



Passports

Mouse Vladimir is a passionate traveler; just last spring he was on a cultural journey to Ishtar. When he wanted to travel to the neighboring country Karak, he had to realize with awe, that his entry was denied. Apparently, the diplomatic relations between those two countries are a little shaky, and they strongly dislike it if you already have the other country's stamp in your passport. After quite some discussion with the immigration department, mouse Vladimir could eventually continue his journey.

To avoid such situations in the future, mouse Vladimir will order a second passport. Help him by writing a program to check whether a second passport is enough or whether he should order even more. Furthermore, he wants to know which countries he should visit with which passport.

Input

The first line contains two integers N and M , the number of countries mouse Vladimir wants to visit and the number of conflicts that exist between two countries.

The next M lines contain each two integers a_i and b_i and represent a conflict between the countries denoted by the two integers. Note that the diplomatic relations between countries are symmetric and the countries are numbered from 0 to $N - 1$.

Output

If mouse Vladimir needs more than two passports to travel to each country without visiting two conflicting countries with the same passport, output a single line saying "Order more passports.".

Otherwise output two lines, each of which shall contain the numbers denoting the countries that mouse Vladimir should visit with the respective passport.

If there is more than one possibility, choose any.

Limits

It always holds $0 \leq a_i, b_i < N$, $N \geq 2$ and $M \geq 1$. Additionally:

- Subtasks 1: $3 \leq N, M \leq 10$
- Subtasks 2: $N \leq 100, M \leq 1\,000$
- Subtasks 3: $N \leq 1\,000, M \leq 10\,000$
- Subtasks 4: $N \leq 10\,000, M \leq 100\,000$

Examples

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



Input	Output
3 3 0 1 1 2 2 0	Order more passports.