Problem D: Dungeon Explorer 2: Teambuilding Exercise

Advanced Algorithms for Programming Contests

Restrictions

Time: 2 seconds
Memory: 512 MB

Problem description

In recent months, you've become an avid player of *Dungeons and Demons*, a very popular new MMORPG. At the moment, your guild is planning to clear a type 2 dungeon, which is an extensive network of huge halls that are filled with monsters and connected by doors and corridors. Through a community effort, the dungeon in question has already been thoroughly analyzed so that, among other things, you know its entire layout.

Clearing a type 2 dungeon generally works as follows: Before entering it, the guild splits up into teams. Then the teams enter the dungeon in distinct halls and start to clear them. After a team has cleared its initial hall, it might be able to use a door or corridor to get to another one and start clearing that too, and so on. However, all doors and corridors only provide one-way access and – in order to avoid friendly fire – the teams' paths should never cross, regardless of how quickly each team clears its halls.

Now the guild's leaders are arguing about the number of teams needed for the dungeon in question. Can you help them?

Input

The input consists of

- one line containing integers N and M ($2 \leq N \leq 500$, $0 \leq M \leq \frac{N(N-1)}{2}$) – the numbers of halls and doors/corridors in the dungeon. The halls are numerated $1, ..., N$.

- M lines each containing two numbers a and b ($1 \leq a, b \leq N$), denoting a door/corridor from hall a to hall b. No pair (a, b) occurs in the input more than once and it is known that there are no cyclic paths in the dungeon (so once one leaves a hall, there is no possibility to get back into it through a series of doors, corridors and other halls).

Output

Output one number – the minimum amount of teams you will need.

Sample input and output

Input	Output
7 6 1 4 2 4 3 4 4 5 4 6 4 7	5