Statistical Computing in Python

- What is Statistical Computing in python
- Introduction to SciPy
- Subpackages of statistics
- Introduction to Hypothesis

What Satistical Computing

- Refers to bond between **statistics** and **computer science** to transform raw data into **knowledge**.

Introduction to SciPy

- Tool for doing scientific computing in Python.
- Python-based ecosystem that is open source software for math, science & engineering.

```
import scipy as scp
```

Subpakcages of SciPy

- scipy.io – file I/O
- scipy.special – special functions
- scipy.linalg – linear algebra operations
- scipy.fftpack – fast fourier transform
- scipy.stats – statistics and random numbers.
- scipy.interpolate – interpolation.
- scipy.integrate – numerical integration
- scipy.signal – signal processing
- Scipy.ndimage – dealing with image processing

Introduction to Hypothesis

- Helps analyst or researchers make decisions about population parameters based on sample Data.
- Null Hypothesis (H0)
- Alternate Hypothesis(Ha or H1)

Null Hypothesis

- **Example** : “Buy Now” button on ecommerce website
- Test – Changing color of button to green from orange will increase the CTR.(Click through rate)
- **Null Hypothesis** :
  - Changing color of button from orange to green will not have any effect on CTR.
  - CTR_Orange = CTR_Green

Alternative Hypothesis

- **Example** : “Buy Now” button on ecommerce website
- Test – Changing color of button to green from orange will increase the CTR.(Click through rate)
- **Alternative Hypothesis** :
  - Changing color of button from orange to green will increase the CTR.
  - CTR_Orange < CTR_Green