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## Kernel weighted local regression surface technique for detection of outliers

C.T. Jose<sup>1</sup>, K.P. Chandran<sup>2</sup>, K. Muralidharan<sup>2</sup>, D. Jaganathan<sup>1</sup> and S. Jayasekhar<sup>2</sup>

<sup>1</sup>Central Plantation Crops Research Institute, Regional Station, Vittal, Karnataka

<sup>2</sup>Central Plantation Crops Research Institute, Kasaragod, Kerala

Outlier detection and robust estimates are integral part of data mining and has attracted much attention recently. A data driven method is proposed to identify the outliers for application in spatial regression analysis. The method involve first fitting a robust nonparametric regression surface following *iterative kernel weighted local regression surface technique* and analyzing the residuals for identifying the outliers or extreme observations. The method is illustrated through both simulated and live data. On application of this method with cocoa yield data, it was observed that the location effect is eliminated and thereby enabled identification of high potential trees in an orchard, which is useful for the breeding programs.

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## Theoretical explanation of divisibility verification methods in vedic mathematics

Sabu Sebastian

*Department of Mathematics, Nirmalagiri College, Nirmalagiri, Kannur, Kerala 670701*

This paper proposes a theory, which is useful to verify the divisibility of a number by a two digit number ending with the digits 1, 3, 7 or 9. Vedic Mathematics deals with a particular technique for testing the divisibility by a number ending with 9 or 1, but there is no theoretical support behind it. This paper discusses the theory of the divisibility technique used in Vedic Mathematics, based on congruence relations in Number Theory.

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## Latent variable approach for measures of association between variables

K.P. Chandran and K. Muralidharan

*Central Plantation Crops Research Institute, Kasaragod*

Measures of association between variables are of much importance in any field of research. Pearson's correlation coefficient is one of those measures, which is most widely used and often misused as well. Its application is restricted with data satisfying assumptions such as linearity, normality and homoscedasticity thus limiting its application only to continuous variables. When these assumptions are not satisfied, Pearson's rank correlation is suggested. This measure can also be used for variables that are in ordinal scale. When variables are binary or nominal or