8593 - LAB 10

Instructions

1. Access the auto-grader at https://c200.luddy.indiana.edu
2. Please write the code for the problems in python language
3. The code should be readable with variables named meaningfully
4. Plagiarism is unacceptable and we have ways to find it, so do not do it
5. Don't change the function signature (name of the function and number and types of arguments) provided in this file.
6. Once you pass all the tests on the auto grader, show your work to the teaching assistant

Problem

Question

There are n cities. Some of them are connected, while some are not. If city a is connected directly with city b, and city b is connected directly with city c, then city a is connected indirectly with city c.

A province is a group of directly or indirectly connected cities and no other cities outside of the group.

You are given an n x n matrix isConnected where isConnected[i][j] = 1 if the ith city and the jth city are directly connected, and isConnected[i][j] = 0 otherwise.

Test cases

1. ```
   Input: isConnected = [[1,1,0],[1,1,0],[0,0,1]]
   Output: 2
   Explanation: Cities 0 and 1 are connected with each other, making one province.
   City 2 is not connected to any other, so city 2 is its own province.
   Thus we have 2 provinces.
   ```

2. ```
   Input: isConnected = [[1,0,0],[0,1,0],[0,0,1]]
   Output: 3
   Explanation: There is no connection between any cities, thus the number of
   provinces = 3
   ```

Function signature

```
def province(isConnected):
    ***your logic***
    return number
```