CIS 500 – Fundamentals of Software Practice
Weekly Exercise #11

Topic: Searching and Sorting Techniques

Assignment:

- Complete the given exercises on *binary search*, *selection sort*, *bubble sort*, *insertion sort*, and *quick sort* in the following pages.

What to turn in on Blackboard?

- Upload this file with your answers on Blackboard by midnight of due date.

Binary Search Exercises:

0	1	2	3	4	5	6	7	8	9
10	12	19	21	23	35	50	65	84	90

Perform "binary search" on the list above for value 84. The first row shows the index positions.

1. from_pos = _____
   to_pos = _____
   mid_pos = _____

2. from_pos = _____
   to_pos = _____
   mid_pos = _____

3. from_pos = _____
   to_pos = _____
   mid_pos = _____

4. from_pos = _____
   to_pos = _____
   mid_pos = _____

0	1	2	3	4	5	6	7	8	9
10	12	19	21	23	35	50	65	84	90

Perform "binary search" on the list above for value 35. The first row shows the index positions.

1. from_pos = _____
   to_pos = _____
   mid_pos = _____

2. from_pos = _____
   to_pos = _____
   mid_pos = _____

3. from_pos = _____
   to_pos = _____
   mid_pos = _____

4. from_pos = _____
   to_pos = _____
   mid_pos = _____

0	1	2	3	4	5	6	7	8	9
10	12	19	21	23	35	50	65	84	90

Perform "binary search" on the list above for value 95. The first row shows the index positions.

1. from_pos = _____
   to_pos = _____
   mid_pos = _____

2. from_pos = _____
   to_pos = _____
   mid_pos = _____

3. from_pos = _____
   to_pos = _____
   mid_pos = _____

4. from_pos = _____
   to_pos = _____
   mid_pos = _____

0	1	2	3	4	5	6	7	8	9
10	12	19	21	23	35	50	65	84	90

Perform "binary search" on the list above for value 21. The first row shows the index positions.

1. from_pos = _____
   to_pos = _____
   mid_pos = _____

2. from_pos = _____
   to_pos = _____
   mid_pos = _____

3. from_pos = _____
   to_pos = _____
   mid_pos = _____

4. from_pos = _____
   to_pos = _____
   mid_pos = _____

Apply "Selection Sort" to sort the list below.

18	46	10	82	67	72	12	31	22	59

Apply "Bubble Sort" to sort the list below.

18	46	10	82	67	72	12	31	22	59

Apply “Insertion Sort” to sort the list below.

18	46	10	82	67	72	12	31	22	59

Demonstrate <u>one application</u> of the partition technique of "Quick Sort" to partition the list below. Use the first value (72) as the pivot value.

You are not required to sort the entire list (i.e., you do not have to go through the entire process of quick sort).

72	**82**	**46**	**98**	**59**	**22**	**12**	**10**	**34**	**67**	**18**	**31**

Demonstrate <u>one application</u> of the partition technique of "Quick Sort" to partition the list below. Use the first value (75) as the pivot value.

You are not required to sort the entire list (i.e., you do not have to go through the entire process of quick sort).

75	**25**	**10**	**5**	**60**	**55**	**30**	**80**	**45**	**40**	**98**	**34**