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1  /*Author: Bochen (mddboc@foxmail.com)
2  Last Modified: Tue Apr 10 22:28:44 CST 2018*/
3
4  /* Design a stack that supports push, pop, top, and retrieving the minimum element
   in constant time.
5
6  push(x) -- Push element x onto stack.
7  pop() -- Removes the element on top of the stack.
8  top() -- Get the top element.
9  getMin() -- Retrieve the minimum element in the stack.
10 Example:
11 MinStack minStack = new MinStack();
12 minStack.push(-2);
13 minStack.push(0);
14 minStack.push(-3);
15 minStack.getMin(); --> Returns -3.
16 minStack.pop();
17 minStack.top(); --> Returns 0.
18 minStack.getMin(); --> Returns -2. */
19
20 import java.util.*;
21 import java.lang.Math;
22 import java.lang.System;
23 import java.lang.Integer;
24
25
26 public class Main {
27
28     ... public static void main(String[] args) throws ArithmeticException {
29
30         ... TreeNode root = new TreeNode(1);
31         ... root.left = new TreeNode(2);
32         ... root.right = new TreeNode(2);
33         ... root.left.left = new TreeNode(3);
34         ... root.left.right = new TreeNode(4);
35         ... root.right.left = new TreeNode(4);
36         ... root.right.right = new TreeNode(3);
37
38         ... boolean result = new Solution().isSymmetric(root);
39
40         ... System.out.println(result);
41     }
42
43 }
44
45
46 class ListNode {
47     ... int val;
48     ... ListNode next;
49
50     ... ListNode(int x) {
51         ... val = x;
52     }
53 }
54
55
56 class TreeNode {
57     ... int val;
58     ... TreeNode left;
59     ... TreeNode right;
60
61     ... TreeNode(int x) {
62         ... val = x;
63     }
64 }
65
66
67 class MinStack {
68
69     ... /**
70     ... * initialize your data structure here.
71     ... */
72     ... private List<Integer> stack = new ArrayList<>();

```

```

73     ...private List<Integer> minValue = new ArrayList<>();
74     ...private int stackIndex = -1;
75     ...private int minIndex = -1;
76
77
78     ...public MinStack() {
79
80     ...}
81
82     ...public void push(int x) {
83         ...if (stackIndex == -1) {
84             ...minValue.add(x);
85             ...minIndex++;
86         } else if (x <= minValue.get(minIndex)) {
87             ...minValue.add(x);
88             ...minIndex++;
89         }
90
91         ...stack.add(x);
92         ...stackIndex++;
93     }
94
95     ...public void pop() {
96         ...int temp = stack.get(stackIndex);
97         ...if (minValue.get(minIndex) == temp) {
98             ...minValue.remove(minIndex);
99             ...minIndex--;
100        }
101        ...stack.remove(stackIndex);
102        ...stackIndex--;
103    }
104
105     ...public int top() {
106         ...return stack.get(stackIndex);
107     }
108
109     ...public int getMin() {
110         ...return minValue.get(minIndex);
111     }
112 }

```