2-3-4 Tree Class Implementation (Part 1)

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Cpt S 223 Homework Assignment

Submission Instructions:

Submit source code (zipped) to Angel <u>BEFORE</u> the due date/time. If the Angel submission is not working, then submit to TA via email <u>BEFORE</u> the due date/time. Optional: Include a readme.txt file in the zip with any relevant information that you want the grader to be aware of.

Assignment Instructions:

Read all the instructions *carefully* before you write any code.

Download the zip file from Angel and open the Visual Studio project included within it. Do not create a new project. Open the existing one from the zip. Complete the implementation of the 2-3-4 tree class functions in the header file CS223_234tree.h. Do not modify any other files in the project.

This is a two part assignment. Both this and the next homework assignment involve the 2-3-4 class implementation. Make sure you take the time to do this assignment well or else you'll have problems with the next homework.

<u>Implement basic functions in the **CS223_234tree** class (10 points):</u>

- T* Find(int key) – Finds an object with the specified key in the tree. Use the GetKey function of the objects in the tree to get key values. Return the object that contains the key.

- bool Add(T& toCopyAndAdd) – Adds the object to the tree. Returns false if an object with the same key already exists in the tree. If it doesn't already exist, then the object is COPIED first, then added to the tree. Use the copy constructor of the T object to copy it.

You must implement these 2 functions correctly for full credit on this assignment. Your trees should EXACTLY match those in the output files when using the test input files. There are 2 input files, marked as easy and medium, that are relevant for the addition functionality. It is recommended that you create additional input files to further test stability, as the grading process is likely to use test files different from the ones given in the project .zip file.