Problem 3310: Remove Methods From Project

Problem Information

Difficulty: Medium
Acceptance Rate: 50.03%
Paid Only: No
Tags: Depth-First Search, Breadth-First Search, Graph

Problem Description

You are maintaining a project that has `n` methods numbered from `0` to `n - 1`.

You are given two integers `n` and `k`, and a 2D integer array `invocations`, where `invocations[i] = [ai, bi]` indicates that method `ai` invokes method `bi`.

There is a known bug in method `k`. Method `k`, along with any method invoked by it, either **directly** or **indirectly** , are considered **suspicious** and we aim to remove them.

A group of methods can only be removed if no method **outside** the group invokes any methods **within** it.

Return an array containing all the remaining methods after removing all the **suspicious** methods. You may return the answer in _any order_. If it is not possible to remove **all** the suspicious methods, **none** should be removed.

Example 1:

Input: n = 4, k = 1, invocations = [[1,2],[0,1],[3,2]]

Output: [0,1,2,3]

Explanation:

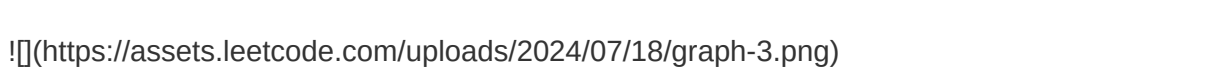
Method 2 and method 1 are suspicious, but they are directly invoked by methods 3 and 0, which are not suspicious. We return all elements without removing anything.

Example 2:

Input: n = 5, k = 0, invocations = [[1,2],[0,2],[0,1],[3,4]]

Output: [3,4]

Explanation:



Methods 0, 1, and 2 are suspicious and they are not directly invoked by any other method. We can remove them.

Example 3:

Input: n = 3, k = 2, invocations = [[1,2],[0,1],[2,0]]

Output: []

Explanation:

All methods are suspicious. We can remove them.

Constraints:

* `1 <= n <= 105` * `0 <= k <= n - 1` * `0 <= invocations.length <= 2 * 105` * `invocations[i] == [ai, bi]` * `0 <= ai, bi <= n - 1` * `ai != bi` * `invocations[i] != invocations[j]`

Code Snippets

C++:

```
class Solution {
public:
vector<int> remainingMethods(int n, int k, vector<vector<int>>& invocations)
{

}
};
```

Java:

```
class Solution {
public List<Integer> remainingMethods(int n, int k, int[][] invocations) {

}
}
```

Python3:

```
class Solution:
def remainingMethods(self, n: int, k: int, invocations: List[List[int]]) ->
List[int]:
```