

A Comparative Study of the Means of Multivariate Normal Distributions.

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Abstract:

This work is a comparative study of the means of two multivariate normal distributions. Since this distribution is analogous to the univariate distribution, this latter distribution has been included in the real work. The method considered is that of testing of hypothesis concerning the population means and finding confidence intervals for these parameters on the basis of two independent samples from two populations with these distributions.

The univariate normal distribution is specified by two parameters - the mean, μ and the variance σ^2 . Likewise its multivariate analogues specified by two vector-valued parameters - the mean and the variance-covariance matrix E . Hence the problem of comparing the means of two (multivariate or univariate) normal distributions has been discussed under different conditions of the variance-covariance matrices (and variances in the case of univariate) of the two distributions.

As an example, an analysis of some data which were collected on students from a secondary school has been given.

Keywords: Normal distributions/ testing of hypothesis/ mean/ variance-covariance matrix

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