

# MAJORITY ELEMENT IN AN ARRAY

## Q) FIND THE MAJORITY ELEMENT

LEETCODE: [MAJORITY ELEMENT](#)

GEEKS FOR GEEKS: [MAJORITY ELEMENT 4 MARKS](#)

AN ELEMENT IS SAID TO BE MAJORITY IF IT HAS OCCURED MORE THAN  $N/2$  TIMES WHERE  $N$  IS THE SIZE OF THE ARRAY.

### SOLUTION 1.

SEE AS THE QUESTION IT SELF SAYS AN ELEMENT SHOULD REPEAT MORE THAN  $N/2$  TIMES.

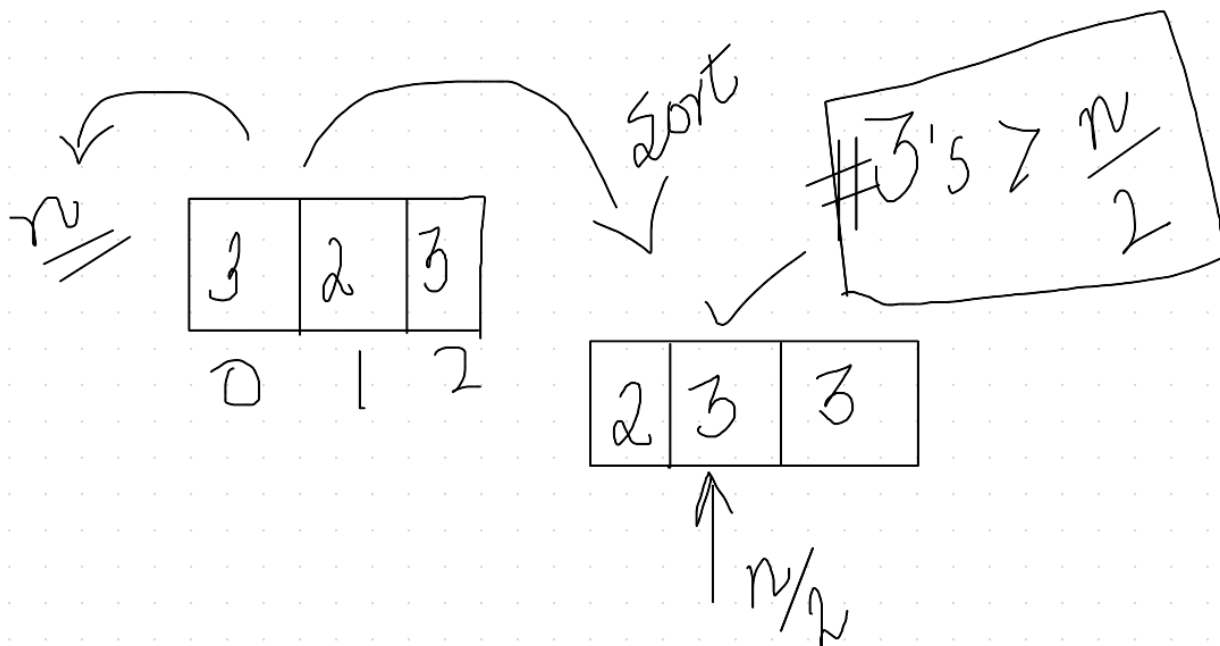
I.E SHOULD BE CROSSING HALF OF THE ARRAY LIMIT..

SO IF WE SORT THE ARRAY.

$O(N \log N)$

WHATEVER THE ELEMENT IS AT  $N/2$  INDEX WILL BE THE MAJORITY ELEMENT

LETS SEE VIA A DIAGRAM



### SOLUTION 2: USING UNORDERED MAP

A VERY EASY APPROACH OF SOLVING BUT SPACE CONSUMED IS  $O(N)$

```
class Solution{
public:
    int majorityElement(int a[], int size)
    {
```

```
unordered_map <int,int> ans;
for(int i=0;i<size;i++){
    ans[a[i]]++;
}
for(auto x:ans){
    if(x.second>(size/2)){
        return x.first;
    }
}
return -1;
}
};
```