Experiment-3

Write a Program to find the mean, median, standard deviation and mode using user defined functions.

Aim: Program to find the mean, median, standard deviation and mode using user defined functions.

User defined functions:

Program:

#MEAN

```
def mean_vec(arr):
    avg=sum(arr)/len(arr)
return avg
```

#MEDIAN

```
def med_vec(arr):
if(len(arr)%2==0):
      return (sorted(arr)[(len(arr)//2)-
1]/2)+(sorted(arr)[len(arr)//2]/2)
 return sorted(arr)[len(arr)//2]
```

#MODE

```
def mode_arr(arr):
max_count = 0
mode = 0
   for i in arr:
        if arr.count(i) > max_count:
            max_count = arr.count(i)
mode = i
 return mode
```

#STANDARD DEVIATION

```
 def standarddev_vec(arr):
avg=sum(arr)/len(arr)        var=sum([((x-
avg)**2) for x in arr ])/ len(arr)     return
var**(1/2)
arr=[15,25,36,26,26,26,21,8,3,5,12,21]
print(arr)  print("Mean of the
array:",mean_vec(arr)) print("Median of
the array:",med_vec(arr)) print("Mode of
the array:",mode_arr(arr))  print("Standard
deviation of the
array:",standarddev_vec(arr))
```

Output:

```
[15, 25, 36, 26, 26, 26, 21, 8, 3, 5, 12, 21]
Mean of the array: 18.666666666666668
Median of the array: 21.0
Mode of the array: 26
Standard deviation of the array: 9.646530752325187
```

Pre defined functions:

Program:

```
import numpy as np import
statistics
arr=[15,25,36,26,26,26,21,8,3,5,12,
21] print(np.mean(arr))
print(np.median(arr))
```

```
print(statistics.mode(arr))

print(np.std(arr))
```

Output:

```
18.666666666666668
21.0
26
9.646530752325187
```