### Practical No: 4(A)

**Practical Title:** Sorting of an array using selection and bubble sort.

**Aim:** Write a Python program to store first year percentage of students in array. Write function for sorting array of floating point numbers in ascending order using

a) Selection Sort

b) Bubble sort and display top five scores of club

**Pre-requisite:**

Knowledge of sorting techniques

**Objective**:

* To sort array of floating point numbers in ascending order using

a) Selection Sort b) Bubble sort and display top five scores.

**Input:**

Size of array Elements of array

**Theory:**

- Write short theory of sorting with its advantages and disadvantages.

- Explain selection and bubble sort with example

(Define the bubble sort? Define the selection sort?)

**Algorithm:**

def bubbleSort(alist):

for passnum in range(len(alist)-1,0,-1):

for i in range(passnum):

if alist[i]>alist[i+1]:

temp = alist[i]

alist[i] = alist[i+1]

alist[i+1] = temp

alist = [54,26,93,17,77,31,44,55,20]

bubbleSort(alist)

print(alist)

def selectionSort(alist):

for fillslot in range(len(alist)-1,0,-1):

positionOfMax=0

for location in range(1,fillslot+1):

if alist[location]>alist[positionOfMax]:

positionOfMax = location

temp = alist[fillslot]

alist[fillslot] = alist[positionOfMax]

alist[positionOfMax] = temp

alist = [54,26,93,17,77,31,44,55,20]

selectionSort(alist)

print(alist)

**Flowchart:**

**Draw flowchart for above algorithm**

**Conclusion:**

By this way, we can perform sorting of an array using selection and bubble sort.

**Question Bank:**

1. Explain the sorting?

2. What are the different types of sorts in data structures?

3. How many passes are required in selection sort?

4. What is the time complexity of selection and bubble sort?