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Bridge Game 1

Problem Submissions Leaderboard

You are given an undirected graph with n vertices and m edges. The graph does not contain multiple edges between two vertices.

Two friends X and Y are playing a game with this graph. A person can choose an edge randomly and remove it. He can only select the edges which generate two sets of non-empty connected components when deleted. If the number of vertices in the two sets of non-empty connected components created are even, then X wins, otherwise Y wins. If such an edge is not present in the graph, then the probability of winning can be **0** for both X and Y.

Your task is to find the probability of winning for X and Y. The probability is of the form where P and Q are both coprime (HCF(P,Q)=1). Print $PQ^-1 \mod (10^9 + 7)$.

Input Format

- The first line of the input contains two space-separated integers **n** and **m** denoting the number of vertices and edges.
- The next m lines contain two space-separated integers u and v denoting an edge between vertex u and vertex v.

Constraints

1 ≤ n, m ≤10^5

Output Format

Print two space-separated integers that denote the probability of winning for X and Y respectively.

Sample Input 0

- 6 7
- 1 2
- 2 3
- 3 I
- 5 6
- 6 4 1 4

Sample Output 0

0 1

f ⊌ ir

Contest ends in 8 hours

Submissions: 0 Max Score: 100 Difficulty: Medium

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