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Experiment Number :- 2

Aim :- To Study Some Basic Examples of Statistics.

For Ungrouped Data

In [149]:

```
data = [10,20,30,40,50,60,70,80,90,100]
```

In [150]:

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

In [151]:

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

In [152]:

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

In [153]:

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

In [154]:

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

In [155]:

```
Variance = sum ( sq_deviations ) / (len (data) - 1)
```

In [156]:

```
import math
```

In [157]:

```
sq_deviations = math.sqrt(Variance)
```

In [158]:

```
print("Data",data)
print("Mean",mean)
print("Median",median)
print("Standard Deviations",sq_deviations)
```

Data [10, 20, 30, 40, 50, 60, 70, 80, 90, 100]
Mean 55
Median 55
Standard Deviations 30.276503540974915

For Grouped Data

In [159]:

```
data = range(1,20)

mean = sum(data) / len (data)
sorted_data = sorted (data)
n = len(data)
if (n % 2 == 0):
    median = (sorted_data[n // 2 - 1] + sorted_data[n // 2]) / 2
else:
    median = sorted_data[n // 2]

sq_deviations = [(x - mean) ** 2 for x in data]
Variance = sum ( sq_deviations ) / (len (data) - 1)
import math
sq_deviations = math.sqrt(Variance)
print("Data",data)
print("Mean",mean)
print("Median",median)
print("Standard Deviations",sq_deviations)
```

Data range(1, 20)
Mean 10.0
Median 10
Standard Deviations 5.627314338711377

Practice problems

Ungrouped Data Example :-

In [160]:

```
data = [69,68,67,66,65,64,63,62,61,6]
```

In [161]:

```
mean = sum(data) / len (data)
sorted_data = sorted (data)
n = len(data)
if (n % 2 == 0):
    median = (sorted_data[n // 2 - 1] + sorted_data[n // 2]) / 2
else:
```

```
    median = sorted_data[n // 2]

sq_deviations = [(x - mean) ** 2 for x in data]
Variance = sum ( sq_deviations ) / (len (data) - 1)
import math
sq_deviations = math.sqrt(Variance)
print("Data",data)
print("Mean",mean)
print("Median",median)
print("Standard Deviations",sq_deviations)
```

```
Data [69, 68, 67, 66, 65, 64, 63, 62, 61, 6]
Mean 591/10
Median 129/2
Standard Deviations 18.835250639868498
```

Grouped Data Example :-

In [162]:

```
data = range(5,69)

mean = sum(data) / len (data)
sorted_data = sorted (data)
n = len(data)
if (n % 2 == 0):
    median = (sorted_data[n // 2 - 1] + sorted_data[n // 2]) / 2
else:
    median = sorted_data[n // 2]

sq_deviations = [(x - mean) ** 2 for x in data]
Variance = sum ( sq_deviations ) / (len (data) - 1)
import math
sq_deviations = math.sqrt(Variance)
print("Data",data)
print("Mean",mean)
print("Median",median)
print("Standard Deviations",sq_deviations)
```

```
Data range(5, 69)
Mean 36.5
Median 73/2
Standard Deviations 18.618986725025255
```

Conclusion :- Various Examples based on Statistics are Studied Sucessfully.