Problem I

Domino Line

A domino piece is a rectangular-shape tile with a line dividing its face into two square halves. Each square contains a number of dots representing the value of the square. Domino is called by the value of its two squares (also called "ends"), e.g., a domino with 2 dots in one half and 5 dots in the other half is called 2-5 (or 5-2) domino.

Dominoes is played by laying down the dominoes one by one, next to each other, with the touching ends having the same value. A domino-line is a sequence of dominoes such that each adjacent dominoes have the same value on their touching ends; in other words, it's a valid played dominoes. For example, the sequence (2-5, 5-4, 4-4, 4-6, 6-3) is a valid domino-line, while (2-5, 5-3, 5-4, 4-6) is not as 5-3 and 5-4 do not share the same value on the touching ends (3 and 5). Notice that you can play a domino piece in either direction, e.g., a 3-5 domino can be played as 5-3.

Given a set of N dominoes, lay down all the dominoes such that the number of domino-lines is as few as possible.

For example, let there be 6 dominoes: {2-6, 1-3, 4-2, 6-3, 2-5, 4-3}. For readability, let's denote the dominoes as D1, D2, D3, D4, D5, and D6, respectively. If a domino D1 is played in reversed order (e.g., playing 6-2 with a 2-6 domino), we call it as R1, likewise the other dominoes.

The minimum number of domino-lines needed to be formed is 2:
  • D2, R4, R1, D5 → 1-3, 3-6, 6-2, 2-5.
  • R3, D6 → 2-4, 4-3.
There are other strategies to lay down the dominoes, but none has fewer than 2 domino-lines in this example.

Your task is to find the minimum number of domino-lines needed to be formed with the given dominoes set.

Input

The first line contains an integer: N (1 ≤ N ≤ 50,000) denoting the number of dominoes. The next N lines, each contains two integers: A B (1 ≤ A, B ≤ 50,000) representing an A-B domino.

Output

Output in a single line, the minimum number of domino-lines which have to be formed to lay down all the given dominoes.

Sample Input	Output for Sample Input
4 2 6 1 3 6 3 2 5	1

4 1 2 1 2 4 5 3 6	3
7 1 3 4 8 7 3 6 4 5 7 3 6 2 5	2