Improving Employee Retention at YATS Corp.

EXECUTIVE SUMMARY

Py-ous Inc.

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Mission

For the past 5 years, YATS Corp. has maintained an unnaturally high employee turnover rate of 23.8%. To tackle this problem, the company decided to call upon the services of Py-ous Inc. As YATS Corp is concerned about its ability to retain its best talents, our mission is to shed light on the underlying causes of the employees' decision to leave, and to advise YATS Corp. on the most effective retention strategies. To avoid any further decline in their growth and productivity, our final goal is to help them decrease their turnover rate to 15%, the rate considered healthy by industry standards.

Goal

- *Create and improve different retention strategies on targeted employees. Overall, the implementation of this model will allow management to take better decision-making actions.*
- *Minimize employee turnover rate by advising pertinent strategies to the company (<15%)*
- *Determine the significant factors leading to employees' resignments*

Subject Matter

Employee retention is a challenge that nearly every organization faces. Indeed, even industry leaders are accustomed to the struggles that top talent retention can bring. However, even if it may seem impossible to reach a perfect retention strategy, dramatic improvements can often be made with a few simple steps.

During this project, our aim will be to build a model capable of predicting whether an employee will quit his job or not, as well as determining the most impactful features on an employee's resignation.

Methods of Analysis

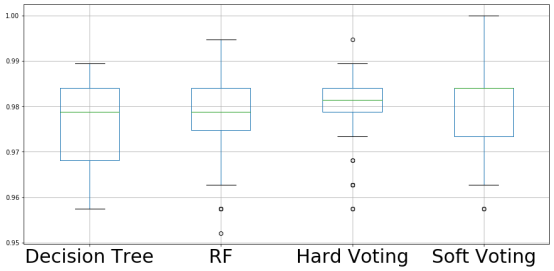
To answer these questions and create the prediction model, we used data collected from 14,999 employees. This data aim to answer the following questions about each employee: his satisfaction level, the number of projects he has been working on, the last evaluation he had, the average monthly hours he worked, the number of years he has been employed in the company, whether he has had a work accident, whether he received a promotion in the last 5 years, the department he works in, his salary and finally whether the employee has left the company or not.

This data has then been cleaned from any outliers or missing values and then visualized and analyzed to check for any correlation or any special distribution and behavior of different features.

Regarding the modelling phase - and as mentioned before - the problem has been looked at from two different angles. From one side, the problem has been treated as a binary classification problem where the outcome will be the prediction if an

employee is most probably to leave the company or stay. Different classification models have been trained and tested in order to get the optimal prediction accuracy. From the other side, the most important features for the classification have been determined using the model with the highest prediction accuracy.

Additional experiments have been done on a specific group of employees that can be considered as the best employees in terms of evaluation, number of projects they were working on and the number of years spent at the company. This group of employees can be considered as the one that has a priority when it comes to its retention. The point of the additional modeling was to determine the main reasons behind the resignation of the best employees and to fit a model that can have a higher accuracy on this type of employees (as shown on the model comparison boxplot below).



Conclusions

For predicting employees' behavior, the best model appeared to be the Voting Classifier, with a prediction accuracy of 99% on the test set. This model has been used as well to determine the most important features which turned out to be the employee's level of satisfaction in his job, the number of projects he is working on and the amount of time he spent in the same company.

These results can lead for a better employee retention based on the fact that the employees willing to leave can now be determined with a very high accuracy and the probable main reasons behind their will to leave are known.

Recommendations

Since employee satisfaction is the most prevalent factor in employee departure, we recommend that YATS deploy initiatives to increase employees' comfort and wellbeing (i.e. Google campus model with free food and activities, promotion schemes).

For future projects, we also recommend to refine the distinction between layoffs, transfers, and resignations. This will enable to better comprehend the nature of employees' departures and design more suitable policies. Additionally, we could also measure the impact of economic variables (i.e. the country's general unemployment rate,etc) to see how the economic context affects employee retention.