Salifort Motors Turnover Prevention: Machine Learning Results

Champion Model 2: Most Actionable Insights

ISSUE / PROBLEM

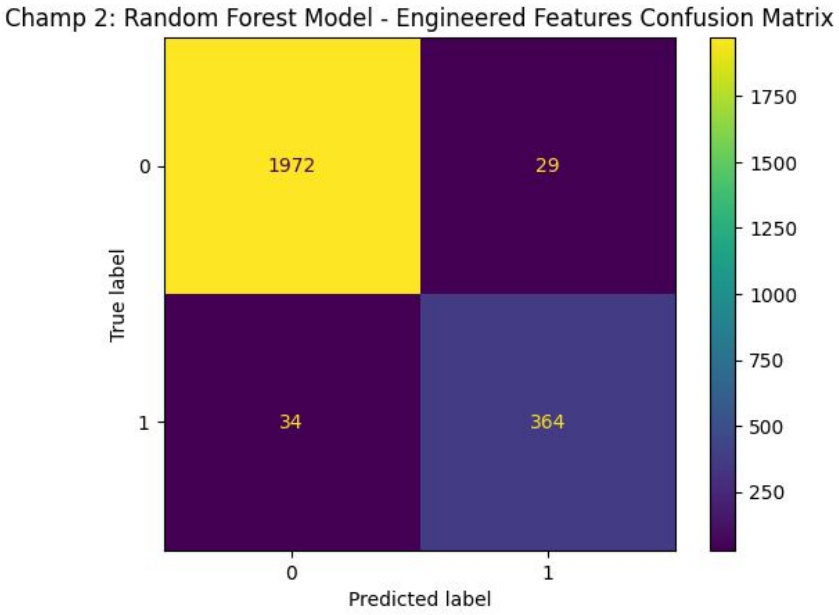
- Employee turnover at Salifort Motors is a major problem as we are committed to ensuring employees receive adequate training and support during their employment.
- Our goal is to develop a machine learning model that can predict and, in turn, help prevent turnover.

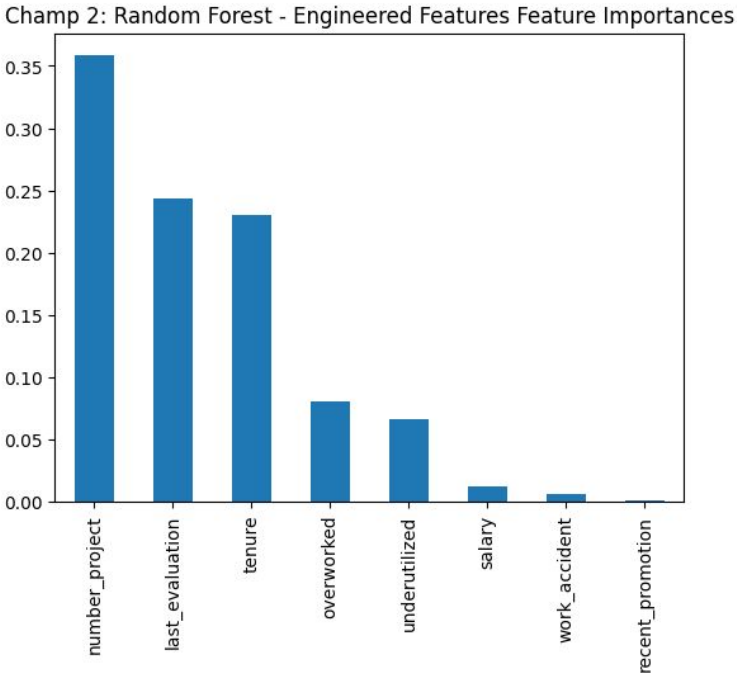
RESPONSE

- A thorough EDA of Employee Satisfaction data was used as the basis for determining which Machine Learning Models (MLM) would be sufficient for this data.
- Five rounds of model testing were performed by separating the data into a training, validation, and an unseen champion set.
- The final models were chosen based on the highest predictive power and actionable insights.

IMPACT

- This model has good predictive power and easily actionable features.
- Satisfaction level was removed from this model since it represented more of an **outcome rather than a driver** and was shown to likely have collection bias.
- This model would be excellent if we want more actionable features while retaining strong predictive power.





KEY INSIGHTS

- The model's F1 score was **0.920354**. This was driven by a balanced precision score of **0.926209** and a recall score of **0.914573**. The accuracy and AUC score was **0.973739** and **0.970217** respectively.
- Out of the top 5 important features, **number of projects was found to be the strongest predictor of turnover followed by last evaluation scores, tenure, overworked, and underutilized.**
- Average monthly hours was feature engineered into separate **overworked** (above 200 average monthly hours worked) and **underutilized** (below 167.67 average monthly hours worked) variables.
- Satisfaction level was removed due to suspected data collection bias and lack of actionable insights.
- Despite a slight reduction in predictive power, **this model has very actionable features and would be excellent to use if plans to reduce turnover will be implemented quickly.**
- See the **Suggested Solutions:** in the full report for suggested solutions to fix employee turnover.