ABSTRACT

DEVELOPING THE POTENTIAL OF AGRICULTURAL FOOD CROPS SECTOR USING SVM ALGORITHM AND LINEAR REGRESSION WITH EAST JAVA HISTORICAL DATA

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The production of food crops in the agricultural sector plays a crucial role in providing food security and contributing to the economy. However, in 2021, the food crop sector in Indonesia experienced a decline of -1.56% in the Gross Domestic Product (GDP), influenced by various factors such as adverse weather conditions, suboptimal land management, and socio-economic challenges faced by farmers. One ongoing issue is the tendency of farmers to cultivate crops based on market demand without considering the climatic conditions that affect crop productivity. To address this problem, this research will employ the Support Vector Machines (SVM) algorithm for crop classification and the Linear Regression algorithm for predicting yield. The dataset required for this study consists of 252 records, encompassing crop yields and climate data such as rainfall and temperature. The modeling results using the SVM algorithm show an accuracy of 80% in the model scheme with outlier data, while the Linear Regression algorithm yields a Mean Absolute Error (MAE) value of 0.11 in the model scheme with outlier data.

Keywords: Machine Learning, Food Crops, Linear Regression, SVM, Classification, Regression