

IMPLEMENTATION OF DATA MINING APPROACH FOR ANALYZING AGRICULTURE DEMANDS

Kalaivani T.N.^{1*} and Rathnayake R.M.K.T.²

¹Department of Computing and Information Systems, Sabaragamuwa University of Sri Lanka, Srilanka

²Department of Physical Sciences & Technology, Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka, Sri Lanka

*vanivanankesi@gmail.com

Rainfall is a key factor in determining agriculture demands such as paddy production and paddy price. This research focuses implementation of data mining techniques for analyzing customer demands in paddy price based on the rainfall variation under the long term manner. The use of analyzing rainfall and price of paddy for ten years from 2006 to 2015 that predict customer demands makes to check the price of paddy along with changes in rainfall. The analysis of past ten years' meteorological data comprising year, month and rainfall is important to predict future state of rainfall accurately. It utilizes past weather data records on the premise that previous weather will be a repeat of the future. At the beginning K- means clustering algorithm was used to group the homogeneous paddy price data, then most suitable cluster was selected by correlation analysis. By using Random tree, rules are retrieved related to month, price and rainfall. Finally long short-term memory Neural Network (LSTM) was used to forecasting rainfall and paddy price. End of the study customer's demands in price of paddy were predicted by forecasted result. Correlation between rainfall and paddy price in cluster_0 is -0.603511 and Mean absolute error is 4.1 degrees. It is higher than previous data set. In future can be analyzed temperature humidity, and etc for predict sales of paddy at same way. LSTM predicting accuracy is increased along with huge amount of data. From the result, day vice data will give more accuracy compare with monthly data and adding more attributes for prediction will provide an exact result.

Keywords: *Random tree, K-means clustering algorithm, LSTM network, Correlation analysis*