Problem 1906: Minimum Absolute Difference Queries

Problem Information

Difficulty: Medium
Acceptance Rate: 45.18%
Paid Only: No
Tags: Array, Hash Table

Problem Description

The **minimum absolute difference** of an array `a` is defined as the **minimum value** of `|a[i] - a[j]|`, where `0 <= i < j < a.length` and `a[i] != a[j]`. If all elements of `a` are the **same** , the minimum absolute difference is `-1`.

* For example, the minimum absolute difference of the array `[5,_2_ ,_3_ ,7,2]` is `|2 - 3| = 1`. Note that it is not `0` because `a[i]` and `a[j]` must be different.

You are given an integer array `nums` and the array `queries` where `queries[i] = [li, ri]`. For each query `i`, compute the **minimum absolute difference** of the **subarray** `nums[li...ri]` containing the elements of `nums` between the **0-based** indices `li` and `ri` (**inclusive**).

Return _an**array** _`ans` _where_ `ans[i]` _is the answer to the_ `ith` _query_.

A **subarray** is a contiguous sequence of elements in an array.

The value of `|x|` is defined as:

* `x` if `x >= 0`. * `-x` if `x < 0`.

Example 1:

Input: nums = [1,3,4,8], queries = [[0,1],[1,2],[2,3],[0,3]] **Output:** [2,1,4,1]
Explanation: The queries are processed as follows: - queries[0] = [0,1]: The subarray is [_1_ ,_3_] and the minimum absolute difference is |1-3| = 2. - queries[1] = [1,2]: The subarray is [_3_ ,_4_] and the minimum absolute difference is |3-4| = 1. - queries[2] = [2,3]: The

subarray is [_4_ ,_8_] and the minimum absolute difference is |4-8| = 4. - queries[3] = [0,3]: The subarray is [1,_3_ ,_4_ ,8] and the minimum absolute difference is |3-4| = 1.

Example 2:

Input: nums = [4,5,2,2,7,10], queries = [[2,3],[0,2],[0,5],[3,5]] **Output:** [-1,1,1,3] **Explanation:** The queries are processed as follows: - queries[0] = [2,3]: The subarray is [2,2] and the minimum absolute difference is -1 because all the elements are the same. - queries[1] = [0,2]: The subarray is [_4_ ,_5_ ,2] and the minimum absolute difference is |4-5| = 1. - queries[2] = [0,5]: The subarray is [_4_ ,_5_ ,2,2,7,10] and the minimum absolute difference is |4-5| = 1. - queries[3] = [3,5]: The subarray is [2,_7_ ,_10_] and the minimum absolute difference is |7-10| = 3.

Constraints:

* `2 <= nums.length <= 105` * `1 <= nums[i] <= 100` * `1 <= queries.length <= 2 * 104` * `0 <= li < ri < nums.length`

Code Snippets

C++:

```
class Solution {
public:
vector<int> minDifference(vector<int>& nums, vector<vector<int>>& queries) {

}
};
```

Java:

```
class Solution {
public int[] minDifference(int[] nums, int[][] queries) {

}
}
```

Python3:

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