

Buried Treasure

Problem ID: buriedtreasure2

Buried treasure can be found using treasure maps. There are m different locations numbered from 1 to m . Each location contains either treasure or a trap.

Joey gives you n treasure maps. Each treasure map has two markers m_1, m_2 . For $i \in \{1, 2\}$, if $m_i < 0$, then the map is claiming that location $|m_i|$ contains a trap. If $m_i > 0$, then the map is claiming that location $|m_i|$ contains treasure.

We say that a treasure map is *reasonable* if at least one of the claims it makes is correct. For example, if a map claims that location 1 contains treasure and location 2 contains a trap, while in reality location 1 contains a trap and location 2 contains treasure, then the map is *not* reasonable.

Joey asserts that every treasure map that he has given you is reasonable. Can you check whether this is possible, i.e. whether there exists an assignment of locations 1 through m to either treasure or trap such that each map makes at least one correct claim?



Input

The first line of input contains two space-separated integers n , the number of treasure maps you have, and m , the number of possible locations on the treasure maps ($1 \leq n \leq 10^5, 1 \leq m \leq 10^5$).

The next n lines of input each contain 2 integers. For $1 \leq j \leq n$, the j^{th} line contains two integers m_1, m_2 ($-m \leq m_1, m_2 \leq m$, and $m_1, m_2 \neq 0$) which represent the two locations marked by map j .

Output

If it's possible for every map to be reasonable, print YES. Otherwise, print NO.

Sample Explanation

In Sample Input 1, there is no assignment of locations to either treasure or trap to make all maps reasonable. If for example we say that location 1 and 2 both contain treasure, then map 4 will not be reasonable, while if we say that location 1 contains a trap and location 2 contains treasure, then map 3 will not be reasonable. The other cases are similar.

In Sample Input 2, if location 1 contains a trap and location 2 contains treasure, then all 3 maps will be reasonable.

Sample Input 1	Sample Output 1
<pre>4 2 1 2 2 -1 1 -2 -1 -2</pre>	NO
Sample Input 2	Sample Output 2
<pre>3 2 1 2 2 -1 -1 -2</pre>	YES