Bipartite Graph

Bipartite Graph

2.0/2.0 points (graded)

Input file:	bipartite.in
Output file:	bipartite.out
Time limit:	2 seconds
Memory limit:	256 megabytes

An undirected graph $\langle V,E \rangle$ is called *bipartite*, if its vertices can be split into two sets L and R, such that $L \cap R = \emptyset$, $L \cup R = V$, and for every edge $(u,v) \in E$ it holds that either:

- $u \in L$ and $v \in R$, or
- $u \in R$ and $v \in L$.

You are given an undirected graph. Check whether it is bipartite.

Input
The first line of the input file contains two integers N and M ($1 \leq N \leq 100\,000, M \leq 200\,000$), the number of vertices and edges in the graph, correspondingly. The following M lines contain descriptions of edges of the graph. Each edge is described by a pair of integers – the indices of the source and target vertex, respectively.

All indices are one-based. The graph may contain loops and multiple edges between the same pair of vertices.

Output
Output “YES” if the graph is bipartite, “NO” otherwise.

Example

bipartite.in	bipartite.out
4 4	YES

1 2 1 3 2 4 4 2	
3 3 1 2 2 3 3 1	NO

Choose Files No file chosen

Accepted

Submit You have used 4 of 200 attempts

Discussion
Topic: 08: 4th Week Problems / Bipartite Graph

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