

Executive Summary

Business Objective

Develop a predictive analytics workflow to identify employees at risk of leaving Salifort Motors. The project combined exploratory data analysis with logistic regression to understand the factors driving employee attrition and support data-driven retention strategies.

Dataset

14,999 employee records • 10 workplace variables

Tools: Python • pandas • NumPy • scikit-learn

Analytical Workflow

- Data inspection and quality assessment
- Exploratory data analysis (EDA)
- Feature engineering
- Logistic regression modeling
- Model evaluation

Key Findings

- Logistic regression achieved 83.4% accuracy with an ROC-AUC of 0.83.
- Workload, employee satisfaction, evaluation scores, and tenure were among the strongest predictors of attrition.
- The model identified employees who remain with the company more effectively than employees who leave, suggesting opportunities to improve recall.

Recommendation

Prioritize retention initiatives focused on workload, work-life balance, and employee satisfaction while continuing to refine the predictive model through class balancing techniques and comparison with more advanced tree-based algorithms.