***6)*** Write a Python program to store first year percentage of students in array. Write function for sorting array of floating point numbers in ascending order using quick sort and display top five scores.

***CODE :-***

def input\_percentage():

perc = []

number\_of\_students = int(input("Enter the number of Students : "))

for i in range(number\_of\_students):

perc.append(float(input("Enter the percentage of Student {0} : ".format(i+1))))

return perc

# Function for printing the percentage of the Students

def print\_percentage(perc):

for i in range(len(perc)):

print(perc[i],sep = "\n")

# Function for performing partition of the Data

def percentage\_partition(perc,start,end):

pivot = perc[start]

lower\_bound = start + 1

upper\_bound = end

while True:

while lower\_bound <= upper\_bound and perc[lower\_bound] <= pivot:

lower\_bound += 1

while lower\_bound <= upper\_bound and perc[upper\_bound] >= pivot:

upper\_bound -= 1

if lower\_bound <= upper\_bound:

perc[lower\_bound],perc[upper\_bound] = perc[upper\_bound],perc[lower\_bound]

else:

break

perc[start],perc[upper\_bound] = perc[upper\_bound],perc[start]

return upper\_bound

# Function for performing Quick Sort on the Data

def Quick\_Sort(perc,start,end):

while start < end:

partition = percentage\_partition(perc,start,end)

Quick\_Sort(perc,start,partition-1)

Quick\_Sort(perc,partition+1,end)

return perc

# Function for Displaying Top Five Percentages of Students

def display\_top\_five(perc):

print("Top Five Percentages are : ")

if len(perc) < 5:

start, stop = len(perc) - 1, -1

else:

start, stop = len(perc) - 1, len(perc) - 6

for i in range(start, stop, -1):

print(perc[i],sep = "\n")

# Main

unsorted\_percentage = []

sorted\_percentage = []

flag = 1

while flag == 1:

print("\n--------------------MENU--------------------")

print("1. Accept the Percentage of Students")

print("2. Display the Percentages of Students")

print("3. Perform Quick Sort on the Data")

print("4. Exit")

ch = int(input("Enter your choice (from 1 to 4) : "))

if ch == 1:

unsorted\_percentage = input\_percentage()

elif ch == 2:

print\_percentage(unsorted\_percentage)

elif ch == 3:

print("Percentages of Students after performing Quick Sort : ")

sorted\_percentage = Quick\_Sort(unsorted\_percentage,0,len(unsorted\_percentage)-1)

print\_percentage(sorted\_percentage)

a = input("Do you want to display the Top 5 Percentages of Students (yes/no) : ")

if a == 'yes':

display\_top\_five(sorted\_percentage)

elif ch == 4:

print("Thanks for using this program!!")

flag = 0

else:

print("Invalid Choice!!")

***OUTPUT :-***



