STANDOUT

SERVICES

Text Analysis plans for food business owners

INTRODUCTION

Running a restaurant on my own is lone journey. Exposed to constant competitions, waiting to be selected, you are subject to the constant pressure of getting better. However, we can be a shoulder to lean on and walk you alongside to help you go further. From analyzing what the customers say to you and your business, we can provide a litmus to recognize what they think is the best or worst of your menu, or what makes your restaurant stand out from others in the neighborhood. Some of the coverage we provide are:

- Discover the key factor that makes customers choose your restaurant

- List up which aspects that you can improve from unsatisfactory reviews

- Visualize what customers expect from the food in your category

- Locate where you are and how you are doing in the category

This leaflet continues to describe the food business and the detail of our services with some the use cases as below:

1. Food Business Overview

2. Frequent Word Analysis

3. Comparative Analysis

4. Sentiment Analysis

5. Future Expectations

Try for a minute giving your attention and read this leaflet through, and this will introduce you to the world of text analysis. We hope this introduction will help you taste the power of our text analysis services, and take you and your business to the next level and stand out from the crowd!

1. FOOD BUSINESS OVERVIEW

In the U.S and Canada, the food business is one of the most internationally characterized business. All kinds of foods landed to the land of opportunity and has evolved to satisfy all kinds of people around the world. This wordcloud simply explains how diverse it is and what's more common among other categories.

According to 2019 Yelp dataset, after filtering out only restaurants and categorized, it turned out Chinese are one of the most common food categories, followed by Japanese, and Mexican. Not only those well-known categories, but also other restaurants boast about their authenticity such as Pakistani, Honduran, and Canadian. To survive and prosper out of this competition, each restaurant comes up with their unique skillsets, from authentic menu to exceptional hospitality. It is essential, therefore, for those who run their own restaurant or just entered this industry to self-reflect and build their unique identity to stand out from the crowd in order to be selected. Some individually owned restaurants, however, sill in vague in terms of their identity, and unsure of the reasons of their struggles or even sometimes success. To help guide out those who wander the right directions, we can provide some indicators out of the text reviews from the customers in the Yelp.

From the Yelp review data, we can find some interesting behaviors of the customers. The overall star rates of all kinds of business show left skewed distribution with quite higher frequency in 4.0 or higher, its gravity gears toward the lower star rates when it comes to food business. With drastic decrease in 4.5 and 5.0, it means that customers tend to rate stricter
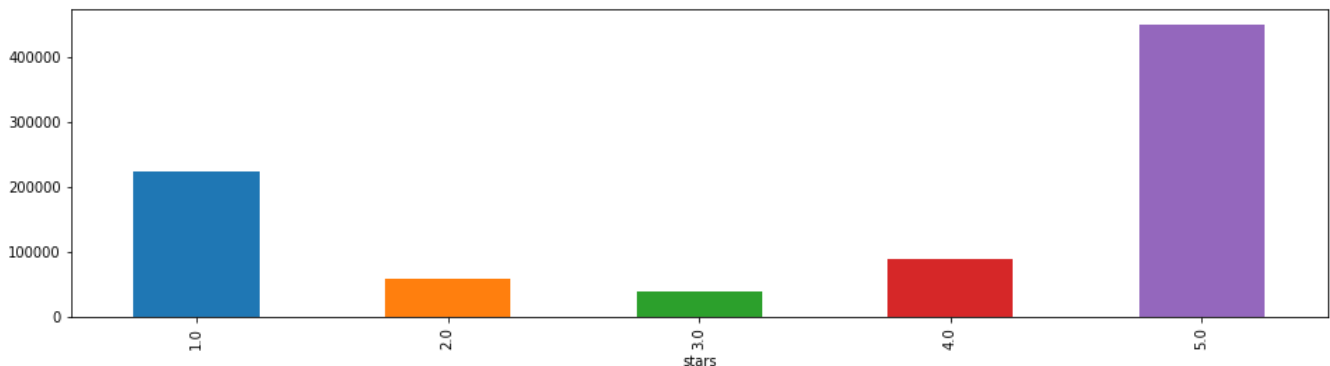
when they rate food service. Within the food customers, it can be further analyzed. The star rate histogram from the frequent users, who reviewed more than 100 times, the star rate behaves similar to the overall star rate.
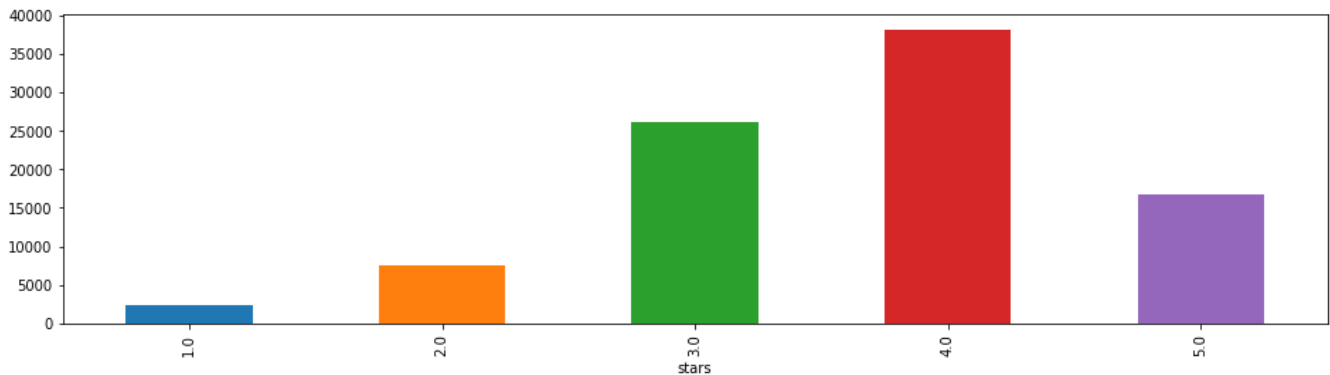
However, if you look the star-rate from those who reviewed only once, it shows bi-polar distribution with much concentration on both 1.0 and 5.0.

With these behaviors analyzed, we would like to suggest these services:

- **Frequent Word Analysis:** You see not all reviews weigh the same. Based on our analysis of reviews, one-time reviewers use more direct and emotional reviews. You can how your customers feel from those one-time reviews and what you need to focus on.

- **Comparative Analysis:** Unlike one-time reviewers, heavy reviewers tend to cover many topics and to use more objective stance. As these kind reviews give you somewhat comparable point of view, you can get some hints in these reviews to locate your rank in your food category your neighborhood.

- **Sentiment Analysis:** Each word conveys some weight of sentiment. Based on the languages from your customers, we can connect their word into their sentiment. This can identify how they feel about what you care, such as your signature menu, your recent relocation, or how your servers treat your customers.

2. FREQUENT WORD ANALYSIS

To begin analyzing your reviews, it is a good place to start from measuring what you hear often. The strength of our service, though, is not only just counting the words of your reviews, but measures relatively compared to others alike in your area. Also, it's no-brainer to divide reviews based on who wrote as you have seen how they behave differently above. We can offer the frequent word analysis based on the type of user, by category, or by location.

	all	business	pmi
jun	391	243.0	6.202920
meat	7237	213.0	1.802665
korean	17044	338.0	1.233035
's	21081	314.0	0.820097
	39179	550.0	0.734627
spicy	7555	102.0	0.678341
food	29702	363.0	0.534685
my	28199	319.0	0.423188
go	9453	106.0	0.410496
get	10365	114.0	0.382589
good	23594	252.0	0.340279
i	104752	1103.0	0.319731
like	13981	145.0	0.297861
here	16207	167.0	0.288507
if	13462	133.0	0.227809
out	11745	115.0	0.214863
just	12100	115.0	0.171903
have	20634	196.0	0.171106
it	65273	616.0	0.161720
in	39023	366.0	0.152795

The figure left is an example of our prototype service. This example is from the reviews of Korean restaurants in Toronto, CA. It lists the frequent words in descending order and the column 'pmi' means relative co-occurrence score, which means the word occurs more often in your business. Apparently, 'Jun', the pieces of Korean pancake, is most co-occurred word. Given that this word is unique term for the specific food, it's quite understandable, but when you see the 'business' column, you can find that 'jun' must be one of the signature menus in this place. If not, the owner may find it surprising because the owner would not have expected the word would occur many times. The next word, 'meat', also gives some information, especially 'jun' is mostly vegetarian except when it's 'meat jun.' That means this location serves 'meat jun' or the 'jun' is served as side dish while 'meat' is main. Based on these findings, we can narrow directions of our further analysis.

As you can see, our frequent analysis is quite simple, but also insightful. This will be a great place to taste our service with minimum cost, and it will lead you and your business to the next level standing out from other competitors.

3.   COMPARATIVE ANALYSIS

Two things worth noticing from the reviews of heavy users. One is to compare where my restaurant is with others in the same category in the neighborhood. Plain star-rate also can indicate how much the customers like about your business, but this can be more accurate when it is compared to the ones in the same category. For example, if you run a Korean restaurant in Toronto and your star rate is 3.5, this could mean okay or bad depending on the average star rate of Korean restaurants is 3.0 in the area. As the reviews from heavy users try to stay objective and deliver more holistic view, it can describe what they expect when combined by identifying what topics are mentioned. If many of them mentioned the price is okay when your price is higher than average, you can continue striving for upscale. If they describe your dolsot, the stone bowl served hot, as unexpected, this could mean your local customers are not ready to embrace the culture yet. Overall, this analysis can give you a hint about which direction you may want to go, whether you can go upscale or everyday location, whether you pursue more authentic or fusion style.

Another thing you can infer is to identify similar words. Similar words here mean how a specific word more frequently mentioned with others, so we can discover what your customers have in mind and what they expect from the key word. This is an example of the analysis:

```
1  sim('chicken')
```
```
['chicken', 'fried', 'wings', 'half', 'garlic']
```

```
1  sim('price')
```
```
['price', 'reasonable', '$', 'special', 'portion']
```

```
1  sim('service')
```
```
['service', 'customer', 'fast', 'excellent', 'slow']
```

```
1  sim('location')
```
```
['location', 'yonge', 'york', 'locations', 'seems']
```

```
1  sim('fast')
```
```
['fast', 'quick', 'busy', 'hours', '24']
```

The words that is labeled as similar to 'chicken' are 'fried', 'wings', 'half', 'garlic'. One key word is garlic, which is one of the popular seasonings in Korean food. This is interesting because garlic chicken is not the type of chicken when you think of it, so you may not expect it to be popular. In fact, Korean fried chicken is getting more popular in this area, and traditionally it is seasoned with sweet and spicy flavor. Maybe this analysis tells you that it is time to consider the next thing, garlic fried chicken.

4. SENTIMENT ANALYSIS

Every word your customers say matters. We can turn the words into numbers to calculate how much each word affects to your restaurant's reputation. By analyzing them, you can discover what makes them happy and what make them angry. Here is an example of the analysis by the prototype of our classifier you can have a taste.

As you can see, most of the words are quite straightforward. Note that this is the prototype, which is averaged result from all of the Korean restaurants in Toronto. What makes this service more useful is when it is applied to your reviews.

```
1  print_top_feats(V,50)
```

worst	1.939	amazing	-1.615
horrible	1.601	delicious	-1.604
awful	1.568	excellent	-1.531
disgusting	1.502	great	-1.310
terrible	1.316	awesome	-1.261
zero	1.111	best	-1.056
coming_never	1.061	stars	-1.040
never	1.061	love	-0.998
dirty	0.980	nice	-0.951
poisoning	0.965	fast	-0.950
poisoning_food	0.961	favorite	-0.921
recommend_not	0.937	friendly	-0.912
gross	0.898	stars_2	-0.856
bad_very	0.897	always	-0.808
waste	0.890	love_.	-0.805
star_1	0.889	quick	-0.788
service_horrible	0.871	happy	-0.787
disappointed_very	0.855	though	-0.783
poor_very	0.820	tasty	-0.780
0	0.818	loved	-0.770
rude	0.807	like_i	-0.759
go_do	0.801	good	-0.748
disappointed	0.801	bad_not	-0.717
hair	0.791	super	-0.715
come_never	0.787	attentive	-0.707
return_never	0.785	food_.	-0.687

You can compare the results with the average and find how you are doing either good or bad in particular aspect. Yes, you can still find how your customers feel from the raw reviews, but this analysis can give you a score, which measures their feelings scientific way. Putting this way, their feelings may be engraved in your mind more effectively, which makes you stand out further stronger in the long term.

5. FUTURE EXPECTATIONS

So far, we have seen what our services can provide you to make your business stand out in this competitive environment. Our text analysis service can list keywords depending on the user's behavior, discover what they think of in relation to a key word you are interested in, find what they like or dislike and measure how much effect a word conveys. The analysis example in this leaflet was our prototype, and we offer the services by food category, location, and user specific basis as well. Further, we can also combine other kinds of analysis to give you diverse perspectives. For example, by highlighting the locations of other same category restaurants as below, you may discover my location is close to competitors or not, or you can find which area is more common or famous for a specific type of food.
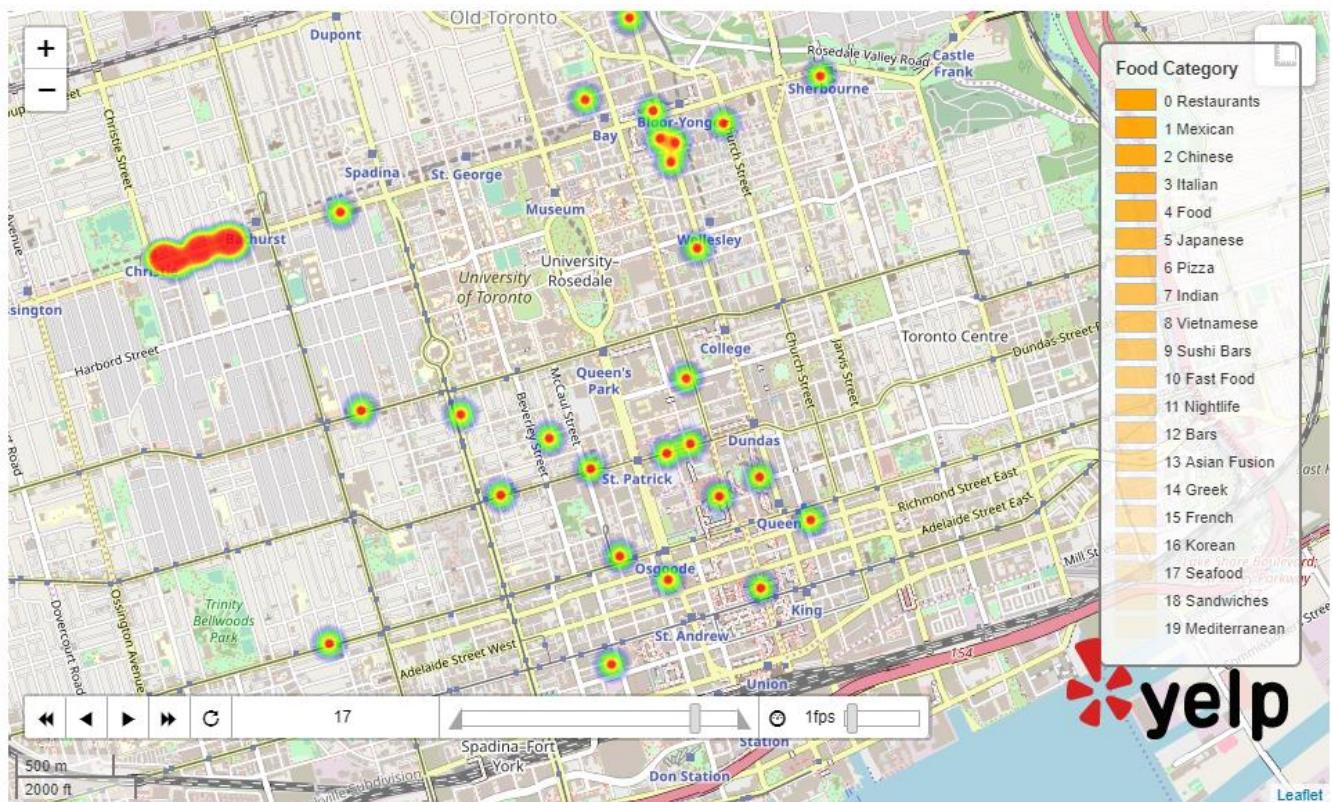
This service is going to evolve into combining the text analysis so as to provide the holistic view by place. By highlighting places by star rates, you can discover if location affects your star rate or further, an area is visited during weekdays or weekends lunchtime or nighttime if combined with time series data. So be an early adopter and a leader before it's too late as our promotion expires soon!