Bipartite Graph

A Bipartite Graph is a graph whose vertices can be divided into two independent sets, U and V such that every edge (u, v) either connects a vertex from U to V or a vertex from V to U. (There is no edge within U or within V). Write a program to check whether the given graph is bipartite or not.

Note: It is **not** guaranteed that the graph will be connected.

Input:
First Line of the input will contain ***T*** representing the number of test cases.
First line of each test case will contain two space separated integers ***V*** and ***E*** representing ***Number of Vertices*** and ***Number of Edges*** respectively.
Next ***E*** lines will contain space separate integers representing vertices which possess an undirected edge between them.

Output:
Output a single string "**YES**" or "**NO**" for each test case.

Constraints:
$1 \leq T \leq 100$
$2 \leq V \leq 10^5$
$0 \leq E \leq \min[10^6, (V*(V-1)/2)]$

Sample Input
2
9 8
1 2
2 3
4 5
3 4
5 6
6 7
7 8
8 9
4 6
1 2
1 3
1 4
2 3
3 4
2 4

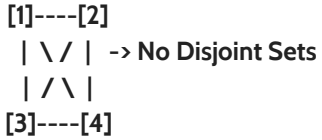
Sample Output
YES
NO

Explanation

On interpreting the input and constructing the graph we get:
#1:

[1]----[2]----[3]----[4]----[5]----[6]----[7]----[8]----[9] -> Disjoint Sets: {1,3,5,9}, {2,4,6,8}

#2:



Assumptions:

Vertices will be labeled starting from 1. Example if V=5, the set of vertices is {1,2,3,4,5}
It is a undirected graph.