British Informatics Olympiad Final

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Sponsored by Data Connection & e-competitions

Home on the Range — Part Three

A schematic has been produced in accordance with the rules set out in part two. In particular, a labelling was produced adhering to the given condition. Write a program that produces an example set of sequence surveys that is consistent with the schematic.

The first line of the input will consist of a single integer, n ($1 \leq n \leq 5000$), indicating the number of surveys; surveys will be labelled from 1 to n. Each successive line will consist of two integers indicating a pair of surveys that overlap. This list will be terminated with the line "`-1 -1`". *Any pair of surveys that are not included in the list do not overlap.*

You should output n lines, each containing two integers; the i^{th} of these lines should give possible start and end points for the survey labelled i on the schematic. There will always be a solution for the given test data.

Sample Input

```
4
3 2
3 1
```

Sample Output

```
1 2
4 5
2 4
7 8
```