2948. Make Lexicographically Smallest Array by Swapping Elements

Solved ●

Medium Topics Companies Hint

You are given a **0-indexed** array of **positive** integers `nums` and a **positive** integer `limit`.

In one operation, you can choose any two indices `i` and `j` and swap `nums[i]` and `nums[j]` **if** `|nums[i] - nums[j]| <= limit`.

Return *the **lexicographically smallest array** that can be obtained by performing the operation any number of times.*

An array `a` is lexicographically smaller than an array `b` if in the first position where `a` and `b` differ, array `a` has an element that is less than the corresponding element in `b`. For example, the array `[2,10,3]` is lexicographically smaller than the array `[10,2,3]` because they differ at index `0` and `2 < 10`.

Example 1:

> **Input:** nums = [1,5,3,9,8], limit = 2
> **Output:** [1,3,5,8,9]
> **Explanation:** Apply the operation 2 times:
> - Swap nums[1] with nums[2]. The array becomes [1,3,5,9,8]
> - Swap nums[3] with nums[4]. The array becomes [1,3,5,8,9]
> We cannot obtain a lexicographically smaller array by applying any more operations.
> Note that it may be possible to get the same result by doing different operations.

Example 2:

> **Input:** nums = [1,7,6,18,2,1], limit = 3
> **Output:** [1,6,7,18,1,2]
> **Explanation:** Apply the operation 3 times:
> - Swap nums[1] with nums[2]. The array becomes [1,6,7,18,2,1]
> - Swap nums[0] with nums[4]. The array becomes [2,6,7,18,1,1]
> - Swap nums[0] with nums[5]. The array becomes [1,6,7,18,1,2]
> We cannot obtain a lexicographically smaller array by applying any more operations.

Example 3:

> **Input:** nums = [1,7,28,19,10], limit = 3
> **Output:** [1,7,28,19,10]
> **Explanation:** [1,7,28,19,10] is the lexicographically smallest array we can obtain because we cannot apply the operation on any two indices.

Constraints:

- `1 <= nums.length <= 10^5`
- `1 <= nums[i] <= 10^9`
- `1 <= limit <= 10^9`

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Yes No

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Hint 1

Hint 2

Hint 3

Hint 4

Hint 5

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