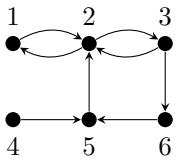
Problem I
Instagraph

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 $\mathrm{CC}(v)$, is the maximum size of such a group.

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



we have $\mathrm{CC}(1) = 0$, $\mathrm{CC}(2) = 1$, and $\mathrm{CC}(5) = 2$.

Your task is to find a vertex v with the maximum celebrity centrality $\mathrm{CC}(v)$. 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 $\mathrm{CC}(v)$.

Sample Input 1	Sample Output 1
6 8 1 2 2 1 2 3 3 2 3 6 4 5 5 2 6 5	5 2

Sample Input 2	Sample Output 2
1 0	1 0