Lecture - 2

Title: Implement Bubble sort algorithm using an Array.

Problem Statement:
There will the random data value in an array. You need to sort the data using bubble sort algorithm.

Sample Input:

list [8] = 14 33 27 10 35 19 42 44

Sample Output:

The sorted list of array is: 10 14 19 27 33 35 42 44

Pseudo code:

```
begin BubbleSort(list)

   for all elements of list
      if list[i] > list[i+1]
         swap(list[i], list[i+1])
      end if
   end for

   return list

end BubbleSort
```

Title: Implement insertion sort algorithm using Array.

Problem Statement:
There will the random data value in an array. You need to sort the data using bubble sort algorithm.

Sample Input:

A [8] = 14 33 27 10 35 19 42 44
/
Sample Output:

The sorted list of array is: 10 14 19 27 33 35 42 44

Pseudo code:

```
INSERTION-SORT(A)
1.    For j = 2 to n
2.        key ← A [j]
3.        // Insert A[j] into the sorted sequence A[1..j-1]
4.        j ← i – 1
5.        while i > 0 and A[i] > key
6.              A[i+1] ← A[i]
7.              i ← i – 1
8.        A[j+1] ← key
9.         Print the array A
```

Title: Implement the selection sort algorithm on an array in any language.

Problem Statement:
This is an in-place comparison-based sorting algorithm. Here, a sub-list is maintained which is always sorted. An element which is to be inserted in this sorted sub-list, has to find its appropriate place and then it has to be inserted. Consider an unsorted list with 8 elements.

Sample Input:

list[8] = 14 33 27 10 35 19 42 44

Sample Output:

The sorted list of array is: 10 14 19 27 33 35 42 44

Pseudo code:

```
procedure selection sort
  list  : array of items
  n     : size of list

  for i = 1 to n - 1
  /* set current element as minimum*/
    min = i

    /* check the element to be minimum */

    for j = i+1 to n
      if list[j] < list[min] then
        min = j;
```

```
      end if
    end for

    /* swap the minimum element with the current element*/
    if indexMin != i  then
      swap list[min] and list[i]
    end if
  end for

end procedure
```