## 704. Binary Search

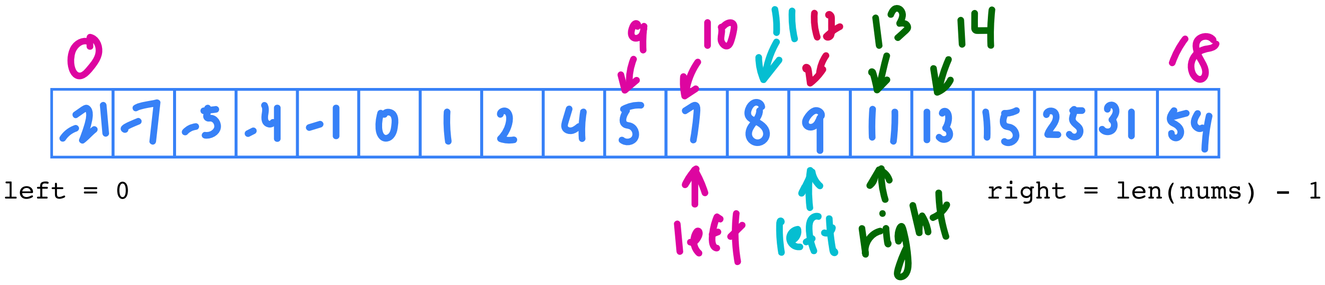
Easy

Given an array of integers nums which is sorted in ascending order, and an integer target, write a function to search target in nums. If target exists, then return its index. Otherwise, return -1.

You must write an algorithm with O(log n) runtime complexity.

```
class Solution:
    def search(self, nums: List[int], target: int) -> int:
        left, right = 0, len(nums) - 1

        while left <= right:
            middle = (left + right) // 2
            if nums[middle] == target:
                break
            elif nums[middle] < target:
                left = middle + 1
            elif nums[middle] > target:
                right = middle - 1
        return middle if nums[middle] == target else -1
```



middle = (left + right) // 2

mid= 0+18 //2
9
nums[mid] < target
nums[9]
5 < 9
left = mid +1
= 9+1
= 10

mid=10+18 //2
28//2
14
nums[mid] > target
nums[14]
13 > 9
right= mid - 1
= 14-1
=13

Mid = 10+13 // 2
23 //2
=11
nums[mid]<target
nums[11]
8 < 9
left=mid + 1
11+ 1
12

mid= 12+13 //2
= 12
nums[mid]== target
9 == 9