CPSC 2430-02 Fall 2017 Programming Assignment #2
Wednesday, October 25, 2017 at Midnight

P3 exercises your understanding of Binary Search Trees (multiply linked lists), Recursion and Simulation of recursion with a stack data structure in C++

Create a (partial) BST class and a driver program to test it. The tree node will store integers as the data and key field. Note that you will need to guarantee there are no duplicates in your insert function (refuse to insert a duplicate key).

Because this is a structure with dynamic memory in C++, you must include the memory management methods.

Call your files "tree.h", "tree.cpp" and "p3.cpp". Submit your project by typing the following command from the prompt in the directory where the files are located:
/home/fac/sreeder/submit/cpsc2430/p3_runme

Public methods to include:

- Constructor
- Copy Constructor
- Overloaded Assignment Operator
- Destructor
- Insert value (do not add duplicate values)
- Find key – returns bool indicating if value is present in tree
- Find min key – returns min key value
- Find max key – returns max key value
- Find height – returns integer
- Pre-Order Traversal done **recursively** (print key values to screen)
- In-Order Traversal done **iteratively** (print key values to screen)
  (may use STL Stack for this)
- Remove key

There may be additional private helper methods as needed.

Your driver should add a minimum of 20 random values to the tree, then arbitrarily insert and remove values. Test all the public methods of your class in the driver, printing the results to the screen.