Competitive Programming SS24

Submit until end of contest

Problem: tutel (2 second timelimit)

You have the honour to organize the **T**enth **U**nderwater **T**eam **E**vent at **L**ake HPI (also called TUTEL). As in previous years, all inhabitants of Lake HPI will compete in two thrilling disciplines: long distance diving and underwater dancing.

The winners of last year's competition.

The competition is team-based, that is, only teams of two are allowed to participate, and it is your task to form these teams. To guarantee exciting battles, you want the teams to be as balanced as possible.

In order to achieve this, you have closely observed all participants during their training sessions, assessing their skills in both diving and dancing, each by a single number. The skill of a team is then determined by the sum of the team members' individual skills. For instance, if Duck Dora has the skill values at 8 (diving) and 4 (dancing), and Frog Fridolin at 3 and 10, then their team's skills would be 11 and 14, respectively.

Can you pair up all participants so that every team has the same skill values in both disciplines?

Input The input consists of:

- A line with an integer n ($2 \leq n \leq 10^5$), the number of participants.
- Then n lines follow, each containing two integers a and b ($-10^6 \leq a, b \leq 10^6$), the skill in diving and dancing, respectively, of each participant.

Output Output "`possible`" if it is possible to divide all participants into teams of two with equal skill. Output "`impossible`" otherwise.

Sample Input 1

```
6
2 1
3 0
3 0
4 2
4 2
5 1
```

Sample Output 1

```
possible
```

Sample Input 2

```
4
1 0
0 1
-2 0
0 -2
```

Sample Output 2

```
impossible
```