PROBLEMS   SUBMIT CODE   MY SUBMISSIONS   STATUS   HACKS   ROOM   STANDINGS   CUSTOM INVOCATION

F. Upgrading Cities

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

There are n cities in the kingdom X, numbered from 1 through n. People travel between cities by some **one-way** roads. As a passenger, JATC finds it weird that from any city u, he can't start a trip in it and then return back to it using the roads of the kingdom. That is, the kingdom can be viewed as an acyclic graph.

Being annoyed by the traveling system, JATC decides to meet the king and ask him to do something. In response, the king says that he will upgrade some cities to make it easier to travel. Because of the budget, the king will only upgrade those cities that are important or semi-important. A city u is called *important* if for every city $v \neq u$, there is either a path from u to v or a path from v to u. A city u is called *semi-important* if it is not important and we can destroy exactly one city $v \neq u$ so that u becomes important.

The king will start to act as soon as he finds out all those cities. Please help him to speed up the process.

Input

The first line of the input contains two integers n and m ($2 \leq n \leq 300\,000$, $1 \leq m \leq 300\,000$) — the number of cities and the number of one-way roads.

Next m lines describe the road system of the kingdom. Each of them contains two integers u_i and v_i ($1 \leq u_i, v_i \leq n$, $u_i \neq v_i$), denoting one-way road from u_i to v_i.

It is guaranteed, that the kingdoms' roads make an acyclic graph, which doesn't contain multiple edges and self-loops.

Output

Print a single integer — the number of cities that the king has to upgrade.

Examples

input	Copy
7 7 1 2 2 3 3 4 4 7 2 5 5 4 6 4	

output	Copy
4	

input	Copy
6 7 1 2 2 3 3 4 1 5 5 3 2 6 6 4	

output	Copy
4	

→ Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

Register for practice

→ 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
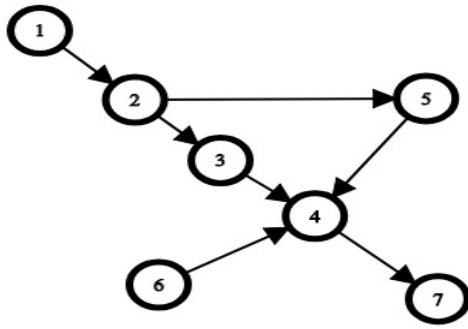
→ Problem tags

dfs and similar   graphs   *3000

No tag edit access

→ Contest materials

- Announcement   ✕
- Tutorial   ✕

Codeforces Round #520 (Div. 2)
Finished

Note
In the first example:

- Starting at the city 1 we can reach all the other cities, except for the city 6. Also, from the city 6 we cannot reach the city 1. Therefore, if we destroy the city 6 then the city 1 will become important. So 1 is a semi-important city.
- For city 2, the set of cities that cannot reach 2 and cannot be reached by 2 is $\{6\}$. Therefore, destroying city 6 will make the city 2 important. So city 2 is also semi-important.
- For city 3, the set is $\{5, 6\}$. As you can see, destroying either city 5 or 6 will not make the city 3 important. Therefore, it is neither important nor semi-important.
- For city 4, the set is empty. So 4 is an important city.
- The set for city 5 is $\{3, 6\}$ and the set for city 6 is $\{3, 5\}$. Similarly to city 3, both of them are not important nor semi-important.
- The city 7 is important since we can reach it from all other cities.

So we have two important cities (4 and 7) and two semi-important cities (1 and 2).
In the second example, the important cities are 1 and 4. The semi-important cities are 2 and 3.