

704. Binary Search

🕒 Created	@October 14, 2022 9:54 PM
📌 Difficulty	Easy
🔗 LC Url	https://leetcode.com/problems/binary-search/
📌 Importance	
🏷️ Tag	Binary search NEET
📺 Video	

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.

Example 1:

```
Input: nums = [-1,0,3,5,9,12], target = 9
Output: 4
Explanation: 9 exists in nums and its index is 4
```

Example 2:

```
Input: nums = [-1,0,3,5,9,12], target = 2
Output: -1
Explanation: 2 does not exist in nums so return -1
```

Constraints:

- `1 <= nums.length <= 104`
- `104 < nums[i], target < 104`
- All the integers in `nums` are **unique**.
- `nums` is sorted in ascending order.

Solution

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

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