Problem 2685: Count the Number of Complete Components

Problem Information

Difficulty: Medium
Acceptance Rate: 0.00%
Paid Only: No

Problem Description

You are given an integer

n

. There is an

undirected

graph with

n

vertices, numbered from

0

to

n - 1

. You are given a 2D integer array

edges

where

edges[i] = [a

i

, b

i

]

denotes that there exists an

undirected

edge connecting vertices

a

i

and

b

i

.

Return

the number of

complete connected components

of the graph

.

A

connected component

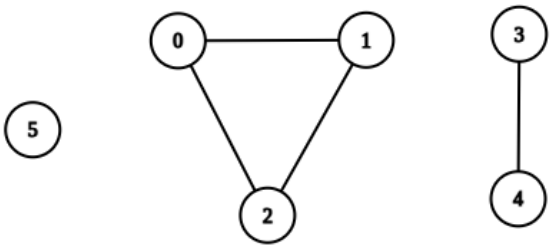
is a subgraph of a graph in which there exists a path between any two vertices, and no vertex of the subgraph shares an edge with a vertex outside of the subgraph.

A connected component is said to be

complete

if there exists an edge between every pair of its vertices.

Example 1:



Input:

n = 6, edges = [[0,1],[0,2],[1,2],[3,4]]

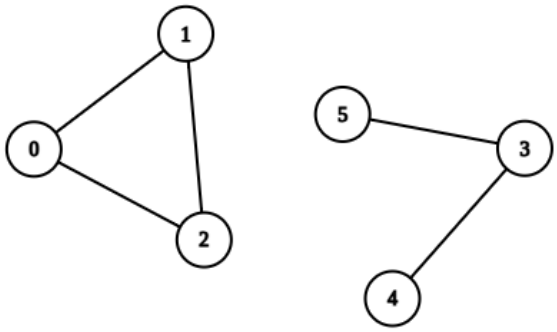
Output:

3

Explanation:

From the picture above, one can see that all of the components of this graph are complete.

Example 2:



Input:

n = 6, edges = [[0,1],[0,2],[1,2],[3,4],[3,5]]

Output:

1

Explanation:

The component containing vertices 0, 1, and 2 is complete since there is an edge between every pair of two vertices. On the other hand, the component containing vertices 3, 4, and 5 is not complete since there is no edge between vertices 4 and 5. Thus, the number of complete components in this graph is 1.

Constraints:

1 <= n <= 50

0 <= edges.length <= n * (n - 1) / 2

edges[i].length == 2

0 <= a

i

, b

i

<= n - 1

a

i

!= b

i

There are no repeated edges.

Code Snippets

C++:

```
class Solution {
public:
int countCompleteComponents(int n, vector<vector<int>>& edges) {

}
};
```

Java:

```
class Solution {
public int countCompleteComponents(int n, int[][] edges) {

}
}
```

Python3:

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

Python:

```
class Solution(object):
def countCompleteComponents(self, n, edges):
```

```
"""
:type n: int
:type edges: List[List[int]]
:rtype: int
"""
```

JavaScript:

```
/**
* @param {number} n
* @param {number[][]} edges
* @return {number}
*/
var countCompleteComponents = function(n, edges) {

};
```

TypeScript:

```
function countCompleteComponents(n: number, edges: number[][]): number {

};
```

C#:

```
public class Solution {
public int CountCompleteComponents(int n, int[][] edges) {

}
}
```

C:

```
int countCompleteComponents(int n, int** edges, int edgesSize, int*
edgesColSize) {

}
```

Go:

```
func countCompleteComponents(n int, edges [][]int) int {
```

```
}
```

Kotlin:

```
class Solution {
fun countCompleteComponents(n: Int, edges: Array<IntArray>): Int {

}
}
```

Swift:

```
class Solution {
func countCompleteComponents(_ n: Int, _ edges: [[Int]]) -> Int {

}
}
```

Rust:

```
impl Solution {
pub fn count_complete_components(n: i32, edges: Vec<Vec<i32>>) -> i32 {

}
}
```

Ruby:

```
# @param {Integer} n
# @param {Integer[][]} edges
# @return {Integer}
def count_complete_components(n, edges)

end
```

PHP:

```
class Solution {

/**
* @param Integer $n
* @param Integer[][] $edges
```

```
* @return Integer
*/
function countCompleteComponents($n, $edges) {

}
}
```

Dart:

```
class Solution {
int countCompleteComponents(int n, List<List<int>> edges) {

}
}
```

Scala:

```
object Solution {
def countCompleteComponents(n: Int, edges: Array[Array[Int]]): Int = {

}
}
```

Elixir:

```
defmodule Solution do
@spec count_complete_components(n :: integer, edges :: [[integer]]) ::
integer
def count_complete_components(n, edges) do

end
end
```

Erlang:

```
-spec count_complete_components(N :: integer(), Edges :: [[integer()]]) ->
integer().
count_complete_components(N, Edges) ->
.
```

Racket:

```
(define/contract (count-complete-components n edges)
(-> exact-integer? (listof (listof exact-integer?)) exact-integer?)
)
```

Solutions

C++ Solution:

```
/*
* Problem: Count the Number of Complete Components
* Difficulty: Medium
* Tags: array, graph, search
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(1) to O(n) depending on approach
*/

class Solution {
public:
int countCompleteComponents(int n, vector<vector<int>>& edges) {

}
};
```

Java Solution:

```
/**
* Problem: Count the Number of Complete Components
* Difficulty: Medium
* Tags: array, graph, search
*
* Approach: Use two pointers or sliding window technique
* Time Complexity: O(n) or O(n log n)
* Space Complexity: O(1) to O(n) depending on approach
*/

class Solution {
public int countCompleteComponents(int n, int[][] edges) {

}
```

```
}
```

Python3 Solution:

```
"""
Problem: Count the Number of Complete Components
Difficulty: Medium
Tags: array, graph, search

Approach: Use two pointers or sliding window technique
Time Complexity: O(n) or O(n log n)
Space Complexity: O(1) to O(n) depending on approach
"""

class Solution:
def countCompleteComponents(self, n: int, edges: List[List[int]]) -> int:
# TODO: Implement optimized solution
pass
```

Python Solution:

```
class Solution(object):
def countCompleteComponents(self, n, edges):
"""
:type n: int
:type edges: List[List[int]]
:rtype: int
"""
```

JavaScript Solution:

```
/**
* Problem: Count the Number of Complete Components
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*/
```

```
/**
* @param {number} n
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* @return {number}
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var countCompleteComponents = function(n, edges) {

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TypeScript Solution:

```
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*/

function countCompleteComponents(n: number, edges: number[][]): number {

};
```

C# Solution:

```
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*/

public class Solution {
public int CountCompleteComponents(int n, int[][] edges) {

}
```

```
}
```

C Solution:

```
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* Problem: Count the Number of Complete Components
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* Tags: array, graph, search
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int countCompleteComponents(int n, int** edges, int edgesSize, int*
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}
```

Go Solution:

```
// Problem: Count the Number of Complete Components
// Difficulty: Medium
// Tags: array, graph, search
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// Approach: Use two pointers or sliding window technique
// Time Complexity: O(n) or O(n log n)
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func countCompleteComponents(n int, edges [][]int) int {

}
```

Kotlin Solution:

```
class Solution {
fun countCompleteComponents(n: Int, edges: Array<IntArray>): Int {

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impl Solution {
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# @param {Integer} n
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# @return {Integer}
def count_complete_components(n, edges)

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PHP Solution:

```
class Solution {

/**
* @param Integer $n
* @param Integer[][] $edges
* @return Integer
*/
```

```
function countCompleteComponents($n, $edges) {

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