Program 7: Trees

Submit Assignment

Due Sunday by 11:59pm **Points** 15 **Submitting** a file upload **File Types** h
Available after Oct 6 at 12am

Yes, you have to start with the files I give you.

Part 1:
Copy, Delete, and Dump (as in flatten all data) all need to traverse the whole tree to work. That means recursion. Cool part of these three in particular is one recurses at the start, one in the middle, and one at the end. Figuring out which is which is easy with a picture. And since these are recursive, each of them is 3-5 lines.

Getting this part perfect can retroactively raise the Recursion homework up to a 5.

Part 2:
Add, Remove, and Contains are 90%. Copypasted code is just about always bad. The method "PrivateFind" is meant to take all of the duplicated code. Make those three methods all call PrivateFind. Only Add-specific code should be in Add. (Making the node).

You can see why this works if you draw a picture. Add wants the pointer that will point at the new node. Contains wants a pointer to the desired node, or null on miss. Remove wants a pointer to the node being deleted.

Part 3:

Get rid of the IsDead lazy flags and delete nodes for real. Balancing trees is next week so don't worry about balance. Still start with PrivateFind;

Since we are modeling a Set, this can be done with parent pointers. (It isn't cheating since BSTs don't exist on their own.)