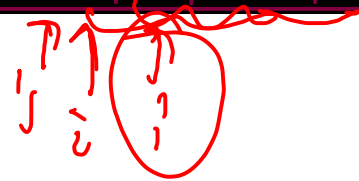


# Sliding Window Max

$i+k > \text{nge}(j) \rightarrow \text{ign Range}$

k=4

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2	9	3	8	1	7	12	6	14	4	32	0	7	19	8	12	6



17

k=4

17-4=13

arr[13]=19

next  $\rightarrow$   
greater  
on  
right  
smaller

0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	6	3	6	5	6	8	8	10	10	17*	12	12	17*	15	17*	17*

i  $\rightarrow$  starting point of window

j  $\rightarrow$  helper to figure out max

arr[j]  $\rightarrow$  Max. in window

✓ 2 ✓ 9 ✓ 8 ✓ 12 ✓ 12 ✓ 14 ✓ 14 ✓ 32 ✓ 32 ✓ 32 ✓ 32 ✓ 19 ✓ 19 ✓ 19



celebrity Problem :  $arr[i][j] == 1$

'i' know 'j'

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

'i' don't know 'j'

Celebrity?? celebrity don't know  
anyone, but everyone  
knows it.

Max No. of celebrity in a party?? →

Min → 0

1 ✓ Time Complexity →  $O(n)$

✓ space →  $O(n)$

	0	1	2	3	4	5
0	0	1	1	0	1	1
1	1	0	1	1	1	0
2	0	0	0	0	0	0
3	0	1	1	0	0	1
4	1	0	1	1	0	0
5	1	0	1	1	1	0

Figure out - celeb?

	0	1	2	3	4	5
0	0	1	1	0	1	1
1	1	0	1	1	0	0
2	0	0	1	0	0	0
3	1	0	1	0	1	0
4	1	1	1	0	0	1
5	0	0	1	1	1	0

\* Elimination Approach

$arr[3][4]$

$arr[4][2]$   
 $arr[2][0]$

$3n \equiv \underline{\underline{O(n)}}$

$O(n)$

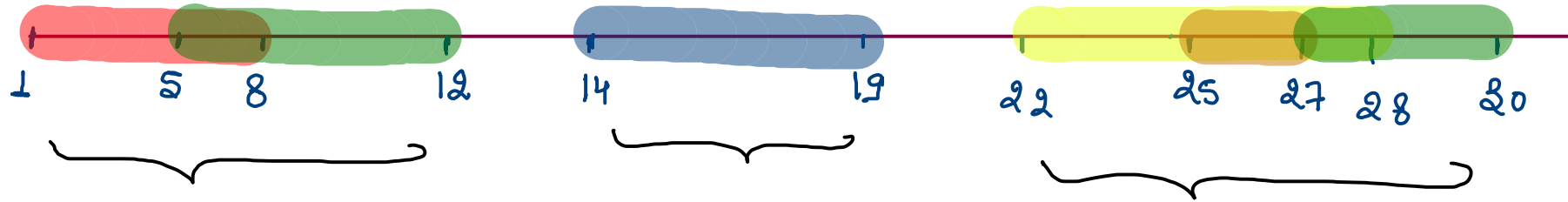
✓  
2

$arr[4][2]$

if ( $arr[i][j] == 1$ ) {  
 // i is not celebrity.  
 st.push(j);  
} else {  
 // j is not celebrity  
 st.push(i)  
}

3  
 Potential candidate  
 $arr[2][1]$  for  
 celebrity.

## Merge Overlapping Intervals :-



1-12

14-19

22-30

\* Interval  $\rightarrow$  Random order.

14-19

25-27

1-8

27-30

25-28

5-12

18  
✓ 5 12  
✓ 14 19  
✓ 22 28  
✓ 25 27  
✓ 27 30

Intervals -

$(27-30)$   $(5-12)$   $(14-19)$   $(1-8)$   $(25-27)$   $(22-28)$   
↑      ↑  
Start   End

Sort on  
the basis  
of start  
time →

$(1-8)$   $(5-12)$   $(14-19)$   $(22-28)$   $(25-27)$   $(27-30)$

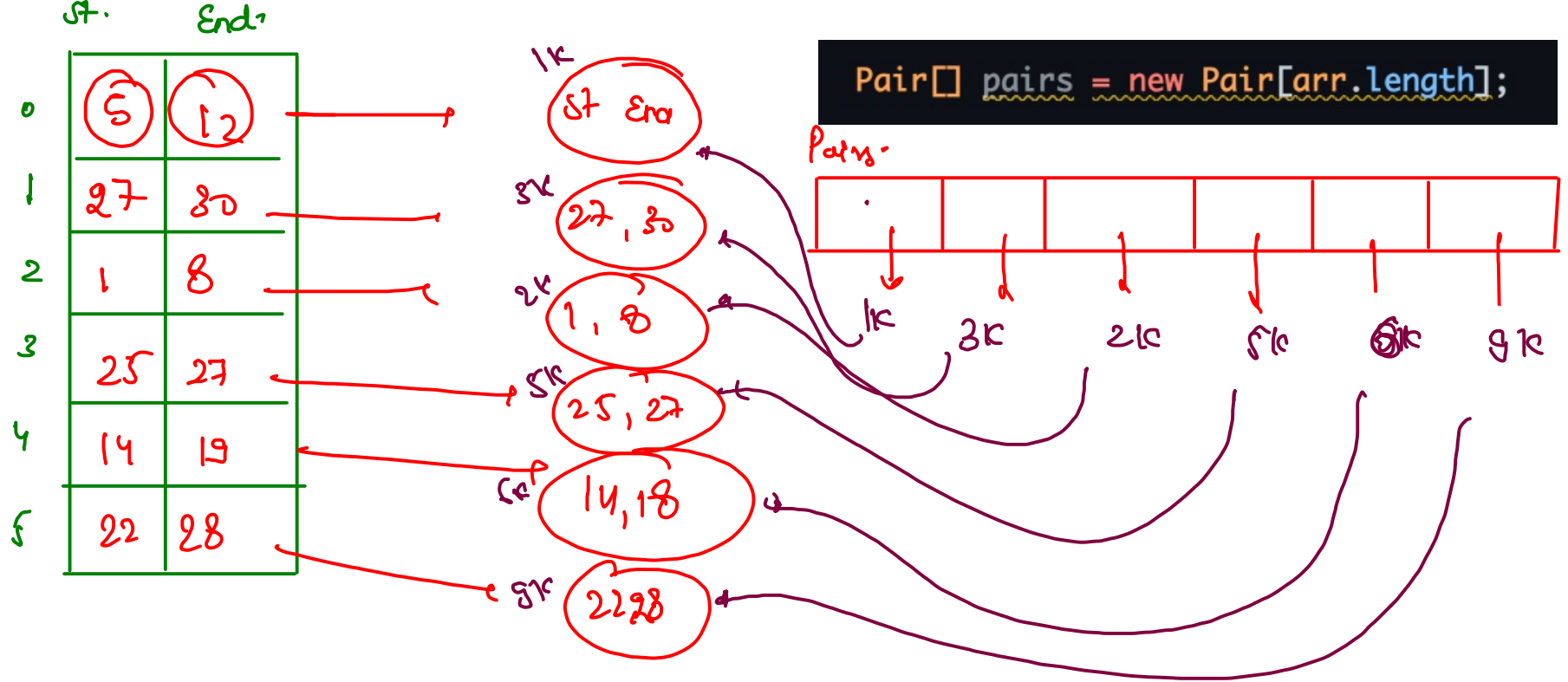
~~$27-30$~~   
 ~~$14-19$~~   
 ~~$1-8$~~

~~$1-8$~~   
 ~~$14-19$~~   
 ~~$27-30$~~

~~$5-12$~~

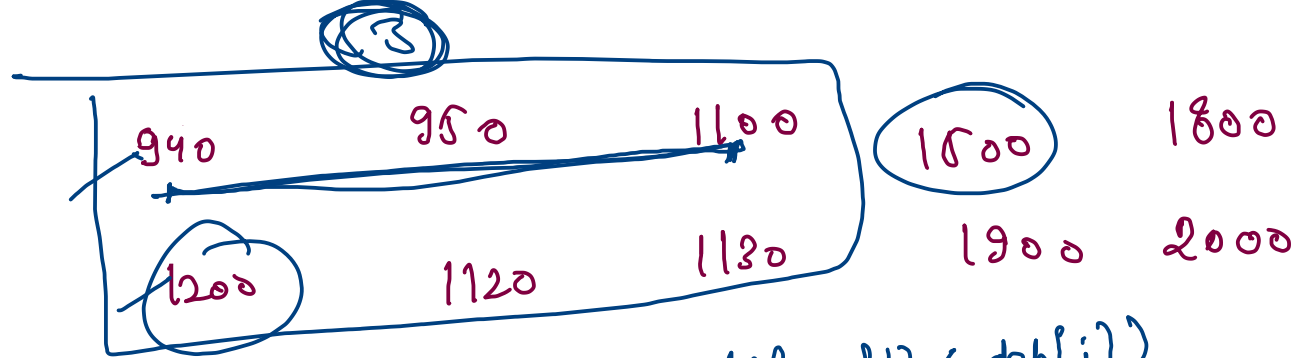
~~$14-19$~~

~~$22-28$~~



Arrival  $\rightarrow$  900

Dep  $\rightarrow$  910



① Arrival Sort

② Dept Sort

$omax =$

$cmax =$

$if(ami[i] < dep[j])$

$cmax +=$

$i++$

$else if(ami[i] > dep[j])$  main problem

$cmax--$

$j++$

1100 { 1500 1800

$\rightarrow omax = \max(omax, cmax);$

900 910 940 950

1120 1130

1200 1900 2000

$j \nearrow cmax = 3$  1 2 3 2 2

$omax = 3$