Teatro

Today Izan and his big gang of friends went to the theater! But when they got their tickets they realized that they didn't know if they were all seated together. Can you help them?

Each seat in the theater has a row indicated by a natural number and a column indicated by another natural number. The rows are numbered in the obvious way (the first row is numbered 1, the second row is numbered 2, and so on) but the columns are numbered a little strangely, as in any other theater. The seats with columns 1 and 2 are in the middle of the row, next to each other. To the left of teh seat in column 1 are the odd numbered seats in increasing order starting from the center, and to the right of the seat in column 2 are the even numbered seats in increasing order starting from the center.

Figure 1: Example of how a 6 columns row is numbered

The gang members all want to be in the same row and in adjacent seats. Help them find out if they will be seated together with their assigned seats.

Input and output

The first line of the input contains the number of cases T.

Each case starts with a line with an integer n. n is the number of friends (including Izan). Next there are n lines, where on the i-th line there are two numbers f_i and c_i, where c_i indicates the column of the i-th friend and f_i the row.

For each case a line with "SI" or "NO" (without quotes) should be printed in case they are all together or not together respectively.

Example

Input:

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

Output:

```
SI
NO
```

Constraints

$1 \leq T \leq 100$

$1 \leq n \leq 10^6$

$1 \leq f_i, c_i \leq 10^9$

The sum of n for all cases is at most 10^6.

Subtasks

1. (25 points) $1 \leq c_i \leq 10000$, f_i equal for each case.
2. (30 points) $1 \leq c_i \leq 10000$.
3. (34 points) Sum of n for all the cases ≤ 10000.
4. (11 points) No additional restrictions.