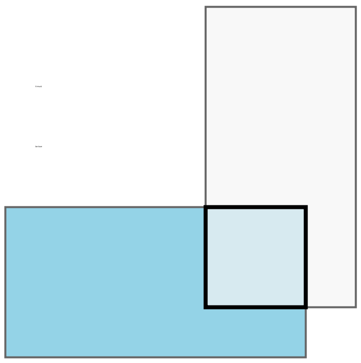
Interview Cake

A crack team of love scientists from OkEros (a hot new dating site) have devised a way to represent dating profiles as rectangles on a two-dimensional plane.

They need help writing an algorithm to find the intersection of two users' love rectangles. They suspect finding that intersection is the key to a matching algorithm so *powerful* it will cause an immediate acquisition by Google or Facebook or Obama or something.



Write a function to find the rectangular intersection of two given love rectangles.

As with the example above, love rectangles are always "straight" and never "diagonal." More rigorously: each side is parallel with either the x-axis or the y-axis.

They are defined as dictionaries like this:

Python ▾

```
my_rectangle = {

    # coordinates of bottom-left corner
    'left_x': 1,
    'bottom_y': 5,

    # width and height
    'width': 10,
    'height': 4,

}
```

Your output rectangle should use this format as well.

Gotchas

What if there is *no* intersection? Does your function do something reasonable in that case?

What if one rectangle is entirely contained in the other? Does your function do something reasonable in that case?

What if the rectangles don't really intersect but share an edge? Does your function do something reasonable in that case?

Do some parts of your function seem very similar? Can they be refactored so you repeat yourself less?

Breakdown

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Solution

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Complexity

$O(1)$ time and $O(1)$ space.

Bonus

What if we had a list of rectangles and wanted to find *all* the rectangular overlaps between all possible pairs of two rectangles within the list? Note that we'd be returning *a list of rectangles*.

What if we had a list of rectangles and wanted to find the overlap between *all* of them, if there was one? Note that we'd be returning *a single rectangle*.

What We Learned

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