

133. Clone Graph

Medium

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;
}
```

```
class Node:
    def __init__(self, val = 0, neighbors = None):
        self.val = val
        self.neighbors = neighbors if neighbors is not None else []
```

```
class Solution:
    def cloneGraph(self, node: Optional['Node']) -> Optional['Node']:
        hashmap = {}

        def dfs(node):
            if node in hashmap:
                return hashmap[node]

            copy = Node(node.val)
            hashmap[node] = copy

            for next_node in node.neighbors:
                copy.neighbors.append(dfs(next_node))
            return copy

        return dfs(node) if node else None
```

hashmap is a 1:1 match between the original node and copy

hashmap = {
node: copy
}

node:
node.val
node.neighbors = [node1, node2,...]

copy.neighbors.append(dfs(next_node))