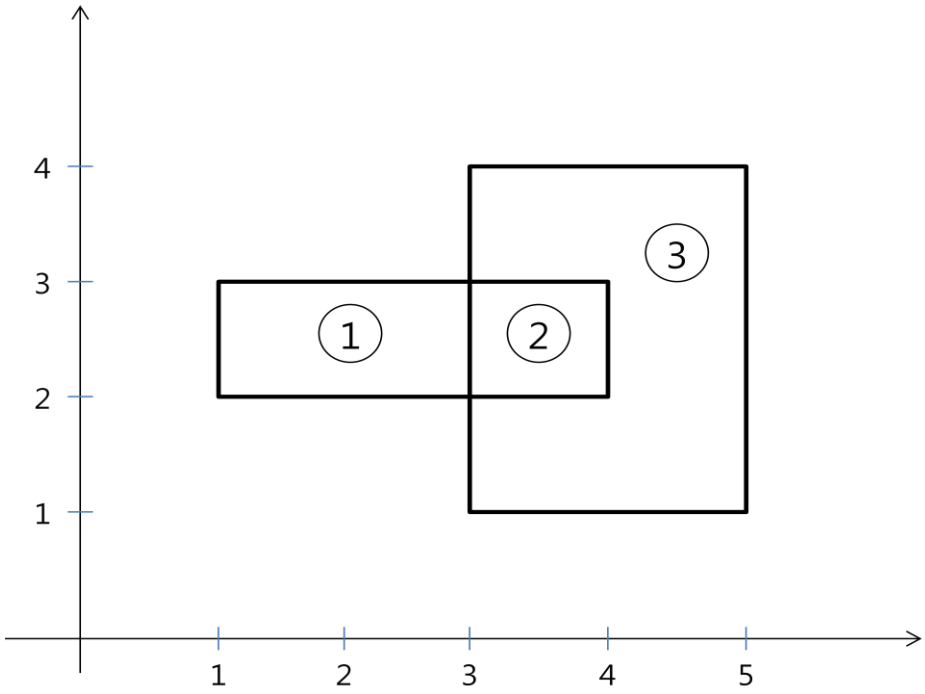
Regions

You are given a set of rectangles. This set defines several regions that are enclosed by the sides of the rectangles. For example, in the figure below, there are 3 regions whose areas are 2, 1, 5 in the numbered order.



You are to write a program that, given the set of rectangles, computes the number of defined regions and the area of the region that has the largest area. (It is assumed that the sides of the rectangles are parallel to the x and y axes and it is also assumed that no two vertices belonging to different rectangles share the same coordinate values for x or y axes.).

[Input]

The first line has the number of rectangles N. It is assumed that $2 \le N \le 50{,}000$. The next N lines each provide one rectangle by giving the x and y coordinate values (in that order) of the lower-left corner and the upper right corner of the rectangle. Each coordinate value is a nonnegative integer that can be stored in a 4 byte integer variable.

[Output]

The output consists of one line with two integers. The first integer is the number of defined regions and the second is the area of the largest region. (It is guaranteed that these values can be correctly stored in 4-byte integer variables.)

[I/O Example]

Input

```
2

1 2 4 3

3 1 5 4
```

Output

```
3 5
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