035 Search Insert Position

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Question:

Given a sorted array and a target value, return the index if the target is found. If not, return the index where it would be if it were inserted in order.
You may assume no duplicates in the array.
Example 1:
Input: [1,3,5,6], 5
Output: 2
Example 2:
Input: [1,3,5,6], 2
Output: 1
Example 3:
Input: [1,3,5,6], 7
Output: 4
Example 1:
Input: [1,3,5,6], 0
Output: 0

来自 <https://leetcode.com/problems/search-insert-position/description/>

给定一个排序数组和一个目标值，如果在数组中找到目标值则返回索引。如果没有，返回到它将会被按顺序插入的位置。
你可以假设在数组中无重复元素。

Solution for Python3:

```python
class Solution1:
    def searchInsert(self, nums, target):
        """
        :type nums: List[int]
        :type target: int
        :rtype: int
        """
        l, r = 0, len(nums) - 1
        while l <= r:
            # m = (l + r) // 2  #有可能溢出
            m = l + (r - l) // 2
            if nums[m] == target:
                return m
            elif nums[m] < target:
                l = m + 1
            else:
                r = m - 1
        return  l

class Solution2:
    def searchInsert(self, nums, target):
        """
        :type nums: List[int]
        :type target: int
        :rtype: int
```

```
        """
        return len([x for x in nums if x < target])
```

Solution for C++:

```cpp
class Solution {
public:
    int searchInsert(vector<int>& nums, int target) {
        int low = 0, high = nums.size() - 1, mid;
        while (low <= high) {
            mid = low + (high - low) / 2;
            if (nums[mid] < target) {
                low = mid + 1;
            } else {
                high = mid - 1;
            }
        }
        return low;
    }
};
```

Appendix:

两数之和可能溢出，所以取两数和的平均值：A+(B-A)/2

Python for 循环写一行：`[x for x in nums if x < target]`