

## Find Majority Element

```
#include <stdio.h>
#include <stdlib.h>

int getMajorityElement(int arr[], int size)
{
    int majorityIndex=0, count=1;
    for(int index = 1; index < size; index++)
    {
        if(arr[majorityIndex] == arr[index])
            count++;
        else
            count--;
        if(count == 0)
        {
            majorityIndex = index;
            count = 1;
        }
    }
    return arr[majorityIndex];
}

int isMajorityElement(int arr[], int size, int majorityElement)
{
    int count=0;
    for(int index = 0; index < size; index++)
        if(arr[index] == majorityElement)
            count++;
    return (count > size/2)? 1: 0;
}

int main()
{
    int *arr, size;
    printf("Enter size of the array\n");
    scanf("%d", &size);
    printf("Enter elements in array\n");
    for(int index = 0; index < size; index++)
        scanf("%d", &arr[index]);
    int majorityElement = getMajorityElement(arr, size);
    isMajorityElement(arr, size, majorityElement)?
    printf("Majority Element is = %d", majorityElement) : printf("No majority Element");
    return 0;
}
```

Time complexity:  $O(n)$

Space complexity:  $O(1)$