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Algorithmen und Wahrscheinlichkeit
Programming Exercises

Exercise 1 – *Christmas Tree*

You want to check whether the lights decorating a Christmas tree can be safely switched on. The lights consist of LEDs connected with short wires. The wires are bidirectional, so they connect the LEDs in both directions. The wiring is *safe* if there is no cycle of odd length.

Input The first line of the input contains the number $t \leq 30$ of test cases. Each of the t test cases is described as follows.

- It starts with a line containing two integers `n m`, separated by a space, denoting the number of LEDs ($1 \leq n \leq 10^3$) and the number of wires between them ($0 \leq m \leq 10^6$).
- The following m lines each contain two integers `u v`, separated by a space, denoting that there is a wire between LEDs u and v (where $0 \leq u < v \leq n-1$). You may assume that each wire is described only once in the input.

Output For each test case output one line containing '`yes`' if there does not exists a cycle of odd length in the wiring scheme, and '`no`' otherwise.

Points There are two groups of test sets, worth 100 points in total.

1. For the first group of test sets, worth 50 points, you may assume that the graph represented by the Christmas lights is connected.
2. For the second group of test sets, worth 50 points, there are no additional assumptions.

Sample Input

```
3
6 7
0 1
0 3
0 5
0 4
1 2
2 3
4 5
6 6
0 3
0 4
0 5
1 4
2 3
2 5
9 8
0 1
0 2
0 3
4 5
4 6
5 7
6 7
6 8
```

Sample Output

```
no
yes
yes
```