Maximum matching P59669_en

Given an undirected graph with n vertices, a matching is a subset of the edges with no common vertices. Write a program to tell if a given graph has a maximum matching, that is, a grouping of the vertices in $n/2$ pairs such that all vertices belong to some pair, and that both vertices of every pair are directly connected.

Input

Input consists of several cases. Each case begins with n and the number of edges m, followed by m pairs of vertices. Assume $2 \leq n \leq 20$, that n is even, that vertices are numbered from 1 to n, that there are no repeated edges nor edges connecting a vertex to itself, and that there is no isolated vertex.

Output

For every case, tell if the given graph has a maximum matching.

Observation

There are polynomial-time algorithms, more or less complicated, to solve this problem. Here, we settle for a simple backtracking.

Sample input 1

```
2 1
1 2

4 4
1 2
3 1
4 1
2 3

4 3
1 2
1 3
1 4

6 8
1 2
1 4
2 3
2 5
2 6
3 4
4 5
4 6
```

Sample output 1

```
yes
yes
no
no
```

Problem information

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