**Parameteric stats-** Parameteric stats are based on the assumptions about the distribution of population from which the sample was taken. For example- Z, F, T, ANOVA

**Non parameteric stats -** Non parameteric stats are not based on the assumptions i.e. the data can be collected from a sample that does not follow a specific distribution. For example- Chi- square, H, U

T- test- to compare the significance between different means values when the sample size is small i.e. less than 30 and population standard deviation is not available.

Assumptions-

1. Population distribution is normal
2. Samples are random and independent.
3. Sample is small.

Mann whitney or U test is a non parameteric counterpart of T- test

One sampel T-test

Two sample t- test

If the values of the test stats is greater than the table value we reject the null hypothesis. If it is smaller do not reject null hypothesis.

Z- test- Sample size is large i.e. greater than 30.

Assumptions- all sme as t- test but sample size is large ad standard deviation is known.

One sample z- test

We can compare the sample mean with that of population mean.

Two sample z- test

F- test- F test is a comparison of equality of sample variance. F stats is simply a ratio of two variance.

F- test is a flexible test and it is used to test the overall significance for regression model. To compare fits of different models and to test the equality of means.

ANOVA- ANOVA is also called (Analysis of Variance) extension of t- test and z- test. If we have more than two sample groups then we us ANOVA.

Uses- F- testis used to statistically test the equality of means the relative variance between them.

Chi- square test- it can be used as a parameteric test as well. Sample size is large. This test is used to examine whether two categorical variables are independent in influencing the test stats.

- Observed value

- Expected value

Type 1 and type 2 error- In type 1 error, we mistakenly reject a true null hypothesis. In type 2 error, we fail to reject a null hypothesis that is actually false.

Null hypothesis- hypothesis is used to remove the factor of randomness from any experiment or project. For example if we flip coin we might get heads or tails 6-7 times out of 10 flips. We might consider the coin as biased but it is completely randomness of nature so that is why, it is important to remove randomness.

Alternate hypothesis- if we say that drug A is better than drug B and by using null hypothesis we prove that drug B is more effective then automatically we have proved the null hypothesis wrong.

So, in null hypothesis, we prove the alternate hypothesis right to prove that the null hypothesis is wrong.