**Experiment No: 1**

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Semester /Section: CS-V-CSA

Date: 4th Aug 2020

Faculty Signature:

Remarks:

**Objective**:

To do an Insertion Sort using any Programming Language.

**Theory:**

Insertion sort is a simple sorting algorithm that works similar to the way you sort playing cards in your hands.

The array is virtually split into a sorted and an unsorted part. Values from the unsorted part are picked and placed at the correct position in the sorted part.

**Algorithm(Array):**  
To sort an array of size n in ascending order:  
1: Iterate from arr[1] to arr[n] over the array.  
2: Compare the current element (key) to its predecessor.  
3: If the key element is smaller than its predecessor, compare it to the elements before. Move the greater elements one position up to make space for the swapped element.

**Pseudocode(Array):**

INSERTION-SORT(A)

for i = 1 to n

key ← A [i]

j ← i – 1

while j > = 0 and A[j] > key

A[j+1] ← A[j]

j ← j – 1

End while

A[j+1] ← key

End for

A screenshot of a cell phone

Description automatically generated**Code with Output(Using Lists in Python):**