CS 2213-001 Advanced Programming

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Homework 9 **Due date: check BB** !!!! NO LATE HOMEWORK WILL BE ACCEPTED !!! Total 5 points

(Binary search trees – Balanced using AVL)

In this assignment you are asked to extend the previous hw8 with AVL insert/delete algorithms. The goal is to perform the same operations on the underlying binary search tree while keeping it balanced when inserting or deleting a given key.

As before, your program will ask user to enter a command and related parameters (if any) in a loop, and then perform the given commands while keeping the binary search tree balanced. Here is the list of commands that your program must implement (as in hw8):

- * insert <a positive integer>
- * find <a positive integer>
- * delete <a positive integer>
- * list inorder
- * list preorder
- * list postorder
- * list levelorder
- * max
- * min
- * height
- * sum
- * quit

As always, make sure you release (free) the dynamically allocated memories if you allocate any memory in your programs. So, before submitting your program, run it with valgrind to see if there is any memory leakage...

What to return: !!!! NO LATE HOMEWORK WILL BE ACCEPTED !!!

- 1. Create a directory, say LASTNAME_hw9, and do all your work under that directory.
- 2. To compile the library (if any) and driver program, you must have a Makefile and use "make."
- 4. After compiling, run your program a few times with different input values and save the output (using script) into output.txt file. So you will have around 3-4 files in your LASTNAME_hw9 directory.
- 5. Go to parent directory of LASTNAME_hw9, and use tar -cf LASTNAME_hw0.tar LASTNAME_hw9 This will create a new file called LASTNAME_hw9.tar and it contains all of your files. So just submit this .tar file.
- 6. Go to WebCT (BB), and just submit LASTNAME_hw9.tar as **attachment** before the deadline. DO NOT submit other .h or .c files individually.
- /* Don't forget to include comments about the problem, yourself and each major step in your program! */