Game of rectangles P66768_en

Consider a two-player game with n rectangles. Initially, each reactangle i has r_i rows and c_i columns. Alternating moves, each player chooses any rectangle i (that has not been fully removed yet), and removes the top row or the left column from it, thus reducing the size to either $(r_i - 1) \times c_i$ or $r_i \times (c_i - 1)$, respectively. The player that eventually cannot make any move loses the game.

Please write a program that tells if, with perfect play, the first player can win a given game.

Input

Input consists of several cases. Every case begins with the number of rectangles n, followed by n pairs of integer numbers r_i and c_i. Assume $1 \leq n \leq 10^5$ and $1 \leq r_i, c_i \leq 10^9$.

Output

For every case, print "`wins`" or "`loses`".

Sample input 1

```
1  1 5
1  2 2
1  5 9
1  5 4
2  1 5  5 4
2  1 6  5 4
3  1000000000 1  999999999 2  999999996 999999998
```

Sample output 1

```
wins
loses
loses
wins
loses
wins
loses
```

Problem information

Author: Salvador Roura

Generation: 2026-01-25T11:30:26.904Z

© *Jutge.org*, 2006–2026.
https://jutge.org