“Have a safe flight!!.”

The "Moon High" airline service offers indirect routes between two countries, ensuring efficient travel by stopping in intermediary destinations before reaching the final destination. This approach optimizes travel times and provides passengers with flexibility while prioritizing comfort and convenience.

The planes only go in one direction until they reach their destination. But in between two countries, there can be two or more paths. Which are different from each other. Two paths are considered different if they do not use the same sequence of roads the same number of times.

There are m number of countries. Which are named from 1 to m by positive integers, 1 is the starting country and m is the destination country.

Your object is to find the number of possible paths from the starting country to the destination country.

Note: The plane can go from the same route unless the sequence of the path is the same.
Infinite paths can be there.
There can be two ways to go from one country to another.

Input format:

First line: Two space-separated integers which are the number of countries and the total number of airway paths.

Next lines: Two space-separated integers which are the paths. The first number indicates the starting country second one is the end country of each path.

Output format:

An integer, which is the number of paths, from the starting country to the destination country.

Print “INFINITE PATHS” if there are infinitely many paths.

Example input 1

5 5

1 2

2 4

2 3

3 4

4 5

Example output 1

2

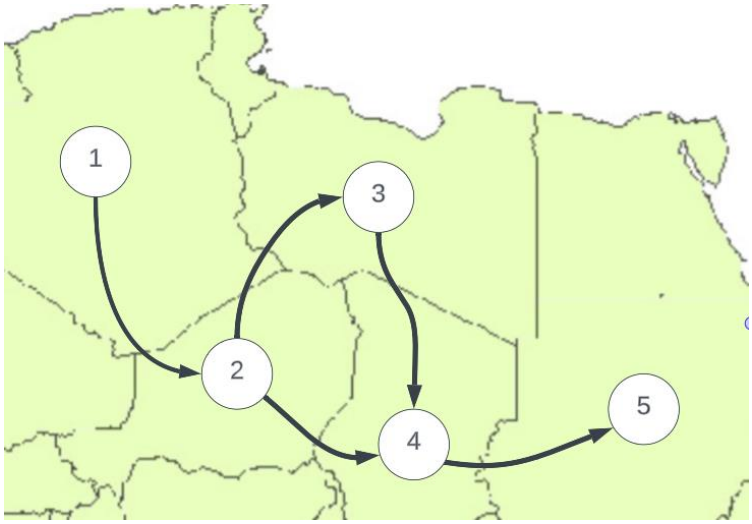
Explanation 1

There are five countries and five paths in between of them.

It can be represented as follows.

There are two possible paths from 1 to n=5,

1>2>4>5 and 1>2>3>4>5



Example input 2

4 4

1 2

2 3

3 1

2 4

Example output 2

INFINITE PATHS

Explanation 2

since there is a loop in the routes, there are infinitely many paths.

Details

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