

Predicting Employee Turnover

Objective:

The primary goal is to construct a predictive model using the Gradient Boosting Classifier technique, focusing on the `LeaveOrNot` attribute to assess the probability of an employee's departure. This endeavor will aid HR departments in pinpointing pivotal elements that sway employee attrition, thereby facilitating strategic decision-making.

Background:

Employee turnover profoundly affects organizational efficiency by escalating hiring expenses and diminishing productivity. Comprehending the dynamics that compel employees to depart is vital for crafting effective retention strategies. This project capitalizes on machine learning technologies to forecast employee turnover, a pressing concern for HR departments globally.

Variables:

Independent Variables: Total of 7 (4 categorical, 3 numerical)

Dependent Variable: 1 (binary, `LeaveOrNot`)

Methodology:

The dataset will be meticulously cleaned and pre-processed, which includes one-hot encoding for categorical variables, normalization of numerical inputs, and segmentation into training and testing subsets. We will deploy a Gradient Boosting Classifier, renowned for its resistance to overfitting and its adeptness at managing heterogeneous data types and uneven class distributions. The model's efficacy will be gauged through metrics such as accuracy, precision, recall, F1-score, and the area under the receiver operating characteristic (ROC-AUC) curve. Analysis of feature importance will reveal the most significant predictors of turnover. The projected outcome is a robust predictive model that can accurately determine turnover likelihood, with analytical insights providing actionable strategies to bolster employee retention.

Dataset - [Clickhere](#)