Employee Turnover Analysis — EDA Summary

Salifort Motors • HR Attrition Project

Project Overview:

Salifort Motors is experiencing a high rate of employee turnover, leading to increased recruitment and training costs.
This EDA explores **14,999 employee survey records** to identify what differentiates employees who stayed from those who left.
The findings will guide the predictive modelling phase and help leadership understand key attrition drivers.

Details

Correlation Heatmap

Key Insights

Satisfaction Level Is the Strongest Attrition Signal:

Employees who left show significantly lower satisfaction (**0.44**) compared to those who stayed (**0.66**).

Higher Workload & Burnout Indicators:

Employees who left tend to have:
Higher **average monthly hours** (226 vs 198)
Slightly more **projects**
Higher **last evaluation** despite leaving
This pattern suggests **overworked but unrecognized talent**.

Limited Promotions Fuel Attrition:

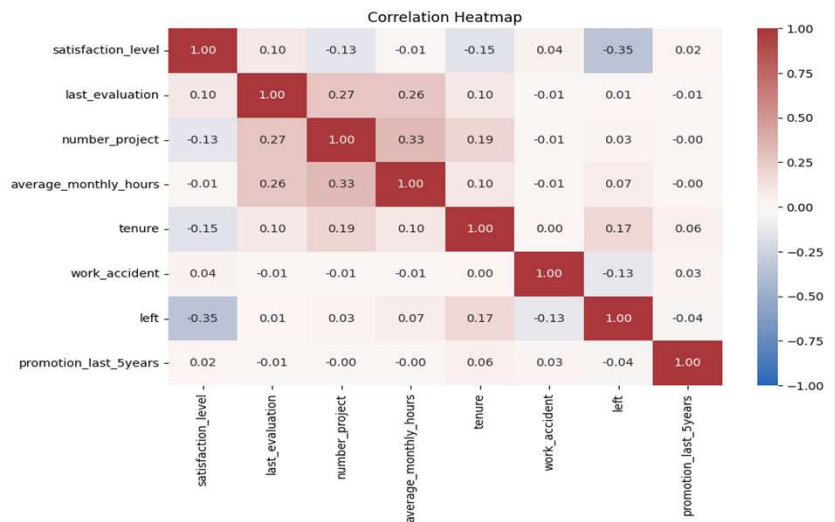Both groups have low promotions, but those who left have **almost none**, indicating stagnation.

Salary Has a Major Impact:

Low-salary employees are **overrepresented** among those who left, while high-salary employees are the least likely to leave.

Turnover Varies by Department:

Higher turnover in: **technical, support, IT**
Lower turnover in: **management, R&D**

Correlation Findings:

- The analysis shows that **satisfaction level is the main factor linked to employee turnover**—employees with low satisfaction are more likely to leave. Other factors like tenure, promotions, evaluations, and work accidents show **weak individual correlations**, but together they suggest a pattern: **limited career growth and workload imbalance** increase the risk of attrition. Improving satisfaction, growth opportunities, and workload balance can help **reduce turnover effectively**.

Next Steps

1. Data Preparation

Encode salary & department, scale numeric features, and address class imbalance if required.

2. Predictive Modelling

- Build and compare:
- Logistic Regression
- Decision Tree
- Random Forest
- XGBoost

3. Interpretation & Recommendations

- Use model outputs to advise HR on:
- Improving satisfaction programs
- Adjusting workloads
- Providing clearer promotion pathways
- Reviewing compensation for high-risk groups