Abstract

This study aims to develop a prediction model using ensemble learning to detect the likelihood of myocardial infarction as a preventive measure. Early detection and prevention of myocardial infarction are crucial to improve patients' quality of life and reduce mortality rates due to heart disease. However, research comparing the performance of ensemble learning-based detection is limited. The study compares various ensemble learning methods such as bagging, boosting, and stacking, and tunes parameters for model performance optimization. The dataset used consists of patients' medical records with relevant parameters for myocardial infarction detection. The results show that ensemble learning models using algorithms like Catboost, LGBM, and XGBoost achieve accuracy above 95%. Implementing a web prototype as a validation tool for detection performance is also successful. In conclusion, ensemble learning is an effective technology in predicting the likelihood of myocardial infarction as a preventive measure. Models like Catboost, LGBM, and XGBoost demonstrate high performance in this prediction task. Validation through the web prototype provides confidence that the developed models are reliable for clinical practice. Future research should consider testing the models on larger and diverse datasets to improve prediction validity and performance.

Keywords: Myocardial Infarction, Ensemble Learning, Prediction, Preventive Measure, Early Detection, Heart Disease.