

Project Title: Predicting Employee Turnover at Salifort Motors

Analyst: Noura Alhuthali
Date: 7/13/2025

Overview

In response to high employee turnover at Salifort Motors, we built and evaluated predictive models to determine which factors most influence employee departure. The goal was to help leadership proactively address retention challenges by identifying at-risk employees and key contributing factors.

Model Summary

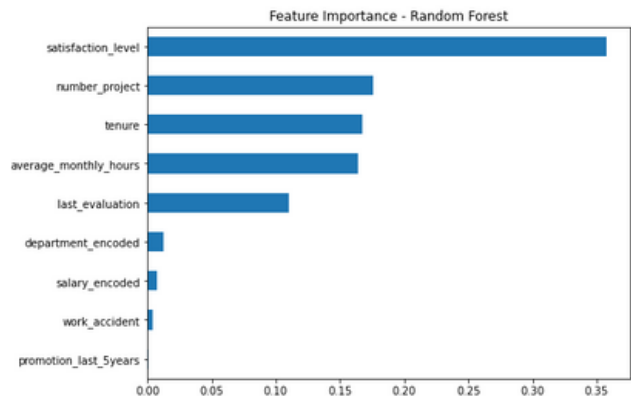
We tested two models: Logistic Regression and Random Forest. While Logistic Regression offered easier interpretability, the Random Forest model significantly outperformed it in predictive accuracy and recall, making it the final choice.

Benefits: High accuracy, ability to capture complex feature interactions, clear variable importance.

Limitations: Less interpretability compared to simpler models requires more computational resources.

Results

Key Results of the best model:
Random Forest Accuracy: 98%
F1-score (employees who left): 0.94
ROC AUC Score: 0.97



Insights & Recommendations

- Satisfaction is a major driver of retention; employees with low satisfaction were far more likely to leave.
- Workload balance matters; employees working on too few or too many projects showed higher turnover.
- Promotions reduce turnover; almost no employees who received promotions in the last five years left.
- Low salary is linked to higher departure rates.

We recommend implementing initiatives to improve job satisfaction and engagement across all departments and review salary structures to ensure competitiveness. Also, ensure to prevent overwork, and we strongly recommend monitoring high-risk departments and using this model to support data-driven HR decision-making.