Problem 3203: Find Minimum Diameter After Merging Two Trees

Problem Information

Difficulty: Hard
Acceptance Rate: 57.17%
Paid Only: No
Tags: Tree, Depth-First Search, Breadth-First Search, Graph

Problem Description

There exist two **undirected** trees with `n` and `m` nodes, numbered from `0` to `n - 1` and from `0` to `m - 1`, respectively. You are given two 2D integer arrays `edges1` and `edges2` of lengths `n - 1` and `m - 1`, respectively, where `edges1[i] = [ai, bi]` indicates that there is an edge between nodes `ai` and `bi` in the first tree and `edges2[i] = [ui, vi]` indicates that there is an edge between nodes `ui` and `vi` in the second tree.

You must connect one node from the first tree with another node from the second tree with an edge.

Return the **minimum** possible **diameter** of the resulting tree.

The **diameter** of a tree is the length of the _longest_ path between any two nodes in the tree.

Example 1:

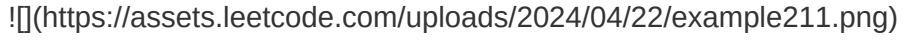
Input: edges1 = [[0,1],[0,2],[0,3]], edges2 = [[0,1]]

Output: 3

Explanation:

We can obtain a tree of diameter 3 by connecting node 0 from the first tree with any node from the second tree.

Example 2:



Input: edges1 = [[0,1],[0,2],[0,3],[2,4],[2,5],[3,6],[2,7]], edges2 = [[0,1],[0,2],[0,3],[2,4],[2,5],[3,6],[2,7]]

Output: 5

Explanation:

We can obtain a tree of diameter 5 by connecting node 0 from the first tree with node 0 from the second tree.

Constraints:

* `1 <= n, m <= 105` * `edges1.length == n - 1` * `edges2.length == m - 1` * `edges1[i].length == edges2[i].length == 2` * `edges1[i] = [ai, bi]` * `0 <= ai, bi < n` * `edges2[i] = [ui, vi]` * `0 <= ui, vi < m` * The input is generated such that `edges1` and `edges2` represent valid trees.

Code Snippets

C++:

```
class Solution {
public:
int minimumDiameterAfterMerge(vector<vector<int>>& edges1,
vector<vector<int>>& edges2) {

}
};
```

Java:

```
class Solution {
public int minimumDiameterAfterMerge(int[][] edges1, int[][] edges2) {

}
}
```

Python3:

```
class Solution:
def minimumDiameterAfterMerge(self, edges1: List[List[int]], edges2:
List[List[int]]) -> int:
```