APPLICATION OF DATA MINING TO PREDICT ONION PRICES IN KARO DISTRICT USING THE K-NEAREST NEIGHBORS METHOD

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ABSTRACT

Shallots are a tuber plant that is widely consumed by Indonesian people, both as herbal medicine and as a kitchen spice. However, the yield of shallots is greatly influenced by the available supply of shallots, where there is often a problem of significant fluctuations in the price, thus affecting the selling value of consumers and producers, especially farmers. Farmers who cannot predict the price of shallots often experience losses when selling shallots to shallot sales agents. If this problem is not resolved immediately, farmers will be reluctant to grow shallots again, so a system is needed that is able to predict the price of shallots in the future in the hope that it can help farmers predict the price of shallots in the future. The algorithm used in this shallot price prediction system is K-Nearest Neighbors (k-NN). The k-NN algorithm works by determining data into a certain class from the total shortest distance from a number of k patterns for each class. The distance between data is calculated using the Euclidean distance formula. The dataset used consists of 303 data which has 5 features, namely farmer_price, seller_price, retail_price, seed_price, and harvest_yield. Based on tests that have been carried out on research on the Red Bawangi Price Prediction system in Karo Regency using the K-Nearest Neighbors algorithm, the best test results are by using 80% training data and 20% testing data with a value of k=2 which produces a Mean Absolute Error (MAE) value of 25786 and the Mean Squared Error value is 72. With this system, farmers can predict the price of shallots in the future before selling their harvest to agents.

Keywords: Shallots, K-Nearest Neighbor, Forecasting, Euclidean Distance.