Contests

Amongst that small knot of villages know as the Endians, ancient rivalries are frequently re-fought on equally ancient fields. Where once could be heard ancestral voices prophesying war now, on suitable sunny summer afternoons, can be heard leather on willow, polite applause, and the surgical slicing of crusts from cucumber sandwiches.

At the start of the summer teams come forward and a list of potential contests is proposed. It is rarely appropriate for all the teams to play each other, but the proposed list always ensures that if two teams do not play each other they are linked by a sequence of contests involving other teams. There is often disagreement with the list and some of the proposed contests are dropped. The only firm requirement is that each team is involved in an odd number of contests so that, when summer draws to a close, they will each know whether they won a clear majority of their own games.

The first line of the input will consist of a single number, t ($2 \le t \le 5000$), indicating the number of teams. Each successive line will consist of two integers, each between 1 and t inclusive, giving the two proposed teams for one of the contests. There will be an *even number of teams*, teams cannot play themselves in a contest, and no two contests will involve the same pair of teams. The input will be terminated by the line "`-1 -1`".

The first line of your output should consist of a single integer c indicating the number of contests to be kept. This should be followed by c lines listing all of these contests, each line consisting of a pair of integers identifying the teams (in either order) in one of these contests. Note that the *only* requirement for your solution is that each team is involved in an odd number of contests.

Sample Input

```
6
1 2
2 3
4 3
3 5
1 3
6 1
-1 -1
```

Sample Output

```
4
2 3
1 6
3 4
3 5
```