

Traversing Array From The Right



Target: 4. Start right-to-left traversal.

Find Last Occurrence of Target in Array

Description:

Given an integer array `nums` and an integer `target`, return the index of the last occurrence of `target` in `nums`. If the target is not found, return -1.

You must solve this problem with an efficient $O(n)$ time solution by traversing the array from right to left.

Example 1:

Input: `nums = [1, 3, 5, 3, 2]`, `target = 3`

Output: 3

Explanation: The target 3 appears at indices 1 and 3, but its last occurrence is at index 3.

Example 2:

Input: `nums = [1, 2, 3, 4]`, `target = 5`

Output: -1

Explanation: The target 5 is not present in the array.

Constraints:

- $1 \leq \text{nums.length} \leq 10^5$
- $-10^9 \leq \text{nums}[i] \leq 10^9$
- $-10^9 \leq \text{target} \leq 10^9$

```
from typing import List
```

```
def find_last_occurrence(nums: List[int], target: int) -> int:
```

```
    """
```

```
    Returns the index of the last occurrence of target in nums.
```

```
    If the target is not found, returns -1.
```

```
    """
```

```
    # Traverse from rightmost index to left
```

```
    for i in range(len(nums) - 1, -1, -1):
```

```
        if nums[i] == target:
```

```
            return i
```

```
    return -1
```

```
# Example usage:
```

```
nums = [1, 3, 5, 3, 2]
```

```
target = 3
```

```
result = find_last_occurrence(nums, target)
```

```
print("Last occurrence of", target, "is at index:", result)
```

- **Right-to-Left Traversal:**

The function iterates over the array starting from the last index down to 0. This guarantees that the first time the target is found (when traversing from right to left) is its last occurrence in the array.

- **Time Complexity:**

The traversal takes $O(n)$ time in the worst-case scenario (when the target is at the beginning of the array or not present), which meets the requirements.

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