



Author: Vickie Yang

Glassdoor Review Analysis for CITI Bank

What do employees say about CITI Bank?



Project Goals

Utilizing NLP algorithms to process and examine the reviews on Glassdoor for both Pros and Cons to capture the major themes discussed in employees.

Helping employers to maintain a high score (4-5) on Glassdoor through building a prediction model to estimate future Glassdoor rating changes.

Glassdoor Page



**Citi**

Overview

Reviews

Jobs

Salaries

Interviews

Benefits

Photos

Diversity

Citi Reviews

Updated Jan 26, 2023

Find Reviews

Clear All

Full-time, Part-time

English

Filter

Found 25,958 of over 30K reviews

Sort Popular

3.9


★★★★★

77%

Recommend to a Friend

88%

Approve of CEO



Jane Fraser
3,711 Ratings

5.0 ★★★★★

Current Employee

Loan Analyst

Oct 19, 2022 - Loan Operations Analyst in New Castle, DE

☐ Recommend

☐ CEO Approval

☐ Business Outlook

Pros
Great management. A lot of cross-team work.

Cons
Some teams move very slowly and cause failures.

Be the first to find this review helpful

Helpful

Share

Report

5.0 ★★★★★ ✓

Current Employee, more than 5 years

Great company to work for

Jan 26, 2023 - Vice President in O Fallon, MO

☒ Recommend

☒ CEO Approval

☒ Business Outlook

Pros
Good benefits, great support from senior management.

Cons
Most groups are great but some groups can be toxic.

Be the first to find this review helpful

Helpful

Share

Report

Why Glassdoor Score is important?

Job Seekers

- Applicants use Glassdoor to understand the business and company culture.
- Salary information
- Significant influence on recruiting effort

Customers

- Glassdoor score influences customers' opinion towards the company
- Brand reputation
- Credibility
- Profitability

Problem Statement



What do employees say about CITI?

The major themes, key words and topics for pros and cons reviews

What are the trends of the reviews?

Display the trend of reviews

What is the Glassdoor score for the upcoming year?

Build a prediction model for CITI to forecast the future ratings.

What can Citi do to improve?

Recommendations to the company based on the reviews.

Stakeholders

Everyone in the
company!

Employees
at Citi

Line
Managers

CHRO/CPO
HR
Department

Company
Executives

Investors/
stockholders
+ Customers!

External Job
Applicants

- Investors, stakeholders and consumers are also reviewing GlassDoor review

Dataset



Data Source

Scraped from Glassdoor.com
US locations only
Review title, pros, cons, date - title
25,000+ reviews

Preprocessing

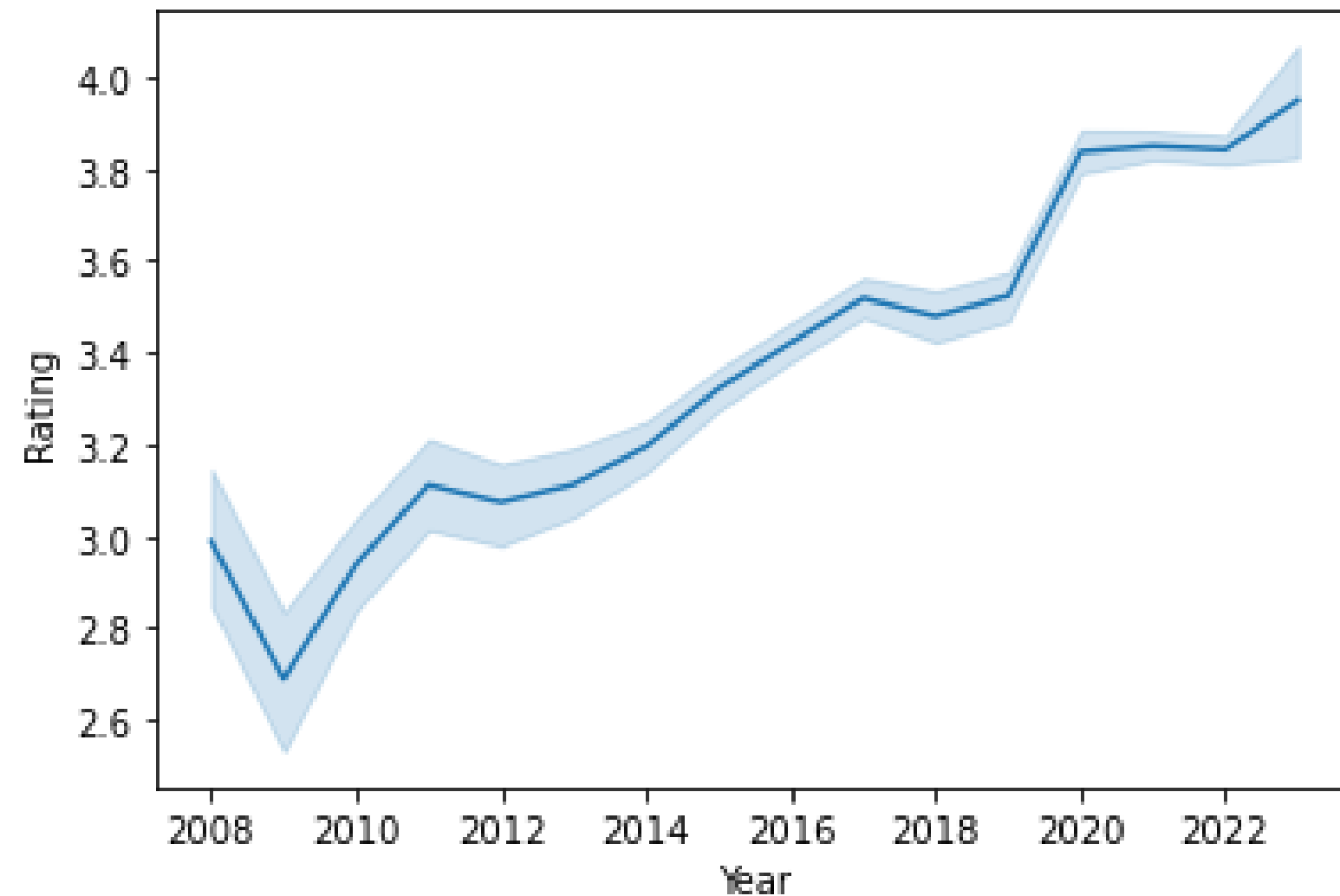
Unstructured Data
Used Regex to clean the data

Prediction Model

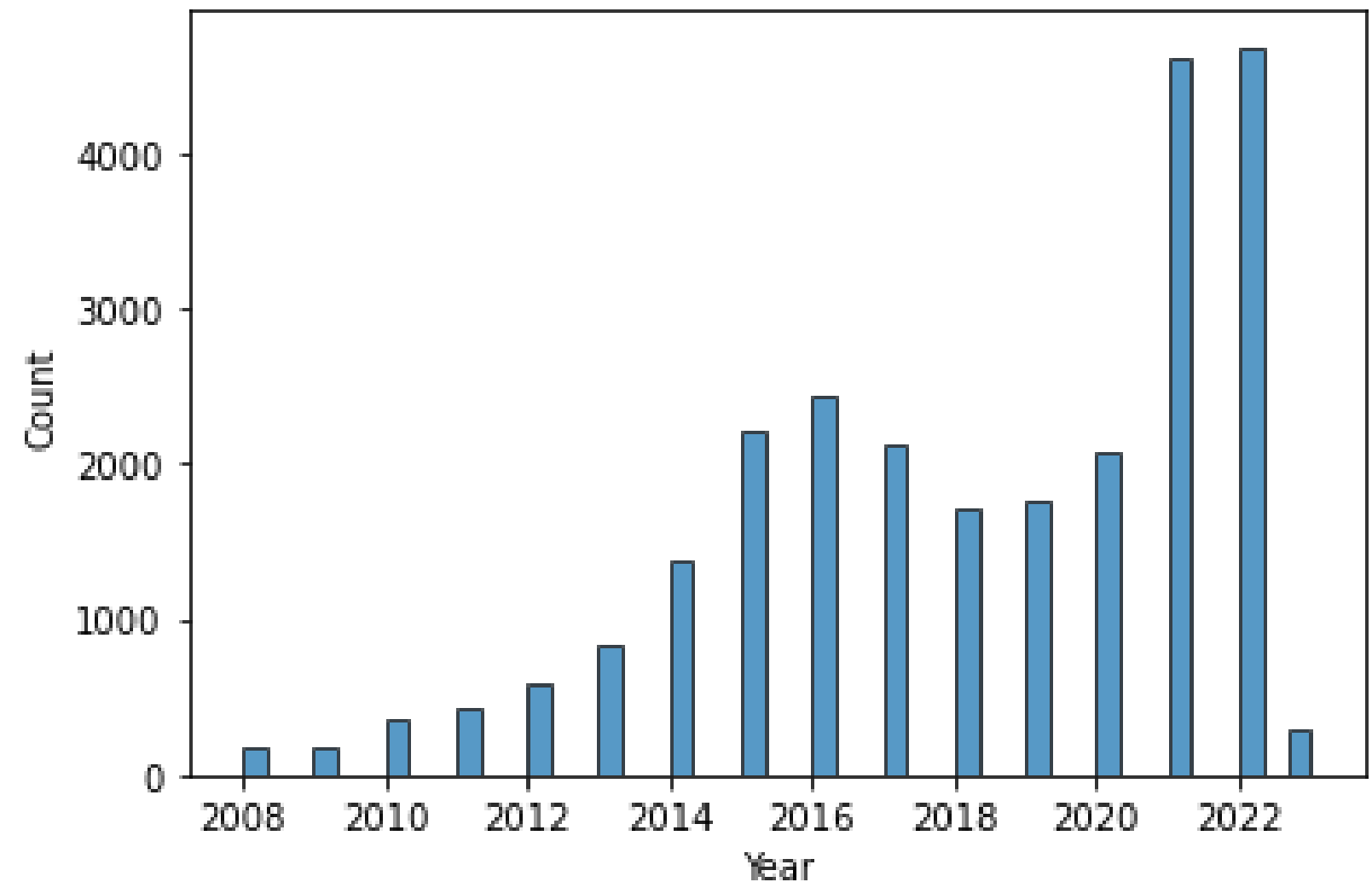
Selected the top performing models using the train set
to create the prediction model.
Categorize five levels of score to: 1-3 and 4-5 for prediction targets

Ratings Trend By Year

Trend of ratings



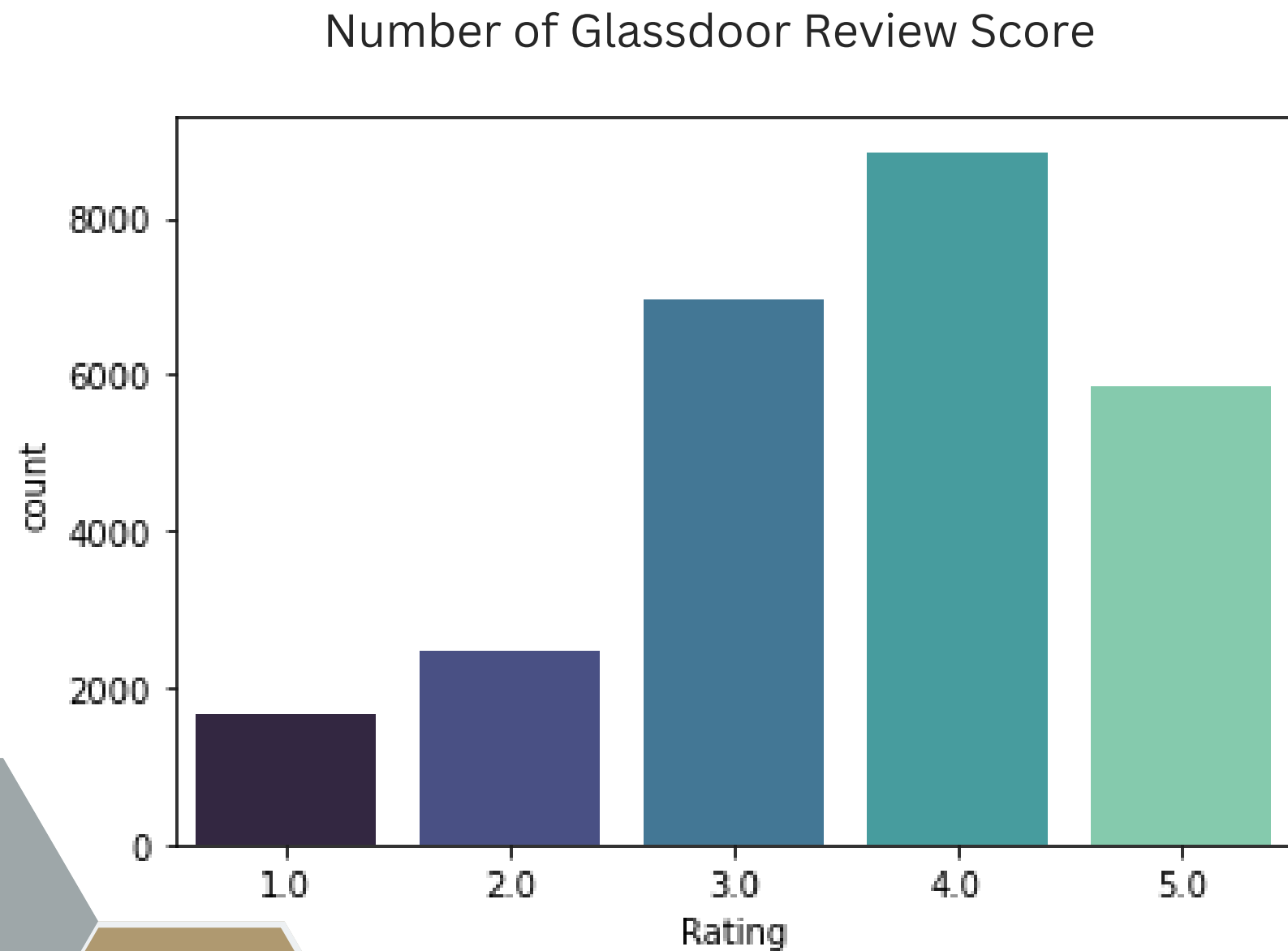
Number of reviews per year



INSIGHT: Inclining trend of Glassdoor review score from 2008 - 2022. More reviews starting from year 2016.

Glassdoor Score Distribution

INSIGHT: The majority of employees rated 4.0 or 3.0 on Glassdoor.



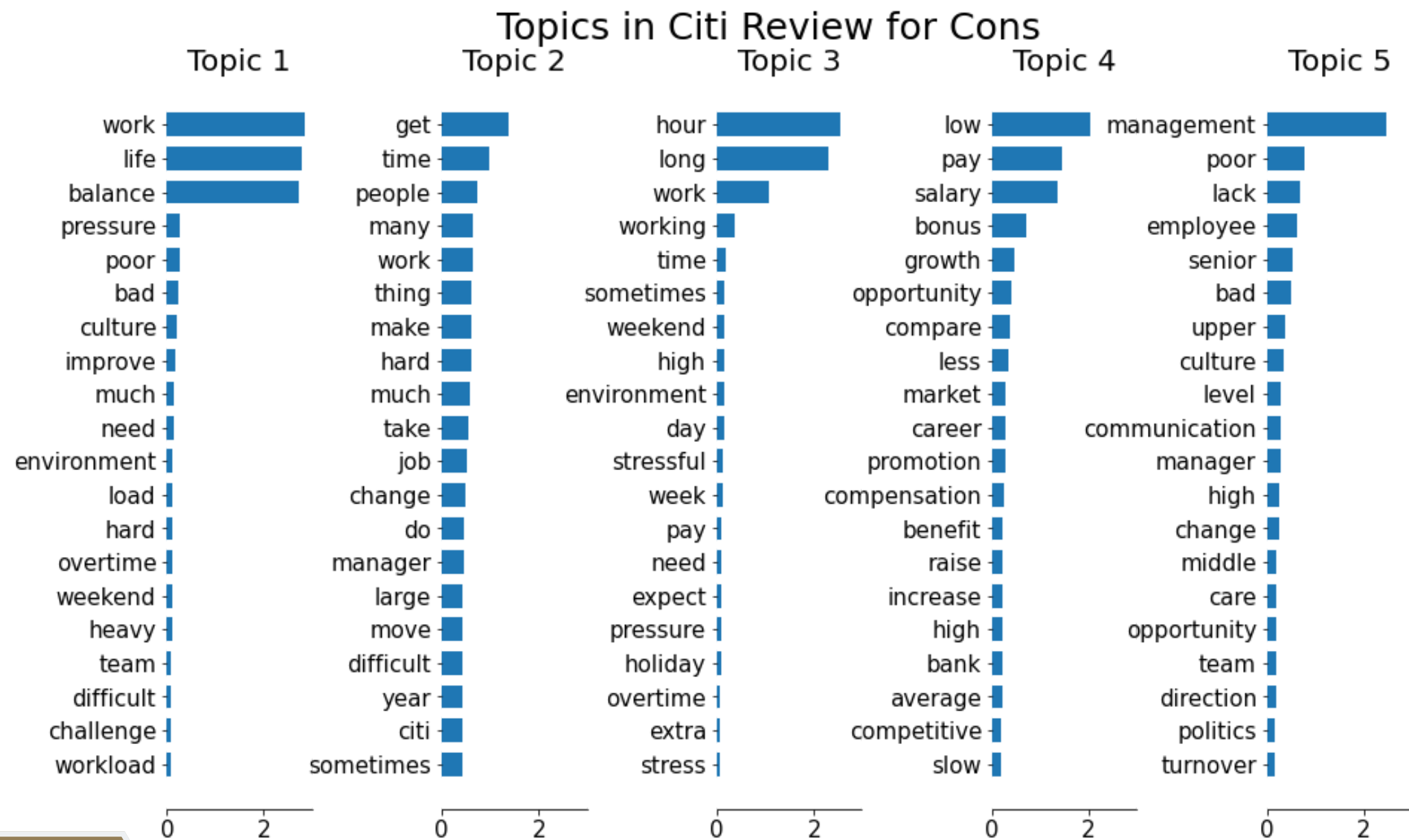


“ Positive Feedback Keywords Extraction - NLP

Top 5 Pros topics:

- Work life balance
- Learning opportunities
- Benefit pay
- Flexible work environment
- Nice smart people





“Negative Feedback Keywords Extraction - NLP

Top 5 Cons topics:

- Work pressure
- Tight deadline
- Long work hours
- Low bonus salary
- Lack management



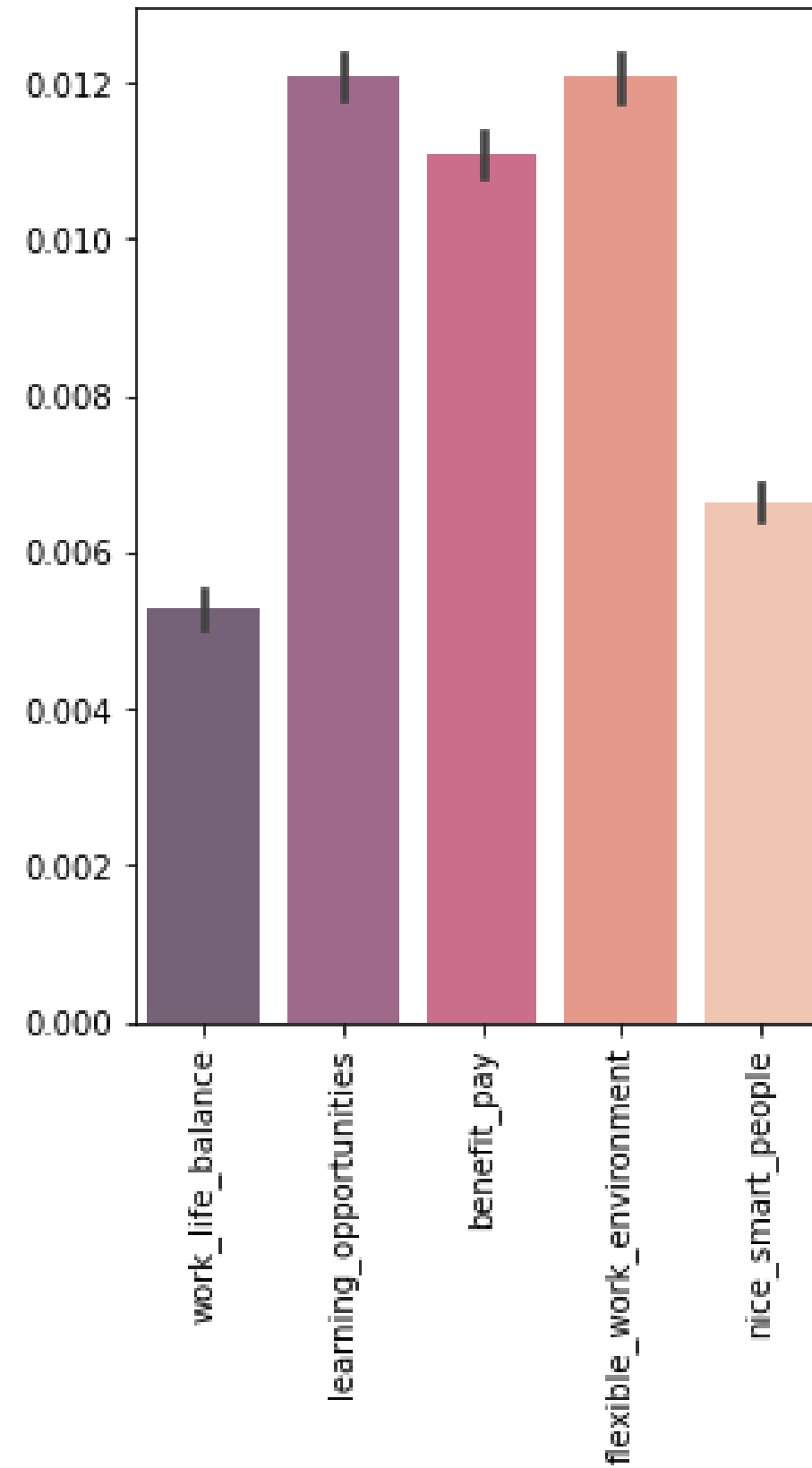
COMPARISON

Positive feedback & Negative feedback

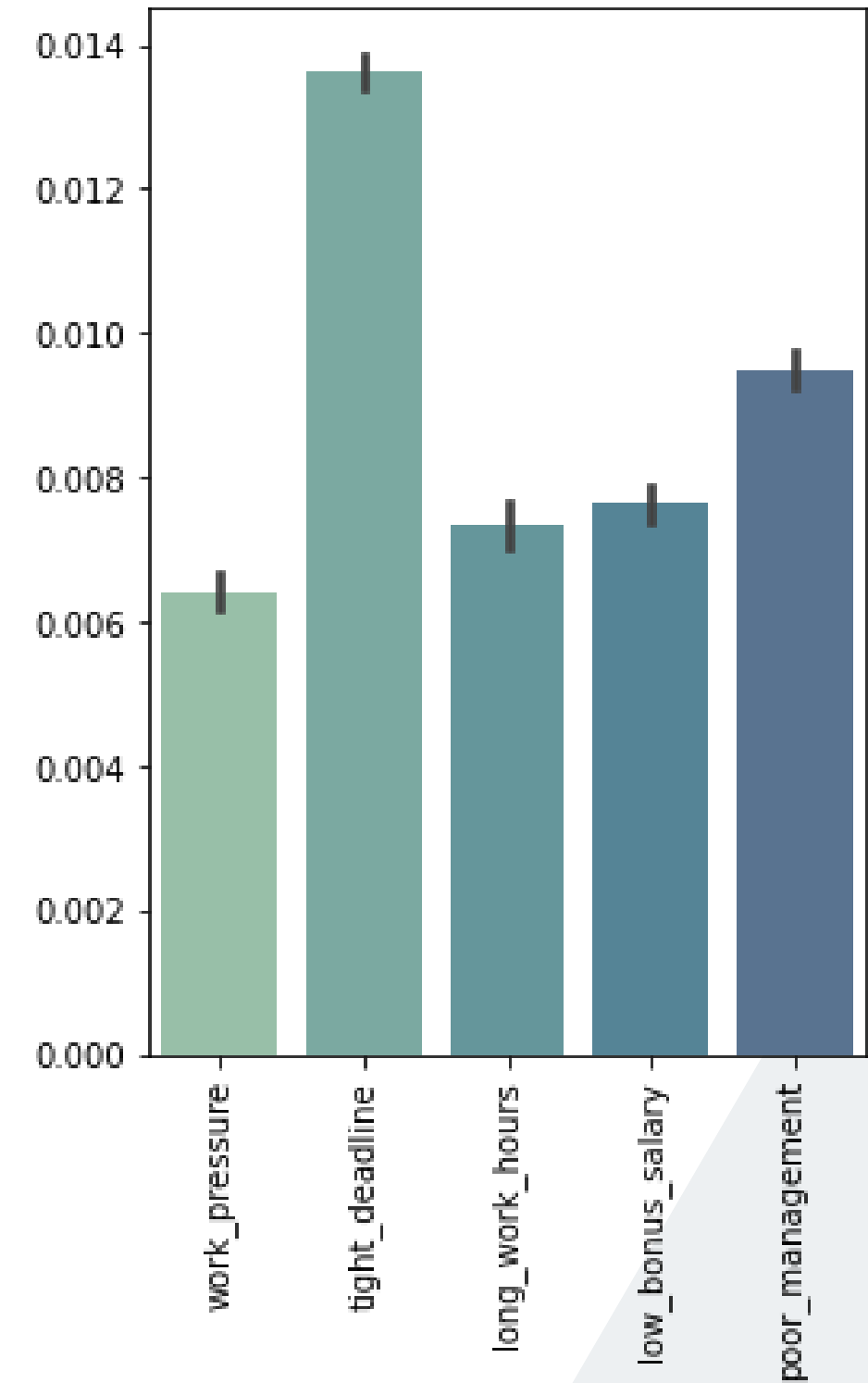
As the two charts represent, Citi has great opportunities for learning, great benefits, flexible work environment.

However, some employees also suggested that they experienced with tight deadline and poor management.

Barplot of Citi Bank Glassdoor Top 5 Pros Topics



Barplot of Citi Bank Glassdoor Top 5 Con Topics

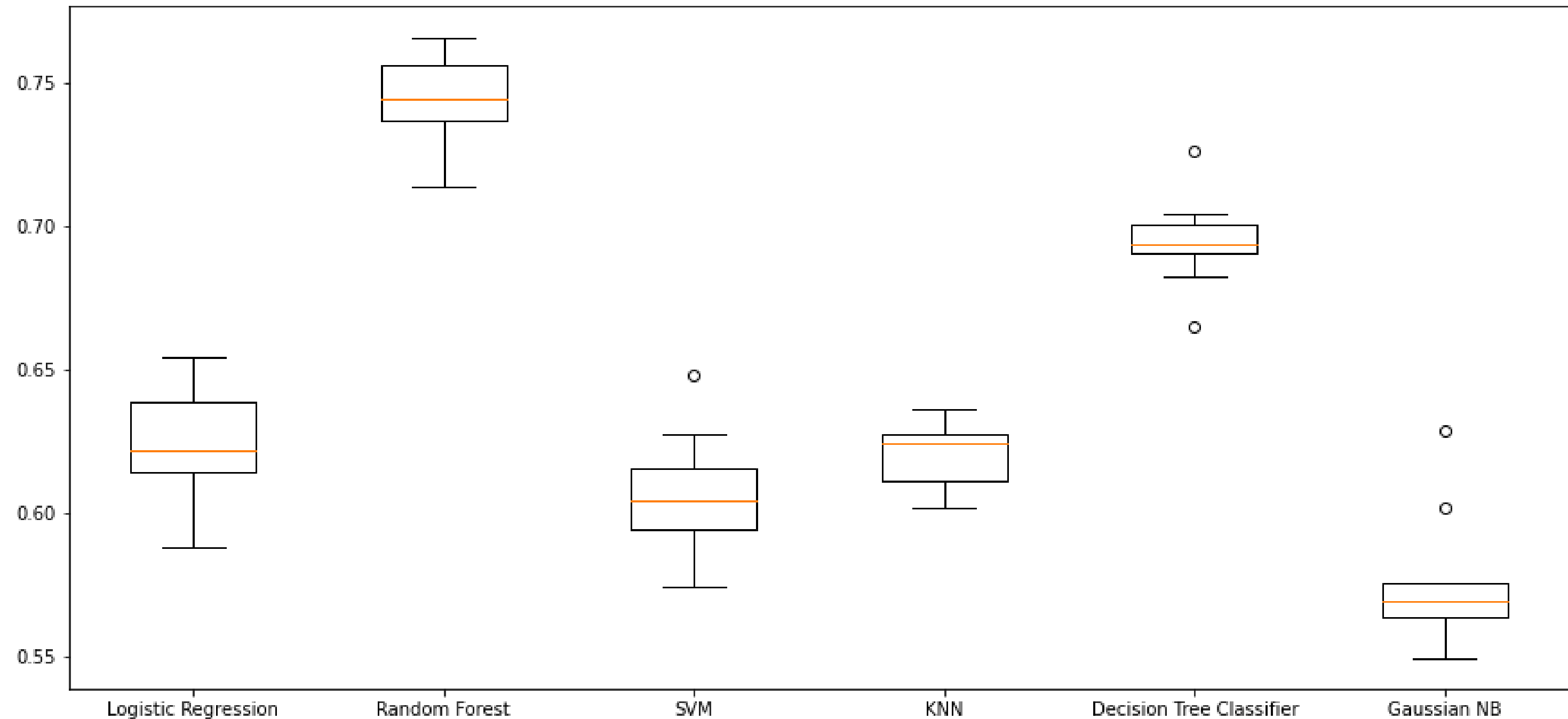


Algorithm	ROC AUC Mean	ROC AUC STD	Accuracy Mean	Accuracy STD
Random Forest	83.81	1.6	74.38	1.55
Decision Tree Classifier	69.51	1.44	69.47	1.48
Logistic Regression	66.74	1.96	62.43	1.78
KNN	66.21	1.56	62.08	1.14
SVM	65.72	1.85	60.61	2.05

Prediction Modeling - Baseline Overview

Logistic Regression and Random Forest have the highest overall score. The prediction modeling will be focused on these two.

Algorithm Accuracy Comparison



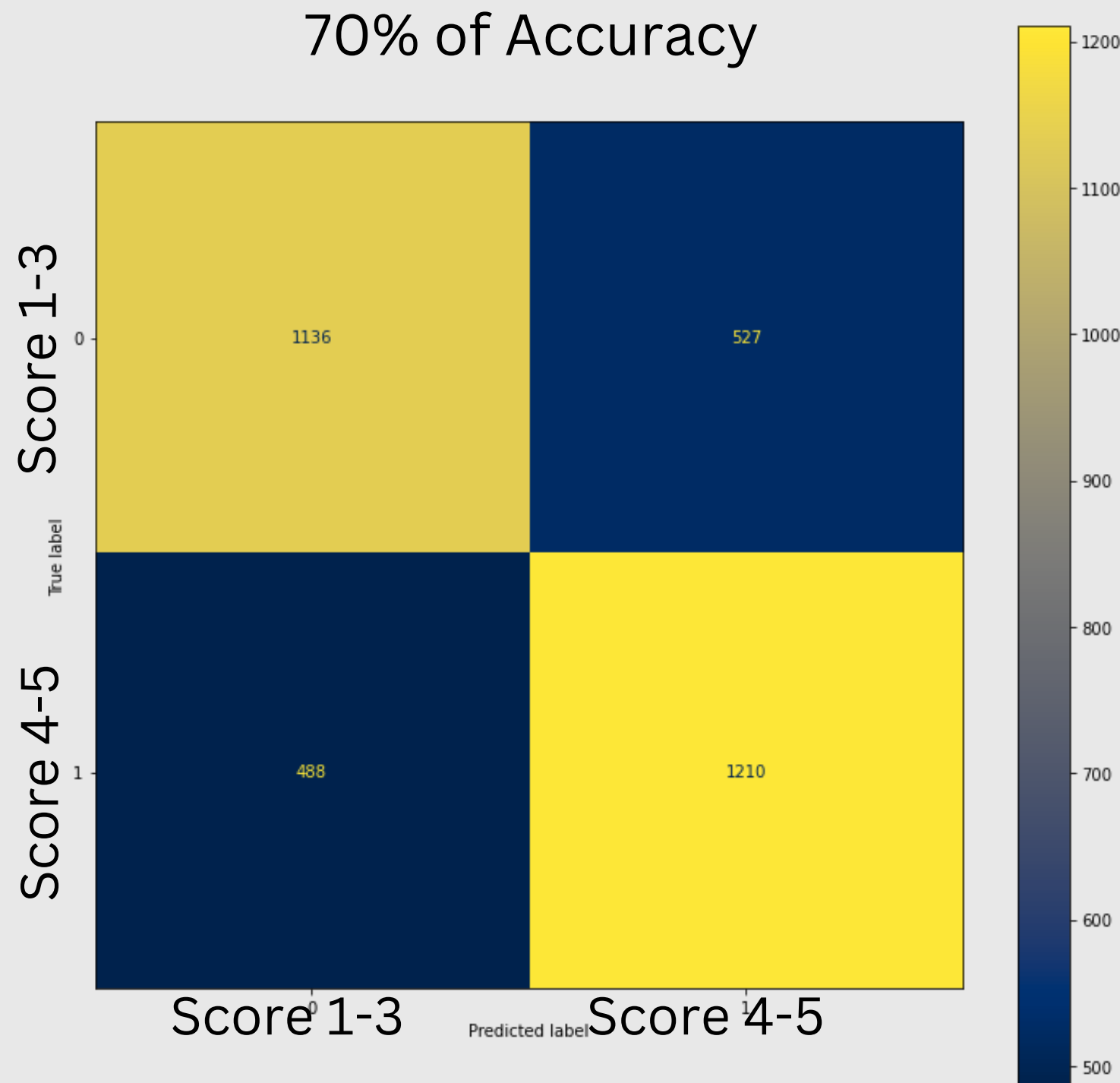
Prediction Modeling - Boxplot Overview

Similar insight as the previous slide, Logistic Regression and Random Forrest perform better than the other models.

Random Forest Model

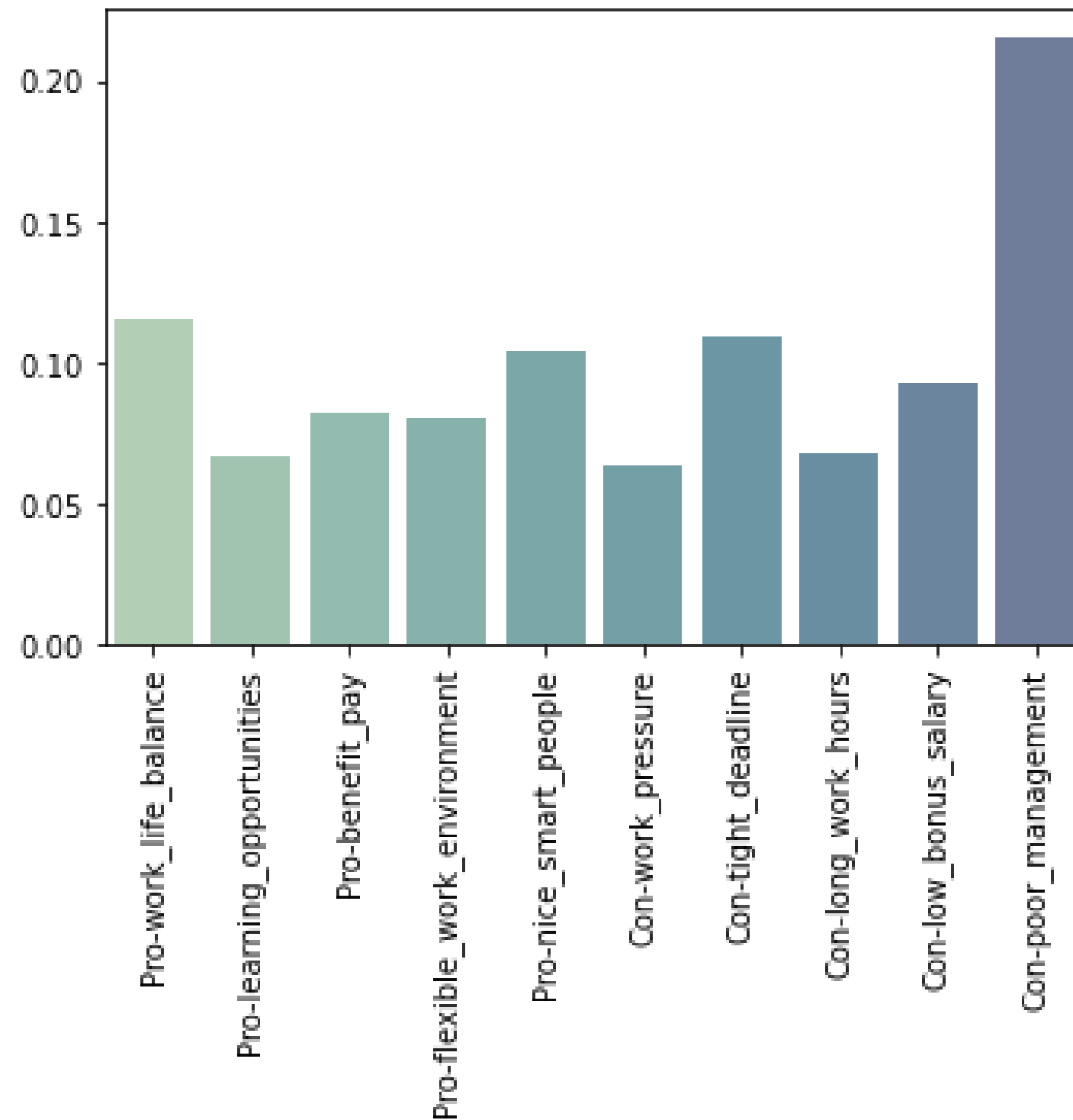
Accuracy Score: 0.70
Precision Score: 0.70
Recall Score: 0.71
F1 Score: 0.70

Type 1 error: 16%
Type 2 error: 15%



Out of 3301 test sample, this model has been trained to accurately predict 70% of reviews to give an accurate Glassdoor score.

Feature Importance - Prediction



Which feature(s) contribute the most in score predication?

Management

Work life balance/tight deadline/
long work hours

Culture (nice/smart people)

Bonus

RECOMMENDATIONS

Management

Review management communication channels and process

Gather more feedback on the details for the management.

Managerial Training

Inspect managerial training material.

Emphasize the impact and importance of management communication.

Work Stress - Perks

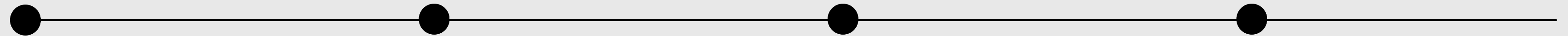
Explore benefits programs and options for reducing stress for employees.

Conduct further research within the company over workload assignment.

Research over Bonus Benchmark

Compare bonus payment with other companies in the industry.

Next Steps



Benchmark Comparison

Perform review analysis to other financial institutions .

Conduct Further Research

Conduct research over the negative feedback amongst employees to obtain more detailed information.

Sentiment Analysis

Conduct unsupervised machine learning methods to conduct analysis over employees sentiment.

Arrange Annual Feedback Analysis

Set up regular analysis to capture employees' feedback

Thank you!

Linkedin: www.linkedin.com/in/yangvickie