2021. Brightest Position on Street

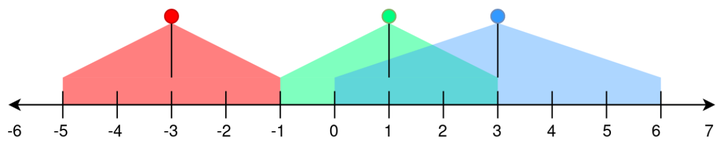
Medium 38 0 Add to List Share

A perfectly straight street is represented by a number line. The street has street lamp(s) on it and is represented by a 2D integer array `lights`. Each `lights[i] = [position_i, range_i]` indicates that there is a street lamp at position `position_i` that lights up the area from `[position_i - range_i, position_i + range_i]` (**inclusive**).

The **brightness** of a position `p` is defined as the number of street lamp that light up the position `p`.

Given `lights`, return *the **brightest** position on the street. If there are multiple brightest positions, return the **smallest** one.*

Example 1:




```
Input: lights = [[-3,2],[1,2],[3,3]]
Output: -1
Explanation:
The first street lamp lights up the area from [(-3) - 2, (-3) + 2] = [-5, -1].
The second street lamp lights up the area from [1 - 2, 1 + 2] = [-1, 3].
The third street lamp lights up the area from [3 - 3, 3 + 3] = [0, 6].
Position -1 has a brightness of 2, illuminated by the first and second street light.
Positions 0, 1, 2, and 3 have a brightness of 2, illuminated by the second and third street light.
Out of all these positions, -1 is the smallest, so return it.
```

Example 2:

```
Input: lights = [[1,0],[0,1]]
Output: 1
Explanation:
The first street lamp lights up the area from [1 - 0, 1 + 0] = [1, 1].
The second street lamp lights up the area from [0 - 1, 0 + 1] = [-1, 1].

Position 1 has a brightness of 2, illuminated by the first and second street light.
Return 1 because it is the brightest position on the street.
```

Example 3:

```
Input: lights = [[1,2]]
Output: -1
Explanation:
The first street lamp lights up the area from [1 - 2, 1 + 2] = [-1, 3].

Positions -1, 0, 1, 2, and 3 have a brightness of 1, illuminated by the first street light.
Out of all these positions, -1 is the smallest, so return it.
```

Constraints:

- `1 <= lights.length <= 10^5`
- `lights[i].length == 2`
- `-10^8 <= position_i <= 10^8`
- `0 <= range_i <= 10^8`

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Hide Hint 1

Convert lights into an array of ranges representing the range where each street light can light up and sort the start and end points of the ranges.

Hide Hint 2

Do we need to traverse all possible positions on the street?

Hide Hint 3

No, we don't, we only need to go to the start and end points of the ranges for each streetlight.

Java Autocomplete

```java
class Solution {
    public int brightestPosition(int[][] lights) {

    }
}
```