147. 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.

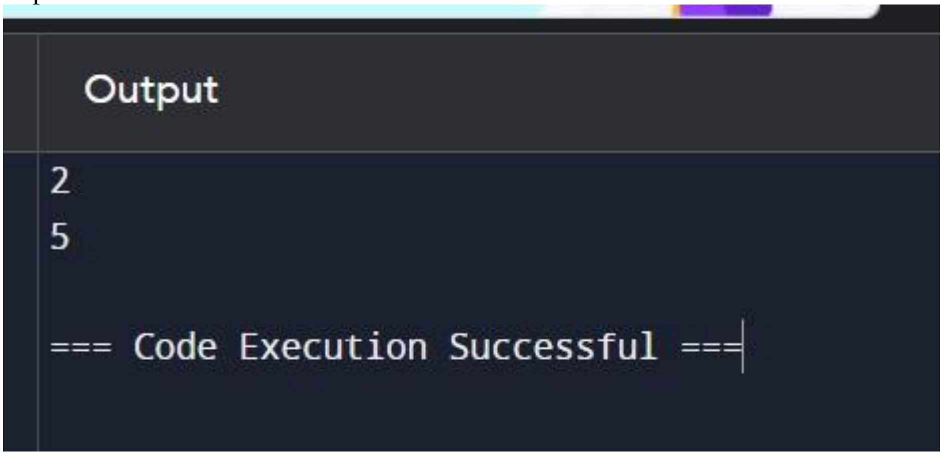
Program:-

```
def find_peak_element(nums):
    left, right = 0, len(nums) - 1

    while left < right:
        mid = left + (right - left) // 2

        if nums[mid] < nums[mid + 1]:
            left = mid + 1
        else:
            right = mid

    return left
```

input:-

nums1 = [1, 2, 3, 1]

ouput:-



```
2
5

=== Code Execution Successful ===
```

Time complexity:-O(log n)