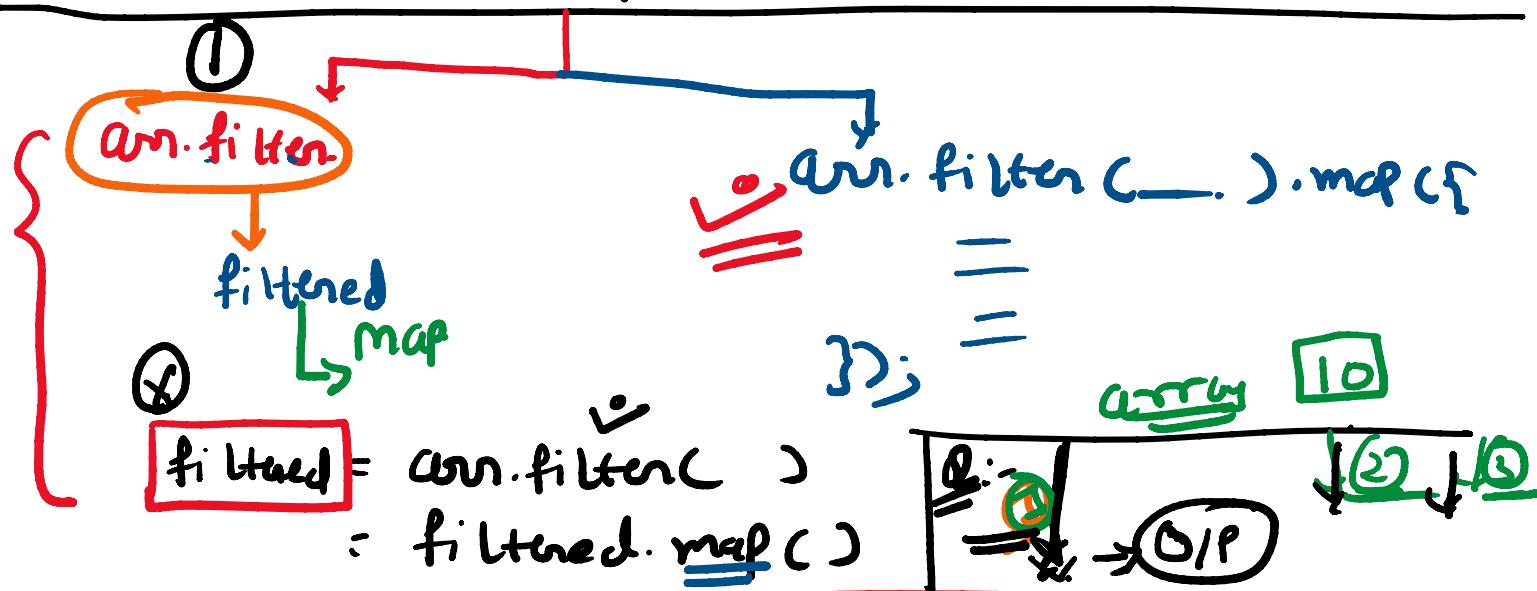


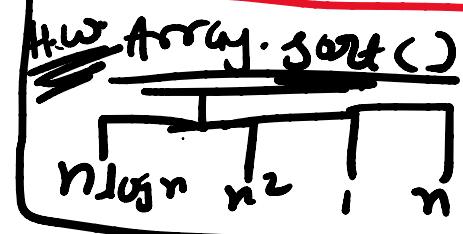
Homework

- # ✓ Merge TC  
n log n  
 $O(n^2)$
- # ✓ Quick TC  
O(n log n)
- # ✓ Bubble ?
- # ✓ Selection ?
- # ✓ Insertion ?



Q:- [1, -1, 2, 0, 3, 1, -2]

find a triplet



$\Rightarrow 0$

$$1 + (-1) + 0 \Rightarrow 0$$

$$2 + (-2) + 0$$

$$(-1) + (-2) + 3$$

5 mins

Naive approach:

8:32

+ 5

8:37

Q [ 0, 1, 2, 3, 4, 5, 6 ]

- 8:37

$n-2 \parallel b$

$$\left. \begin{array}{l} i \rightarrow 0-(n-2) \\ j \rightarrow 1-(n-1) \\ k \rightarrow 2-n \end{array} \right\} \begin{array}{l} n = arr.length - 1 \\ 1 + (-1) + 2 = 0 \\ 1, -1, 2 \end{array}$$

b

$$arr[i] + arr[j] + arr[k] == 0$$

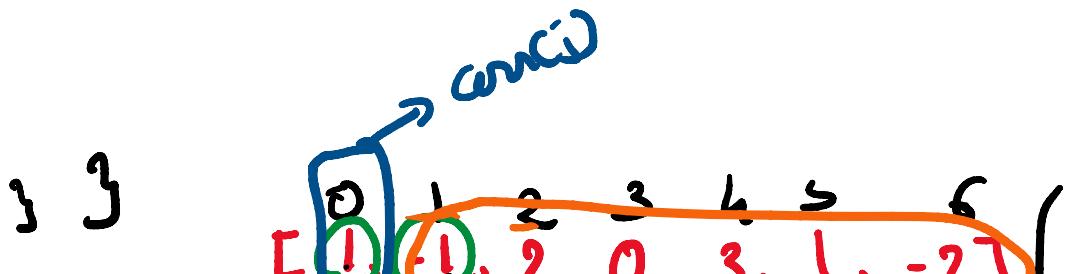
Print i, j, k

[Set]

[ 0, 1, 2, 3, 4, 5, 6 ]

~~f~~ -1 -1 := 0  
arr[i] arr[j]

```
for(i=0; i<n-1; i++) {
    for(j=0; j<n; j++) {
```



$\{ \}$   $\{ \}$   
 [ 0, 1, 2, 0, 3, 1, -2 ]  
 $\downarrow$   $\downarrow$   $\downarrow$   $\downarrow$   $\downarrow$   $\downarrow$   
arr[i] arr[i]  
 $1 + (-1) + 0 = 0$   
 $\frac{arr[i] + arr[i]}{3} = (3)$

(1, -1, 0)

$\text{let } \underline{\text{checkNo}} = -(\underline{\text{arr[i]}} + \underline{\text{arr[i]}})$   
 $\text{if } (\underline{s} \cdot \underline{\text{has}}(\underline{\text{checkNo}})) \rightarrow \text{true}$   
 $\{ \text{false} \}$

$\text{console.log}(\text{arr[i]}, \text{arr[i]}, \text{checkNo})$

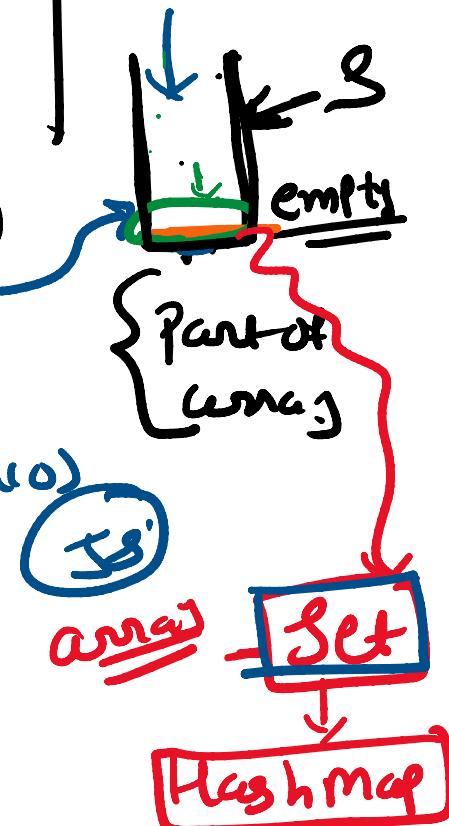
$\}$   
else-

$s \cdot \underline{\text{add}}(\underline{\text{arr[i]}}) \{ \}$

arr.includes( )  
curr.push( )

Triplet} within arr

1 -1 0 2 -2 1



$\begin{matrix} 2 & -1 & 0 \\ 1 & 1 & -2 \end{matrix} \quad \left. \right\} \quad \boxed{\text{Part of array}}$

$\begin{matrix} i & j \\ 1 & 1 \\ 2 & 2 \\ 1 & 1 \end{matrix} \quad \boxed{0 \ 2 \ -2 \ 1}$   
 $\left. \begin{matrix} 1 & -1 & 0 \\ 2 & -2 & 0 \\ 1 & 1 & 2 \end{matrix} \right\} \quad \text{Part of my array}$   
 $-(\text{arr}[i] + \text{arr}[j])$

Sortly  $1 \ -1 \ 2 \ 0 \ 3 \ 2 \ -2$

$\begin{matrix} -2 & -1 & 0 & 1 & 2 & 2 & 3 \\ \downarrow & \downarrow & & & & & \downarrow \\ x & & & & & & n \end{matrix}$

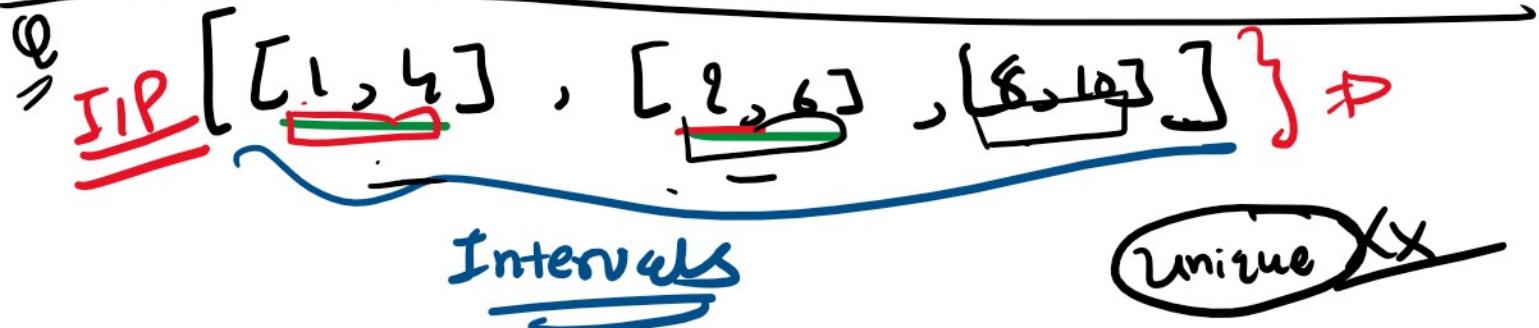
$x + l + n = 0 \quad \left[ \begin{matrix} O(n^2) \\ O(1) \end{matrix} \right]$   
 $x, l, n$   
 $x + l + n \leq 0$

$$x + l + r \leq 0$$

l++

$$x + l + r > 0$$

r--



$\left[ [1, 5], [4, 10] \right]$

$\left[ 1, 6 \right], [8, 10]$

$\left[ [1, 5], [2, 6], [5, 10] \right]$

0 Prev  $\downarrow$  i=1      1 cur  $\downarrow$  2

Splice

~~$[1, 5]$~~ ,  $[4, 6], [8, 10]$   
if( $\text{cur}[0] < \text{prev}[1]$ )  
{

$(i-1)$

$[\text{prev}[0], \max(\text{prev}[1], \text{cur}[1])]$

|||

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2017