133. Clone Graph

Given a reference of a node in a connected undirected graph.

Return a deep copy (clone) of the graph.

Each node in the graph contains a value (`int`) and a list (`List[Node]`) of its neighbors.

```
class Node {
    public int val;
    public List<Node> neighbors;
}
```

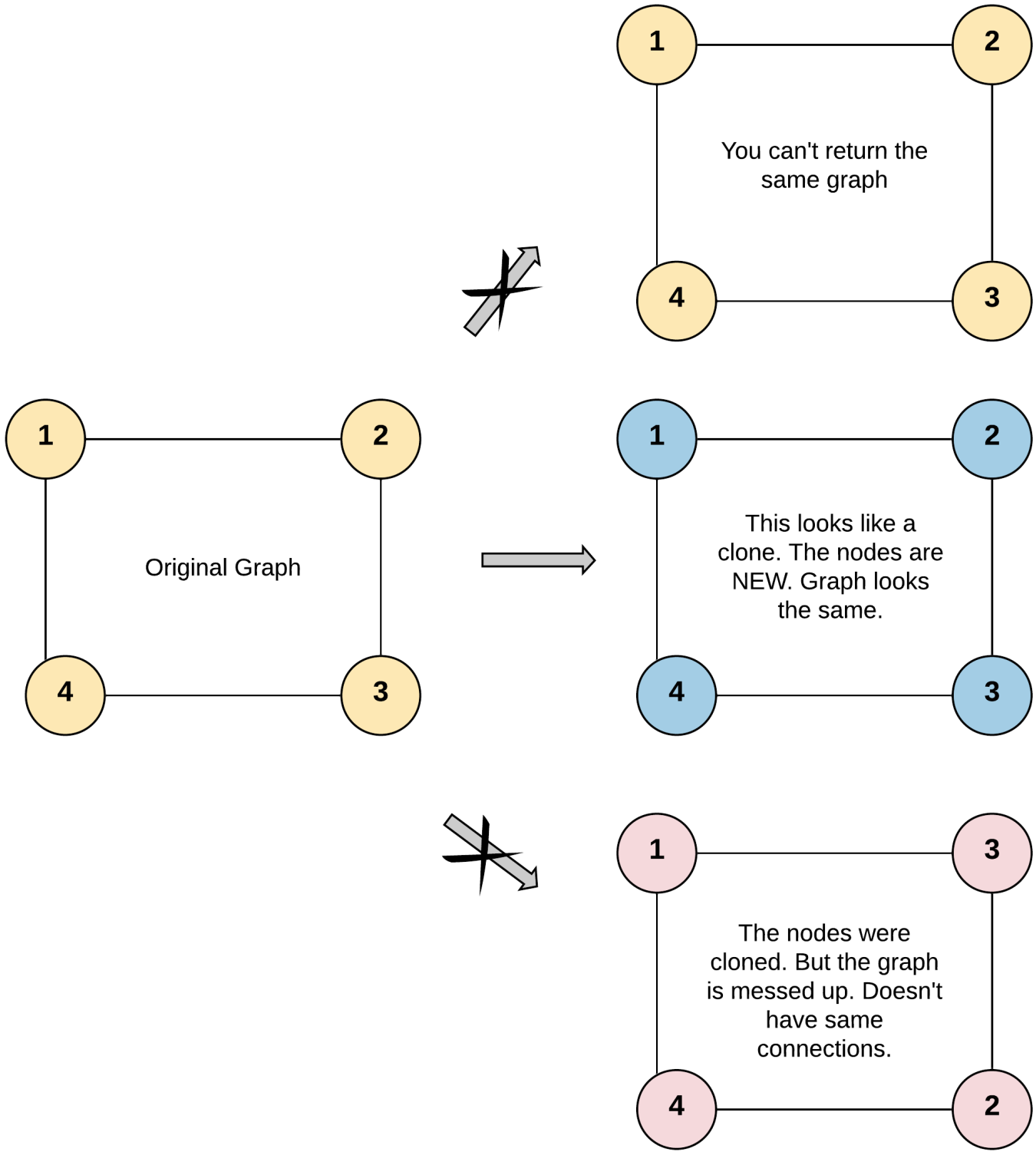
Test case format:

For simplicity, each node's value is the same as the node's index (1-indexed). For example, the first node with `val == 1`, the second node with `val == 2`, and so on. The graph is represented in the test case using an adjacency list.

An adjacency list is a collection of unordered lists used to represent a finite graph. Each list describes the set of neighbors of a node in the graph.

The given node will always be the first node with `val = 1`. You must return the copy of the given node as a reference to the cloned graph.

Example 1:




```
Input: adjList = [[2,4],[1,3],[2,4],[1,3]]
Output: [[2,4],[1,3],[2,4],[1,3]]
Explanation: There are 4 nodes in the graph.
1st node (val = 1)'s neighbors are 2nd node (val = 2) and 4th node (val = 4).
2nd node (val = 2)'s neighbors are 1st node (val = 1) and 3rd node (val = 3).
3rd node (val = 3)'s neighbors are 2nd node (val = 2) and 4th node (val = 4).
```

```
4th node (val = 4)'s neighbors are 1st node (val = 1) and 3rd node (val =
3).
```

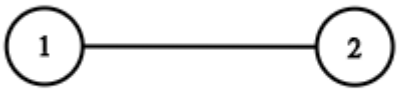
Example 2:


```
Input: adjList = [[]]
Output: [[]]
Explanation: Note that the input contains one empty list. The graph
consists of only one node with val = 1 and it does not have any neighbors.
```

Example 3:

```
Input: adjList = []
Output: []
Explanation: This an empty graph, it does not have any nodes.
```

Example 4:




```
Input: adjList = [[2],[1]]
Output: [[2],[1]]
```

```
from collections import defaultdict
class Solution:
    def cloneGraph(self, node: 'Node') -> 'Node':
        if node is None:
            return None
        seen = set()
        queue = []
        graph = {node:Node(node.val)}
```

```
        queue.append(node)
        while len(queue)>0:
            temp = queue.pop(0)
            for nbr in temp.neighbors:
                if nbr not in graph:
                    graph[nbr]=Node(nbr.val)
                    queue.append(nbr)
                graph[temp].neighbors.append(graph[nbr])
        return graph[node]
```