

# Project Milestone 2 Report

The report here consists of the user analysis done on Mexican restaurants in AZ. The data was retrieved from the Yelp dataset provided. The goal of this analysis is to see how users contribute to the business. This analysis gives a clear understanding to stake holders and owners about the health of the business.

The analysis includes three main sections:

1. Identifying active and engaged users.
2. Identifying Popular and loyal users.
3. Sentiment analysis of restaurants reviews and user reviews.

## Understanding terms:

**Active and engaged users:** Here, the users are the customers who visited Mexican restaurants and reviewed multiple times along with giving tips.

**Popular and loyal users:** Here, the users are the ones with highest fans or highest compliments

**Sentiment analysis of Restaurant reviews:** These gives us a sentiment score for the restaurants based on all the reviews the restaurant received on yelp.

**Sentiment analysis of user reviews:** These gives us a sentiment score for the most popular users based on their reviews on the yelp.

## Analyzing the most active and engages user:

(Query 1,7):

After listing out the top 10 users who has reviewed the most, who has highest compliments received, *Bruce* stands out with a highly impressive review counts that is **16,567** reviews and he did receive **8,111** compliments showing he is the most appreciated user. He doesn't seem to be in the top 10 popular users, but his feedback is a crucial aspect for both business and customers. (Figure 1)

(Query 2, 4, 8):

According to the analysis, *Isabella* is the most active and significant users. She is the third most user in giving tips, with **54** tips, showing her regular interaction with Mexican restaurants. She is also one of the most well-liked users, as shown by her huge fan base of **824** followers, which emphasizes her influence on the community. *Daniel* is another significant contributor; he leads the leaderboard with **13,568** compliments, demonstrating how much people value and appreciate what he has to offer. Similarly, *Karen* demonstrates a strong presence, contributing **52** tips and receiving **8,043** compliments, reflecting how active user and appreciated user she is. (Figure 2,3)

## Identifying Popular and loyal users:

(Query 3, 5, 6):

According to the data, **Tucson** has the most popular Yelp users, including Joyce. *Joyce* is the second most-followed user in this dataset, with an incredible **1,662** fans, demonstrating her impact in the community, and *Stephanie*, who is an oldest user since **2007**, with **1,761** fans is the other well-known Tucson users with the highest following of all. Her significance as a major contributor is further strengthened by her ongoing participation, shows steady loyalty and engagement over time. (Figure 4)

## Sentiment analysis of user reviews and cities with better customer service:

(Query 9,10):

*Joyce*, with **1,662** fans, favors **Rosa's Mexican Food Restaurant** with a sentiment score of **0.39**, showing balanced reviews. **Tucson** leads with **158** users, **485** reviews, and a sentiment score of **0.23**, while **Catalina** has the highest score (**0.31**) from one user. In contrast, **Marana** reflects dissatisfaction with a sentiment of **-0.03**, highlighting areas for improvement.

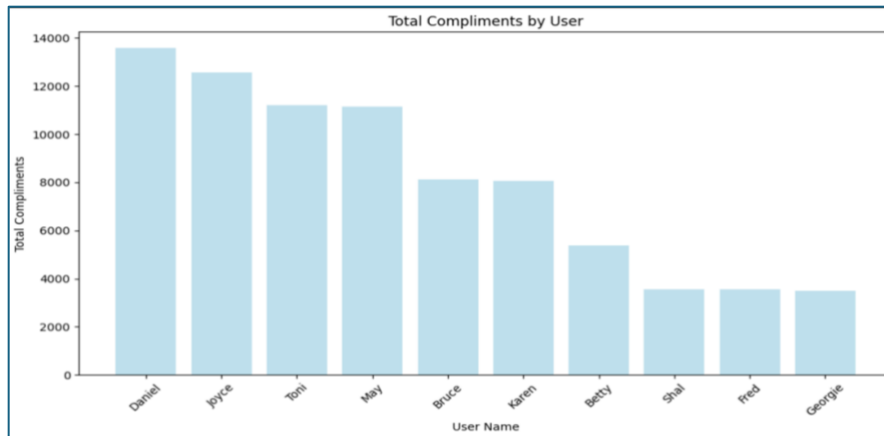
## Sentiment analysis of Restaurant reviews:

(From the last two cells in the Jupyter notebook)

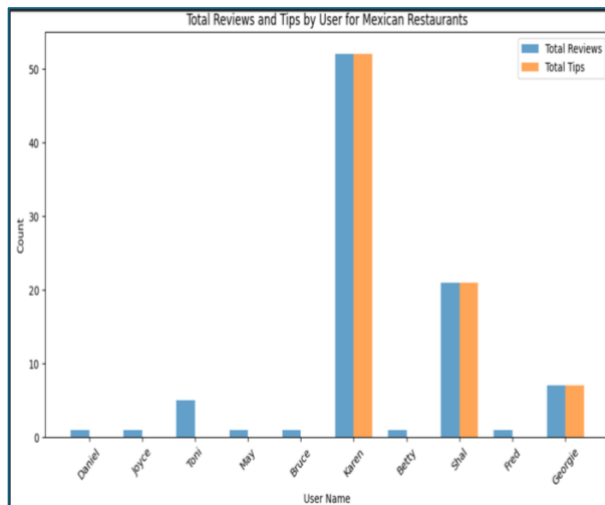
According to the statistics, **Buendia Breakfast & Lunch Cafe** has the highest customer satisfaction rating (**0.49**), followed by **Tacos y Hotdogs El Giro** (**0.43**) and **Cocteleria La Palma Mariscos Y Mas** (**0.42**). However, **El Pollo Lucky**, **Totopos**, and **Carl's Jr.** have negative sentiment rankings, indicating discontent. We need to start focusing on the underperforming restaurants like Totopos. Good standing restaurants can use positive reviews from users to increase customer service. Customers can take precaution before visiting restaurants with bad reviews.

## Conclusion:

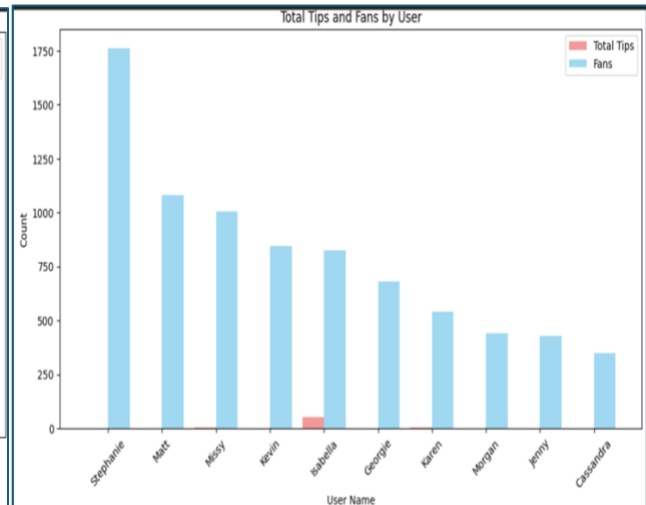
Active users like Bruce and Isabella, who has great followers and tips significantly influence the restaurant business. Popular users such as Joyce and Stephanie, based in Tucson, stand out for long-term loyalty, reflecting Tucson's prominence as a hub for engaged Yelp users. Sentiment analysis shows positive customer experiences at Buendia Breakfast & Lunch Cafe, while restaurants like Totopos face dissatisfaction, requiring improvements. Marana shows negative sentiment, shows an opportunity for service enhancement.



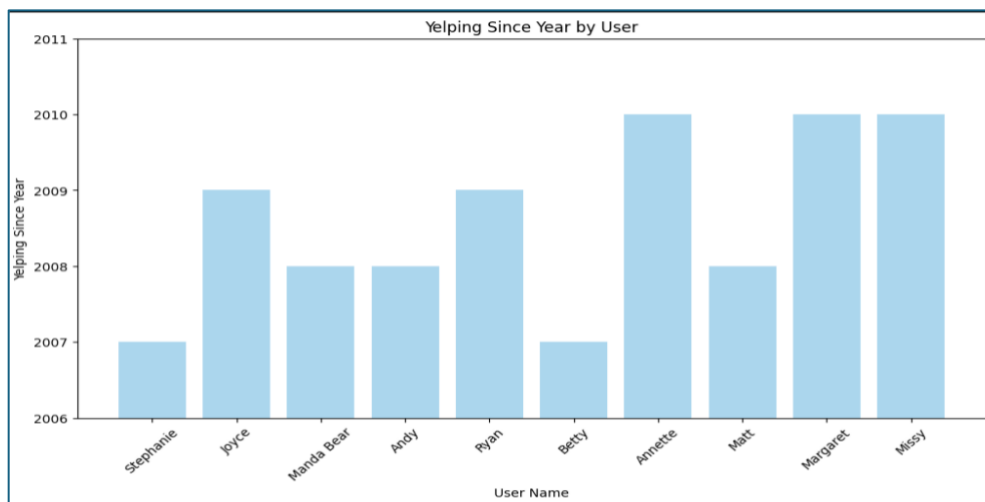
**Fig 1**



**Fig 2**



**Fig 3**



**Fig 4**