Prediksi *Employee Attrition* Menggunakan Metode *Decision Tree* dan *XGBoost* dengan Seleksi Fitur *Chi-Square*

Arla Sifhana Putri[1], Kemas Muslim Lhaksmana[2]

[1,2]Fakultas Informatika, Universitas Telkom, Bandung
[1]arlasifhana@students.telkomuniversity.ac.id, [2]kemasmuslim@telkomuniversity.ac.id

Abstract

Employee attrition is an event in which a company loses employees for various reasons. It can negatively impact the company's productivity and stability, so companies need to take appropriate preventive measures to avoid it. In this study, the classification methods used are Decision Tree and XGBoost, with Chi-square feature selection applied. The Decision Tree method was chosen for its ease of interpretation and implementation, while XGBoost was selected for its excellent predictive performance. Chi-square feature selection was employed to identify features that are significantly correlated with the target feature. The performance of both methods was evaluated using metrics such as accuracy, precision, recall, and f1-score. The results showed that the Decision Tree method achieved the highest accuracy of 93.58% by utilizing 20 features with the highest Chi-square values. Meanwhile, the XGBoost method achieved the best accuracy of 98.65% by utilizing 25 features with the highest Chi-square values. The use of Chi-square feature selection significantly improved the performance of the predictive model. This indicates that the XGBoost method is superior in predicting the likelihood of employee attrition compared to the Decision Tree method.

Keywords: *employee attrition*, prediction, *decision tree*, *xgboost*, chi-square