

Title:

Machine Learning for Predicting Employee Attrition

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Abstract:

Employee attrition has become a focus of researchers and human resources because of the effects of poor performance on organizations regardless of geography, industry, or size. In this context, the use of machine learning classification models to predict whether an employee is likely to quit could greatly increase the human resource department's ability to intervene on time and possibly provide a remedy to the situation to prevent attrition. This study is conducted with an objective to compare the performance machine learning techniques, namely, Decision Tree (DT) classifier, Support Vector Machines (SVM) classifier, and Artificial Neural Networks (ANN) classifier, and select the best model. These machine learning techniques are compared using the IBM Human Resource Analytic Employee Attrition and Performance dataset. Preprocessing steps for the dataset used in this comparative study include data exploration, data visualization, data cleaning and reduction, data transformation, discretization, and feature selection. In this study, parameter tuning and regularization techniques to overcome overfitting issues are applied for optimization purposes. The comparative study conducted on the three classifiers found that the optimized SVM model stood as the best model that can be used to predict employee attrition with the highest accuracy percentage of 88.87% as compared to the other classification models experimented with, followed by ANN and DT.