Prediksi Penyebaran Penyakit Demam Berdarah Dengue (DBD) di Kabupaten Bandung Menggunakan Algoritma AdaBoost

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Abstract

Dengue Hemorrhagic Fever (DHF) is a disease that greatly affects the global population because it is the main cause of death in the world and one of them is Indonesia. Based on data from the Indonesian Health Profile in 2020 there were 108.303 cases in Indonesia with 747 deaths, while Bandung Regency itself had 306 cases of DHF. One of the efforts to minimize the spread of DHF is by predicting the spread of DHF using a machine learning approach. In this study, one of the machine learning algorithms was used, namely Adaptive Boosting (AdaBoost) to predict the spread of DHF. The data used is climate data obtained from ERA 5. In addition, the DHF incident dataset was obtained from the District Health Office. Bandung from 2009 to 2021. This study uses the AdaBoost algorithm to get the best model for predicting the incidence of DHF or incident rate (IR). Based on the experiments, the best performance was obtained by not performing hyperparameter tuning, namely the Root Mean Square Error (RMSE) of 0,733, the Correlation Coefficient (CC) of 0,946, and the Mean Absolute Percentage Error (MAPE) of 13,03% with a length of training data for 5 years and the most influential climate parameter, namely temperature.

Keywords: adaboost, dengue hemorrhagic fever, prediction, climate, incidence rate