**Lab VII**

1. Write a program that overloads += operator. This operator should allow statements like s1 += s2; where s2 is added (concatenated) to s1 and the result is left in s1. The operator should also permit the results of the operation to be used in other calculations, as in s1 += s2;
2. Create a class called time that has separate *int* member data for hours, minutes, and seconds. One constructor should initialize this data to 0, and another should initialize it to fixed values. Another member function should display it, in 11:59:59 format. An operator function should add two objects of type time passed as arguments. Also compare and sort the **‘*n*’** times in the ascending order. A main () program should create time objects.
3. Write a C++ program to overload comparison operator to compare three objects and return the largest, smallest and median distance, where the class definition is as given below.

class Distance

{

private:

int feet;

float inches;

public:

//All member functions

};

**Bonus Questions**

1. Create a class called *safearray*, whose only member data is an array of 100 int values, check to ensure that all array accesses are within bounds. The main () program should test the class by filling the safe array with values and then displaying them all to assure the user that everything is working as it should. Augment the *safearray* class so that the user can specify both the upper and lower bound of the array (indexes running from 100 to 200, for example). Have the overloaded subscript operator check the index each time the array is accessed to ensure that it is not out of bounds. You’ll need to add a two argument constructor that specifies the upper and lower bounds. Since we have not yet learned how to allocate memory dynamically, the member data will still be an array that starts at 0 and runs up to 99, but perhaps you can map the indexes for the *safearray* into different indexes in the real int array. For example, if the client selects a range from 100 to 175, you could map this into the range from arr[0] to arr[75].