162. Find Peak Element

Solved ⊘

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A peak element is an element that is strictly greater than its neighbors.

Given a **0-indexed** integer array `nums`, find a peak element, and return its index. If the array contains multiple peaks, return the index to **any of the peaks**.

You may imagine that `nums[-1] = nums[n] = -∞`. In other words, an element is always considered to be strictly greater than a neighbor that is outside the array.

You must write an algorithm that runs in `O(log n)` time.

Example 1:

```
Input: nums = [1,2,3,1]
Output: 2
Explanation: 3 is a peak element and your function should return the
index number 2.
```
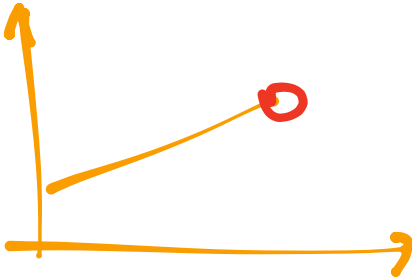
```python
class Solution:
    def findPeakElement(self, nums: List[int]) -> int:
        for i in range(len(nums) - 1):
            if nums[i] > nums[i+1]:
                return i
        return len(nums) - 1
```
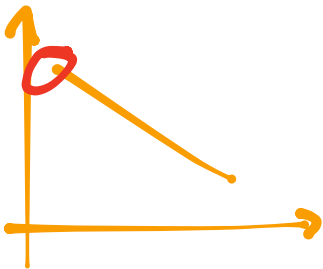
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☑ Testcase   >_ Test Result

case 1:
all increasing order (return len(nums) - 1)

case 2:
all decreasing order (return nums[i] > nums[i+1], where i = 0)

case 3:
have a peak in the middle, cuz only need to return one of the peaks, consider it a decreasing or increasing for the first/last segment (left case: nums[i] > nums[i+1]; right case: len(nums) - 1