**Majority Element**

**Medium**

Given an array **A** of **N** elements. Find the majority element in the array. A majority element in an array A of size N is an **element that appears more than N/2 times in the array**.

**Example 1:**

**Input:**

N = 3

A[] = {1,2,3}

**Output:**

-1

**Explanation:**

Since, each element in

{1,2,3} appears only once so there

is no majority element.

**Example 2:**

**Input:**

N = 5

A[] = {3,1,3,3,2}

**Output:**

3

**Explanation:**

Since, 3 is present more

than N/2 times, so it is

the majority element.

**Your Task:**  
The task is to complete the function **majorityElement**() which returns the majority element in the array. If no majority exists, return -1.

**Expected Time Complexity:** O(N).  
**Expected Auxiliary Space:** O(1).

**Constraints:**  
1 ≤ N ≤ 107  
0 ≤ Ai ≤ 106

**Company Tags**

[**Flipkart**](https://practice.geeksforgeeks.org/explore/?company%5b%5d=Flipkart) [**Accolite**](https://practice.geeksforgeeks.org/explore/?company%5b%5d=Accolite) [**Amazon**](https://practice.geeksforgeeks.org/explore/?company%5b%5d=Amazon) [**Microsoft**](https://practice.geeksforgeeks.org/explore/?company%5b%5d=Microsoft) [**D-E-Shaw**](https://practice.geeksforgeeks.org/explore/?company%5b%5d=D-E-Shaw) [**Google**](https://practice.geeksforgeeks.org/explore/?company%5b%5d=Google) [**Nagarro**](https://practice.geeksforgeeks.org/explore/?company%5b%5d=Nagarro) [**Atlassian**](https://practice.geeksforgeeks.org/explore/?company%5b%5d=Atlassian)

**Topic Tags**

[**Arrays**](https://practice.geeksforgeeks.org/explore/?category%5b%5d=Arrays) [**Searching**](https://practice.geeksforgeeks.org/explore/?category%5b%5d=Searching) [**Greedy**](https://practice.geeksforgeeks.org/explore/?category%5b%5d=Greedy) [**Data Structures**](https://practice.geeksforgeeks.org/explore/?category%5b%5d=Data%20Structures) [**Algorithms**](https://practice.geeksforgeeks.org/explore/?category%5b%5d=Algorithms)

//{ Driver Code Starts

//Initial Template for Java

import java.util.\*;

import java.io.\*;

import java.lang.\*;

class CodingMaxima

{

public static void main(String args[])

{

Scanner sc = new Scanner(System.in);

int t = sc.nextInt();

while(t-- > 0)

{

int n =sc.nextInt();

int arr[] = new int[n];

for(int i = 0; i < n; i++)

arr[i] = sc.nextInt();

System.out.println(new Solution().majorityElement(arr, n));

}

}

}

// } Driver Code Ends

class Solution

{

static int majorityElement(int a[], int size)

{

int count =0;

int elm=0;

for (int i : a) {

if(count<=0) elm=i;

if(elm==i) count++;

else count--;

}

count=0;

for (int i : a) {

if(elm==i) count++;

if(count>size/2) return elm;

}

return -1;

}

}