

Reversi

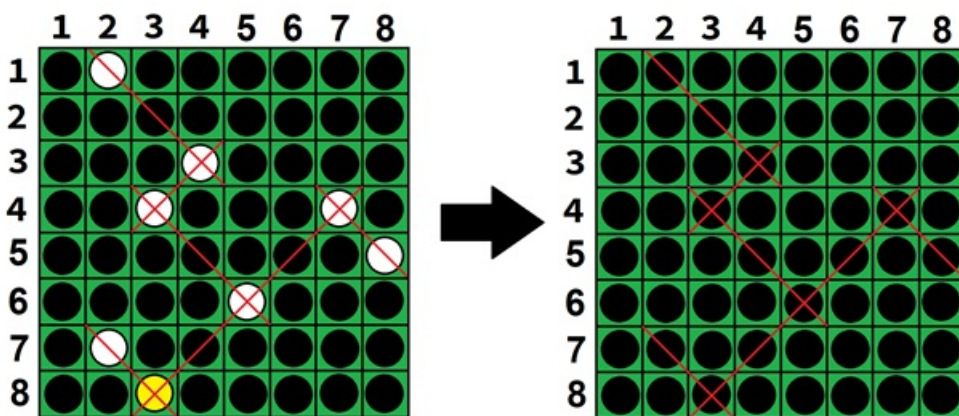
Input file: standard input
Output file: standard output
Time limit: 1 second
Memory limit: 256 megabytes

Kamariah has just learned how to play the reversi board game. Her brother Moo challenges her to play a different kind of reversi. Moo gave her an incredibly large board with 10^9 rows and 10^9 columns consisting of only black and white pieces.

Let's define the coordinate of a piece in row i column j as coordinate (i, j)

There are N ($1 \leq N \leq 10^5$) white pieces in the board. Kamariah can choose arbitrary amount of white pieces and **flip** it into a black piece.

When a piece is **flipped** then all the other white pieces located in the same diagonal will **flip** into black pieces.



For example, in this board, if Kamariah pick the white piece in coordinate $(8,3)$ (which is colored in yellow) to **flip** then all the white pieces will flip into black. The red lines show the white pieces in the same diagonal.

In fact, she can pick any white piece to **flip** and the same result will be achieved.

Note that the piece that was **flipped** by another piece will also **flip** all the other white pieces in its diagonal.

Given the coordinates of all N white pieces in the grid

Determine the minimum number of white pieces that Kamariah must choose to convert all the white pieces in the grid into black pieces.

Input

The first line of input contains a single integer N ($1 \leq N \leq 10^5$).

The next N lines contains 2 integers r_i ($1 \leq r_i \leq 10^9$) and c_i ($1 \leq c_i \leq 10^9$) denoting the row and the column of i -th white piece.

It is guarantee that no 2 or more white pieces has the same coordinate.

Output

Output a single integer denoting the minimum number of white pieces that Kamariah must choose to convert all the white pieces in the grid into black pieces.

Scoring

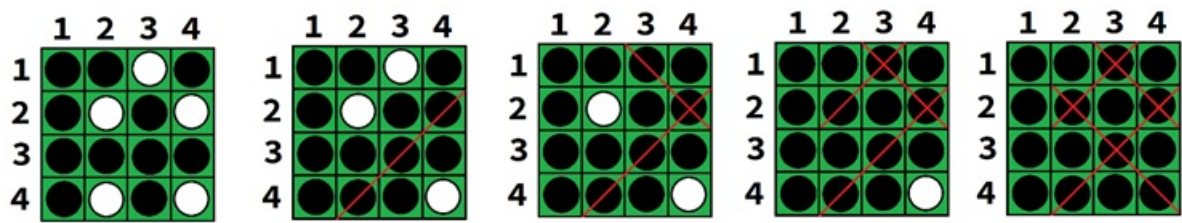
Subtask 1 (21 points): $1 \leq N \leq 1000$
Subtask 2 (29 points): $1 \leq r_i, c_i \leq 1000$
Subtask 3 (50 points): Original Constraints

Examples

standard input	standard output
5 2 4 4 2 2 2 1 3 4 4	1
6 2 2 3 2 4 1 4 3 1 4 3 3	2

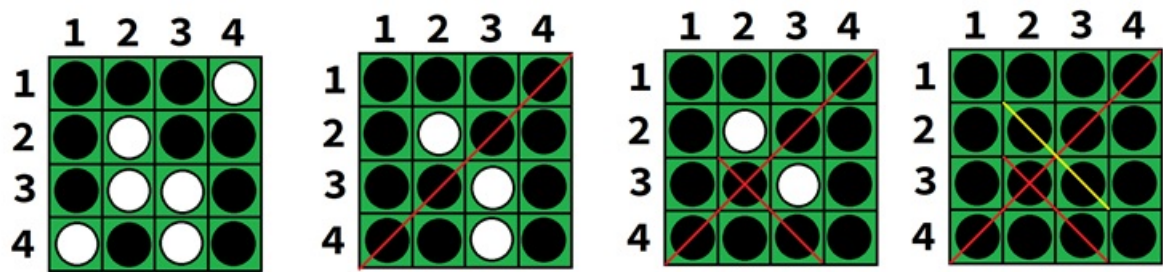
Note

For Example 1,



The optimal way is to flip the white piece in coordinate (4,2). Then chaining white pieces in (2,4), (1,3), (2,2) and (4,4) to be flip into black.

For Example 2,



The optimal way is to flip the white piece in coordinate (4,1). Then (3,2), (1,4), (4,3) will be flip into black. Next, she can choose the white piece in coordinate (2,2) to convert the rest of the white pieces into black.