Data Exploration for Yelp Data

Review JSON

```
import pandas as pd
import json
from tqdm import tqdm

line_count = len(open("data/review.json", encoding="utf8").readlines())
user_ids, business_ids, stars, dates,texts = [], [], [], [], []
with open("data/review.json", encoding="utf8") as f:
    for line in tqdm(f, total=line_count):
        blob = json.loads(line)
        user_ids += [blob["user_id"]]
        business_ids += [blob["business_id"]]
        stars += [blob["stars"]]
        dates += [blob["date"]]
        texts += [blob["text"]]
ratings = pd.DataFrame(
 {"user_id": user_ids, "business_id": business_ids, "rating": stars, "date": dates, "text": t
)
user_counts = ratings["user_id"].value_counts()
active_users = user_counts.loc[user_counts >= 5].index.tolist()
```

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```

```
ratings.head()
```

	user_id	business_id	rating	date
0	hG7b0MtEbXx5QzbzE6C_VA	ujmEBvifdJM6h6RLv4wQIg	1.0	2013-05-07 04:34:36
1	yXQM5uF2jS6es16SJzNHfg	NZnhc2sEQy3RmzKTZnqtwQ	5.0	2017-01-14 21:30:33
2	n6-Gk65cPZL6Uz8qRm3NYw	WTqjgwHlXbSFevF32_DJVw	5.0	2016-11-09 20:09:03
3	dacAIZ6fTM6mqwW5uxkskg	ikCg8xy5JIg_NGPx-MSIDA	5.0	2018-01-09 20:56:38
4	ssoyf2_x0EQMed6fgHeMyQ	b1b1eb3uo-w561D0ZfCEiQ	1.0	2018-01-30 23:07:38

```
len(ratings.user_id.unique()), len(ratings.business_id.unique())
```

```
(1637138, 192606)
```

```
ratings_active = ratings[~ratings['user_id'].isin(active_users)]
```

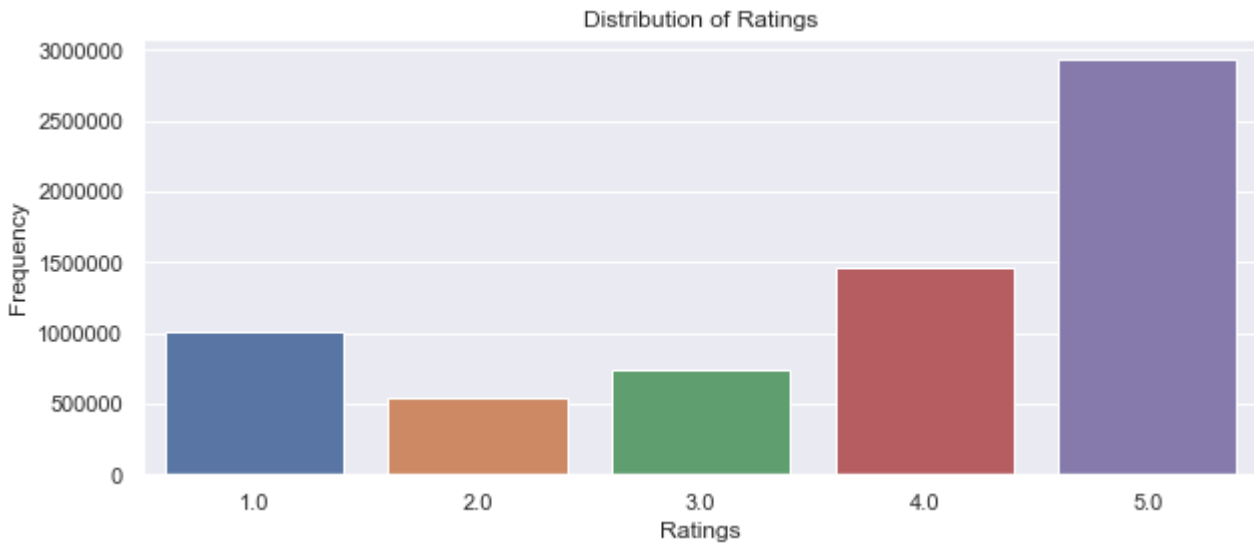
```
len(ratings_active.user_id.unique()), len(ratings_active.business_id.unique())
```

```
(1351008, 172970)
```

Distribution of Ratings

```
plt.figure(figsize=(10,4))
sns.set(style='darkgrid')
ax = sns.countplot(ratings['rating'])
# plt.title('Distribution of rating')
plt.title('Distribution of Ratings')
plt.ylabel('Frequency')
plt.xlabel('Ratings')
```

```
Text(0.5, 0, 'Ratings')
```




```
ratings_wordcloud = ratings.sample(n = 100000)
```

```
from wordcloud import WordCloud
cloud = WordCloud(width=1440, height= 1080,max_words= 200, background_color = 'white').genera
plt.figure(figsize=(20, 15))
plt.imshow(cloud)
plt.axis('off');
```

Business JSON

```
# sample input
# {"business_id":"1SWheh84yJXfytovILXOAQ","name":"Arizona Biltmore Golf Club","address":"2818
```

```
import pandas as pd
import json
from tqdm import tqdm
line_count = len(open("data/business.json", encoding="utf8").readlines())
business_ids, names, stars,review_counts = [], [], [], []
with open("data/business.json", encoding="utf8") as f:
    for line in tqdm(f, total=line_count):
        blob = json.loads(line)
        business_ids += [blob["business_id"]]
        names += [blob["name"]]
        stars += [blob["stars"]]
        review_counts += [blob["review_count"]]
#         compliment_counts += [blob["compliment_count"]]
business = pd.DataFrame(
 {"business_id": business_ids, "name": names, "star": stars, "review_count": review_counts}
)
```

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```
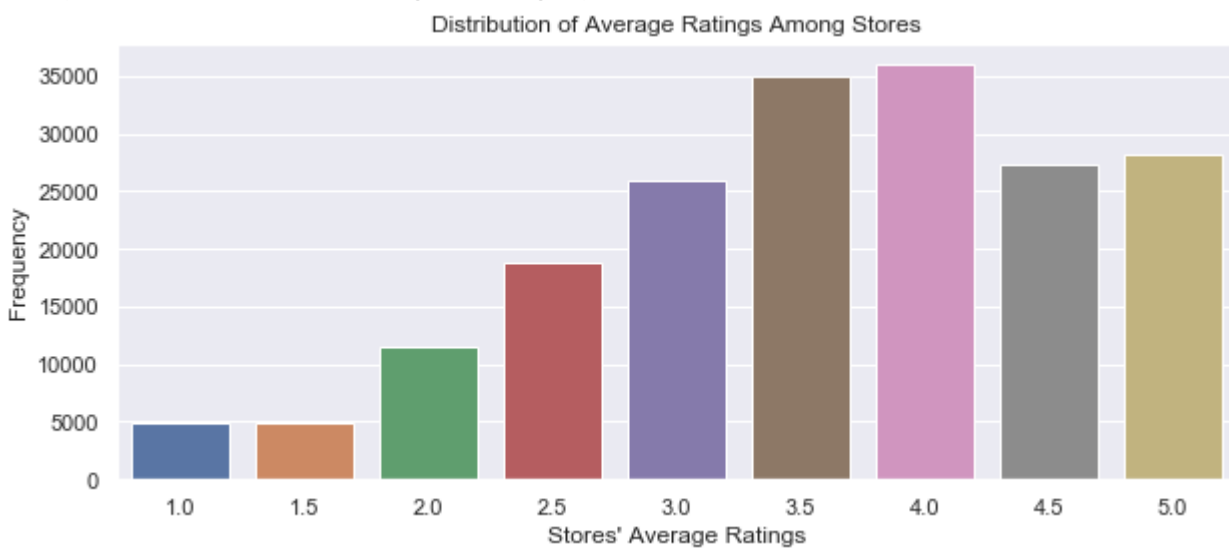

Restaurants' Average Ratings

```
plt.figure(figsize=(10,4))
sns.set(style='darkgrid')
ax = sns.countplot(business.star)
# plt.title('Distribution of rating')
plt.title('Distribution of Average Ratings Among Stores')
plt.ylabel('Frequency')
plt.xlabel("Stores' Average Ratings")
```

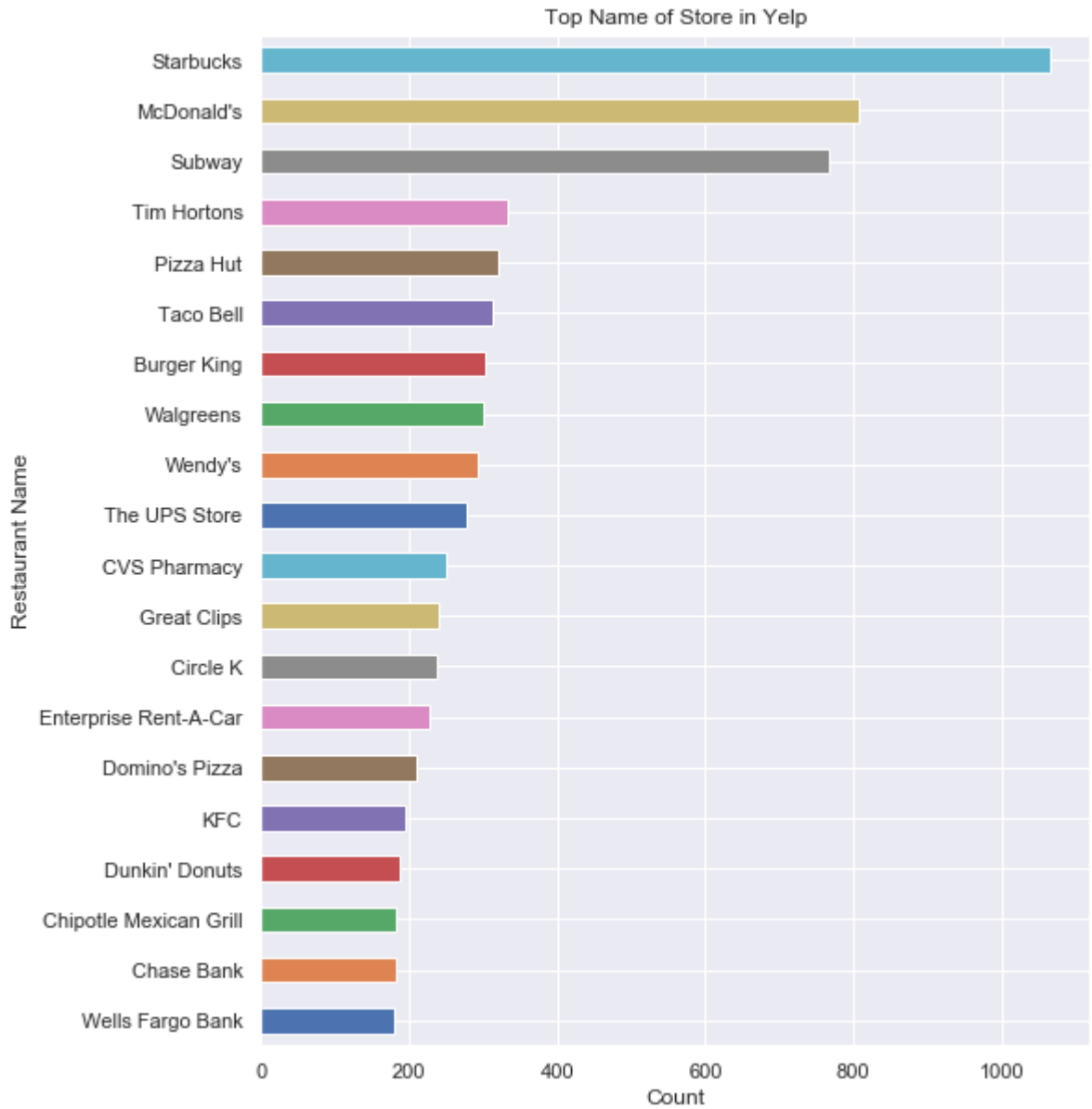
```
Text(0.5, 0, "Stores' Average Ratings")
```



Top Name of Restaurant in Yelp

```
a = business.groupby('name').size().sort_values(ascending = False)[:20]
sns.set(style='darkgrid')
plt.figure(figsize=(8,10))
a.sort_values(ascending=True).plot(color=sns.color_palette(), kind='barh')
plt.title("Top Name of Store in Yelp")
plt.ylabel("Restaurant Name")
plt.xlabel("Count")
```

```
Text(0.5, 0, 'Count')
```



Tip JSON

```
line_count = len(open("data/tip.json", encoding="utf8").readlines())
user_ids, business_ids, texts, compliment_counts = [], [], [], []
with open("data/tip.json", encoding="utf8") as f:
    for line in tqdm(f, total=line_count):
        blob = json.loads(line)
```

```
        user_ids += [blob["user_id"]]
        business_ids += [blob["business_id"]]
        texts += [blob["text"]]
        compliment_counts += [blob["compliment_count"]]
tips = pd.DataFrame(
 {"user_id": user_ids, "business_id": business_ids, "text": texts, "compliment_count": compli
)
```

```
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```

```
from wordcloud import WordCloud
# Word cloud
cloud = WordCloud(width=1440, height= 1080,max_words= 200, background_color = 'white').genera
plt.figure(figsize=(20, 15))
plt.imshow(cloud)
plt.axis('off');
```


First time
Good
service food
go back
reasonable price
run
Awesome food
ok
though
yummy
drink
check
employee
Amazing food
One best
will back
thing
happy hour
business
inside
real
Yum
always good
house
must
even
good service
fast service
friend
Loved
Great atmosphere
special
Highly recommend
Great
eat
full
tonight
Best place
help
Nice place
restaurant
good place
way
amazing
table
found
wonderful
today
much
askorder
dinner
Great customer
love love
will definitely
see
taste
ordered
food service
Love
dog
tasty
know
great price
omg
server
star
better
lol
lunch special
weekend
great
shop
food
great
staff
guy
offer
staff friendly
said
Excellent food
use
meal
awesome
Great
tried
great job
made
really good
fun
new
actually
make
favorite place
bar
try
room
plu
Great
instead
work
tip
used
every time
fantastic
Excellent
bad
enjoy
going
come back
Excellent
owner
customer
area
come
want
gluten free
left
look
available
still
must try
location
expensive
first