

# Interesting Paths

Input file:            **standard input**  
Output file:           **standard output**  
Time limit:            4 seconds  
Memory limit:         1024 megabytes

We are given a directed graph with  $n$  vertices and  $m$  edges. The vertices of the graph are numbered from 1 to  $n$ , and each edge leads from a vertex with a smaller number to a vertex with a larger number.

We call a sequence of paths interesting if:

- each path starts at vertex 1 and ends at vertex  $n$ ,
- each path contains at least one edge that was not present in any of the previous paths.

What is the length of the longest interesting sequence of paths?

## Input

The first line of the input contains two integers  $n$  and  $m$  ( $2 \leq n \leq 10^6$ ,  $0 \leq m \leq 10^6$ ), denoting the number of vertices and edges of the considered graph.

Each of the next  $m$  lines contains two integers  $a$  and  $b$  ( $1 \leq a < b \leq n$ ) describing a directed edge leading from vertex  $a$  to vertex  $b$ . Each pair  $(a, b)$  appears in the input at most once.

## Output

The output should contain a single integer - the maximum length of the interesting sequence of paths.

## Examples

standard input	standard output
5 7 1 3 3 5 1 2 2 3 3 4 4 5 2 4	4
5 3 1 3 2 3 2 5	0

## Note

For the first example, an interesting sequence of paths of length 4 may look as follows:

- $1 \rightarrow 3 \rightarrow 5$  (the edge  $1 \rightarrow 3$  was used for the first time),
- $1 \rightarrow 2 \rightarrow 3 \rightarrow 5$  (the edge  $1 \rightarrow 2$  was used for the first time),
- $1 \rightarrow 3 \rightarrow 4 \rightarrow 5$  (the edge  $3 \rightarrow 4$  was used for the first time),
- $1 \rightarrow 2 \rightarrow 4 \rightarrow 5$  (the edge  $2 \rightarrow 4$  was used for the first time).

In the second example, there is no path from vertex 1 to vertex 5.