3047. Find the Largest Area of Square Inside Two Rectangles

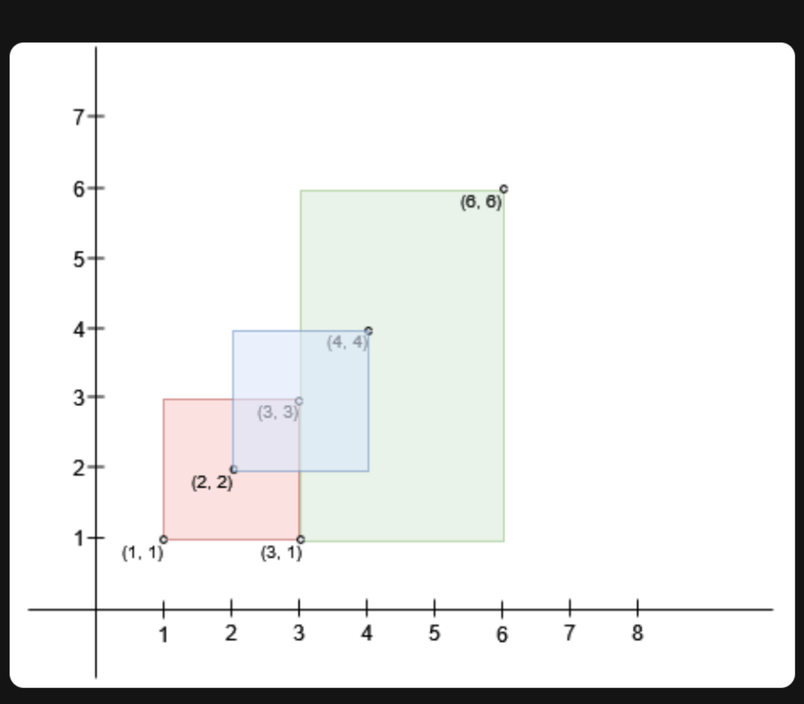
Description

There exist `n` rectangles in a 2D plane. You are given two **0-indexed** 2D integer arrays `bottomLeft` and `topRight`, both of size `n x 2`, where `bottomLeft[i]` and `topRight[i]` represent the **bottom-left** and **top-right** coordinates of the `i th` rectangle respectively.

You can select a region formed from the **intersection** of two of the given rectangles. You need to find the **largest** area of a **square** that can fit **inside** this region if you select the region optimally.

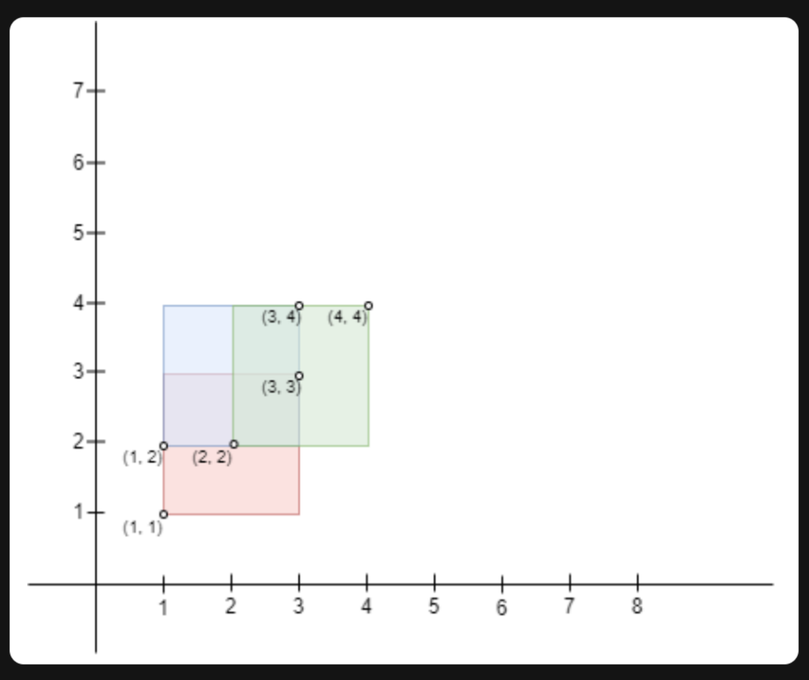
Return *the **largest** possible area of a square, or* `0` *if there **do not** exist any intersecting regions between the rectangles*.

Example 1:



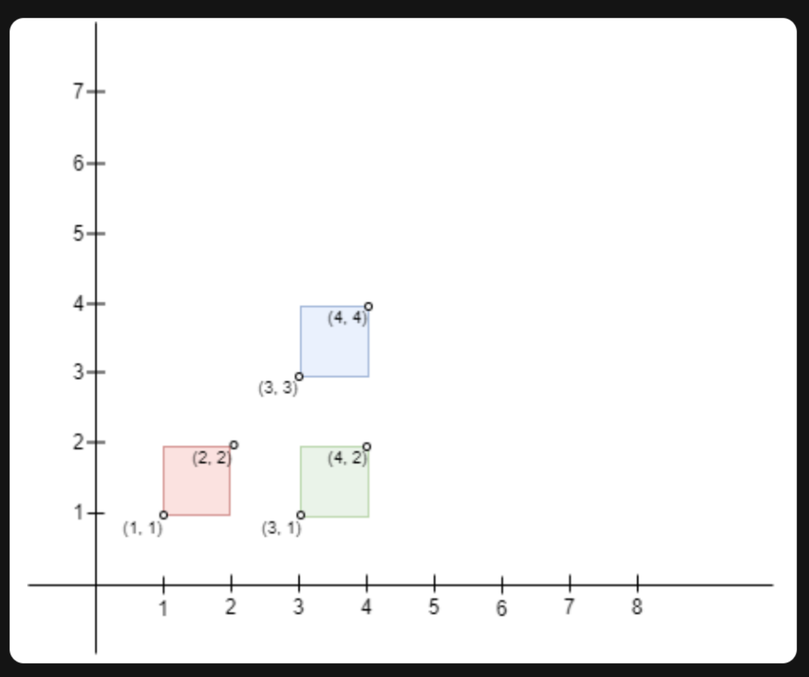

```
Input: bottomLeft = [[1,1],[2,2],[3,1]], topRight = [[3,3],[4,4],[6,6]]
Output: 1
Explanation: A square with side length 1 can fit inside either the intersecting region of rectangle 0 and rectangle 1, or the intersecting region of rectangle 1 and rectangle 2. Hence the largest area is side * side which is 1 * 1 == 1.
It can be shown that a square with a greater side length can not fit inside any intersecting region.
```

Example 2:




```
Input: bottomLeft = [[1,1],[2,2],[1,2]], topRight = [[3,3],[4,4],[3,4]]
Output: 1
Explanation: A square with side length 1 can fit inside either the intersecting region of rectangle 0 and rectangle 1, the intersecting region of rectangle 1 and rectangle 2, or the intersection region of all 3 rectangles. Hence the largest area is side * side which is 1 * 1 == 1.
It can be shown that a square with a greater side length can not fit inside any intersecting region.
Note that the region can be formed by the intersection of more than 2 rectangles.
```

Example 3:




```
Input: bottomLeft = [[1,1],[3,3],[3,1]], topRight = [[2,2],[4,4],[4,2]]
Output: 0
Explanation: No pair of rectangles intersect, hence, we return 0.
```

Constraints:

- `n == bottomLeft.length == topRight.length`
- `2 <= n <= 10 3`
- `bottomLeft[i].length == topRight[i].length == 2`
- `1 <= bottomLeft[i][0], bottomLeft[i][1] <= 10 7`
- `1 <= topRight[i][0], topRight[i][1] <= 10 7`
- `bottomLeft[i][0] < topRight[i][0]`
- `bottomLeft[i][1] < topRight[i][1]`