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## Strongly connected components — P90865_en

A directed graph $G = (V, A)$ consists of a set of vertices $V$ and a set of arcs $A$. An arc is an ordered pair $(u, v)$, where $u, v \in V$. A path from a vertex $v_{i_1}$ to a vertex $v_{i_k}$ is a sequence of arcs $(v_{i_1}, v_{1_2}), (v_{i_2}, v_{i_3}), \ldots, (v_{i_{k-1}}, v_{i_k})$. By definition, there is always a path from every vertex to itself.

Consider the following equivalence relation: two vertices $u$ and $v$ of $G$ are related if, and only if, there is a path from $u$ to $v$ and a path from $v$ to $u$. Every equivalence class resulting from this definition is called a strongly connected component of $G$.

Given a directed graph, calculate how many strongly connected components it has.

### Input

Input begins with the number of cases. Each case consists of the number of vertices $n$ and the number of arcs $m$, followed by $m$ pairs $(u, v)$. Vertices are numbered starting at 0. There are not repeated arcs, nor self-arcs $(v, v)$. Assume $1 \le n \le 10^4$.

### Output

For every graph, print its number of strongly connected components.

### Sample input 1

```
3

3 3
0 1  1 2  2 0

7 7
0 1  1 2  2 0  3 4  4 6  6 3  0 6

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

### Sample output 1

```
Graph #1 has 1 strongly connected component(s).
Graph #2 has 3 strongly connected component(s).
Graph #3 has 4 strongly connected component(s).
```

### Problem information

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