Practical No 10

Aim : Write A Program To Implement Different Sorting Algorithm In Python.

1. Bubble Sort

```
# Bubble Sort

def swap(L,x,y):
    temp=L[x]
    L[x]=L[y]
    L[y]=temp

def bubbleSort(list):
    for i in range(len(list)):
        for k in range (len(list)-1,i,-1):
            if (list[k]<list[k-1]):
                swap(list,k,k-1)

    return list

# Test Case
list = [1,2,39,5,32,3,3,21,43,5,2]
print("Unsorted List : ",list)
print("Sorted List",bubbleSort(list))
```

```
Unsorted List :  [1, 2, 39, 5, 32, 3, 3, 21, 43, 5, 2]
Sorted List [1, 2, 2, 3, 3, 5, 5, 21, 32, 39, 43]
```

2. Insertion Sort

```
# Insertion Sort

def insertionSort(list):
    for e in list:
        i = list.index(e)
        while i < len(list)-1:
            if list[i]>list[i+1]:
                list[i],list[i+1]=list[i+1], list[i]
            else:
                break
            i-=1

    return list

# Test Case
list = [1,2,39,5,32,3,3,21,43,5,2]
print("Unsorted List : ",list)
print("Sorted List",insertionSort(list))
```

```
Unsorted List :  [1, 2, 39, 5, 32, 3, 3, 21, 43, 5, 2]
Sorted List [1, 2, 2, 3, 3, 5, 5, 21, 32, 39, 43]
```

3. Selection Sort

```
# Selection Sort

def selectionSort(list):
    for i in range(len(list)):
        min = i
        for j in range (i+1,len(list)):
            if list[min] > list[j]:
                min=j
        list[min],list[i]=list[i],list[min]

    return list

# Test Case
list = [1,2,39,5,32,3,3,21,43,5,2]
print("Unsorted List : ",list)
print("Sorted List",selectionSort(list))
```

```
Unsorted List :  [1, 2, 39, 5, 32, 3, 3, 21, 43, 5, 2]
Sorted List [1, 2, 2, 3, 3, 5, 5, 21, 32, 39, 43]
```