Given an integer array nums, return true *if there exists a triple of indices* (i, j, k) *such that* i < j < k *and* nums[i] < nums[j] < nums[k]. If no such indices exists, return false.

**Example 1:**

Input: nums = [1,2,3,4,5]  
Output: true  
Explanation: Any triplet where i < j < k is valid.

**Example 2:**

Input: nums = [5,4,3,2,1]  
Output: false  
Explanation: No triplet exists.

**Example 3:**

Input: nums = [2,1,5,0,4,6]  
Output: true  
Explanation: The triplet (3, 4, 5) is valid because nums[3] == 0 < nums[4] == 4 < nums[5] == 6.

**Constraints:**

* 1 <= nums.length <= 5 \* 105
* -231 <= nums[i] <= 231 - 1

**Follow up:** Could you implement a solution that runs in O(n) time complexity and O(1) space complexity?