Prediction of Employee Attrition using Support Vector Machine (SVM) Algorithm

Muhammad Abdurrohman Al Fatih[1], Kemas Muslim Lhaksmana[2]

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

Abstract
Employee attrition is a challenge, considering that employees are one of the important assets of the company. A high level of employee attrition indicates that employees often resign from the company. That will harm the company in terms of time, cost, human resources, and also make the company's image down.

It is necessary to analyze and predict employee attrition to take preventive and persuasive actions. Hence, the employees do not leave the company. Therefore, a tool is needed to predict whether an employee will resign from the company or not.

In this study, a machine learning model was implemented to predict employee attrition and compared the performance of the Support Vector Machine (SVM) algorithm with the k-Nearest Neighbor (kNN) algorithm. The data set used are the IBM HR Analytics Employee Attrition & Performance data set. Both models were evaluated using accuracy, F1-score, and geometric-mean metrics.

The results of this study indicate that the model with the SVM algorithm has a better metric value than the kNN algorithm. The model with the SVM algorithm has an average accuracy of 0.86, an F1-score of 0.59, and a geometric-mean of 0.75. The model with the SVM algorithm is better at predicting the data into the attrition class and the not-attrition class than the model with the kNN algorithm.

Keywords: prediction, employee attrition, employee, machine learning.