

2263. Make Array Non-decreasing or Non-increasing Premium

Hard Topics Companies Hint

You are given a **0-indexed** integer array `nums`. In one operation, you can:

- Choose an index `i` in the range `0 <= i < nums.length`
- Set `nums[i]` to `nums[i] + 1` or `nums[i] - 1`

Return *the **minimum** number of operations to make `nums` **non-decreasing** or **non-increasing**.*

Example 1:

Input: `nums = [3,2,4,5,0]`
Output: `4`
Explanation:
One possible way to turn `nums` into non-increasing order is to:
– Add 1 to `nums[1]` once so that it becomes 3.
– Subtract 1 from `nums[2]` once so it becomes 3.
– Subtract 1 from `nums[3]` twice so it becomes 3.
After doing the 4 operations, `nums` becomes `[3,3,3,3,0]` which is in non-increasing order.
Note that it is also possible to turn `nums` into `[4,4,4,4,0]` in 4 operations.
It can be proven that 4 is the minimum number of operations needed.

Example 2:

Input: `nums = [2,2,3,4]`
Output: `0`
Explanation: `nums` is already in non-decreasing order, so no operations are needed and we return 0.

Example 3:

Input: `nums = [0]`
Output: `0`
Explanation: `nums` is already in non-decreasing order, so no operations are needed and we return 0.

Constraints:

- `1 <= nums.length <= 1000`
- `0 <= nums[i] <= 1000`

Follow up: Can you solve it in `O(n*log(n))` time complexity?

Seen this question in a real interview before? 1/5

Yes No

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Hint 1

To find the minimum cost to make `nums` non-decreasing, use a max heap that contains all of the elements that you have seen so far.

Hint 2

If the largest number in the heap is greater than the current number, calculate the cost to make the two numbers equal. Then, in the heap, replace the largest number with the current number.

Hint 3

Now that we have found the minimum cost to make `nums` non-decreasing, we can set every `nums[i]` to `-nums[i]` and do the same process to find the minimum cost to make `nums` non-increasing.

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