Homework 7 – Due May 1st 23:59 KST

Instructions: Complete the implementation and turn it in before the due date. Any deviations from the instructed deliverable format will result in a deduction of grade. DO NOT COPY OTHER'S WORKS!

In this assignment, you are to implement the following two main methods:

- isValidRBTree(): Returns true if the current tree is a valid red-black tree.
- rotate(root, data, rotateLeft): Perform a left/right rotation around the node containing 'data' in the tree 'root'.

The constraint is that you must use the supplied BinaryNode class to implement these. That is, you must assume the red-black tree you're working on is based on the BinaryNode class. Carefully read all the comments in the source code for more details.

Rubric: Grading will be based on, but not limited to, the following criteria.

- Documentation (20 points): For all required methods, you should provide either (1) a time complexity analysis, or (2) a base- and recursive-case documentation. The latter is only for methods that you choose to implement recursively.
- Correctness (80 points): Your implementation should behave as specified above in an error-free manner. Two or more unhandled exceptions will result in a 0 for correctness.
- Miscellaneous: Do not change the method and class names. Do not declare a package. You are allowed to import and use any data structures learned so far, provided that they belong to Java's Collection framework.

Deliverable: A single RBTree.java file not part of any package structures.