Salifort Motors: A Data-Driven Approach to Reducing Employee Churn

Using Predictive Analytics to Proactively Retain Talent

Overview

This project analysed HR data to identify the key drivers of employee churn and built a predictive model to identify at-risk employees. The goal is to equip HR with a proactive strategy to retain valuable talent and reduce costs.

Problem

Employee churn poses a significant challenge to Salifort Motors. While the company is aware of losing valuable talent, the underlying causes have been unclear, leading to inefficient retention strategies. A deeper understanding of why employees leave is necessary to create targeted and effective solutions.

Solution

I have developed a predictive model that accurately identifies employees at high risk of leaving. This model serves as the foundation for a new, proactive retention strategy. By integrating this tool into HR workflows, the team can identify at-risk employees early, deploy targeted interventions based on data, and measure the impact of their efforts.

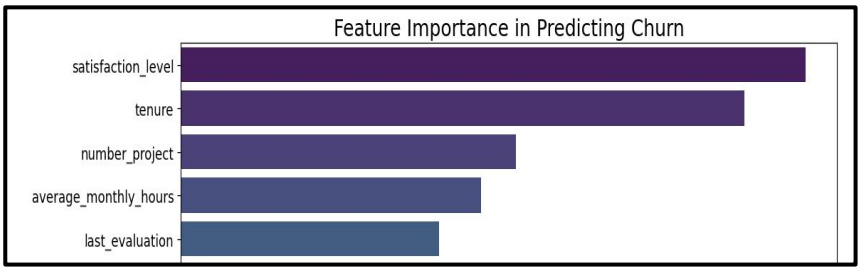
Details

My analysis and modeling provided several key insights. We used a **Random Forest Classifier** for its high performance and interpretability.

Model Performance: The model's performance metrics confirm its reliability for HR decision-making:

- **Overall Accuracy: 98.6%**
- **Ability to Identify Leavers (Recall): 91.5%**
- **Confidence in Predictions (Precision): 99.4%**

These strong results mean the model is not just accurate, but also highly effective for the specific task of proactive retention.



Key Findings: My analysis revealed that departing employees typically fall into one of three distinct profiles: the under-appreciated (high-performers with low satisfaction), the overworked (talented staff burning out from excessive hours), or the under-engaged (employees lacking challenge). The model confirmed that an employee's satisfaction level, tenure (with a high-risk period at 3-5 years), and the number of assigned projects are the most critical factors in predicting churn.

Next Steps

To implement this strategy, we recommend deploying the model to generate employee "churn risk" scores. This will enable targeted retention programs for at-risk profiles and new career development for employees in the 3-5 year tenure "danger zone." Concurrently, HR should monitor key metrics like work hours and project load to prevent burnout.