Salifort Motors

Employee Retention Project

ISSUE / PROBLEM

Salifort Motors seeks to improve employee retention and answer the following question:

What's likely to make an employee leave the company?

RESPONSE

In our analysis, we explored several machine learning models to predict our categorical target variable. These models included Logistic Regression, XGBoost, K-Nearest Neighbors (KNN), and Decision Tree. **The XGBoost model demonstrated the highest accuracy and AUC among all models tested.**

IMPACT

This model helps predict whether an employee will leave and identify which factors are most influential. These insights can help HR make decisions to improve employee retention.

	gini_importance
satisfaction_level	0.558982
tenure	0.169509
last_evaluation	0.140003
number_of_projects	0.115238
overworked	0.016041
work_accident	0.000227

Using Decision Tree, the most relevant variables are: 'satisfaction_level', 'number_of_projects', 'tenure' & 'last_evaluation'.

Feature Importances
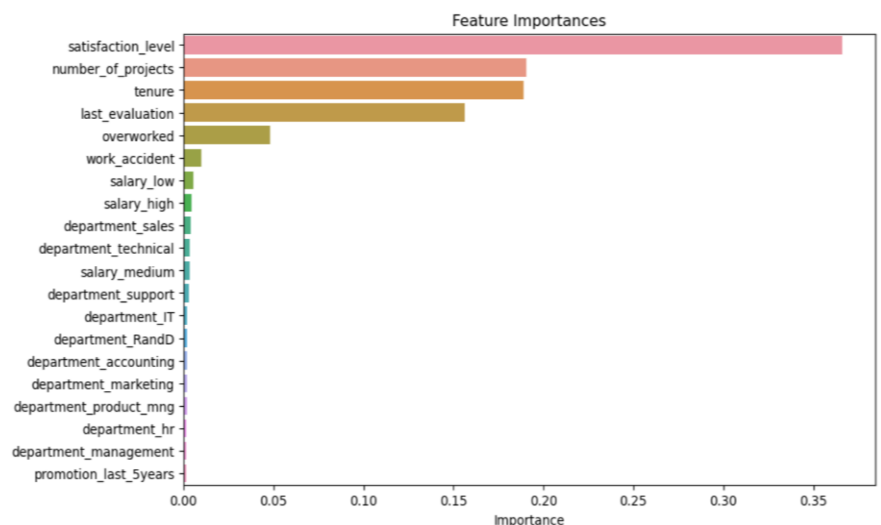
In the random forest model above, `last_evaluation`, `tenure`, `number_project`, `overworked`, `satisfaction_level`, and `work_accident` have the highest importance. These variables are most helpful in predicting the outcome variable, `left`.

KEY INSIGHTS

- Cap the number of projects that employees can work on.
- Consider promoting employees who have been with the company for at least four years or conduct further investigation about why four-year tenured employees are so dissatisfied.
- Either reward employees for working longer hours, or don't require them to do so.
- If employees aren't familiar with the company's overtime pay policies, inform them about this. If the expectations around workload and time off aren't explicit, make them clear.
- Hold company-wide and within-team discussions to understand and address the company work culture, across the board and in specific contexts.
- High evaluation scores should not be reserved for employees who work 200+ hours per month. Consider a proportionate scale for rewarding employees who contribute more