1574. Shortest Subarray to be Removed to Make Array Sorted

Description

Given an integer array `arr`, remove a subarray (can be empty) from `arr` such that the remaining elements in `arr` are **non-decreasing**.

Return *the length of the shortest subarray to remove*.

A **subarray** is a contiguous subsequence of the array.

Example 1:

```
Input: arr = [1,2,3,10,4,2,3,5]
Output: 3
Explanation: The shortest subarray we can remove is [10,4,2] of length 3. The remaining elements after that will be [1,2,3,3,5] which are sorted.
Another correct solution is to remove the subarray [3,10,4].
```

Example 2:

```
Input: arr = [5,4,3,2,1]
Output: 4
Explanation: Since the array is strictly decreasing, we can only keep a single element. Therefore we need to remove a subarray of length 4, either [5,4,3,2] or [4,3,2,1].
```

Example 3:

```
Input: arr = [1,2,3]
Output: 0
Explanation: The array is already non-decreasing. We do not need to remove any elements.
```

Constraints:

- `1 <= arr.length <= 10^5`
- `0 <= arr[i] <= 10^9`