Problem 2077: Paths in Maze That Lead to Same Room

Problem Information

Difficulty: Medium
Acceptance Rate: 56.24%
Paid Only: Yes
Tags: Graph

Problem Description

A maze consists of `n` rooms numbered from `1` to `n`, and some rooms are connected by corridors. You are given a 2D integer array `corridors` where `corridors[i] = [room1i, room2i]` indicates that there is a corridor connecting `room1i` and `room2i`, allowing a person in the maze to go from `room1i` to `room2i` **and vice versa**.

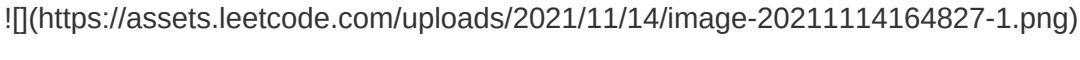
The designer of the maze wants to know how confusing the maze is. The **confusion** **score** of the maze is the number of different cycles of **length 3**.

* For example, `1 -> 2 -> 3 -> 1` is a cycle of length 3, but `1 -> 2 -> 3 -> 4` and `1 -> 2 -> 3 -> 2 -> 1` are not.

Two cycles are considered to be **different** if one or more of the rooms visited in the first cycle is **not** in the second cycle.

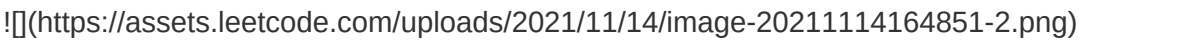
Return _the_ _**confusion****score** of the maze._

Example 1:



Input: n = 5, corridors = [[1,2],[5,2],[4,1],[2,4],[3,1],[3,4]] **Output:** 2 **Explanation:** One cycle of length 3 is 4 -> 1 -> 3 -> 4, denoted in red. Note that this is the same cycle as 3 -> 4 -> 1 -> 3 or 1 -> 3 -> 4 -> 1 because the rooms are the same. Another cycle of length 3 is 1 -> 2 -> 4 -> 1, denoted in blue. Thus, there are two different cycles of length 3.

Example 2:



Input: n = 4, corridors = [[1,2],[3,4]] **Output:** 0 **Explanation:** There are no cycles of length 3.

Constraints:

* `2 <= n <= 1000` * `1 <= corridors.length <= 5 * 104` * `corridors[i].length == 2` * `1 <= room1i, room2i <= n` * `room1i != room2i` * There are no duplicate corridors.

Code Snippets

C++:

```
class Solution {
public:
int numberOfPaths(int n, vector<vector<int>>& corridors) {

}
};
```

Java:

```
class Solution {
public int numberOfPaths(int n, int[][] corridors) {

}
}
```

Python3:

```
class Solution:
def numberOfPaths(self, n: int, corridors: List[List[int]]) -> int:
```