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702. Search in a Sorted Array of Unknown Size Premium

Medium Topics Companies

This is an *interactive problem*.

You have a sorted array of **unique** elements and an **unknown size**. You do not have an access to the array but you can use the `ArrayReader` interface to access it. You can call `ArrayReader.get(i)` that:

- returns the value at the i^{th} index (**0-indexed**) of the secret array (i.e., `secret[i]`), or
- returns $2^{31} - 1$ if the i is out of the boundary of the array.

You are also given an integer `target`.

Return the index `k` of the hidden array where `secret[k] == target` or return `-1` otherwise.

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

Example 1:

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

Example 2:

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

Constraints:

- $1 \leq \text{secret.length} \leq 10^4$
- $-10^4 \leq \text{secret}[i], \text{target} \leq 10^4$
- `secret` is sorted in a strictly increasing order.