# Homework 8, CSCE 240, Fall 2014

## Assignment

You have been give a Java program in the zip file. The program creates "random" data for arrays of different lengths, sorts the data, and returns the number of comparisons made for each of several different sorting algorithms.

Your assignment is to take the code in the zip file, rewrite it in C++, correcting any errors you find (I may have inserted a couple of bugs), and documenting the code both in the code itself and with a written description of what the code does.

In addition to counting the number of comparisons, you will need to time the function calls to the sort. You should also run the (corrected) Java program and time it so you can compare Java runtime to C++ runtime. Note that it's essentially not possible in Java to get timing done as carefully as can be done in C++. In Java one only gets wall clock time, which may not be meaningful on a machine that has shared access.

You must overload the comparison operator.

Your code must conform to CSCE 240 code standards.

The how-to-use document should be as long as is needed. My guess is that you can do this in about four to six pages, including some text that describes the algorithms themselves.

This is a group project. It is perfectly ok for different members of the team to do different parts of the project. You don't all have to do all things. Someone will have to serve as project lead.

All team members in the project will get the same grade. The only exception to this is as follows. You will each submit to me, privately, a self-criticism of yourself and a criticism of your team members. This should be a maximum of two pages and should include a description of what you did to contribute to the project, what others in the team did, and whether or not everyone contributed an appropriate fraction to the eventual submission. If it happens that everyone except person X says that person X didn't pull his/her own weight, and the self-criticism from person X shows up insufficient, then I may assign a lower grade to X than to other team members.

The self-criticism will be submitted to me and will not be shared with other team members.

This is an assignment with many facets. You will have to learn to work in a group and to identify talents possessed by the various team members.

The project lead will be responsible for assigning tasks, collecting results, making sure that everyone contributes, and producing a complete product to submit.

This is also a project much like what you can expect in the real world. The code sort of works. It's sort of ok. But it needs to be rewritten in a different language, which means you will need (perhaps) to change the overall software structure.

You are strongly encouraged to keep a journal of what you do in this project. In the real world, if you are successful, you may find that you are in a team with someone who wants to take credit for the work of other people. If you are unsuccessful, you may want to have a record that indicates that you are less to blame for the failure than other members of your team. Having a contemporaneous record of who is supposed to do what and who actually does what helps you make the case for keeping your job and for getting credit for good work.