Summary

- A type I or alpha error is when you reject the null hypothesis when the null hypothesis is true
- Our goal is to maximize the chances of making a correct decision and minimize the chances of making an incorrect decision
- The probability with which we may reject the null hypothesis when it is true is called a level of significance and it is also called as a size of the test and is denoted by α
- The confidence with which the experimenter rejects or accepts a null hypothesis depends upon the significance level adopted. This significance level is expressed as a percentage
- While 1% or 5% might be an acceptable level of significance for one application, a different application can require a very different level.
- If α is the size of the test or probability of Type I error then (1- α) is called a Operating Characteristic of a test
- Setting a significance level (before doing inference) has the advantage that the analyst is not tempted to choose a cut-off on the basis of what he or she hopes is true
- If the consequences of a type I error are serious or expensive, then a very small significance level is appropriate
- If the consequences of a Type I error are not very serious (and especially if a Type II error has serious consequences), then a larger significance level is appropriate