Number of Provinces

Try to solve the Number of Provinces problem.

We'll cover the following

Statement

Let's say we have n number of cities, and some of them are connected, while some are not. If a city A is connected directly with city B, and city B is connected directly with city C, then we can say that city A is connected indirectly with city C.

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

An $(n \times n)$ matrix, `isCityConnected`, is given, where `isCityConnected[i][j] = 1` indicates that the i^{th} and the j^{th} cities are directly connected. Otherwise, the value is `isCityConnected[i][j] = 0`.

Use this information to return the total number of provinces.

Constraints:

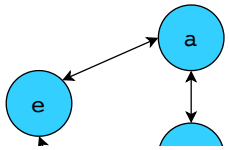
- $1 \leq n \leq 200$
- $n ==$ `isCityConnected.length`
- $n ==$ `isCityConnected[i].length`, where $0 \leq i \leq n$
- `isCityConnected[i][j]` is 1 or 0.
- `isCityConnected[i][i]` $== 1$
- `isCityConnected[i][j]` $==$ `isCityConnected[j][i]`

Examples

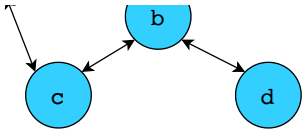
Sample example 1

In this example, the number of the province is **1**, because all cities are somehow (directly or indirectly) connected with each other. The matrix represents the connections while the graph demonstrates how they are connected visually.

1	1	0	0	1
1	1	1	1	0
0	1	1	1	1



0	1	1	1	0
1	0	1	0	1



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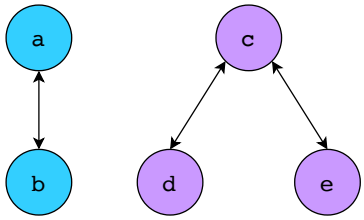
Sample example 2

In this example, the number of the provinces is **2**. One province is formed from the cities **a** and **b**, while the second province is constructed from cities **c**, **d,** and **e**. The matrix represents the connections while the graph demonstrates how they are connected visually.

1	1	0	0	0
1	1	0	0	0
0	0	1	1	1
0	0	1	1	1
0	0	1	1	1



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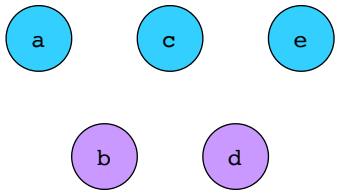
Sample example 3

In this example, none of the cities are interconnected. The matrix represents the connections of cities while the graph represents how they are connected or not connected visually.

1	0	0	0	0
0	1	0	0	0
0	0	1	0	0
0	0	0	1	0
0	0	0	0	1



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Understand the problem

Let’s take a moment to make sure you’ve correctly understood the problem. The quiz below helps you check if you’re solving the correct problem:

Number of Provinces

1 What is the output if the following matrix is given as input?

$$\begin{bmatrix} 1 & 1 & 0 \\ 1 & 1 & 1 \\ 0 & 1 & 1 \end{bmatrix}$$

A) 1

B) 2

C) None of the above

Submit Answer

Question 1 of 2
0 attempted

Reset Quiz

Implement your solution in the following coding playground:

Java

usercode > NumberOfProvinces.java

```
1  import java.util.*;
2  class NumberOfProvinces {
3      public static int findConnectedCities(int[][] isCityConnected) {
4          // Write your code here
5          return -1;
6      }
7
8  }
```

Powered by AI

Submit

Test Cases | Results

Case 1 | Case 2 | Case 3

Input #1

[[1,1,0],[1,1,0],[0,0,1]]

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