

C. Capital Relocation

time limit per test: 5 seconds

memory limit per test: 128 megabytes

input: standard input

output: standard output

You, the royal wedding planner, reported to the mad king that it was not possible to host the wedding for his wife, because there was no way to travel from some cities to the capital. The mad king was not pleased and decided to relocate the capital to another city so that everyone can attend the wedding.

There are N cities in the kingdom. Your new task is to report which cities can be the new capital, by computing the number of cities that can be reached from every city in the kingdom.

Trains are the only transportation in this kingdom. There are M train routes connecting the cities. Each route would get you from one city to the other, *but not the other way round*. Also, each city now appears in at most 50 different routes.

Given the number of cities and the details of train routes, compute the number of cities to which there is a way to travel from every city in the kingdom. If there is no such city, output 0.

Your implementation must run in time $O(N + M)$. Before solving this problem, review the algorithm on finding strongly connected components in a directed graph and understand why it works.

Input

One line containing a space-separated pair of integers N, M , followed by M lines containing a list of M space-separated pairs of integers (U, V) , meaning there is a train going from city U to city V .

Limits

$1 \leq N \leq 50000$

$1 \leq M \leq 600000$

$1 \leq U, V \leq N$

Output

One line containing an integer, the number of cities that can be reached from every city in the kingdom.

Examples


input
3 3 1 3 2 3 3 1
output
2
input
3 2

NEU CS4800 Programming Assignment

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Language: GNU GCC 5.1.0

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Submit

1 2 3 1
output
1

input
6 6 1 2 2 3 3 1 4 5 5 6 6 4
output
0

Note

If you are using Python, please add the following to increase the recursion depth:

```
import sys  
  
sys.setrecursionlimit(100000)
```

Explanation for the first sample test case:

There are 3 cities and the train routes are:

1 <-> 3 <- 2

Hence, both city 1 and city 3 can be reached from every city in the kingdom, while city 2 cannot be reached from either city 1 nor city 2.

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