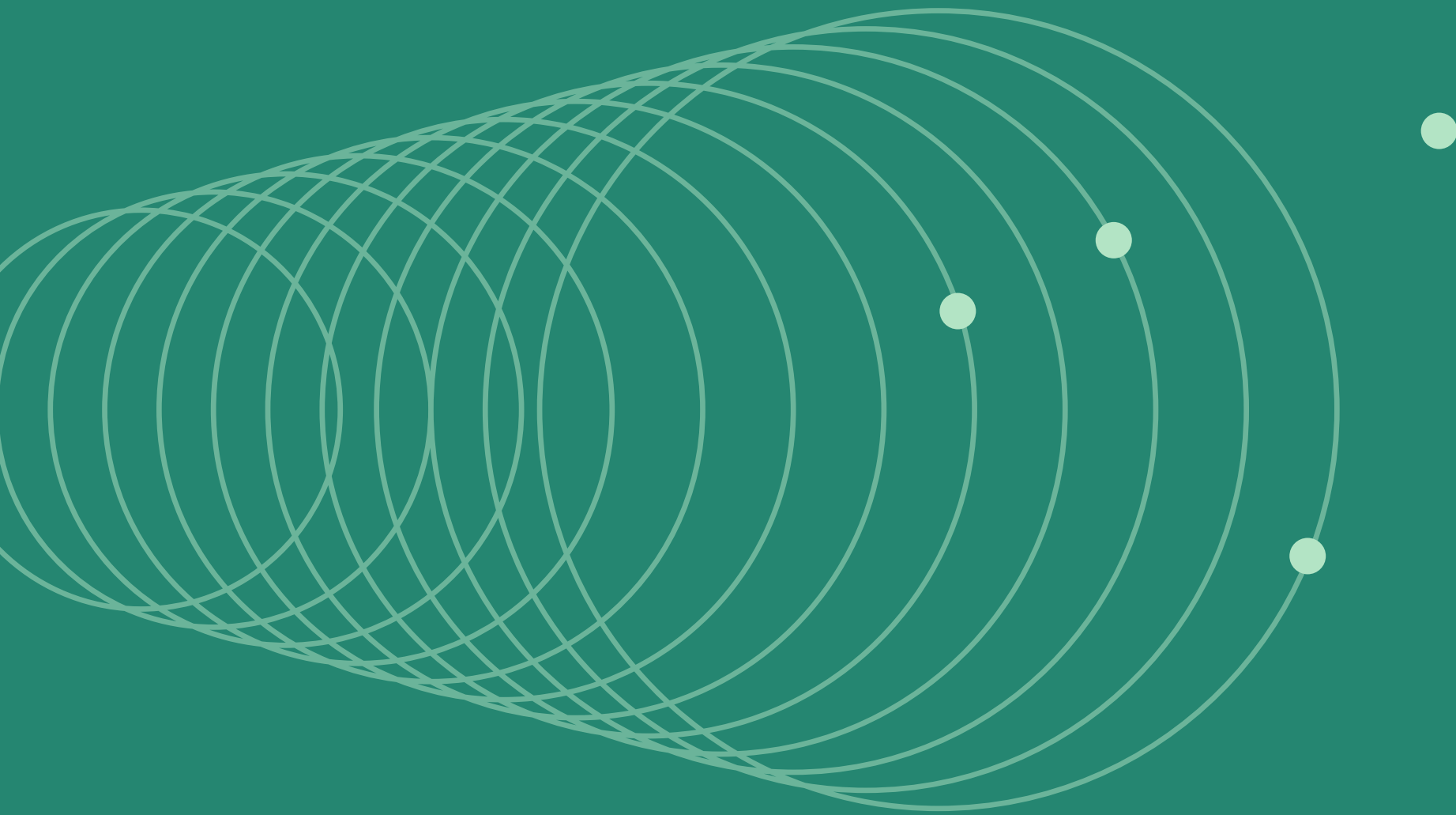


Why Employees Quit

Presented by: Vivian King'asia
Date: 21st October 2022



Agenda



Company Overview

Problem Statement

Solution

Data Analysis Process

Exploratory Data Analysis

Modeling

Conclusion

Recommendations

Company Overview

Nendo is a marketing consulting firm that is focused on leveraging the power of data to inform solutions to some of the biggest challenges facing organizations today.

Problem Statement

Challenges

- Organizations have faced the challenge of increasing turnover rates for a long time.
- This challenge has intensified since the 'Great Resignation' phenomenon that began in 2021.
- High turnover rates affect a company's competitiveness, profitability, and sustainability.

Objectives

- Identify top factors that influence why employees quit.
- Explore the concept of Organizational loyalty.
- Explore whether productivity is rewarded.
- Build a ML predictive model to predict turnover with an accuracy of 0.9

Solution

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- Used EDA to come up with recommendations for curbing employee turnover.
- Built a classification model that predicts the likelihood of an employee quitting with an accuracy of 98%.

Data Analysis Process

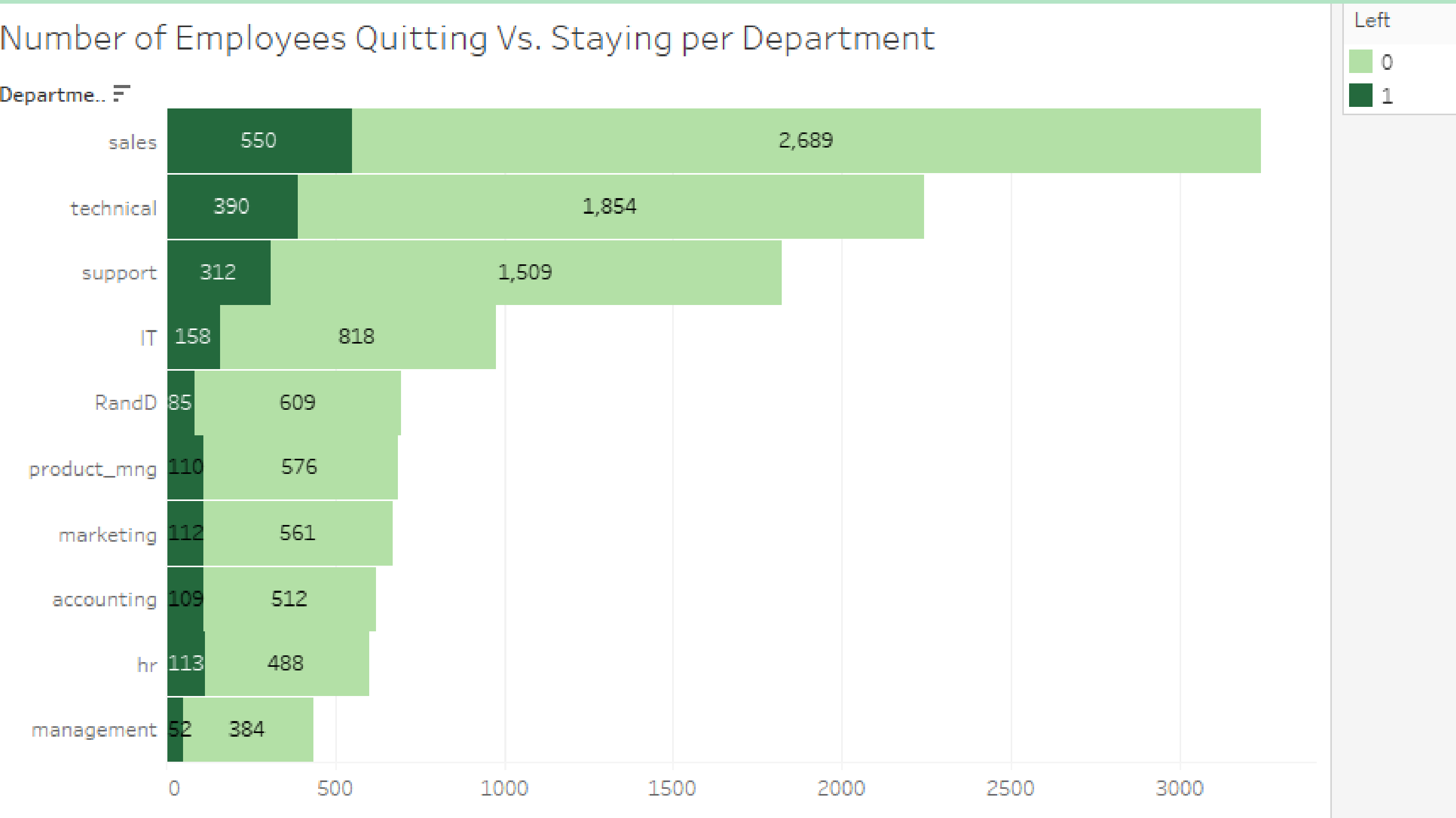
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- Data Cleaning
- EDA
- Preprocessing
- Modeling
- Model Evaluation
- Conclusion
- Recommendations



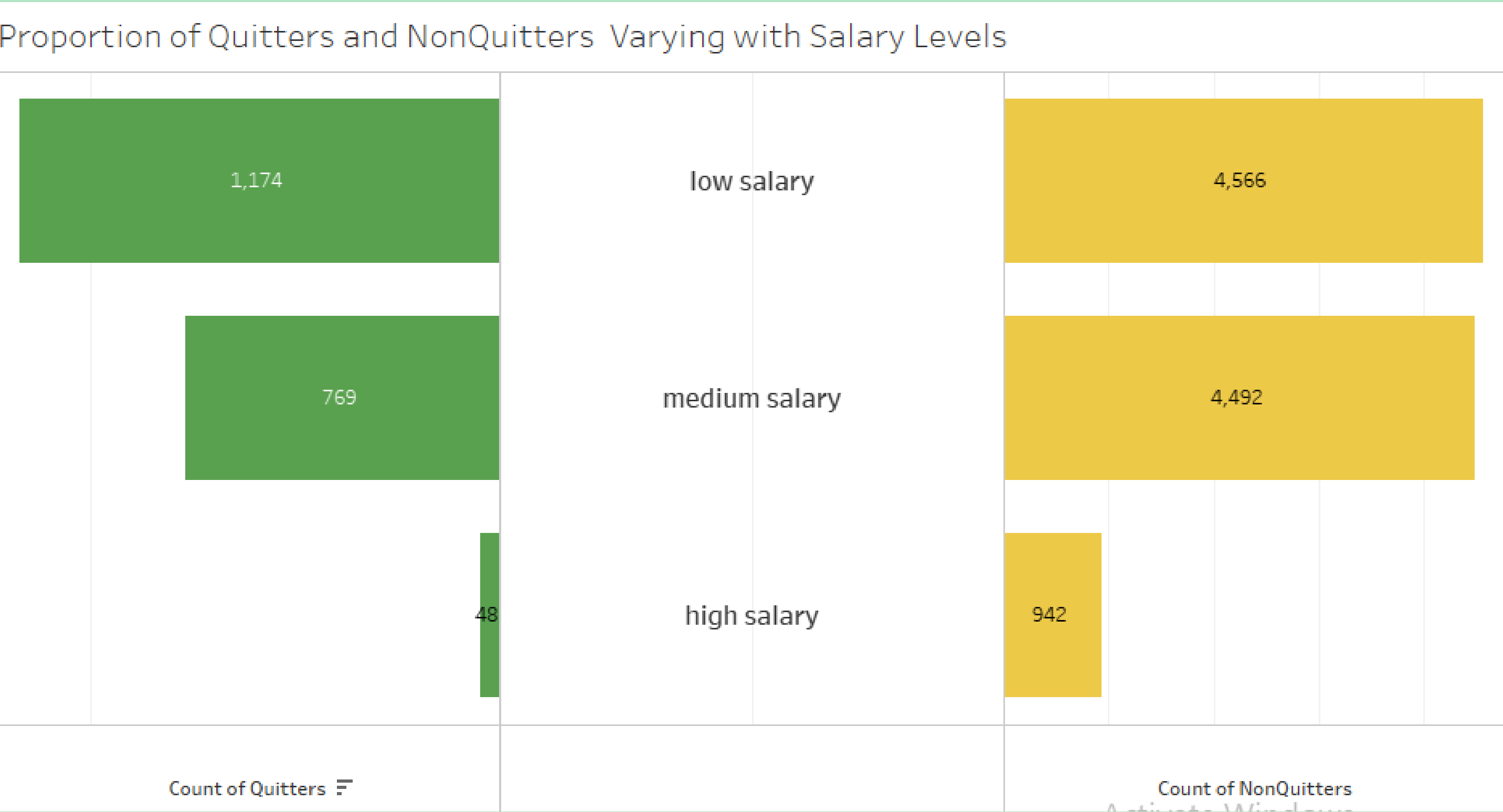
EDA

Number of Employees Quitting Vs. Staying per Department



- 0 means stayed and 1 means left.
- Sales, technical and Support departments lost the highest number of employees.
- Management and RandD had the lowest number of those who quit.
- Sales department is a demanding and stressful field.

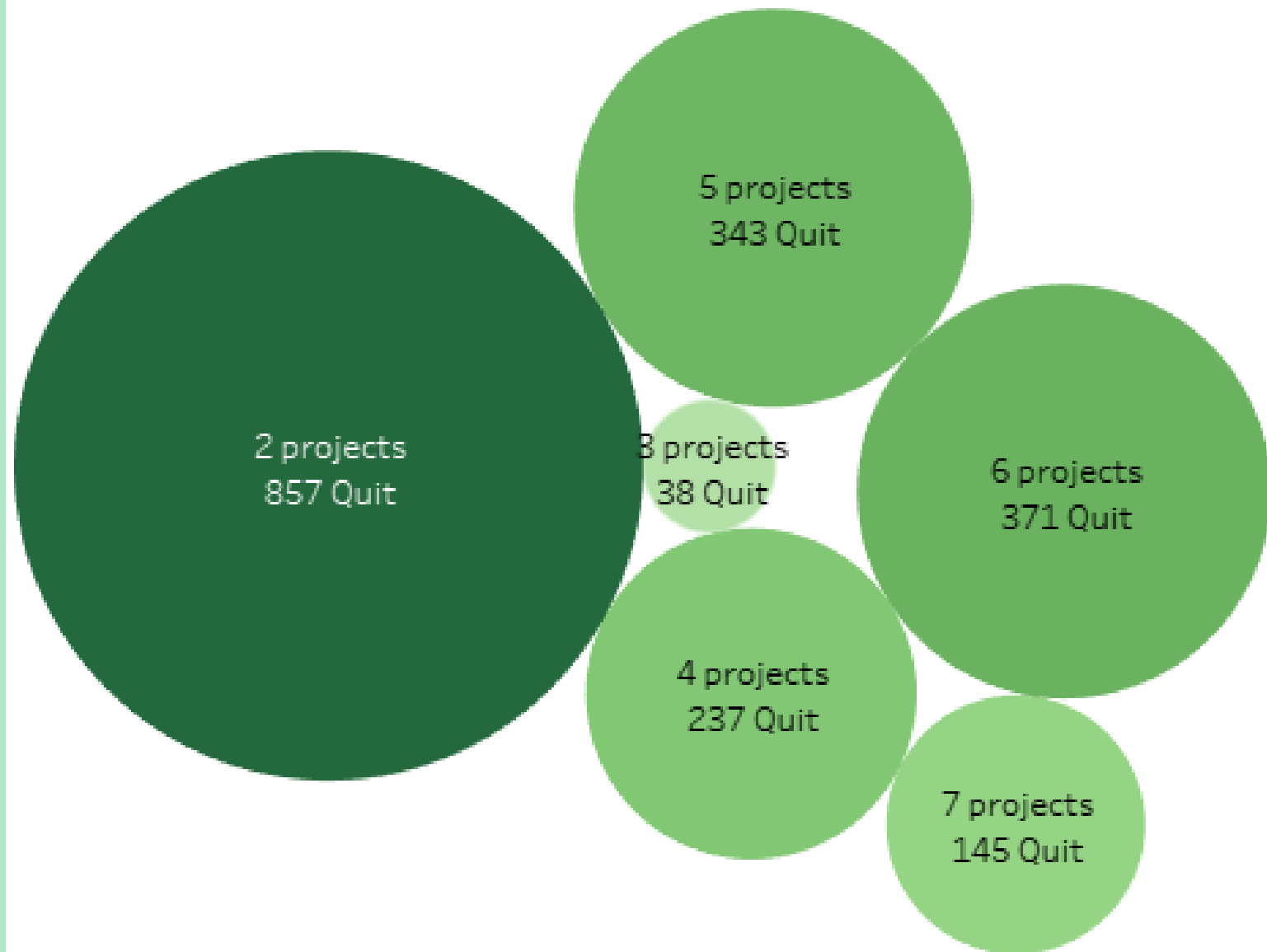
Salary Influence on Turnover Rates



- Salary levels affect turnover rates.
- The majority of those who quit came from the low salary level.
- Salary is an important extrinsic factor.

Influence of Workload on Turnover

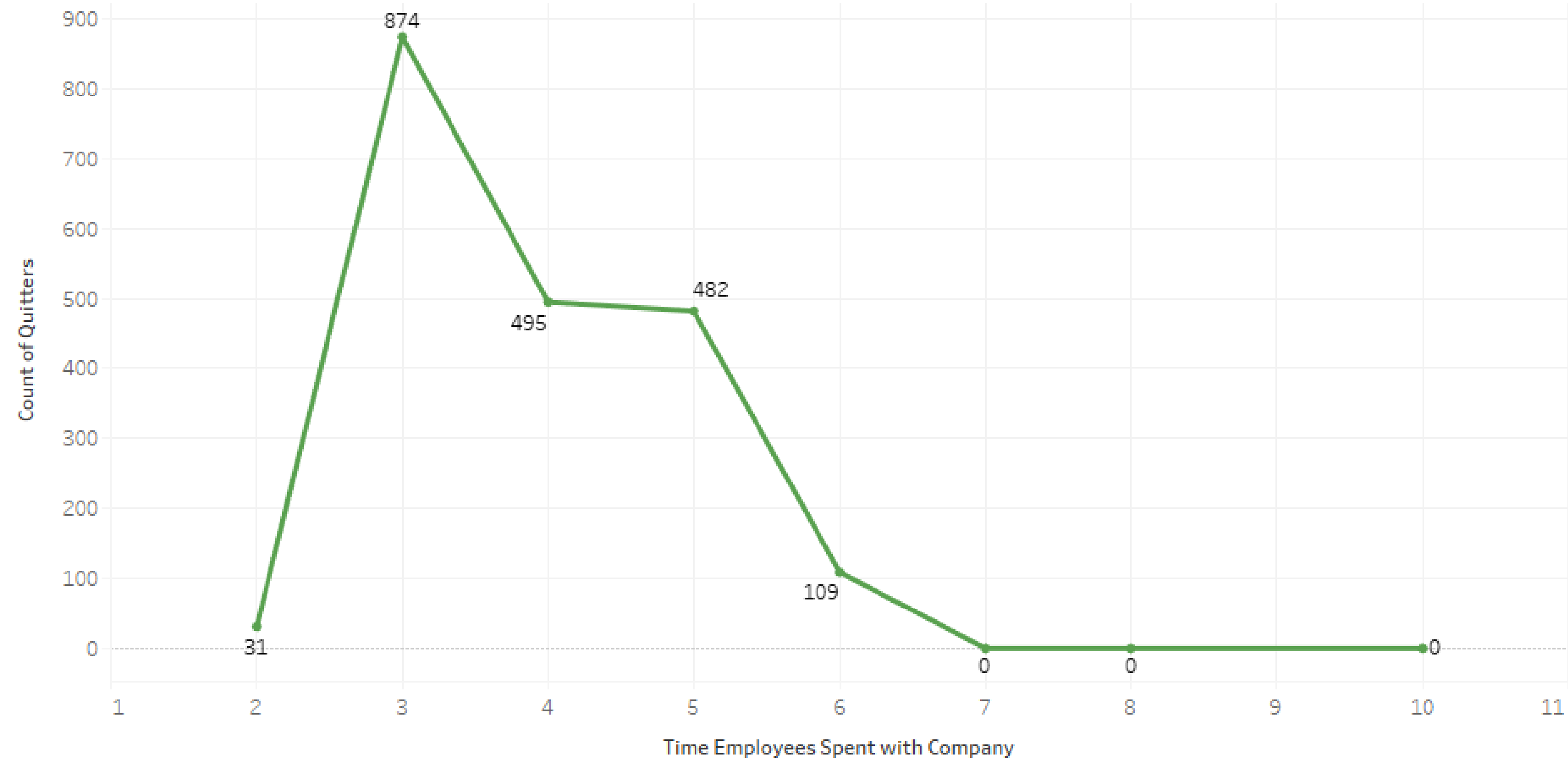
Effect of the Number of Projects on Employee Turnover



- The number of projects affects turnover rates.
- Staff with 2 projects were more likely to quit.
- Perhaps due to boredom or unfulfilled potential.
- Having 3 projects was the sweet spot with the lowest number of people who quit at 38.
- All employees with 7 projects quit their jobs perhaps because of being overwhelmed.

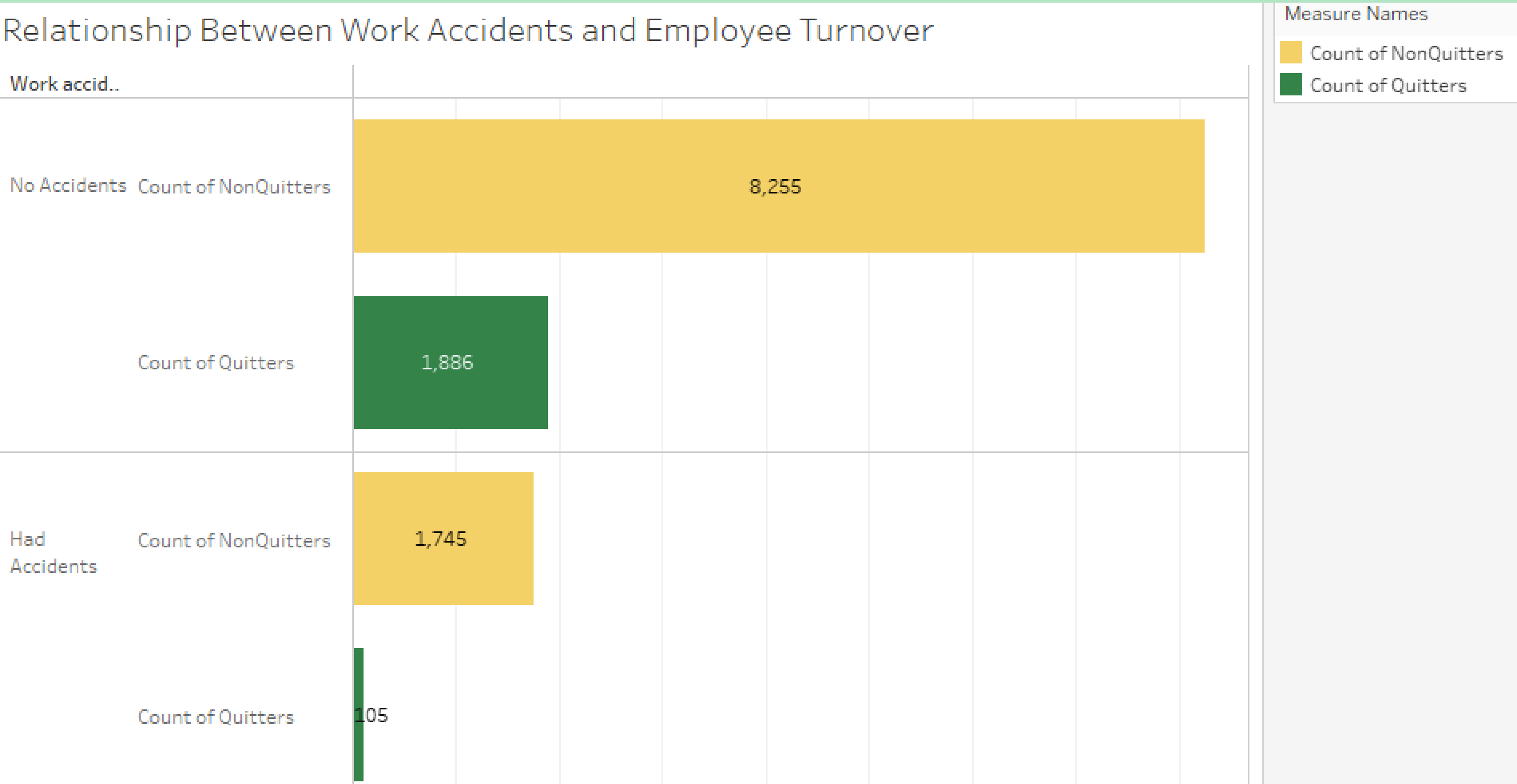
Impact of Years Spent in Organization

Relationship between Years Spent in the Company and Employee Turnover



- Most employees quit at year 3.
- These employees might be looking for new challenges.
- No employees quit after year 7 in the company.
- There is an element of organizational loyalty.
- From analysis those quitting at years 4, 5, and 6 might be influenced by a lack of promotion.

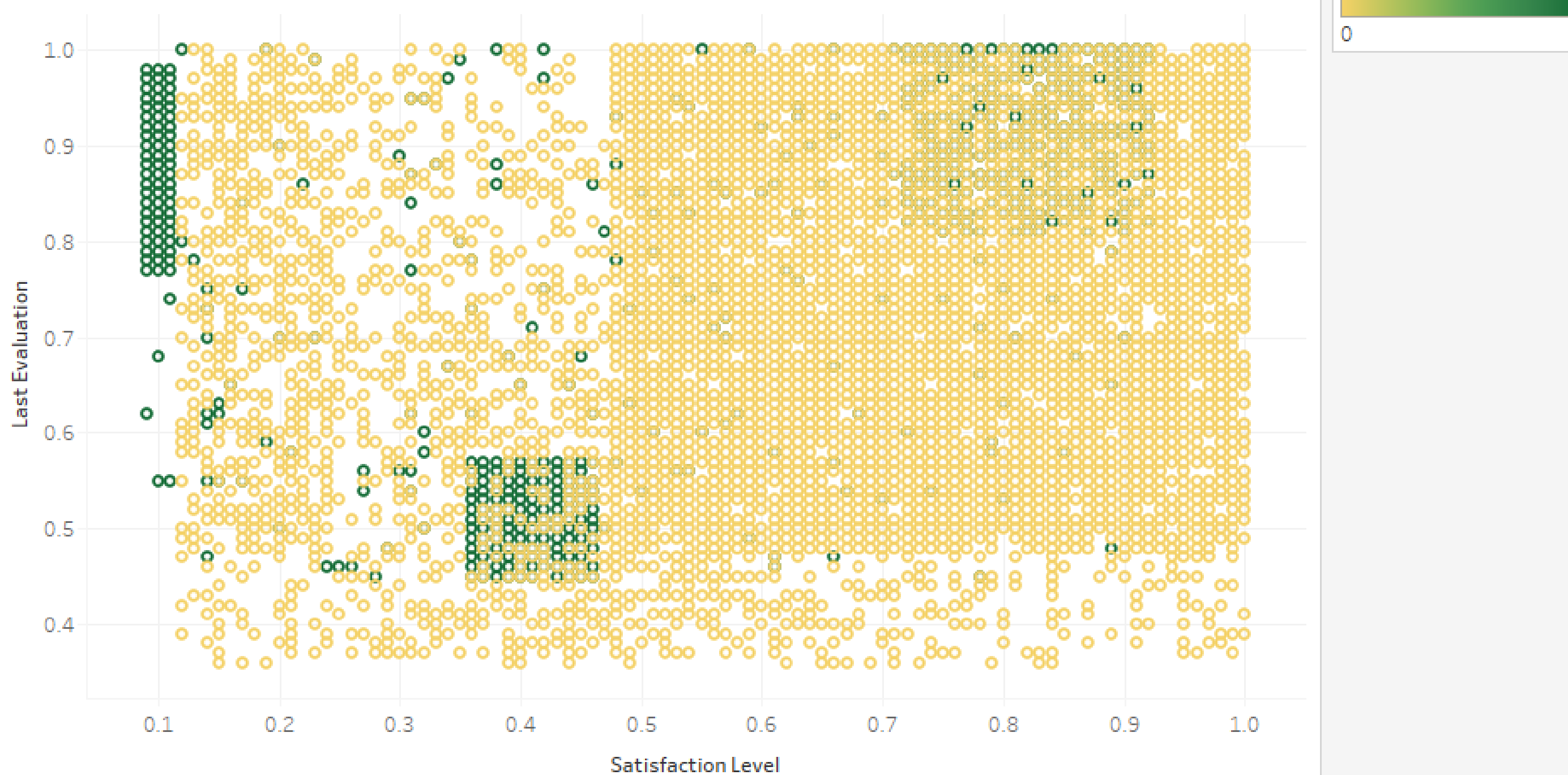
Impact of Work Accidents in an Organization



- Work accidents do not influence the employees' decision to quit.
- 1850 employees had work accidents.
- Only 105 employees who had accidents quit.

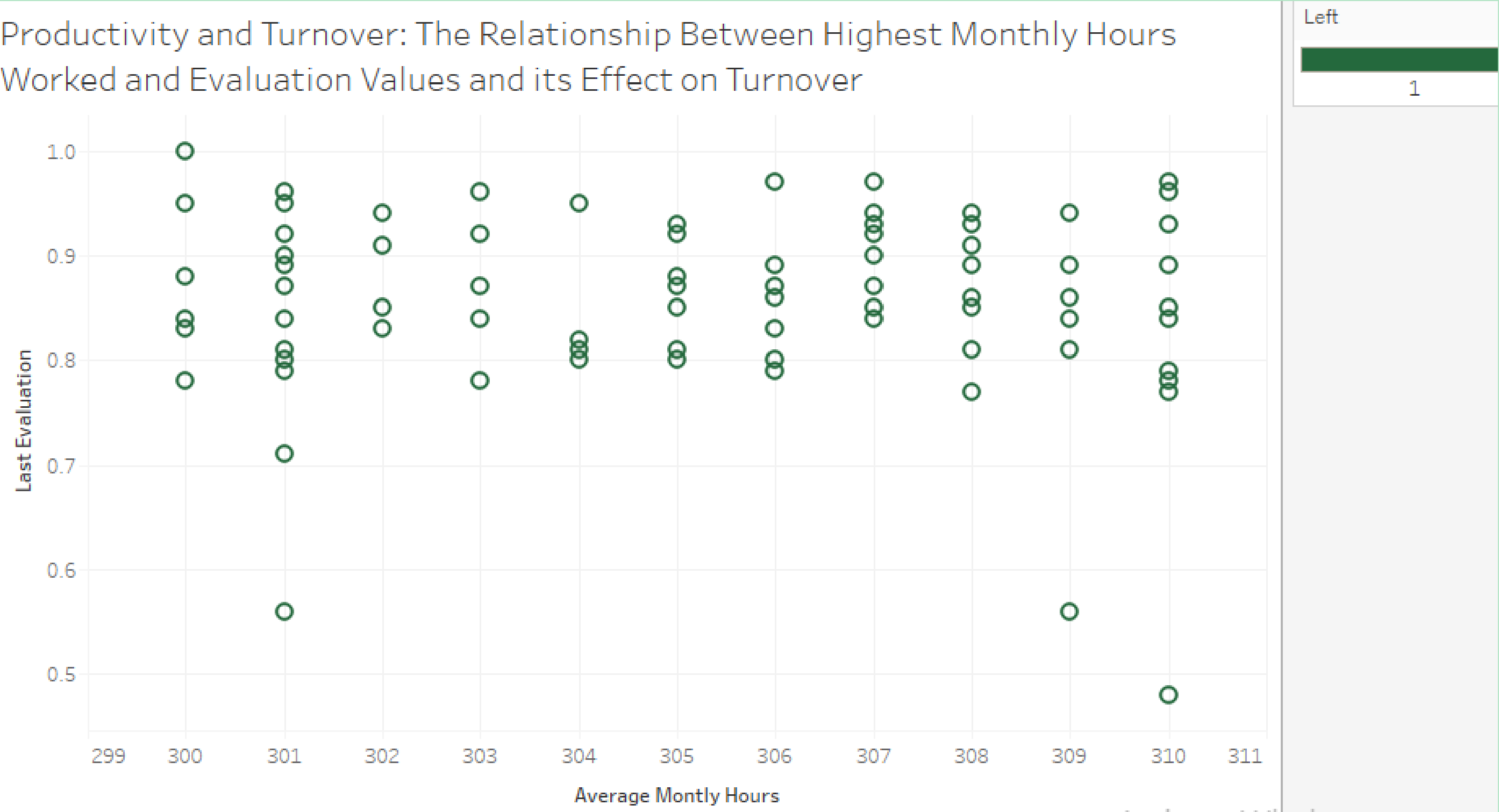
Effect of Satisfaction level and Evaluation

The effect of Satisfaction level and Evaluation on Turnover



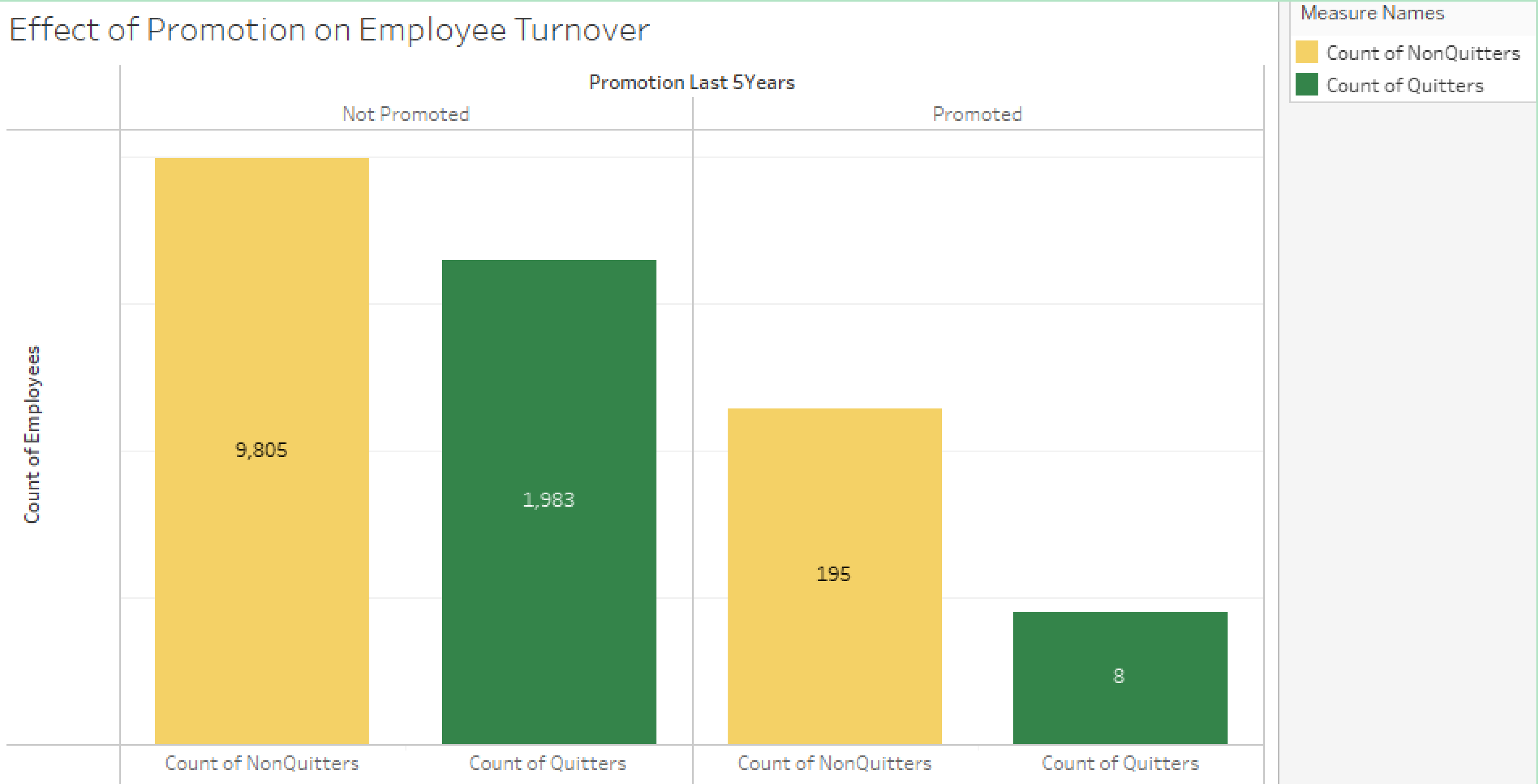
- Three clusters of those who quit are formed.
- One cluster on the top left shows employees with high performance and low satisfaction who quit probably because they were undervalued.
- The second cluster on the top right shows employees with high performance and high satisfaction who quit probably because they got poached by competitors.
- All except one in the second cluster did not have a promotion.
- The last cluster is in the lower middle part of the plot.

Productivity and Employee Turnover



- Employees with high average monthly hours above 300 hours have high performance above 0.7.
- Only 1 employee with high input of hours performs below 0.5.
- All these employees with high productivity quit.
- From analysis, none had a promotion.

Impact on Promotion on Employee Turnover



- Promotion is important to influence the decision to quit.
- More employees without promotion (1983) quit compared to those who got promoted (8).

Modeling

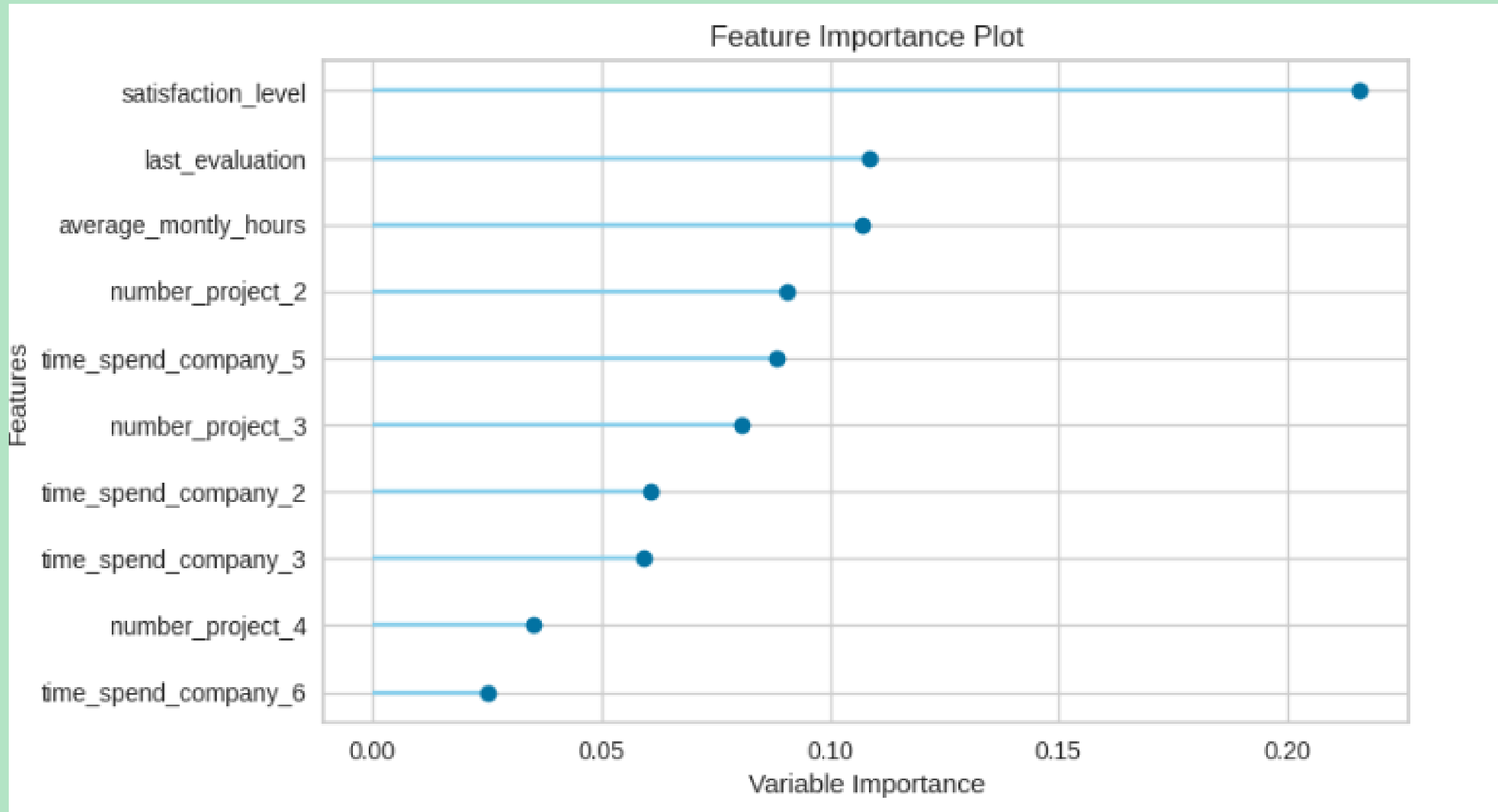
- Several machine learning models were built to find the best predictive algorithm with the highest accuracy.
- The Random Forest algorithm emerged as the best model with an accuracy of 0.983.
- The model was saved as a pickle file for future use.
- The most important factors in influencing employee turnover were identified.

Model Evaluation

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5 Best Models	Accuracy
Random Forest	98.3%
Light Gradient Boosting Machine	98.02%
Extra Trees Classifier	97.31%
Gradient Boosting Classifier	97.13%
Decision Tree Classifier	96.15%

Most Important Factors in Predicting Employee Turnover



- From analysis by the best model (Random Forest model), the five most important factors in predicting why employees quit, in descending order are; satisfaction levels, last evaluation, average monthly hours, the number of projects, and time spent at the company

Conclusion

- The reasons that employees leave their jobs can be complex.
- Factors such as job satisfaction, hours worked, evaluation, salary, workload, and promotion play an important role in employee turnover.
- Companies ignoring employees' satisfaction, efforts and productivity can cause them to leave.
- Employers should stay aware of competitor efforts and make sure to appreciate employee efforts through promotions, monetary and non-monetary appreciation.
- Work accidents do not play an important role in influencing why employees quit.

Recommendations

- The company needs to value its most productive employees and reward them with a salary increase and/or promotions.
- The company should also avoid overwhelming employees with lots of projects and long working hours but should advocate for a fair workload and work-life balance.
- To keep employees motivated and engaged, the firm needs to promote upskilling through training.
- Lastly, the company should promote an open, transparent, and meritocratic culture where all employees are valued, treated fairly and experience job satisfaction.