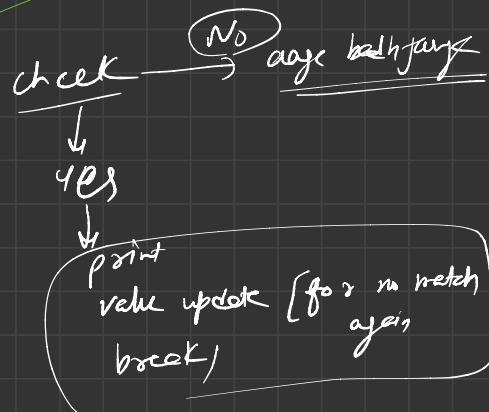
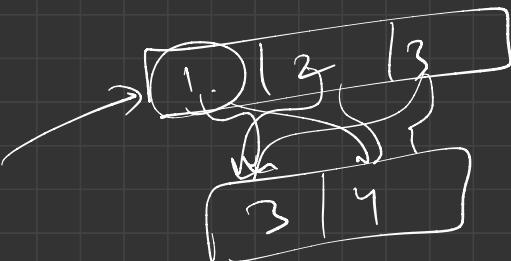
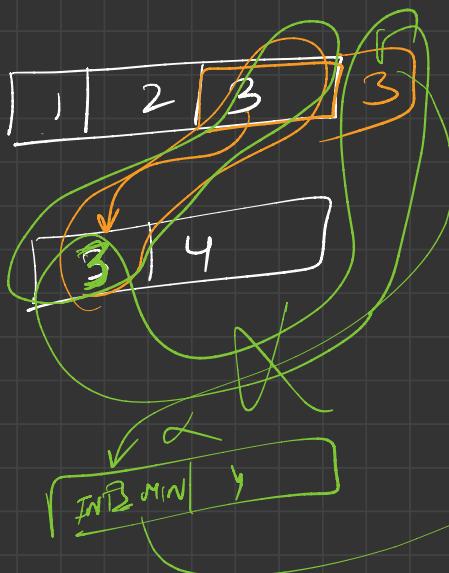
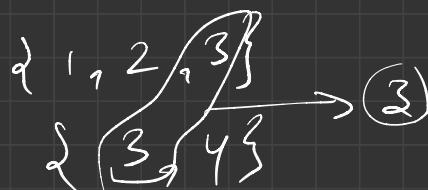
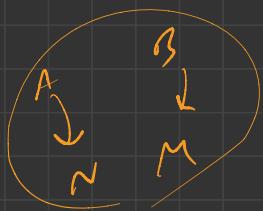
Homework

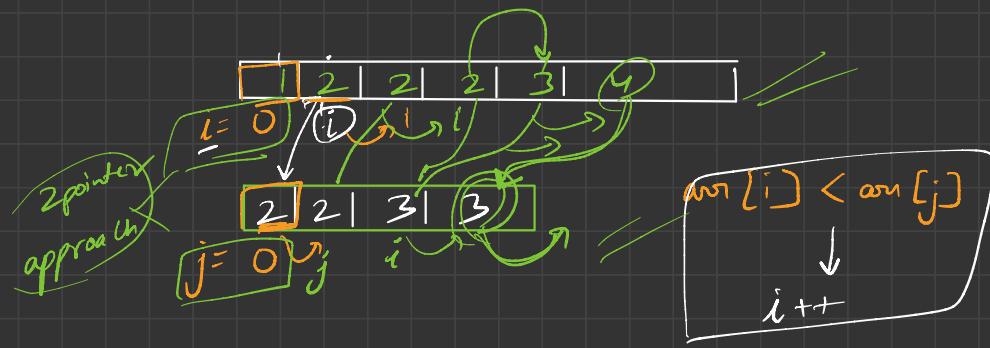
$\rightarrow \cap$  intersection  $\rightarrow$  common element

No f present

(-1) ans

sorted (non-dec order)





$$\text{arr}[i] > \text{arr}[j]$$

j ++;

$$arr[i] < arr[j]$$

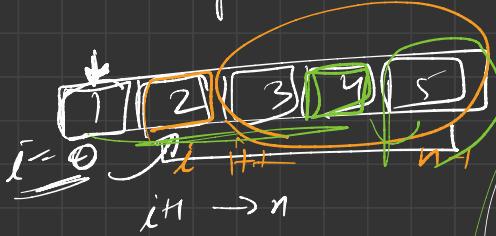
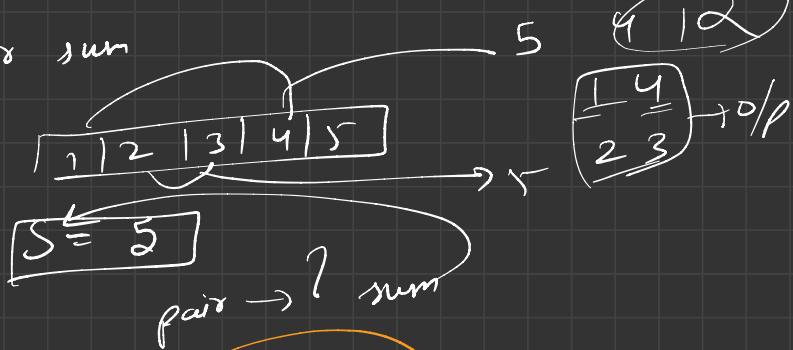
i++

$$am[i] = am[j]$$

## Point / Vectors

~~i++~~, ~~J++~~

→ Pair sum

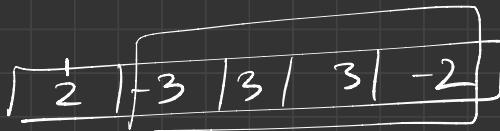
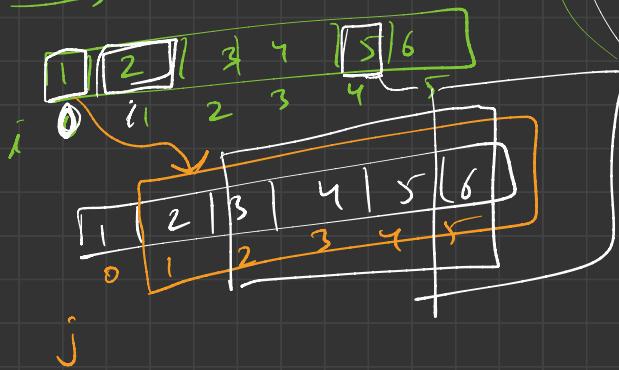


for ( $0 \rightarrow n-1$ )

  for ( $i+1 \rightarrow n-1$ )

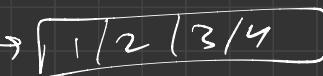
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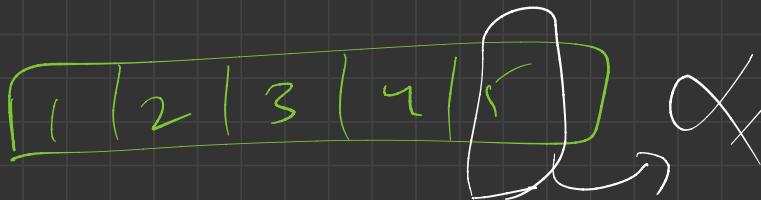
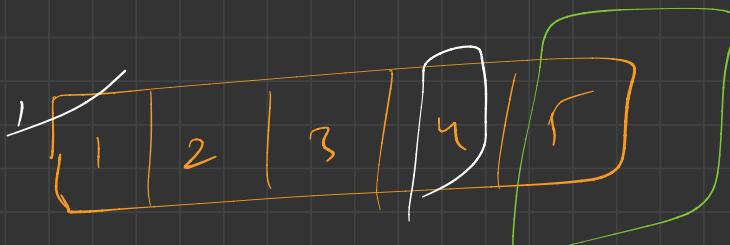
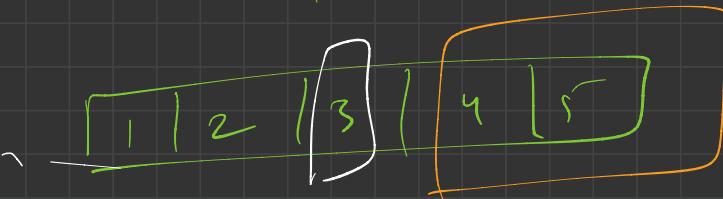
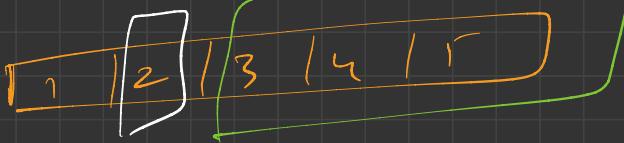
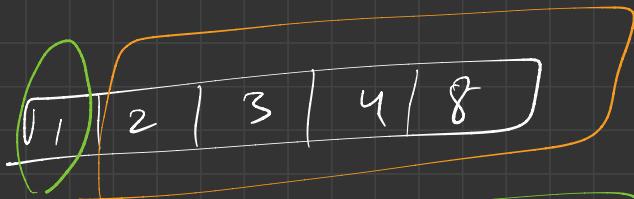
$i \rightarrow 0 \rightarrow n-1$

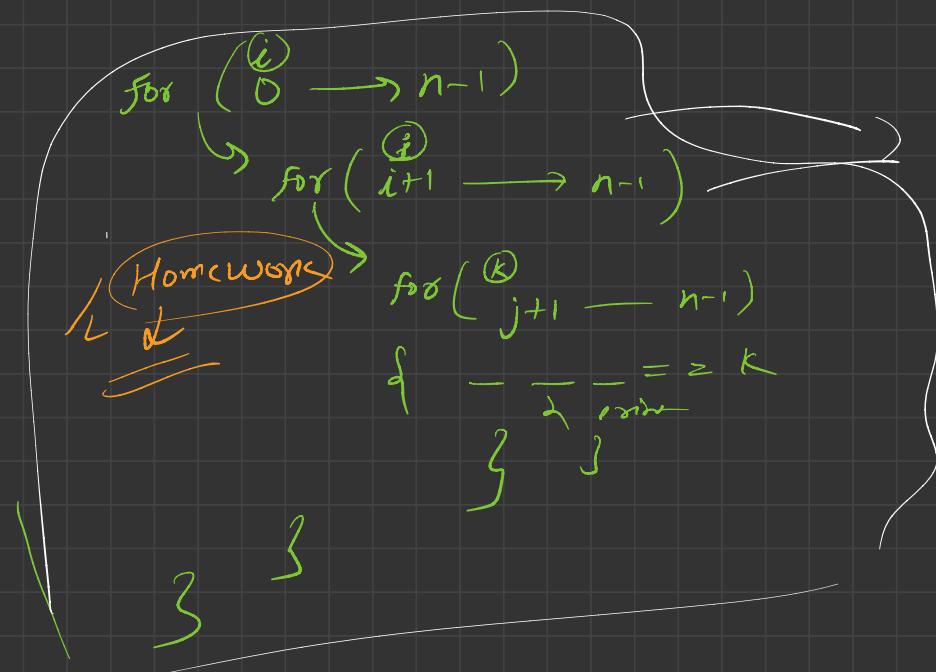
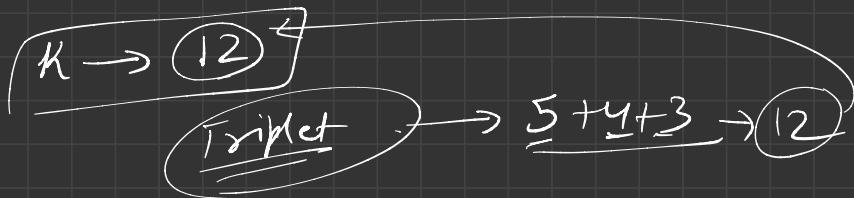
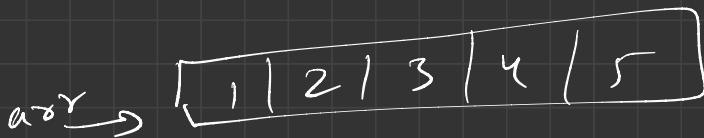


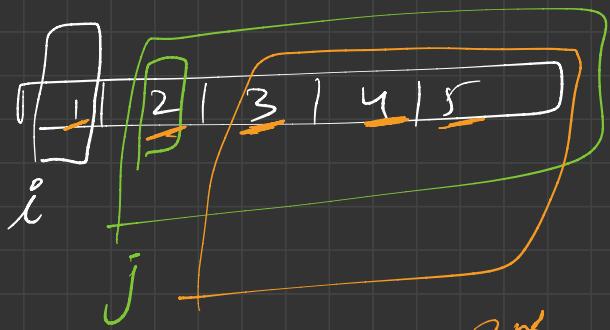
(2, -2)

sort









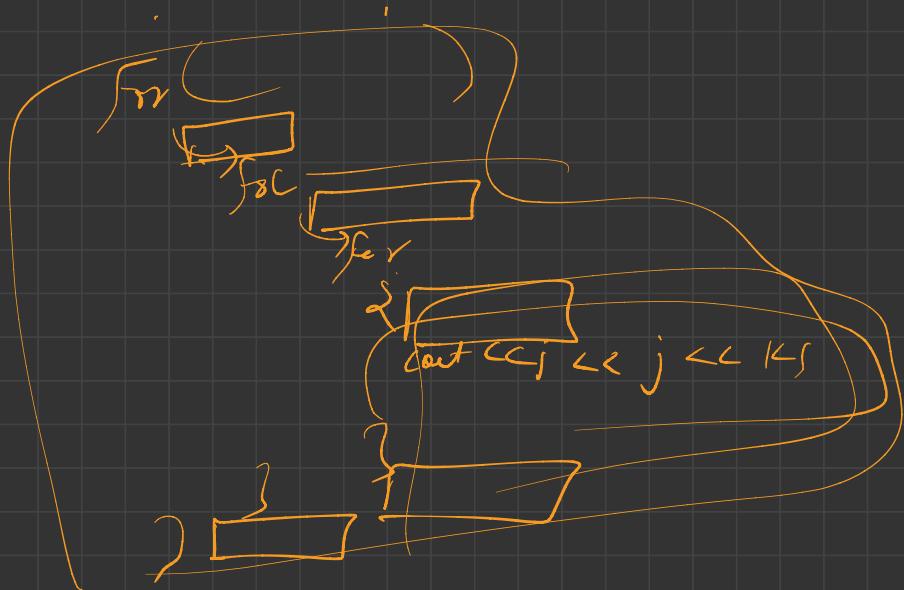
$i$	$j$	$K$
1	2	3
1	2	4
1	2	5

2<sup>nd</sup>

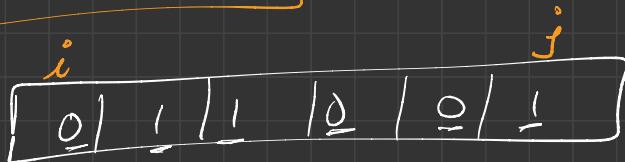
$\exists \sqrt{d}$

1	3	4
1	3	5

1	4	5
---	---	---



Sort [0, 1]  $\rightarrow$  left,  $L \rightarrow$  right



0/1  $\rightarrow$

[0 | 0 | 0 | ) | 1 | 1 | L]

Solution

Count

0  $\rightarrow$  3

L  $\rightarrow$  3

Traversal

(0 / 1)

2 traversal

$O(n)$

$\hookrightarrow$  sort

[0 0 0 | 1 | 1 | 1]

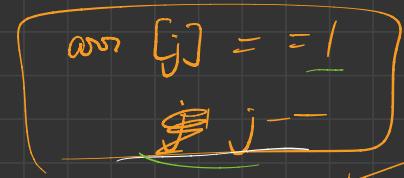
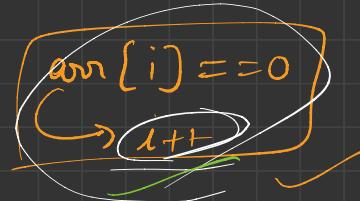
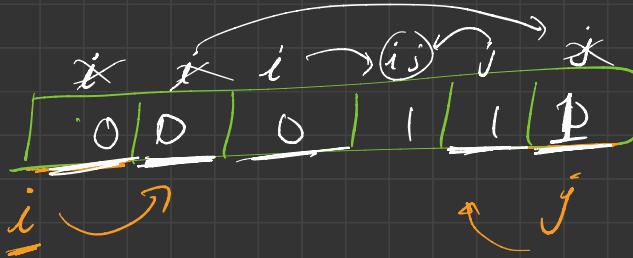
$n \log n$

Two-pointer  
approach

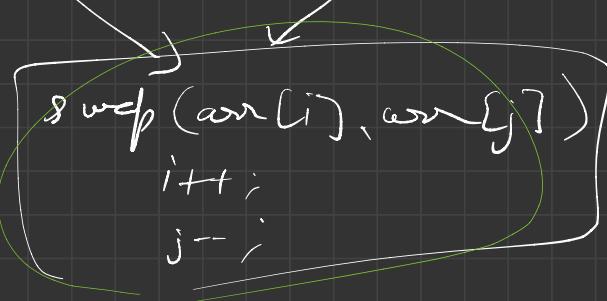
single traversal

$O(n)$

$i \rightarrow \text{left}$   
 $L \rightarrow \text{right}$



$\text{arr}[i] == 1$   $\wedge$   $\text{arr}[j] == 0$



$i >= j$   $\rightarrow$  loop not done

11|1|0|0|0|0|1|1|0

i

j

0|1|1|0|0|0|0|1|1

i

j

Play Rule

0|1|0|0|0|1|1|1

i

j

2<sup>nd</sup> approach

i/p  $\rightarrow$  [0 | 2 2 | 1 | 0 | 1 | 1 | 0 | 2]

o/p  $\rightarrow$  [0 | 1 | 0 | 1 | 1 | 1 | 2 | 2 | 2]

Solve  $\rightarrow$  Answer