一、题目说明

题目169. Majority Element，给定n个数的数组，返回出现次数最多的元素。

二、我的解答

这个题目用一个map，遍历一遍数组，计数每个元素出现的次数。

```
class Solution{
    public:
        int majorityElement(vector<int>& nums){
            unordered_map<int,int> ump;
            int maxNum = 0;
            int maxCount = 0;
            for(int i=0;i<nums.size();i++){
                ump[nums[i]]++;
                if(maxCount<ump[nums[i]]) {
                    maxCount = ump[nums[i]];
                    maxNum = nums[i];
                }
            }
            return maxNum;
        }
};
```

性能如下：

```
Runtime: 28 ms, faster than 32.81% of C++ online submissions for Majority
Element.
Memory Usage: 11.2 MB, less than 15.15% of C++ online submissions for Majority
Element.
```

三、优化措施

上面用的是unordered_map，改用map实现：

```
Runtime: 20 ms, faster than 82.58% of C++ online submissions for Majority
Element.
Memory Usage: 11.2 MB, less than 39.39% of C++ online submissions for Majority
Element.
```

通过超过半数，实现：

```
class Solution{
    public:
        int majorityElement(vector<int>& nums){
            map<int,int> ump;
            int half = (nums.size()+1)/2;
            for(int i=0;i<nums.size();i++){
                ump[nums[i]]++;
                if(ump[nums[i]]>=half){
```

```
                return nums[i];
            }
        }
        return -1;
    }
};
```

Runtime: 24 ms, faster than 54.42% of C++ online submissions for Majority
Element.
Memory Usage: 11.1 MB, less than 63.64% of C++ online submissions for Majority
Element.