Fall 2021 – CS 303 Algorithms and Data Structures
Lab 7
Homework Deadline:

Notes:

- Implement the algorithm and analyze the results using the give input files
- Deliverables: Report.pdf file and your code file (please do not send a zip file. If you have more than one class in your code, then submit each file separately through Canvas.)
- Homework report must follow the guidelines provided in the sample report uploaded in Canvas

Objectives:

- Implement basic selection sort and bubble sort algorithms
- Convert all the algorithms you have implemented so far to sort in the reverse order
- Compare the performance of the sorting algorithms

Problems

1. Implement a method to sort a given array using basic selection sort algorithm. Sample algorithm is provided (see page 2)

2. Implement a method to sort a given array using basic bubble sort algorithm. Sample algorithm is provided (see page 2)

3. Compare the performance of the selection sort algorithm with 3 cases of input files: sorted, reversed sorted, and random. These files are provided in Canvas in the Input Files folder.
4. Compare the performance of the bubble sort algorithm with 3 cases of input files: sorted, reversed sorted, and random. These files are provided in Canvas in the Quicksort Input Files folder.
5. Modify all algorithms you have implemented so far to sort in the reverse order. Run the modified algorithms using the given input files (inside the **lab7/InputFiles** folder). Compare the performance of the algorithms.

Homework Deadline:

Pseudo code for Bubble Sort

```
for I = 1 to A.length - 1
       for J = A.length  to i+1
            if A[J] < A[J – 1]
                 exchange A[j] with A[j-1]
```

Pseudo code for Selection Sort

```
for I = 1 to A.length – 1
       min = i
       for J = I+1   to A.length
            if A[J] < A[min]
                 min=j
             end if
       end for
       if i!=min
           swap A[min] and A[i]
       end if
end for
```