Restaurant Analysis for the City of Austin

Applied Data Science Capstone Project

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Introduction

The City of Austin is a cultural hub for technology, music, film, and food.

New restaurants open constantly due to reasonable cost of doing business.

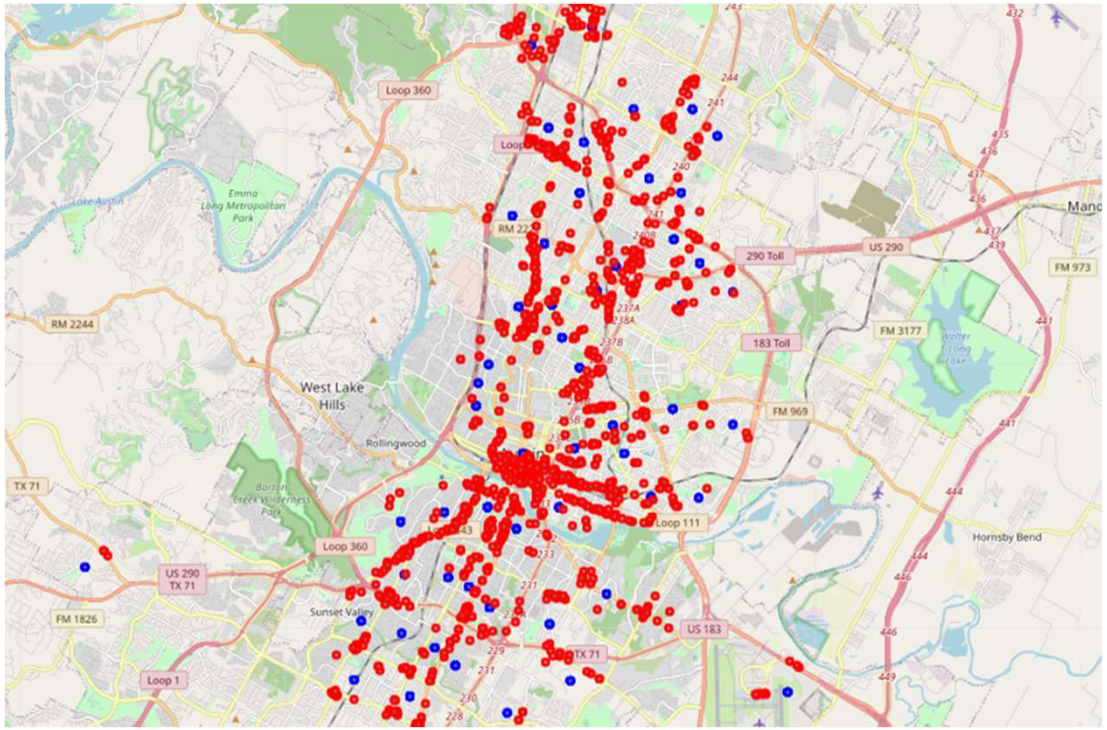
It would be beneficial to potential investors to analyze the restaurant scene so that informed decisions can be made.

Data

The list of neighborhoods was acquired from data.austintexas.gov and a geolocator was used to find the coordinates for each. A neighborhood data frame was created with this information.

The venue data frame was created by running each neighborhood's coordinates through a loop which made Foursquare API calls and returned restaurants. The results were limited to 100 for each neighborhood and searched in a 1000-meter radius around each coordinate. The data frame contains venue information including the name, venue type, coordinates, venue ID, rating and price tier.

Neighborhood and Venue Map



= Restaurants

= Neighborhoods

Methodology

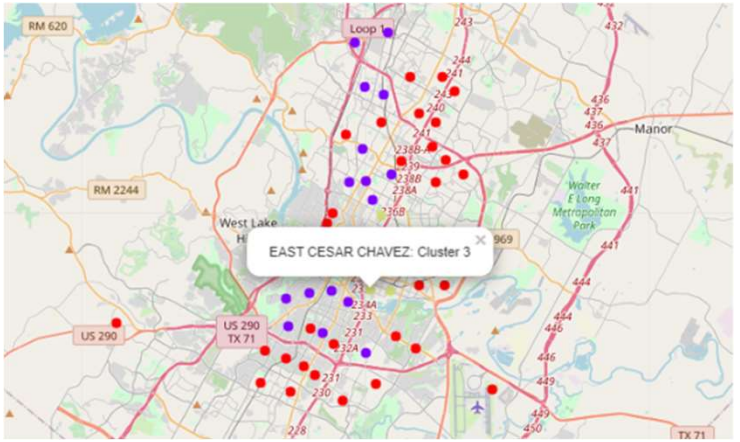
Appended the restaurant category and price tier into one column called category.

Then grouped the venue data by neighborhood and then category to get an average rating for each.

The data frame was then pivoted so all the unique category combinations were the columns and the rows were each unique neighborhood. The average rating was populated for each category that was in each corresponding neighborhood and then clustered based on the highest rated categories in each neighborhood.

Results

- Once clusters were identified and appended to the data frame, I grouped by the four clusters and got average ratings for each category in each cluster.
- Top ten rated categories for each cluster where shown on a new data frame so you can view the highest rated cuisines and corresponding price points.



Cluster Labels	1st Ranked Category	2nd Ranked Category	3rd Ranked Category	4th Ranked Category	5th Ranked Category	6th Ranked Category	7th Ranked Category	8th Ranked Category	9th Ranked Category	10th Ranked Category
0	Café : 4.0	Donut Shop : 4.0	American Restaurant : 4.0	Middle Eastern Restaurant : 1.0	Taco Place : 4.0	Food Stand : 1.0	Restaurant : 4.0	Mexican Restaurant : 4.0	Restaurant : 1.0	Fast Food Restaurant : 4.0
1	Ramen Restaurant : 1.0	Burger Joint : 4.0	Cuban Restaurant : 4.0	Café : 4.0	Bakery : 4.0	Steakhouse : 4.0	Hawaiian Restaurant : 1.0	Italian Restaurant : 4.0	Gluten-free Restaurant : 1.0	Greek Restaurant : 1.0
2	Café : 4.0	Restaurant : 4.0	Seafood Restaurant : 4.0	Chinese Restaurant : 1.0	Israeli Restaurant : 1.0	Cajun / Creole Restaurant : 1.0	Churrascaria : 1.0	Donut Shop : 1.0	Mexican Restaurant : 4.0	Deli / Bodega : 1.0
3	Southern / Soul Food Restaurant : 1.0	Irish Pub : 1.0	Seafood Restaurant : 1.0	Latin American Restaurant : 4.0	Vegetarian / Vegan Restaurant : 1.0	Japanese Restaurant : 1.0	Turkish Restaurant : 1.0	Ramen Restaurant : 1.0	Café : 1.0	Breakfast Spot : 1.0

Discussion

Investors can look for patterns in order to get a glimpse of the most successful restaurants based on cuisine and price point.

Example: A potential investor is looking at supporting a restaurant in the East Cesar Chaves neighborhood. The neighborhood is in cluster 3, which has high rated low cost southern/soul food.

Example: A ramen restaurant in Dallas is interested in opening a second location in Austin. They view the results and discover that cluster 1, and more specifically the downtown neighborhood, would be a great choice since its top-rated restaurants are in the low-cost ramen category.

Conclusion

- Austin is a diverse city with a lot of culture and continues to grow at a high rate. There are many restaurants in each neighborhood differing in cuisine, type, and price.
- The results of this analysis can serve as a guide to a potential investor or owner of a new restaurant either to choose what type of restaurant to open and at what price point in a certain neighborhood or based on a certain restaurant concept, choose an appropriate location that will increase the chance of success.
- This insight can help investors make smart decisions and hopefully lead to restaurants with high ratings that customers can enjoy all around Austin. This same analysis could easily be mimicked in our cities around the world.