

# Problem 2368: Reachable Nodes With Restrictions

## Problem Information

**Difficulty:** Medium

**Acceptance Rate:** 59.95%

**Paid Only:** No

**Tags:** Array, Hash Table, Tree, Depth-First Search, Breadth-First Search, Union Find, Graph

## Problem Description

There is an undirected tree with `n` nodes labeled from `0` to `n - 1` and `n - 1` edges.

You are given a 2D integer array `edges` of length `n - 1` where `edges[i] = [ai, bi]` indicates that there is an edge between nodes `ai` and `bi` in the tree. You are also given an integer array `restricted` which represents \*\*restricted\*\* nodes.

Return \_the\*\*maximum\*\* number of nodes you can reach from node `0` \_without visiting a restricted node.\_

Note that node `0` will \*\*not\*\* be a restricted node.

**Example 1:**



**Input:** n = 7, edges = [[0,1],[1,2],[3,1],[4,0],[0,5],[5,6]], restricted = [4,5] **Output:** 4

**Explanation:** The diagram above shows the tree. We have that [0,1,2,3] are the only nodes that can be reached from node 0 without visiting a restricted node.

**Example 2:**



**\*\*Input:\*\*** n = 7, edges = [[0,1],[0,2],[0,5],[0,4],[3,2],[6,5]], restricted = [4,2,1] **\*\*Output:\*\*** 3  
**\*\*Explanation:\*\*** The diagram above shows the tree. We have that [0,5,6] are the only nodes that can be reached from node 0 without visiting a restricted node.

**\*\*Constraints:\*\***

\* `2 <= n <= 105` \* `edges.length == n - 1` \* `edges[i].length == 2` \* `0 <= ai, bi < n` \* `ai != bi`  
\* `edges` represents a valid tree. \* `1 <= restricted.length < n` \* `1 <= restricted[i] < n` \* All the values of `restricted` are \*\*unique\*\*.

## Code Snippets

### C++:

```
class Solution {
public:
    int reachableNodes(int n, vector<vector<int>>& edges, vector<int>&
restricted) {
    }
};
```

### Java:

```
class Solution {
    public int reachableNodes(int n, int[][] edges, int[] restricted) {
    }
}
```

### Python3:

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