Problem A. Road History

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

Bobo is studying the history of roads in ICPCCamp. In ICPCCamp, there are n cities with m bidirectional roads. The i-th road connects the a_i-th and b_i-th cities.

There were no roads initially. Eventually, roads were built in the order $1, 2, \ldots m$.

Bobo would like to know the number of pairs of cities which allow an *odd drive* after the i-th road was built. An *odd drive* between cities u and v is possible only if there exists $v_1, v_2, \ldots, v_{2k}$ for some positive integers k such that $v_1 = u, v_{2k} = v$ and there is a road connecting cities v_i and v_{i+1}. Passing by a city more than once is allowed.

Input

The first line contains 2 integers n, m ($1 \leq n, m \leq 10^5$).

The i-th of the following m lines contains 2 integers a_i, b_i ($1 \leq a_i, b_i \leq n$).

Output

m lines with integers $w_1, w_2, \ldots, w_m$ where w_i denotes the number of pairs allowing an odd drive after the i-th road was built.

Examples

standard input	standard output
3 3 1 2 2 3 3 1	1 2 3
4 3 1 2 3 4 2 3	1 2 4