

cpssc 223 **Programming Assignment Last**
Wednesday May 2, 60 points (1 + ½ assignment)

Goal: Program insert in a 2-3-4 tree.

In **/home/share/yerion/TWO34TREE** are files :
Two34TreeNode.h, Two34Tree.h (which has some helpers
already sketched out), Key.h, Key.cpp .

Code .cpp file(s) and document and style (according to
class document for all programming assignments) and client
program Clientprogram.cpp as described below.

Code member function insert in the cases below and display
for 2-3-4 Trees. I have found it easier to code insert
iteratively rather than recursively.

Your client program will require no user input and will
test the cases that you choose to do with 'before' and
'after' prints of the tree in prettyPrint form (or
something close). **You will hand in hard copy of your file
two.dat and carefully draw in branches by hand.**
No hard copies of coding.

dropoff directory **TWO34TREE** with executable **gotree** and
Key.h, Key.cpp, Two34TreeNode.h, Two34TreeNode.cpp,
Two34Tree.h, Two34Tree.cpp, Exception.h, Exception.cpp,
Clientprogram.cpp

Clientprogram.cpp includes the testing for the following 6
cases of inserting a new key into the 2-3-4 tree. As with
the AVL Tree Assignment, **you may not mix cases**. Center the
label for the case being tested and put the label for its
subcases at the left margin. As before, pretty print the
pre-tree, what is being inserted, and the post tree. Each
of these parts separated by a blank line. [4]

insert

1) into root node with no splitting in all of its possible orders [6]

2) causing root node to split and adds to either left or right child of root in its four cases [8]

3) into a level 2 node after case 2) above has occurred in its many possibilities [6]

4) which causes the split of a level 2 node so now there are 3 children and having new item go to each of the three children in different cases [10]

5) to each of the three children in level 2 after the insert causing the split in 4) [6]

6) causes the split of a level 2 node so now there are 4 children and inserts into the children [10]

Extra:

7) Splitting the root node with children and adding to level 3 [4]

Extra:

8) Double splitting and bigger trees[4]