

# 004. Median of Two Sorted Arrays

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- Divide and conquer
- Binary Search

### Description

There are two sorted arrays **nums1** and **nums2** of size **m** and **n** respectively.

Find the median of the two sorted arrays. The overall run time complexity should be  $O(\log(m+n))$ .

#### Example 1:

```
nums1 = [1, 3]
nums2 = [2]

The median is 2.0
```

#### Example 2:

```
nums1 = [1, 2]
nums2 = [3, 4]

The median is (2 + 3)/2 = 2.5
```

### 1. Thought Line

(1) The basic idea is to always compare the median of A and B and drop half of A or B elements based on the comparison results.

#### (2) About median

- When the length is odd, median is  $\text{num}[\text{length}/2+1]$
- When the length is even, median is  $(\text{num}[\text{length}/2+1] + \text{num}[\text{length}/2])/2$

### 2. Divide-and-Conquer

### 3. Binary Search