

Problem 2202: Maximize the Topmost Element After K Moves

Problem Information

Difficulty: **Medium**

Acceptance Rate: 23.78%

Paid Only: No

Tags: Array, Greedy

Problem Description

You are given a **0-indexed** integer array `nums` representing the contents of a **pile**, where `nums[0]` is the topmost element of the pile.

In one move, you can perform **either** of the following:

- * If the pile is not empty, **remove** the topmost element of the pile.
- * If there are one or more removed elements, **add** any one of them back onto the pile. This element becomes the new topmost element.

You are also given an integer `k`, which denotes the total number of moves to be made.

Return **the maximum value** of the topmost element of the pile possible after **exactly** `k` moves. In case it is not possible to obtain a non-empty pile after `k` moves, return `-1`.

Example 1.

Input: `nums = [5,2,2,4,0,6], k = 4` **Output:** `5` **Explanation:** One of the ways we can end with 5 at the top of the pile after 4 moves is as follows: - Step 1: Remove the topmost element = 5. The pile becomes `[2,2,4,0,6]`. - Step 2: Remove the topmost element = 2. The pile becomes `[2,4,0,6]`. - Step 3: Remove the topmost element = 2. The pile becomes `[4,0,6]`. - Step 4: Add 5 back onto the pile. The pile becomes `[5,4,0,6]`. Note that this is not the only way to end with 5 at the top of the pile. It can be shown that 5 is the largest answer possible after 4 moves.

Example 2.

****Input:**** nums = [2], k = 1 ****Output:**** -1 ****Explanation:**** In the first move, our only option is to pop the topmost element of the pile. Since it is not possible to obtain a non-empty pile after one move, we return -1.

****Constraints:****

*`1` <= nums.length <= 105` *`0` <= nums[i], k <= 109`

Code Snippets

C++:

```
class Solution {
public:
    int maximumTop(vector<int>& nums, int k) {

    }
};
```

Java:

```
class Solution {
    public int maximumTop(int[] nums, int k) {

    }
}
```

Python3:

```
class Solution:
    def maximumTop(self, nums: List[int], k: int) -> int:
```