Problem 3 – Sticks

You are given a pile of sticks. At each turn you can **remove a stick** only if there are no other sticks on top of it.

Write a program that plays the game and prints **the order in which the sticks should be lifted** without violating the above rule. If two or more sticks can be lifted at the same turn, choose the one with a **greater numeric value**.

Input

- On the first input line you are given the number of sticks **n**. Each stick should be assigned a numeric value from **0** to **n-1**.
- On the second input line you are given the number stick placings **p**.
- On the next **p** lines you will be given pairs of sticks **a b**, indicating that stick **a** is placed on top of stick **b**.

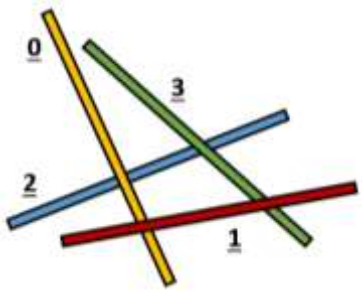
Output

- Print the order in which the sticks should be lifted in the format "**{stickA} {stickB} …**".
- If at some turn there are still sticks but no stick can be lifted, print "**Cannot lift all sticks**" along with the sticks lifted so far.

Constraints

- The number of sticks **n** will be in the range [2..600].
- The number of stick placings **p** will be in the range [1..60000].
- If stick **a** is on top stick **b**, **b** cannot be on top of **a**.
- There will always be at least 1 lifted stick.
- Time limit: **100 ms**. Allowed memory: **16 MB**.

Examples

Input	Output	Visual
4 4 3 2 1 0 0 2 1 3	1 3 0 2	

Input	Output	Visual
5 5 0 3 2 3 2 1 3 1 1 0	Cannot lift all sticks 4 2