

# 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:
```