S21: Sorting Algorithms

Bubble Sort

For each set of data, write out each pass of **bubble sort**.

1. Sort in descending order, beginning at the front: **4 points possible**
   56, 1, 23, 10, 7, 15, 11, 4

   56, 23, 10, 7, 15, 11, 4, 1
   56, 23, 10, 15, 11, 7, 4, 1
   56, 23, 15, 11, 10, 7, 4, 1
   56, 23, 15, 11, 10, 7, 4, 1

2. Sort in ascending order starting at the back (assume the "bigger" is determined by the compareTo method): **5 points possible**
   "Hello", "world!", "computer", "science", "ROCKS!", "woot!"

   A F C D B E

   A B F C D E
   A B C F D E
   A B C D F E
   A B C D E F
   A B C D E F

Selection Sort

For each set of data, write out each pass of **selection sort**.

3. Sort in descending order, selecting the max each time: 56, 1, 23, 10, 7, 15, 11, 4
   7 points possible

   1, 23, 10, 7, 15, 11, 4, 56
   1, 10, 7, 15, 11, 4, 23, 56
   1, 10, 7, 11, 4, 15, 23, 56
   1, 10, 7, 4, 11, 15, 23, 56
   1, 7, 4, 10, 11, 15, 23, 56
   1, 4, 7, 10, 11, 15, 23, 56

4. Sort in ascending order, selecting the minimum each time: **5 points possible**
   "Hello", "world!", "computer", "science", "ROCKS!", "woot!"

   A C D B E F
   A C D B E F
   A C B D E F
   A B C D E F
   A B C D E F

Insertion Sort

For each data set, write out each pass of **insertion sort**.

5. Sort in ascending order, beginning from the front: 56, 1, 23, 10, 7, 15, 11, 4
   7 points possible

   1, 56, 23, 10, 7, 15, 11, 4
   1, 23, 56, 10, 7, 15, 11, 4
   1, 10, 23, 56, 7, 15, 11, 4
   1, 7, 10, 23, 56, 15, 11, 4
   1, 7, 10, 15, 23, 56, 11, 4
   1, 7, 10, 11, 15, 23, 56, 4
   1, 4, 7, 10, 11, 15, 23, 56

6. Sort in ascending order, beginning from the back. : **5 points possible**
   "Hello", "world!", "computer", "science", "ROCKS!", "woot!"

   AFCDBE
   AFCBDE
   AFBCDE
   ABCDEF
   ABCDEF