Programming Problem — 50 pts

Rewrite the SetOfInt class to use a circular, doubly-linked list with a dummy head node, as discussed in class. The public class interface should not be change except that one member function should be added. Here is its prototype:

    void SetOfInt :: reverse_print( ostream& ostr );

This should print the set in reverse, i.e. from greatest to smallest.

In grading, each function will be checked to ensure that it is properly written and that unnecessary special-case checks have been removed.

A new main program, main_set.cpp will soon be available through the homework link on the course webpage.

Extra Practice

Several students have asked to have extra practice problems to help drive home the material. Here are some suggestions:

1. Write a function to reverse the directions of a doubly-linked list, so that the first node is now last and the last node is now first. Do this “in-place,” which means that the list itself is changed (rather than copied) and do this without allocating ANY new nodes.

2. Repeat the question for a singly-linked list. This is a bit harder.

3. Rewrite the SetOfInt class to use an unordered list. Just append each new value at the end of the list.