Hypothesis Testing

- **Solve all the below mentioned questions in Jupyter Notebook.**
- **Explain each step and write a properly formatted code.**
- **Reference Link: Github - Hypothesis Testing**
- **Use proper variable names in your code.**
- **Use LaTeX to write scientific formulas.**
  Refer this link to understand LaTeX format:Learn to write Markdown and LaTeX in Jupyter Notebook

Q-1: Pista House selling Hyderabadi Chicken Dum biryani claims that each parcel packet has 500 grams of biryani (also mentioned on the label of packet). You are sceptic of their claims and believe that on average each packet does not contain 500 grams of biryani. How do you prove your claim? ~~(Given that the population std is 50)~~

Q-2: You have developed a new Natural Language Processing Algorithms and done a user study. You claim that the average rating given by the users is greater than 4 on a scale of 1 to 5. How do you prove this to your client? ~~(Given that the population std is 0.5)~~

Q-3: TATA has developed a better fuel management system for the SUV segment. They claim that with this system, on average the SUV's mileage is at least 15 km/litre? ~~(Given that the population std is 1)~~

Q-4: You have developed a new Machine Learning Application and claim that on average it takes less than 100 ms to predict for any future datapoint. How do you convince your client about this claim? ~~(Based on past data you know that the std is 10 ms)~~

```
from scipy.stats import t
```

```
# One tail

alpha = 1 - 0.95

t_critical = t.ppf(1-alpha, df = 19)

print(t_critical)
```

```
1.729132811521367
```

```
# Two tail

alpha = 1 - 0.95

t_critical = t.ppf(1-alpha/2, df = 19)

print(t_critical)
```

```
2.093024054408263
```