Lab 3

Goals for this Lab

1. Write a binary tree class.

Task Description

Your goal for this lab is to write a binary tree.

The BinaryTree Class

The public constructors and methods required for the `BinaryTree` class are listed here. For this lab the tree will only need to handle integers.

BinaryTree()	Construct an empty `BinaryTree` object.
int size()	Return the size (number of items) in this `BinaryTree`.
boolean isEmpty()	Return `true` if this `BinaryTree` has no items. (This is the same as the size equal to zero.) Return `false` if the size is greater than zero.
void add(int value)	Add the given element, `value`, to the tree.
bool exists(int value)	Return true if the element exists in the tree, otherwise return false.
Integer max()	Return the largest element in the tree.
Integer min()	Return the smallest element in the tree.

Requirements

1. Your class must be named `BinaryTree`.
2. Your class must provide the methods listed above for construction, accessing, and manipulating `BinaryTree` objects.
3. Other than for testing purposes, your `BinaryTree` class should do no input or output.

Testing

This lab will be manually tested. Make sure to test all cases.

Notes

It may be useful to be able to print out the tree during development/debugging. This will be easiest by creating a toString() method for your BinaryTree class, but it is not required.