<html><head></head><body><pre style="word-wrap: break-word; white-space: pre-wrap;">Project #2

Due Dates: Saturday, October 21 at 11:59pm

Submit: eLearning

Late Policy: -10 points per hour late

Instructions: This is an individual assignment. Answers should be your own work.

Introduction:

   In this project you will modify the author's BinarySearchTree code
   to implement some new methods.

Description:

   Modify the author's BinarySearchTree code to implement the methods
   shown below.

   Each method is 10 points.

    a) nodeCount
        Recursively traverses the tree and returns the count of nodes.

    b) isFull
        Returns true if the tree is full. A full tree has every node
          as either a leaf or a parent with two children.

    c) compareStructure
        Compares the structure of current tree to another tree and returns
        true if they match.

          For example, these two trees have the same structure:
                 5   10
                / \   / \
               3   8   5   15
              / \   / \
             1   4   2   7

d) equals
    Compares the current tree to another tree and returns true
      if they are identical.

e) copy
    Creates and returns a new tree that is a copy of the original tree.

f) mirror
    Creates and returns a new tree that is a mirror image of the original tree.
    For example, for the tree on the left, the tree on the right is returned:

        100   100
       /   \   /   \
      50   150   -->   150 50
     /   \
    40   40
     \   /
     45   45

g) isMirror
    Returns true if the tree is a mirror of the passed tree.

h) rotateRight

    Performs a single rotation on the node having the passed value.
    If a RotateRight on 100 is performed:

       100   50
      /   \   /   \
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      50   150    --&gt;       40   100
     /                      \     \
    40                      45    150
     \
     45
```

g) rotateLeft
As above but left rotation.

i) printLevels - performs a level-by-level printing of the tree.

j) main - demonstrate in your main method that all of your new methods work.

Submit to eLearning:
BinarySearchTree.java

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