

USER ENGAGEMENT ANALYSIS FOR RESTAURANT SUCCESS



WHAT IS ON THE MENU ?

- 🍴 Introduction(About The Company and Problem Statement)
- 🍴 Hypotheses
- 🍴 Data Overview
- 🍴 Analysis
- 🍴 Recommendations

INTRODUCTION

ABOUT THE COMPANY YELP:

Yelp is an American company that operates a crowd-sourced review platform for local businesses, including restaurants, shops, and services. It is primarily used for discovering and reviewing businesses, allowing users to read and write reviews, rate establishments, and share their experiences. Additionally, Yelp provides business information, photos, and ratings to help consumers make informed decisions.

WHAT AM I COOKING ?

In the competitive restaurant industry, understanding the determinants of business success is essential for stakeholders to make informed strategic decisions. This project aims to analyze the Yelp dataset to investigate the relationship between user engagement metrics (such as the number of reviews, tips, and check-ins) and business success metrics (such as overall review count and average ratings) for restaurants. The goal is to identify key engagement factors that significantly impact the success and popularity of restaurants, providing actionable insights for restaurant owners and marketers to enhance their business strategies.

HYPOTHESES:

1. Elevated levels of user engagement, indicated by increased reviews, tips, and check-ins, are positively correlated with higher review counts and improved ratings for restaurants.
2. The expression of positive sentiment in user reviews and tips significantly contributes to higher overall ratings and increased review counts for restaurants.
3. Sustained and consistent user engagement over time is positively associated with long-term business success for restaurants.

DATA OVERVIEW

- This dataset is a subset of Yelp and contains information about businesses across eight metropolitan areas in the USA and Canada.
- The original data is provided by Yelp as JSON files.
- The five JSON files are business, review, user, tip, and checkin.
- These JSON files are stored in a database for easy retrieval of data.
- To extract meaningful insights from the data, Python and SQL were used.
- The specific Python libraries employed include 'sqlite3' for database management, 'pandas' for data manipulation and analysis, 'folium' for geographical data visualization, 'seaborn' and 'matplotlib' for statistical data visualization.

ANALYSIS AND FINDINGS

average_review_count	55.975426
min_review_count	5.000000
max_review_count	248.000000
median_review_count	15.000000
average_star_rating	3.477281
min_star_rating	1.000000
max_star_rating	5.000000
median_star_rating	3.477281

- Out of 451038 businesses, 105011 are restaurants business and are open
- Table on your left shows distribution of business success metrics (reviews and ratings)

name	review_count	avg_rating
ā café	144	5.0
two birds cafe	231	5.0
the brewers cabinet production	39	5.0
taqueria la cañada	51	5.0
la bamba	132	5.0
la 5th av tacos	72	5.0
el sabor mexican and chinese food	63	5.0
eat.drink.Om...YOGA CAFE	21	5.0
d4 Tabletop Gaming Cafe	24	5.0
cabbage vegetarian cafe	36	5.0



**HIGHEST
RATING**

**HIGHEST
REVIEW
COUNT**

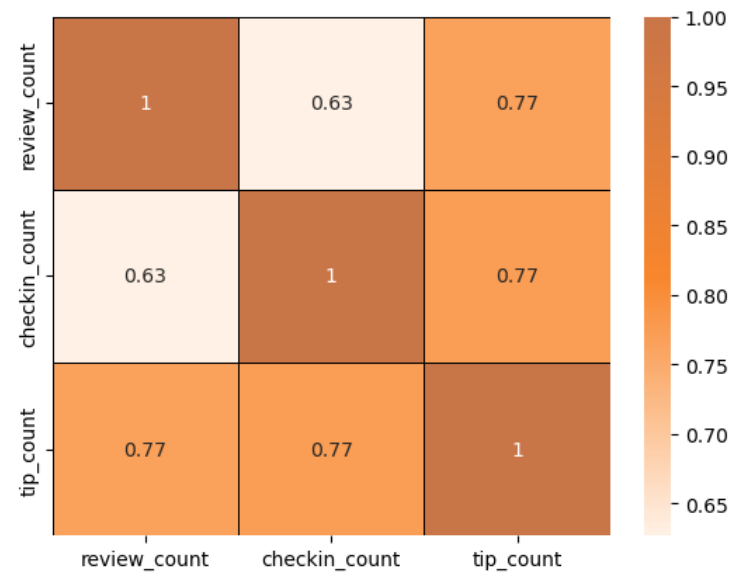
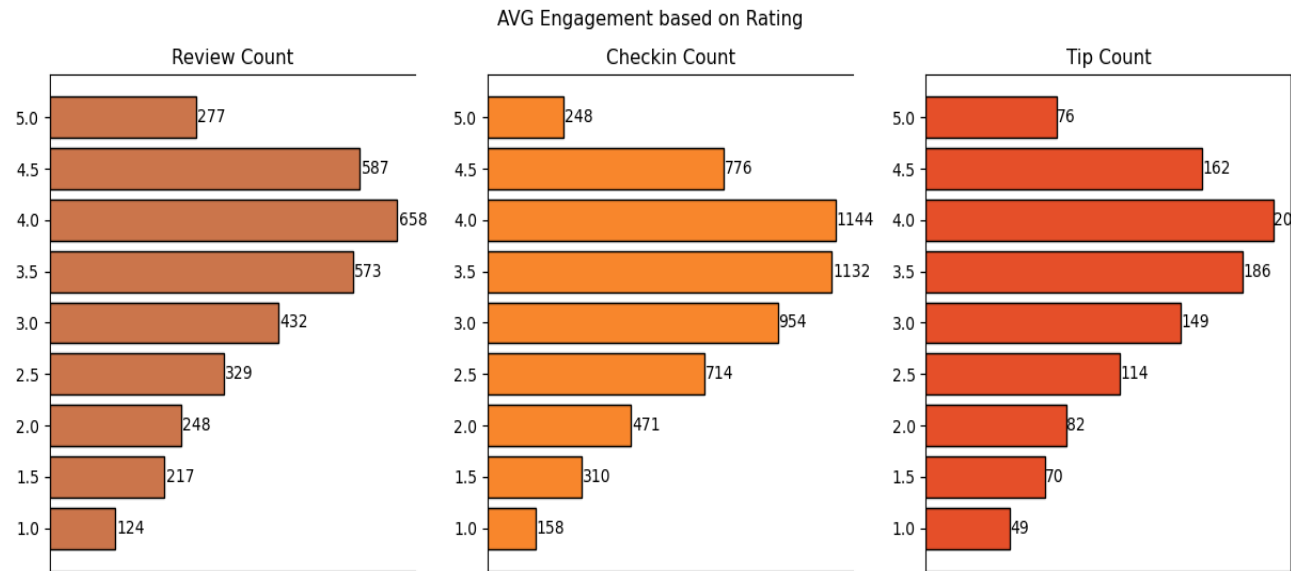


name	review_count	avg_rating
McDonald's	49470	1.868702
Chipotle Mexican Grill	27213	2.381757
Taco Bell	24051	2.141813
Chick-fil-A	23061	3.377419
First Watch	20283	3.875000
Panera Bread	19839	2.661905
Buffalo Wild Wings	19449	2.344828
Domino's Pizza	18273	2.290210
Wendy's	17790	2.030159
Chili's	17232	2.514706

- Popularity doesn't guarantee high satisfaction
- Niche restaurants [Specialized small establishments] excel in customer satisfaction
- Success requires balancing review count with high average ratings
- Success can not be solely determined by ratings or review count

Do restaurants with higher engagement tend to have higher rating ?

- Positive Correlation:** Higher-rated restaurants tend to have more reviews, check-ins, and tips.
- Engagement Trends:** The number of reviews, check-ins, and tips decreases consistently as ratings go down. Restaurants rated 4 stars exhibit highest engagement.

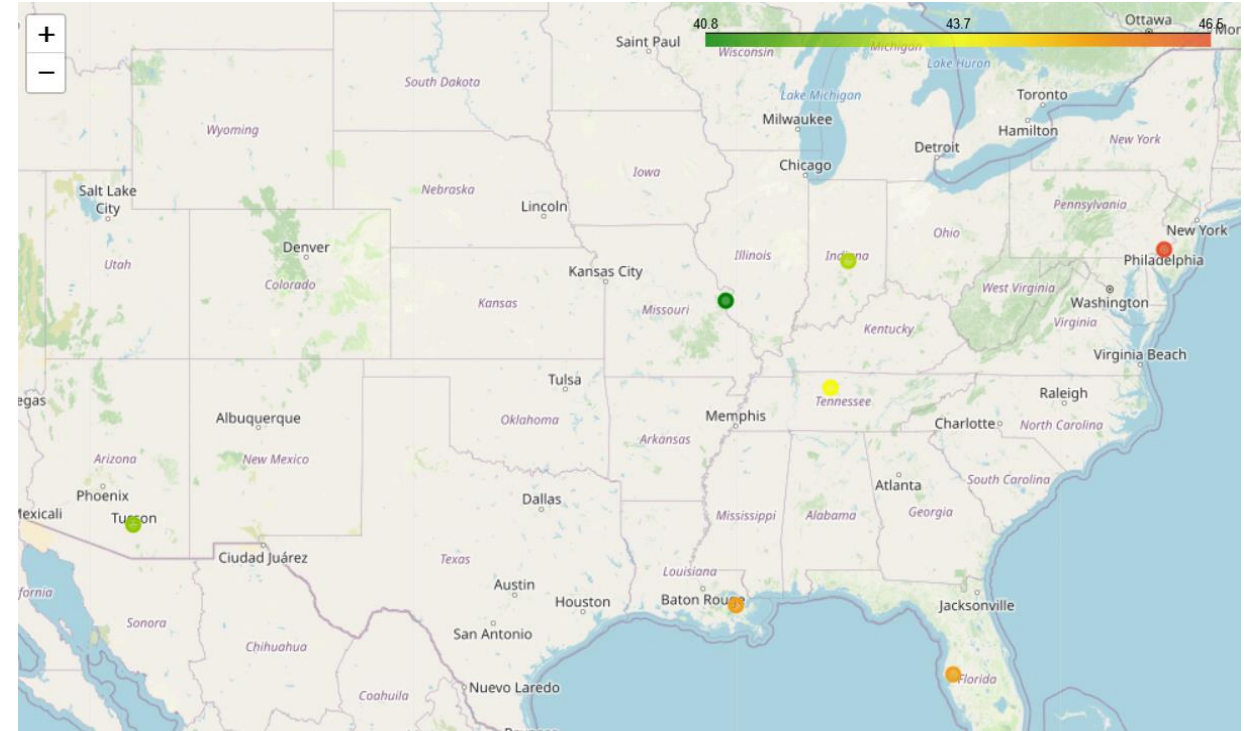
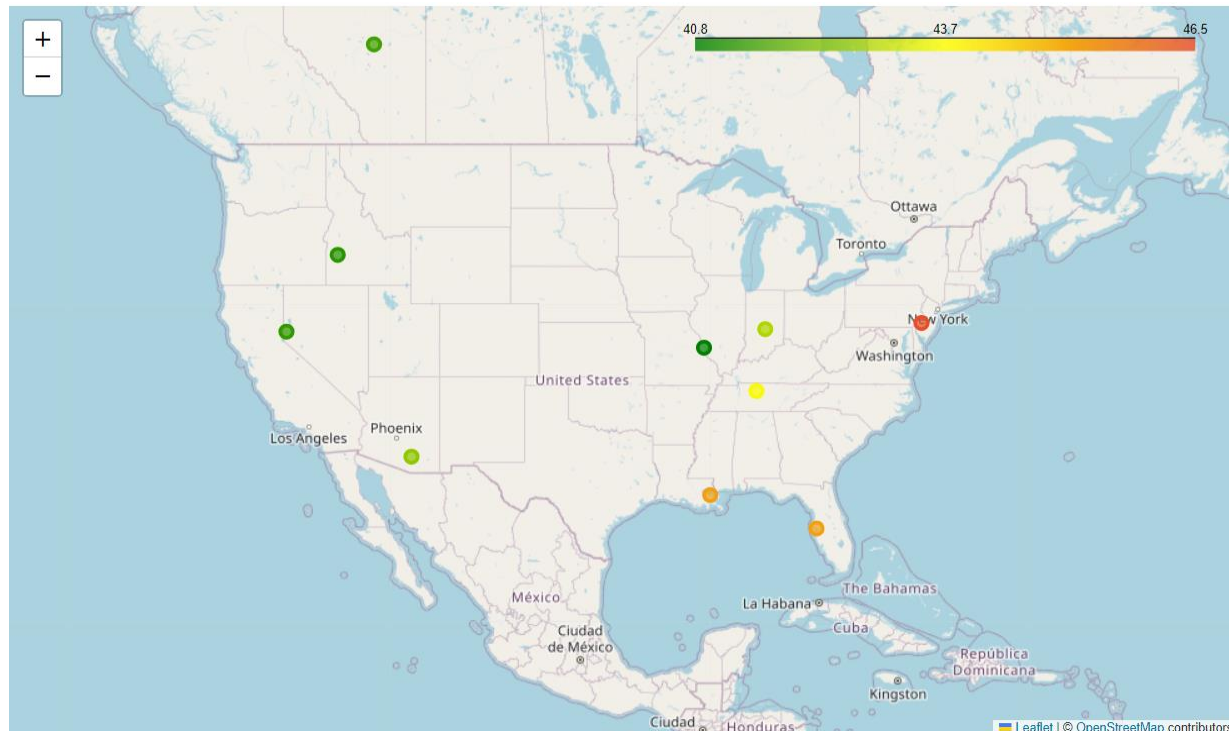


Is there any correlation between number of reviews, check-ins and tips for a business?

- Strong Connections:** Reviews, check-ins, and tips are closely linked.
- Customer Engagement:** There is a strong positive correlation between reviews, check-ins, and tips. High engagement in one area (reviews, check-ins, or tips) usually means high engagement in the others, reflecting strong customer satisfaction and interaction.

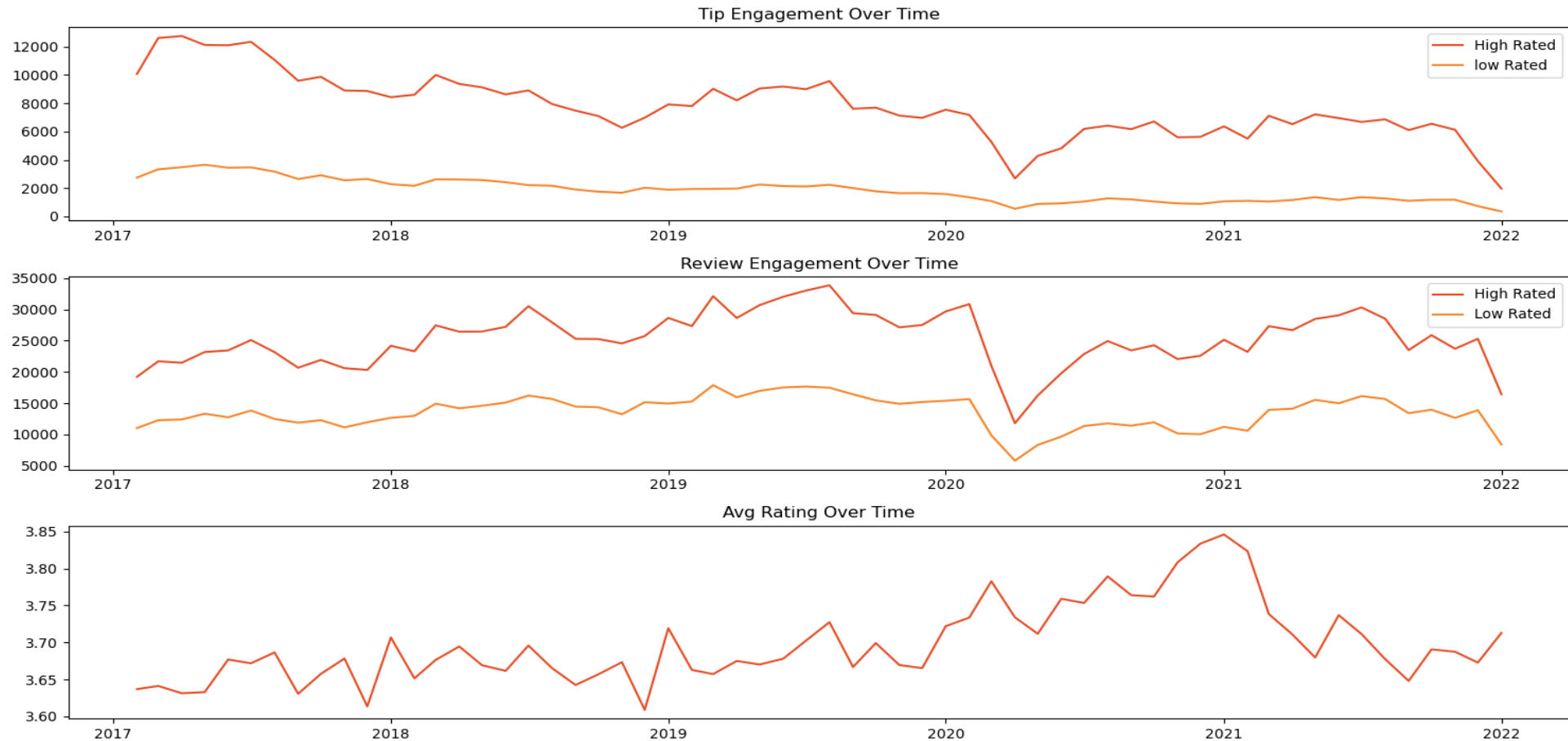
How do the success metrics of restaurants vary across different states and cities ?

- Philadelphia has the highest success score indicating a combination of high ratings and active users
- Following Philadelphia, Tampa, Indianapolis and Tuscan rank among the top cities with high success scores, suggesting thriving restaurant scenes in these areas



Are there any pattern in user engagement over time ?

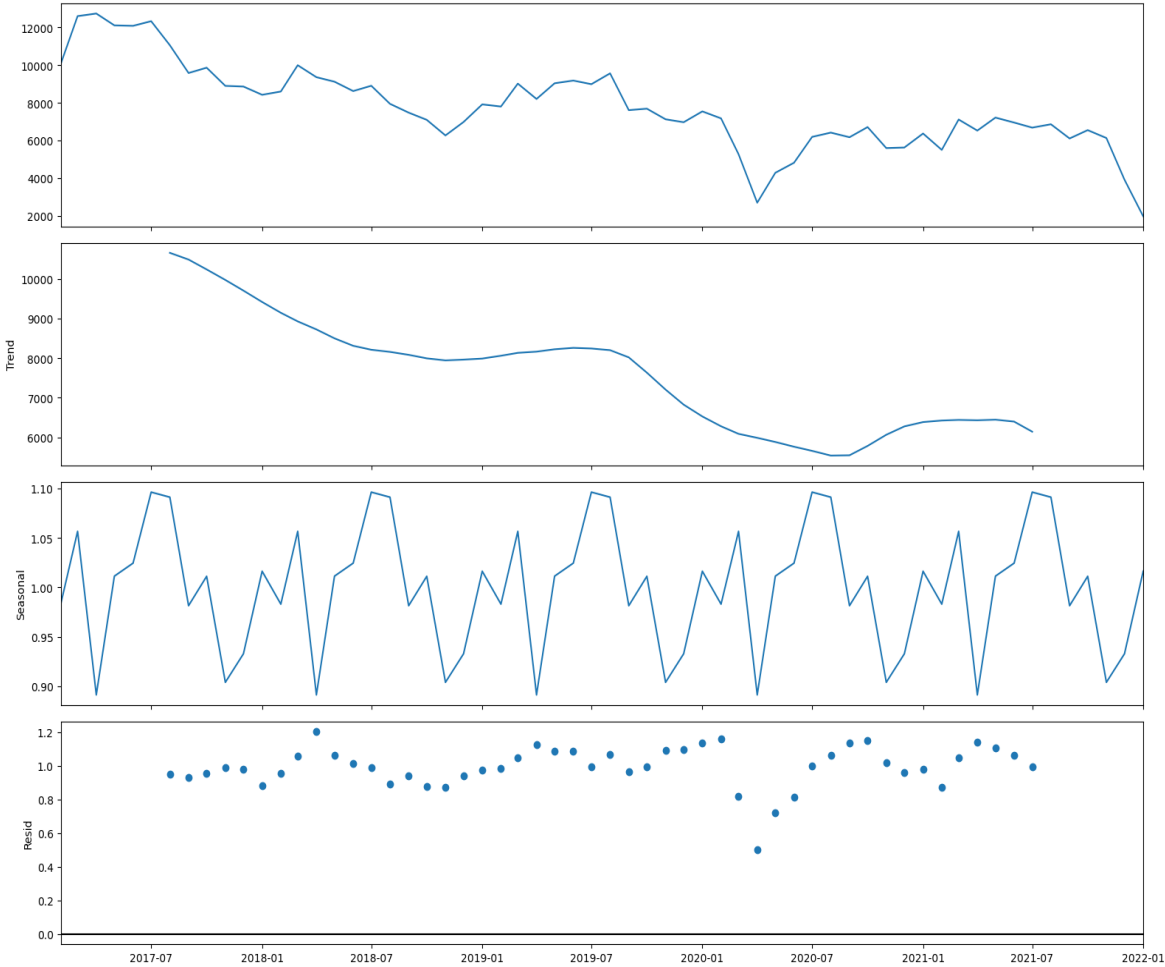
Successful businesses, especially those with ratings above 3.5, show consistent or increasing user engagement, indicating sustained customer interest and satisfaction. High-rated restaurants reflect ongoing customer satisfaction through steady or growing engagement over time



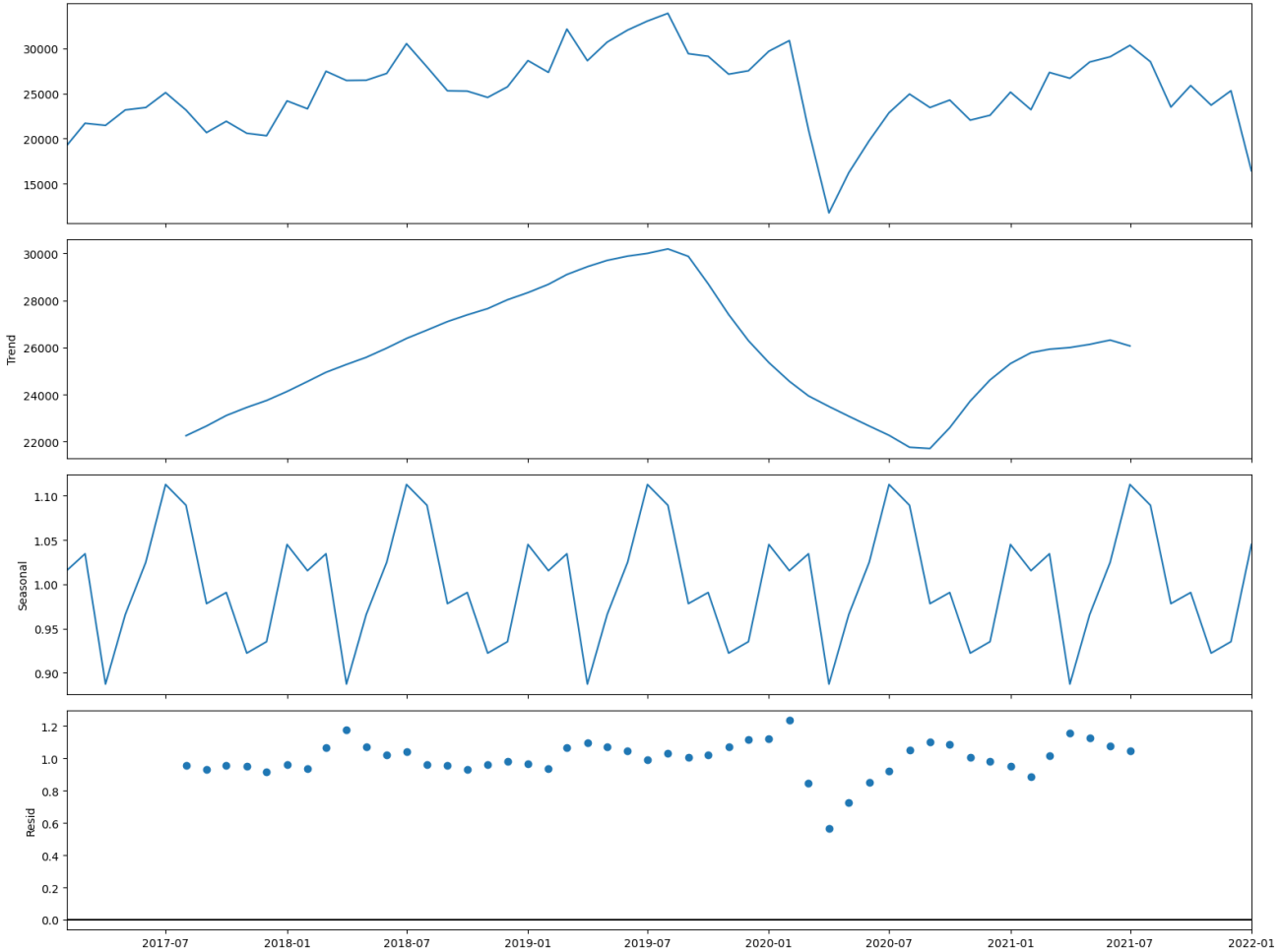
TREND AND SEASONALITY ANALYSIS

Year starting and ending is highly engaging

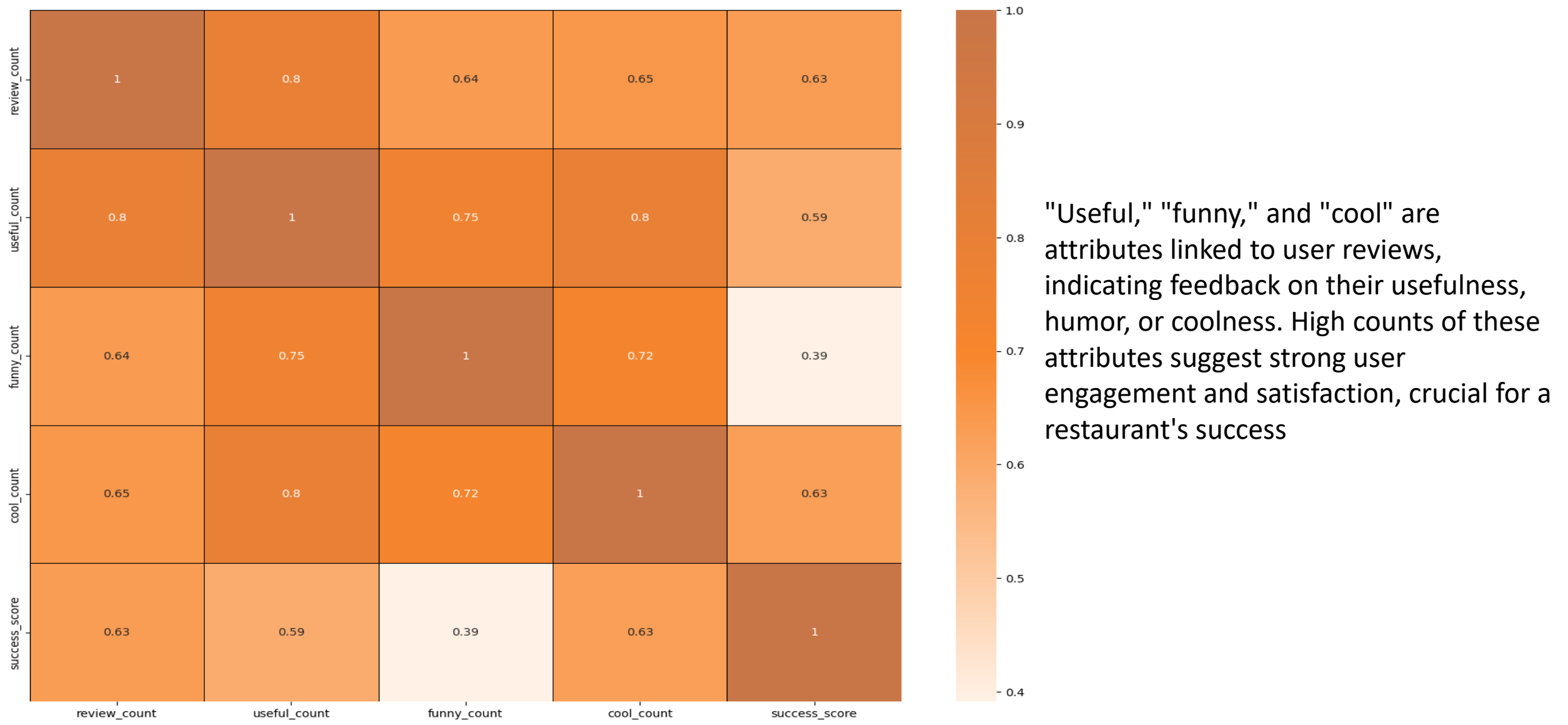
TIP COUNT



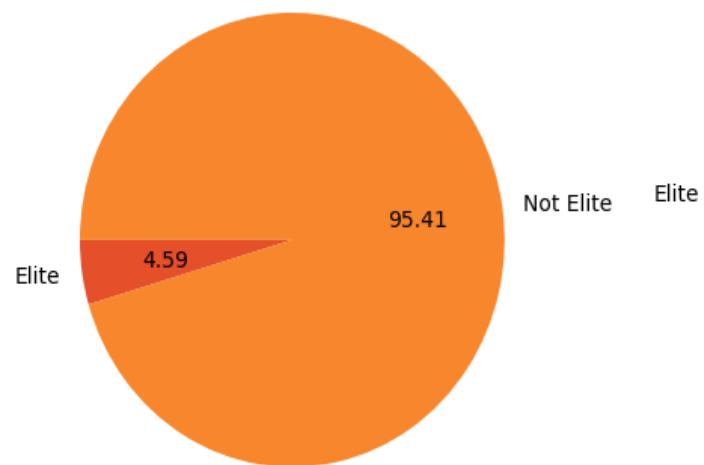
REVIEW COUNT



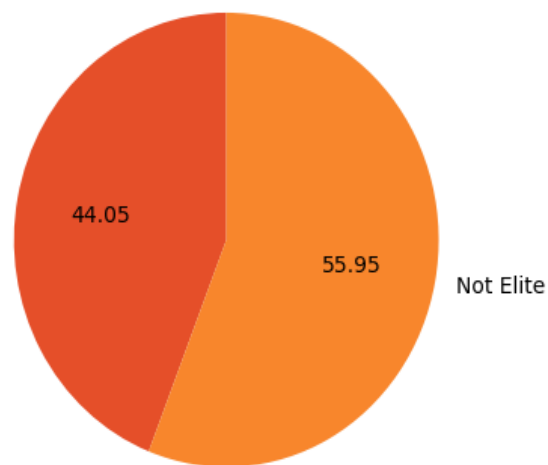
How does the sentiment of reviews and tips (useful, funny, cool) correlate with the success metrics of restaurants?



User Distribution



Review Distribution



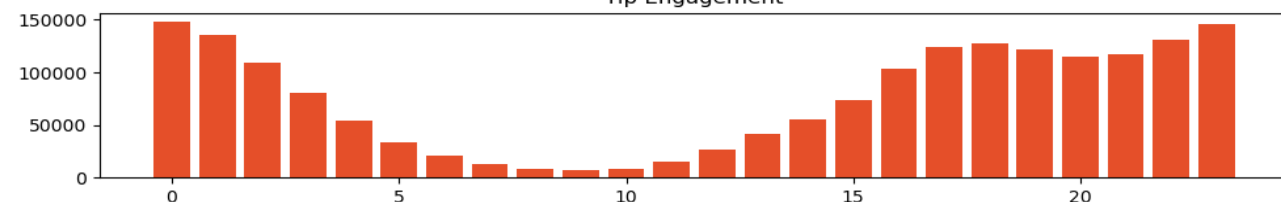
ELITE USERS

- Elite users are basically active and high-quality contributor on Yelp platform
- Despite being fewer in number, elite users contribute a substantial portion of the total review count. Maintaining good relationships with them supports businesses, as they often become loyal customers who frequently revisit.

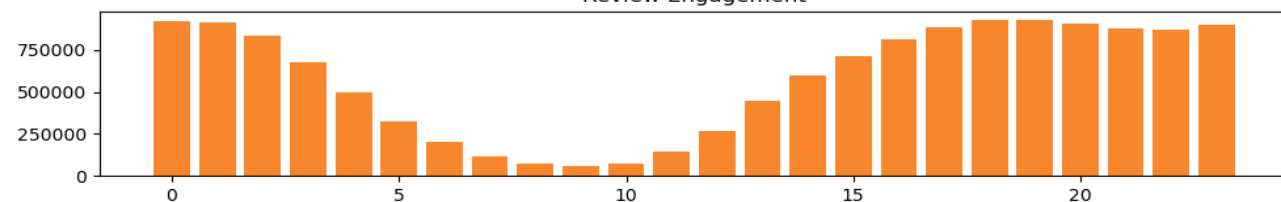
BUSY HOURS

- Busiest hours for restaurants based on user engagement span from 4PM to 1AM
- More user engagement during evening and night hours suggests a higher demand of dining out potentially driven by work schedules, gatherings and leisure activities.

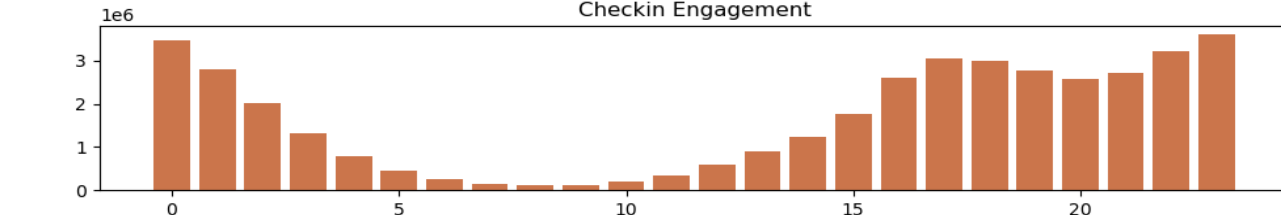
Tip Engagement



Review Engagement



Checkin Engagement



RECOMMENDATIONS

- Collaborating with Elite users and leveraging their influence can amplify promotional efforts, increase brand awareness and drive customer acquisition
- During peak hours businesses can plan for providing better service and running promotional events to attract more customers
- Less successful business need to focus on enhancing customer engagement by proving better service and responding to customer feedbacks
- Cities with high success scores presents great opportunities for businesses willing to expand

THANK YOU

**HOPE THIS HELPS YOU MAKE DELECTABLE
DECISIONS !**