

1719. Number Of Ways To Reconstruct A Tree

Description

You are given an array `pairs`, where `pairs[i] = [xi, yi]`, and:

- There are no duplicates.
- $x_i < y_i$

Let `ways` be the number of rooted trees that satisfy the following conditions:

- The tree consists of nodes whose values appeared in `pairs`.
- A pair `[xi, yi]` exists in `pairs` **if and only if** `xi` is an ancestor of `yi` or `yi` is an ancestor of `xi`.
- Note:** the tree does not have to be a binary tree.

Two ways are considered to be different if there is at least one node that has different parents in both ways.

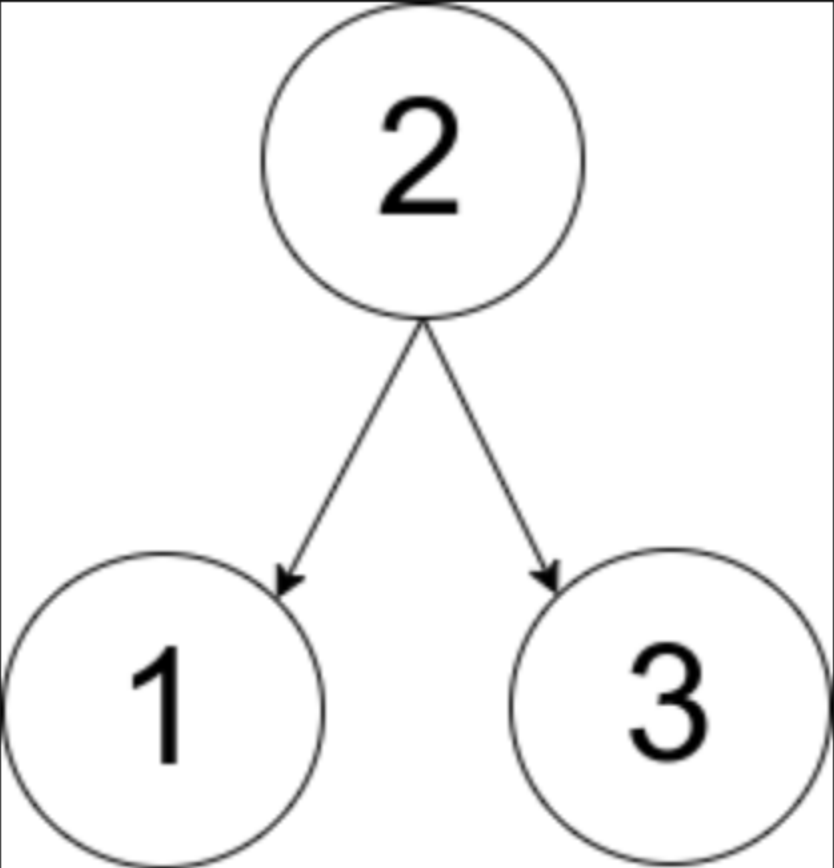
Return:

- 0 if `ways == 0`
- 1 if `ways == 1`
- 2 if `ways > 1`

A **rooted tree** is a tree that has a single root node, and all edges are oriented to be outgoing from the root.

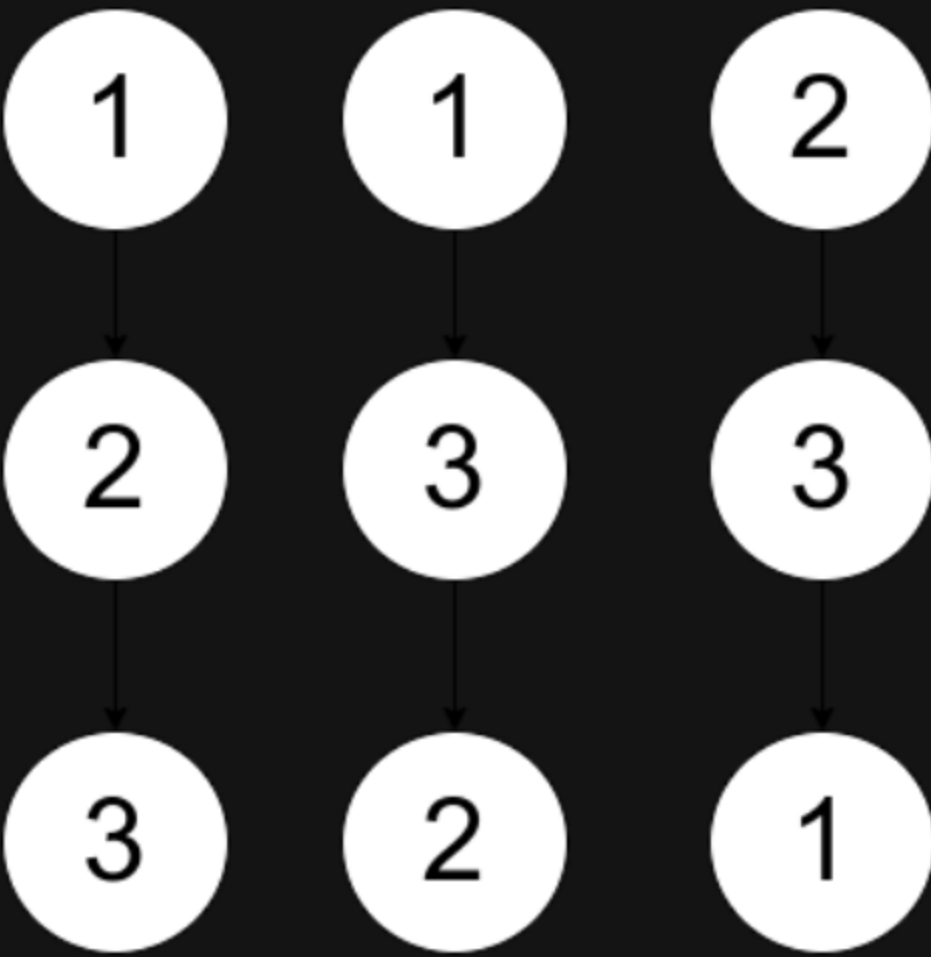
An **ancestor** of a node is any node on the path from the root to that node (excluding the node itself). The root has no ancestors.

Example 1:



Input: `pairs = [[1,2],[2,3]]`
Output: 1
Explanation: There is exactly one valid rooted tree, which is shown in the above figure.

Example 2:



Input: `pairs = [[1,2],[2,3],[1,3]]`
Output: 2
Explanation: There are multiple valid rooted trees. Three of them are shown in the above figures.

Example 3:

Input: `pairs = [[1,2],[2,3],[2,4],[1,5]]`
Output: 0
Explanation: There are no valid rooted trees.

Constraints:

- $1 \leq \text{pairs.length} \leq 10^5$
- $1 \leq x_i < y_i \leq 500$
- The elements in `pairs` are unique.

