CS 2123-001 Data Structures

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Homework 5
Due date: check BB Learn
!!!! NO LATE HOMEWORK WILL BE ACCEPTED !!!

(Binary search trees)
In this assignment you are asked to write a simple driver program and a set of functions (maybe in a library) that can be performed on a binary search tree. Your program should allow user to **insert/delete integer values** into a binary search tree (BST) and perform several other operations on that binary search tree. *You can use the code given in slides. But this time your key will be int!*

> Note: In this hw, you don't need to *worry about balancing, just do simple insertion/deletion. F*or practice, you may want to extend it with AVL balancing algorithm after submitting the basic one without balancing!

Specifically, your program will ask user to enter a command and related parameters (if any) in a loop, and then perform the given commands. Here is the list of commands that your program must implement:
* insert <a positive integer>
* find   <a positive integer>
* delete   <a positive integer>
* inorder
* preorder
* postorder
* levelorder
* max
* min
* average
* height
* count
* sum
* quit

Please make sure your program processes the above comments as is so that TA can copy/paste his test cases.

 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 !!!

DO ALL YOUR WORK UNDER **abc123-hw05** folder using your own abc123

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 out5.txt file. So you will have around 3-4 files in your **abc123-hw05** folder

3. Remove executables from **abc123-hw05** folder and then Zip that folder

4. Then go to BB Learn, and submit your **abc123-hw01.zip** as an attachment before the deadline. Make sure your zip file contains all your files!

/* Don't forget to include comments about the problem, yourself and each major step in your program! */

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You must submit your work using Blackboard Learn and respect the following rules:

1) All assignments must be submitted as a zip file unless it is a single pdf file.
2) Assignments must include all source code.
3) Assignments must include an output.txt file which demonstrates the final test output run by the student.
4) If your assignment does not run/compile, the output.txt file should include an explanation of what was accomplished, what the error message was that prevented the student from finishing the assignment and what the student BELIEVES to be the underlying cause of the error.

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