

A Study Concerning Employee Reviews for Google, Amazon, Apple, Facebook, Microsoft, and Netflix

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Project Overview

Part 1: Problem Description

Part 2: Methodology

2.1 Data Preprocessing

2.2 Exploratory Data Analysis

- Text Mining
- Trend Analysis

2.3 Predictive Modeling

Part 3: Conclusion



Part 1: Problem Description

1. What are the similarities and differences from these companies based on employee reviews?
2. Which company stands out the most from various aspects and is worth working for?
3. What are the aspects that firms need to improve?



Dataset Description

Dataset

Topic: Google, Amazon and more employee reviews

Companies: Amazon, Apple, Facebook, Google, Microsoft, Netflix

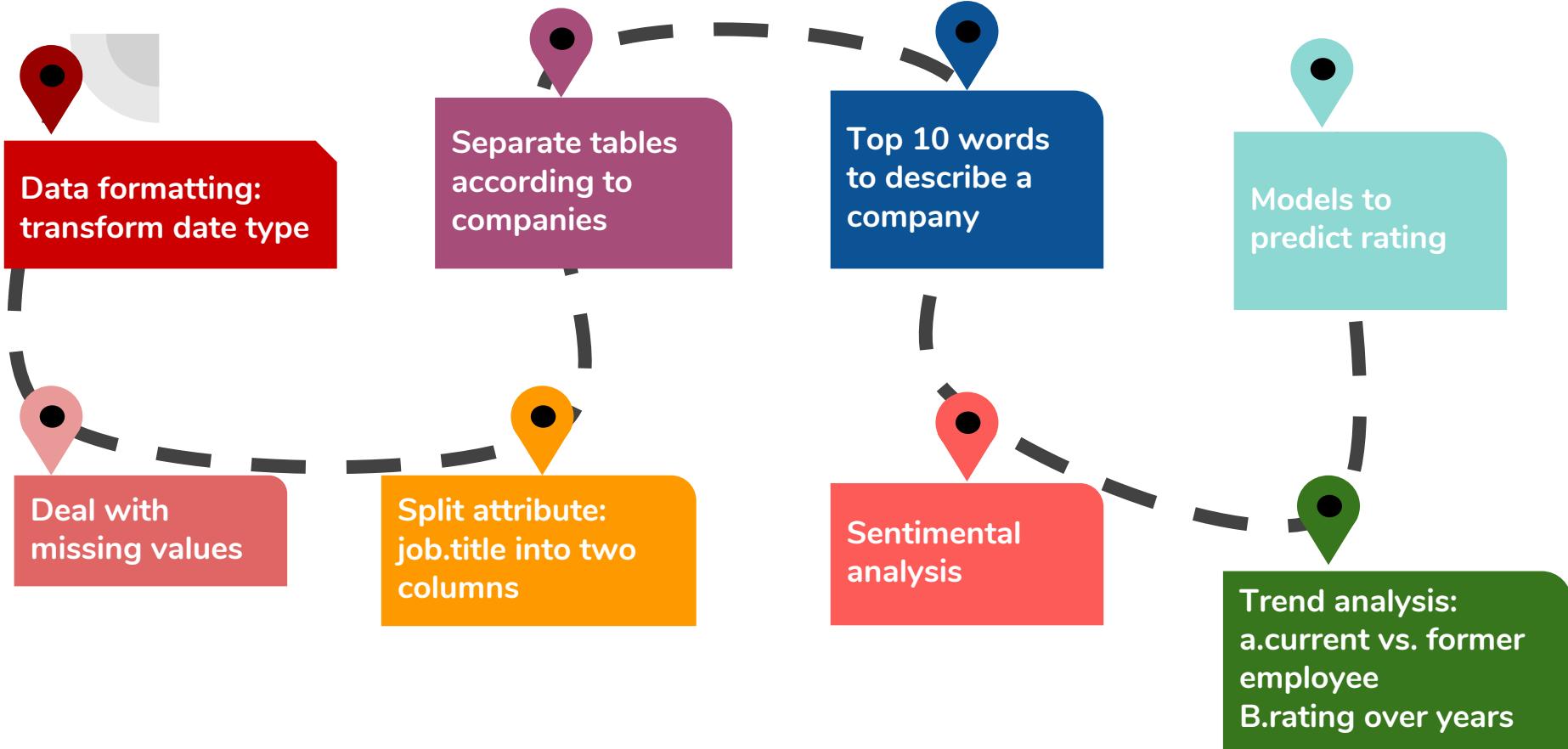
Quantity of employee reviews: over 67k

Source: Web-scraped from Glassdoor

Variables:

- Character: company name, location, position, summary, pros, cons, advice to management
- Numeric: overall rating, work-balance rating, career opportunities rating, culture values rating, senior management rating, comp & benefits ratings
- Total: 15 variables

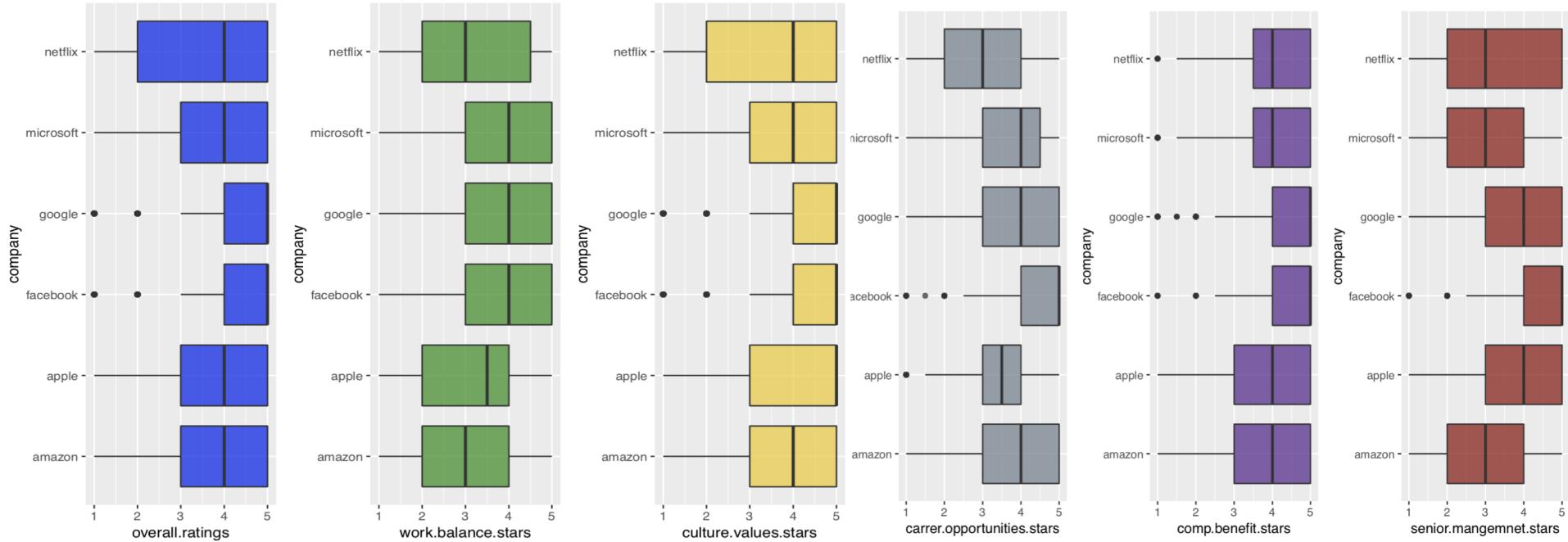
Part 2: Methodology



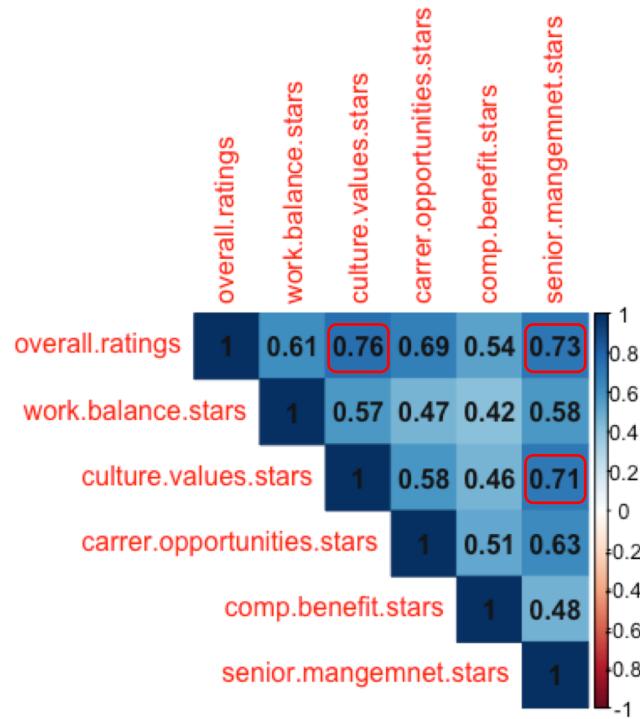


PART 2.2 EDA: ratings

Compare employees' opinions on 6 aspects by each company: overall ratings / work-life-balance/ culture values/ career opportunities/ company benefits/ senior management



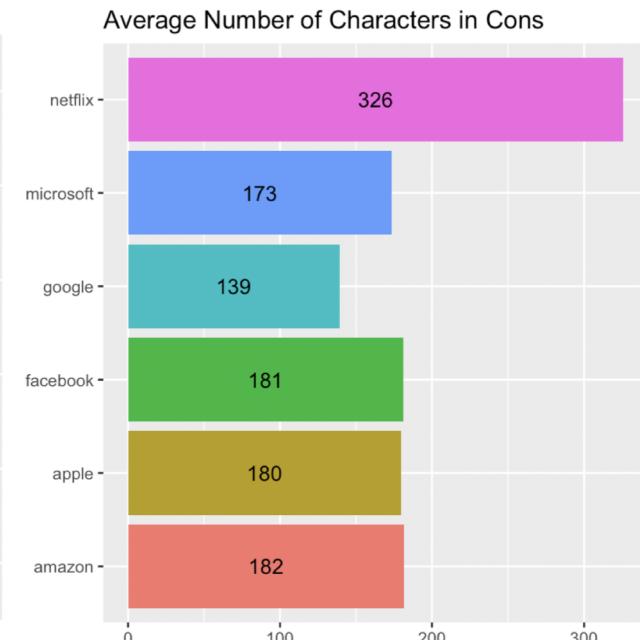
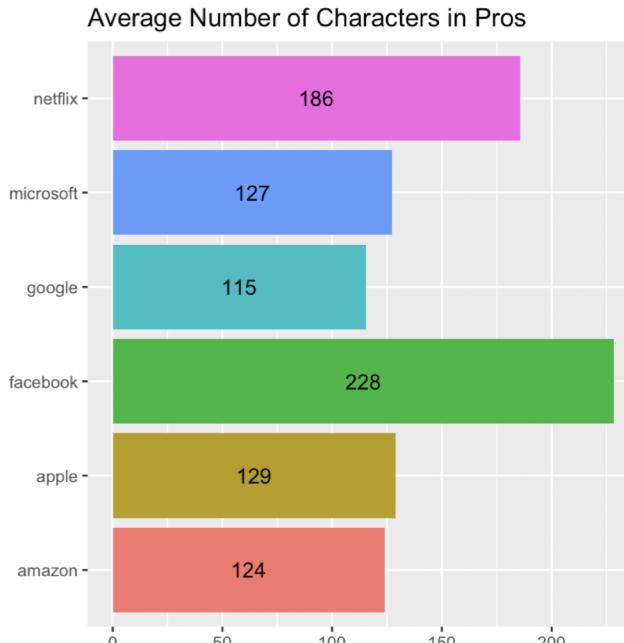
Correlation



Part 2: EDA- Text Mining

2.1 Character count comparison

- Highest number of pros count: Facebook
- Highest number of cons: Netflix

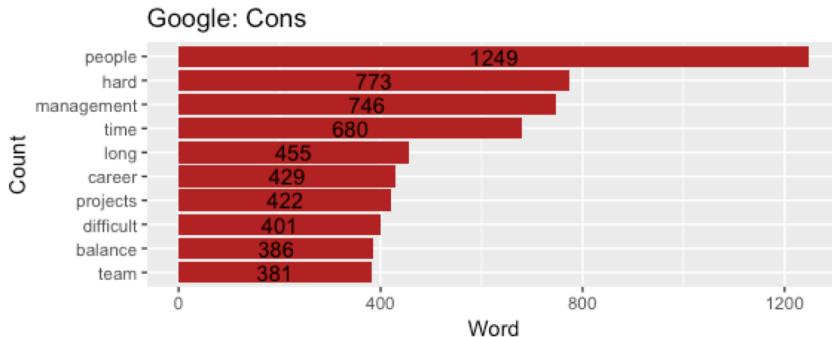
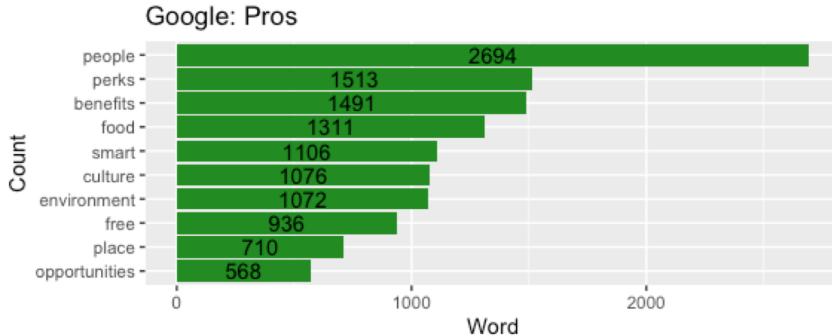


company

- amazon
- apple
- facebook
- google
- microsoft
- netflix

Part 2: EDA-Text Mining :

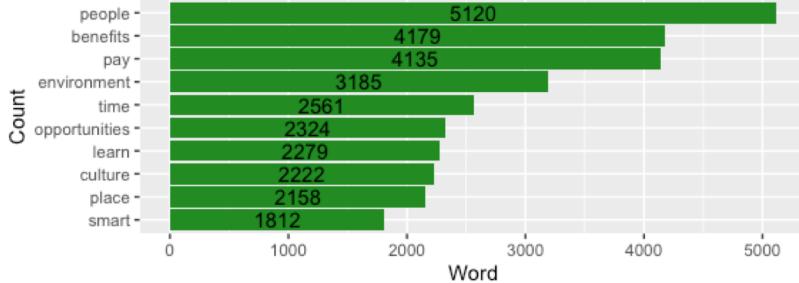
2.2 Frequent Words Counts: Google



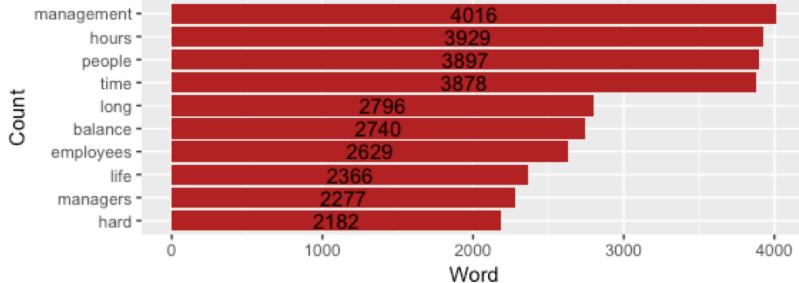
Part 2: EDA-Text Mining :

2.2 Frequent Words Counts: Amazon

Amazon: Pros



Amazon: Cons

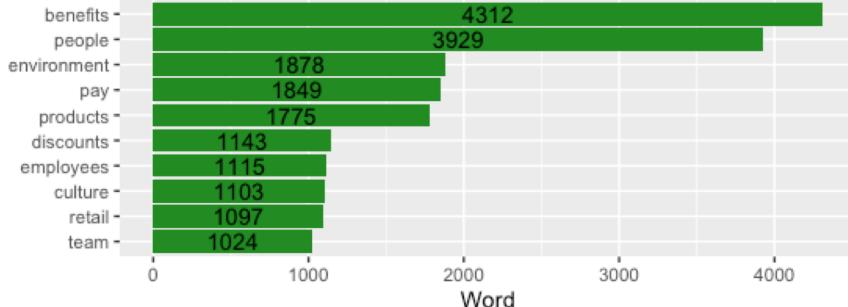


Part 2: EDA-Text Mining :

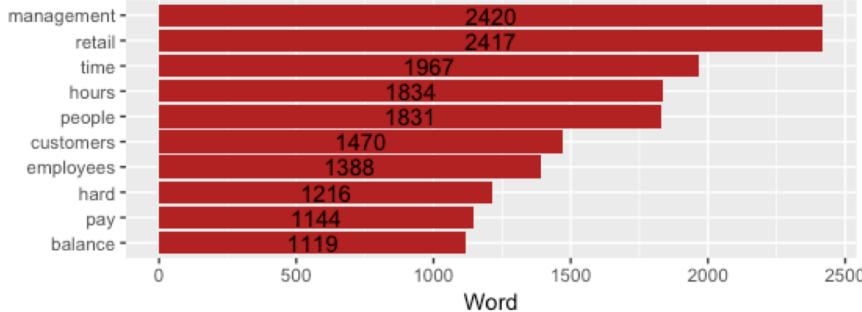
2.2 Frequent Words Counts: Apple



Apple: Pros

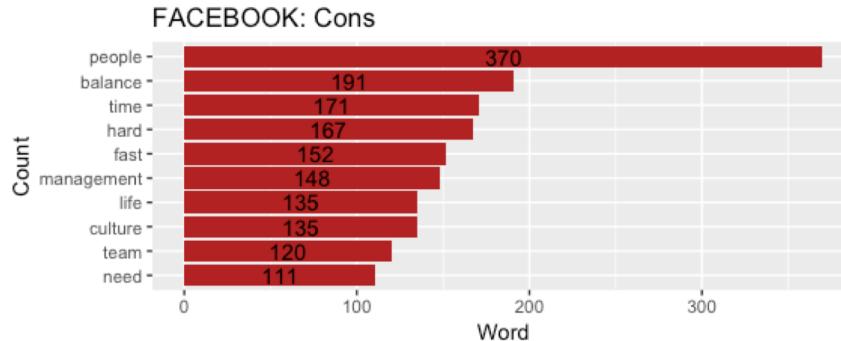
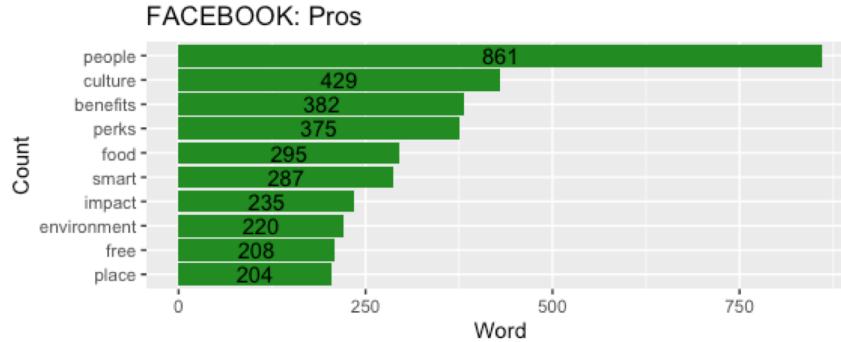


Apple: Cons



Part 2: EDA-Text Mining :

2.2 Frequent Words Counts: FACEBOOK



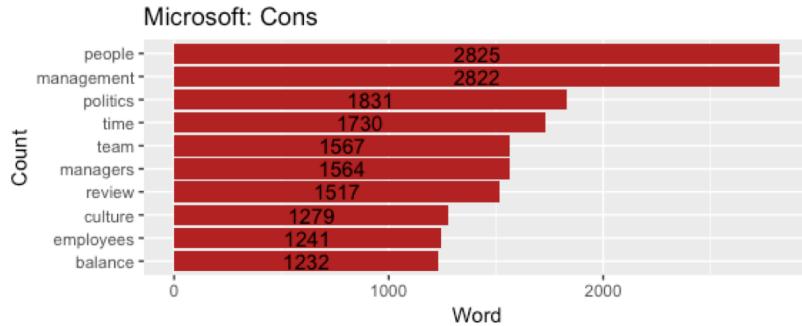
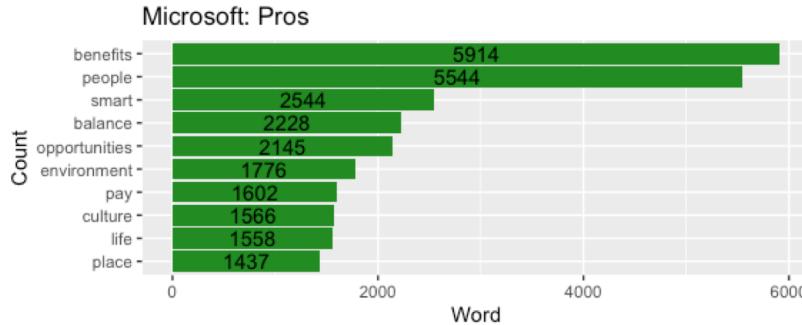
people

grow something
flexibility focus everything
office flexible compensation done
learning move projects companies
making even opportunity mission payhours
never learn fun environment always
product high fast career interesting
just food employees time take
want driven world love way
still benefits open autonomy
leadership perks place hard
big one smart culture find
around impact every free fb hard
challenging make team talented
etc everyone feel truly
balance strong much growth
makes opportunities care growth
coworkers problems tech
experience engineers freedom
values campus teams colleagues
friendly top different
important

never done bit management change
level little team hard
every growing worklife new time place
none moved feel office product
years one see difficult career
thing one fb around
pressure still year even
open still need fast culture hours
everyone want life focus role
moving teams high growth best
means lots teams getting take
employees going less
environment pace companies commute
leadership performance well
engineering outside

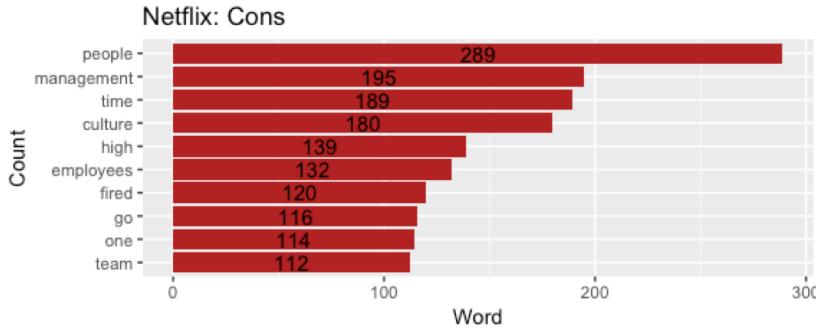
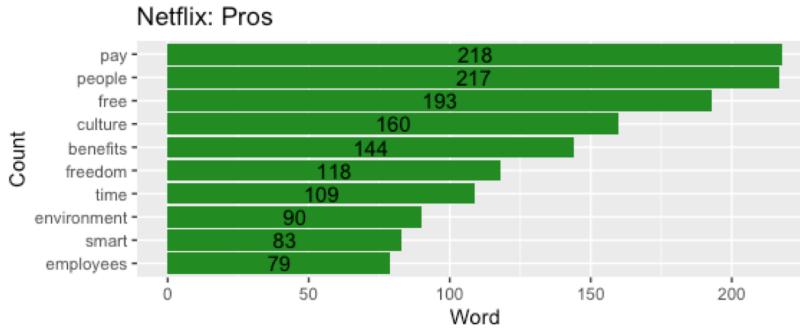
Part 2: EDA-Text Mining :

2.2 Frequent Words Counts: Microsoft



Part 2: EDA-Text Mining :

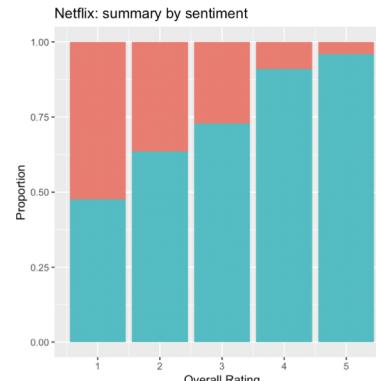
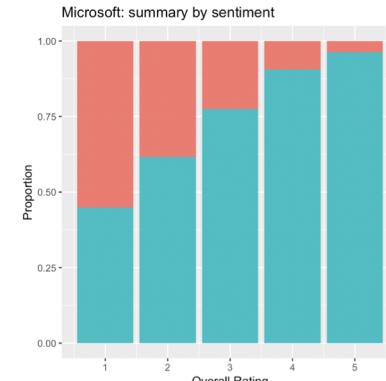
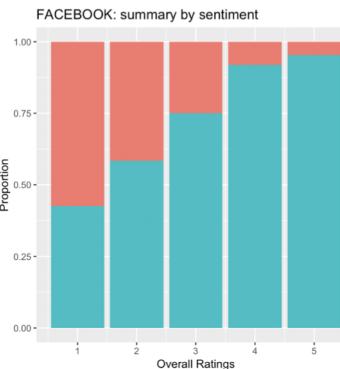
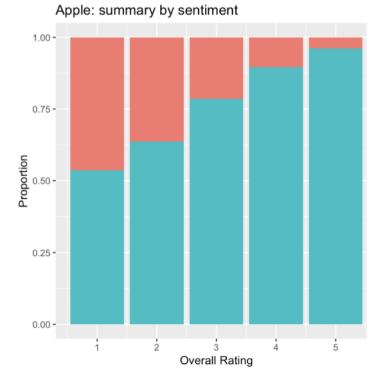
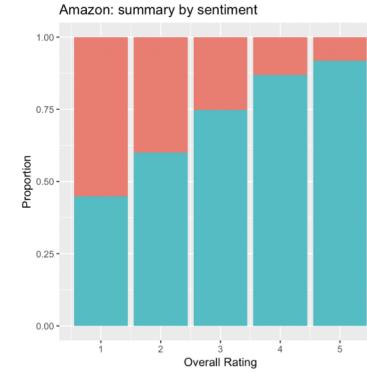
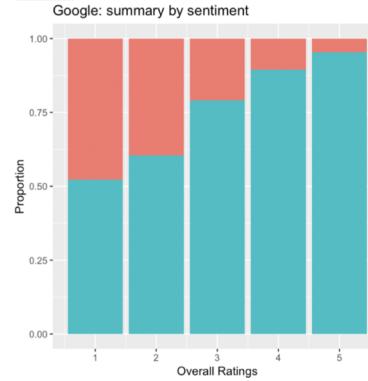
2.2 Frequent Words Counts: Netflix



Part 2: EDA-Text Mining :

2.3 Sentimental Analysis

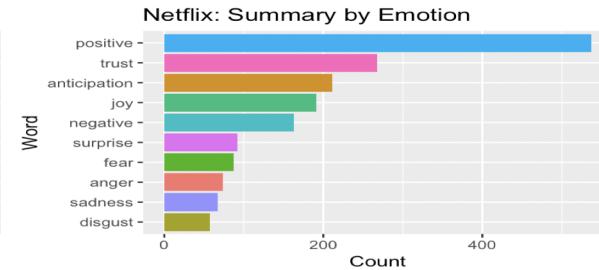
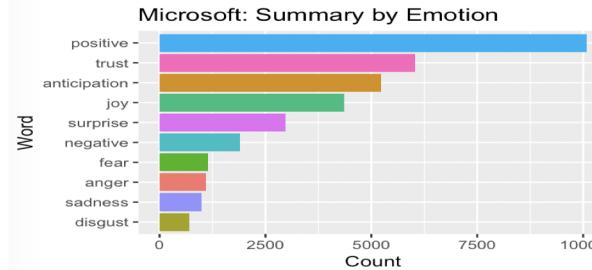
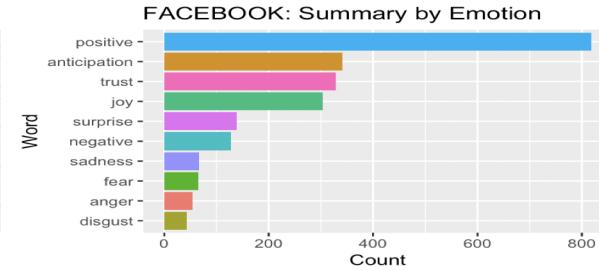
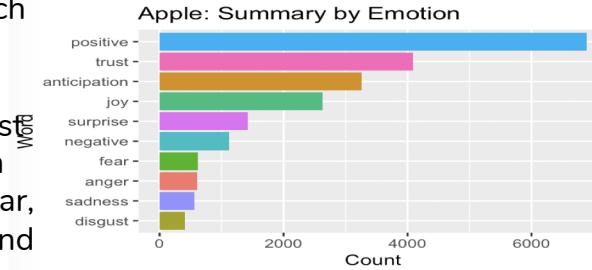
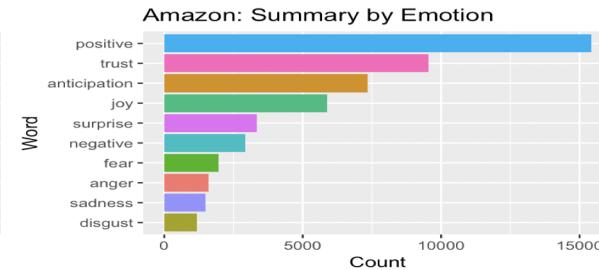
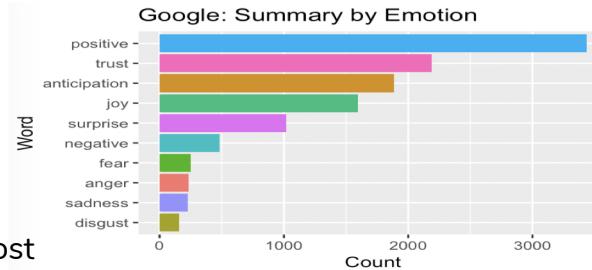
What is the relationship between positive/negative words in summary and overall ratings?



- Visualization of the proportion of positive/negative words in summary
- Proportion of positive words is correlated with overall rating
- Quantify this correlation: 0.441

Part 2: EDA-Text Mining :

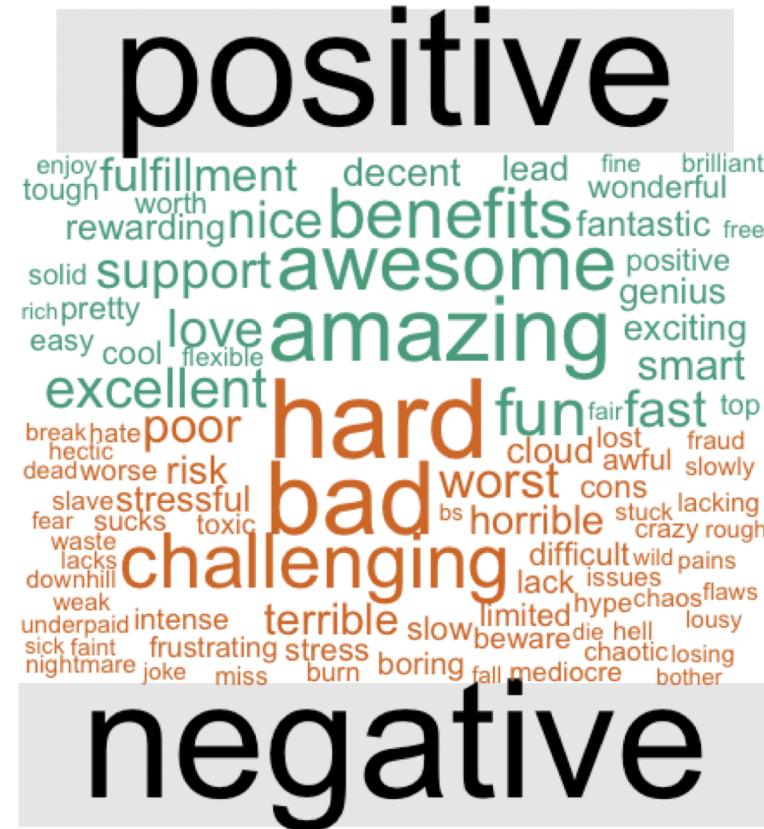
2.3 Sentimental Analysis: by employee's emotion



- Positive emotion words appear most frequently for each company
- Netflix has highest negative emotion words such as fear, anger, sadness and disgust

Part 2: EDA-Text Mining : Summary

What do an employee like and dislike about a company in general?

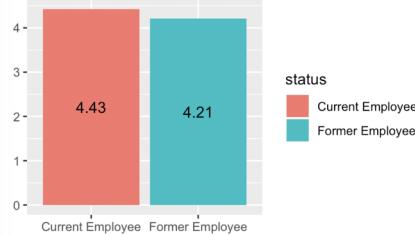


Part 2: EDA - Trend Analysis

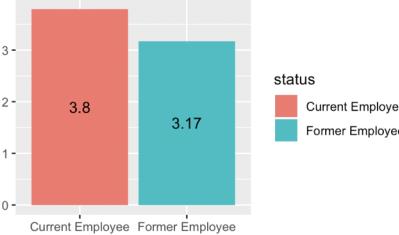
2.4 Do current employees review the companies higher than former ones?



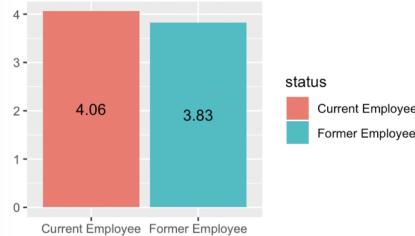
Google: Average Overall Rating by Status



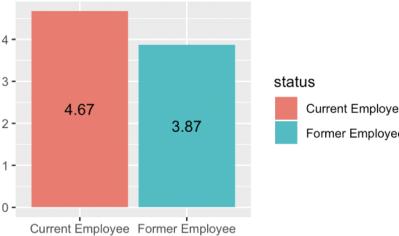
Amazon: Average Overall Rating by Status



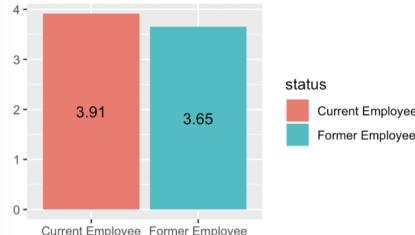
Apple: Average Overall Rating by Status



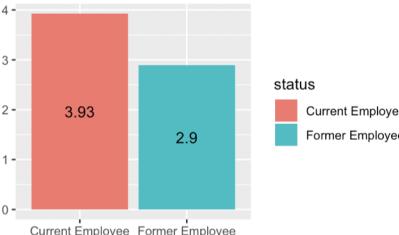
FACEBOOK: Average Overall Rating by Status



Microsoft: Average Overall Rating by Status



Netflix: Average Overall Rating by Status



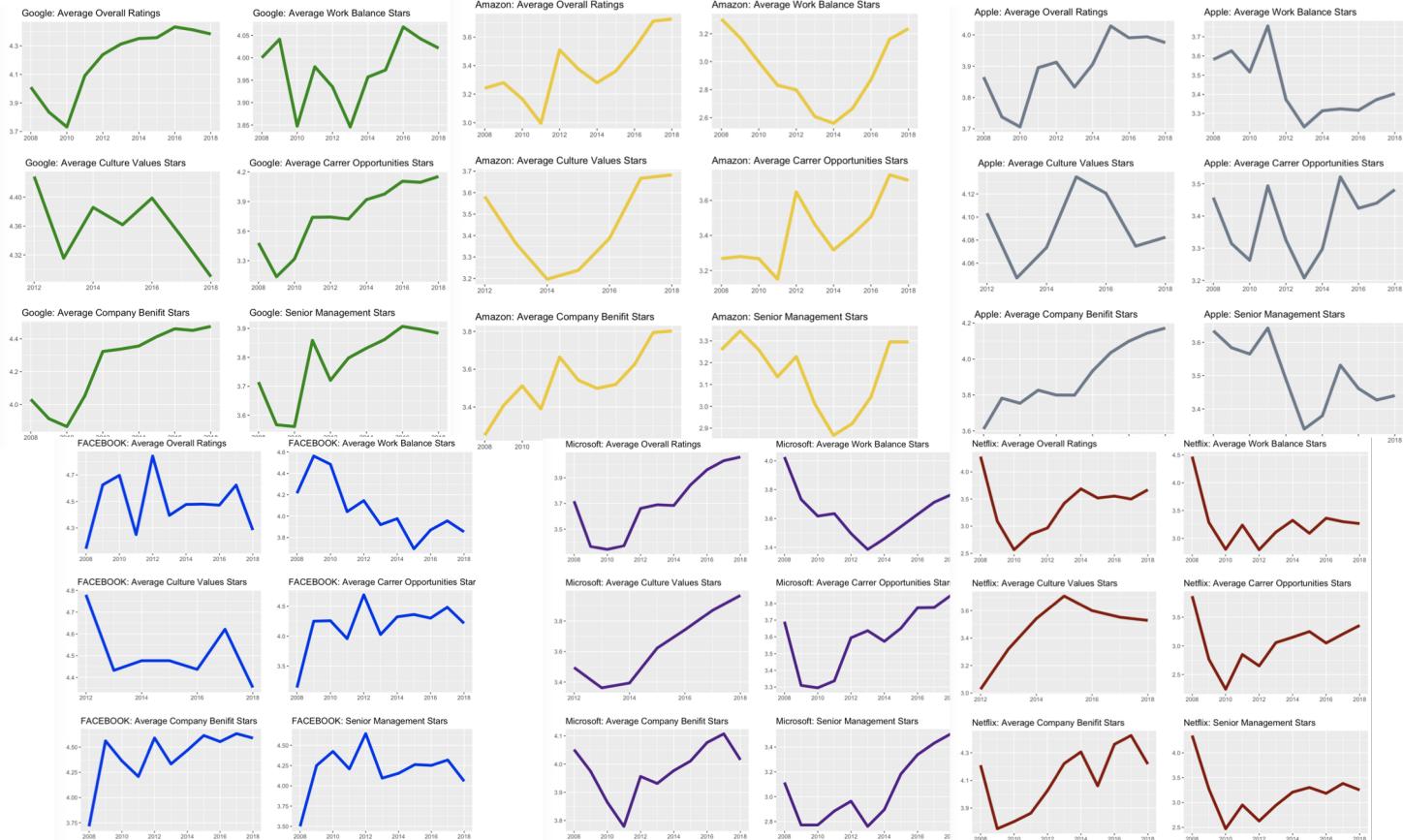
- Current employees rated their firms higher than former employee
- Google has the most satisfied current employee
- Netflix has the biggest gap for company rating between current and former employee

Part 2: EDA - Trend Analysis

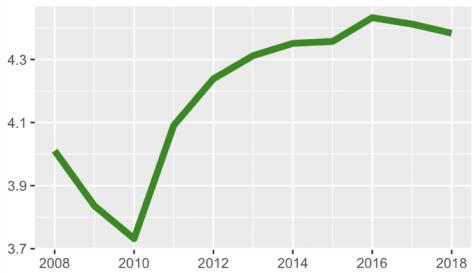
2.5 How did the ratings change over years for each company?



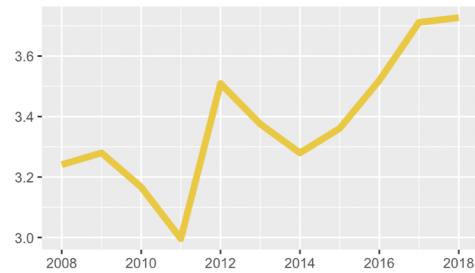
- Google: the trends of all variables were on stable except for culture values stars.
- Microsoft's company benefit stars have decreased over the decade with great fluctuation
- Apple, Facebook and Netflix all share very fluctuant trend over years
- Netflix performs the poorest especially in overall ratings and senior management stars



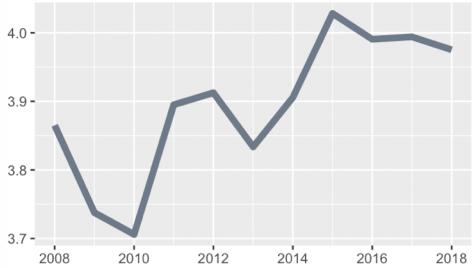
Google: Average Overall Ratings



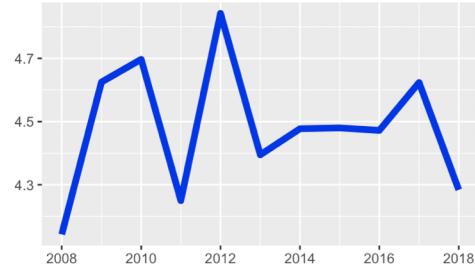
Amazon: Average Overall Ratings



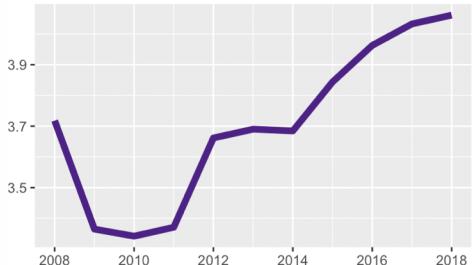
Apple: Average Overall Ratings



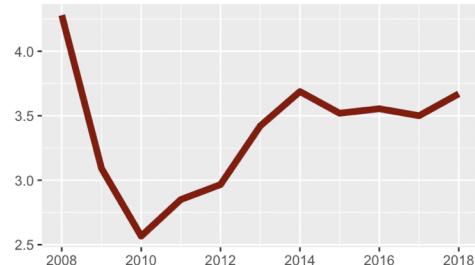
FACEBOOK: Average Overall Ratings



Microsoft: Average Overall Ratings



Netflix: Average Overall Ratings



Trend in Overall Rating

These firms are making an improvement to raise the satisfaction of employees. Specifically, Google, Amazon, Apple, and Microsoft are making stronger effort comparing to Facebook and Netflix.

Part 2: Model Summary

- We use predictive analysis (decision tree and linear regression) to predict the overall ratings of companies based on the summary comments of the employees.
- Help companies and job seekers to better evaluate the overall situation of the company.
- Achieve RMSE around 1.1~1.2



Part 3: Conclusion

Findings on employees' reviews:

- Facebook and Netflix - longest descriptions in Pros
Netflix - longest descriptions in Cons
- Apple & Amazon - working environment
Netflix - potential higher payment
Microsoft & Google intelligent employees
Amazon & Microsoft - better career opportunities
- Management is an overall problem
- Netflix - the fire problem
Microsoft - workplace politics



Business Recommendations:

For the six companies:

- Facebook, Netflix, Microsoft, and Google - improve working environments
- All companies - management system
- Netflix - reduce working pressure and improve their employees' work-life balance.

For job seekers:

- To gain a clear understanding of the culture, value, benefits, and environment
- To find the most appropriate company to fulfill personal goals
- Tips: How to choose the company
Environment-oriented companies: Apple and Amazon

Higher payment company: Netflix

More career opportunities: Microsoft

Educational environment: Google & Microsoft



Thanks!