2016 AGENTS ANONYMOUS (SEQUEL)

Agents Anonymous now wish to hold meetings where none of the attendees know each other. Quite frankly, too many knowing nods and winks are distracting to the other attendees, and any ex-spy attempting to subtly back away from someone that they know usually results in a split cup of tea.

An unnamed outside party has ensured that none of the ex-spies from *Alpha Complex* who are members know each other. Unfortunately, *Agents Anonymous* has been infiltrated by ex-spies from *Beta Complex* who might know anyone (i.e. from either complex). To maintain their cover, these ex-spies have ensured that there are at least twice as many members who are ex-spies from *Alpha Complex* as have infiltrated from *Beta Complex*.

Agents Anonymous have spent nearly all of their budget on unused badges reading "Hello, my name is..." so future meetings are to be limited to a third of their membership. They cannot afford another split cup of tea so a strict "nobody knows anybody" policy is to be enforced. It is not important where an ex-spy used to work.

For example, suppose that 1, 2 and 3 all know 4; 5, 6 and 7 all know 8; 2, 4, 6 and 8 all know 9. There are several suitable meetings, such as 1, 5 and 9.

SAMPLE INPUT

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

Write a program to calculate who can be invited to an *Agents Anonymous* meeting. The first line of the input will be a single integer n ($1 \leq n \leq 2{,}500$) indicating the number of ex-spies (who are numbered from 1 to n). Each successive line will consist of a pair of integers, indicating two ex-spies who know each other. Each pair will be given once. The input will be terminated by the line `-1 -1`.

Your output should consist of $n/3$ integers[1] (one per line) enumerating the ex-spies attending a possible meeting.

SAMPLE OUTPUT

```
1
5
9
```

[1] This is integer division; i.e. round down to the nearest integer.