Linear Statistical Models

Video 109 : Bonferroni in R

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Bonferroni test is not really a test, it's a way by which you adjust the critical values or P-values or α's so that the test has an overall Family wise error rate bounded by some given α.
Here we take some standard test like the LSD test and apply the Bonferroni correction to it.

Following is the R-command with the Bonferroni correction:

```
library(agricolae) #loading the library
data(sweetpotato)  #loading the dataset
model=lm(yield~virus,data=sweetpotato)
out=LSD.test(model,"virus",group=T,p.adj="bonferroni")
```

The output is as follows:

```
$groups
      yield groups
oo 36.90000      a
ff 36.33333      a
cc 24.40000     ab
fc 12.86667      b
```

Observations from the R-output :
oo, ff and cc seem to be in the same group. cc and fc also appear to be in the same group. cc belongs to both the **a** lot on one side and the **b** lot on other side.

It is imperative to note that these groups are not transitive in nature. ff and cc belong to group **a**, cc and fc belong to group **b** , but ff does not belong to group **b**. The reason being here we are working with approximate equations. For instance if we say numbers arranged at distance of 1 unit are approximately equal, then 0.5 1.4 , 1.4 2 but 0.5 is not approximately equal to 2.