Executive Summary

Employee Attrition Analysis at Salifort Motors

Overview

Salifort Motors is facing significant employee attrition, which may be impacting team productivity, morale, and hiring costs. Our goal was to develop a predictive model using advanced data analytics and machine learning to identify key factors contributing to employee turnover and provide actionable recommendations.

Objective

The main objective was to analyze employee data and build predictive models to identify patterns leading to employee departure. By doing so, the goal was to help Salifort Motors proactively address attrition risks and improve employee retention.

Results

- After cleaning and exploring the dataset, we built three machine learning models: Logistic Regression, Random Forest, and XGBoost.
- The **XGBoost model** performed the best, with an overall accuracy of ~98% and strong precision/recall balance, especially in identifying employees likely to leave.
- **Key predictors** of attrition included low satisfaction level, high or low number of projects, long time spent at the company, lack of recent promotions, and low salary levels.
- Visualizations (heatmaps, box plots, and histograms) supported these findings, showing clear patterns in behavior and risk factors among employees who left.

Next Steps

Integrate the predictive model into HR dashboards to monitor current employee risk levels in real time. Implement targeted interventions like employee engagement initiatives, workload adjustments, and compensation reviews. Conduct further qualitative research (for example, surveys or interviews) to complement the data-driven insights. Retrain and monitor the model periodically with updated data to ensure continued accuracy and relevance.