

```
Open  a16.py  Save  -  +  x

1 # Function for accepting the percentage of the Students
2
3 def input_percentage():
4     perc = []
5     number_of_students = int(input("Enter the number of Students : "))
6     for i in range(number_of_students):
7         perc.append(float(input("Enter the percentage of Student {0} : ".format(i+1))))
8     return perc
9
10 # Function for printing the percentage of the Students
11
12 def print_percentage(perc):
13     for i in range(len(perc)):
14         print(perc[i],sep = "\n")
15
16 # Function for performing partition of the Data
17
18 def percentage_partition(perc,start,end):
19     pivot = perc[start]
20     lower_bound = start + 1
21     upper_bound = end
22
23     while True:
24         while lower_bound <= upper_bound and perc[lower_bound] <= pivot:
25             lower_bound += 1
26
27         while lower_bound <= upper_bound and perc[upper_bound] >= pivot:
28             upper_bound -= 1
29
30         if lower_bound <= upper_bound:
31             perc[lower_bound],perc[upper_bound] = perc[upper_bound],perc[lower_bound]
32
33         else:
34             break
35
36     perc[start],perc[upper_bound] = perc[upper_bound],perc[start]
37
38     return upper_bound
39
```

Python 2 Tab Width: 8 Ln 97, Col 34 INS

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40
41 # Function for performing Quick Sort on the Data
42
43 def Quick_Sort(perc,start,end):
44     while start < end:
45         partition = percentage_partition(perc,start,end)
46         Quick_Sort(perc,start,partition-1)
47         Quick_Sort(perc,partition+1,end)
48     return perc
49
50 # Function for Displaying Top Five Percentages of Students
51
52 def display_top_five(perc):
53     print("Top Five Percentages are : ")
54     if len(perc) < 5:
55         start, stop = len(perc) - 1, -1
56     else:
57         start, stop = len(perc) - 1, len(perc) - 6
58
59     for i in range(start, stop, -1):
60         print(perc[i],sep = "\n")
61
62
63 # Main
64
65 unsorted_percentage = []
66 sorted_percentage = []
67 flag = 1
68
69 while flag == 1:
70     print("\n-----MENU-----")
71     print("1. Accept the Percentage of Students")
72     print("2. Display the Percentages of Students")
73     print("3. Perform Quick Sort on the Data")
74     print("4. Exit")
75
76     ch = int(input("Enter your choice (from 1 to 4) : "))
77
78     if ch == 1:
```

Python 2 Tab Width: 8 Ln 97, Col 34 INS

```
79     unsorted_percentage = input_percentage()
80
81     elif ch == 2:
82         print_percentage(unsorted_percentage)
83
84     elif ch == 3:
85         print("Percentages of Students after performing Quick Sort : ")
86         sorted_percentage = Quick_Sort(unsorted_percentage,0,len(unsorted_percentage)-1)
87         print_percentage(sorted_percentage)
88         a = input("Do you want to display the Top 5 Percentages of Students (yes/no) : ")
89         if a == 'yes':
90             display_top_five(sorted_percentage)
91
92     elif ch == 4:
93         print("Thanks for using this program!!")
94         flag = 0
95
96     else:
97         print("Invalid Choice!!")
```

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```
onkar@ubuntu: ~  
onkar@ubuntu:~$ python3 a16.py  
-----MENU-----  
1. Accept the Percentage of Students  
2. Display the Percentages of Students  
3. Perform Quick Sort on the Data  
4. Exit  
Enter your choice (from 1 to 4) : 1  
Enter the number of Students : 5  
Enter the percentage of Student 1 : 98  
Enter the percentage of Student 2 : 96  
Enter the percentage of Student 3 : 59  
Enter the percentage of Student 4 : 76  
Enter the percentage of Student 5 : 97  
-----MENU-----  
1. Accept the Percentage of Students  
2. Display the Percentages of Students  
3. Perform Quick Sort on the Data  
4. Exit  
Enter your choice (from 1 to 4) : 2  
98.0  
96.0  
59.0  
76.0  
97.0  
-----MENU-----  
1. Accept the Percentage of Students  
2. Display the Percentages of Students  
3. Perform Quick Sort on the Data  
4. Exit  
Enter your choice (from 1 to 4) : 3  
Percentages of Students after performing Quick Sort :  
59.0  
76.0  
96.0  
97.0  
98.0  
Do you want to display the Top 5 Percentages of Students (yes/no) : yes  
Top Five Percentages are :  
98.0  
97.0  
96.0  
76.0  
59.0  
-----MENU-----  
1. Accept the Percentage of Students  
2. Display the Percentages of Students  
3. Perform Quick Sort on the Data  
4. Exit  
Enter your choice (from 1 to 4) : 4  
Thanks for using this program!!  
onkar@ubuntu:~$
```