Bridge Game 1

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

$1 \leq n, m \leq 10^5$

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 1
4 5
5 6
6 4
1 4
```

Sample Output 0

```
0 1
```

More

Current Buffer (saved locally, editable)

Python 3

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Upload Code as File

Test against custom input

Run Code

Submit Code