Pre-Lab #6

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1. Problem Specification

The goal of this pre-lab assignment is to rearrange elements from a list finding the smallest and the bigger elements from a list, swapping it to the first and last position and then reducing the size of the array until the entire array is sorted. The list is {12, 65, 19, 16, 9, 100, 45, 72}. We also need to create a pseudocode for the solution.

2. Program Design

First we need to sort the list according to what was asked. First we search the smallest element, swap it with the element at first position, then we search for the biggest and swap it with the last element and at the final we ignore both from the list.

2. Results

List = {12, 65, 19, 16, 9, 100, 45, 72}

Smallest = 9
Biggest = 100

SortedList = {9, 65, 19, 16, 12, 72, 45, 100}

List = {65, 19, 16, 12, 72, 45}

Smallest = 12
Biggest = 72

SortedList = {9, 12, 19, 16, 65, 45, 72, 100}

List = {19, 16, 65, 45}

Smallest = 16
Biggest = 65

SortedList = {9, 12, 16, 19, 45, 65, 72, 100}

List = {19, 45}

Smallest = 19
Biggest = 65

SortedList = {9, 12, 16, 19, 45, 65, 72, 100}

Pseudo-code

```
sort(int[] array)
        int sizeOfTheArray = array.length
        int firstPosition = 0
        int lastPosition = sizeOfTheArray - 1


        while(sizeOfTheArray > 0)
                for(int i = firstPosition; i <= lastPosition; i++)
                        if(array[firstPosition] > array[i])
                                swap(firstPosition, i)

                for(int j = lastPosition; j >= firstPosition; j—)
                        if(array[lastPosition] < array[j])
                                swap(lastPosition, j)

                sizeOfTheArray = sizeOfTheArray - 2
                firstPosition++
                lastPosition—
```