A. Ice Skating

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

Bajtek is learning to skate on ice. He's a beginner, so his only mode of transportation is pushing off from a snow drift to the north, east, south or west and sliding until he lands in another snow drift. He has noticed that in this way it's impossible to get from some snow drifts to some other by any sequence of moves. He now wants to heap up some additional snow drifts, so that he can get from any snow drift to any other one. He asked you to find the minimal number of snow drifts that need to be created.

We assume that Bajtek can only heap up snow drifts at integer coordinates.

Input

The first line of input contains a single integer n ($1 \le n \le 100$) — the number of snow drifts. Each of the following n lines contains two integers x_i and y_i ($1 \le x_i, y_i \le 1000$) — the coordinates of the i-th snow drift.

Note that the north direction coincides with the direction of Oy axis, so the east direction coincides with the direction of the Ox axis. All snow drift's locations are distinct.

Output

Output the minimal number of snow drifts that need to be created in order for Bajtek to be able to reach any snow drift from any other one.

Examples

input
2 2 1 1 2
output
1

input
2 2 1 4 1
output
0

→ Attention

Package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then value 800 ms will be displayed and used to determine the verdict.

Codeforces Round #134 (Div. 1)

Finished

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Problem tags

brute force | dfs and similar | dsu | graphs

No tag edit access

→ Contest materials

- Announcement
- Tutorial