

Problem 3660: Jump Game IX

Problem Information

Difficulty: Medium

Acceptance Rate: 20.85%

Paid Only: No

Tags: Array, Dynamic Programming

Problem Description

You are given an integer array `nums`.

From any index `i`, you can jump to another index `j` under the following rules:

* Jump to index `j` where `j > i` is allowed only if `nums[j] < nums[i]`. * Jump to index `j` where `j < i` is allowed only if `nums[j] > nums[i]`.

For each index `i`, find the **maximum value** in `nums` that can be reached by following **any** sequence of valid jumps starting at `i`.

Return an array `ans` where `ans[i]` is the **maximum value** reachable starting from index `i`.

Example 1:

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

Output: `[2,2,3]`

Explanation:

* For `i = 0`: No jump increases the value. * For `i = 1`: Jump to `j = 0` as `nums[j] = 2` is greater than `nums[i]`. * For `i = 2`: Since `nums[2] = 3` is the maximum value in `nums`, no jump increases the value.

Thus, `ans = [2, 2, 3]`.

****Example 2:****

****Input:**** nums = [2,3,1]

****Output:**** [3,3,3]

****Explanation:****

* For `i = 0`: Jump forward to `j = 2` as `nums[j] = 1` is less than `nums[i] = 2`, then from `i = 2` jump to `j = 1` as `nums[j] = 3` is greater than `nums[2]`. * For `i = 1`: Since `nums[1] = 3` is the maximum value in `nums`, no jump increases the value. * For `i = 2`: Jump to `j = 1` as `nums[j] = 3` is greater than `nums[2] = 1`.

Thus, `ans = [3, 3, 3]`.

****Constraints:****

* `1 <= nums.length <= 105` * `1 <= nums[i] <= 109`

Code Snippets

C++:

```
class Solution {
public:
    vector<int> maxValue(vector<int>& nums) {

    }
};
```

Java:

```
class Solution {
    public int[] maxValue(int[] nums) {

    }
}
```

Python3:

```
class Solution:
    def maxValue(self, nums: List[int]) -> List[int]:
```