3111. Minimum Rectangles to Cover Points

Solved ●

Medium Hint

You are given a 2D integer array `points`, where `points[i] = [$x_i$, $y_i$]`. You are also given an integer `w`. Your task is to **cover all** the given points with rectangles.

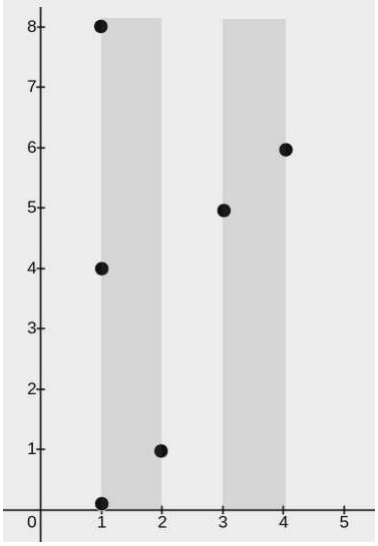
Each rectangle has its lower end at some point `($x_1$, 0)` and its upper end at some point `($x_2$, $y_2$)`, where `$x_1$ <= $x_2$`, `$y_2$ >= 0`, and the condition `$x_2$ - $x_1$ <= w` **must** be satisfied for each rectangle.

A point is considered covered by a rectangle if it lies within or on the boundary of the rectangle.

Return an integer denoting the **minimum** number of rectangles needed so that each point is covered by **at least one** rectangle.

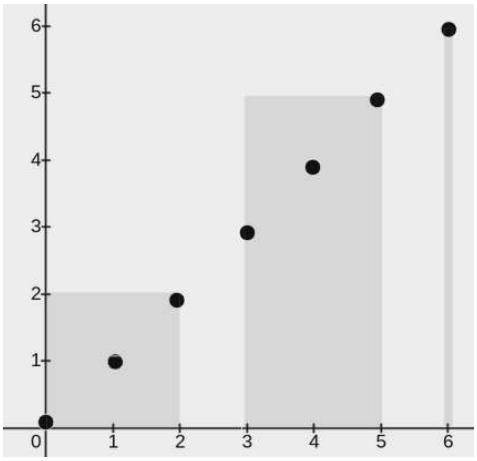
Note: A point may be covered by more than one rectangle.

Example 1:



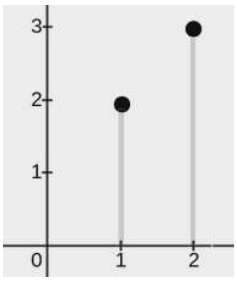
> **Input:** points = [[2,1],[1,0],[1,4],[1,8],[3,5],[4,6]], w = 1
>
> **Output:** 2
>
> **Explanation:**
>
> The image above shows one possible placement of rectangles to cover the points:
>
> - A rectangle with a lower end at `(1, 0)` and its upper end at `(2, 8)`
> - A rectangle with a lower end at `(3, 0)` and its upper end at `(4, 8)`

Example 2:



> **Input:** points = [[0,0],[1,1],[2,2],[3,3],[4,4],[5,5],[6,6]], w = 2
>
> **Output:** 3
>
> **Explanation:**
>
> The image above shows one possible placement of rectangles to cover the points:
>
> - A rectangle with a lower end at `(0, 0)` and its upper end at `(2, 2)`
> - A rectangle with a lower end at `(3, 0)` and its upper end at `(5, 5)`
> - A rectangle with a lower end at `(6, 0)` and its upper end at `(6, 6)`

Example 3:



> **Input:** points = [[2,3],[1,2]], w = 0
>
> **Output:** 2
>
> **Explanation:**
>
> The image above shows one possible placement of rectangles to cover the points:
>
> - A rectangle with a lower end at `(1, 0)` and its upper end at `(1, 2)`
> - A rectangle with a lower end at `(2, 0)` and its upper end at `(2, 3)`

Constraints:

- `1 <= points.length <= 10^5`
- `points[i].length == 2`
- `0 <= x_i == points[i][0] <= 10^9`
- `0 <= y_i == points[i][1] <= 10^9`
- `0 <= w <= 10^9`
- All pairs `(x_i, y_i)` are distinct.

Seen this question in a real interview before? 1/5

Yes No

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Hint 1

Hint 2

Hint 3

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