

British Informatics Olympiad Final

11–13 April, 2003

Sponsored by Lionhead Studios

Humps

Nestled in the distant hills, enfolding sunny spots of greenery, lies the sleepy knot of villages known as The Endians. These villages are linked together by a local system of roads, some of which date back as far as the Domesday Book and many of which are unable to cope with modern traffic levels. In an endeavour to return to tranquility, traffic calming measures are to be placed on some roads.

Each road in the district links two villages together. Half of the roads are to receive humps and, to prevent the resurrection of ancient rivalries, each village is to have the measures applied to half its connecting roads. (There are an even number of roads in total and each village has an even number of connecting roads.) The Endians are a close-knit community, and it is possible to get from any village to any other village, either by a single road or a sequence of roads.

Write a program which reads in a list of the roads and decides which should receive the humps. The first line of the input will be an integer n ($4 \leq n \leq 250$) giving the number of villages (The Endians are surprising large). Villages are numbered from 1 to n . This will be followed by a list of roads, given by the villages they connect, one road on each line. The list of roads will be terminated by the line $-1 -1$. There is at most one direct road between any two villages and no road connects a village to itself.

You should output a list of the roads (identifying each road by the villages it connects) which are to receive the humps. Each road should appear on a separate line and no road should appear more than once.

Sample Input

```
5
1 2
5 4
1 4
1 5
2 3
3 1
-1 -1
```

Sample Output

```
1 2
1 3
4 5
```