$t = 0$ $T \to 0$

first cust: $t = 5$ $T_{needed}\{1, 4\}$

✓ $T_t = 4$; $t_{curr} - t_{prev} = 5 - 0 = 5$

$\boxed{T \to 4}$

second cust; $t = 7$ $T_{needed}\{4, 6\}$

✓ $T_t = 2$ $t_{curr} - t_{prev} = \boxed{2}$

$\boxed{T \to 6}$

third cust. $t = 10$ $T_{needed}\{9, 15\}$

$T_t = 3$ $t_{curr} - t_{prev} = 10 - 7 = \boxed{3}$

✓

$T \to 9$

init $T_{min} = 0$ $T_{max} = 0$

first $t = 5$: $t_{cur} - t_{pre} = 5 - 0 = 5$

req $\{1, 4\}$

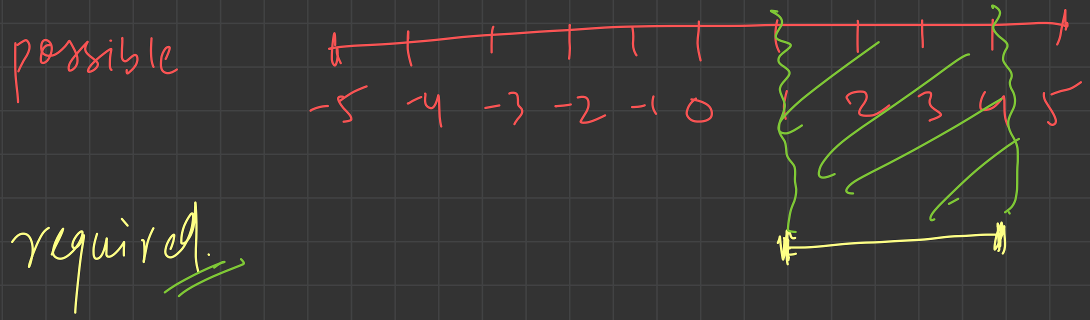
$$\begin{cases} T_{min} = -5 \\ T_{max} = 5 \end{cases}$$ ✓ any temp. in this range is achievable

- if $\{T_{min}, T_{max}\}$ does not intersect with requirement, then not possible

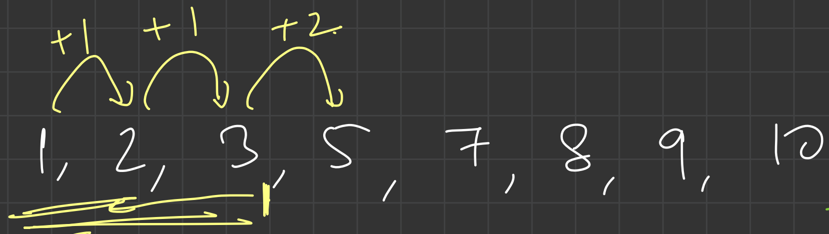
$\Downarrow$

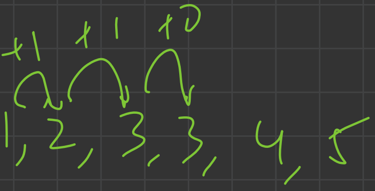
NO

— otherwise it intersects at some range,



$$\Rightarrow \begin{cases} T_{min} = \max(T_{min},\ req_{min}) . \\ T_{max} = \min(T_{max},\ req_{max}) . \end{cases}$$





[1, 8] → 1, 2, 3, 4, 5, 6, 7, 8

$arr[i+1] = arr[i] + 1$

- if next value is ~~exactly one~~ more than current, include it in your range not more than one

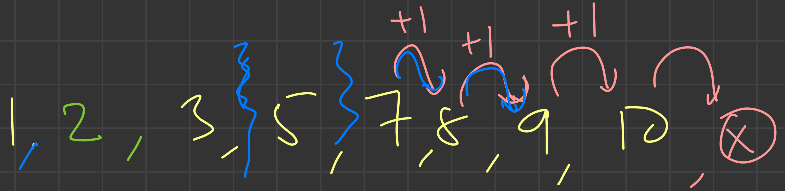
- else, (arr[i+1] - arr[i] > 1)

① can't include arr[i+1] in your interval

② last interval is completed

??

{p, q}



p = 1
q = 3

p = 5
q = 5

p = 7
q = 10

[1, 3]

[5, 5]

[7, 10]

Output

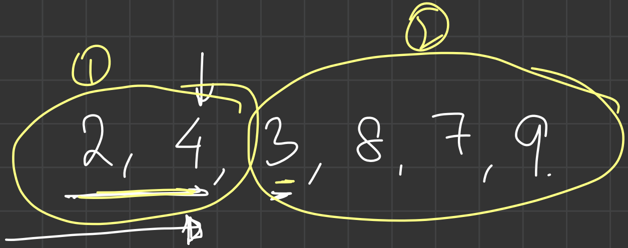
1 -> 3

5

7 -> 10

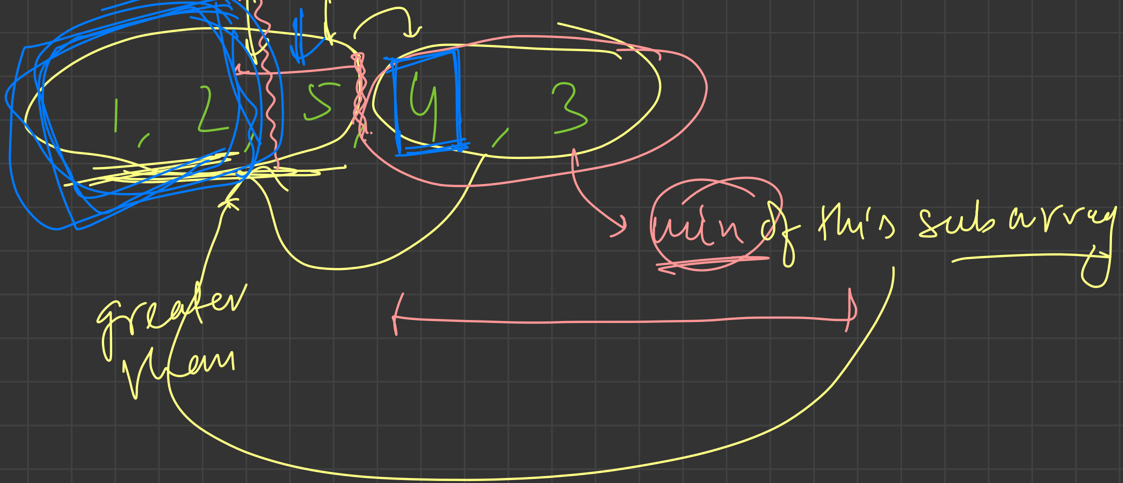
[p,q]

```
{ if (p==q) "p"
  else "p -> q"
```

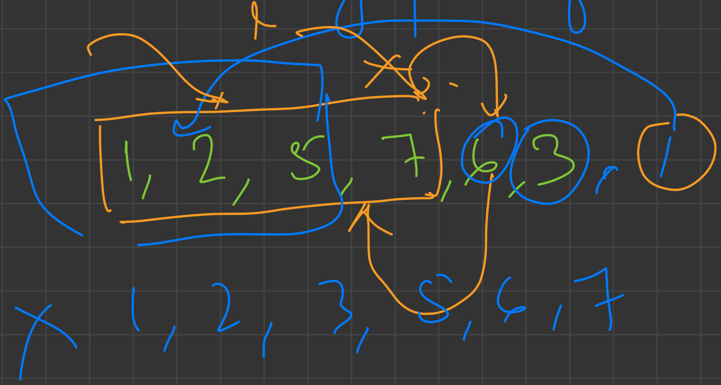


① first find the index uptil all elements are increasing from start

② find minimum in the rest of the array.



① find increasing part of array from start

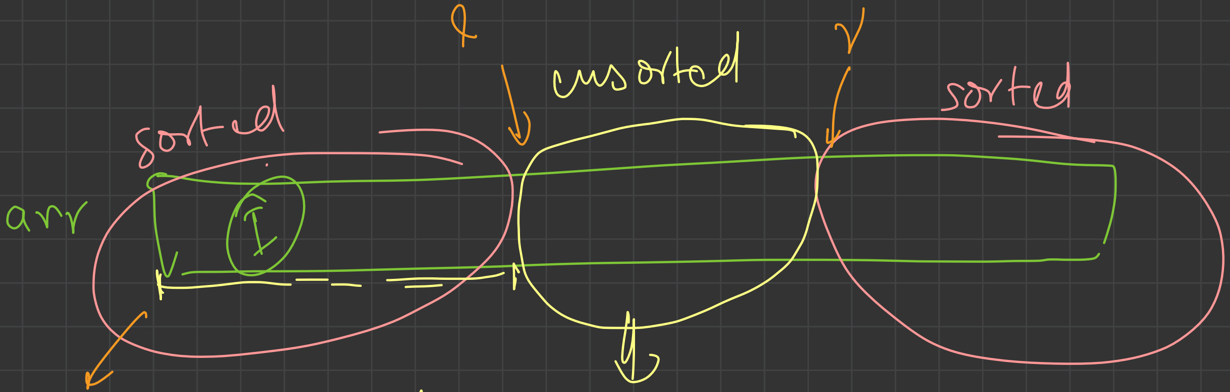


Break till 10:05

l, r

maximize l

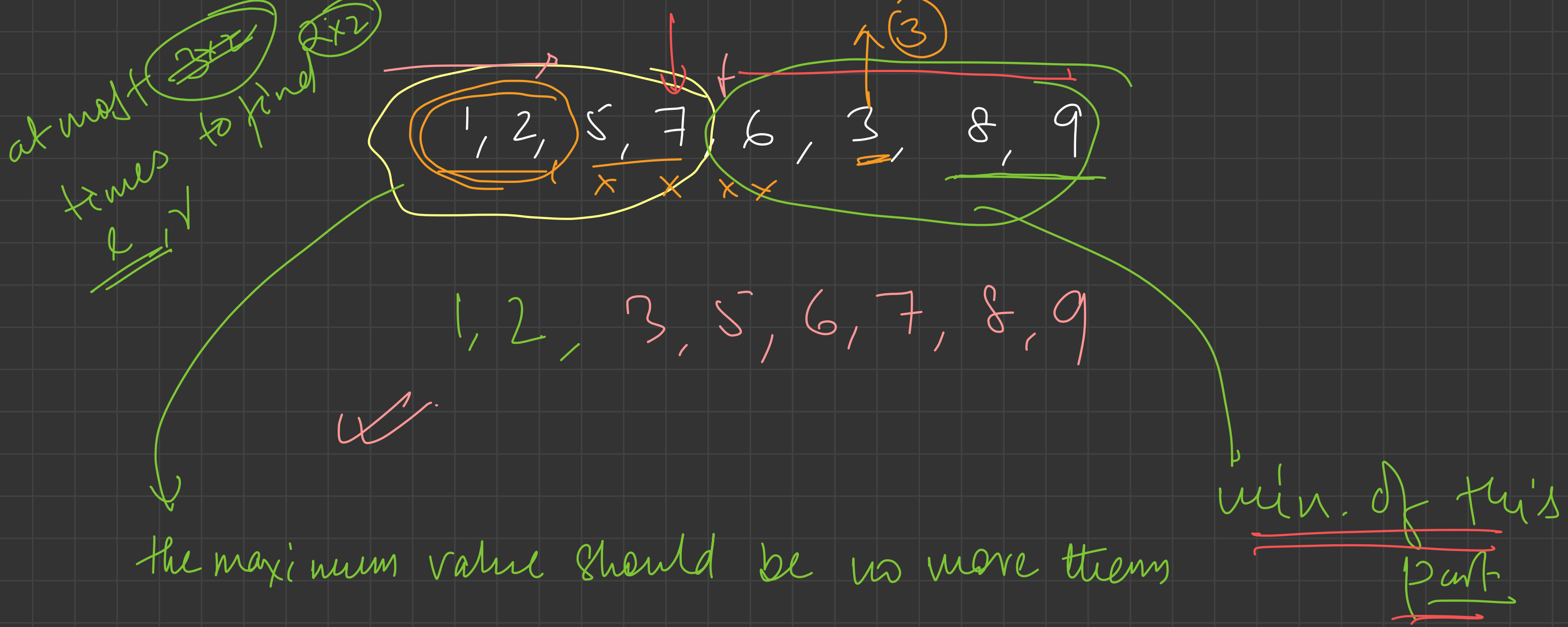
minimize r (l<=r)



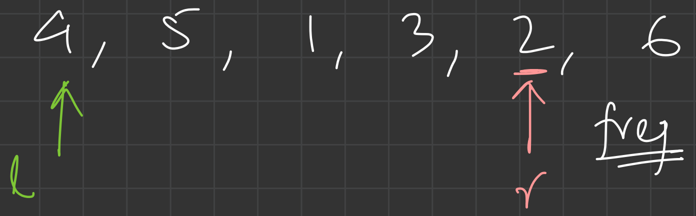
① sorted in itself → if the subarray is increasing

② sorted wrt the entire array

Sorting this will sort the entire array


at most ~~2×1~~ 2×2 times to find
k, i ✓
③
1, 2, 5, 7, 6, 3, 8, 9
1, 2, 3, 5, 6, 7, 8, 9
the maximum value should be no more than
min. of this part

① find longest increasing sub from start.



position of the value in arr (original)

0	1	2	3	4	5	6
	2	4	3	0	1	5

1, 2

② $r-l+1 > 2$ → there are some greater elements

Can't find sub_permutation of 2.

③ $(r-l+1) = 3$ ⇒ found sub_perm of 3

④ $(r-l+1) > 4$ → no sub_perm of 4

5

$(r-l+1)=5$ → 1 found sub_perm of 5

6 ✓

$1 \rightarrow 4$

$2 \rightarrow 3$

$3 \rightarrow 1$

min Element = 1

2 three 1's $\quad {}^4C_3 + {}^5C_0 \quad$ rem = $1+4=5$

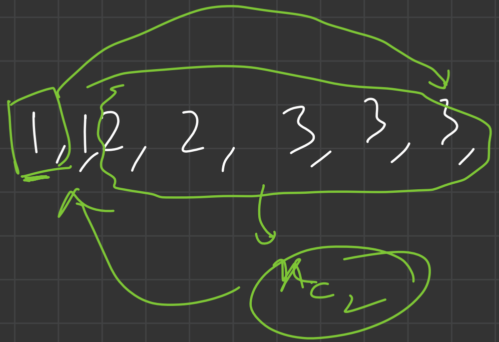
+

two 1's $\quad {}^4C_2 + {}^6C_1 \quad$ rem = $2+3+1=6$

+

one 1's $\quad {}^4C_1 + {}^7C_2 \quad$ rem = $3+3+1=7$

Sort



1, 1, 2, 2, 3, 3, 3, 4, 5, 6, 7, 7, 7,