

COP 3502 Recitation Sheet: Sorting Problems

1) Show the result of sorting the following array via **Bubble Sort**, showing the contents after each iteration of the algorithm:

Initial	3	2	16	8	12	9	19	1
1 st iter								
2 nd iter								
3 rd iter								
4 th iter								
5 th iter								
6 th iter								
7 th iter								

2) Show the result of sorting the following array via **Insertion Sort**, showing the contents after each iteration of the algorithm:

Initial	3	2	16	8	12	9	19	1
1 st iter								
2 nd iter								
3 rd iter								
4 th iter								
5 th iter								
6 th iter								
7 th iter								

3) Show the result of sorting the following array via **Selection Sort** (where we select for the maximum value on the first iteration), showing the contents after each iteration of the algorithm:

Initial	3	2	16	8	12	9	19	1
1 st iter								
2 nd iter								
3 rd iter								
4 th iter								
5 th iter								
6 th iter								
7 th iter								

4) In the process of Merge Sorting the array below, there are a total of 7 calls to the Merge function. Show the contents of the array after each one of those calls, in the sequence in which the calls complete.

Initial	3	2	16	8	12	9	19	1
1 st merge								
2 nd merge								
3 rd merge								
4 th merge								
5 th merge								
6 th merge								
7 th merge								

5) Show the result of running the Partition algorithm shown in class on the following array, using the item currently in index 0 as the partition element:

Index	0	1	2	3	4	5	6	7	8
Value	13	6	22	27	10	19	5	4	11
After Partition									

6) For fun, here's a link to a Kattis problem that requires sorting:

<https://open.kattis.com/problems/aprizenooncanwin>

(This is just in case anyone finishes the given exercises early!)