Question 1:

Find a tree is Majestic or not

Given input list is the level-wise elements of a binary tree.Traverse the tree in such a way that always root is visited first.Obtain the traversal of the tree in the mentioned way.Now store this traversal in a list and check whether it is possible to bring it in lexicographical order by making a single right rotation of the list.if it is possible print "Majestic" else print "Not Majestic".

Input Description :

First line consists of an integer (n) representing the number of elements.

Second line consists of a list of elements of a binary tree in level-wise order.

Output Description :

Print the obtained traversal in the list format of the first line.

In Second line print the right rotated list.

In Third line print whether the tree is Majestic or not.

Solution:-

```
class Node:
    def __init__(self,data):
        self.data=data
        self.left=None
        self.right=None
class BinaryTree:
    def __init__(self):
        self.root=None
def createBinaryTree(lst,n,node,i):
    if i<n:
        if lst[i]==-1:
            return node
        temp=Node(lst[i])
        node=temp
        node.left=createBinaryTree(lst,n,node.left,(2*i)+1)
        node.right=createBinaryTree(lst,n,node.left,(2*i)+2)
    return node
def preorder(root,preorder_list):
```

```
    if root:
        preorder_list.append(root.data)
        preorder(root.left,preorder_list)
        preorder(root.right,preorder_list)
    return preorder_list
def findMajestic(preorder):
    preorder.insert(0,preorder.pop(-1))
    print(preorder)
    if sorted(preorder)== preorder:
        return("Majestic Tree")
    else:
        return("Not a Majestic Tree")
n=int(input())
lst=[int(x) for x in input().split()]
tree=BinaryTree()
tree.root=createBinaryTree(lst,n,tree.root,0)
preorder_list=[]
preorder_list=preorder(tree.root,preorder_list)
print(preorder_list)
print(findMajestic(preorder_list))
```

Testcase 1:

input:

5
2 3 1 4 5

output:

[2,3,4,5,1]
[1,2,3,4,5]
Majestic

Testcase2:

input:

6
1 2 3 4 5 6
output:

[1,2,4,5,3,6]
[6,1,2,4,5,3]
Not a Majestic Tree

Testcase-3 :

input:

4
2 3 1 4
output:

[2,3,4,1]
[1,2,3,4]
Majestic

Testcase 4:

input:

7
7 6 5 4 3 2 1
output:

[7,6,4,3,5,2,1]
[1,7,6,4,3,5,2]
Not a Majestic

Testcase 5:

input:
3
2 3 1
output:

[2,3,1]

[1,2,3]
Majestic