

Two Coloring

A valid coloring of a graph is one that assigns a color to each vertex of a graph in such a way that no two vertices connected by an edge are assigned the same color. A graph is two colorable if and only if there exists a way to color all the vertices of it using at most two colors according to the definition given above.

The Problem

Given an undirected, unweighted graph, determine if the graph is 2-colorable.

Input Format

The first line contains a single integer n ($n \leq 20$), which is the number of graphs described in the input file. That is followed by n sets of data. Each set of data has a single positive integer, v ($v \leq 1000$), on the first line, representing the number of vertices in that graph. It will be assumed that the vertices are labeled 1, 2, 3, ..., v . On the i^{th} line that follows there will be a list of the vertices that are connected to the i^{th} vertex. This list will not contain any repeats, but may not be in numerical order. Also, the lists will always specify an undirected graph. Thus, if there is an edge from vertex 1 to vertex 4, there is guaranteed to be an edge from vertex 4 to vertex 1.

Output Format

For each test case output either "YES" or "NO" on a line by itself, corresponding to if the graph for the given test case is two-colorable.

Sample Input

```
3
4
2 3
1 4
1 4
2 3
3
2 3
1 3
1 2
5
2 5
1 3 4
2 5
2 5
1 3 4
```

Sample Output

```
YES
NO
YES
```