

# Salifort Motors

## Employee Retention Project

### Overview

As a fictional data analyst at Salifort Motors' HR department, I leveraged machine learning techniques on survey data to uncover insights into employee turnover, empowering the organization to implement proactive retention measures and mitigate costs.

### Problem

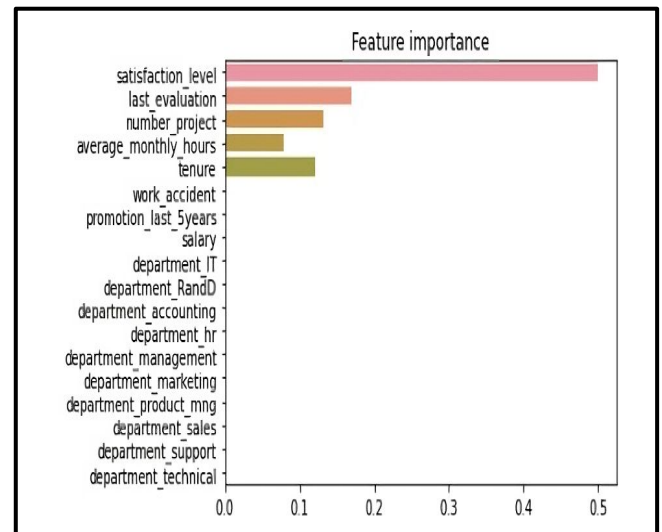
**What are the top reasons that make an employee leave the company?**

### Solution

Since the outcome variable is categorical (left or not), we could deploy a logistic regression or tree-based ML model. I tried 5 models, and the tuned decision tree outperformed others to uncover the key drivers behind employee turnover. Also, my analysis offers actionable insights, empowering our HR team to implement targeted retention strategies, cultivate a supportive workplace culture, and ultimately bolster employee satisfaction and loyalty.

### Details

Among 5 models, Decision Tree with tuned parameters predicted more accurately that an employee will leave the company or not. According to the model, `satisfaction_level`, `last_evaluation`, `number_project`, `tenure` and `average_monthly_hours` have the highest feature importance. These variables are most helpful in predicting the outcome variable 'left'. Therefore, the company should prioritize attention towards employees exhibiting low satisfaction levels, receiving lower evaluations, and working more than the average monthly hours. These indicators strongly suggest a higher likelihood of employee turnover, warranting proactive measures to address their concerns and improve retention.



### Next Steps

- Set a limit for satisfaction level, and counsel with the employee when the value goes down.
- Reconsider to change the evaluation score based on number of works worked, instead assign higher scores of the employee who give more effort to the project.
- Set a lower & higher threshold of number of projects assigned to each employee.
- Explore promoting employees working for at least 4 years, or investigate why still they are not.
- Reward employees those who work longer hours or just notify them to avoid that.
- Initiate more cultural and open discussions both company-wide and team levels to improve the work culture.