Connected Components

Time Limit: 2 seconds

Problem Description

Given an undirected graph $G = \langle V, E \rangle$, determine how many connected components does G have. Note: two vertices u and v are in the same connected component if there exists a path from u to v.

Technical Specifications

1. The number of test cases is no more than 20.
2. There might be multiple edges between two vertices.
3. There might exist self-loops.
4. Basic: $2 \leq |V| \leq 100$.
5. Hard: $2 \leq |V| \leq 5000$, $0 \leq |E| \leq \min\{|V|^2, 20000\}$.

Input Format

The first line of the input file contains an integer indicating the number of test cases. The first line of each test case contains two integers n and m where n indicates $V = \{1, \ldots, n\}$ and $|E| = m$. The i-th of the following m lines contains two integers v, u indicating that the i-th edge is $\{v, u\}$. Note: the integers in the same line are separated by blanks.

Output Format

For each test case, output the number of connected components.

Sample Input

```
3
1 1
1 1
2 2
1 1
2 2
4 3
1 2
2 3
1 3
```

Sample Output

```
1
2
2
```