Detecting a Cycle

Time limit: 1 sec

Let us just say that we have an undirected simple graph and we want to detect if this graph has a cycle.

Input

There are several graph for us to be checked. The first line of input contains one integer **T** (1 ≤ **T** ≤ 100) which indicates the number of graphs. The remaining input describes these graphs. Each graph using the following format.

- The first line of input contains two integers **N** and **E** (1 ≤ **N** ≤ 1,000; 1 ≤ **E** ≤ 10,000) which are the number of vertices and edges in the graph. The vertices are numbered 0 to **N**-1
- The next **E** lines give edges, one edge per line. Each line contains two integers representing two vertices where there is an edge between these two vertices.

Output

For each graph, there must be one line of output, starting from the first graph until the last graph in the order of the input. The output of each graph must be “YES” if the graph contains cycle and “NO” otherwise.

Example

Input	Output
4 4 0 4 4 2 3 0 1 1 2 2 0 4 3 0 1 1 2 2 0 4 1 1 3	NO YES YES NO