Salifort Motors

Employee Retention Project

ISSUE / PROBLEM

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

What is likely to make an employee leave the company?

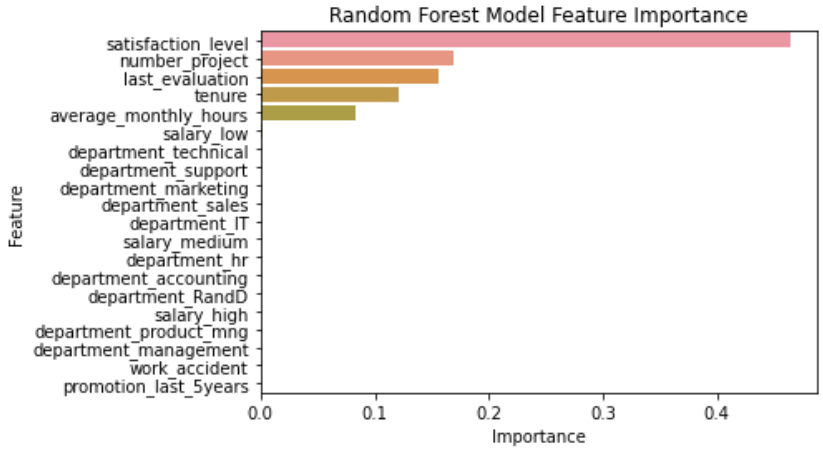
RESPONSE

Since the variable we are seeking to predict is categorical and the dataset is imbalanced, the team could build a tree-based machine learning model, either a random forest model or a XGBoost model.

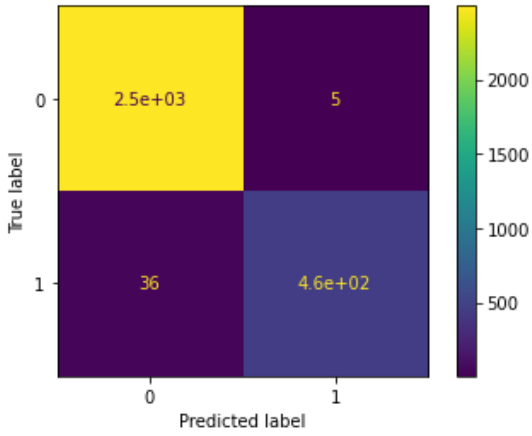
The random forest model slightly outperforms XGBoost model.

IMPACT

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



The random forest feature importance chart above shows that satisfaction_level, number_project, last_evaluation, tenure, and average_monthly_hours have the highest importance. These variables are most helpful in predicting the outcome variable, left.



The random forest model had the following evaluation scores:

- **F1 score: 0.958**
- **Recall Score: 0.928**
- **Precision Score: 0.989**
- **Accuracy Score: 0.986**
- **AUC Score: 0.963**

INSIGHTS/NEXT STEPS

- Limit 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 do not require them to do so.
- If employees are not familiar with the company's overtime pay policies, inform them about it. If the expectations around workload and time off are not 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 or put in more effort.