The George Washington University
School of Engineering and Applied Science
Department of Computer Science
CSci 1112 – Algorithms and Data Structures
Spring 2014 Project 4
Due Date: April 29, 2014 – Midnight --
Instructor: A. Bellaachia

Sorting

Description:
In class you learn several sorting algorithms: recursive and non-recursive. In this project you will measure the performance of the following algorithms on different array sizes of type **integer**:

- Bubble Sort
- Selection Sort
- Megesort
- Heapsort
- Quicksort

You should produce several (line) graphs that compare the performance of these algorithms. You need to assume the following:

- Array sizes:
  o 100 elements
  o 300 elements
  o 600 elements
  o 1000 elements
  o 5000 elements
  o 10000 elements
  o 12000 elements
- You need to generate the data elements randomly between 0 and 30000.

For each sorting algorithm, you need to measure the time it takes to sort each array size three times. Then graph the average of the three runs on a line graph for each array size.

Deliverables
1. All code used for implementing you project
2. Specification and implementation of your program.
3. Listing of your implemented test plan, and of the output produced by your program. Include different test cases, some of which are invalid input.
4. The output of your project should be a graph that includes a line graph for each sorting algorithm.
5. Discuss the performance of each sorting algorithm