Sheth L.U.J. College Of Arts & Sir M.V. College of Science & Commerce Department Of Science Jayesh mali T084 Pract_ 5 Data Science

ANOVA(F-test)

ONE WAY ANOVA

In [ ]:
```
#Jayesh Mali T084
import pandas as pd
import scipy.stats as stats
```

In [ ]:
```
#Jayesh Mali T084
df_anova = pd.read_csv('PlantGrowth.csv')
df_anova = df_anova[['weight','group']]
```

In [ ]:
```
#Jayesh Mali T084
grps = pd.unique(df_anova.group.values)
d_data = {grp:df_anova['weight'][df_anova.group == grp] for grp in grps}
```

In [ ]:
```
#Jayesh Mali T084
F, p = stats.f_oneway(d_data['ctrl'], d_data['trt1'], d_data['trt2'])
```

In [ ]:
```
#Jayesh Mali T084
print("p-value for significance is: ", p)

if p<0.05:
    print("reject null hypothesis")
else:
    print("accept null hypothesis")
```

```
p-value for significance is:  0.0159099583256229
reject null hypothesis
```

TWO WAY ANOVA

In [ ]:
```
#Jayesh Mali T084
import statsmodels.api as sm
from statsmodels.formula.api import ols

df_anova2 = pd.read_csv("https://raw.githubusercontent.com/Opensourcefordatascience/Data-sets/master/crop_yield.csv")
```

In [ ]:
```
#Jayesh Mali T084
model = ols('Yield ~ C(Fert)*C(Water)', df_anova2).fit()
```

```python
# Seeing if the overall model is significant
print(f"Overall model F({model.df_model: .0f},{model.df_resid: .0f}) = {model.fvalue: .3f}, p = {model.f_pvalue: .4f}")
```

```
Overall model F( 3, 16) =  4.112, p =  0.0243
```