

Function to input the percentage of students

```
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 (used in Quick Sort)

```
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):
    if 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 function to control the flow of the program
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!!!")
```