Semester : V Subject : Statistics for AI&DS Academic Year: 2023-2024

TYPE I ERROR & TYPE II ERROR :-

In order to do a significance test, we come up with null hypothesis (Ho) and alternate hypothesis (Ha). We do the test to either accept the null hypothesis (or) to reject the null hypothesis. We take a sample from the population and calculate the statistic to test the hypothesis. From the statistics we calculate the probability of statistics (P value).

if * p-value $< \alpha \Rightarrow$ Reject Ho.

* p-value $\geq \alpha \Rightarrow$ Fail to reject null hypothesis.

Consider the below Table.

	Ho True	Ho-false.
Reject Ho	Type I Error	Correct Conclusion.
Fail to reject Ho.	Correct Conclusion.	Type II error.

Sometimes, the null hypothesis is true but we may reject Ho that is called as type I Error. It is also called as false ~~negative~~ positive ~~error~~ result.

If the null hypothesis is false, but we fail to reject Ho, then it is type II error. It is also called as false negative ~~error~~ result.