IMPLEMENTASI ALGORITMA *EXTREME GRADIENT BOOSTING* UNTUK PREDIKSI KEBUTUHAN STOK PUDING PADA MULTI MITRA USAHA MANJO (*IMPLEMENTATION OF THE EXTREME GRADIENT BOOSTING ALGORITHM FOR PREDICTING PUDDING STOCK REQUIREMENTS ACROSS MULTIPLE BUSINESS PARTNERS OF MANJO***)**

Syamsul Arifin, S.Kom., M.Cs., *Thesis Supervisor*

Zulfikar Ridho Yuniar

Informatics Engineering Study Program

Department of Information Technology

ABSTRACT

Pudding stock planning at Manjo is still performed manually, potentially resulting in oversupply or shortages. This study aims to apply the Extreme Gradient Boosting (XGBoost) algorithm to predict pudding supply for 35 business partners using historical supply and product return data from May 2024 to September 2026. Data processing follows the Knowledge Discovery in Databases (KDD) approach, while system development uses the Waterfall method. Modeling involves evaluating feature engineering and optimizing hyperparameters, with performance assessed using Mean Absolute Error (MAE) and Root Mean Squared Error (RMSE). The overall model evaluation yielded an average MAE of 1.680 and RMSE of 2.338. Black box testing confirmed that all main system functions met the specified requirements. The developed system provides supply recommendations to support production and distribution planning. Independent testing is still required because the test data were also used to select the final models.

Keywords: *Stock prediction, XGBoost, pudding, multiple business partners, KDD.*