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ROLL NO : 58

EXPERIMENT NO : 2

AIM : TO STUDY SOME BASIC EXAMPLES OF STATISTICS.

UNGROUPED DATA

Q.1

In [148]:

```
data = [10,12,15,18,20,22,25,28,30]
```

In [149]:

```
mean = sum(data)/len(data)
```

In [150]:

```
sorted_data = sorted(data)
```

In [151]:

```
n=len(data)
```

In [152]:

```
if (n % 2 == 0) :
     median = (sorted_data[n // 2 - 1] + sorted_data[n // 2]) / 2
else:
     median = sorted_data[n // 2]
```

In [153]:

```
squared_deviation=[(x-mean)**2 for x in data]
```

In [154]:

```
variance = sum(squared_deviation)/(len(data)-1)
```

In [155]:

```
import math
```

In [156]:

```
std_deviation = math.sqrt(variance)
```

In [157]:

```
print("data : ",data)
```

```
data :  [10, 12, 15, 18, 20, 22, 25, 28, 30]
```

In [158]:

```
print("mean : ",mean)
```

```
mean :  20
```

In [159]:

```
print("median : ",median)
```

```
median :  20
```

In [160]:

```
print("variance : ",variance)
```

```
variance :  193/4
```

In [161]:

```
print("standard deviation : ",std_deviation)
```

```
standard deviation :  6.946221994724902
```

Q.2

In [162]:

```
data = [13,63,74,47,45,23,27,41,77]
```

In [163]:

```
mean = sum(data)/len(data)
```

In [164]:

```
sorted_data = sorted(data)
```

In [165]:

```
n=len(data)
```

In [166]:

```
if (n % 2 == 0) :
     median = (sorted_data[n // 2 - 1] + sorted_data[n // 2]) / 2
else:
     median = sorted_data[n // 2]
```

In [167]:

```
squared_deviation=[(x-mean)**2 for x in data]
```

In [168]:

```
variance = sum(squared_deviation)/(len(data)-1)
```

In [169]:

```
import math
```

In [170]:

```
std_deviation = math.sqrt(variance)
```

In [171]:

```
print("data : ",data)
```

```
data :  [13, 63, 74, 47, 45, 23, 27, 41, 77]
```

In [172]:

```
print("mean : ",mean)
```

```
mean :  410/9
```

In [173]:

```
print("median : ",median)
```

```
median :  45
```

In [174]:

```
print("variance : ",variance)
```

```
variance :  4543/9
```

In [175]:

```
print("standard deviation : ",std_deviation)
```

```
standard deviation :  22.46726013063849
```

GROUPED DATA

In [176]:

```
data = range(1,50)
```

In [177]:

```
mean = sum(data)/len(data)
```

In [178]:

```
sorted_data = sorted(data)
```

In [179]:

```
n=len(data)
```

In [180]:

```
if (n % 2 == 0) :
     median = (sorted_data[n // 2 - 1] + sorted_data[n // 2]) / 2
else:
     median = sorted_data[n // 2]
```

In [181]:

```
squared_deviation=[(x-mean)**2 for x in data]
```

In [182]:

```
variance = sum(squared_deviation)/(len(data)-1)
```

In [183]:

```
import math
```

In [184]:

```
std_deviation = math.sqrt(variance)
```

In [185]:

```
print("data : ",data)
```

```
data :  range(1, 50)
```

In [186]:

```
print("mean : ",mean)
```

```
mean :  25.0
```

In [187]:

```
print("median : ",median)
```

```
median :  25
```

In [188]:

```
print("variance : ",variance)
```

```
variance :  204.16666666666666
```

In [190]:

```
print("standard deviation : ",std_deviation)
```

```
standard deviation :  14.288690166235206
```

CONCLUSION : Various examples based on statistics are studied successfully .