Problem 1095: Find in Mountain Array

Problem Information

Difficulty: Hard
Acceptance Rate: 40.83%
Paid Only: No
Tags: Array, Binary Search, Interactive

Problem Description

(This problem is an**interactive problem**.)

You may recall that an array `arr` is a **mountain array** if and only if:

* `arr.length >= 3` * There exists some `i` with `0 < i < arr.length - 1` such that: * `arr[0] < arr[1] < ... < arr[i - 1] < arr[i]` * `arr[i] > arr[i + 1] > ... > arr[arr.length - 1]`

Given a mountain array `mountainArr`, return the **minimum** `index` such that `mountainArr.get(index) == target`. If such an `index` does not exist, return `-1`.

You cannot access the mountain array directly. You may only access the array using a `MountainArray` interface:

* `MountainArray.get(k)` returns the element of the array at index `k` (0-indexed). * `MountainArray.length()` returns the length of the array.

Submissions making more than `100` calls to `MountainArray.get` will be judged _Wrong Answer_. Also, any solutions that attempt to circumvent the judge will result in disqualification.

Example 1:

Input: mountainArr = [1,2,3,4,5,3,1], target = 3 **Output:** 2 **Explanation:** 3 exists in the array, at index=2 and index=5. Return the minimum index, which is 2.

Example 2:

Input: mountainArr = [0,1,2,4,2,1], target = 3 **Output:** -1 **Explanation:** 3 does not exist in the array, so we return -1.

Constraints:

* `3 <= mountainArr.length() <= 104` * `0 <= target <= 109` * `0 <= mountainArr.get(index) <= 109`

Code Snippets

C++:

```
/**
* // This is the MountainArray's API interface.
* // You should not implement it, or speculate about its implementation
* class MountainArray {
* public:
* int get(int index);
* int length();
* };
*/

class Solution {
public:
int findInMountainArray(int target, MountainArray &mountainArr) {

}
};
```

Java:

```
/**
* // This is MountainArray's API interface.
* // You should not implement it, or speculate about its implementation
* interface MountainArray {
* public int get(int index) {}
* public int length() {}
* }
*/

class Solution {
```

```
public int findInMountainArray(int target, MountainArray mountainArr) {

}
}
```

Python3:

```
# """
# This is MountainArray's API interface.
# You should not implement it, or speculate about its implementation
# """
#class MountainArray:
# def get(self, index: int) -> int:
# def length(self) -> int:

class Solution:
def findInMountainArray(self, target: int, mountainArr: 'MountainArray') ->
int:
```