Graph Coloring

Time limit: 1 sec

Traditionally, when we draw a map, we color each region in the map to emphasize different regions. This is done such that no adjacent region has the same color. We can model this problem as an undirected graph where each region is a vertex and there is an edge connecting two vertices if the two corresponding regions are adjacent. The coloring is done on the vertices such that no two adjacent vertices has the same color.

Given a graph of N vertices (numbereed 0 to **N**-1), your task is to identify the minimal number of colors we need to do the coloring.

Input

- The first line of input contains two integers **N** ($1 \leq N \leq 50$) and **E** where **N** is the number of vertices and **E** is the number of edges.
- The next **E** lines give the edge, each line contains two integer **a** and **b** indicating that there is an undirectional edge connecting vertices **a** and **b**.

Output

The output contain exactly one line that gives the minimum number of color needed.

Example

Input	Output
4 6 0 1 0 2 0 3 1 2 1 3 2 3	4