

# **Final Capstone Project**

*"Analysis of Restaurants located in Georgia"*

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# Introduction

## Background:

While traveling in the southern states of the United States (specifically in Georgia), it has been identified by the client that it can be difficult to locate restaurants that meet a specific person's tastes/needs. This capstone project will focus on the state of Georgia, analysing the various categories of restaurants and food options available for travellers and localities in the different towns and cities.

## Problem Statement:

During this exercise we will be aiming to use the data to address the following key questions:

1. What categories of restaurants are popular in different parts of the state?
2. What categories of restaurants are most popular across the different parts of Georgia?
3. Are there any vegan/vegetarian options available in Georgia? If so, where are they located?
4. Where can someone find a cafe or quick bite? (by this we mean fast-food)
5. Are there any restaurants that are based around southern cuisine? If so, where are they located?
6. Which towns do not have dine-in restaurants?

## Data Sources

To find the answers and get insight into the restaurants landscape in Georgia, United States, the first piece of data that is required is a list of all towns and cities located in Georgia. This is publicly available located in the Wikipedia page. In this project, we will scrape the towns and cities info from Wikipedia page: [https://en.wikipedia.org/wiki/List\\_of\\_municipalities\\_in\\_Georgia\\_\(U.S.\\_state\)](https://en.wikipedia.org/wiki/List_of_municipalities_in_Georgia_(U.S._state)).

The next piece of information we require, is the geolocation (altitude and longitude) of all towns and cities from the first step. To extract this information, we will use the Geocoder Nominatim OpenStreetMap (OSM)API to get the geographical location of each town and city.

Last, we will utilize Foursquare crowdsource data to get all of the restaurant and category details of all the venues of type "Food". We will restrict the number of venues by searching for venues within a radius of 5kms around each town or and city.

To summarise, we will pull the following data for this project:

List of all town and cities in Georgia, United States

Source: [https://en.wikipedia.org/wiki/List\\_of\\_municipalities\\_in\\_Georgia\\_\(U.S.\\_state\)](https://en.wikipedia.org/wiki/List_of_municipalities_in_Georgia_(U.S._state)) Pull table data from wikitable sortable

Example: (Name, Type, Country): Alpharetta City Fulton Savannah City Chatham

Geolocation (Latitude & Longitude) of each town and city - using Geocoder Package: geocoder Nomination

Example: Name, Latitude, Longitude 0 Abbeville, GA 31.992122, -83.306824 1 Acworth, GA 34.065933, -84.676880

Restaurants and food venues - from FourSquare crowdsource data, using 'Venues' endpoint Endpoint:

FourSquare venue explore endpoint: <https://api.foursquare.com/v2/venues/explore> Parameters: Radius 5km, limit venues per call = 100, section = Food

Example: Neighbourhood, Neighbourhood Latitude, Neighbourhood Longitude, Venue, Venue Latitude, Venue Longitude, Venue Category Abbeville, GA 31.992122, -83.306824 Ophelias 31.992405, -83.306903 Diner Abbeville, GA 31.992122 -83.306824 Country Kitchen 31.992640 -83.307734 Food Abbeville, GA 31.992122 -83.306824 Mr B-b-q 31.993763 -83.295976 Food Acworth, GA 34.065933 -84.676880 Henry's Louisiana Grill 34.066011 -84.677728 Cajun / Creole Restaurant Acworth, GA 34.065933 -84.676880 Fusco's via Roma 34.065781 -84.677163 Italian Restaurant

Combining and blending the data from the 3 data sources stated above, we can get the list of venues and its categorization for each city and town. We will use this as the input to the machine learning model K-means clustering for unsupervised data and build clusters of similar towns/cities offering similar categories of restaurants. Once clusters are formed, we will analyse and label the clusters based on the venue categories within each cluster. Using the cluster and labels, we will attempt to answer all the problem statements.

# Data Analysis

## Data Analysis - Exploratory, descriptive and statistical

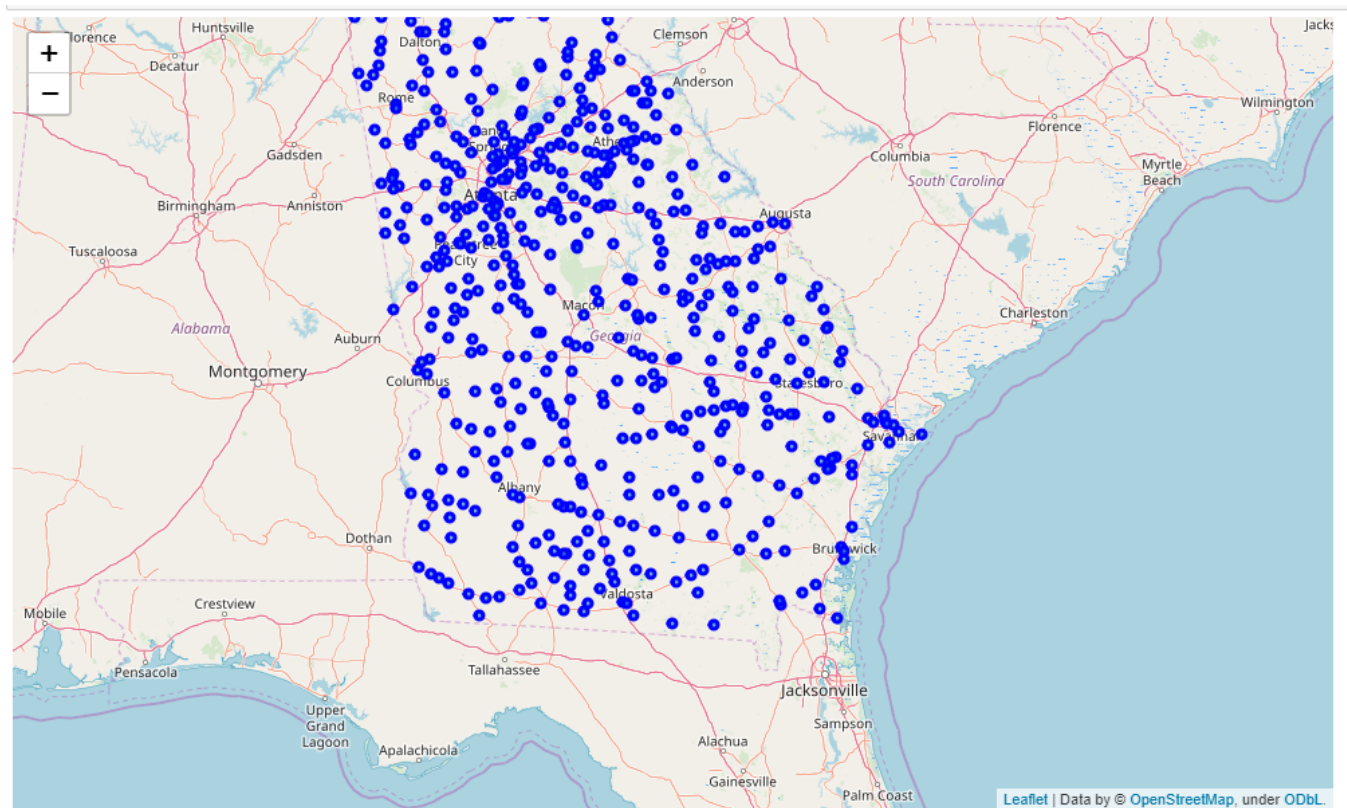
Using BeautifulSoup package, the witable data having all the municipalities (cities and towns) have been loaded into Pandas dataframe. An initial description of this dataframe shows:

Typ	Tota
Cit	40
Consolidated city	~ 2
Tow	12
Unified government	~ 6
Grand total	53

Using Geocoder Nominatim package, loop through each town/city in the list, and fetch the geolocation (latitude and longitude).

	Name	latitude	longitude
0	Abbeville, GA	31.992122	-83.306824
1	Acworth, GA	34.065933	-84.676880
2	Adairsville, GA	34.368702	-84.934109
3	Adel, GA	31.137136	-83.423494
4	Adrian, GA	32.530722	-82.589299

Using folium, visualize all the towns/cities in the state of Georgia



Using FourSquare (venue explore API), all the venues of Food category in the vicinity of each of these towns/cities are obtained. *Parameters used:*

- Maximum venues per town/city = 100
- Radius from lat/long = 5kms
- Section (category of venue) = Food

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Abbeville, GA	31.992122	-83.306824	Ophelias	31.992405	-83.306903	Diner
1	Abbeville, GA	31.992122	-83.306824	Country Kitchen	31.992640	-83.307734	Food
2	Abbeville, GA	31.992122	-83.306824	Mr B-b-q	31.993763	-83.295976	Food
3	Acworth, GA	34.065933	-84.676880	Henry's Louisiana Grill	34.066011	-84.677728	Cajun / Creole Restaurant
4	Acworth, GA	34.065933	-84.676880	Fusco's via Roma	34.065781	-84.677163	Italian Restaurant
5	Acworth, GA	34.065933	-84.676880	Fish Thyme	34.050457	-84.663369	Seafood Restaurant
6	Acworth, GA	34.065933	-84.676880	Bojangles' Famous Chicken 'n Biscuits	34.074136	-84.676541	Fast Food Restaurant
7	Acworth, GA	34.065933	-84.676880	Miss L's Sandwich Shop	34.065861	-84.677276	Sandwich Place
8	Acworth, GA	34.065933	-84.676880	Downtown Acworth	34.066043	-84.677738	American Restaurant
9	Acworth, GA	34.065933	-84.676880	J.D.'s BBQ	34.062048	-84.665742	BBQ Joint
10	Acworth, GA	34.065933	-84.676880	Poblano's Mexican Grill	34.036937	-84.679617	Mexican Restaurant
11	Acworth, GA	34.065933	-84.676880	Dogwood Terrace	34.066744	-84.682232	American Restaurant
12	Acworth, GA	34.065933	-84.676880	Chick-fil-A	34.034198	-84.678752	Fast Food Restaurant
13	Acworth, GA	34.065933	-84.676880	Five Guys	34.039412	-84.690438	Burger Joint
14	Acworth, GA	34.065933	-84.676880	LongHorn Steakhouse	34.036713	-84.684210	Steakhouse
15	Acworth, GA	34.065933	-84.676880	Huey Luey's	34.035883	-84.679128	Mexican Restaurant
16	Acworth, GA	34.065933	-84.676880	Firehouse Subs	34.036029	-84.680745	Sandwich Place
17	Acworth, GA	34.065933	-84.676880	Art's Bagels and More	34.038110	-84.691055	Bagel Shop
18	Acworth, GA	34.065933	-84.676880	Center Street Tavern	34.065518	-84.677706	American Restaurant
19	Acworth, GA	34.065933	-84.676880	Capo's NY Pizza Pasta & More	34.039168	-84.690906	Pizza Place

**There is a total of 13124 venues, and the total distinct venue categories is 102**

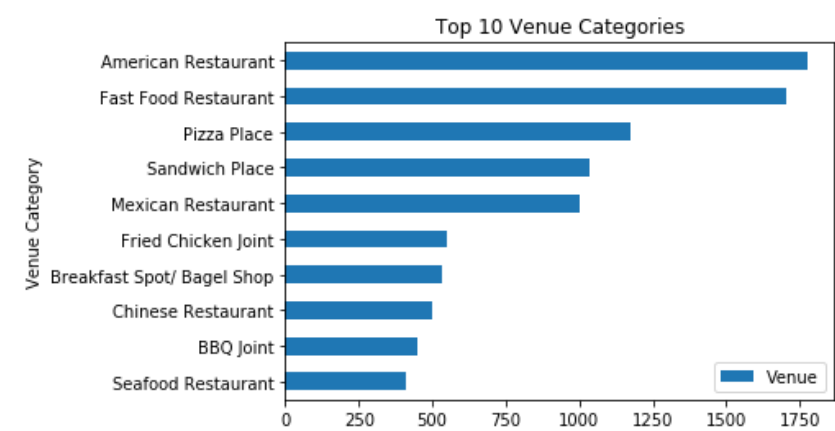
Since the FourSquare data is crowd-sourced, it is prone to have errors and misclassifications. It is important to perform data cleansing including addressing missing values, incorrect category classification, and delete incorrect entries.

A few examples include:

- Peruvian, Colombian, Argentinian, Brazilian, Latin American, and Venezuelan - need to be reclassified into South American Restaurants
- South Indian, north Indian, Chaat Place - need to be reclassified into Indian Restaurants
- Mediterranean, Greek, Turkish, and Middle Eastern - need to be classified together

After all the cleansing is applied, we have resulting distinct venue categories of 79.

Below are the top 10 venue categories



Feature set

The key to our feature set is applying one-hot encoding technique. We will use the mean of the frequency of occurrence of each category. This will help us arrive at a numerical score for each of the 79 categories, for each town/city.

Since the distribution of the venue category beyond the top 10 categories for each town/city will have very less correlation to what kind of restaurants are offered in the specific town/city, we will generate the top 10 most common venue categories and choose these 10 fields as our feature set.

	Neighborhood	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	Abbeville, GA	Diner	American Restaurant	BBQ Joint	Fish & Chips Shop	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant
1	Acworth, GA	Fast Food Restaurant	American Restaurant	Pizza Place	Sandwich Place	Mexican Restaurant	Chinese Restaurant	Seafood Restaurant	Breakfast Spot/ Bagel Shop	Italian Restaurant	BBQ Joint
2	Adairsville, GA	Fast Food Restaurant	Burger Joint	American Restaurant	Asian Restaurant	Mexican Restaurant	Fried Chicken Joint	Wings Joint	Pizza Place	Sandwich Place	Japanese Restaurant
3	Adel, GA	Fast Food Restaurant	Pizza Place	American Restaurant	Seafood Restaurant	Fried Chicken Joint	Breakfast Spot/ Bagel Shop	Steakhouse	Japanese Restaurant	Chinese Restaurant	Sandwich Place
4	Adrian, GA	Bakery	Wings Joint	Fish & Chips Shop	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
5	Alley, GA	Chinese Restaurant	American Restaurant	Sandwich Place	Wings Joint	Fish & Chips Shop	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant
6	Alamo, GA	Burger Joint	Café	Donut Shop	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant	Fish & Chips Shop
7	Alapaha, GA	American Restaurant	Wings Joint	Fish & Chips Shop	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
8	Albany, GA	Fast Food Restaurant	American Restaurant	Seafood Restaurant	Fried Chicken Joint	Sandwich Place	BBQ Joint	Wings Joint	Hot Dog Joint	Bakery	Italian Restaurant
9	Aldora, GA	Pizza Place	American Restaurant	Fast Food Restaurant	BBQ Joint	Southern / Soul Food Restaurant	Fried Chicken Joint	Mexican Restaurant	Chinese Restaurant	Sandwich Place	Café
10	Allenhurst, GA	Chinese Restaurant	Fast Food Restaurant	Sandwich Place	Pizza Place	Breakfast Spot/ Bagel Shop	Seafood Restaurant	Korean Restaurant	Steakhouse	Donut Shop	Fondue Restaurant
11	Allentown, GA	American Restaurant	Fast Food Restaurant	Wings Joint	Fish & Chips Shop	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Filipino Restaurant
12	Alma, GA	Pizza Place	Fast Food Restaurant	Wings Joint	Fried Chicken Joint	Sandwich Place	Buffet	Diner	BBQ Joint	American Restaurant	Gastropub
13	Alpharetta, GA	American Restaurant	Mexican Restaurant	Pizza Place	Fast Food Restaurant	Mediterranean/Greek/Turkish Restaurant	Italian Restaurant	Breakfast Spot/ Bagel Shop	Thai Restaurant	Café	Burger Joint
14	Alston, GA	American Restaurant	BBQ Joint	Fast Food Restaurant	Wings Joint	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Filipino Restaurant
15	Alto, GA	BBQ Joint	Spanish Restaurant	Sandwich Place	Diner	Filipino Restaurant	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant

At this time, we found an additional 71 town/cities for which Foursquare does not have any reported food venues. We remove these 71 towns/cities from our clustering model.

Methodology

The dataset for these set of problem statements do not have a predefined label or the primary categories that a given town/city belongs to. Hence, this dataset is classified as **unsupervised** data. The model we select to solve this problem is **K-means clustering for unsupervised dataset**. We use the K-means clustering algorithm and label all the towns/cities into **10** clusters.

Here are sample data from some of the clusters generated by our model:

Cluster 1

	Name	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
1	Acworth, GA	Fast Food Restaurant	American Restaurant	Pizza Place	Sandwich Place	Mexican Restaurant	Chinese Restaurant	Seafood Restaurant	Breakfast Spot/ Bagel Shop	Italian Restaurant	BBQ Joint
2	Adairsville, GA	Fast Food Restaurant	Burger Joint	American Restaurant	Asian Restaurant	Mexican Restaurant	Fried Chicken Joint	Wings Joint	Pizza Place	Sandwich Place	Japanese Restaurant
3	Adel, GA	Fast Food Restaurant	Pizza Place	American Restaurant	Seafood Restaurant	Fried Chicken Joint	Breakfast Spot/ Bagel Shop	Steakhouse	Japanese Restaurant	Chinese Restaurant	Sandwich Place
8	Albany, GA	Fast Food Restaurant	American Restaurant	Seafood Restaurant	Fried Chicken Joint	Sandwich Place	BBQ Joint	Wings Joint	Hot Dog Joint	Bakery	Italian Restaurant
9	Aldora, GA	Pizza Place	American Restaurant	Fast Food Restaurant	BBQ Joint	Southern / Soul Food Restaurant	Fried Chicken Joint	Mexican Restaurant	Chinese Restaurant	Sandwich Place	Café
10	Allenhurst, GA	Chinese Restaurant	Fast Food Restaurant	Sandwich Place	Pizza Place	Breakfast Spot/ Bagel Shop	Seafood Restaurant	Korean Restaurant	Steakhouse	Donut Shop	Fondue Restaurant
12	Alma, GA	Pizza Place	Fast Food Restaurant	Wings Joint	Fried Chicken Joint	Sandwich Place	Buffet	Diner	BBQ Joint	American Restaurant	Gastropub
17	Americus, GA	Fast Food Restaurant	American Restaurant	Pizza Place	Mexican Restaurant	Fried Chicken Joint	Sandwich Place	Southern / Soul Food Restaurant	Seafood Restaurant	Japanese Restaurant	Cafeteria/ Food Court

Cluster 2

	Name	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
11	Allentown, GA	American Restaurant	Fast Food Restaurant	Wings Joint	Fish & Chips Shop	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Filipino Restaurant
14	Alston, GA	American Restaurant	BBQ Joint	Fast Food Restaurant	Wings Joint	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Filipino Restaurant
18	Andersonville, GA	Burger Joint	American Restaurant	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant	Fish & Chips Shop
35	Baconton, GA	American Restaurant	Breakfast Spot/ Bagel Shop	Wings Joint	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
47	Between, GA	American Restaurant	Diner	Japanese Restaurant	Fast Food Restaurant	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Filipino Restaurant
88	Carnesville, GA	American Restaurant	Donut Shop	Sandwich Place	Mexican Restaurant	Fast Food Restaurant	Filipino Restaurant	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant
91	Cave Spring, GA	American Restaurant	Mexican Restaurant	Steakhouse	Diner	Wings Joint	Filipino Restaurant	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant
111	Cohutta, GA	American Restaurant	Food Truck/ Food Stand	BBQ Joint	Southern / Soul Food Restaurant	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant
129	Cusseta, GA	American Restaurant	Southern / Soul Food Restaurant	BBQ Joint	Sandwich Place	Fish & Chips Shop	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant
152	Doerun, GA	American Restaurant	Chinese Restaurant	Wings Joint	Fish & Chips Shop	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
194	Franklin, GA	American Restaurant	Donut Shop	Sandwich Place	Mexican Restaurant	Fast Food Restaurant	Filipino Restaurant	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant
235	Higgston, GA	American Restaurant	Southern / Soul Food Restaurant	Wings Joint	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
239	Hoboken, GA	American Restaurant	Bakery	Pizza Place	Wings Joint	Fish & Chips Shop	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant

Cluster 5

	Name	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
21	Arcade, GA	Seafood Restaurant	Spanish Restaurant	Filipino Restaurant	Donut Shop	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant
169	Edge Hill, GA	Seafood Restaurant	Wings Joint	Diner	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
316	Midville, GA	Seafood Restaurant	BBQ Joint	Wings Joint	Fish & Chips Shop	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant
381	Pitts, GA	Diner	Seafood Restaurant	Wings Joint	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
484	Toombsboro, GA	Seafood Restaurant	Wings Joint	Diner	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant



## Cluster 9

	Name	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	Abbeville, GA	Diner	American Restaurant	BBQ Joint	Fish & Chips Shop	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant
15	Alto, GA	BBQ Joint	Spanish Restaurant	Sandwich Place	Diner	Filipino Restaurant	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant
46	Bethlehem, GA	Food Truck/ Food Stand	BBQ Joint	Breakfast Spot/ Bagel Shop	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
48	Bishop, GA	Vegetarian / Vegan Restaurant	American Restaurant	BBQ Joint	Wings Joint	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant
60	Bowersville, GA	American Restaurant	BBQ Joint	Wings Joint	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
74	Buena Vista, GA	BBQ Joint	Pizza Place	American Restaurant	Sandwich Place	Mexican Restaurant	Filipino Restaurant	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant
112	Colbert, GA	Hot Dog Joint	BBQ Joint	Bakery	Seafood Restaurant	Wings Joint	Fish & Chips Shop	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant
114	Collins, GA	American Restaurant	BBQ Joint	Steakhouse	Wings Joint	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant
144	Dearing, GA	American Restaurant	BBQ Joint	Wings Joint	Fondue Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant

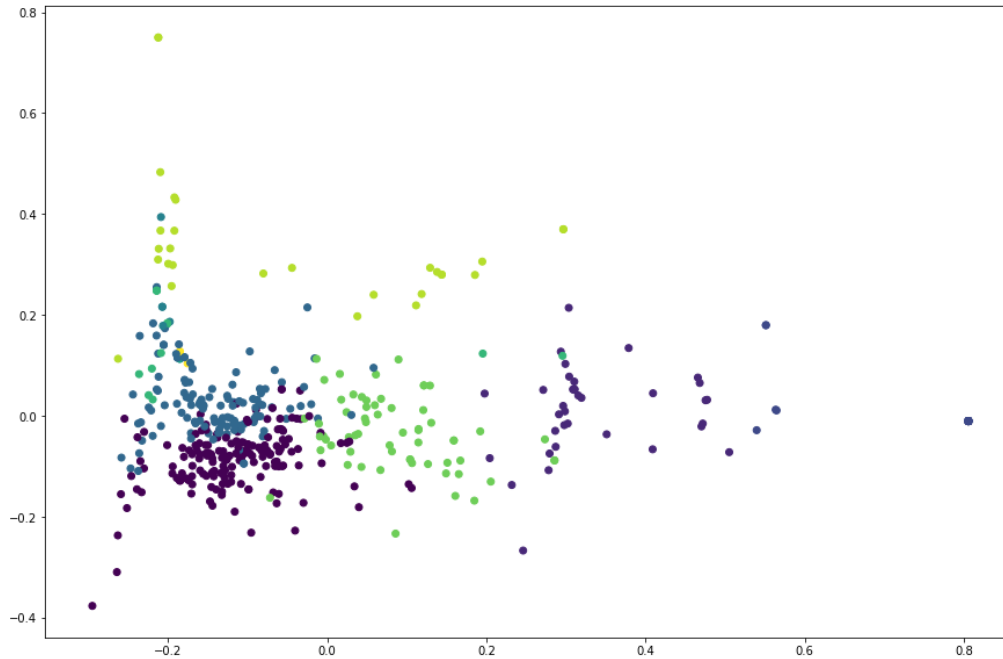
## Cluster 10

	Name	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
205	Girard, GA	Southern / Soul Food Restaurant	Wings Joint	Diner	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
259	Jersey, GA	Southern / Soul Food Restaurant	Malay Restaurant	Wings Joint	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant
385	Portal, GA	Southern / Soul Food Restaurant	Wings Joint	Diner	Dumpling Restaurant	Eastern European Restaurant	Empanada Restaurant	English Restaurant	Ethiopian Restaurant	Fast Food Restaurant	Filipino Restaurant

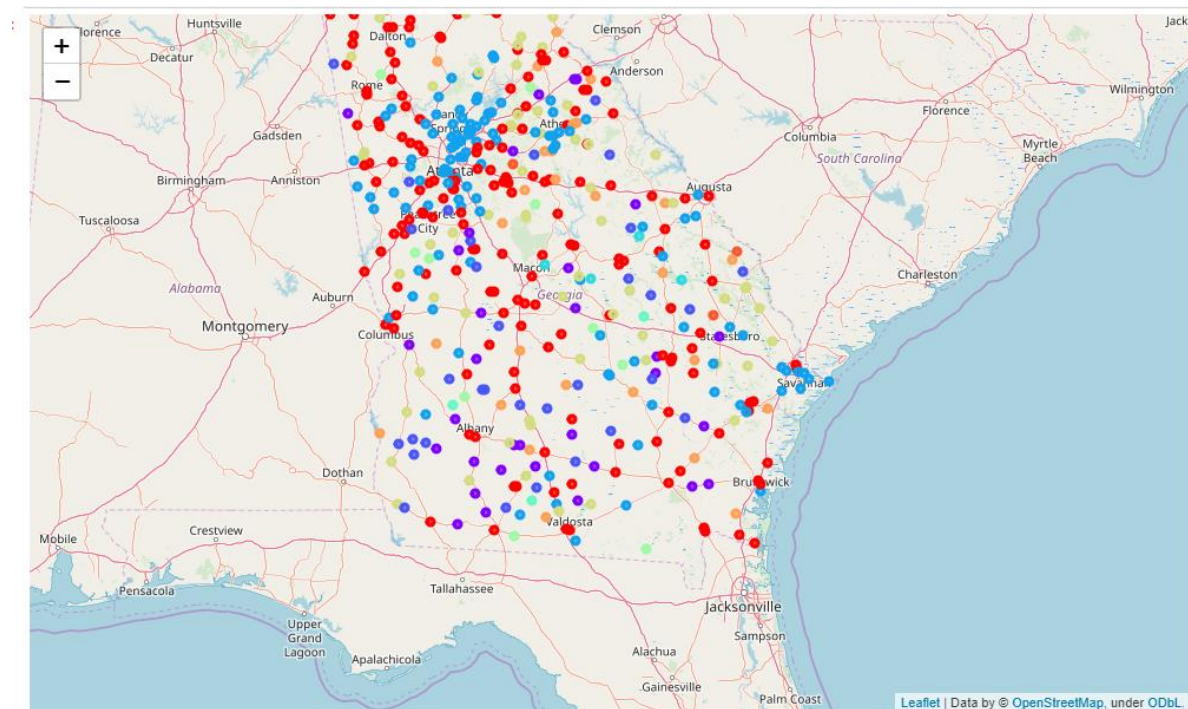
## Results

Once we build the clusters, we visualize the clusters through

### 1) A scatter plot by converting all features and target into 2-dimensional form



### 2) Folium to visualize the clusters and its distribution on the map



## Discussion and Conclusion

This section elaborates the answers and findings for all the problem statements defined earlier.

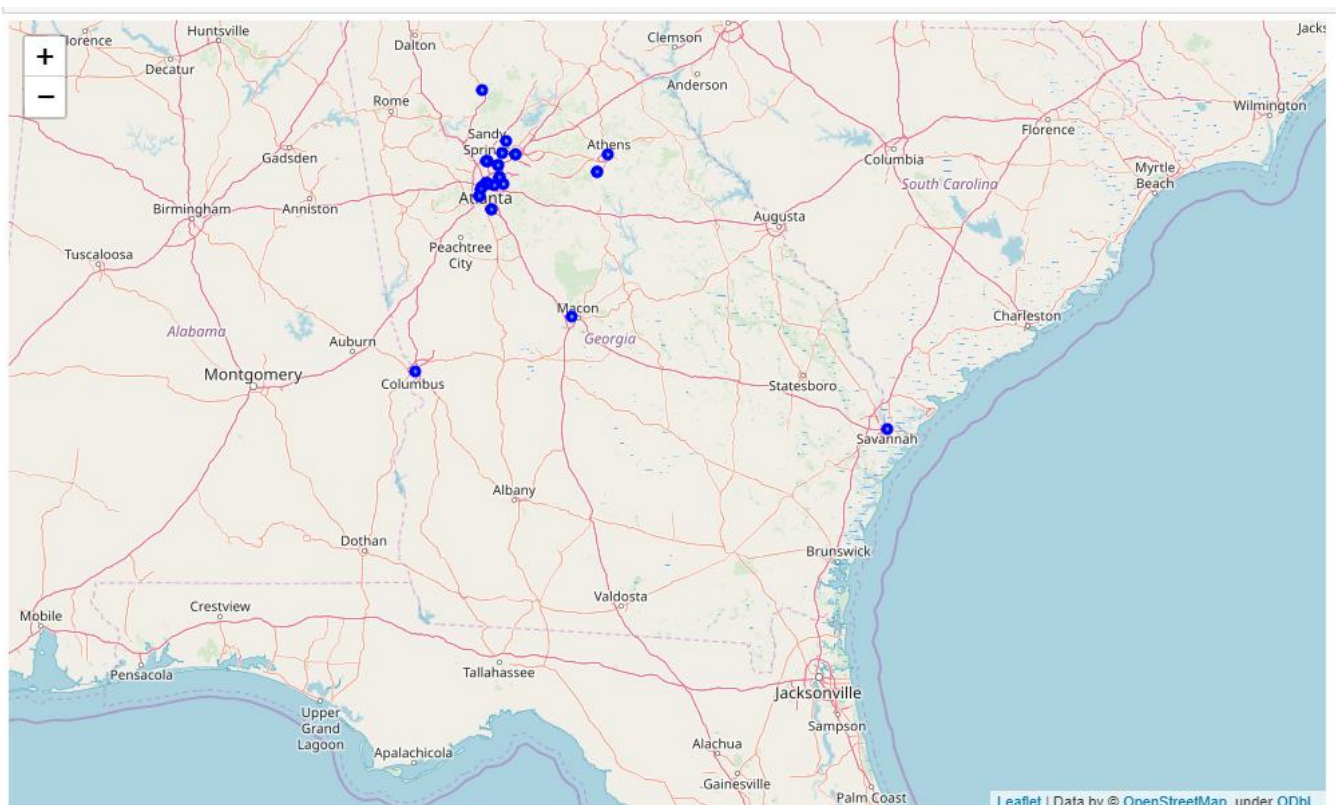
### What categories of restaurants are popular in different parts of the state?

In the 10 clusters we generated, we were able to find unique restaurant categories. The most popular restaurant categories include American, fast food and Pizza place. They are distributed in clusters 1,2,3, and 9. Below table summarizes the different restaurant categories that are popular in different parts of the state.

Cluster 1	American, Fast Food, Pizza Place, Chinese restaurant
Cluster 2	American, Burger Joint,
Cluster 3	American
Cluster 4	American, Mexican, Pizza Place, Donut, Café, Burger Joint, Sandwich place
Cluster 5	Seafood, Diner
Cluster 6	Bakery
Cluster 7	Burger Joint, Pizza, Café, Sandwich, American, Fried Chicken
Cluster 8	Chinese, Diner, American, Pizza, Southern/Soul Food, Wings, Cafeteria
Cluster 9	BBQ, Diner, Hotdog Joint, American, Vegetarian, Pizza,
Cluster 10	Southern/Soul Food

### Are vegan/vegetarian options available in the state? Where are they located?

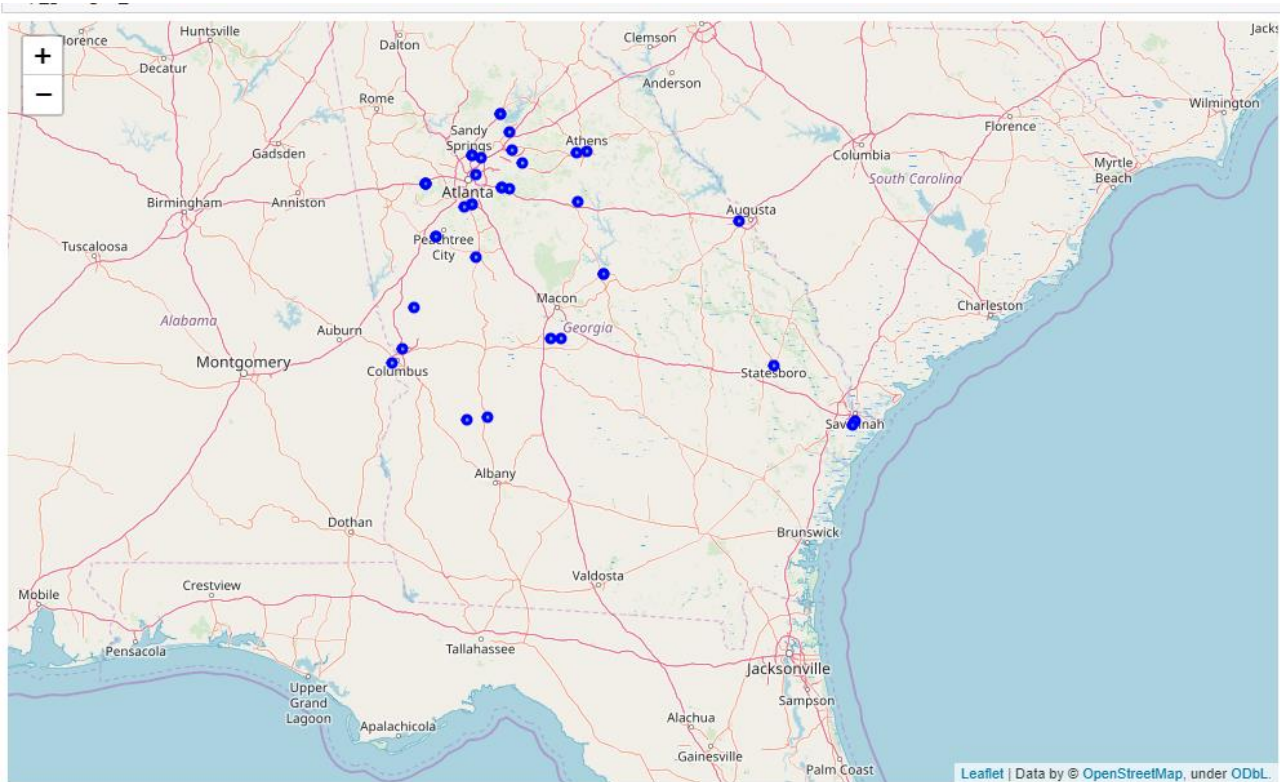
There is a total of only 34 Vegetarian/Vegan restaurants checked in by FourSquare users in the entire state of Georgia, out of 12,840 venues. This shows that Georgia is not a Vegetarian/Vegan friendly state. Moreover, the few options are centred around a few Cities. Some these cities include Atlanta, Macon, Athens, Savannah and Columbus.





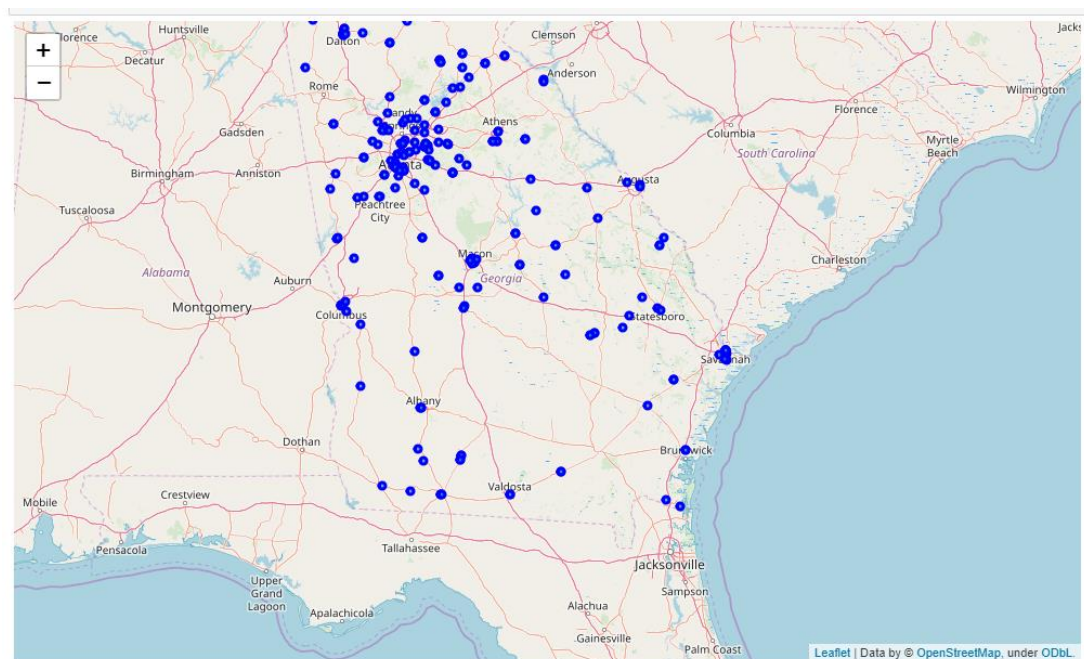
## Where can one find a cafe or quick bite?

Cafe and Sandwich/Quick bite belongs to cluster 7 and are distributed thinly around the entire state



## Are there specialty southern restaurants in the state? Where are they located?

There are 231 restaurants classified as Southern. From the result and distribution, it is evident that Georgia is a typical southern state with many American and southern restaurants well distributed across the entire state.



## Which towns do not have dine-in restaurants, potentially not traveller friendly to stop for dine-ins?

There are 71 towns/cities from where FourSquare users not checked in and reported any restaurants. Perhaps, these are cities to avoid dine-in plans.

