

GREEDY



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LEETCODE
- 1846

Medium

Easy
बना देंगी

Maximum Element
After Decreasing
and Rearranging

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1846. Maximum Element After Decreasing and Rearranging

Hint ...

Medium

413

96

☆

↻

Companies

$$|arr[i] - arr[i-1]| \leq 1$$

You are given an array of positive integers `arr`. Perform some operations (possibly none) on `arr` so that it satisfies these conditions:

- The value of the first element in `arr` must be 1. $arr[0] = 1$
- The absolute difference between any 2 adjacent elements must be **less than or equal to** 1. In other words, $abs(arr[i] - arr[i - 1]) \leq 1$ for each `i` where $1 \leq i < arr.length$ (0-indexed). $abs(x)$ is the absolute value of `x`.

There are 2 types of operations that you can perform any number of times:

- Decrease** the value of any element of `arr` to a **smaller positive integer**.
- Rearrange** the elements of `arr` to be in any order.

Return the maximum possible value of an element in `arr` after performing the operations to satisfy the conditions.

Example:- $arr = \{2, 2, 1, 2, 1\}$

Output = $\{1, 1, 2, 2, 2\}$ → 2

$arr = \{100, 1, 1000\}$

Output = $\{1, 2, 3\}$ → 3

Intuition...

$$\text{arr} = \{ 2, 2, 1, 2, 1 \}$$

✓ ① sort

$$\begin{array}{c} \{ 100, 1, 1000 \} \\ \searrow \\ \left\{ \begin{array}{ccc} 0 & 1 & 2 \\ \cancel{1} & \cancel{2} & 3 \\ \cancel{i} & \cancel{i} & i \end{array} \right\} \quad | 3 - 2 | < = 1 \end{array}$$

$$\text{arr}[i] = \underline{\text{arr}[i-1]} + 1$$

① sort. T.C ($n \log n$)
②

③ for ($i=0$; $i < n$; $i++$) {

if ($i == 0$) {

$arr[0] = 1$;

else if ($(arr[i] - arr[i-1]) > 1$) {

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

$maxA = \max(maxA, arr[i])$;

}

Accepted.

Reward :-

1 winner.

with sorting.

48 / 49

2

