

Problem I

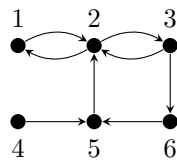
Instagraph

A celebrity in a social network is somebody with many followers, but who doesn't follow them back. More precisely, a person is a *celebrity* for a group of people, if

- every member of the group follows the person,
- the person follows nobody in the group.

The *celebrity centrality* of person v , written $CC(v)$, is the maximum size of such a group.

We model the social network as a directed graph with N vertices $1, \dots, N$. A directed edge from u to v means that person u follows person v . For example, in



we have $CC(1) = 0$, $CC(2) = 1$, and $CC(5) = 2$.

Your task is to find a vertex v with the maximum celebrity centrality $CC(v)$. In case of a tie, choose the smallest v .

Input

The input consists of

- One line with two integers N and M ($1 \leq N \leq 100\,000$, $0 \leq M \leq 1\,000\,000$), the number of vertices and the number of directed edges.
- M lines with two distinct integers u and v ($1 \leq u, v \leq N$), indicating a directed edge from u to v . There are no duplicate edges.

Output

Output two integers: the smallest v with the maximum celebrity centrality and the value $CC(v)$.

Sample Input 1

```
6 8
1 2
2 1
2 3
3 2
3 6
4 5
5 2
6 5
```

Sample Output 1

```
5 2
```

Sample Input 2

1 0

Sample Output 2

1 0
