CSES Problem Set

Course Schedule II

Time limit: 1.00 s **Memory limit:** 512 MB

You want to complete n courses that have requirements of the form "course a has to be completed before course b".

You want to complete course 1 as soon as possible. If there are several ways to do this, you want then to complete course 2 as soon as possible, and so on.

Your task is to determine the order in which you complete the courses.

Input

The first input line has two integers n and m: the number of courses and requirements. The courses are numbered $1, 2, \ldots, n$.

Then, there are m lines describing the requirements. Each line has two integers a and b: course a has to be completed before course b.

You can assume that there is at least one valid schedule.

Output

Print one line having n integers: the order in which you complete the courses.

Constraints

- $1 \le n \le 10^5$
- $1 \le m \le 2 \cdot 10^5$
- $1 \le a, b \le n$

Example

Input:
```
4 2
2 1
2 3
```


Additional Problems

...
Coin Grid -
Robot Path -
Programmers and Artists -
Course Schedule II ✓
Removing Digits II -
Coin Arrangement -
Counting Bishops -
Grid Puzzle I -
...

Your submissions

2021-09-17 20:35:12 ✓
2021-09-17 16:53:36 ×
2021-09-17 05:45:11 ×
2021-09-16 05:58:57 ×
2021-09-15 20:25:43 ×

Output:

```
2 1 3 4
```