Programming Assignment #3

CS 202 Programming Systems

*****This program is about operator overloading. *****

Remember our goals:

This term, the key idea is to break down the problem outlined (below) into small pieces and assign those responsibilities to individual classes. For each assignment, your job will be to create an OO design and program that shows how Object Oriented constructs could be used to solve the problem. You will want to focus on how to design classes that are well structured, efficient, that work together, and where each class has a specific **"job"**. This time you are adding operator overloading as the new syntax for your solution!

Operator overloading is best implemented when we create new abstract data types. So, look back at your first two programs. Did you tie the data structures into the midst of your OO designs? Did the designs really become all about the data structure and not so much about the problem at hand? This time, we want to create our own abstract data types implemented with a full set of operators and have them used by our OO programs.

Program #3 - The Abstract Data Type

Many websites have an ability for people to post their ideas and questions in a blog. You have decided it would be great to have a "blog" (short for weblog) data type that could be used in many different contexts and websites. A blog contains text (comments, thoughts, responses), links to other websites, and is typically presented as a list of entries in reverse chronological order. But I find to be useful, being able to manage a blog by content, or categories or even to allow people to start new threads of conversation within a given category. Your goal will be to create a blog in a general purpose way for a variety of applications. You will test it by creating a blog for discussing the technical ramifications of dynamic binding and operator overloading. The best blogs would be to allow for

different threads to be created but linked by keyword. A simple implementation might use the DLL. A more interesting data structure would be an array of DLL.

Your mission, if you choose to take it, is to create a new blog data type that has a complete set of operators. It should allow one to **create, post, edit, reply to and remove comments**. There should be a way to add an new thread or category. The primary purpose is to support operators with this abstract data type such as: =, +, +=, ==, !=, the relational operators, and the ability to input/output data. You may find that some operators don't apply at all (and therefore shouldn't be implemented). Don't forget your copy constructor! (Yes, you CAN now write your own STRING data type, but it can't be the only place you use operator overloading…since we did that in topic #6!). However, if you implement a string class, the operators for that class "do not count" for this assignment. You need to overload the operators for a "blog" data type specifically.

Questions to ask…about operator overloading

When using operator overloading, remember to ask yourself the following questions:

a) What should be the residual value (and what data type is this)?

b) Should it be a modifiable lvalue or an rvalue? Lvalues are returned by reference, most rvalues are returned by value.

c) What are the data types of the operator's operands?

d) Is the first operand always an object of class? If so, then it should be a member function.

e) Can the operator be used with constant operands? If the first operand can be a constant, and IF it is a member function, then it should be a constant member function.