* Assignment No. 4 *

AIM:- to Sort an array using selection & bubble Sort.

OBJECTIVES:-
to Sort array of floating point number in ascending of order using.
(a) selection Sort.
(b) Bubble Sort and displaying top five Scores.

PROBLEM STATEMENT:-
write a python program to store first year percentage of student in array. write a function for sorting array of floating point number in asending order using.
(a) selection Sort
(b) Bubble Sort.
and display top five scores.

INPUT:-
① Size of array element of array
② percentage / marks of student.

outcome:-
① top scrorce of students.
② Sorted array.

Theory:-
Array:-
An array is a collection of item stored at Contignous memory location. the rdea is to Store multiple item of.

the same type together. the make it easier, to calculate the position of each other elements by simply adding an to a base value i.e the memory location of the first element of the array.

for simplicity we can think of an array a float where on each step is place a value Here you can identify the location of any of your friend by simply knowing the count of the step they are on. array can be handled in python by a module named array.

Selection Sort:-

the selection sort algorithm sorts an array by repeddly finding the minimum element considering the ascending order force the uncorted part & putting it at the beginning

the algorithm maintain two subarray in a given array

(1) Already sorted array
(2) Remaining to sort array.

In every iteration of the selection sort, the minimum element considering aseending order) form the uncorted subarray is picked and moved to the stored array.

Bubble Sort:-

Bubble Sort is the simple Sorting algorithm that work by repeadtidly swapping the adjacent element if they are in wrong order. this algorithm is not suitable for large data set as it average & and wont cast time complexity is quite high.

Algorithm:-

1. start
2. Take any array as input
3. Define function for selection sort & Bubble Sort
4. Apply or call function for array that is taken as input.
5. Display the sorted array.
6. stop.

* Pseudo Code of Main function:-

(1) selection sort.

- Initialize the minimum value to location 0.
- Transverse the array to find the minimum element in array.
- while tranversing if any element smaller than min value is found the swap both values.
- The increment min-value to print to the next element
- Repeat until the array is sorted.

(2) Bubble Sort:

- Run a nested loop to transverse the input array using two variable i & j, such that $0 < i < n-1$ & $0 < j < n-1$.
- If arr[j] is greater than arr[j+1] then swap these adjacent element, else move on.
- print the sorted array.

Conclusion-

In this way, we can perform sorting of an array using selection & bubble sort.