

## 41. First Missing Positive

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Given an unsorted integer array, find the first missing positive integer.

For example,

Given `[1,2,0]` return `3`,

and `[3,4,-1,1]` return `2`.

Your algorithm should run in  $O(n)$  time and uses constant space.

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```
1 class Solution {
2 public:
3     int firstMissingPositive(vector<int>& nums) {
4         for(int i=0;i<nums.size();i++){
5             int cur = nums[i];
6             if(cur==i+1||cur<=0||cur>nums.size()) continue;
7             swap(nums[i],nums[cur-1]);
8             if(nums[i]!=cur) i--;
9         }
10        for(int i=0;i<nums.size();i++)
11            if(nums[i]!=i+1) return i+1;
12        return nums.size()+1;
13    }
14 };
```

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