Coding Battle 2020

E. « Cursed Bingo »

Problème

Oops ! The Dordogne Summer Festival is due to start soon, but the venue happens to have been double booked ! A local retirement home mistakenly rented the entire facility, weeks before you did. However, the lovely elders can tell that you're panicking and are willing to make concessions, as long as the festival is completely isolated from the yearly Bingo competition (i.e. no one must be able to travel from one area to the other).

All rooms being extremely spacious, they are willing to accept any subset of rooms, as long as there is at least one for them.

Given the list of corridors of the building, you now need to determine the minimal number of corridors that need to be closed in order for the building to be split into two completely isolated areas, and so that both the festival and this year's most crazy Bingo event can take place simultaneously !

Input

Your program will take its input on several lines, in the following order :

— On one line, two integers N and E, respectively the number of rooms in the building (numbered from 1 to N) and the number of corridors ($2 \leq N \leq 1000$ *and* $0 \leq E \leq 20\,000$) ;
— On E lines, E pairs of integers a and b respresenting a (two-way) corridor between rooms a and b.

Output

On one line, an integer : the minimal number of corridors to be closed in order to split the building into two.

Examples

Example 1

Input
5 5
1 2
2 3
3 4
3 5
2 5

Output
1

Here, it is sufficient to close down the corridor that links rooms 1 and 2 so that room 1 is isolated from the rest of the building.

Example 2

Input
4 3
1 2
2 3
3 4

Output
1

Here, closing down any of the corridors is sufficient to create 2 isolated areas within the building.