In [1]:
```
import pandas as pd
import numpy as np
from scipy import stats
from scipy.stats import norm
```

In [2]:
```
lab_data = pd.read_csv('LabTAT.csv')
lab_data
```

Out[2]:

	Laboratory 1	Laboratory 2	Laboratory 3	Laboratory 4
0	185.35	165.53	176.70	166.13
1	170.49	185.91	198.45	160.79
2	192.77	194.92	201.23	185.18
3	177.33	183.00	199.61	176.42
4	193.41	169.57	204.63	152.60
...	...	...	...	...
115	178.49	170.66	193.80	172.68
116	176.08	183.98	215.25	177.64
117	202.48	174.54	203.99	170.27
118	182.40	197.18	194.52	150.87
119	182.09	215.17	221.49	162.21

120 rows × 4 columns

In [3]:
```
F, p = stats.f_oneway(lab_data['Laboratory 1'],lab_data['Laboratory
# Seeing if the overall model is significant
print('F-Statistic=%.3f, p=%.3f' % (F, p))
```

```
F-Statistic=118.704, p=0.000
```

Anova ftest statistics:

Analysis of varaince between more than 2 samples or columns .

Assume Null Hypothesis Ho as No Varaince = All samples TAT population means are same

Thus Alternate Hypothesis Ha as It has Variance: Atleast one sample TAT population mean is different

In [4]:
```
F, p = stats.f_oneway(lab_data['Laboratory 1'],lab_data['Laboratory
# Seeing if the overall model is significant
print('F-Statistic=%.3f, p=%.3f' % (F, p))
```

```
F-Statistic=118.704, p=0.000
```

P-value is 0.00 < 0.05

Accept Ha, hence Average of atleast 1 laboratory are differ
ent As per results we can say that these are not equal i.e
Average of atleast 1 laboratory are different or atleast on
e sample TAT population mean is different.

In [ ]:
```

```