In [1]:

```
import pandas as pd
import numpy as np
from scipy import stats
```

In [2]:

```
lab=pd.read_csv('LabTAT.csv')
lab
```

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 [4]:

```
np.mean(lab['Laboratory 1'])
```

Out[4]:

```
178.36158333333339
```

In [5]:

```
np.mean(lab['Laboratory 2'])
```

Out[5]:

```
178.9029166666668
```

In [6]:

```
np.mean(lab['Laboratory 3'])
```

Out[6]:

```
199.91325000000003
```

In [7]:

```
np.mean(lab['Laboratory 4'])
```

Out[7]:

```
163.6827499999999
```

Formulation of Hypothesis

Ho : μ1 = μ2 = μ3 = μ4(There is no significane difference in average TAT among the different laboratories)

Ha : atleast there is one laboratory that has difference in average TAT

Test

We use ANOVA test because we have more than two samples and that are quantitative data

In [8]:

```
stats.f_oneway(lab['Laboratory 1'],lab['Laboratory 2'],lab['Laboratory 3'],lab['Laboratory
```

Out[8]:

```
F_onewayResult(statistic=118.70421654401437, pvalue=2.1156708949992414e-57)
```

Here significance value is 0.05 we got p-value is 2.11

Takeaway

As p-value is greater than significance we don't reject Ho and we can say that there is no difference in average TAT among the different laboratories

In [ ]: