CSC 212 Tutorial # 1 - Solution
Revision

Problem 1

Two solutions are shown: *selection sort* and *bubble sort*.

- **Selection sort**:

```
public void selectionSort(int A[], int n) // n is the size of
    the array A
        for(int i=0; i<n-1; i++){
                int min= i;
                for(int j=i+1; j<n; j++){ // Search for the
                    minimum
                        if(A[j]<A[min])
                                min= j;
                }
                // Swap A[i] with A[min]
                int tmp= A[i];
                A[i]= A[min];
                A[min]= tmp;
        }
}
```

Example 1.1. *The symbol* $\Uparrow$ *denotes the position of* i *and* $\uparrow$ *the position of* min.

$$\left(\underset{\Uparrow}{12}, \underset{\uparrow}{5}, 8, 16, 9, 31\right)$$

$$\left(5, \underset{\Uparrow}{12}, \underset{\uparrow}{8}, 16, 9, 31\right)$$

$$\left(5, 8, \underset{\Uparrow}{12}, 16, \underset{\uparrow}{9}, 31\right)$$

$$\left(5, 8, 9, \underset{\Uparrow}{16}, \underset{\uparrow}{12}, 31\right)$$

$$\left(5, 8, 9, 12, \underset{\Uparrow}{16}, 31\right)$$

- **Bubble sort**:

```
public void bubbleSort(int A[], int n) // n is the size of the
    array A
        for(int i=0; i<n-1; i++){
                for(int j=0; j<n-1-i; j++){
                        if(A[j]<A[j+1]){
                                // Swap A[j] with A[j+1]
                                int tmp= A[j];
                                A[j]= A[j+1];
                                A[j+1]= tmp;
                        }
                }
        }
}
```

Example 1.2.

$$(12, 5, 8, 16, 9, |31)$$
$$(5, 8, 12, 9, |16, 31)$$
$$(5, 8, 9, |12, 16, 31)$$
$$(5, 8, |9, 12, 16, 31)$$
$$(5, |8, 9, 12, 16, 31)$$

$$\cdots\cdots\cdots$$