

Next Greater III

Saturday, 11 September 2021

2:24 PM

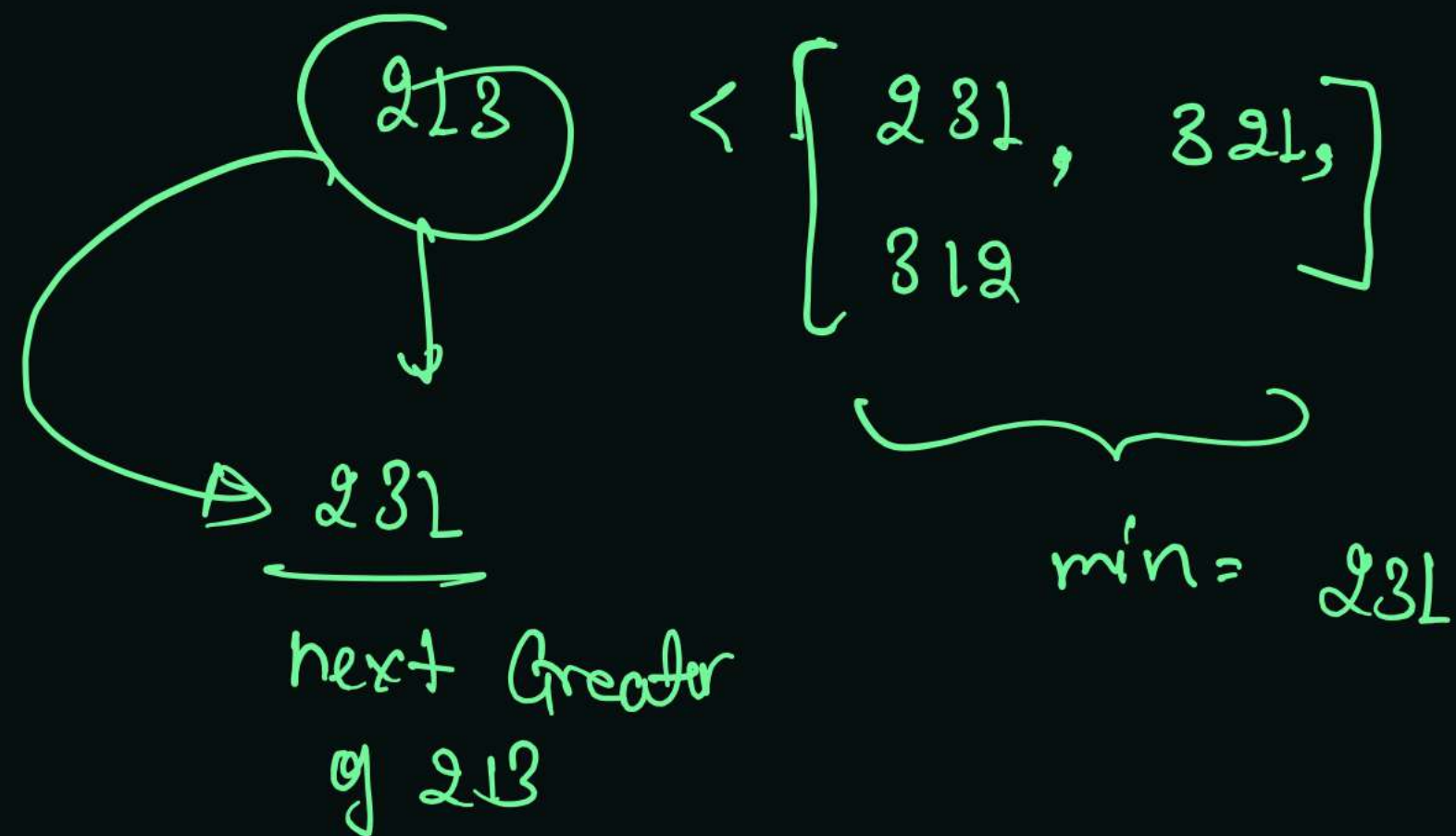
Allowed time complexity = $O(n)$

Num = "213" \rightarrow next greater = Min no. from all possible greater number using same digits.

[2, 1, 3] \rightarrow

- "1 2 3"
- "1 3 2"
- "2 1 3"
- "2 3 1"
- "3 1 2"
- "3 2 1"

greater than given no \rightarrow



Integer \rightarrow 10^9
9 digit

String \rightarrow 10^5 digits

Complexity of $O(n!)$

ceil \rightarrow $O(n^2)$

$= O(n!)$

\rightarrow

num = "213"

Smallest possibility

= "123"

Largest possibility

= "321"

LSD → MSD

Large number → Most significant digit.

Decreasing order

Increasing order

is it possible to make larger number

number →

MSD

LSD

Most significant digit

Least Significant Digit

pos- 0 1 2

max →

just possible max] → LSD to MSD

" 9 8 1

4

8

7

5

3

2

Right

max form

Just Greater

8

7

4

3

2

max form → min form

9 8 1

5

2 3 4 7 8

9

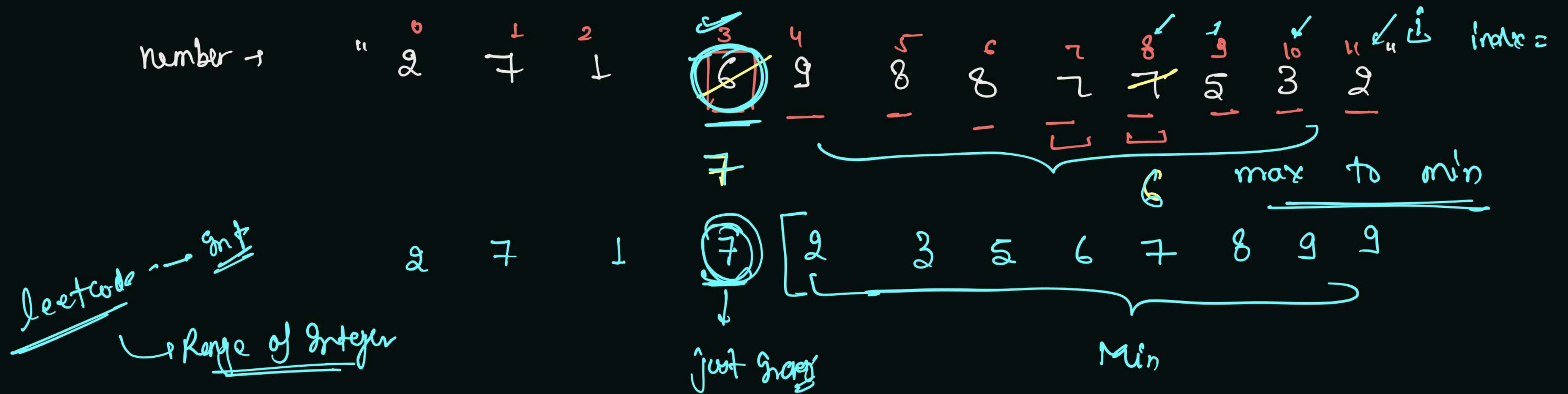
8

1

5

min

just greater



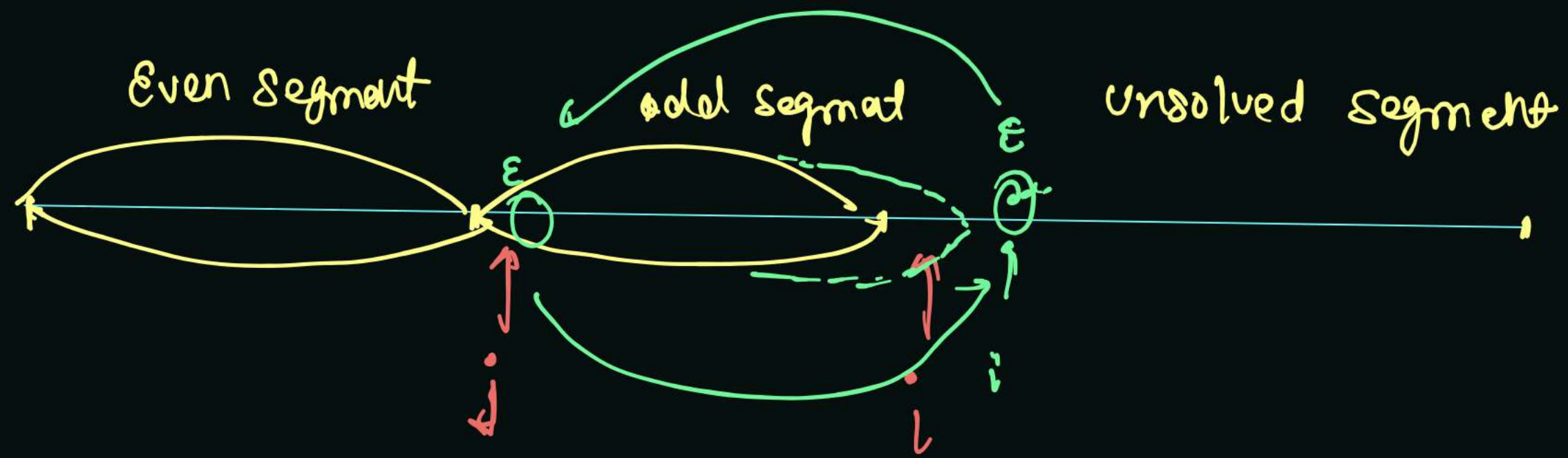
Step:

- Find dip index $\text{dip index} = 3$, $\text{ceil index} = -1$ \rightarrow Number is in its max possibility.
 - Swap with ceil index, (LSD to MSD first ceil), $\text{ceil index} = 8$
 - Reverse from $\text{Dip index} + 1$ to End
 - Final Result.
- out of Range \rightarrow [2 1 4 7 4 8 3 6 4 7] \rightarrow max
- 2 1 4 7 4 8 3 6 7 4 \rightarrow next greater

Sort by Parity

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$j \rightarrow$ first odd

$i \rightarrow$ first unresolved

$arr[i] == odd$

// increment in segment of odd

$i++;$

$arr[i] == even$

Swap(arr, i, j)

$j++;$

$i++;$

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