Experiment No.: 2

Aim: Write a Python program to store marks scored in subject "Fundamental of Data Structure" by N students in the class. Write functions to compute following:

a) The average score of class
b) Highest score and lowest score of class
c) Count of students who were absent for the test
d) Display mark with highest frequency

Software Requirements:

- 64-bit Open source Linux
- Python IDE like spyder

Hardware Requirement:

- C2D, 2GB RAM, 500 GB HDD.

Objectives: To introduce students with concept of finding max ,min element ,high frequency element from given list

Outcomes: Student will able to find any element (min, max, high frequency) from given list

Theory:

List : Lists are used to store multiple items in a single variable.
Maximum element :Element whose value is more than rest other element in set.
Minimum element :Element whose value is less than rest other element in set.
Average : Sum of all the elements in set / total element in set
High frequency element: Element which is repeated max no of times in set
A-B : Element present in A but not in B

Algorithm:

1. Cosider list M used to store marks of student who appeared for test of FDS, P,U to store roll no of present student and Entire class resp.
   Consider p,n to srore count of present students and total students resp.
2. Take variables i,j to move over elements of lists.
3. Select choice
   a) The average score of class then goto step 4
   b) Highest score and lowest score of class then goto step 5
   c) Count of students who were absent for the test then goto step 6
   d) Display mark with highest frequency then goto step 7
4. Find sum of all marks and store in variable *sum* now divide sum by p to get avearge marks *avg* and print it
5. To ger max score - Consider *max* = M[0] now comare max with rest all elements of M .If M[i]>max then make max= M[i] .At last after scanning all elements of M ,final value of *max* will give maximum score .

To ger max score - Consider *min* = M[0] now comare min with rest all elements of M .If M[i]<min then make min= M[i] .At last after scanning all elements of M ,final value of min will give minimum score.

6. Compare every element of list U i.e. U[i] with all element of P i.e. P[j] .print unique / unmatched elements to get roll nos of absent students
7. Take list *Freq* to store frequency of every element of M .Initally Inialize freq of all elements to 1. Futher based on comarison update frequencies.
   Compare every element of M[i] with all its next elements if its repeated then increase its earlier frequency count Freq[i] by 1. Now find location i of Freq list which has max value.
8. Print Marks[i] to print max frequency element

Conclusion: Thus implemented program to find min, max, average, max repeated marks of students and also to find absent students for the test conducted.

Questions:

1. what is mean by frequency of element?

Frequency of element is defined as count of element which is repeated no. of times in set

2. What are nested for loops?

Nested for loop places one for loop inside another loop. The inner loop is repeated for each iteration of the outer loop.

3. How to find average?

The average of a set of numbers is simply the sum of numbers divided by the total number of values in the set

Staff Sign