Group B-16:--- Kaustubh Shrikant Kabra SE COMP-1 20

Program:-

*"""  
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.  
"""*import array as arr  
  
def accept():  
 a=arr.array('f',[])  
 n=int(input("Enter number of students: "))  
 for i in range(n):  
 a.append(float(input("Enter first year percentage of student {}: ".format(i+1))))  
 return a  
  
def print\_per(arr):  
 for i in range(0, len(arr)):  
 print("\t {0:.2f}".format(arr[i]), end=" ")  
 print()  
   
def partition(arr,start,end):  
 pivot=arr[start]  
 low=start+1  
 high=end  
   
 while True:  
   
 while(low<=high and arr[low]<=pivot):  
 low=low+1  
   
 while(low<=high and arr[high]>=pivot):  
 high=high-1  
   
 if(low<=high):  
 arr[low],arr[high]=arr[high],arr[low]  
   
 else:  
 break  
   
 arr[start],arr[high]=arr[high],arr[start]  
 return high  
  
def quick\_sort(arr,start,end):  
 if(start>=end):  
 return  
  
 p=partition(arr,start,end)  
 quick\_sort(arr,start,p-1)  
 quick\_sort(arr,p+1,end)  
 return arr  
  
def top\_five(arr):  
 j=0  
 print("\nThe top scores are- ")  
 for i in reversed(arr):  
 print("\t {0:.2f}".format(i), end=" ")  
 j=j+1  
 if(j==5):  
 break  
 print()  
  
A=arr.array('f',[])  
sort\_A=arr.array('f',[])  
  
while True:  
   
 print("\n1)Accept percentage \n2)Print percentage \n3)Sort and display top scores\n4)Exit \n")  
 ch=int(input("Enter your choice: "))  
   
 if(ch==1):  
 A=accept()  
   
 elif(ch==2):  
 print\_per(A)  
   
 elif(ch==3):  
 print("Percentages after sorting-")  
 sort\_A=quick\_sort(A,0,len(A)-1)  
 print\_per(sort\_A)  
 top\_five(sort\_A)  
   
 elif(ch==4):  
 print("Thank you")  
 break  
 else:  
 print("Wrong choice")  
 break;

Output:-

1)Accept percentage

2)Print percentage

3)Sort and display top scores

4)Exit

Enter your choice: 1

Enter number of students: 7

Enter first year percentage of student 1: 35

Enter first year percentage of student 2: 21

Enter first year percentage of student 3: 75

Enter first year percentage of student 4: 94

Enter first year percentage of student 5: 75

Enter first year percentage of student 6: 16

Enter first year percentage of student 7: 82

1)Accept percentage

2)Print percentage

3)Sort and display top scores

4)Exit

Enter your choice: 2

35.00 21.00 75.00 94.00 75.00 16.00 82.00

1)Accept percentage

2)Print percentage

3)Sort and display top scores

4)Exit

Enter your choice: 3

Percentages after sorting-

16.00 21.00 35.00 75.00 75.00 82.00 94.00

The top scores are-

94.00 82.00 75.00 75.00 35.00

1)Accept percentage

2)Print percentage

3)Sort and display top scores

4)Exit

Enter your choice: 4

Thank you