3350   Verifying Experimental Data

Professor Abscentmind collects n, $1 \leq n \leq 1000$, rocks during a field trip. His mission is to analyze the relations between the weights of the rocks. Unfortunately, the car carries Professor Abscentmind had an accident. In the accident, all of his scales were broken. The rocks are heavy and cannot be carried back. He can only hand design a balance that can only tell whether one rock is heavier than the other or not, and performs the experiments on the field. Professor Abscentmind can only put one rock on one end of the balance and one other rock on the other end of the balance. There is no way to put multiple ro cks or no rocks on one end of the balance.

Because the balance is hand made without fine tuning, it cannot tell whether two rocks are equal weight or not even if they are. Furthermore, when the weights of the two rocks are close, the balance may have a measurement error. That is, the balance may say rock 1 is heavier than rock 2 while actually rock 1 is lighter than rock 2. Professor Abscentmind marked the rocks from 1 to n and recorded the results of the balancing experiments. After he had used the balance m, $1 \leq m \leq 10000$, times, the balance broke down and could not be repaired.

We call each time the balance is used a *measurement*. A measurement can be recorded as an ordered pair $<i, j>$, where i and j are the indices of the two rocks being balanced, and the result is rock i is heavier than rock j. It is impossible to have a measurement $<i, i>$. Note that it is possible that two rocks are balanced more than once with same or different results. Each measurement counts no matter it is a duplicate or not.

After Professor Abscentmind returns to the laboratory, he wants to verify the correctness of his experimental data. He knows that if rock a_1 is heavier than rock a_2, and rock a_2 is heavier than rock a_3, then rock a_1 must be heavier than rock a_3. A measurement $<i, j>$ is *suspicious* if there exists a sequence of measurements $H = <j, b_1>, <b_1, b_2>, <b_2, b_3>, \ldots, <b_{k-1}, b_k>, <b_k, i>$ where $k > 0$. That is, the balance says i is heavier than j, but you can deduce the contradictory result of j is heavier than i by a sequence of measurements H or there is another measurement $H = <j, i>$.

Your task is to write a program to determine the number of suspicious measurements, counting all possible duplicates, giving a set of experimental records.

Input

The input file may contain more than one set of experimental records. The first two line of each experimental record contains n and m respectively. Then follows by m lines, each line has two numbers i and j separated by a blank indicating the measurement result $<i, j>$. The last set of experimental records is followed by a line containing '0', indicating the end of test file.

Output

For each set of experimental records, output the number of suspicious measurements.

Sample Input

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

```
1
1 2
0
```

Sample Output

```
3
0
```