Name:

Course:	CS 355	Assignment Number:	11
Semester:	Fall 2012	Assignment Type:	Group 3

Assignment Description:	Decide on single design for group and implement
Assignment Due Date:	Tuesday, November 20, 2012 (first half of class)
To Be Included in Portfolio:	YES

Total Grade: Design (20), Implementation (60), Test cases(20)

As a group, create a design based upon the designs from each member. Implement this design.

Design – 20 points – 5 points each

____ Design is typed

____ Design is organized

____ Design shows good decisions were made to consider runtime and memory constraints

____ Design could be understood and implemented by a programmer

Implementation – 60 points – 10 points each

____ BubbleSort

____ SelectionSort

____ InsertionSort

____ MergeSort

____ QuickSort

____ RadixSort

Testing – 20 points – 5 points each

____ Random Order

____ SortedOrder

____ ReverseOrder

____ Other special cases

Design Notes:

Your design should include at least the following information:

1. A description of how the sorts are structured (a graphical representation may be helpful here)
2. A list of features of the project (this will include my requirements along with any features you are adding)
3. A description of the driver (you should describe the flow of the driver, a flow chart would be acceptable and/or a description of the menus and their options)
4. A list of routines and their runtimes and storage constraints

Implementation Notes:

You should be able to sort items using the sorts listed in the Implementation Section. In addition to sorting, you should store iteration information for each sort. In particular, you will need to produce tables for each sorting routine that look something like the following tables:

Swap Count	Random	Ordered	Ordered in reverse
10 items			
100 items			
1000 items			
10000 items			

Inner Loop Count	Random	Ordered	Ordered in reverse
10 items			
100 items			
1000 items			
10000 items			

You may store this information in matrices or you may write the information to a file and have another program that produces a report from the file.

Be careful not to output to the screen the sorting of 10000 items. Be sure you allow options in your driver to show me your sort works (on smaller arrays) and to show me it works on larger arrays without necessarily outputting 10000 items to the screen. In addition, you will need to be able to demonstrate your data collection is accurate and that the data collection shows your sort is accurate.

In addition, you may either create with a program or in Excel a chart to analyze your sorting routines “side by side” in charts similar to the one below:

Random – Inner Count	Bubblesort	Selection Sort	Insertion Sort	Merge Sort	Quicksort	Radix Sort
10						
100						
1000						

You would want to show tables for Swap count and the other Order test cases as well.

Testing Notes:

You will need to present a typed document that details your testing plan and the results. The format is up to you, but it should be readable, clean, and demonstrate a thorough testing of your program.