Abstract

This study addresses the challenges of social welfare services in Central Java, Indonesia by proposing a classification system to predict the number of Social Welfare Service Recipients (SWSR) for the future using machine learning algorithms. In this research, a scenario was developed to increase the ability of the Support Vector Machine (SVM) to be able to predict classification based on time using extended time-based features. As a comparison, this method is the Long Short-Term Memory (LSTM) method. The results obtained show that Time-Based Feature Expansion SVM consistently outperforms the LSTM model in all its evaluation metrics. The accuracy values of 70% and 80% outperform the LSTM accuracy values of 34.28% and 48.57%. Likewise the F1 Score, Recall, Precision and RMSE values. The t-5 classification prediction model is an optimal model built using a polynomial kernel, and this model provides optimal results for the SWSR classification prediction period only until 2027. This shows that SVM Time-Based with feature expansion has superior performance in predicting and classifying SWSR compared to LSTM. This research aims to assist the government in implementing social welfare services by identifying the most influential factors and providing references for further research regarding the distribution of SWSR.

Keywords: Social Welfare Services Recipients (SWSR), prediction, classification, SVM, LSTM, time-based feature expansion