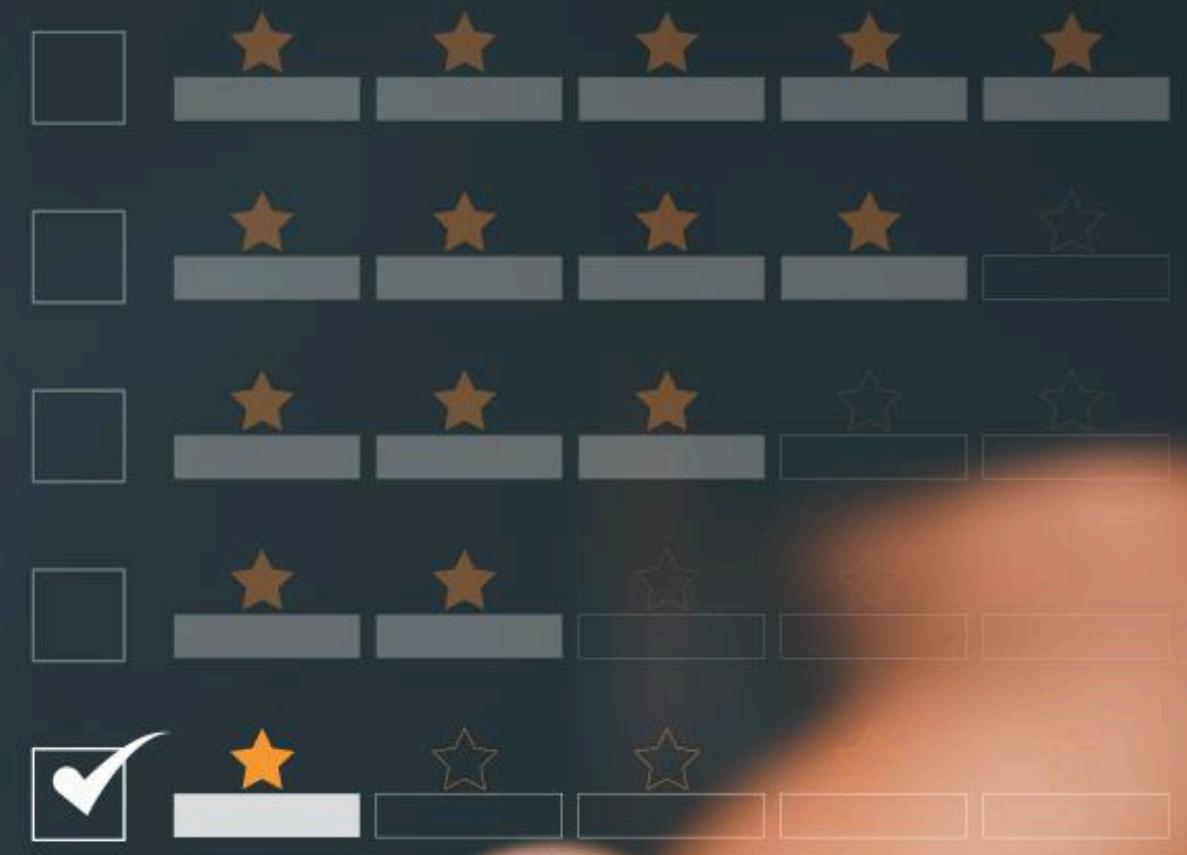
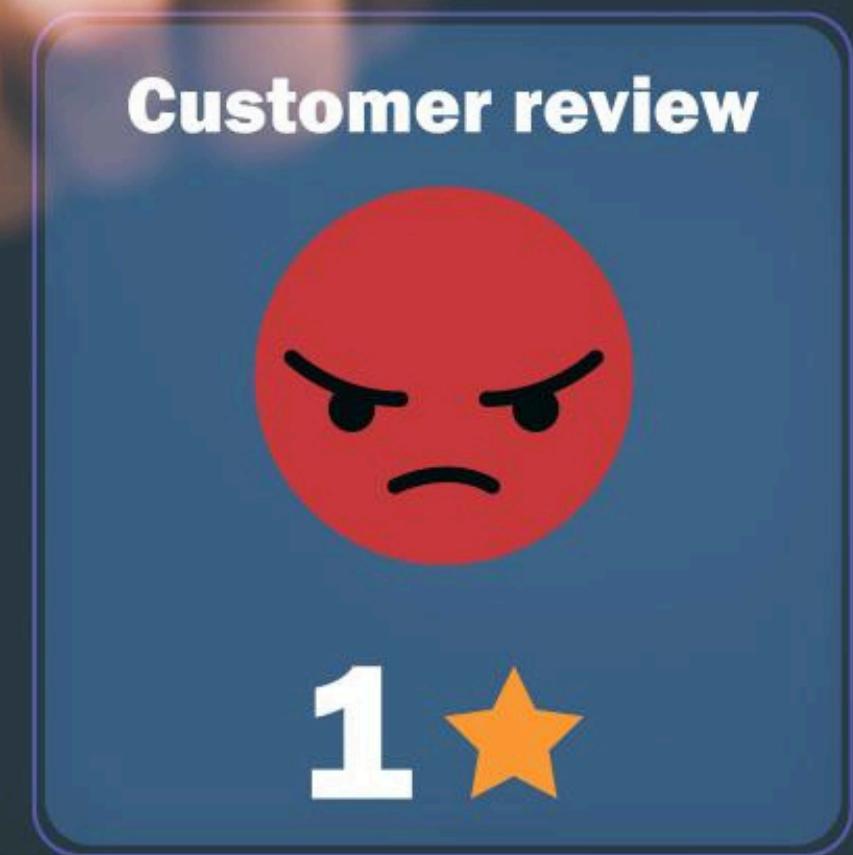
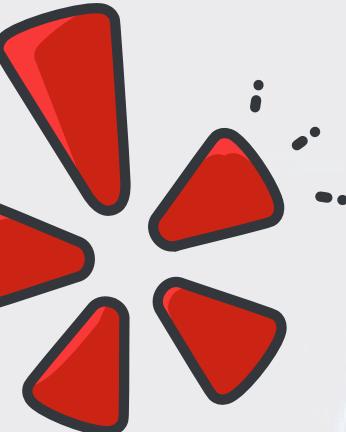




User Engagement Analysis For RESTAURANT SUCCESS



About yelp



Yelp Inc. runs a platform that links consumers with local businesses in the U.S. and around the world. The platform features a wide range of categories such as restaurants, shopping, beauty and fitness, health, and more. Yelp is available on both web and mobile, allowing users to write reviews, share photos, and give tips about businesses. Users can also read reviews and see ratings from others, making Yelp a go-to source for discovering the best local spots.

Project Overview

- Problem Statement
- Research Objectives
- Hypothesis
- Data Overview
- Project Tech Stack
- Analysis and Findings
- Recommendations

Problem Statement

In a competitive market like the restaurant industry, understanding the factors that influence business success is crucial for stakeholders. Utilizing the Yelp dataset, this project aims to investigate the relationship between user engagement (reviews, tips, and check-ins) and business success metrics (review count, ratings) for restaurants.

Hypothesis

- Higher levels of user engagement (more reviews, tips, and check-ins) correlate with higher review counts and ratings for restaurants.
- Positive sentiment expressed in reviews and tips contributes to higher overall ratings and review counts for restaurants.
- Consistent engagement over time is positively associated with sustained business success for restaurants.

Data Overview

- This dataset is a subset of Yelp and has information about businesses across 8 metropolitan areas in the USA and Canada.
- The original data is shared by Yelp as JSON files.
- The five JSON files are business, review, user, tip and checkin.
- The JSON files are stored in the database for easy retrieval of data.
- The Yelp dataset consists of five files with a combined size of 9.29 GB

Project Tech Stack

Languages & RDBMS:



Libraries & Modules:



Cloud Based IDE:



Research Objectives



Quantify the correlation between user engagement (review, tips, check-ins) and review count/average star rating.



Analyze the impact of sentiment on review count and average star rating.



Time Trends in User Engagement

Analysis and Findings

Out of 150k businesses, 35k are restaurants business and are open.

Table showing distribution of business success metrics (review count and average rating):

avg_review_count	55.975426
min_review_count	5.000000
max_review_count	248.000000
median_review_count	15.000000
avg_star_count	3.477281
min_star_count	1.000000
max_star_count	5.000000
median_star_count	3.500000

HIGHEST RATING

	name	review_count	avg_rating
	á café	48	5.0
	two birds cafe	77	5.0
	the brewers cabinet production	13	5.0
	taqueria la cañada	17	5.0
	la bamba	44	5.0
	la 5th av tacos	24	5.0
	el sabor mexican and chinese food	21	5.0
	eat.drink.Om...YOGA CAFE	7	5.0
	d4 Tabletop Gaming Cafe	8	5.0
	cabbage vegetarian cafe	12	5.0

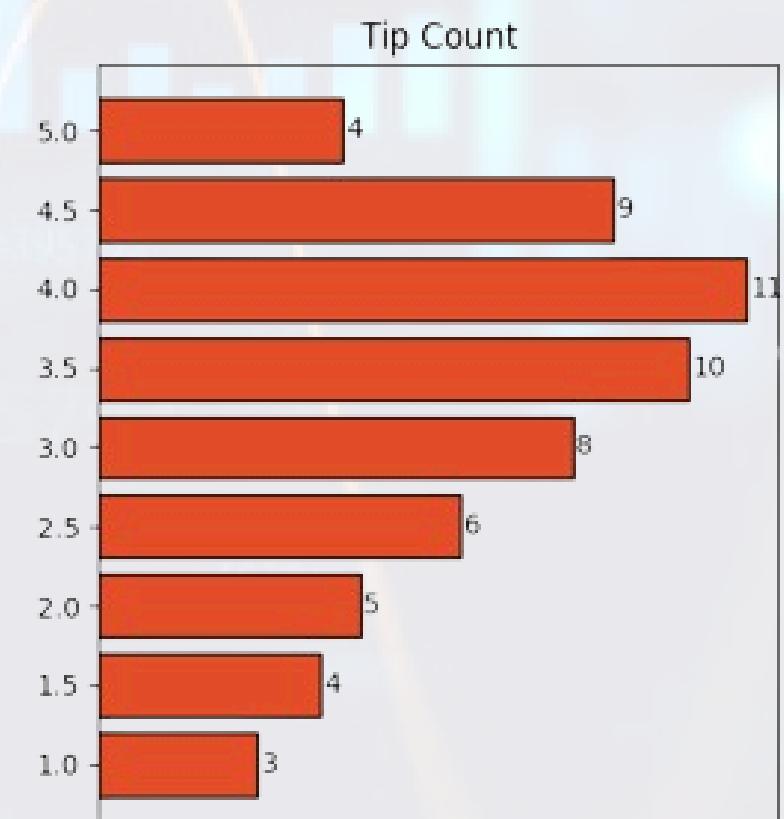
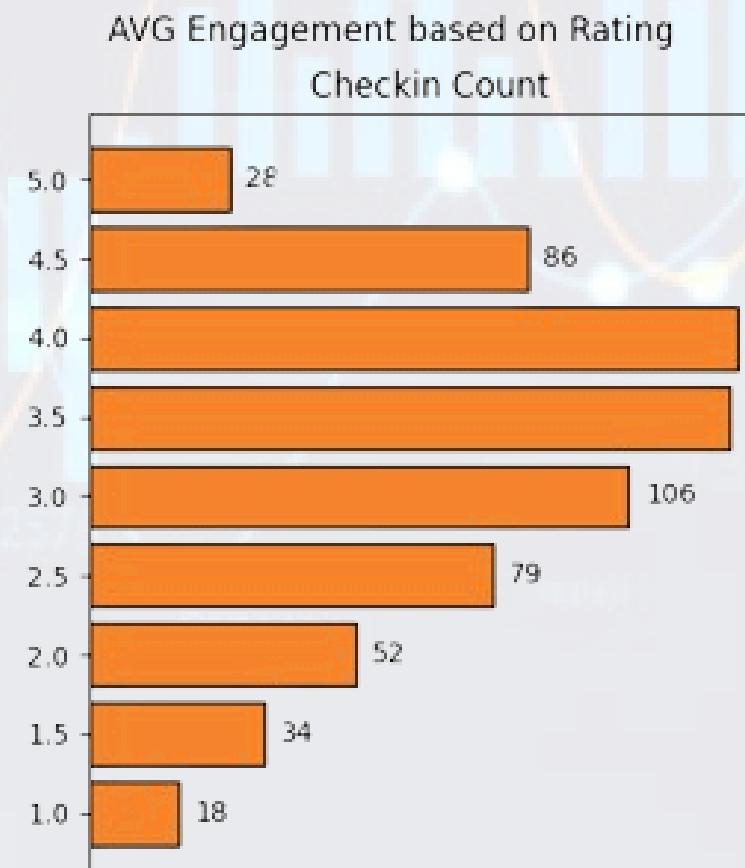
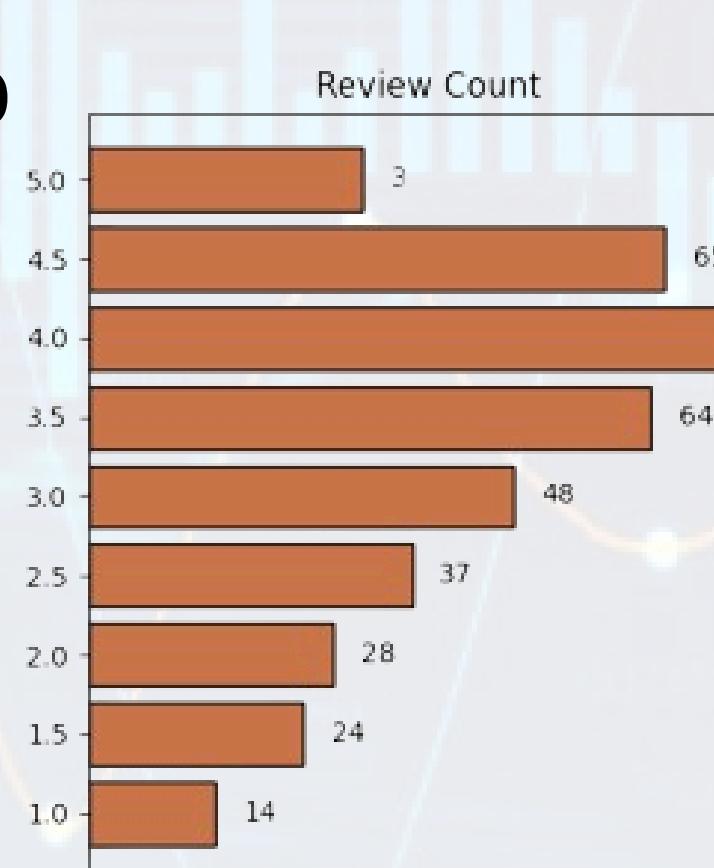
HIGHEST REVIEW COUNT

	name	review_count	avg_rating
	McDonald's	16490	1.868702
	Chipotle Mexican Grill	9071	2.381757
	Taco Bell	8017	2.141813
	Chick-fil-A	7687	3.377419
	First Watch	6761	3.875000
	Panera Bread	6613	2.661905
	Buffalo Wild Wings	6483	2.344828
	Domino's Pizza	6091	2.290210
	Wendy's	5930	2.030159
	Chili's	5744	2.514706

- Higher rating do not guarantee a higher review count, or vice versa.
- Success of Restaurants is not solely determined by ratings or review counts.
- Review count reflects user engagement but not necessarily overall customer satisfaction or business performance

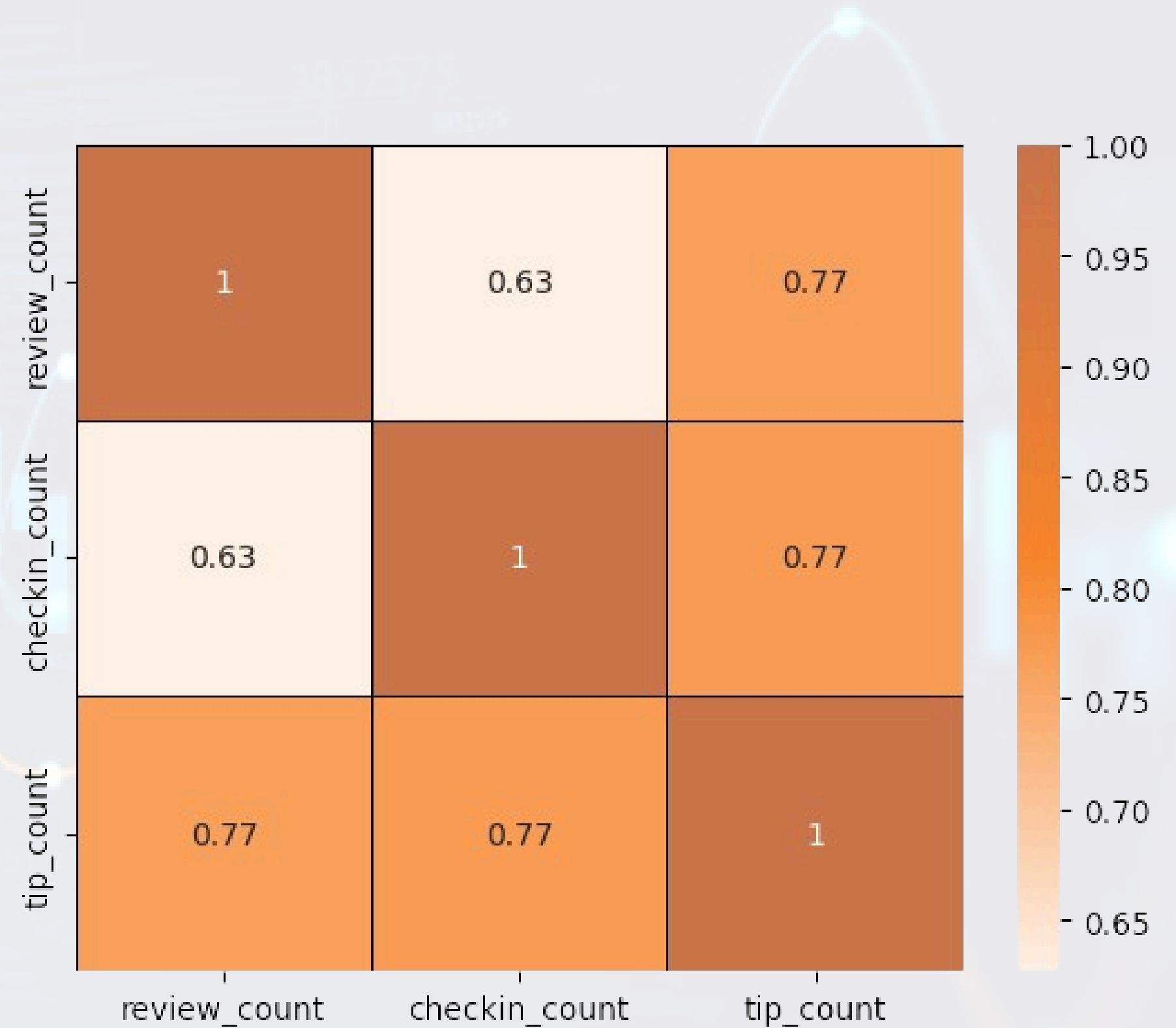
DO RESTAURANTS WITH HIGHER ENGAGEMENT TEND TO HAVE HIGHER RATINGS?

- Data shows a general increase in average review, check-in, and tip counts as ratings improve from 1 to 4 stars.
- Restaurants rated 4 stars exhibit the highest engagement and shows a downward trend for rating above 4.
- The drop in engagement at 5.0 stars might suggest either a saturation point where fewer customers feel compelled to add their reviews, or a selectivity where only a small, satisfied audience frequents these establishments.



IS THERE A CORRELATION BETWEEN THE NUMBER OF REVIEWS, TIPS, AND CHECK-INS FOR A BUSINESS?

- These correlations suggest that user engagement across different platforms (reviews, tips, and check-ins) is interlinked; higher activity in one area tends to be associated with higher activity in others.
- Businesses Should focus on strategies that boost all types of user engagement, as increase in one type of engagement are likely to drive increases in others, enhancing overall visibility and interaction with customers.



IS THERE A DIFFERENCE IN THE USER ENGAGEMENT BETWEEN HIGH-RATED AND LOW-RATED BUSINESSES?

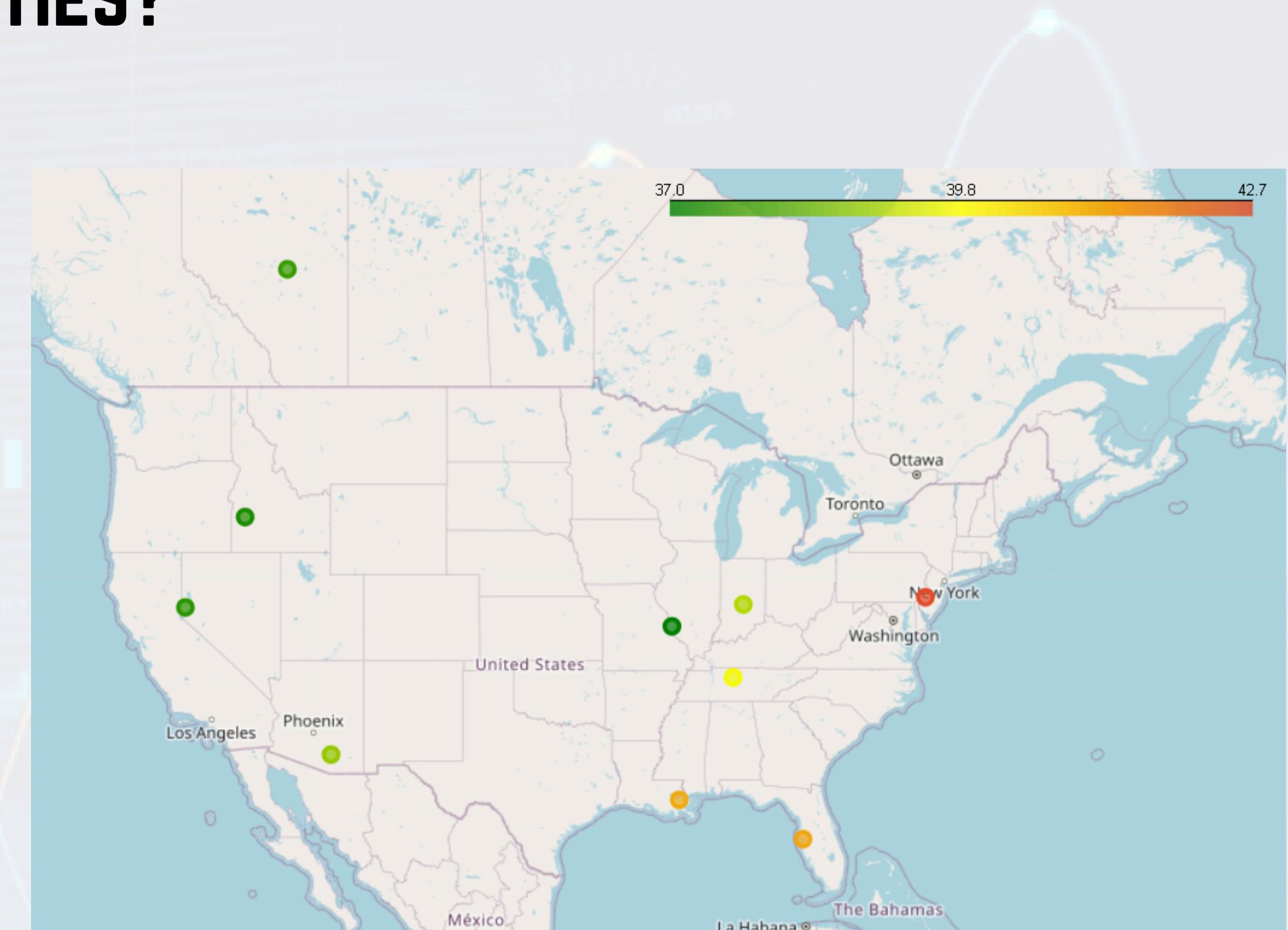
- Data indicates a clear correlation between higher ratings and increased user engagement across reviews, tips, and check-ins.
- This pattern underscores the importance of maintaining high service and quality standards, as these appear to drive more reviews, check-ins, and tips, which are critical metrics of customer engagement and satisfaction.

	review_count	tip_count	checkin_count
category			

High-Rated	72.291062	10.162766	122.066641
Low_Rated	42.123420	6.541689	88.880828

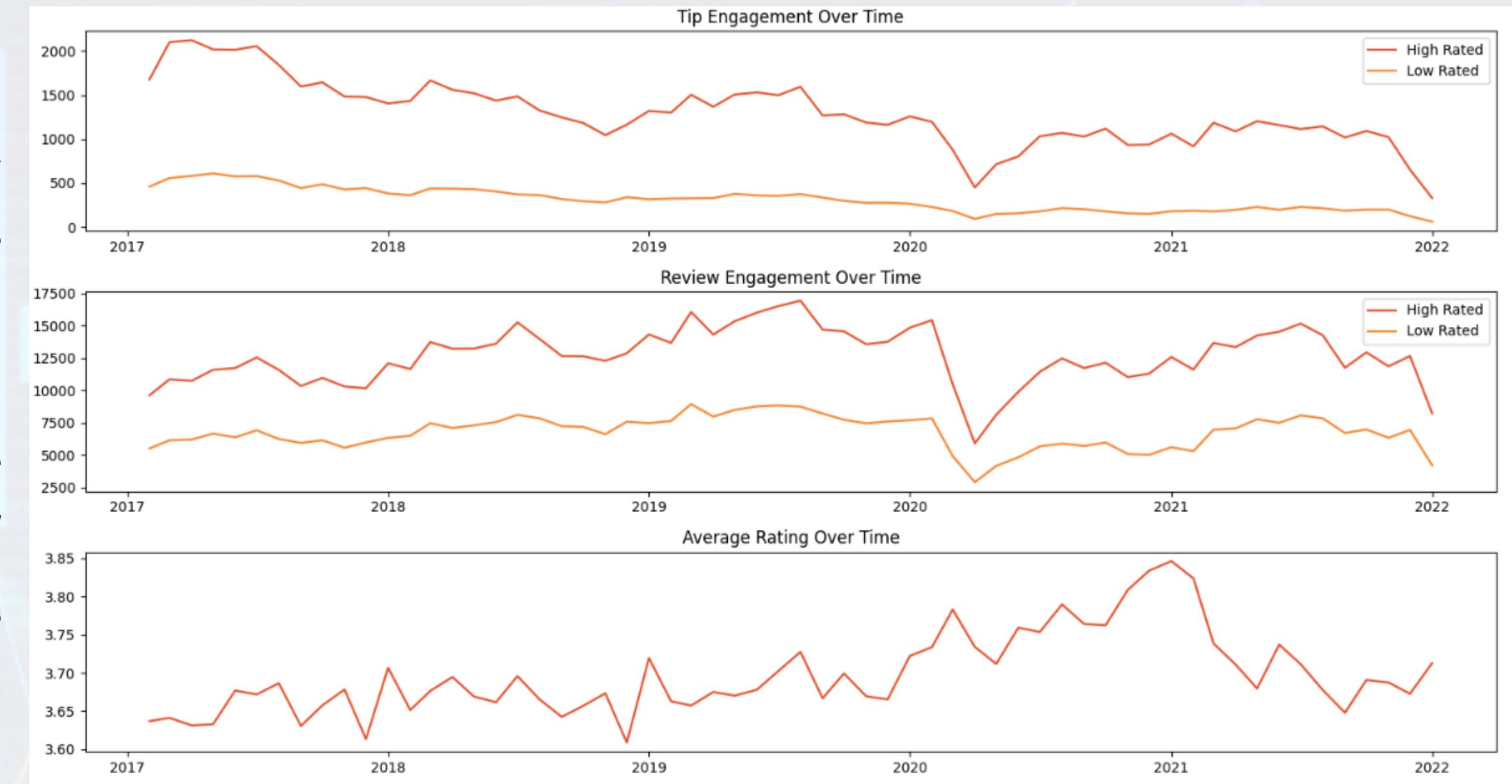
HOW DO THE SUCCESS METRICS OF RESTAURANTS VARY ACROSS DIFFERENT STATES AND CITIES?

- Philadelphia emerges as the top city with the highest success score, indicating a combination of high ratings and active user engagement.
- Following Philadelphia, Tampa, Indianapolis, and Tucson rank among the top cities with significant success scores, suggesting thriving restaurant scenes in these areas.



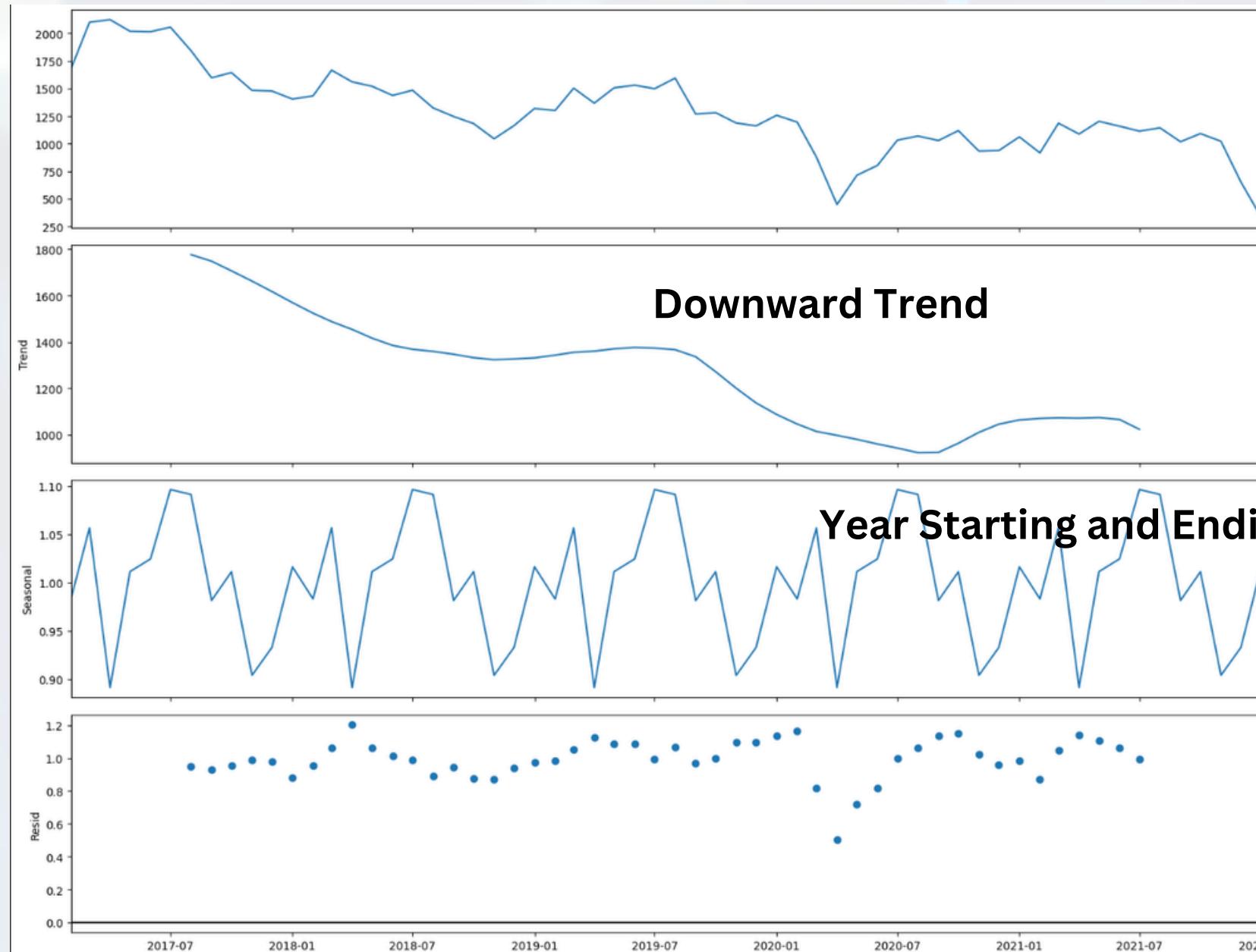
ARE THERE ANY PATTERNS IN USER ENGAGEMENT OVER TIME FOR SUCCESSFUL BUSINESSES COMPARED TO LESS SUCCESSFUL ONES?

- Successful businesses, those with higher ratings (above 3.5), exhibit consistent and possibly increasing user engagement over time
- High rated restaurants maintain a steady or growing level of user engagement over time, reflecting ongoing customer interest and satisfaction.

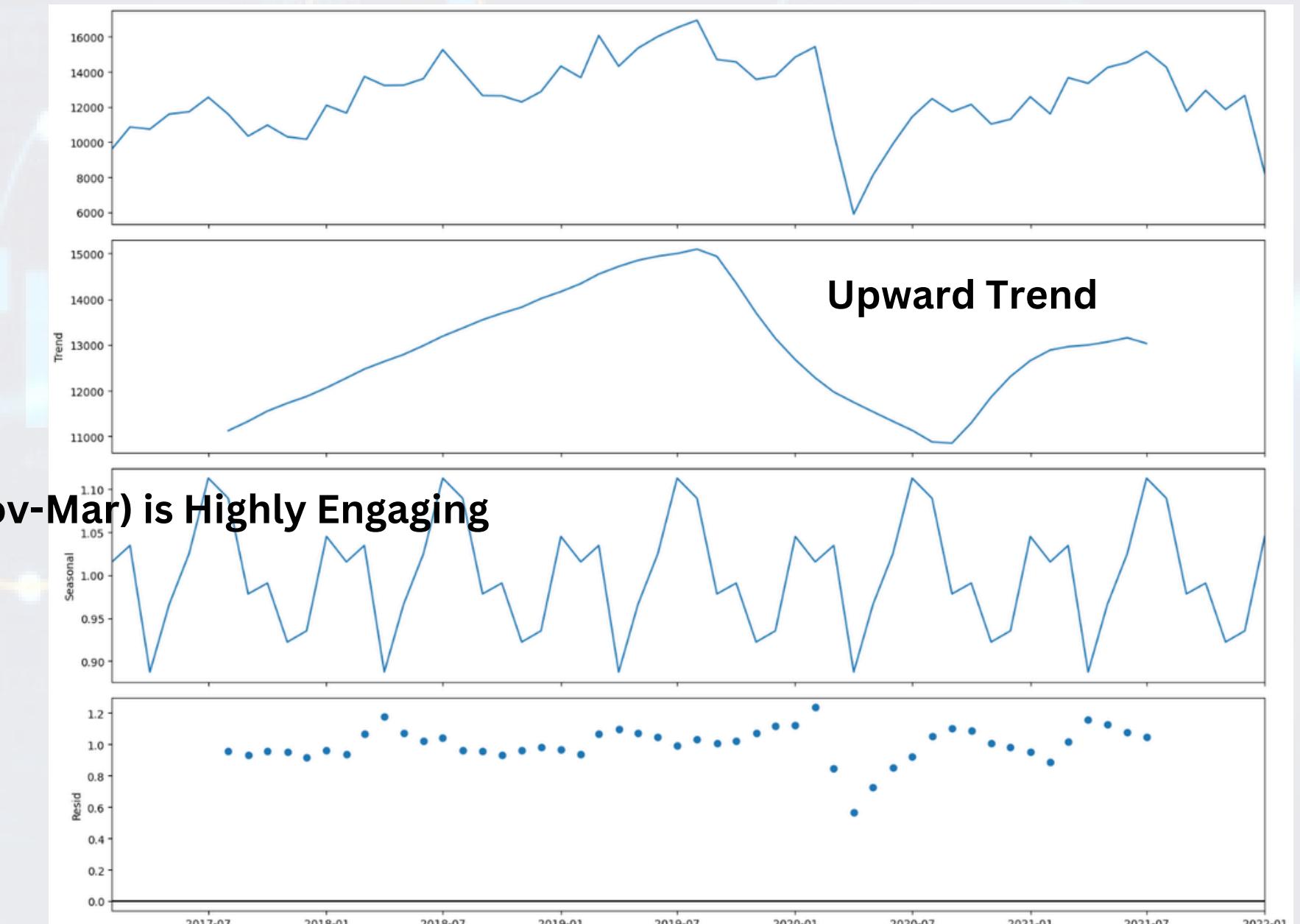


TREND AND SEASONALITY ANALYSIS

Tip Count

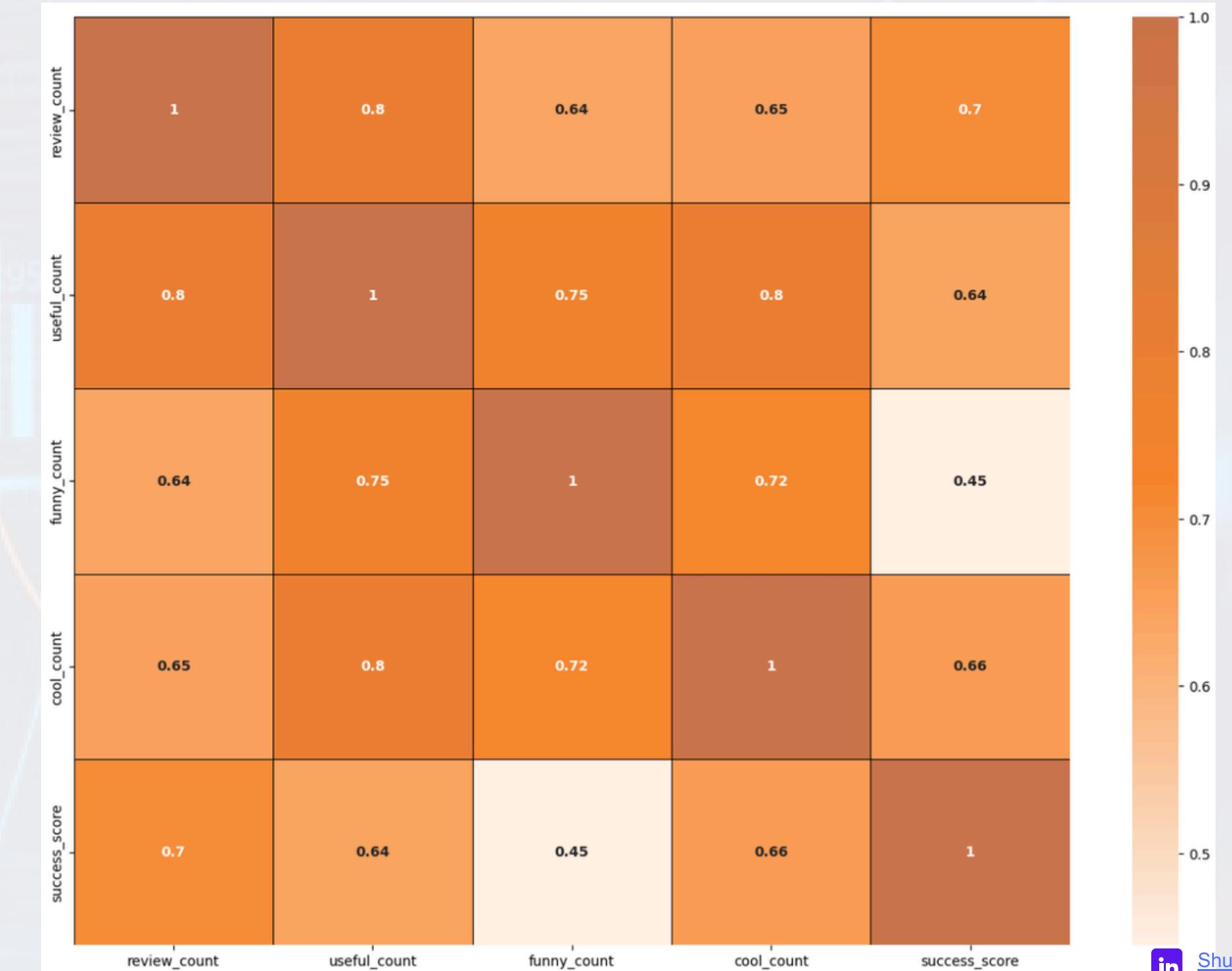


Review Count



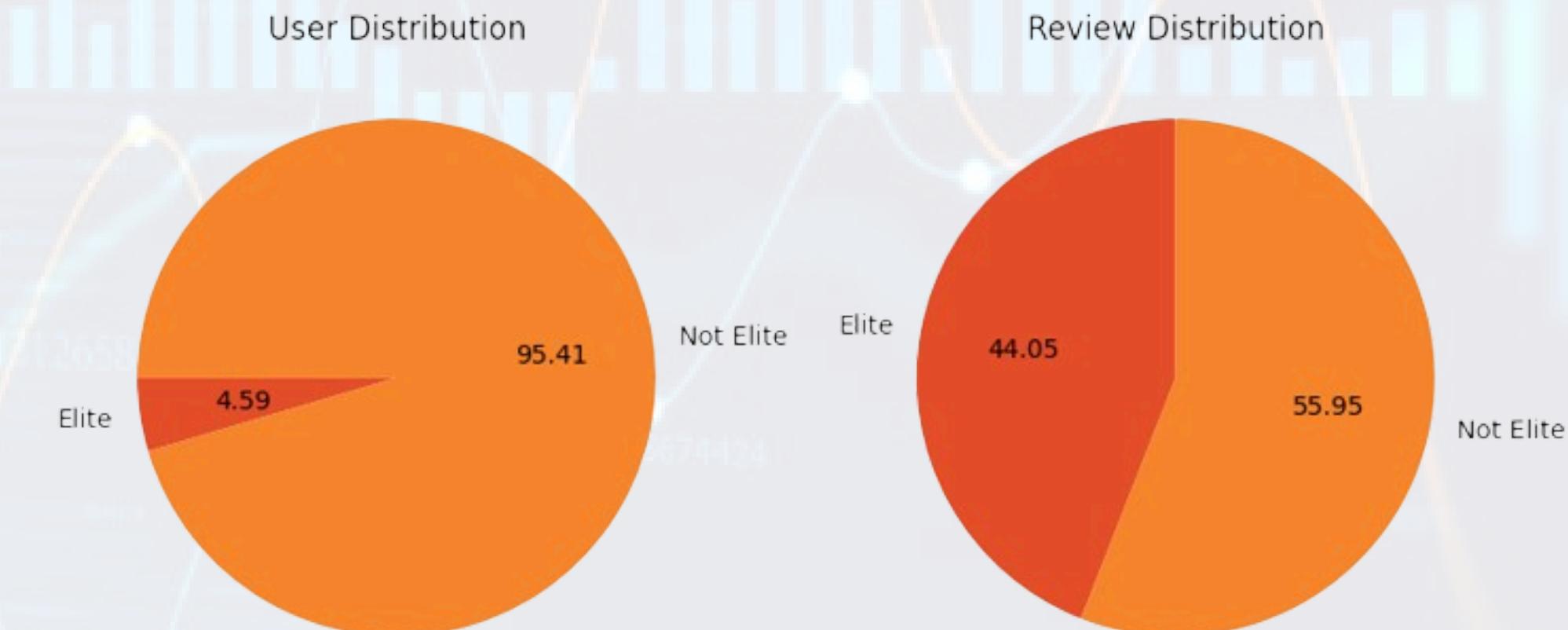
HOW DOES THE SENTIMENT OF REVIEWS AND TIPS (USEFUL, FUNNY, COOL) CORRELATE WITH THE SUCCESS METRICS OF RESTAURANTS?

- “Useful”, “funny” and “cool” are attributes associated with user reviews. They represent the feedback provided by users about the usefulness, humor, or coolness of a particular review
- Higher counts of useful, funny and cool reviews suggest user engagement and satisfaction, which are key factors contributing to a restaurant’s success.

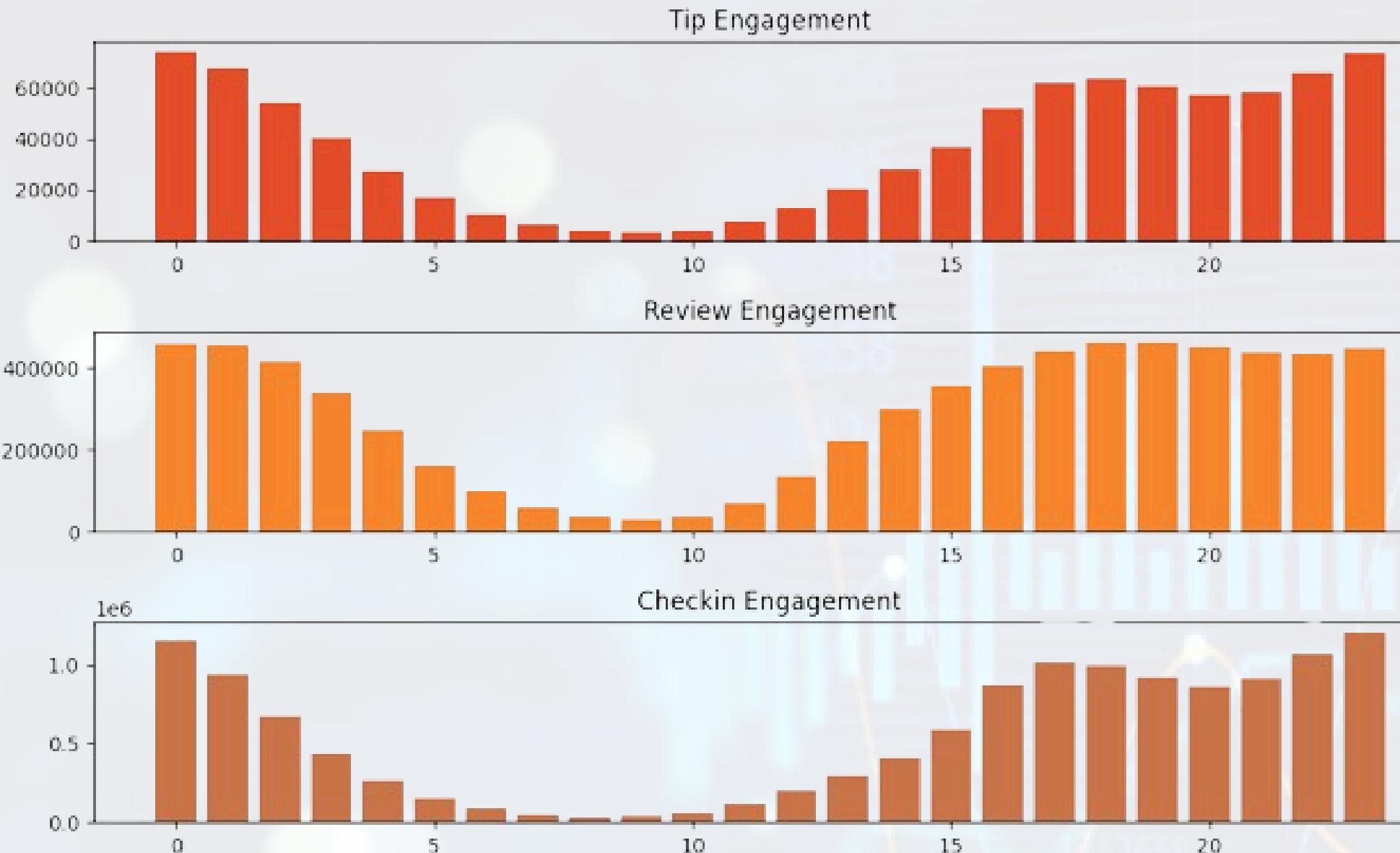


IS THERE ANY DIFFERENCE IN ENGAGEMENT OF ELITE USERS AND NON ELITE USERS?

- Elite users are individuals who have been recognized and awarded the “Elite” status by Yelp for their active and high-quality contributions.
- Elite users, despite being significantly fewer in number, contribute a substantial proportion of the total review count compared to non-elite users.
- Establishing a positive relationship with elite users can lead to repeat visits and loyalty, as they are more likely to continue supporting businesses they have had good experiences with.



BUSINESS HOURS



- The busiest hours for restaurants, based on user engagement, span from 4pm to 1 am.
- Knowing the peak hours allows businesses to optimize their staffing levels and resource allocation during these times to ensure efficient operations and quality service delivery.

- The concentration of user engagement during the evening and night hours suggest a higher demand for dining out during these times, potentially driven by work schedules, social gatherings, and leisure activities.

RECOMMENDATIONS

- Utilizing insights from the analysis of various metrics such as user engagement, sentiment of reviews, peak hours, and impact of elite users, businesses can make informed decisions to drive success.
- Collaborating with elite users and leveraging their influence can amplify promotional efforts, increase brand awareness, and drive customer acquisition.
- Businesses can adjust their operating hours or introduce special promotion to capitalize on the increased demand during peak hours.
- Less successful businesses may need to focus on strategies to enhance user engagement over time, such as improving service quality, responding to customer feedback.
- Cities with high success scores present opportunities for restaurant chains to expand or invest further.

THANK YOU

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