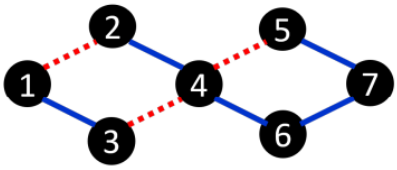
Problem A
A Coloring Game

Time Limit: 1 second
Memory Limit: 512 megabytes

Nhat and Thuc are playing a very simple game described as follows:



- Nhat tries to color all edges on a graph, which has N nodes and M undirected edges. Each edge can be blue or red.
- After Nhat colored the graph, Thuc tries to find a path that begins from node 1 and ends in node N, which has the minimum number of **bad points**. When Thuc moves on his chosen path from a red edge to a blue one (or vice versa), he gets one **bad point**.
- Nhat wants to color the graph in such a way that maximizes the bad points Thuc will get, regardless of which path Thuc will choose.

Could you determine the number of bad points Thuc will get if both players play optimally.

Note: A path is a sequence of edges where each pair of consecutive edges have a node in common.

Input

The first line contains two integers N and M.

In the next M lines, line i^{th} contains two integers u_i, v_i indicating an undirected edge between nodes u_i and v_i.

There is at most one edge between any pair of nodes.

Constraints:

- $2 \leq \mathrm{N}, \mathrm{M} \leq 10^5$,
- $1 \leq \mathrm{u_i}, \mathrm{v_i} \leq \mathrm{N}, \mathrm{u_i} \neq v_i$

Output

A single integer which is the number of bad points Thuc will get, assuming that both players play optimally.

Sample Input	Sample Output
3 3 1 3 1 2 2 3	0

7 8 1 2 1 3 2 4 3 4 4 5 4 6 5 7 6 7	3