1059. All Paths from Source Lead to Destination

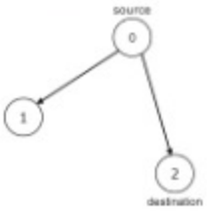
Medium 115 23 Add to List Share

Given the `edges` of a directed graph, and two nodes `source` and `destination` of this graph, determine whether or not all paths starting from `source` eventually end at `destination`, that is:

- At least one path exists from the `source` node to the `destination` node
- If a path exists from the `source` node to a node with no outgoing edges, then that node is equal to `destination`.
- The number of possible paths from `source` to `destination` is a finite number.

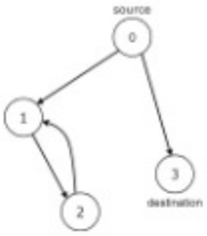
Return `true` if and only if all roads from `source` lead to `destination`.

Example 1:



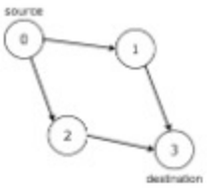

```
Input: n = 3, edges = [[0,1],[0,2]], source = 0, destination = 2
Output: false
Explanation: It is possible to reach and get stuck on both node 1 and node
2.
```

Example 2:



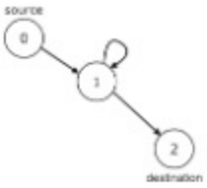

```
Input: n = 4, edges = [[0,1],[0,3],[1,2],[2,1]], source = 0, destination = 3
Output: false
Explanation: We have two possibilities: to end at node 3, or to loop over
node 1 and node 2 indefinitely.
```

Example 3:



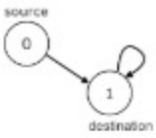

```
Input: n = 4, edges = [[0,1],[0,2],[1,3],[2,3]], source = 0, destination = 3
Output: true
```

Example 4:




```
Input: n = 3, edges = [[0,1],[1,1],[1,2]], source = 0, destination = 2
Output: false
Explanation: All paths from the source node end at the destination node, but
there are an infinite number of paths, such as 0-1-2, 0-1-1-2, 0-1-1-1-2, 0-
1-1-1-1-2, and so on.
```

Example 5:




```
Input: n = 2, edges = [[0,1],[1,1]], source = 0, destination = 1
Output: false
Explanation: There is infinite self-loop at destination node.
```

Note:

1. The given graph may have self loops and parallel edges.
2. The number of nodes `n` in the graph is between `1` and `10000`
3. The number of edges in the graph is between `0` and `10000`
4. `0 <= edges.length <= 10000`
5. `edges[i].length == 2`
6. `0 <= source <= n - 1`
7. `0 <= destination <= n - 1`

```python
class Solution(object):
    def leadsToDestination(self, n, edges, source, destination):
        """
        :type n: int
        :type edges: List[List[int]]
        :type source: int
        :type destination: int
        :rtype: bool
        """

```