LAB 2: QUADRATIC SORTING ALGORITHMS

Write a program to sort 25 integers into ascending order using simple sort algorithms: Bubble Sort, Insertion Sort and Selection Sort. For each sorting techniques learned in class, modify the algorithms so that the programs are able to count and print the number of passes, the number of data comparisons and the number of data swapping that take place in the sorting process.

a. Run the programs on the following list of integer values. You can initialize the data in the array declarations.

```
int dataArrayA[25]={......................};
int dataArrayB[25]={......................};
```

100 50 88 30 60 45 25 12 10 5 98 15 65 55 45 70 20 90 66 22 120 48 35 85 2
dataArrayA

5 8 30 25 35 40 42 50 55 22 24 60 66 70 75 78 80 88 95 100 118 98 120 122 121
dataArrayB

b. **dataArrayA** is an example of a worst case data – totally unsorted list, while **dataArrayB** is an example of a best case data – almost sorted list. Analyze the output displayed from each sorting technique based on the number of passes, number of data comparison and number of data swapping. Make your conclusion on which sorting technique is the best for worst case data and which sorting technique is the best for best case data. Which technique has performance that does not depend on the initial arrangement of data?

c. Fill in the following table to help you discuss the performance analysis.

Technique	Case	No of Comparisons	No of Swaps	No of Passes
Conventional Bubble Sort	Worse Case			
	Best Case			
Discuss the performance Analysis for Conventional Bubble Sort				
Improved Bubble Sort	Worse Case			
	Best Case			
Discuss the performance Analysis for Bubble Sort				
Selection Sort	Worse Case			
	Best Case			
Discuss the performance Analysis for Selection Sort				
Insertion Sort	Worse Case			
	Best Case			
Discuss the performance Analysis for Insertion Sort				
Discussion on the Overall Performance Analysis for all Quadratic Techniques				