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Programming for Problem Solving Lab
(ES-CS291)

Set-9

2) Write a program to sort n numbers in ascending order using bubble sort.

Algorithm

Step 1: Initialise the variables and the array.

Step 2: Take the range of the array as integer n and then the array elements in the array a[].

Step 3: Print the array before sorting.

Step 4: ~~Then to~~ Run a for loop starting from 0th index to (n-1) th index.

Step 5: Run another nested for loop from 0 th to (i-1) th location in the array.

Step 6: When any element previously is bigger than that of next element, we swap the two using IF block

Step 7: Repeat step 6 until the array is sorted ~~from~~ in ascending order.

Step 8: Print the final sorted array.

Output

```
Enter the range: 6
Enter the elements: 6
5
4
3
2
1
The elements are: 6 5 4 3 2 1
Sorted array : 1 2 3 4 5 6
--------------------------------
Process exited after 8.532 seconds with return
value 1
Press any key to continue . . .
```

Discussion

Bubble sort is a simple sorting algorithm with time complexity n. In the first pass, the array's biggest element is sorted to the last position. Then in next pass, the second largest element to 2nd last position and so on till smallest element is in 1st position.

Bubble sort may not seem very efficient when sorting large datas due to its time requirement is high.