Prediction of Employee Attrition Rate using Machine Learning

Team Members: GEETHA N G
GHANASHREE B N
KARUNA N
VIMALA K V
GEEETHA S V

Guide: **SHILPA HARIRAJ**

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Abstract

In this section, we provide a brief overview of our research on predicting employee attrition rate using machine learning techniques. Discover how our solution can help organizations proactively manage their workforce.

Problem Statement

Identifying and addressing employee attrition is a crucial challenge that many organizations face. Learn about the key issues and potential consequences of high attrition rates in this section.

Aim and Objective

Aim :

Our aim is to develop a predictive model that accurately forecasts employee attrition.

Objective:

1. Collect and analyze relevant data
2. Train and evaluate machine learning models
3. Develop a reliable attrition prediction system

Proposed Solution

We propose using advanced machine learning algorithms to predict employee attrition based on various factors such as performance, satisfaction, and tenure.

System Architecture
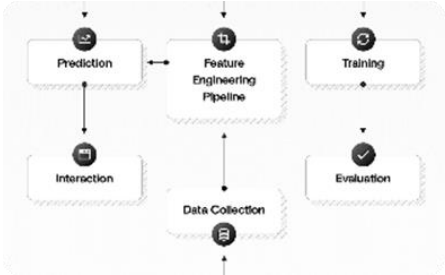
Overall Architecture

Our system follows a modular architecture, consisting of data collection, preprocessing, model training, and prediction modules.
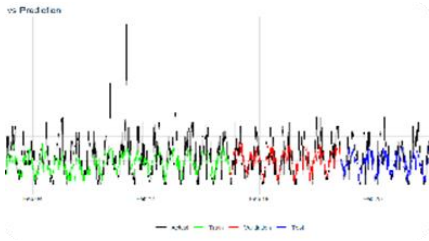

Data Collection Module

We gather relevant employee data from HR systems, performance evaluations, surveys, and other sources to build our dataset.

Model Training Module

Using various machine learning algorithms, we train the models on historical employee data to understand patterns and predict attrition.

Prediction Module

Our system provides real-time attrition predictions, empowering organizations to take proactive measures to retain their valuable employees.

System Deployment Approach

1.Technology Stack

- Python for data preprocessing and model training
- Scikit-learn and TensorFlow for machine learning algorithms
- SQL databases for data storage

2. Development Methodology

Our team follows an agile development approach, ensuring continuous collaboration, flexibility, and iterative improvements throughout the project.

Algorithm & Deployment
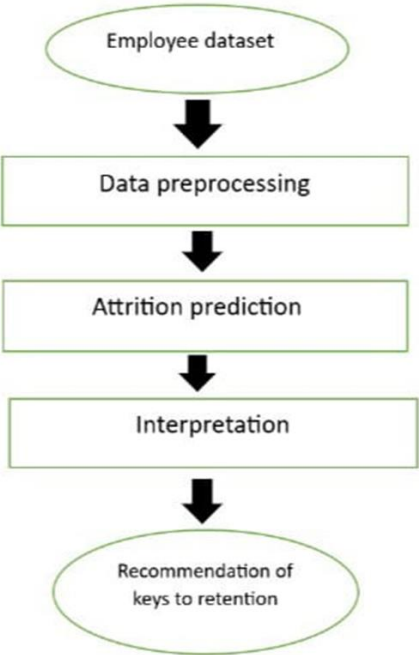
Machine Learning Algorithms:

We employ a combination of decision trees, random forests, and logistic regression algorithms to build our attrition prediction models

Model Deployment:

The trained models are deployed using a cloud-based service, allowing organizations to seamlessly integrate the attrition prediction system into their existing infrastructure

Conclusion

In conclusion, our research demonstrates the effectiveness of machine learning in accurately predicting employee attrition. By leveraging this technology, organizations can make data-driven decisions and implement targeted strategies to reduce attrition rates.

Future Scope

We envision expanding our research to explore additional factors influencing attrition, such as company culture, work-life balance, and career advancement opportunities. Furthermore, we aim to develop personalized retention strategies based on individual employee profiles.

Reference

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3. https://www.researchgate.net/publication/364322002_EMPLOYEE_ATTRITION_PREDICTION_USING_MACHINE_LEARNING_ALGORITHMS

4. https://ieeexplore.ieee.org/document/8605976

Thank you!