Salifort Motors

Employee Retention Project

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ISSUE / PROBLEM

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

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

RESPONSE

We are solving a binary classification problem. Therefore, we will compare logistic regression and machine learning classifier models.

The Random Forest model performed the best out of all methods.

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.

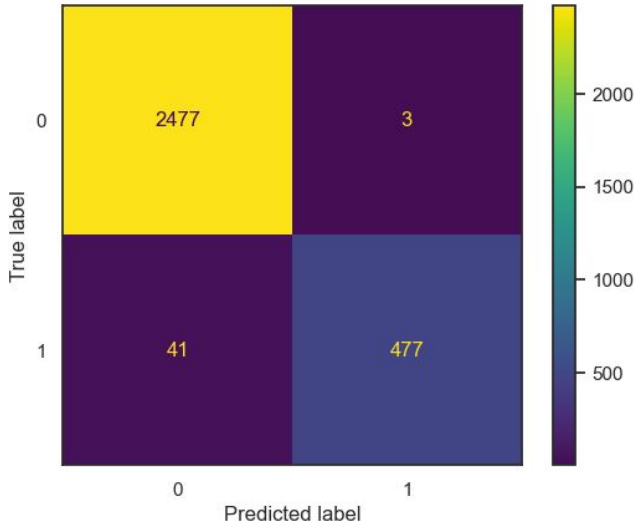
Evaluation Metrics for Random Forest:

Accuracy: 98.53%

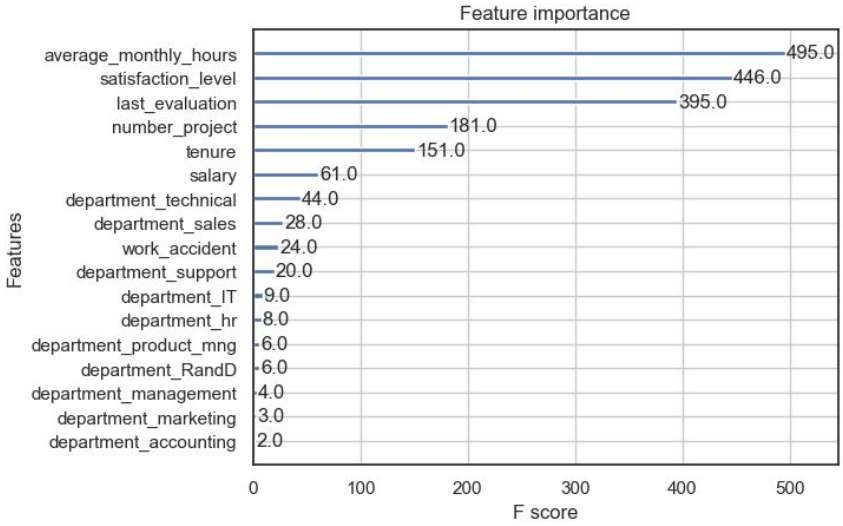
Precision: 99.38%

Recall: 92.08%

F1 Score: .96



Evaluation metrics and confusion matrix of the Random Forest model's performance on our test dataset.



From the XGBoost model: *'average_monthly_hours', 'satisfaction_level', 'last_evaluation", 'number_project', and 'tenure'* have the highest importance. These variables are most helpful in predicting the outcome variable, `*left*`.

INSIGHTS/NEXT STEPS

- Employees should work on three, four, or five projects to optimize satisfaction level. No employee should work on more than six projects at once.
- Evaluation metrics should be changed to not incentivize employees overworking themselves and becoming more likely to leave the company by having high work hours and number of projects.
- Continue with employee surveys to gather data on self-reported satisfaction level, since that has the best predictive power for retention.
- Employees with a low salary are more likely to leave the company. Consider salary increases as a possible incentive to increase retention.
- R&D has the highest retention out of all non-management departments. Find out ways they might operate differently from other departments and see if it can be applied company wide.