Practical No. 05 (Group B)

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Class : S.E.

Div : A

Batch : A-2

Problem Statement :

Write a Python program to store second year percentage of students in array. Write

function for sorting array of floating point numbers in ascending order using

a) Insertion sort

b) Shell Sort and display top five scores

Code :

```
# SORTING
# CREATING A LIST
Marks = []
n = int(input("Enter no. of students : "))
for i in range(0, n):
    m = int(input("Enter marks : "))
    Marks.append(m)
print("List is : ")
print(Marks)

# INSERTION SORT
def insertionSort():
    for i in range(1, n):
        temp = Marks[i]
        j = i - 1
```

```
        while j >= 0 and Marks[j] > temp:
            Marks[j + 1] = Marks[j]
            j = j - 1
        Marks[j + 1] = temp
    print("Sorted list via Insertion Sort is : ")
    print(Marks)

# SHELL SORT
def shellSort():
    n = int(input("Enter the number of students : "))
    marks = []
    for i in range(0, n):
        a = int(input("Enter the marks of students : "))
        marks.append(a)
    print("Marks of students : ", marks)
    gap = n // 2
    while gap > 0:
        for i in range(gap, n):
            temp = marks[i]
            j = i
            while j >= gap and marks[j - gap] > temp:
                marks[j] = marks[j - gap]
                j = j - gap
            marks[j] = temp
        gap = gap // 2
    print("Sorted list via Shell Sort is : ")
    print(Marks)

# TOP FIVE SCORES
def top_five():
    print("Top 5 Scores : ")
    top5 = Marks[::-1]
    print("Top 5 scores: ", top5[:5])

choice = int(input(
    "1 : Insertion Sort    ""\n"
    "2 : Shell Sort    ""\n"
    "Enter your choice : "))

if choice == 1:
    insertionSort()
    top_five()
if choice == 2:
```

shellSort()
top_five()

Output :

```
D:\pythonProject\.venv\Scripts\python.exe "C:\S211045_Atharva\Group B _ Practical 5.py"
Enter no. of students : 6
Enter marks : 22
Enter marks : 33
Enter marks : 25
Enter marks : 15
Enter marks : 45
Enter marks : 66
List is :
[22, 33, 25, 15, 45, 66]
1 : Insertion Sort
2 : Shell Sort
Enter your choice : 1
Sorted list via Insertion Sort is :
[15, 22, 25, 33, 45, 66]
Top 5 Scores :
Top 5 scores:  [66, 45, 33, 25, 22]

Process finished with exit code 0
```