Problem Statement

The famous detective Sherlock Holmes is trying to chase down a cunning thief. Predicting the possibility of upcoming investigations, the notorious thief has planted some fake clues besides leaving behind some real ones in different cities, before he took shelter in a secret hideout. These clues, irrespective of their authenticity, need to be collected and processed in a particular order to reveal the location of the hideout. Specifically, it is required that the investigation starts from a city from which every other city is reachable, let us call this a source city. The cities are connected by unidirectional roads. Can you help Sherlock identify a source city, or report if none exists?

Input format

The first line contains 2 integers, n and m where n denotes the number of cities and m denotes the number of roads between two cities. Each of the next m lines contains two integers u, v (0 <= u, v < n) which indicates, there is a one-way road from city u to city v.

Output format

Print a single integer denoting the source city. If there are multiple possible answers, print any one of them. Print -1 if no source city can be found.

Sample I/O

Input	Output
4 5 0 1 1 2 0 2 1 3 3 2	0
3 3 0 1 1 2 2 0	2
3 2 0 1 2 1	-1