Employee Turnover Prediction Model for Salifort Motors

Predicting Employee Departure to Improve Retention Strategies

ISSUE / PROBLEM

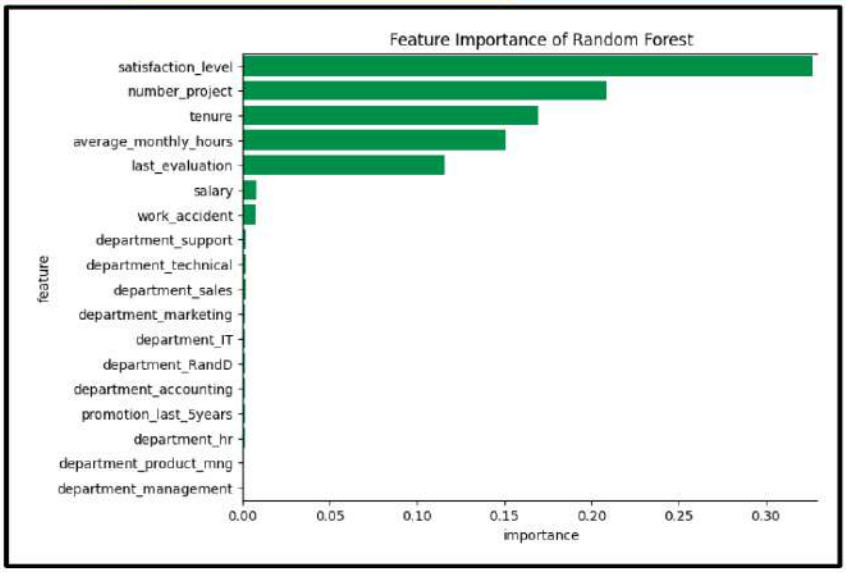
Salifort Motors is experiencing a high rate of employee turnover, leading to increased recruitment and training costs. The company needs a data-driven approach to predict employee departure and understand the reasons behind it. The challenge is identifying key factors influencing turnover and addressing them to improve retention rates.

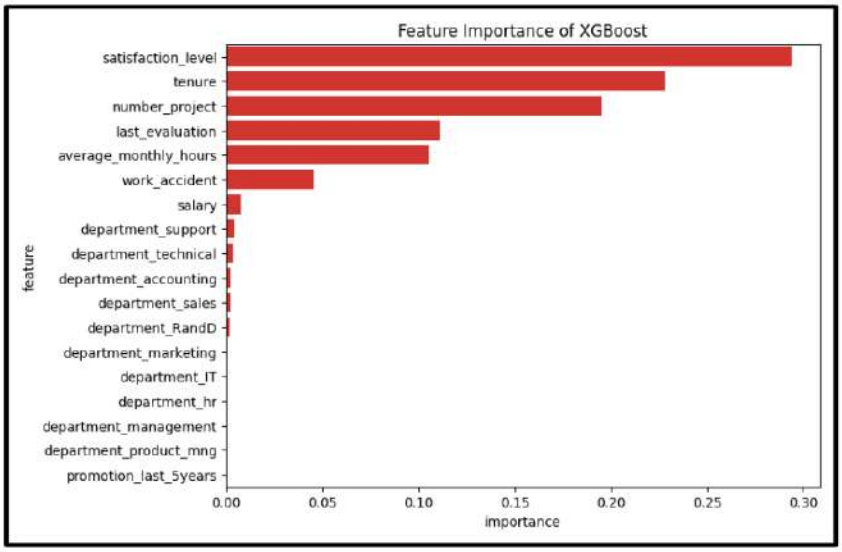
RESPONSE

As a data analyst, I was tasked with analyzing employee data from the recent survey, including features like department, job title, number of projects, and monthly hours worked. The goal was to build a predictive model to forecast employee turnover and understand the drivers behind it. I designed multiple models (Logistic Regression, Decision Tree, Random Forest) to identify the most important factors contributing to turnover, and to predict which employees are likely to leave.

IMPACT

By identifying employees likely to leave, the company can take proactive measures to retain them. The insights gained from this model will help Salifort Motors reduce recruitment and training costs, foster a positive corporate culture, and improve employee satisfaction and engagement.





The barplots show the most important variables for predicting employee turnover. For Random Forest, they are satisfaction_level, number_project, tenure, average_monthly_hours, and last_evaluation. For XGBoost, the key features are satisfaction_level, tenure, number_project, last_evaluation, average_monthly_hours, and work_accident. These factors highlight the importance of job satisfaction, workload, tenure, and evaluations in turnover prediction.

KEY INSIGHTS

- Employees working in specific departments (e.g., Research and Development) showed a higher likelihood of leaving.
- A higher number of projects assigned and increased monthly working hours were significant factors associated with employee burnout and turnover.
- Employees with lower satisfaction levels (as captured in survey responses) were more likely to leave the company.
- Predictive models like Random Forest and XGBoost provided the most accurate results, identifying the key features influencing employee departure.