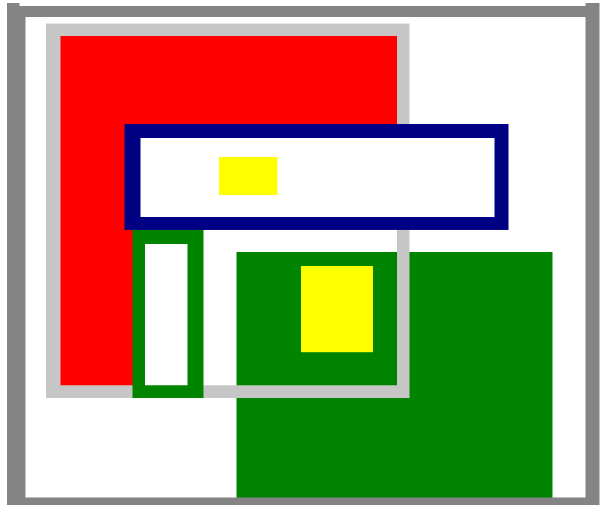
Given a set of rectangles in the plane, determine if it is possible to choose one diagonal from each rectangle such that none of the selected diagonals intersect. Two diagonals intersect if they share at least one point. Note that the rectangles themselves are free to intersect.



Input

Input consists of several test cases. Each test case begins with an integer n ($1 \leq n \leq 1000$), representing the number of rectangles. This is followed by n lines each describing a rectangle using 8 integer numbers $x_1, y_1, x_2, y_2, x_3, y_3, x_4, y_4$, where each (x_i, y_i) is a vertex. All coordinate values are between -10^9 and 10^9. The input is terminated by a line containing '0' which should not be processed.

Output

For each test case, output a line containing either 'YES' if the selection is possible or 'NO' if not.

Sample Input

```
4
0    1    1    1    1    0    0    0
1    1    2    1    2    0    1    0
2    3    5    3    5    0    2    0
2    3    3    3    3    2    2    2
7
0    10   10   10   10   0    0    0
10   10   20   10   20   0    10   0
20   30   50   30   50   0    20   0
20   30   30   30   30   20   20   20
30   10   40   10   40   0    30   0
5    0    30   0    30   -10  5    -10
0    0    5    0    5    -10  0    -10
0
```

Sample Output

```
YES
NO
```