CSCI-311 Assignment 7

Use the files from Lab 6 (tnode.h, bst.h, bst.cpp, main.cpp and Makefile).

Objective: Make BST class to behave as balanced BST (i.e. as AVL-tree).

1. Add the following new member functions to class BST:

Member function	Description
int getHeight(Tnode* cur)	A private member function that returns the height of the node pointed to by the pointer *cur* passed as a parameter to this function. This function must run in O(1)-time.
void updateHeight(Tnode *cur)	Updates the height of the current node pointed by the pointer *cur.* This function must run in O(1)-time.
int balanceFactor(Tnode *cur)	Calculates and returns the balance factor of the current node pointed by *cur*; balance factor is defined as the height of the left sub-tree of the current node minus the height of the right sub-tree of the current node. This function must run in O(1)-time.
void printBF() void printBF(Tnode *cur)	Public and private member functions that print balanced factors of the nodes in AVL-tree using ***in-order*** traversal (left, cur, right).

2. Update ***insert*** member functions to support balance of an AVL-tree (you need to update both public and private ***insert*** member functions).

3. Update ***main.cpp*** – you only need to add to the main.cpp of Assignment 6 two lines: call function *printBF()* on BST after it calls printHeight(). Make sure there is ***endl*** printed after *printHeight()* and after *pringBF().*

Use tests.tar to tests your program. Testing is the same as for Lab 6 (output files will be different).