**4. Median of Two Sorted Arrays**

Hard

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Given two sorted arrays nums1 and nums2 of size m and n respectively, return **the median** of the two sorted arrays.

**Example 1:**

**Input:** nums1 = [1,3], nums2 = [2]

**Output:** 2.00000

**Explanation:** merged array = [1,2,3] and median is 2.

**Example 2:**

**Input:** nums1 = [1,2], nums2 = [3,4]

**Output:** 2.50000

**Explanation:** merged array = [1,2,3,4] and median is (2 + 3) / 2 = 2.5.

**Example 3:**

**Input:** nums1 = [0,0], nums2 = [0,0]

**Output:** 0.00000

**Example 4:**

**Input:** nums1 = [], nums2 = [1]

**Output:** 1.00000

**Example 5:**

**Input:** nums1 = [2], nums2 = []

**Output:** 2.00000

**Constraints:**

* nums1.length == m
* nums2.length == n
* 0 <= m <= 1000
* 0 <= n <= 1000
* 1 <= m + n <= 2000
* -106 <= nums1[i], nums2[i] <= 106

**Follow up:** The overall run time complexity should be O(log (m+n)).