Salifort Motors

Employee Retention Project

ISSUE / PROBLEM

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

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

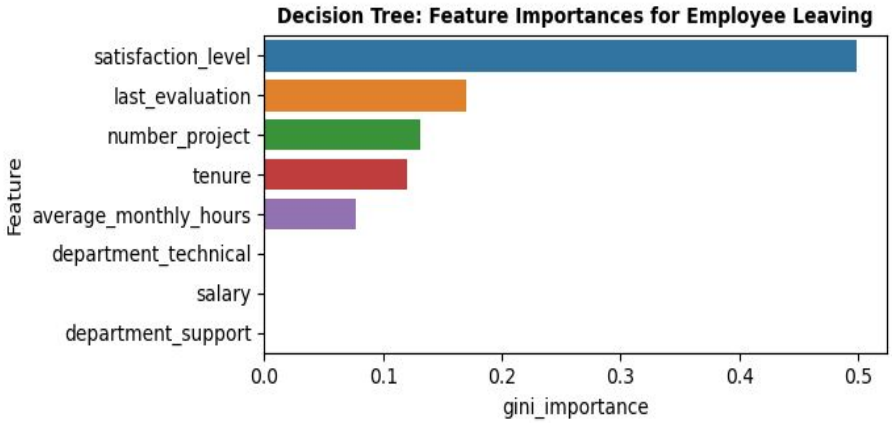
RESPONSE

Since the variable I seek to predict is binary, I could build a tree-based machine learning model.

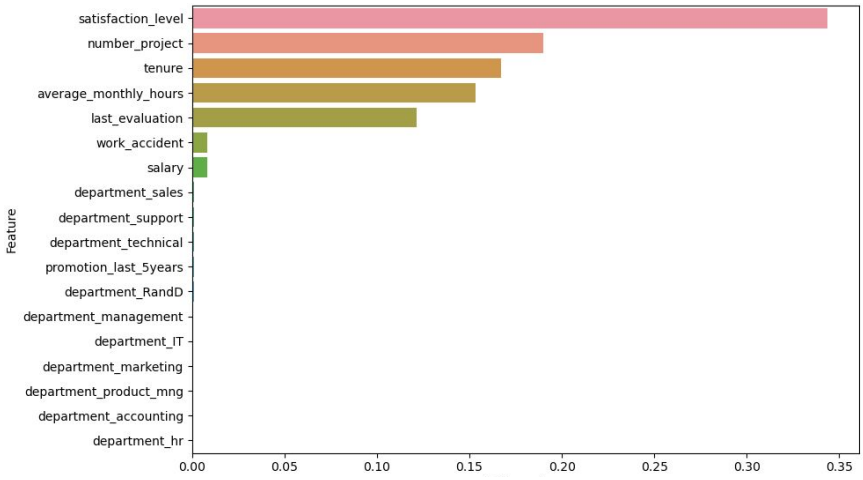
The random forest model slightly outperforms the decision tree model.

IMPACT

The models help to predict whether an employee will leave or not and identify which factors are most influential. These insights can help HR make decisions to improve employee retention.



Barplot above shows the most relevant variables: *'satisfaction_level', 'last_evaluation', 'number_project', 'tenure'* and *'average_monthly_hours'*.



In the random forest model above 'satisfaction_level', *number_project`, `tenure`, `average_monthly_hours`, and `last_evaluation',* have the highest importance. These variables are most helpful in predicting the outcome variable, *`left`*.

INSIGHTS/NEXT STEPS

- Prioritize employee satisfaction monitoring, especially for those managing multiple projects or working longer hours.
- Cap the number of projects that employees can work on.
- Review workload distribution to avoid burnout and disengagement.
- Either reward employees for working longer hours, or don't require them to do so.
- 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.
- Share findings with HR and department heads to align on targeted interventions.
- Implement a dashboard to monitor key risk indicators (e.g., satisfaction, hours, tenure).
- Conduct a pilot retention program focused on high-risk employee segments.
- Reassess model performance quarterly to ensure continued effectiveness.