

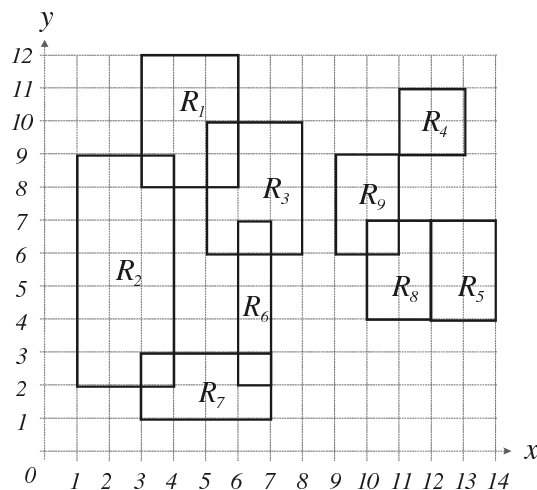
# The 25<sup>th</sup> Annual ACM International Collegiate Programming Contest ASIA Regional - Taejon



## Problem D Rectangle Coloring Input: rect.in

You are given  $n$  axis-parallel rectangles on a plane. Here, an axis-parallel rectangle is a rectangle whose edges are parallel to either  $x$ -axis or  $y$ -axis. You are to find the number of colors to paint the given  $n$  rectangles according to the following rules:

1. Each rectangle has to be painted with one color.
2. A pair of intersecting rectangles must have the same color. Two rectangles are intersecting if their intersection is not empty when we regard a rectangle as a set of points including the boundary.
3. A rectangle  $R_a$  must have the same color as  $R_b$  if there is a sequence of rectangles  $R_a = R_{i_1}, R_{i_2}, \dots, R_{i_k} = R_b$  such that  $R_{i_j}$  and  $R_{i_{j+1}}$  are intersecting for all  $1 \leq j < k$ ; otherwise, they must have different colors. For instance, rectangle  $R_9$  in the following figure must have the same color as  $R_4, R_5, R_8$ , and have a different color from  $R_1, R_2, R_3, R_6, R_7$ .



### Input

The input consists of  $T$  test cases. The number of test cases ( $T$ ) is given in the first line of the input file. Each test case begins with a line containing an integer  $N$ ,  $1 \leq N \leq 200$ , that represents the number of rectangles in the test case. Each of the following  $N$  lines contains four positive integers  $x_1, y_1, x_2$ , and  $y_2$ ,  $1 \leq x_1, y_1, x_2, y_2 \leq 10000$ , representing a rectangle.  $(x_1, y_1)$  and  $(x_2, y_2)$  are the  $(x, y)$ -coordinates of the lower-left and upper-right corners of the rectangle, respectively. The four integers are delimited by one or more spaces. From the  $N+3$ -th line, the remaining test cases are listed in the same manner as above.

### Output

The output should contain the number of colors, one per line.

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## Sample Input

```
2
9
3 8 6 12
1 2 4 9
5 6 8 10
11 9 13 11
12 4 14 7
6 2 7 7
3 1 7 3
10 4 12 7
9 6 11 9
4
11 9 13 11
12 4 14 7
10 4 12 7
9 6 11 9
```

## Output for the Sample Input

```
2
1
```