**Experiment No- 2**

**Title:-** Write a python program to store marks for N students

**Objectives:-** To understand the use functions for N students record.

# Problem Statement:-

Write a Python program to store marks scored in subject “Fundamental of DataStructure” by N students in the class. Write functions to compute following:

1. The average score of class
2. Highest score and lowest score of class
3. Count of students who were absent for the test
4. Display mark with highest frequency

**Theory:**

**Concept of Array**:

Array in python is implemented by using list.

A List is a collection of ordered python objects separated by commas and changeable. In Python List are written with square brackets.

To create a List in Python, place all the elements in a [ ] square brackets, separated by commas.

A List can have heterogeneous data items, a tuple can have string and list as data items as well but list are commonly used as homogenous objects.

e.g. >>>list1 = [„apple‟,‟banana‟, „cherry‟,‟kiwi‟,‟orange‟]

>>>print(list1)

**Algorithm:-**

1. Start.
2. Declare variables such as marksinFDS,numberofstudents,ch,a
3. Input total number of students
4. Input marks of all the students in array marksinFDS
5. Print menu 1.Total and Average marks of class
   1. Highest score and lowest marks in the class
   2. Number of students absent for test
   3. Marks with highest frequency
   4. Exit.

ch=Input Enter your choice(from 1 to 5)

1. If ch==1 then call function average()
2. else if ch==2,then call function Maximum( ) and Minimum( )
3. else if ch==3 then call function absentcount( )
4. else if ch==4 then call function maxFrequency( )
5. else if ch==5 then ,go to step 11. else,print wrong choice .
6. Repeat steps 5 to 10 till ch!=5
7. Stop.

**Algorithm :**

1. **To find the average score of class**
2. Declare variables sum ,count and initialize them with 0
3. Repeat step 3 and 4 for i=0 to n-1
4. Add sum=sum + marksinFDS(i)
5. Increment count by 1
6. Calculate average=sum/count
7. Print average
8. **To find the highest score and lowest score of class**
9. Declare variable min= arr(0) max=var(0)
10. Declare i=0,j=0
11. Compare min with every element in array if min>arra(i) then change min to arr(i)
12. Compare max with every element in array if max<arra(i) then change max to arr(j)
13. Repeat steps 3 and 4 till i<n-1 and j<n-1
14. Print min as lowest score and max as highest score of class.
15. **Count of students who were absent for the test**
16. Initialize absent\_count=0
17. For i=0 to n-1 do step 3
18. Check if arr(i)==-1

Then increment absent\_count by 1

1. Display absent\_count

Note: ‘ -1 ‘ in list shows that student is absent for exam

1. **Display mark with highest frequency**
2. Initialize variable max to 0
3. For i=0 to n-1 do step 3 to 5
4. Find frequency of arr(i) using arr.count(i) function
5. Compare frequency with max
6. If frequency of arr(i)>max then replace max with count(i)
7. Display final value of max.

**Conclusion**: Thus we studied concept of 1 D array and various operations performed on it.