
Shortest path

P81453_en

Write a program that, given a directed graph with n vertices (numbered from 0 to $n - 1$) and m arcs, prints the shortest way to go from 0 to $n - 1$.

Input

Input consists of several cases. Every case begins with n and m . Follow m pairs $x y$ to indicate an arc from x to y . There are no repeated arcs nor of the kind $x x$. There is always a path between 0 and $n - 1$. You can assume $2 \leq n \leq 10^4$ and $1 \leq m \leq 5n$.

Output

For every case, print the vertices of the shortest path between 0 and $n - 1$ separated by spaces. If there is more than one shortest path, print the smallest in lexicographical order.

Sample input

```
10 11
8 2 0 1 4 0 1 4 3 9 4 6
6 9 0 8 2 9 0 7 7 3

2 2
1 0 0 1
```

Sample output

```
0 7 3 9
0 1
```

Problem information

Author : Salvador Roura

Translator : Salvador Roura

Generation : 2024-05-03 00:10:38

© Jutge.org, 2006–2024.

<https://jutge.org>