Abhinav and Le Clubs

Assignment 4
DSA

Well if you think you are bored at home, just think about Abhinav, who by the way loves to party. There are a total of n clubs in the city and Abhinav knows all of them.
However due to recent outbreak of Corona virus, the government decided to build special roads for people who loves to party and are bored at home. There will be a total of m roads to be built and the government can only build one road at a time, so road number 1 will be built first, then road number 2 and so on. Also i_{th} road connects clubs a_i and b_i.
When it comes to going clubs, Abhinav only do club hopping (i.e making a series of short visits to a series of nightclubs). However, he always follow a path which he defines as club-enroute, where a club-enroute has following properties :-

- The path is closed, that is, it begins and ends in one and the same junction.
- The path contains at least one road.
- The path doesn't go on one road more than once, however it can visit any club any number of times.

Abhinav also defines some sets of clubs as club-hubs, where a club-hub is a non-empty set of roads that can be divided into one or more club-enroute so that exactly one club-enroute went along each road of the chosen set and each club-enroute should not contain any other road that is not present in that club-hub. Two club-hubs are different if they have different sets of roads and it need not be necessary for any club-hub to be connected.
After each road is built, Abhinav would like to know the number of ways of choosing a club-hub on the basis of already built roads.
Please help him in solving this...
Input:
The first line contains two integers n,m ($2 <= n <= 10^5$, $1 <= m <= 10^5$).
Then m lines follow the order in which roads were built, each described by pair of integers a_i and b_i - the id number of the club ($1 <= a_i, b_i <= n$, $a_i != b_i$).
Output:
Print m lines. The ith line should represent the number of ways to a club-hub can be formed after construction of ith road. Since the answer may be very large ouput answer modulo $10^9 + 7$
Time Limit: 1 sec
Memory Limit: 256 MB

Sample Test Case

Input	Output
4 6 1 2 3 4 1 3 2 4 3 4 2 1	0 0 0 1 3 7