

Capstone Project - The Battle of Neighborhood Austin TX BBQs

By Brian Johnson

Introduction

- Texas is known for its own unique barbeque (BBQ) venues and there are many 'BBQ Joints' to visit. Turns out that around the state capitol, Austin TX, there are some of the most rewarding BBQ places to try. Also are some of the highest ranked BBQ Joints are around Austin, at least claimed by food critics. This ends up being convenient since many visitors to the state conduct business or vacation in the Austin area.
- The question to answer then is to decide where in the Austin area to “stay” based on the number of BBQ venues to visit.
- A Secondary question is finding locations that also have other food venues in case BBQ becomes too much for the palette of the visiting group of members.

Data Sources

- Data on individual Texas cities was found in the “United States Cities Database” located at <https://simplemaps.com/data/us-cities>
- Identifying BBQ venues within a radius circle on each city required the help of Foursquare by searching on venues with the search parameter set to ‘BBQ Joint’.
- Data for top-rated BBQ venues seemed like a simple scrapping on web sites but ended up not being allowed. An Excel file was hand generated using inputs from the following sites:
 - <https://www.texasmonthly.com/food/the-list-the-top-50-barbecue-joints-in-texas/>
 - <https://theculturetrip.com/north-america/usa/texas/articles/the-10-best-bbq-joints-in-texas/>
 - <https://www.southernliving.com/souths-best/texas-bbq>
 - <https://bigseventravel.com/best-places-for-barbecue-texas/>
- Data cleaning was required on all of these data sources

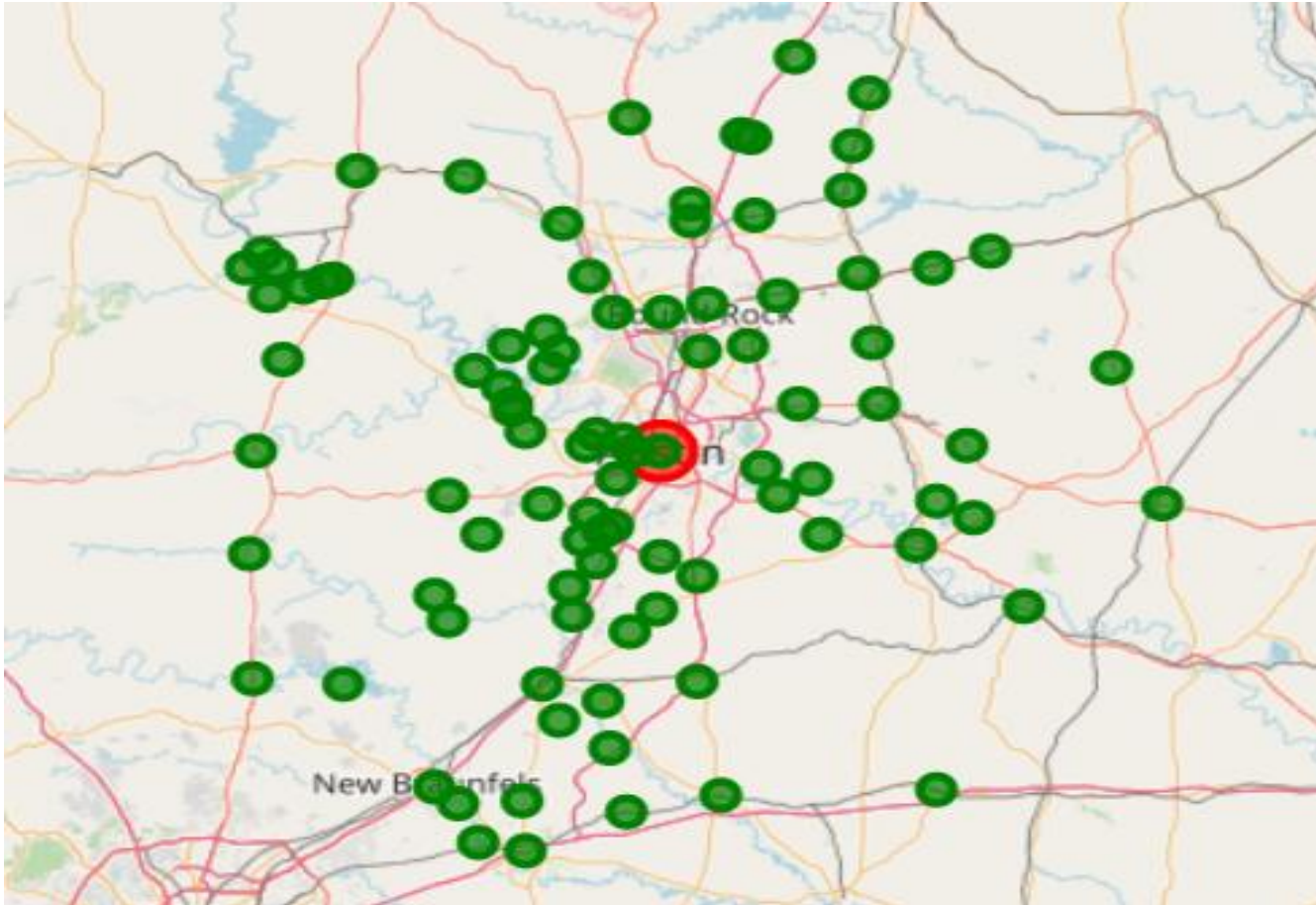
Methodology and Exploratory Data Analysis

- The methodology was simply:
 - Look for surrounding cities to Austin, TX within a 50 mi radius.
 - Used Foursquare to determine the 'BBQ Joint' venues around Austin only.
 - Used Foursquare to determine the 'BBQ Joint' venues for the surrounding cities around Austin.
 - Examined Top Rated BBQ places per food critics.
 - Used Foursquare to determine "Food" venues for the surrounding cities around Austin.
 - For each city, computed the top 10 most common food venues determined by the popularity or count of the venue category.
 - K-means was used on the food venue data in order to determine cities that had similar Food venue offerings.
- Analysis consisted of visualizations on a map, bar charts on counts, and a calculation of top-rated venues per city
- Cities within 50 miles around Austin were considered and the venues within 15 miles of each city was examined

Results

Cities Surrounding Austin, Tx

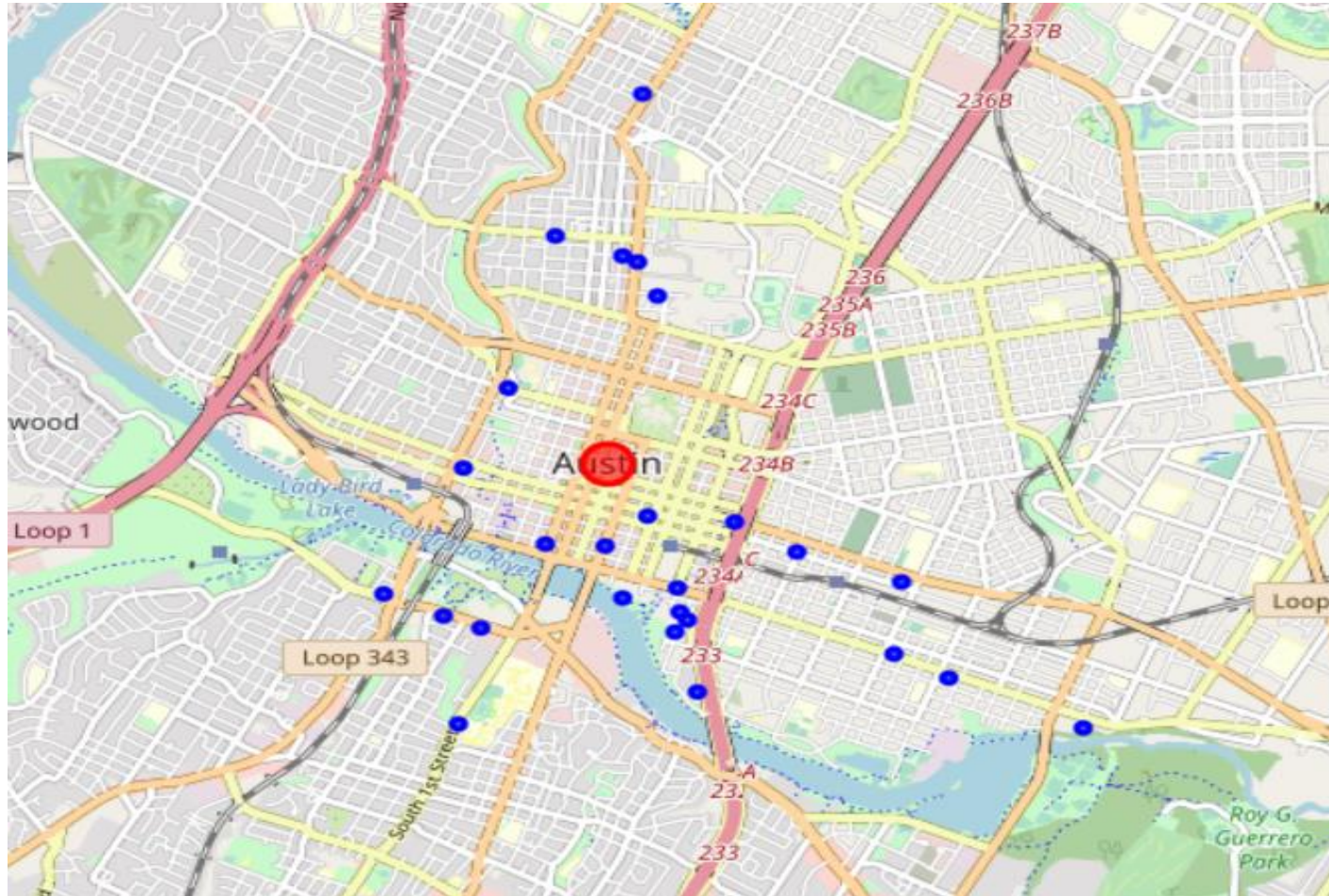
93 Cities Found



Red Circle: Austin
Green Circle: Surrounding city

BBQ Venues around Austin, TX

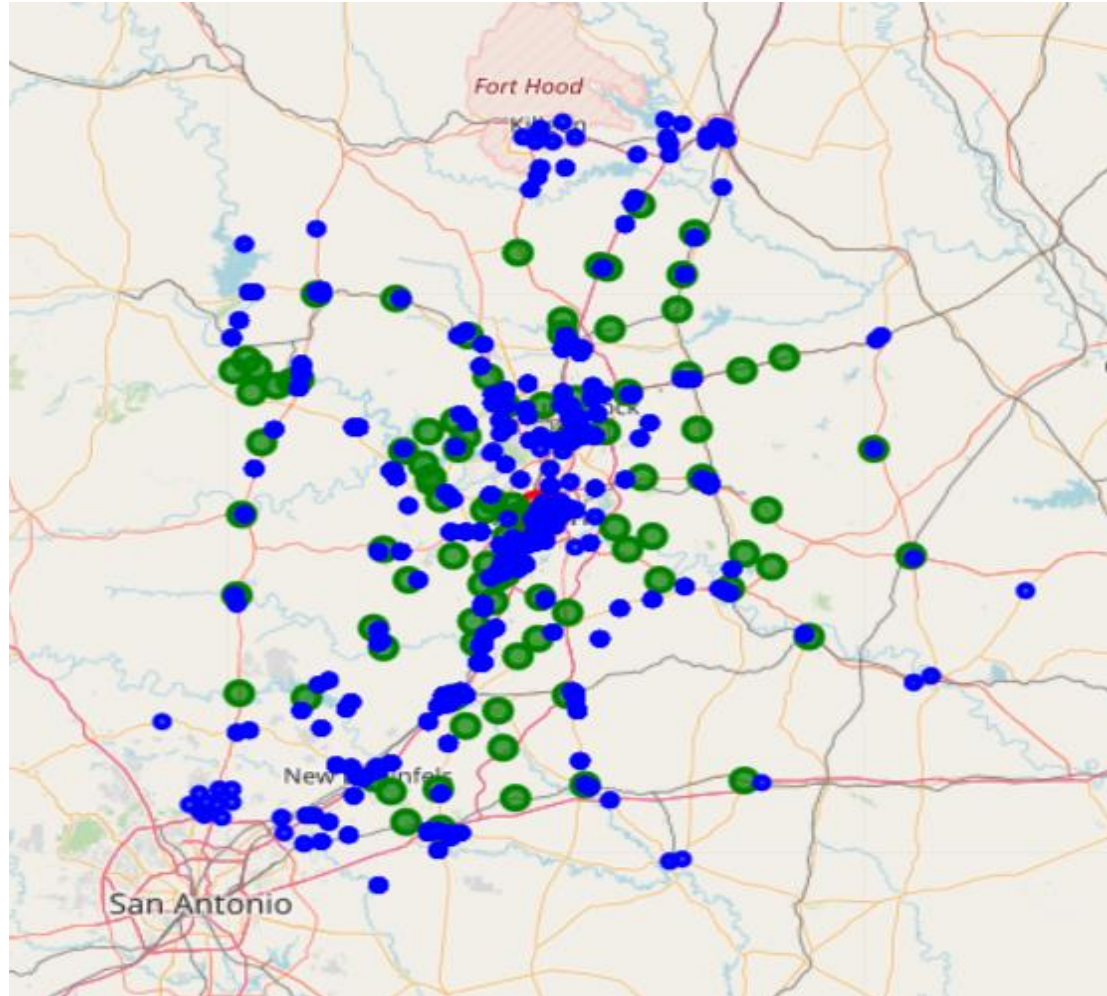
28 Venues Found



Red Circle: Austin
Blue Circle: BBQ venue

BBQ Venues around Austin and the Surrounding Cities

2,261 Venues Found

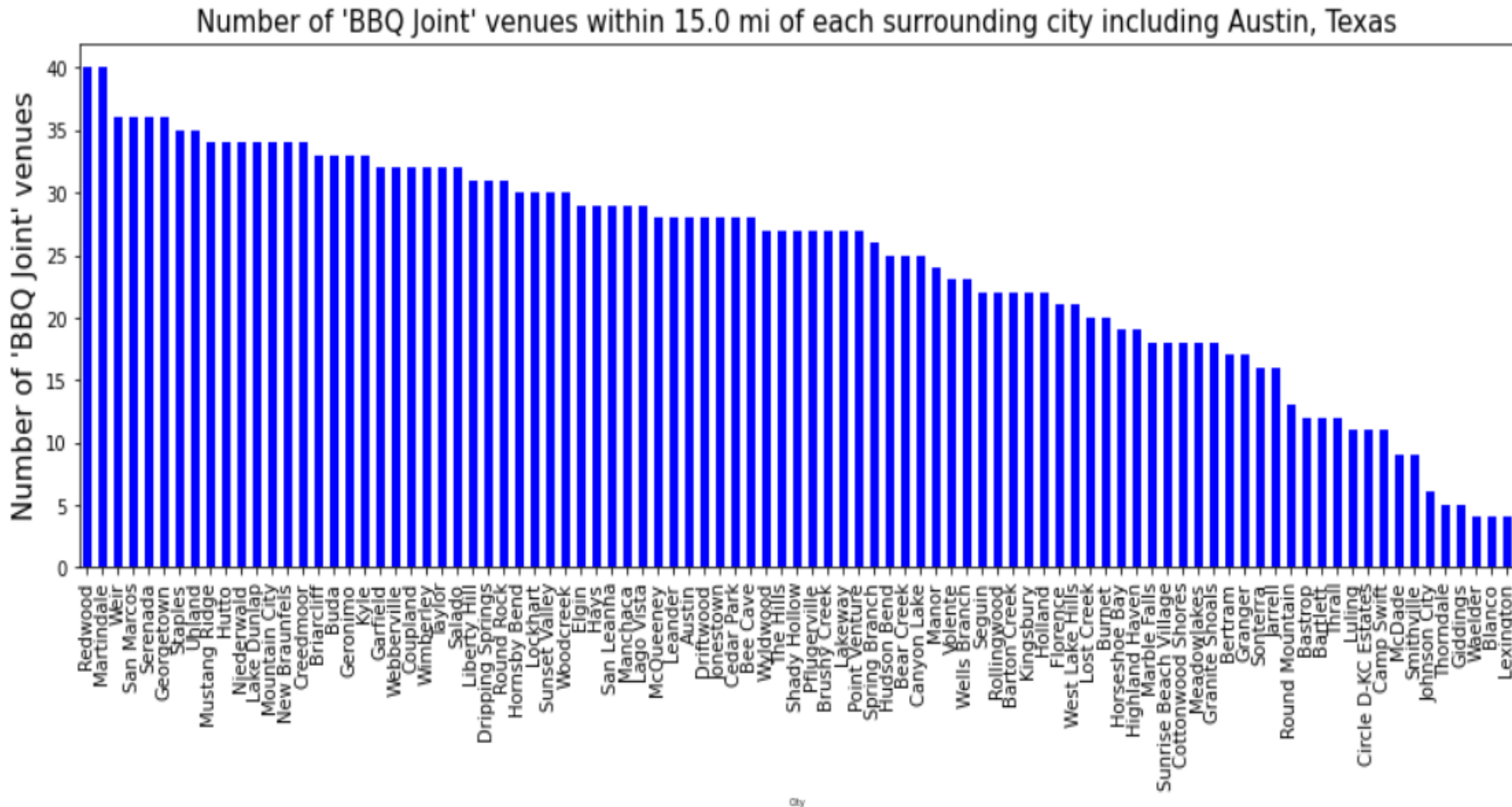


Red Circle: Austin
Green Circle: Surrounding city
Blue Circle: BBQ venue

Note: BBQ venues may be counted in adjacent cities

BBQ Venues around Austin and the Surrounding Cities

Venue Count Per City

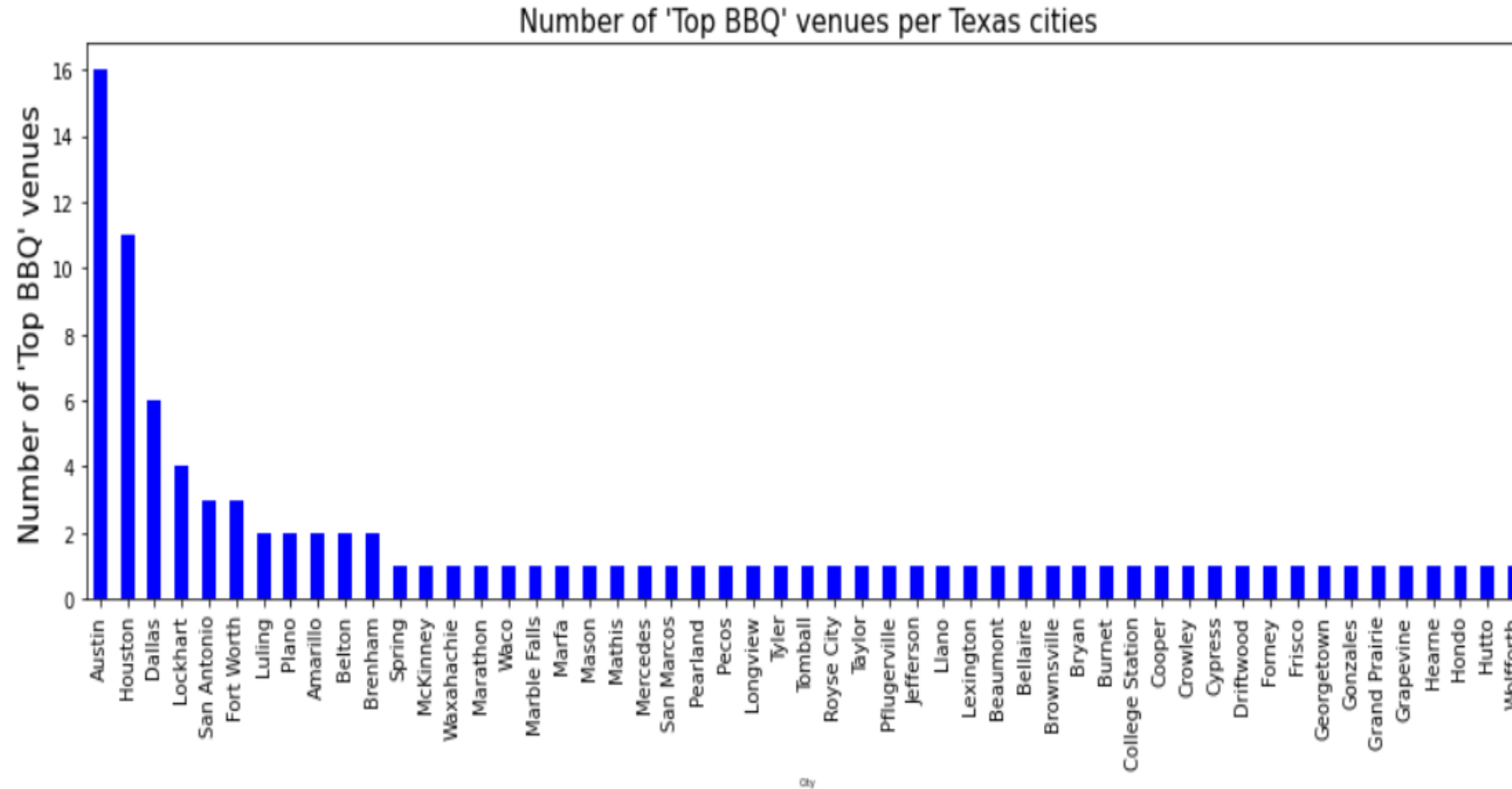


Austin does not have the most BBQ venues

Note: BBQ venues may be counted in adjacent cities

Top-Rated BBQ Venues in Texas

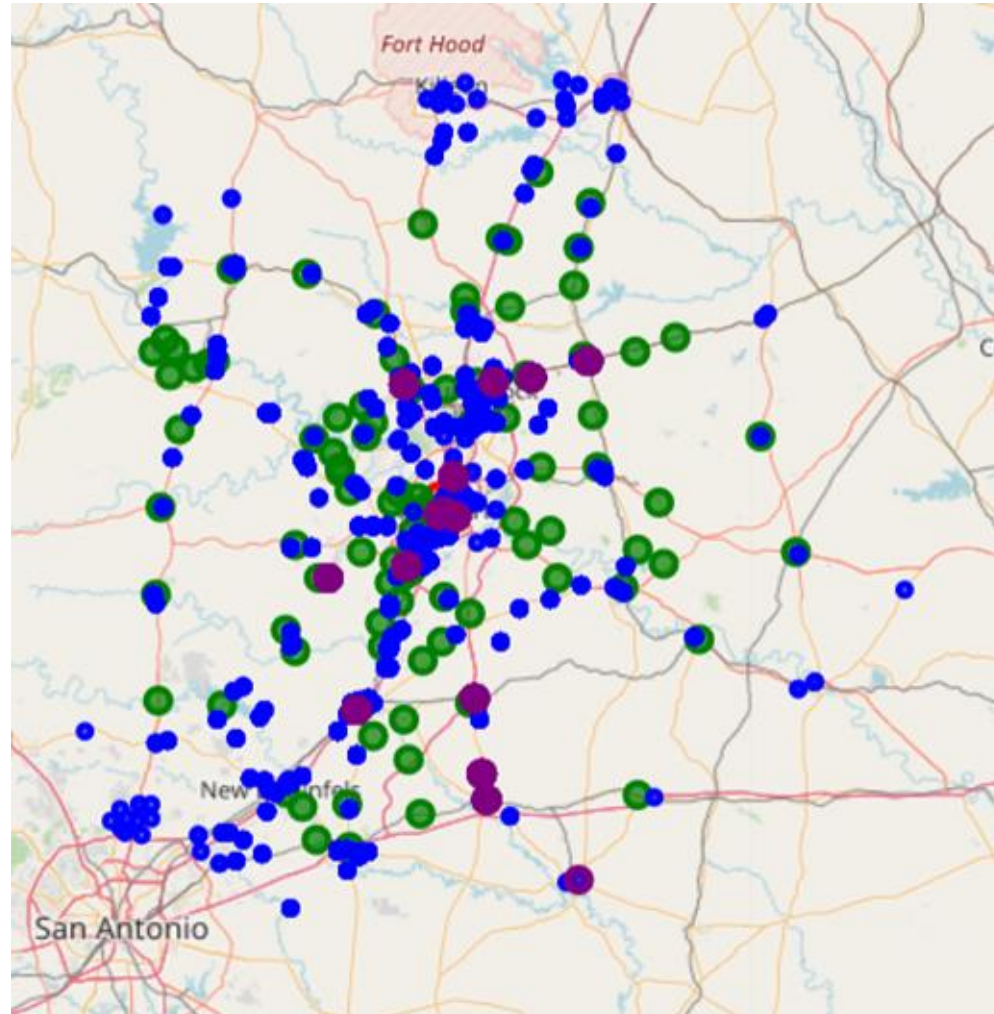
Venue Count Per City



Austin does
have the most
Top-Rated BBQ
venues

95 total
throughout
Texas

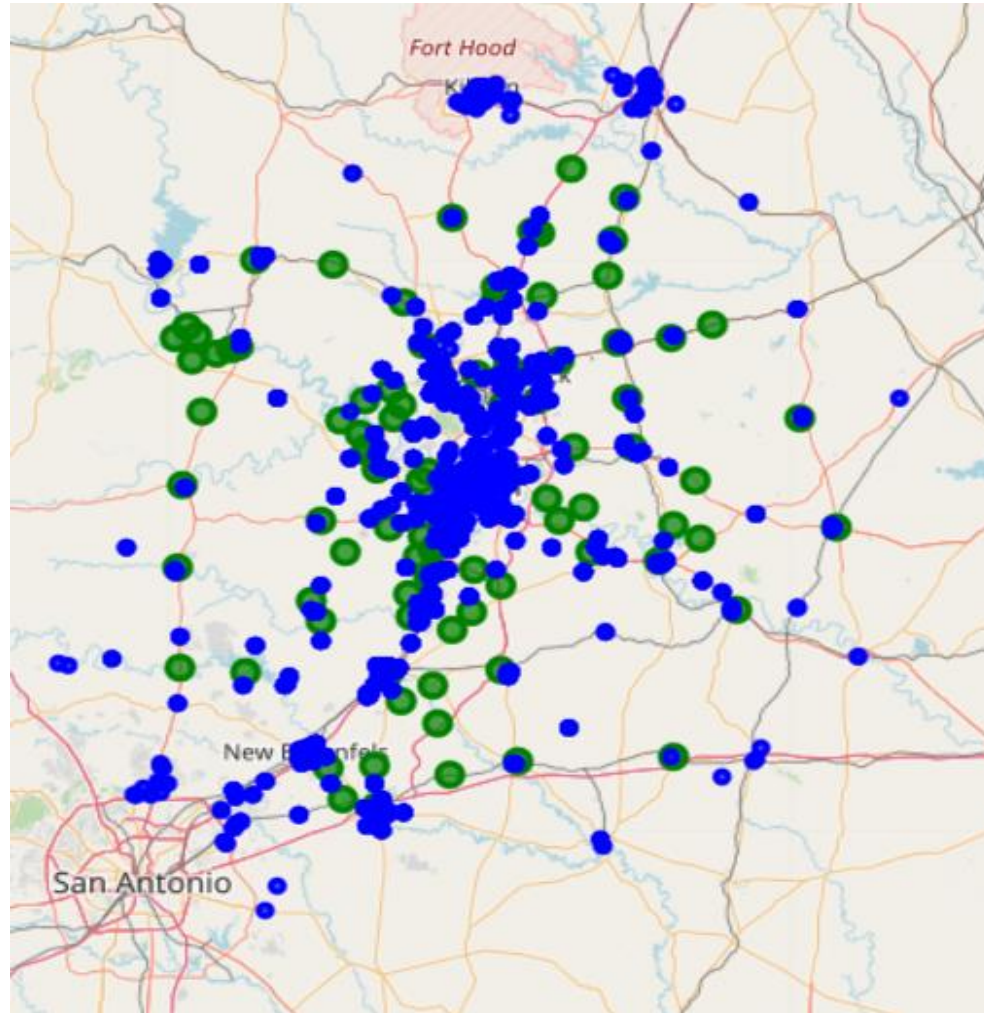
BBQ Venues around Austin and the Surrounding Cities Showing Top-Rated



Red Circle: Austin
Green Circle: Surrounding city
Blue Circle: BBQ venue
Purple: Top-Rated BBQ venue

Food Venues around Austin and the Surrounding Cities

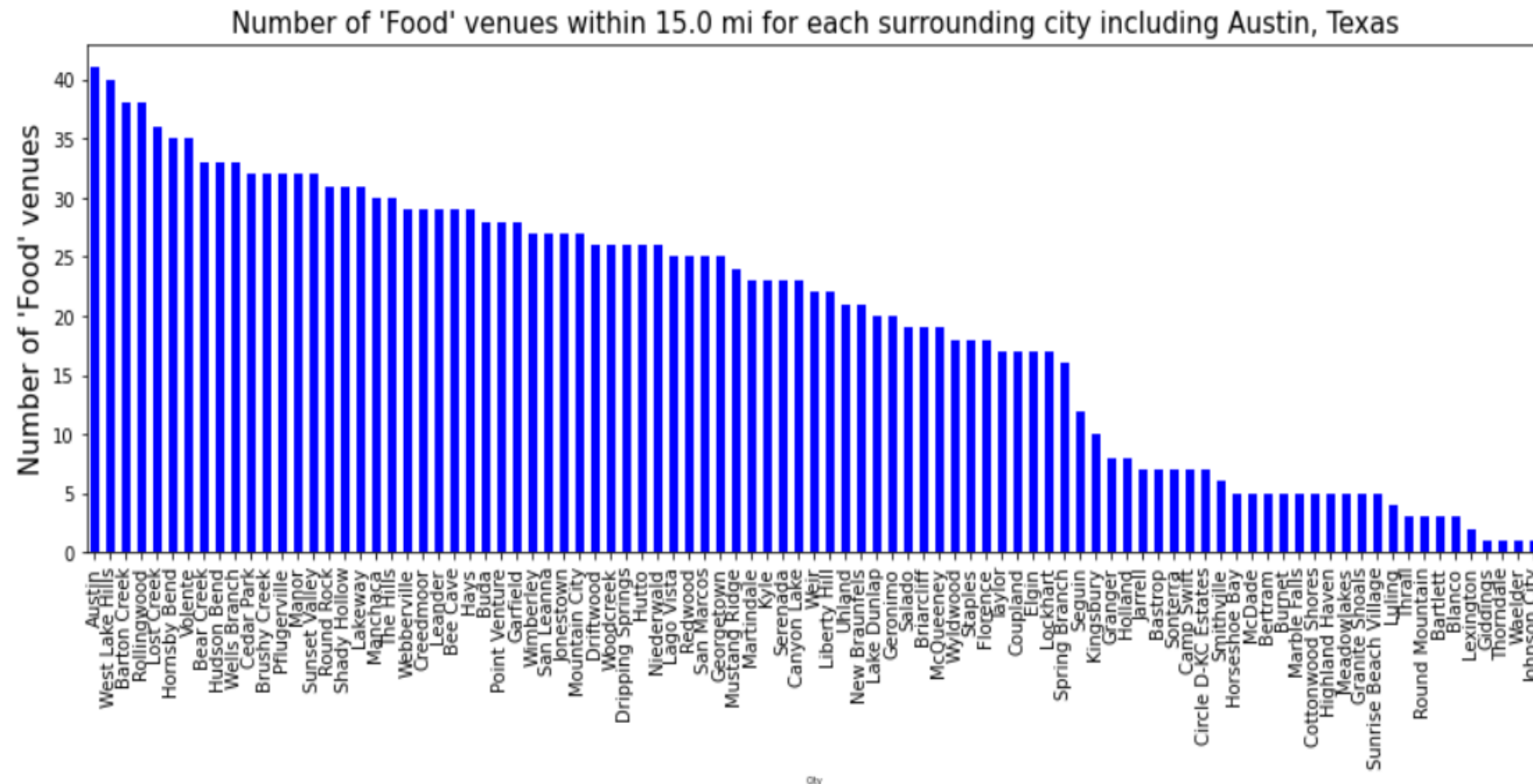
1,942 Venues Found



Red Circle: Austin
Green Circle: Surrounding city
Blue Circle: Food venue

Food Venues around Austin and the Surrounding Cities

Venue Count Per City



Austin does
have the most
Food venues

Note: BBQ venues may be counted in adjacent cities

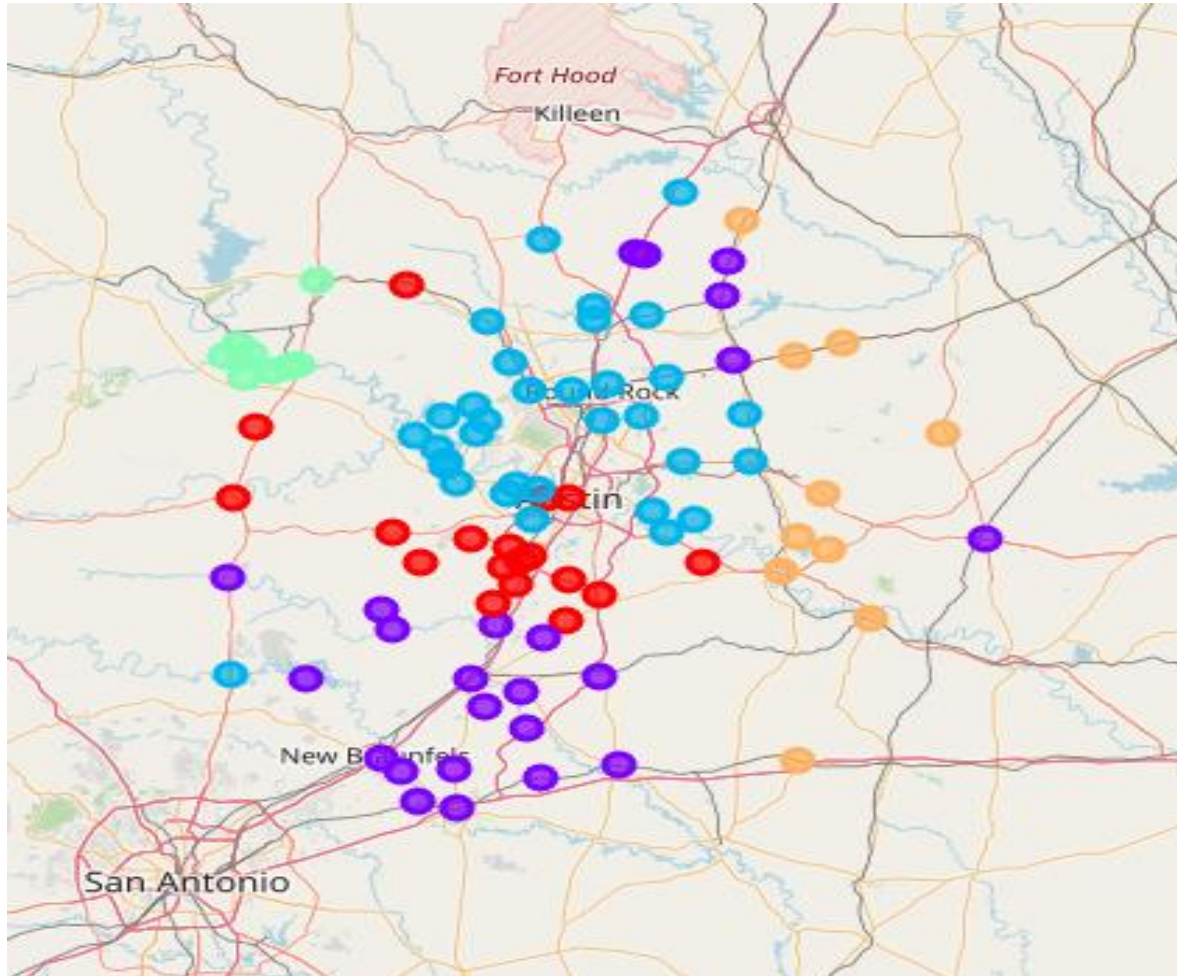
Top 10 food venues for the first 12 cities

	city	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Austin	Food Truck	Sandwich Place	New American Restaurant	Japanese Restaurant	Soup Place	Israeli Restaurant	Deli / Bodega	Comfort Food Restaurant	Fast Food Restaurant	Café
1	Bartlett	Truck Stop	Cajun / Creole Restaurant	Mexican Restaurant	Wine Bar	Deli / Bodega	Gourmet Shop	Gluten-free Restaurant	German Restaurant	Fruit & Vegetable Store	Fried Chicken Joint
2	Barton Creek	Food Truck	Food Court	Japanese Restaurant	New American Restaurant	Mexican Restaurant	Sandwich Place	Restaurant	Health Food Store	Food & Drink Shop	Fast Food Restaurant
3	Bastrop	Southern / Soul Food Restaurant	Food Truck	Asian Restaurant	Mexican Restaurant	Burger Joint	Fruit & Vegetable Store	Caribbean Restaurant	Fast Food Restaurant	Food & Drink Shop	Food Court
4	Bear Creek	Food Truck	Mexican Restaurant	Food Court	New American Restaurant	Sandwich Place	Japanese Restaurant	Juice Bar	Deli / Bodega	Restaurant	Fast Food Restaurant
5	Bee Cave	Food Truck	Food Court	Japanese Restaurant	American Restaurant	Sandwich Place	Mexican Restaurant	New American Restaurant	Food & Drink Shop	Fast Food Restaurant	Deli / Bodega
6	Bertram	Food Truck	Himalayan Restaurant	Farmers Market	Restaurant	Bar	Dessert Shop	Gourmet Shop	Gluten-free Restaurant	German Restaurant	Fruit & Vegetable Store
7	Blanco	Beer Garden	Food Truck	Mexican Restaurant	Wine Bar	Deli / Bodega	Gourmet Shop	Gluten-free Restaurant	German Restaurant	Fruit & Vegetable Store	Fried Chicken Joint
8	Briarcliff	Food Truck	American Restaurant	Burger Joint	Korean Restaurant	Food Court	Gluten-free Restaurant	Thai Restaurant	Mexican Restaurant	Greek Restaurant	Dessert Shop
9	Brushy Creek	Food Truck	Food Court	Japanese Restaurant	Mexican Restaurant	New American Restaurant	Korean Restaurant	Restaurant	Sandwich Place	Burger Joint	Mediterranean Restaurant
10	Buda	Food Truck	Mexican Restaurant	New American Restaurant	American Restaurant	Restaurant	Fast Food Restaurant	Food & Drink Shop	Soup Place	Food Court	BBQ Joint
11	Burnet	Food Truck	Mexican Restaurant	Farmers Market	Coffee Shop	Wine Bar	Deli / Bodega	Gourmet Shop	Gluten-free Restaurant	German Restaurant	Fruit & Vegetable Store

Where are the BBQ venues?

K-means clustering by Food venues

Cluster set to 5



Cluster #	# of Cities	1 st Venue Makeup	2 nd Venue Makeup
1 (Red)	18	All Food Truck	11 Mexican
2 (Purple)	24	15 Mexican	11 Food Truck + 1 BBQ
3 (Blue)	33	31 Food Truck	21 Food Court
4 (Green)	8	8 Food Truck	8 Mexican
5 (Yellow)	10	Southern, Greek, Asian, 1 BBQ	3 Food Truck

Discussion

- The cities examined represented a good cross section of the various areas known around Austin: Austin itself, suburbs of all social-economic domains, the Hill country, the I-35 corridor, and outside of Austin. This would then be good consideration for a visitor in deciding if Austin or one of its out areas is of interest to target as a stay location.
- When examining the results returned by Foursquare with the search criteria set to 'BBQ Joint', 50 venues were returned however, on looking at the categories of these venues, only 28 were truly BBQ places. This suggests the possibility that Foursquare is not "cleaned data, in fact, many cleaning operations had to be added.
- In viewing the BBQ Joint venues around Austin and its surrounding cities, the map showed the high count of venues along the I35 corridor, the cities North of Austin noted as the suburbs, and in the Fort Hood area which is an Army base.
- Surprising that the number of BBQ venues was not the highest for Austin but for many cities outside of Austin. However, per critics Austin has the most highly rated BBQ joints followed by Houston and Dallas. This may be biased data as the critics are probably from these cities as they are the largest metropolitan areas for Texas. Furthermore, many of the top-rated places were indeed close to Austin. Texas has BBQ venues throughout the state, some of the best places are not around the metropolitan areas.
- When considering all food venues then Austin is at the top as expected since Austin has the largest social-economic diversity. Next in line are some of the more affluent suburbs as well.
- When looking at the top Food venues for the top 12 cities, it was not until the 11th city, Buda, that showed BBQ Joint as a top 10th venue. So, BBQ is not that popular OR since the ranking criteria is a count on the venues returned by Foursquare, it could be that not many BBQ venues can exist when the places that are in business are so good. In fact, Lockhart did not register a BBQ venue in the top 10 which does not seem correct.

Discussion

- The cluster analysis showed some trends:
 - BBQ venues were in the different clusters but not significant to account.
 - Cluster 1 (Red circles) included Austin and mostly the southern cities, what was obvious is the top-rated number of food trucks then Mexican venues. Food trucks are a classic trademark to Austin and its areas.
 - Cluster 2 (Purple circles) and were cities furthest from Austin which showed Mexican type venues then food trucks.
 - Cluster 3 (Blue circles) also showed interest in Food trucks followed with food courts. Interesting how this covered North Austin where there are many mall venues.
 - Cluster 4 (Green circles) had Food trucks followed by Mexican venues. This is an area that contains many “tourists” cities deep in the heart of Hill country. Surprising the number of Food trucks.
 - Cluster 5 (Yellow circles) had a better balance of top different venues. These cities are East of Austin where it turns out that many first-time home buyers are finding the best housing prices.

Conclusion

- Analysis on the BBQ venues within and surrounding Austin, TX resulted in some surprising results:
 - BBQ venues were not highly rated as anticipated per the ranking method of number of venues within a given area. This may change if customer ratings had been used.
 - Food trucks are everywhere, in fact maybe at the point of saturation(?) and of course Foursquare did not break out BBQ related food trucks.
 - Mexican is popular, most likely Tex-Mex as this is also a food venue a visitor should sample.
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- Addressing the questions defined in the start of this project:
 - Where in the Austin area to “stay” based on the number of BBQ venues to visit. The data did not present a reasonable answer. However, if considering food critic recommendations, stick to Austin. On a personal note, go to Lockhart.
 - Locations that also have other food venues in case BBQ becomes too much for the palette of the visiting group of members, one could go East of Austin but analysis on Food trucks should be added as they ones in Austin probably offer a diverse range of cuisines or modern cuisines.
- Finally, rating per customers should be incorporated in the ratings of venues and data cleaning on Foursquare JSON's should also be performed as well.