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540. Single Element in a Sorted Array

Notes

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You are given a sorted array consisting of only integers where every element appears exactly twice, except for one element which appears exactly once.

Return *the single element that appears only once*.

Your solution must run in $O(\log n)$ time and $O(1)$ space.

Example 1:

Input: nums = [1,1,2,3,3,4,4,8,8]
Output: 2

Example 2:

Input: nums = [3,3,7,7,10,11,11]
Output: 10

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $0 \leq \text{nums}[i] \leq 10^5$

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```
1, class Solution {
2,     public int singleNonDuplicate(int[] arr) {
3,         int start = 0;
4,         int end = arr.length-1;
5,         while(start<=end){
6,             // int mid = start+(end-start)/2;
7,             if(start==end)
8,                 {
9,                     return arr[end];
10,                }
11,            else if(arr[start]==arr[start+1]){
12,                start=start+2;
13,            }
14,            else{
15,                return arr[start];
16,            }
17,        }
18,        return -1;
19,    }
20, }
```



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