After yet another boring day at work, Lora decided that it is time to start her own company. In Lora’s company there are **N** employees, numbered from 1 to N, with Lora having number 1 (we will treat her as an employee).

For a company to be truly successful, a strict internal hierarchy must be established. The only condition for a hierarchy to be valid is that every employee, except Lora, must have exactly one boss, while Lora must have no boss. After conducting the necessary psychological evaluations, Lora has compiled a list of **M** pairs “Ai Bi”, each meaning that employee number Ai is fit to be boss of employee number Bi. **For every such pair we have Ai < Bi (i.e. the number of a potential boss is always smaller than the number of his subordinate)**

Lora wants to choose the hierarchy in order to minimize the amount of employees who are not bosses of anyone. Help her by writing a program that finds the minimum amount of employees that are not bosses of anyone, in the optimal hierarchy. If there is no valid hierarchy – just print -1.

**Input**

The first line of the file company.in contains two integers N and M – the amount of employees and the amount of pairs in Lora’s list, respectively. The following M lines describe the pairs. The i-th of those lines has two space-separated integers Ai and Bi, indicating that employee number Ai is fit to be the boss of employee number Bi

**Output**

In the output file company.out print a single integer – the minimum amount of employees that are not bosses of anyone in an optimal hierarchy. If there is no valid hierarchy then print -1 on a single line.

**Constraints**

1 ≤ *N* ≤ 30 000

0 ≤ M ≤ 30 000

1 ≤ Ai < Bi ≤ N

**Time limit: 1.0 sec**

**Memory limit: 256 MB**

**Example tests**

|  |  |
| --- | --- |
| **Input (company.in)** | **Output (company.out)** |
| 3 3  1 2  1 3  2 3 | 1 |
| 6 8  1 2  1 3  1 5  2 5  3 5  2 4  1 4  5 6 | 2 |
| 1 0 | 1 |
| 2 0 | -1 |

**Clarifications**

In the first sample case it is optimal 1 to be the boss of 2 and 2 to be the boss of 3. In such hierarchy only 3 is not a boss of someone and thus we get an answer of 1. We could have instead chosen 1 to be the boss of both 2 and 3, but then the answer for the hierarchy would have been 2, as neither 2 nor 3 would be bosses of anyone.