

Prediction of Food Commodity Prices in East Java Province Using the Long Short-Term Memory (LSTM) Algorithm

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ABSTRACT

The fluctuation of food commodity prices in East Java significantly impacts economic stability and consumers' purchasing power. This study aims to predict the prices of 11 food commodities using the Long Short-Term Memory (LSTM) algorithm based on historical daily price data. The model was developed through preprocessing, normalization, and training with various epoch configurations, then evaluated using Root Mean Squared Error (RMSE) and Mean Absolute Error (MAE). The results indicate that the model with 100 epochs provides the highest accuracy for most commodities, achieving an average RMSE of 0.023 and MAE of 0.015, while 80 epochs are more optimal for certain commodities. The predicted prices are displayed through an interactive website, enabling real-time access to price information. The implementation of this model has proven effective in supporting price policy planning, business strategies for farmers and traders, and helping the public anticipate food price fluctuations.

Keywords: *Price prediction, food commodities, Long Short-Term Memory (LSTM), machine learning, deep learning, time series.*