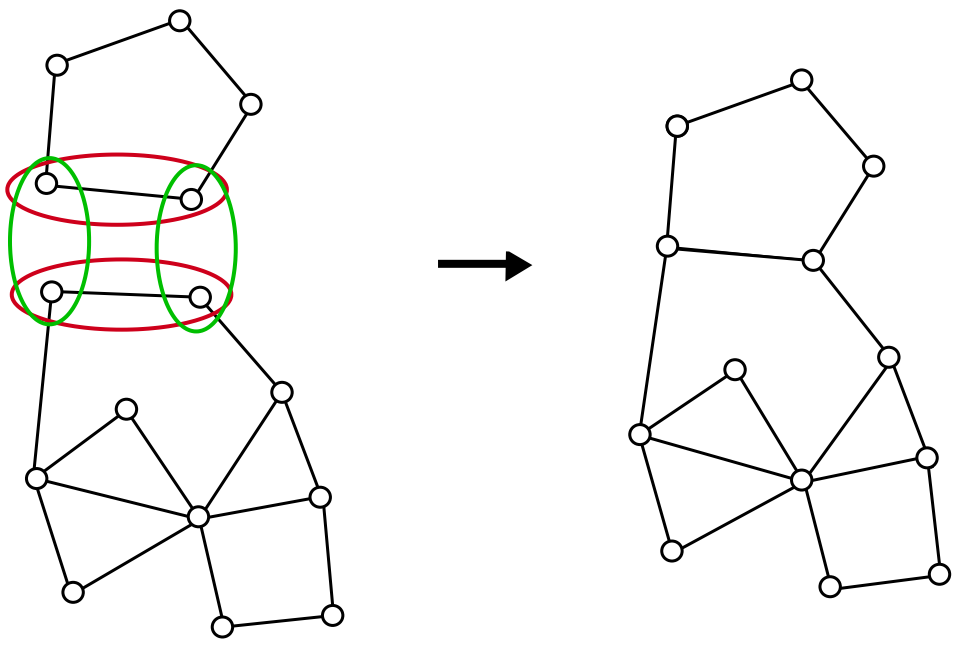
Cycle Tree

Time limit: *5000 ms*
Memory limit: *256 MB*

A *cycle tree* is a connected undirected graph that respects one of the following:

- It's an elementary **cycle** of length greater than or equal to 3.
- It's a graph resulted by attaching an elementary cycle to another cycle tree. Attaching a cycle means choosing two edges, one from the cycle and the other one from the cycle tree, and merging them and their incident nodes:



You are give a cycle tree, compute its **maximum independent set**.

Standard input

The first line contains two integer values N and M.

Each of the next M lines contains two integer values, representing two nodes that share an edge.

Standard output

The output should contains a single value representing the size of the maximum independent set.

Constraints and notes

- $1 \leq N \leq 50\ 000$
- $1 \leq M \leq 10^5$
- The nodes are numbered from 1 to N

Input	Output	Explanation
4 4 1 2 2 3 3 4 1 4	2	We can choose either the set $\{1, 3\}$ or the set $\{2, 4\}$.
13 18 3 4 4 5 5 1 1 2 2 3 8 4 3 6 6 7 7 8 10 6 10 7 7 9 9 6 11 8 7 11 12 7 12 13 13 11	6	We can choose more than one independent set of size 6. One of them is $\{1, 3, 9, 10, 11, 12\}$.