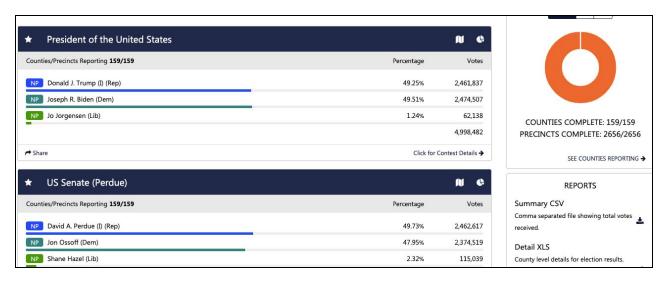# Data:Georgia Counties and Political Implications of Venue Preference

The project uses voting tallies from Georgia government archives[7] and highly accurate lat/long coordinates per county[8]. These two datasets will be cross referenced and merged with Foursquare Data to form a comprehensive picture of venue preference clusters and political preferences.

In comparing the above datasets to venue clustering, this project uses the unsupervised learning algorithm **k-means clustering** to examine top venues across the **159 counties** in Georgia. The top 100 venues for each county are examined and clustered using Foursquare. Foursquare API calls are made for these 159 counties,looking for the top 100 venues within 5000 meters(~3 miles) and 500 meters per county. The radius of 5000 was picked due to extrapolation: Manhattan and New York on average can use a radius of 500 meters for adequate check in data, but New York has 419 people per square mile on average compared to Georgia's 176[9], and a bigger radius may need to be examined in addition to 500m.Some rural counties in Georgia may or may not have check-ins at all. 10 of 159 counties have voting populations under 2000 and their venue check-ins may be further away than 0.3 miles. For these reasons, we have picked two radii to examine.
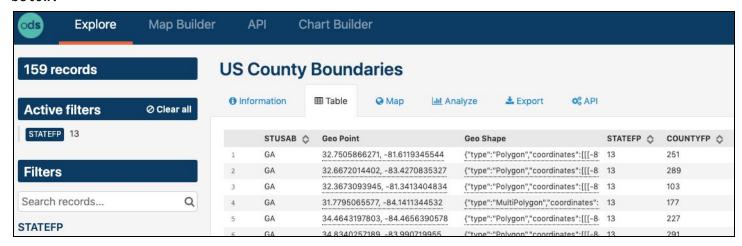
Acquisition

1)Georgia Counties and their votes were extracted from the Georgia Secretary of State tallies, which are kept accurate to the day and are downloadable in csv format.[7] A sample is below:
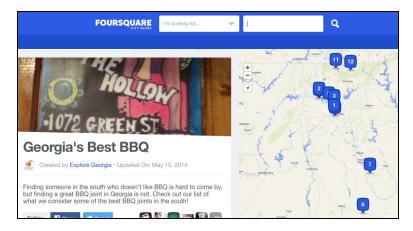

	Donald J. Trump (I) (Rep)					Joseph R. Biden (Dem)					Jo Jorgensen (Lib)					
County	Election Day	Absentee by	Advanced Vo	Provisional V	Total Votes	Election Day	Absentee by	Advanced Vo	Provisional V	Total Votes	Election Day	Absentee by	Advanced Vo	Provisional V	Total Votes	Total
Appling	1753	890	3874	9	6526	334	587	855	3	1779	5	5	26	0	36	8341
Atkinson	716	164	1419	1	2300	250	130	445	0	825	14	3	13	0	30	3155
Bacon	431	487	3099	1	4018	140	196	288	1	625	8	4	13	0	25	4668
Baker	291	138	466	2	897	149	234	269	0	652	2	2	2	0	6	1555
Baldwin	1873	1290	5736	4	8903	1527	3000	4612	1	9140	63	38	107	0	208	18251
Banks	1644	1025	5116	10	7795	150	344	435	3	932	20	9	45	0	74	8801
Barrow	5885	4134	16782	3	26804	1717	3583	5150	3	10453	226	131	307	0	664	37921
Bartow	10179	5976	21499	20	37674	2175	4486	5423	8	12092	276	148	275	2	701	50467
Ben Hill	441	528	3140	1	4110	336	714	1342	0	2392	18	8	32	0	58	6560

2)Accurate lat/long data proved to be a challenge since Python Geocoder must be called multiple times to arrive at accurate coordinates and Google now charges for their API. An open source API (OpenCage)did not perform any better. Finally, I located GEOJSON files on a public dataset project[8]. These are particularly useful in their accuracy at county edges.Latitude and Longitude coordinates per county were sourced from GEOJSON files via an open shapefile project [8], and just the Lat, Long, and County were extracted. A sample is below:

3)Finally, Foursquare[10] API calls retrieved up to 100 venues for each of Georgia's 159 counties. 5000 meter (3 miles) and 500 meter(0.3 miles) radii were compared. A sample below shows an average users's search for barbeque places in Georgia (of course, my data acquisition will use the developers portal, but a sampling of available venues is shown below).

Sources to date:

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4.https://www.timesfreepress.com/news/local/story/2020/nov/14/how-georgia-blue/536081/

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9.https://state.1keydata.com/state-population-density.php

10.https://foursquare.com/p/explore-georgia/40090318/list/georgias-best-bbq