

## F Rectangles (rectangles.{c,cc,java})

### F.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

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

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  $(A_1, A_2, \dots, A_L)$  from this collection such that

$$A_1 \preceq A_2 \preceq \dots \preceq A_L.$$

### F.2 Input

The input file will contain multiple test cases. Each test case will begin with a line containing a single integer  $n$  (where  $1 \leq n \leq 1000$ ), 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
```

### F.3 Output

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

```
2
1
```