

ITMOx: I2CPx How to win coding competitions: secrets of champions

Help



How To?

Week 1

Week 2

Week 3

▼ Week 4

Algorithms on **Graphs**

4th Week **Problems**

due Dec 4, 2016 22:00 **CET**

4th Week

Problems: Training

Week 5

Week 4 > 4th Week Problems > Bipartite Graph

Bipartite Graph

☐ Bookmark this page

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 (V,E) 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.

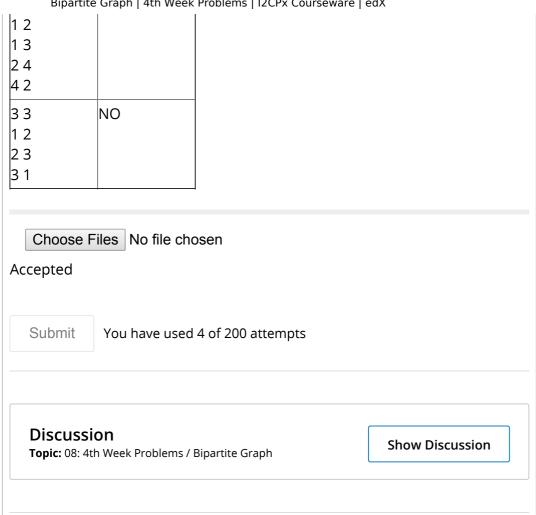
All indices are one-based. The graph may contain loops and multiple edges between the same pair of vertices.

Output

Output "YES" if the graph is bipartite, "NO" otherwise.

Example

bipartite.in	bipartite.out
4 4	YES



© All Rights Reserved



© 2016 edX Inc. All rights reserved except where noted. EdX, Open edX and the edX and Open EdX logos are registered trademarks or trademarks of edX Inc.

















