**[88. Merge Sorted Array](https://leetcode.com/problems/merge-sorted-array/)**

Easy

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?