

Problem 391: Perfect Rectangle

Problem Information

Difficulty: Hard

Acceptance Rate: 36.60%

Paid Only: No

Tags: Array, Hash Table, Math, Geometry, Line Sweep

Problem Description

Given an array `rectangles` where `rectangles[i] = [xi, yi, ai, bi]` represents an axis-aligned rectangle. The bottom-left point of the rectangle is `(xi, yi)` and the top-right point of it is `(ai, bi)`.

Return `true` _if all the rectangles together form an exact cover of a rectangular region_.

Example 1:

Input: rectangles = [[1,1,3,3],[3,1,4,2],[3,2,4,4],[1,3,2,4],[2,3,3,4]] **Output:** true

Explanation: All 5 rectangles together form an exact cover of a rectangular region.

Example 2:

Input: rectangles = [[1,1,2,3],[1,3,2,4],[3,1,4,2],[3,2,4,4]] **Output:** false **Explanation:**

Because there is a gap between the two rectangular regions.

Example 3:

Input: rectangles = [[1,1,3,3],[3,1,4,2],[1,3,2,4],[2,2,4,4]] **Output:** false **Explanation:**

Because two of the rectangles overlap with each other.

****Constraints:****

```
* `1 <= rectangles.length <= 2 * 104` * `rectangles[i].length == 4` * `-105 <= xi < ai <= 105` *  
`-105 <= yi < bi <= 105`
```

Code Snippets

C++:

```
class Solution {  
public:  
    bool isRectangleCover(vector<vector<int>>& rectangles) {  
  
    }  
};
```

Java:

```
class Solution {  
public boolean isRectangleCover(int[][] rectangles) {  
  
}  
}
```

Python3:

```
class Solution:  
    def isRectangleCover(self, rectangles: List[List[int]]) -> bool:
```