Assignment Objective: Augment the AVL ADT to support Dynamic Order Statistics.

Requirements:

* Add the following to the AVL implementation:
  + Private members:
    - Int subTreeSize; // this is the number of nodes in the subtree at this node, including itself
    - int getSubTreeSize(node \*p) const; // For the given node, return the value of its subTreeSize member variable, or 0 if p points to NULL.
    - int calcSubTreeSize(node \*p) const; // for the given node, calculate in constant time the number of nodes in its subtree, including itself.
  + Public members:
    - getKeyAtRank(int rank, int &key) const;
* Modify bal(), node(), rotateRight(), and rotateLeft() to maintain the subTreeSize member variable.
* You must not use any other data structure, whether built-in or otherwise.
* Make sure the Makefile still works; this assignment requires no changes to it.
* Demonstrate that the AVL with dynamic order statistics works with the provided OSmain.cpp file:
  + Compile your program: make AVL
  + Run your program as follows:

./AVL < AVLorderStatsInput.txt > AVLorderStatsOutput.txt

* + Compare your output file to the posted correctOutput.txt file
* Deliverables:
  + **Into D2L put a zip file containing:**
    - AVL.h, AVL.cpp, Makefile
    - DO NOT put a project into D2L
  + Turn in a hardcopy of your AVL.h, AVL.cpp, and AVLorderStatsOutput.txt files.