2009 FAIR EXCHANGE

It is the holiday season for the spies of *Alpha Complex*. A time for the giving of gifts. A time for the receiving of gifts. A time for ensuring your fellow spy does not receive more than his fair share.

Since secretly giving gifts would feel too much like work, a list has been published indicating between which spies gifts are to be given. For each pair of spies on the list, only a single gift is to be given although the list does not indicate which spy gives and which receives the gift. To keep things fair, the difference between the total number of gifts a spy receives and gives must be at most 1.

For example, suppose that gifts are to be given between the pairs 1-2, 2-3, 1-3, 3-4 and 1-4. One way of allocating the gifts would be for 1 to give gifts to 2 and 3, 2 to give a gift to 3, 3 to give a gift to 4 and finally 4 to give a gift to 1.

SAMPLE INPUT

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

Write a program that determines a fair way of giving the gifts. The first line of the input will be an integer, n ($2 \leq n \leq 1000$) giving the number of spies (who are numbered from 1 to n). This will be followed by a list of pairs of spies who are to give gifts, one pair on each line. This list will be terminated by the line `-1 -1`. Every spy will be in at least one pair, no pair will be given twice and each pair will contain two different spies.

You should output a list of pairs, where the first entry in each pair indicates the spy who is giving the gift and the second indicating the receiving spy.

SAMPLE OUTPUT

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