QUESTION 2 - TWO FACTOR DESIGN AND TWO-WAY ANOVA

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2021-11-30

# AIM

Explain how does the factorial experiment is different from two way ANOVA with respect to all the aspects using a suitable dataset(s) and draw your conclusion.

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# DEFINITIONS

## TWO FACTOR DESIGN

This is an experimental design i.e. a method using which data is collected and organised. Two-factor design is a design wherein data is collected on two interacting treatments, and is collected not only for every level of each treatment, but for every possible combination of treatment levels among the two treatments. i.e. every possible interaction.

## TWO-WAY ANOVA

This is a statistical test of significance, that estimates the significance of the effect of two variables (separately, and if possible, with interaction) on the response variable. It involves a null hypothesis for each treatment separately and their interactions (if possible), and states that the mean responses for ever level of the treatment or treatment interaction is equal. To estimate significance, we use the F-statistic. A significant result means the null hypothesis is rejected.

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# NOTES

Two-factor design uses two-way ANOVA as a statistical test for significance of factors. The only point to remember is that the interactions are always available and are exhaustive, when using this design.