# Problem 1851: Minimum Interval to Include Each Query

## Problem Information

**Difficulty:** Hard
**Acceptance Rate:** 53.36%
**Paid Only:** No
**Tags:** Array, Binary Search, Line Sweep, Sorting, Heap (Priority Queue)

## Problem Description

You are given a 2D integer array `intervals`, where `intervals[i] = [lefti, righti]` describes the `ith` interval starting at `lefti` and ending at `righti` **(inclusive)**. The **size** of an interval is defined as the number of integers it contains, or more formally `righti - lefti + 1`.

You are also given an integer array `queries`. The answer to the `jth` query is the **size of the smallest interval** `i` such that `lefti <= queries[j] <= righti`. If no such interval exists, the answer is `-1`.

Return _an array containing the answers to the queries_.

**Example 1:**

**Input:** intervals = [[1,4],[2,4],[3,6],[4,4]], queries = [2,3,4,5] **Output:** [3,3,1,4] **Explanation:** The queries are processed as follows: - Query = 2: The interval [2,4] is the smallest interval containing 2. The answer is 4 - 2 + 1 = 3. - Query = 3: The interval [2,4] is the smallest interval containing 3. The answer is 4 - 2 + 1 = 3. - Query = 4: The interval [4,4] is the smallest interval containing 4. The answer is 4 - 4 + 1 = 1. - Query = 5: The interval [3,6] is the smallest interval containing 5. The answer is 6 - 3 + 1 = 4.

**Example 2:**

**Input:** intervals = [[2,3],[2,5],[1,8],[20,25]], queries = [2,19,5,22] **Output:** [2,-1,4,6] **Explanation:** The queries are processed as follows: - Query = 2: The interval [2,3] is the smallest interval containing 2. The answer is 3 - 2 + 1 = 2. - Query = 19: None of the intervals contain 19. The answer is -1. - Query = 5: The interval [2,5] is the smallest interval containing

5. The answer is 5 - 2 + 1 = 4. - Query = 22: The interval [20,25] is the smallest interval containing 22. The answer is 25 - 20 + 1 = 6.

**Constraints:**

* `1 <= intervals.length <= 105` * `1 <= queries.length <= 105` * `intervals[i].length == 2` * `1 <= lefti <= righti <= 107` * `1 <= queries[j] <= 107`

## Code Snippets

**C++:**

```
class Solution {
public:
vector<int> minInterval(vector<vector<int>>& intervals, vector<int>& queries)
{

}
};
```

**Java:**

```
class Solution {
public int[] minInterval(int[][] intervals, int[] queries) {

}
}
```

**Python3:**

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