

FAANG and Microsoft Employee Reviews

Student Name: Xue Chen
Student ID: 30100763

Introduction

In these years, Most of the software developers consider Facebook, Apple, Amazon, Netflix, Google and Microsoft as their dream companies to work. However, after you receive the offer, the size of the salary package is not the only thing you need to thinking about. Which corporation is worth to working for? Is there any relationship between working performance and the company benefit?

This analysis will focus on all the different aspects of rating, such as, Overall Rating, Work/Life Balance Rating, Culture and Values Rating, Career Opportunities Rating. The dataset is web scraped from Glassdoor, and there are over 67k employee reviews separated into different categories.

Data Wrangling

The dataset contains over 67k employee reviews for Google, Amazon, Facebook, Apple, Netflix and Microsoft, web scraped from Glassdoor. The is of the dataset is 67,529 rows x 17 columns including tabular data and textual data.

The dataset could be found in

https://www.kaggle.com/petersunga/google-amazon-facebook-employee-reviews#employee_reviews.csv

	X1	company	location	dates	job-title	summary	pros	cons	advice-to-mgmt	overall-ratings	work-balance-stars	culture-values-stars
1	1	google	none	Dec 11, 2018	Current Employee - Anon...	Best Company to w...	People are smart an...	Bureaucracy is slo...	none	5	4.0	5.0
2	2	google	Mountain V...	Jun 21, 2013	Former Employee - Progra...	Moving at the spee...	1) Food, food, food...	1) Work/life balan...	1) Don't dismi...	4	2.0	3.0
3	3	google	New York, NY	May 10, 20...	Current Employee - Softw...	Great balance betw...	* If you're a softwar...	* It *is* becoming...	Keep the focu...	5	5.0	4.0
4	4	google	Mountain V...	Feb 8, 2015	Current Employee - Anon...	The best place I've ...	You can't find a mor...	I live in SF so the ...	Keep on NOT ...	5	2.0	5.0
5	5	google	Los Angele...	Jul 19, 2018	Former Employee - Softw...	Unique, one of a ki...	Google is a world of...	If you don't work i...	Promote man...	5	5.0	5.0
6	6	google	Mountain V...	Dec 9, 2018	Former Employee - SDE2	NICE working in GO...	People are not that ...	Food is not good ...	none	5	4.0	4.0
7	7	google	New York, NY	Dec 11, 2018	Current Employee - Softw...	Software engineer	Great working envir...	Usual big compan...	none	5	5.0	4.0
8	8	google	none	Dec 11, 2018	Former Employee - Anony...	great place to work...	work culture, benefi...	No cons that i can...	none	5	5.0	5.0
9	9	google	New York, NY	Dec 10, 2018	Current Employee - Anon...	Google Surpasses R...	Great products. Visi...	Younger employe...	none	5	5.0	5.0
10	10	google	none	Dec 9, 2018	Current Employee - Anon...	Excellent for engli...	Impact driven. Best t...	Size matters. Engi...	none	5	5.0	5.0
11	11	google	Mountain V...	Dec 8, 2018	Current Employee - Anon...	Nice place to work	* Smart people * Wo...	Giant company wi...	none	5	4.0	5.0
12	12	google	none	Dec 8, 2018	Current Employee - Anon...	Software Engineer	* There is endless o...	* There's always s...	none	5	5.0	5.0
13	13	google	none	Dec 4, 2018	Former Employee - Anony...	Best Company to W...	Atmosphere that pr...	It can be an overw...	none	5	5.0	5.0
14	14	google	San Francis	Dec 3, 2018	Current Employee - Salee...	Still the best place	Amazing company	Size which limits	none	5	5.0	5.0

Figure 1.1 Overview of the dataset

“X1”, “helpful-count” and “link” columns are useless in the analysis, these 3 columns will be dropped by using Microsoft Excel.

The data is collected from Jan.30, 2008 to Dec.10, 2018, there are only a few participants before 2014, also the result will be more accurate by only analyze recent collected data. So the sorted data which are assembled before 2014 will be dropped by Microsoft Excel.

Moreover, capitalize the first letter of all the company names and headers using `df.replace()` and `df.rename()` in Python.

Now the cleaned dataset looks like Figure 1.2 and the new size of the dataset is 55,326 rows x 14 columns using `df.shape` in Python.

	Company	Location	Dates	JobTitle	Summary	Pros	Cons	AdviceToManagement	OverallRatings	WorkBalanceStars	CultureValuesStars	CareerDevelopmentStars
1	Google	none	Dec 11, ...	Current Empl...	Best Company to ...	People are sm...	Bureaucracy is...	none	5	4	5	5
2	Google	New York, ...	May 10, ...	Current Empl...	Great balance bet...	* If you're a s...	* It *is* beco...	Keep the focus on the us...	5	5	4	5
3	Google	Mountain ...	Feb 8, 2...	Current Empl...	The best place I've...	You can't find...	I live in SF so t...	Keep on NOT micromana...	5	2	5	5
4	Google	Los Angele...	Jul 19, 2...	Former Empl...	Unique, one of a ...	Google is a w...	If you don't w...	Promote managers into ...	5	5	5	5
5	Google	Mountain ...	Dec 9, 2...	Former Empl...	NICE working in ...	People are no...	Food is not go...	none	5	4	4	4
6	Google	New York, ...	Dec 11, ...	Current Empl...	Software engineer	Great working...	Usual big com...	none	5	5	4	4
7	Google	none	Dec 11, ...	Former Empl...	great place to wo...	work culture, ...	No cons that i ...	none	5	5	5	5
8	Google	New York, ...	Dec 10, ...	Current Empl...	Google Surpasses...	Great product...	Younger empl...	none	5	5	5	5
9	Google	none	Dec 9, 2...	Current Empl...	Excellent for en...	Impact driven...	Size matters. ...	none	5	5	5	5
10	Google	Mountain ...	Dec 8, 2...	Current Empl...	Nice place to work	* Smart peopl...	Giant compan...	none	5	4	5	4
11	Google	none	Dec 8, 2...	Current Empl...	Software Engineer	* There is end...	* There's alwa...	none	5	5	5	5
12	Google	none	Dec 4, 2...	Former Empl...	Best Company to ...	Atmosphere t...	It can be an o...	none	5	5	5	5
13	Google	San Franci...	Dec 3, 2...	Current Empl...	Still the best plac...	Amazing com...	Size, which li...	none	5	5	5	5
14	Google	none	Dec 6, 2...	Current Empl...	Mba Intern	Perks, autono...	Slow career pr...	none	5	4	5	3
15	Google	none	Dec 6, 2...	Current Empl...	Review	The people ar	There is lower	none	5	none	none	nr

Figure 1.2 Overview of the cleaned dataset

Data Checking

When sorting the dates of the dataset, found out there are few date errors which looks like Figure 2.1.

	Feb 9, 2018	Former
(India)	Jan 0, 0000	Current
L	Jan 0, 0000	Former
view, CA	Jan 1, 2014	Current
son, CA	Jan 1, 2014	Former

Figure 2.1 Error dates in dataset

Also, using `df.xxxx.value_counts()` in python checked all the ratings and stars are none, 1, 2, 3, 4 and 5, expect there is one 3.5 stars in WorkBalanceStars and one 2.5 starts in CompBenefitStars.

Choose to delete those error datas from the dataset. The new size of dataset is 55,322 rows x 14 columns using `df.shape` in Python.

Data Exploration

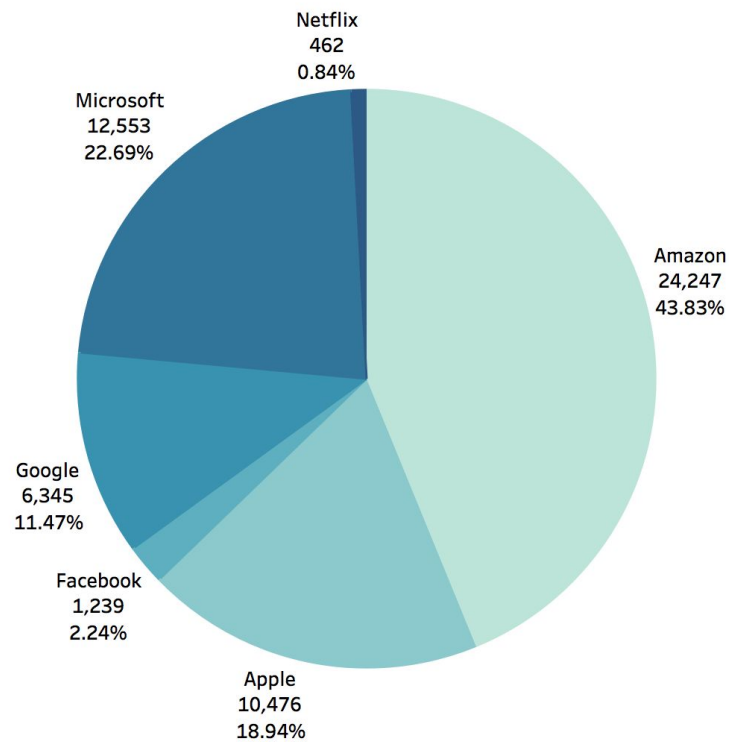


Figure 2.1 Number of Reviews Collected by Company

The distribution of reviews in this dataset is shown by pie chart in Figure 2.1 using Tableau Public. Most of the reviews are from Amazon(43.83%), Microsoft(22.69%) and Apple(18.94%). Obviously there are less data from Netflix(0.84%), Facebook(2.24%) and Google(11.47%).

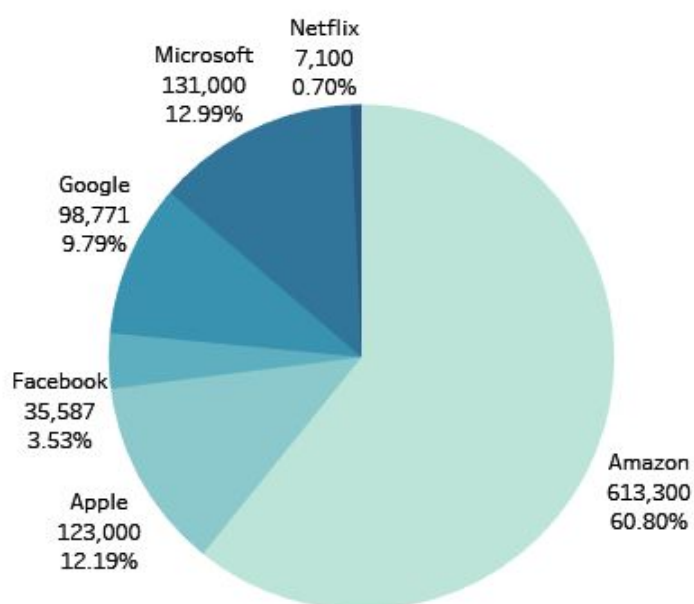


Figure 2.2 Global Numbe of Employees in 2018

However, after investigation, the reason why the number of reviews collected by company has such a huge difference is because each company has unique number of employees. Amazon has a total of 613,300 employees, but Netflix only has 7,100 employees in 2018.

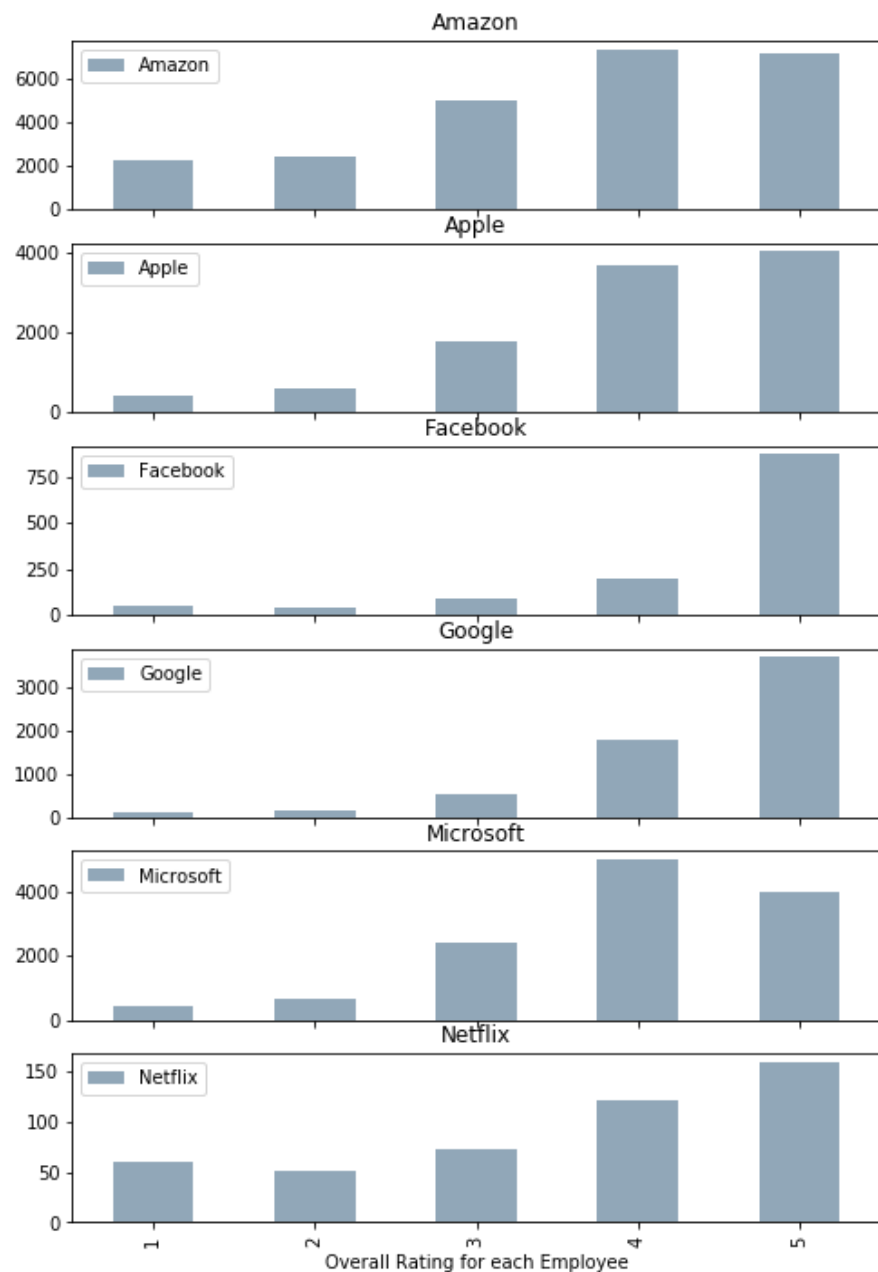


Figure 3.1 Overall Rating for each Employee by Company

Using Python to plot the bar graph for Overall Rating groupby companies. According to Figure 3.1, Amazon and Netflix is strict on rating to

their employees. There are more employees from Amazon and Netflix received low rating compare to Google and Microsoft.

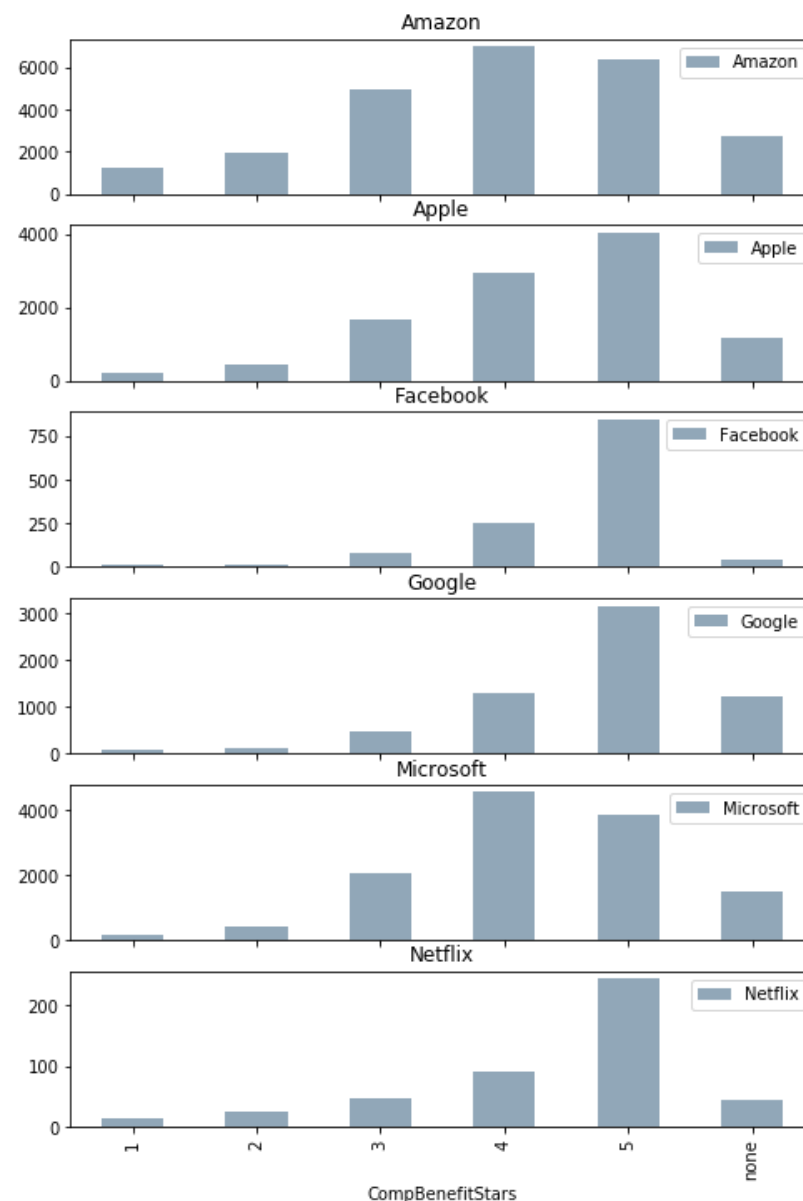


Figure 3.2 Compensation & Benefits Stars for each Employee by Company

Now take a look for Compensation & Benefits Stars groupby companies. According to Figure 3.2, Amazon has less compensation or benefits for their employees compare to Facebook and Google.

Moreover, Figure 3.3 demonstrates that Amazon, Apple and Netflix has heavier work/life balance than Facebook and Google.

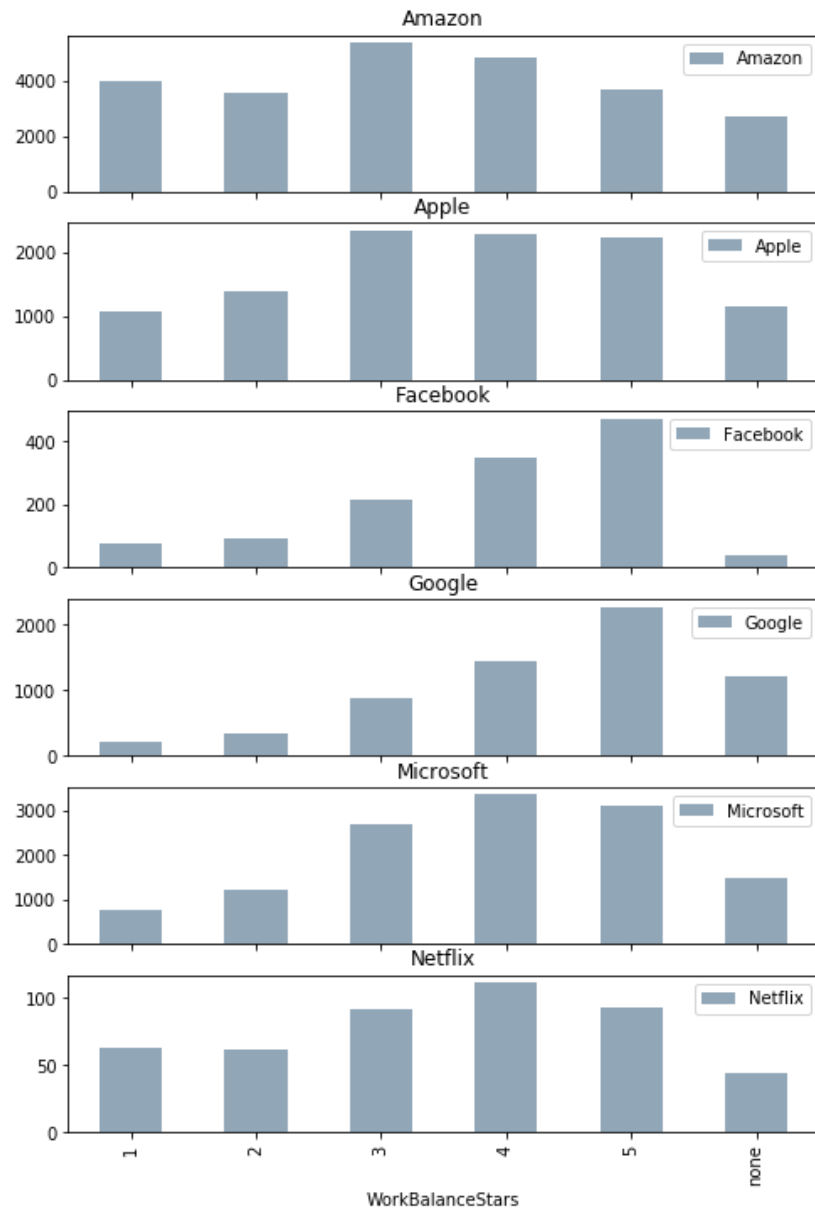


Figure 3.3 Work/Life Balance Rating for each Employee by Company

Finally, let's take a look for career opportunities in each company. Figure 3.4 shows that Amazon, Apple and Netflix has less career opportunities than Facebook and Google.

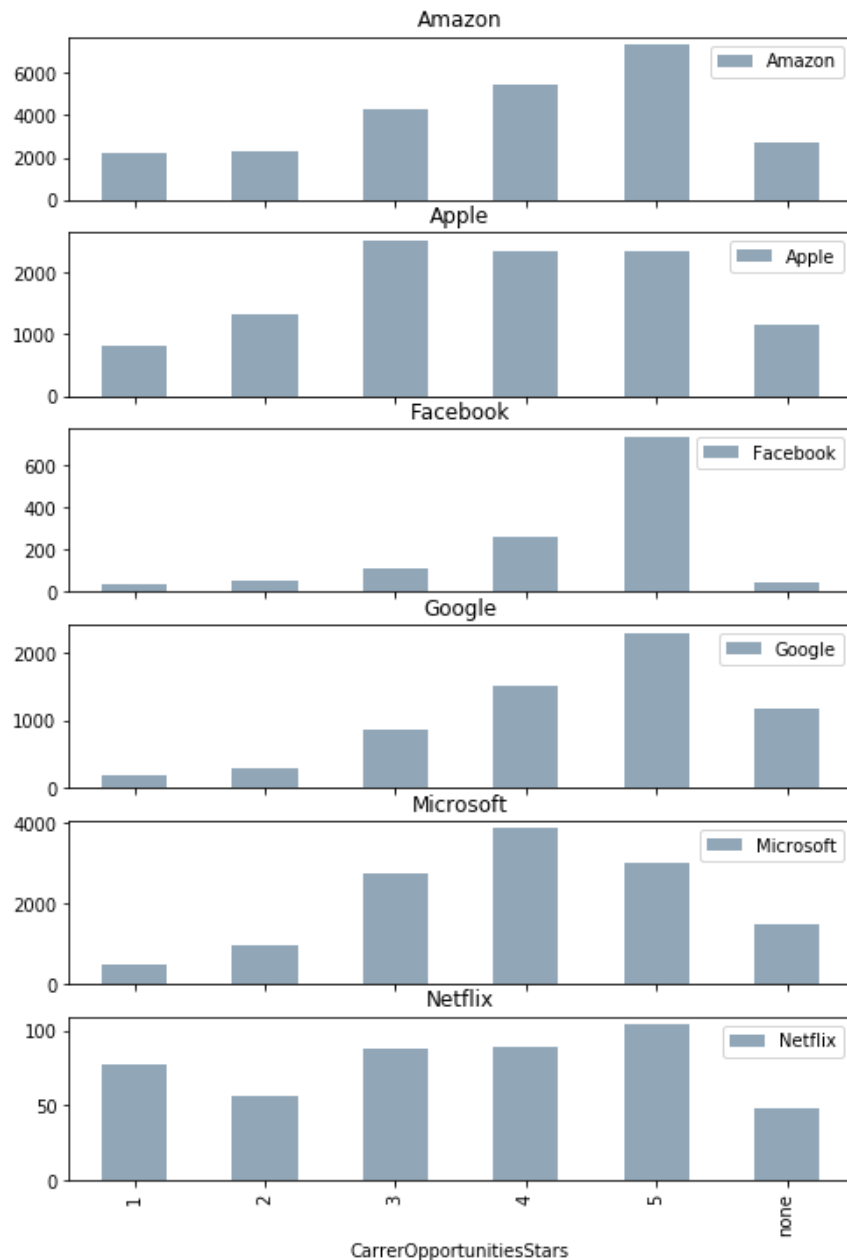


Figure 3.4 Carrer Opportunities Rating for each Employee by Company

Wordcloud could reveal the essential more efficiency, now the following contents demonstrate the pros and cons from each review by wordcloud method.

The tool I am using is R Studio. Common words, numbers, punctuations from the textual dataset need to be removed by using `tm_map()` before plotting the wordcloud.

By comparing the worldcloud plots, all 6 companies have great benefits, culture and working environments. But those companies might need to work overtime. It should be noticed that Netflix employees are easier to be fired, and Microsoft might have some political problems.

Software Engineer is a well paid job and account for a large proportion among all positions in Tech companies. Figure 5.1 shows the average salary for Software Engineer of these 6 company.

Rank	Name	Avg. Salary in USD
1	Netflix	\$134,684
2	Apple	\$125,048
3	Facebook	\$121,928
4	Google	\$114,070
5	Microsoft	\$113,564
6	Amazon	\$109,913

Figure 5.1 Average salary for Software Engineer by company

Conclusion

In this project, I noticed that tech companies always provide great benefits, such as free lunch, discount devices, game room, etc. That could help employees more concentrate on their tasks.

By comparing Figure 3.1 and Figure 3.2, there is a strong relationship between working performance and the company benefit. Facebook and Google has better Compensation & Benefits Stars, meanwhile, they both have higher overall ratings.

Company Name	Rank				Total
	Salary	Comp & Benefits	Work/Life Balance	Carrer Opportunities	
Amazon	6	6	6	4	22
Apple	2	4	5	5	16
Facebook	3	1	2	1	7
Google	4	2	1	2	9
Microsoft	5	5	3	3	16
Netflix	1	3	4	6	14

Figure 6.1 Ranking table for 6 companies

According Figure 6.1, Facebook is the best company to work for. Amazon seems the worst place to work, but it has huge amount of opening positions and internship opportunities for new grads.

Reflection

Technically, I learnt how to plot worldcloud in R and that is the first time that I process such a huge dataset.

I would like to find a dataset that with everyone's compensation amount if I could start over the project. Salary is one of the most essential parts when a person looking for a job. It also motivate employees to work harder. Although tech companies provide high salaries, the 6 companies in the dataset still have some difference about the pay to their employees. Moreover, I can plot the trend of each categories by year in order to see whether the company is improving or not.

Reference

1. Company Salaries | PayScale
<https://www.payscale.com/research/US/Employer>
2. 25 Best Companies for Perks and Benefits
<https://tech.co/news/25-best-companies-perks-benefits-2017-12>