Abstract

Loans given by banks or credit are one of the bank's main incomes. It can determine how much a bank's revenue is. Knowing how important it is to a bank's business, the prediction is necessary to be conducted to observe the bank's revenue. The objective of this study is to measure the performance prediction of loans given by banks. Therefore, the used methods for prediction are Random Forest and Gradient Boosting. The dataset used is acquired from Otoritas Jasa Keuangan (OJK), where monthly financial reports of four major banks in Indonesia are chosen, which are BCA, BNI, BRI, and Mandiri. The evaluation metric used R-squared (R^2) to measure the prediction results. The results of experiment show the proposed method achieved R^2 score of 99.92% for Random Forest and 99.92% for Gradient Boosting on BCA, 99.91% for Random Forest and 99.93% for Gradient Boosting on BNI, 99.98% for Random Forest and 99.97% for Gradient Boosting on BRI, and 99.80% for Random Forest and 99.80% for Gradient Boosting on Mandiri. From the results above, The conclusion is the proposed methods when using a basic Hyperparameter or experimenting with several different hyperparameters still achieved R^2 score of more than 99% for all bank loan datasets in this research which is almost 100% as the highest results.

Keywords: Bank loans, Prediction, Random Forest, Gradient Boosting