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# ROLL NUMBER: 546

# COURSE: MSc CS

# SUBJECT: FUNDAMENTALS OF DATA SCIENCE

# TOPIC: PRACTICAL 8 HYPOTHESIS TESTING

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
import scipy.stats as stats
from scipy.stats import ttest_1samp
from statsmodels.stats.power import tt_ind_solve_power
```

T test A t test is inferntial statistics which is used to determine if there is a significant difference betweenthe means of two groups which may be related in certain features

T-test has 2 types: 1) One sampled t test 2) Two sampled t test

t= (sample mean - population mean) / standard error

```
ages=[10,20,35,50,28,40,55,18,16,55,30,25,43,18,30,28,14,24,16,17,32,35,26,27,65,18,43,23,21,
```

```
ages_mean=np.mean(ages)
print(ages_mean)
```

```
30.34375
```

```
#Lets take sample
sample_size=10
age_sample=np.random.choice(ages,sample_size)
age_sample
```

```
array([28, 16, 16, 43, 35, 27, 24, 10, 18, 16])
```

```
from scipy.stats import ttest_1samp
```

```
ttest,p_value=ttest_1samp(age_sample,30)
```

```
print(p_value)
```