1906. Minimum Absolute Difference Queries

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] = [l_i, r_i]`. For each query `i`, compute the **minimum absolute difference** of the **subarray** `nums[l_i...r_i]` containing the elements of `nums` between the **0-based** indices `l_i` and `r_i` (**inclusive**).

Return *an* ***array*** `ans` *where* `ans[i]` *is the answer to the* `i^th` *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 <= 10^5`
- `1 <= nums[i] <= 100`
- `1 <= queries.length <= 2 * 10^4`
- `0 <= l_i < r_i < nums.length`