BSSPC '19 P4 - Katyusha!

Problem Statement

It is the year 1945. You are a Soviet *Super-Soldier* and can predict the future. You have just completed a mission to sabotage the dying capital of the Third Reich. You need to safely return to your *comrades* advancing on the outskirts of Berlin.

However, there are several **Katyusha** units that are currently firing on the area between you and your comrades. There are three types of **Katyushas**: the light *BM-8*, with an impact radius of 8 meters, the intermediate *BM-13*, with an impact radius of 13 meters, and the massive *BM-30*, with an impact radius of a whopping 30 meters. Comrade Super-Soldier, you need to determine whether you can return to your comrades and complete the final assault in the Great Patriotic War!

There will be a grid of 100 by 100 squares. Each of the N **Katyusha** units will turn a square at (x, y) into a death-zone (**DZ**). You start from the bottom left corner (square $(0, 0)$) of the grid and must reach the top right corner (square $(100, 100)$) of the grid without entering any **DZ**. You may travel in any direction laterally, but may not travel diagonally. Good luck, *comrade*!

Input Specification

The first line will contain one integer, $0 \leq N \leq 5000$. Each of the next N lines will contain 2 space-separated integers, $0 \leq x_i \leq 100$ and $0 \leq y_i \leq 100$.

Output Specification

You will print a single character, y to indicate that you can reach your comrades or n to indicate that you will die for the motherland.

Sample Input 1

```
2
0 1
1 0
```

Sample Output 1

```
n
```

Sample Input 2

```
21
0 1
1 1
2 1
4 0
4 1
```

```
4 2
4 3
3 3
2 3
1 3
0 7
1 7
2 7
3 7
4 7
5 7
6 7
6 6
6 5
6 4
6 3
```

Sample Output 2

```
y
```