Group B-14:--- 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 a) Selection Sort b) Bubble 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 bubble\_sort(arr):  
 flg=0  
 for i in range(len(arr)):  
 for j in range(0,(len(arr)-i-1)):  
 if(arr[j]>=arr[j+1]):  
 flg=1  
 temp=arr[j]  
 arr[j]=arr[j+1]  
 arr[j+1]=temp  
 if(flg==0):  
 break  
 print("\nElements after sorting are-\n")  
 print\_per(arr)  
 top\_five(arr)  
   
def selection\_sort(arr):  
 for i in range(len(arr)):  
 for j in range(i+1,len(arr)):  
 if(arr[j]<=arr[i]):  
 temp=arr[i]  
 arr[i]=arr[j]  
 arr[j]=temp  
 print("\nElements after sorting are-\n")  
 print\_per(arr)  
 top\_five(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("\n\*\*\*\*\*\*\*\*\*\*\*MENU\*\*\*\*\*\*\*\*\*\*")  
 print("Enter 1 to accept percentage")  
 print("Enter 2 to display percentage")  
 print("Enter 3 to sort using bubble sort technique")  
 print("Enter 4 to sort using selection sort technique")  
 print("Enter 5 to exit")  
 c=int(input("Enter your choice: "))  
 if(c==1):  
 A=accept()  
 elif(c==2):  
 print\_per(A)  
 elif(c==3):  
 bubble\_sort(A)  
 elif(c==4):  
 selection\_sort(A)  
 elif(c==5):  
 print("Thank you")  
 break  
 else:  
 print("Enter correct choice")

Output:-

\*\*\*\*\*\*\*\*\*\*\*MENU\*\*\*\*\*\*\*\*\*\*

Enter 1 to accept percentage

Enter 2 to display percentage

Enter 3 to sort using bubble sort technique

Enter 4 to sort using selection sort technique

Enter 5 to exit

Enter your choice: 1

Enter number of students: 7

Enter first year percentage of student 1: 86

Enter first year percentage of student 2: 76

Enter first year percentage of student 3: 48

Enter first year percentage of student 4: 57

Enter first year percentage of student 5: 96

Enter first year percentage of student 6: 84

Enter first year percentage of student 7: 75

\*\*\*\*\*\*\*\*\*\*\*MENU\*\*\*\*\*\*\*\*\*\*

Enter 1 to accept percentage

Enter 2 to display percentage

Enter 3 to sort using bubble sort technique

Enter 4 to sort using selection sort technique

Enter 5 to exit

Enter your choice: 2

86.00 76.00 48.00 57.00 96.00 84.00 75.00

\*\*\*\*\*\*\*\*\*\*\*MENU\*\*\*\*\*\*\*\*\*\*

Enter 1 to accept percentage

Enter 2 to display percentage

Enter 3 to sort using bubble sort technique

Enter 4 to sort using selection sort technique

Enter 5 to exit

Enter your choice: 3

Elements after sorting are-

48.00 57.00 75.00 76.00 84.00 86.00 96.00

The top scores are-

96.00 86.00 84.00 76.00 75.00

\*\*\*\*\*\*\*\*\*\*\*MENU\*\*\*\*\*\*\*\*\*\*

Enter 1 to accept percentage

Enter 2 to display percentage

Enter 3 to sort using bubble sort technique

Enter 4 to sort using selection sort technique

Enter 5 to exit

Enter your choice: 4

Elements after sorting are-

48.00 57.00 75.00 76.00 84.00 86.00 96.00

The top scores are-

96.00 86.00 84.00 76.00 75.00

\*\*\*\*\*\*\*\*\*\*\*MENU\*\*\*\*\*\*\*\*\*\*

Enter 1 to accept percentage

Enter 2 to display percentage

Enter 3 to sort using bubble sort technique

Enter 4 to sort using selection sort technique

Enter 5 to exit

Enter your choice: 5

Thank you