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

In [2]:
```
Labtat=pd.read_csv('D:\\DATA SCIENCE\\LabTaT.csv')
Labtat
```

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]:
```
Labtat.rename(columns={'Laboratory 1':'Laboratory1','Laboratory 2':'Laboratory2','Laboratory 3':'Laboratory3','Laboratory 4':'Laboratory4'},inplace=True)
```

In [5]:
```
Labtat.rename
```

Out[5]:
```
<bound method DataFrame.rename of      Laboratory1  Laboratory2  Laboratory3  Laboratory4
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 x 4 columns]>
```

In [7]:
```
Labtat.describe()
```

Out[7]:

	Laboratory1	Laboratory2	Laboratory3	Laboratory4
count	120.000000	120.000000	120.000000	120.00000
mean	178.361583	178.902917	199.913250	163.68275
std	13.173594	14.957114	16.539033	15.08508
min	138.300000	140.550000	159.690000	124.06000
25%	170.335000	168.025000	188.232500	154.05000
50%	178.530000	178.870000	199.805000	164.42500
75%	186.535000	189.112500	211.332500	172.88250
max	216.390000	217.860000	238.700000	205.18000

In [11]:
```
from scipy import stats
```

In [12]:
```
rvs1=stats.norm.rvs(loc=178.36,scale=13.17,size=120)
rvs2=stats.norm.rvs(loc=178.90,scale=14.95,size=120)
rvs3=stats.norm.rvs(loc=199.91,scale=16.53,size=120)
rvs4=stats.norm.rvs(loc=163.68,scale=15.08,size=120)
```

In [13]:
```
stats.f_oneway(rvs1,rvs2,rvs3,rvs4)
```

Out[13]:
```
F_onewayResult(statistic=121.03374782770456, pvalue=2.9064022733631967e-58)
```