G   Rectangles Too! (`rectanglestoo.{c,cc,java}`)

Note: This problem is almost identical to the previous problem. The single difference between the two problems has been marked below.

G.1   Description

A rectangle in the Cartesian plane is specified by a pair of coordinates (x_1, y_1) and (x_2, y_2) indicating its lower-left and upper-right corners, respectively (where $x_1 \leq x_2$ and $y_1 \leq y_2$). Given a pair of rectangles, $A = ((x_1^A, y_1^A), (x_2^A, y_2^A))$ and $B = ((x_1^B, y_1^B), (x_2^B, y_2^B))$, we write $A \preceq B$ (i.e., A "precedes" B), if

$$x_2^A < x_1^B \qquad\qquad \text{and} \qquad\qquad y_2^A < y_1^B.$$

In this problem, you are given a collection of rectangles located in the two-dimension Euclidean plane. Find the length L of the longest sequence of rectangles $(A_1, A_2, \ldots, A_L)$ from this collection such that

$$A_1 \preceq A_2 \preceq \ldots \preceq A_L.$$

G.2   Input

The input file will contain multiple test cases. Each test case will begin with a line containing a single integer n (where $1 \leq n \leq \boxed{100000}$), indicating the number of input rectangles. The next n lines each contain four integers $x_1^i \ y_1^i \ x_2^i \ y_2^i$ (where $-1000000 \leq x_1^i \leq x_2^i \leq 1000000$, $-1000000 \leq y_1^i \leq y_2^i \leq 1000000$, and $1 \leq i \leq n$), indicating the lower left and upper right corners of a rectangle. The end-of-file is denoted by a single line containing the integer 0.

```
3
1 5 2 8
3 -1 5 4
10 10 20 20
2
2 1 4 5
6 5 8 10
0
```

G.3   Output

For each input test case, print a single integer indicating the length of the longest chain.

```
2
1
```