Problem A: Hull Beam

input: *standard input*
output: *standard output*
time limit per test: *1 second*
memory limit per test: *256 megabyte*

Faster than Light (FTL) is a space-based top-down strategy game. You control a ship which belongs to the *Galactic Federation* and have to fight a ship of the *Rebel Fraction*. The enemies' space ship is represented by a set of axis-aligned non-intersecting rectangles in the plane. Your ship is close to destruction but your weapon, the *hull beam*, is ready to fire.

The hull beam shoots an infinite beam which deals one damage to each room it intersects. Coincidentally, the enemies' ship consists of n rooms and has exactly n health points. Thus, you need to hit every room to destroy the enemy before he destroys you. Now you quickly need to check if it is possible to position the beam in such a way.

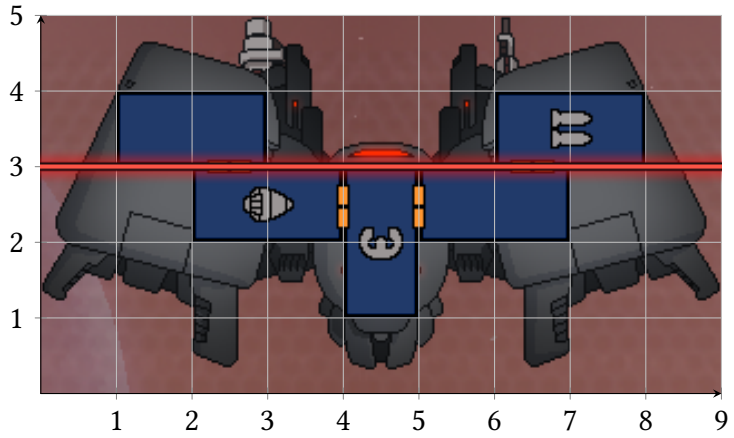

Figure 1: Visualization of the first sample. Each room is tinted in blue with a black border. The hull beam is drawn in red. The drawn beam is the only valid solution in this case.

Input Format

The first line contains a single integer n ($1 \le n \le 2 \cdot 10^5$), the number of rooms. Each of the next n lines contains 4 integers describing two points (x_1, y_1) and (x_2, y_2) ($0 < x_1 < x_2 < 10^9$ and $0 < y_1 < y_2 < 10^9$), the coordinates of two opposite corners of a room. It is guaranteed that no two rooms have a common interior point.

Output Format

Print "YES" if it is possible for the hull beam to pass through each room and "NO" if it is impossible.

Sample Data

Input	Output
5 1 3 3 4 2 2 4 3 4 1 5 3 5 2 7 3 6 3 8 4	YES

Input	Output
4 1 1 2 2 1 3 2 4 3 1 4 2 3 3 4 4	NO

Input	Output
3 1 1 2 2 1 3 2 4 3 3 4 4	YES