

Type-I and Type-II error

* Type-I error :- is the rejection of the null hypothesis when it is actually True.

Example \rightarrow An innocent person is convicted.

* Type-II error :- is the failure to reject the null hypothesis that is actually False.

Example :- A guilty person may not be convicted.

True Nature of hypothesis (Actual)

The reason of your Conclusion of test being wrong as you are taking sample and sample can be biased. \leftarrow	based on your sample analysis (conclusion)	H_0 is true	H_A is true
		Support H_0	Type-II Error.
		Support H_A	Type I Error
			Correct Conclusion

Actual \rightarrow Null hypothesis true or Null hypothesis is False

Decision based on your analysis/ conclusion \rightarrow Null hypothesis true or Null hypothesis is False

Scenario-I : Reject the Null hypothesis, when actually it is false. \rightarrow Good

Scenario-II : Reject the Null hypothesis when actually it is true \rightarrow Type-I error

Scenario-III : Retain the Null hypothesis when actually it is false. \rightarrow Type-II error.

Scenario-IV : Retain the Null hypothesis when actually it is True. \rightarrow Good

Example \rightarrow If a person has committed a crime,
(Ajay) he is taken to the court, where
by rule he is innocent until
 $H_0 \rightarrow$ A person is innocent. proven guilty.

Scenario-1 \rightarrow An innocent person has been charged for a crime, and in the court he is convicted \rightarrow Type I error.

Scenario-2 \rightarrow A guilty person has been charged, but court didn't find him guilty.
 \rightarrow Type II error.