## 704. Binary Search

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 <= 10<sup>4</sup>
- -9999 <= nums[i], target <= 9999
- All the integers in nums are unique.
- nums is sorted in an ascending order.

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Search in a Sorted Array of Unknown Size