2016 AGENTS ANONYMOUS (PREQUEL)

Traditionally when agents of *Alpha Complex* were 'retired' they could look forward to an exciting car chase, a few explosions and one guaranteed opportunity to deliver a witty quote. Unfortunately, thanks to the recent economic downturn, the most they can now expect are the bi-weekly sessions of *Agents Anonymous*, explosive grumbling and an exciting cup of tea.

Agents Anonymous like to hold meetings where nobody attending knows more than one other person. They have determined, by judicious spying, which pairs of ex-spies know each other; no ex-spy knows more than three other ex-spies. *Agents Anonymous* plan on holding two meetings, although they would be happy to hold a meeting where nobody attends as it saves on the cost of tea.

For example, suppose that ex-spies 1, 2, 3 and 4 all know each other. 1 and 2 could attend the first meeting, and 3 and 4 could attend the second meeting.

SAMPLE INPUT

```
4
1 2
1 3
1 4
3 2
4 2
3 4
-1 -1
```

Write a program to calculate who is invited to the *Agents Anonymous* meetings. The first line of the input will be a single integer n ($1 \leq n \leq 1{,}000{,}000$) 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`.

SAMPLE OUTPUT

```
2
1
2
```

The first line of your output should be a single integer s, the number of ex-spies invited to a possible first meeting. This should be followed by s integers (one per line) enumerating the ex-spies attending this meeting. All other ex-spies will attend the second meeting, which you do not need to enumerate.