COST PRACTICAL 1 to 5

Program no: 1

Write a program to Find the arithmetic mean for raw and discrete data.

```
print("Find the mean for :")
print("\t\t\t1. Raw data\n\t\t\t2. Discrete data")


choose=int(input("Choose any one option : "))


if(choose == 1):
    num1 = int(input("Enter the numbers of elements in your list :"))
    myList = []
    try:
        print("Enter the elements : ")
        for i in range(0,num1):
            element = int(input())


            myList.append(element)
    except:
        print("Invalid input")
    else:
        print("Your data is : ",end=" ")
        print(myList)


        average1=sum(myList)/len(myList)
        print("Arithmatic mean for raw data is: ",end=" ")
        print("{: .5}".format(average1))
```

```
elif(choose == 2):
    num2 = int(input("Enter the no. of elements in your list: "))

    xvalue = []
    frequency = []

    try:
        print("Enter the data of x : ")
        for i in range(0,num2):
            element = int(input())

            xvalue.append(element)
        print("Enter the correspondence frequency : ")
        for i in range(0,num2):
            freq = int(input())

            frequency.append(freq)
    except:
        print("Invalid input")
    else:
        print("List of xvalues: ",end=" ")
        print(xvalue)
        print("List of its frequency : ",end=" ")
        print(frequency)

        sums=0
        for i in range(0,num2):
            mul = xvalue[i]*frequency[i]
            sums = sums+mul
```

```
average2 = sums/sum(frequency)
print("Sum of f is :",end=" ")
print(sum(frequency))
print("sum of fx is: ",end=" ")
print(sums)
print("Arithmatic mean of discrete data is : ",end=" ")
print("{: .5}".format(average2)
```

Program no:2

Write a program to find the median of given data .

```
num1 = int(input("Enter the number of elements: "))
myList = []
try:
    print("Enter the elements: ")
    for i in range(0,num1):
        Element=int(input())
        myList.append(Element)
except:
    print("Invalid Data")
else:
    #for sorting the list in ascending order
    myList.sort()
    if(num1 % 2 !=0):
        index = (num1+1)//2
        median = myList[index-1]
        print("Your list of data: ",end=" ")
        print(myList)
        print("Median is: ",end=" ")
        print(median)
    elif(num1 % 2 == 0):
        median1 = myList[num1//2]
        median2 = myList[(num1//2)-1]
        median = (median1+median2)/2
        print("Your List Of Data: ",end=" ")
        print(myList)
        print("Median is: ",end=" ")
        print(median)
```

Program no: 03

Write a program to find mode of given data.

```
from collections import Counter
numberofElement = int(input("Enter the number of elements : "))
n_num=[]
print("Enter the elements : ")
for i in range(0,numberofElement):
    Elements=int(input())
    n_num.append(Elements)
n = len(n_num)
data = Counter(n_num)
get_mode = dict(data)
mode = [k for k, v in get_mode.items() if v == max(list(data.values()))]
if len(mode) == n:
    get_mode = "no mode found"
else:
    get_mode = "mode is / are: " + ', '.join(map(str, mode))
print(get_mode)
```

Program no: 04

Write a program to find Standard deviation .

```
import math


def variance(data, ddof =0):
    n = len (data)
    mean = sum(data)/2
    return sum ((X-mean) ** 2 for X in data)/(n-ddof)


def stdev(data):
    var = variance(data)
    std_dev = math.sqrt(var)
    print("Standard Deviation: ",end=" ")
    print("{: .5}".format(std_dev))


print("Enter the number of elements: ",end=" ")
num = int(input())
myQuestion = []
print("Enter the element: ")
for i in range(0,num):
    element = int(input())
    myQuestion.append(element)


stdev(myQuestion)
```

Program no: 05

Write a program to find Variance of given data .

```
def variance(data):
    #number of observations
    n = len(data)
    #mean of the data
    mean = sum(data)/n
    #square deviations
    deviations = [(X-mean)** 2 for X in data]
    #variance
    variance = sum(deviations)
    print("variance is: ",end=" ")
    print("{: .5}".format(variance))

num = int(input("Enter the number of observations: "))
myData = []

print("Enter the Elements: ")
for i in range(0,num):
    element = int(input())

    myData.append(element)

variance(myData)
```