Topological sort — P14952_en

We must perform n tasks, one at a time. Furthermore, some tasks must be done before others: there are m precedence relations between tasks. Write a program to print a way to sort the n tasks satisfying the m given precedences.

Input

Input consists of several cases. Every case begins with n, followed by m, followed by m distinct pairs x y that indicate that task x must be done before task y. You can assume $1 \le n \le 10^4$, $0 \le m \le 10n$, and that the tasks are numbered from 0 to $n - 1$.

Output

For every case, print the lexicographically smallest order of the n tasks that fulfills the m given precedences. There will always be, at least, one solution.

Sample input 1

```
3 1
1 0

1 0

10 18
0 3  4 8
8 3  2 1
5 7  5 6
6 8  4 2
4 0  8 1
2 8  3 1
6 2  7 3
7 2  5 0
0 6  9 5
```

Sample output 1

```
1 0 2
0
4 9 5 0 6 7 2 8 3 1
```

Problem information

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