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Q batch Comp-2

Group B-16

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.

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))))

# Function for performing partition of the Data

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

pivot = perc[start]

i = start + 1

j = end

while True:

while i <= j and perc[i] <= pivot:

i += 1

while i <= j and perc[j] >= pivot:

j -= 1

if i <= j:

perc[i],perc[j] = perc[j],perc[i]

else:

break

perc[start],perc[j] = perc[j],perc[start]

return j

# 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

sorted\_percentage = []

while True:

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

print("1. Display the Percentages of Students")

print("2. Perform Quick Sort on the Data")

print("3. Exit")

ch = int(input("Enter your choice (from 1 to 3) : "))

if ch == 1:

print("Percentage : ",perc)

elif ch == 2:

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

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

print(sorted\_percentage)

ans = input("Are you want to Display Top 5 Percentage(Y/N)")

if ans == "Y":

display\_top\_five(sorted\_percentage)

elif ch == 3:

print("Thank You.")

break

else:

print("Wrong Choice!!")

OUTPUT

Enter the number of Students : 3

Enter the percentage of Student 1 : 50

Enter the percentage of Student 2 : 60

Enter the percentage of Student 3 : 70

--------------------MENU--------------------

1. Display the Percentages of Students

2. Perform Quick Sort on the Data

3. Exit

Enter your choice (from 1 to 3) : 1

Percentage : [50.0, 60.0, 70.0]

--------------------MENU--------------------

1. Display the Percentages of Students

2. Perform Quick Sort on the Data

3. Exit

Enter your choice (from 1 to 3) : 2

Percentages of Students after performing Quick Sort :

[50.0, 60.0, 70.0]

Are you want to Display Top 5 Percentage(Y/N)Y

Top Five Percentages are :

70.0

60.0

50.0