UVa Online Judge

11345 Rectangles

This problem has no story. You just have to find the common area of all rectangles.

Input

The first line contains integer N ($1 \leq N \leq 1000$). It is the number of tests. Each test described by number of rectangles M ($1 \leq M \leq 30$). Next N lines contain 4 integers: X_1 Y_1 X_2 Y_2 ($-10000 \leq X_1; Y_2; X_2; Y_2 \leq 10000$). Each rectangle is described by 2 points: lower left and upper right corners. All rectangle sides are parallel to Ox or Oy axes.

Output

For each test case out line formatter like this: '`Case` i`:` a'. Where i is a test number, and a is an area that belongs to all rectangles.

Sample Input

```
1
4
0 0 10 10
-1 -1 2 2
-10 0 2 100
-10 -10 10 10
```

Sample Output

```
Case 1: 4
```