Problem 88: Merge Sorted Array

Problem Information

Difficulty: Easy
Acceptance Rate: 53.86%
Paid Only: No
Tags: Array, Two Pointers, Sorting

Problem Description

You are given two integer arrays `nums1` and `nums2`, sorted in **non- decreasing order** , and two integers `m` and `n`, representing the number of elements in `nums1` and `nums2` respectively.

Merge `nums1` and `nums2` into a single array sorted in **non-decreasing order**.

The final sorted array should not be returned by the function, but instead be _stored inside the array_`nums1`. To accommodate this, `nums1` has a length of `m + n`, where the first `m` elements denote the elements that should be merged, and the last `n` elements are set to `0` and should be ignored. `nums2` has a length of `n`.

Example 1:

Input: nums1 = [1,2,3,0,0,0], m = 3, nums2 = [2,5,6], n = 3 **Output:** [1,2,2,3,5,6] **Explanation:** The arrays we are merging are [1,2,3] and [2,5,6]. The result of the merge is [_1_ ,_2_ ,2,_3_ ,5,6] with the underlined elements coming from nums1.

Example 2:

Input: nums1 = [1], m = 1, nums2 = [], n = 0 **Output:** [1] **Explanation:** The arrays we are merging are [1] and []. The result of the merge is [1].

Example 3:

Input: nums1 = [0], m = 0, nums2 = [1], n = 1 **Output:** [1] **Explanation:** The arrays we are merging are [] and [1]. The result of the merge is [1]. Note that because m = 0, there are no elements in nums1. The 0 is only there to ensure the merge result can fit in nums1.

Constraints:

* `nums1.length == m + n` * `nums2.length == n` * `0 <= m, n <= 200` * `1 <= m + n <= 200` * `-109 <= nums1[i], nums2[j] <= 109`

Follow up: Can you come up with an algorithm that runs in `O(m + n)` time?

Code Snippets

C++:

```
class Solution {
public:
void merge(vector<int>& nums1, int m, vector<int>& nums2, int n) {

}
};
```

Java:

```
class Solution {
public void merge(int[] nums1, int m, int[] nums2, int n) {

}
}
```

Python3:

```
class Solution:
def merge(self, nums1: List[int], m: int, nums2: List[int], n: int) -> None:
"""
Do not return anything, modify nums1 in-place instead.
"""
```