lst=[9, 5, 1, 4, 3]

def insertionsort(arr):

for i in range(1,len(arr)):

key=arr[i]

j=i-1

while j>=0 and key<arr[j]:

arr[j+1]=arr[j]

j=j-1

arr[j+1]=key

insertionsort(lst)

print("sorted array:")

print(lst)

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*")

# Shell Sort

def shellSort(array, n):

interval = n // 2

while interval > 0:

for i in range(interval, n):

temp = array[i]

j = i

# Modified to sort in descending order

while j >= interval and array[j - interval] < temp:

array[j] = array[j - interval]

j -= interval

array[j] = temp

interval //= 2

# Display the top 5 scorers

def displayTopScorers(array):

print("Top 5 scorers:")

for i in range(min(5, len(array))): # Ensure it works even if array has less than 5 elements

print(f"Rank {i + 1}: {array[i]}")

# Data array

data = [87, 78, 34, 2, 67, 56, 45, 100, 1]

size = len(data)

# Apply Shell Sort

shellSort(data, size)

# Display sorted array and top 5 scorers

print('Sorted Array in Descending Order:')

print(data)

print("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*")

displayTopScorers(data)