

Majority Element

Given an Array nums of size n, return the majority element.

The majority element is the element that appears more than $\lfloor n/2 \rfloor$ times, you may assume that the majority element always exist in the array.

Example 1:

Input: nums = [3, 2, 3]

Output: 3

class Solution {

public static void main(String args[]) {

int nums[] = {2, 2, 1, 1, 1, 2, 2};

System.out.println(majorityElement(nums));

}

public static int majorityElement(int[] nums) {

int cand = 0;

int count = 0;

for(int i = 0; i < nums.length; i++) {

if(count == 0) {

cand = nums[i];

}

if(cand == nums[i]) {

count++;

}

else {

count --;

}

return cand;

}

count = 0 nums.length = 7
cand = 0

P = 0; P < 7 → 0 < 7 ✓

count == 0 0 == 0

cand = nums[P]

cand = 2

if (cand == nums[P])

2 == 2 ✓

count ++

count = 1

1 < 7 ✓

1 == 0 ✗

cand == nums[P]

2 == 2 ✓

count = 2
cand = 2

2 < 7 ✓

2 == 0 ✗

2 == 1 ✗

cand = 2
count --
count = 1

majority element
are 2

3 < 7 ✓

1 == 0 ✗

2 == 1 ✗

cand = 2
count = 0

4 < 7 ✓

0 == 0 ✓

cand = nums[4]

cand = 4

cand == nums[P]

1 == 1 ✓

count ++

count = 1

cand = 1

5 < 7 ✓

1 == 0 ✗

1 == 2 ✗

count --

count = 0
cand = 1

6 < 7 ✓

0 == 0 ✓ cand = 2

2 == 2 ✗

count = 1

return cand
⇒ cand = 2