Problem 6: Serialize and deserialize Binary Tree

```
class TreeNode:

    def __init__(self, value):

        self.val = value

        self.left = None

        self.right = None


def serialize(root):

    if not root:

        return 'None'


    left_serialized = serialize(root.left)

    right_serialized = serialize(root.right)


    return str(root.val) + ',' + left_serialized + ',' + right_serialized


def deserialize(data):

    def helper(nodes):

        if nodes[0] == 'None':

            nodes.pop(0)

            return None


        root = TreeNode(int(nodes[0]))
```

```python
        nodes.pop(0)
        root.left = helper(nodes)
        root.right = helper(nodes)

        return root

    nodes = data.split(',')
    return helper(nodes)


root = TreeNode(1)
root.left = TreeNode(2)
root.right = TreeNode(3)
root.right.left = TreeNode(4)
root.right.right = TreeNode(5)

serialized_tree = serialize(root)
print('Serialized tree:', serialized_tree)

deserialized_tree = deserialize(serialized_tree)
print('Deserialized tree:', deserialized_tree)
```

```
Serialized tree: 1,2,None,None,3,4,None,None,5,None,None
Deserialized tree: <__main__.TreeNode object at 0x7fa4a9a43d
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...Program finished with exit code 0
Press ENTER to exit console.
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