

3/7/2020



Coursera IBM Capstone Project

Top Scottsdale Venue Category to Invest In



S. Zeraouli

Coursera IBM Capstone Project

Top Scottsdale Venue Category to Invest In

1 - Introduction

Scottsdale is a city in the eastern part of Maricopa County, Arizona, United States, part of the Greater Phoenix Area. Named Scottsdale in 1894 after its founder Winfield Scott, a retired U.S. Army chaplain, the city was incorporated in 1951 with a population of 2,000. The 2018 population of the city was estimated to be 255,310 according to the U.S. Census Bureau. The New York Times described downtown Scottsdale as "a desert version of Miami's South Beach" and as having "plenty of late night partying and a buzzing hotel scene." [5] Its slogan is "The West's Most Western Town."

Scottsdale, 31 miles long and 11.4 miles wide at its widest point, shares boundaries with many other municipalities and entities. On the west, Scottsdale is bordered by Phoenix, Paradise Valley and unincorporated Maricopa County land. Carefree is located along the western boundary, as well as sharing Scottsdale's northern boundary with the Tonto National Forest. To the south Scottsdale is bordered by Tempe. The southern boundary is also occupied by the Salt River Pima-Maricopa Indian Community, which extends along the eastern boundary, which also borders Fountain Hills, the McDowell Mountain Regional Park and more unincorporated Maricopa County land.

A group of investors want to invest in a business (or acquire those businesses) with the most venues in one of the neighborhoods in Scottsdale. They must choose North Scottsdale, Downtown Scottsdale, or Paradise Valley in order to make their decision. They also want to see how these venues are located with other venue categories in the neighborhood.

The objective is to display the 10 top Venue Categories in each neighborhood and map the top venue category.

2 - Data

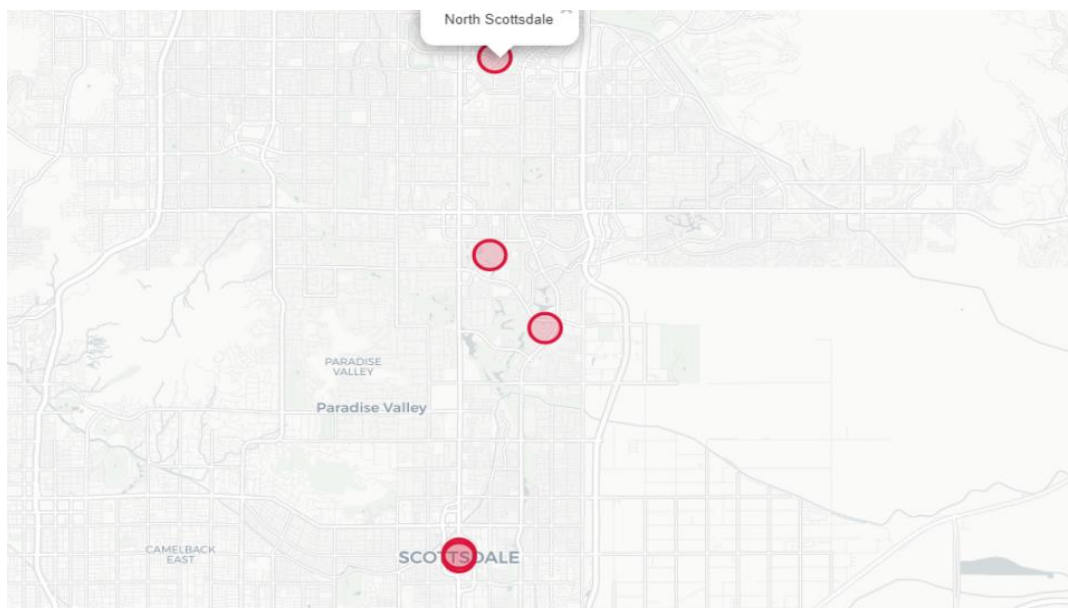
1 - Select 3 Scottsdale neighborhoods from <https://download.geonames.org/export/dump/US.zip> and retrieve their neighborhood addresses.

	Neighborhood	Name	Type	County	State	Country	Population	Area_sq_mi	Area_sq_km	Population_density_sq_mi	Population_density_sq_km
0	North Scottsdale	Scottsdale	City	Maricopa	AZ	USA	217385	184.4	477.6	1182.0	456.4
1	Downtown Scottsdale	Scottsdale	City	Maricopa	AZ	USA	217385	184.4	477.6	1182.0	456.4
2	Gainey Ranch	Scottsdale	City	Maricopa	AZ	USA	217385	184.4	477.6	1182.0	456.4
3	Paradise Valley	Scottsdale	City	Maricopa	AZ	USA	217385	184.4	477.6	1182.0	456.4
4	McCormick Ranch	Scottsdale	City	Maricopa	AZ	USA	217385	184.4	477.6	1182.0	456.4

2 - Use **geopy.geocoders** to find the latitude and longitude of the 3 neighborhoods, North Scottsdale, Downtown Scottsdale, and Paradise Valley

	Neighborhood	Name	Type	County	State	Country	Population	Area_sq_mi	Population_density_sq_mi	latitude	longitude
0	North Scottsdale	Scottsdale	City	Maricopa	AZ	USA	217385	184.4	1182.0	33.621418	-111.916064
1	Downtown Scottsdale	Scottsdale	City	Maricopa	AZ	USA	217385	184.4	1182.0	33.495004	-111.926113
2	Gainey Ranch	Scottsdale	City	Maricopa	AZ	USA	217385	184.4	1182.0	33.571154	-111.917367
3	Paradise Valley	Scottsdale	City	Maricopa	AZ	USA	217385	184.4	1182.0	33.494219	-111.926018
4	McCormick Ranch	Scottsdale	City	Maricopa	AZ	USA	217385	184.4	1182.0	33.552543	-111.902089

Location of the Neighborhoods in Scottsdale:



3 – Use Foursquare API to collect information on venues and venue categories in the neighborhoods

3 - Approach

Select 3 Scottsdale Neighborhoods from
<https://download.geonames.org/export/dump/US.zip>

Using FourSquare API, find nearby venues for each neighborhood.

Create reusable python functions to draw maps, pull neighborhood venue from Foursquare, and draw bar charts.

Find the top 10 venue categories and graph them into a bar chart.

Display map for the top venue category for each neighborhood.

Recommend to the investors which business and neighborhood is best to invest in or acquire.

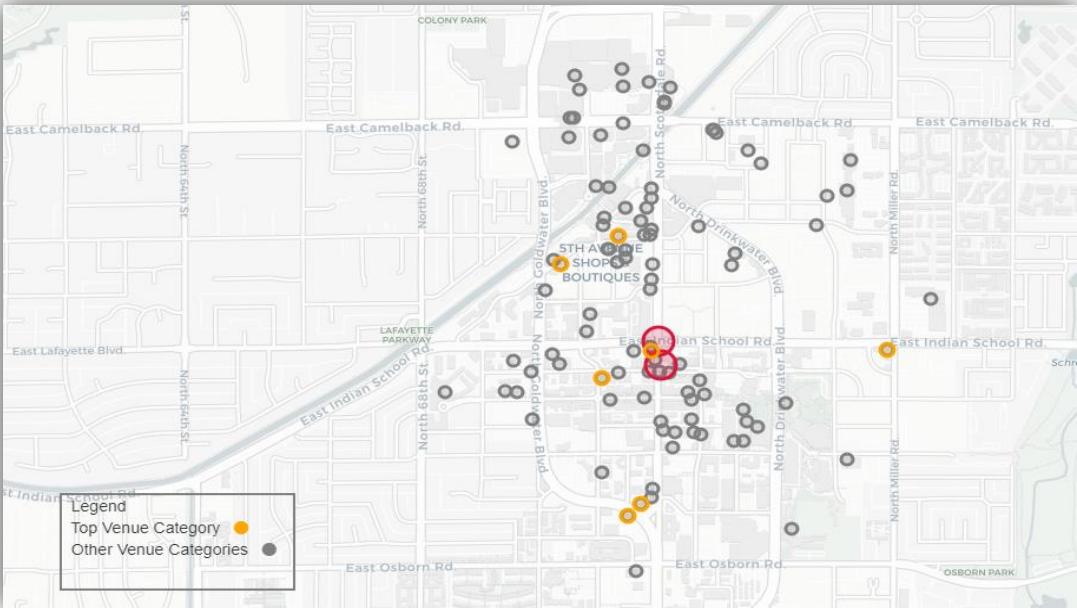
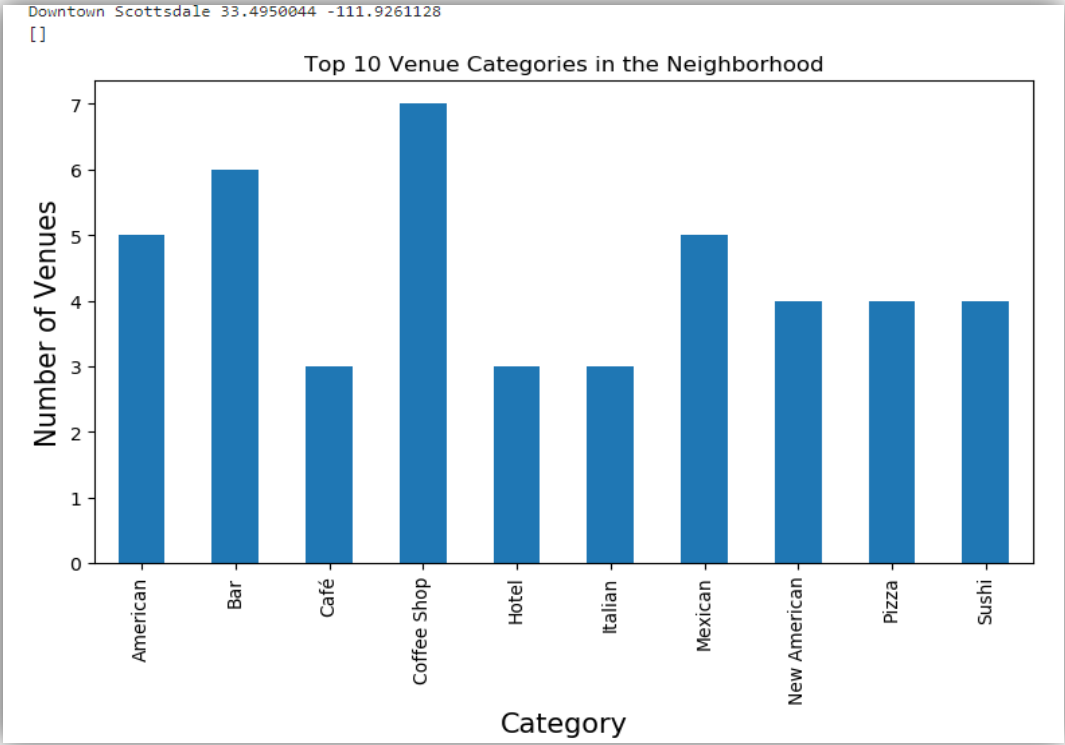
4 - Results

The result is the identification of the top venue category by number of venues in each of the 3 neighborhoods in Scottsdale.

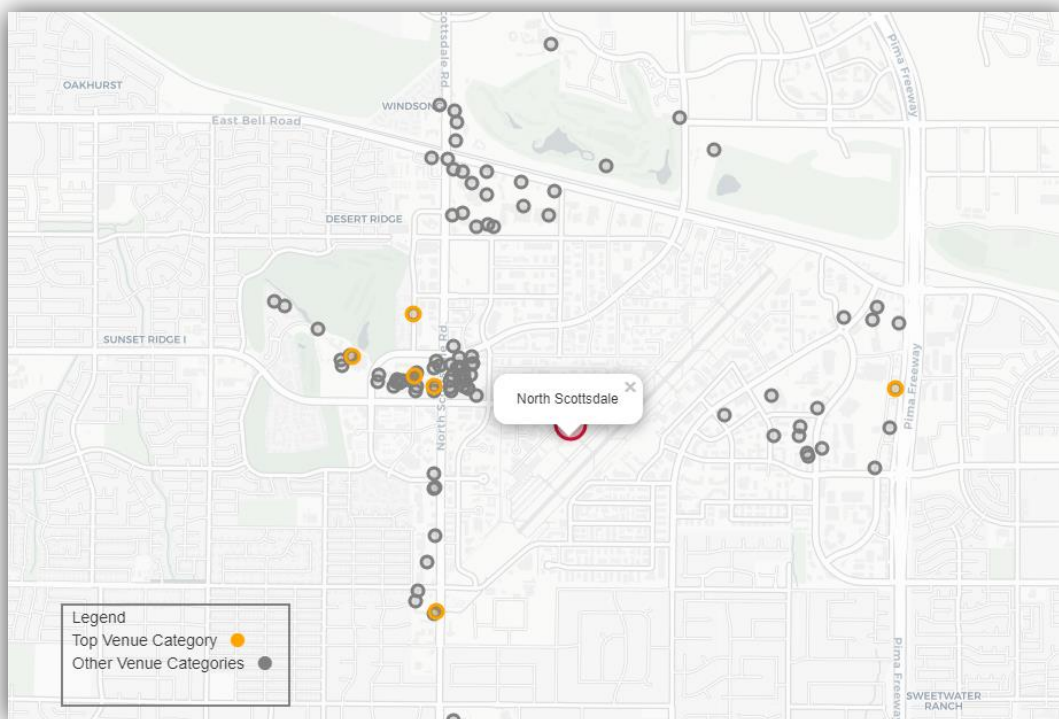
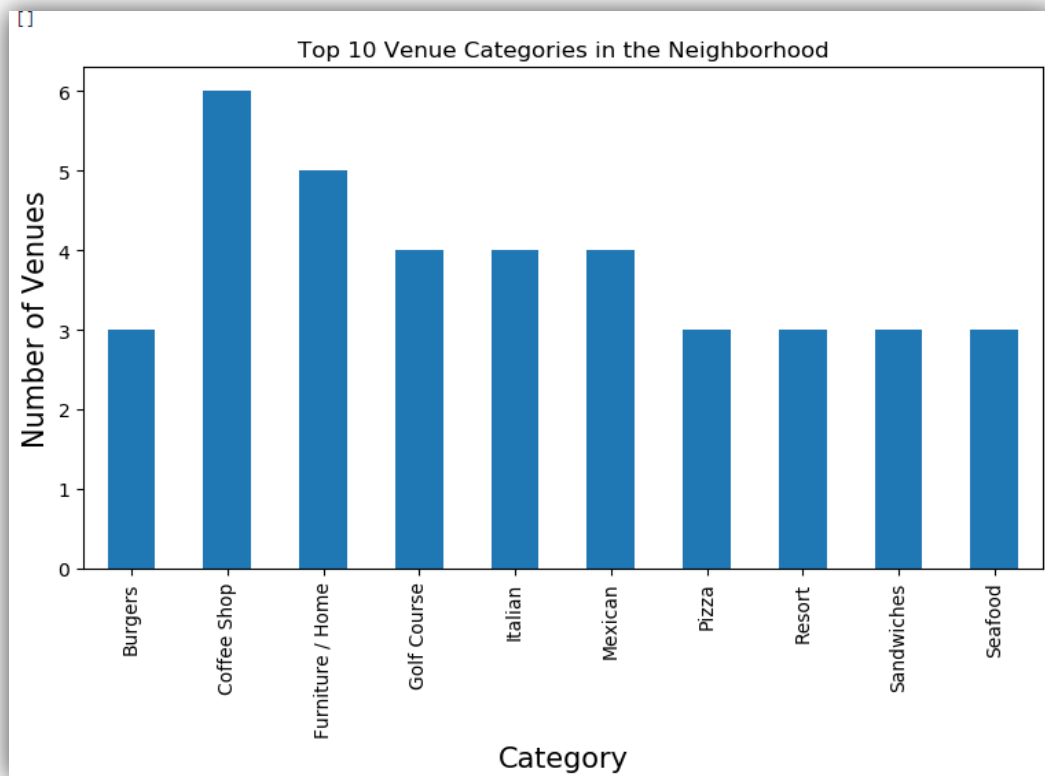
Bar charts per neighborhood will show the top Venue Category and how it is ranked among other categories or businesses.

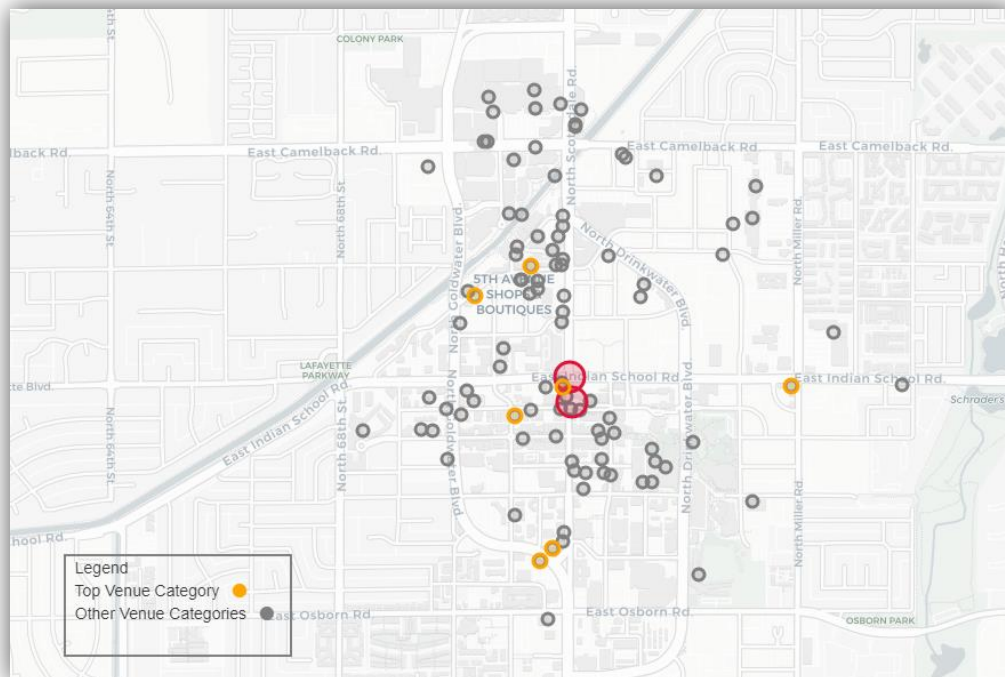
Then the top Venue Category is mapped using folium map rendering library to reflect where the venues are located with respect to the center of the neighborhood and with respect to other venue categories. Please see report for graphs and analysis.

DOWNTOWN SCOTTSDALE ANALYSIS



NORTH SCOTTSDALE ANALYSIS:





5 – Discussion

Since the Coffee Shop Venue category is the top category in all 3 neighborhoods, would the investors be interested in investing or acquiring the second most popular venue category?

The 'Bar' category is most popular in both Downtown Scottsdale and Paradise Valley, would the investors consider in investing in both bar and coffee shop categories in the same time?

Which has a better return on investment? Bars or coffee shops?

Does the proximity to the center of the neighborhood affect the investors' decision? Definitely for Downtown Scottsdale, the coffee shops are closer to the center of the neighborhood than the other neighborhoods.

6 – Conclusion

Both Downtown Scottsdale and Paradise Valley have 7 coffee shop venues each. However, Coffee shops in Downtown Scottsdale are closer to the center of the neighborhood. This might mean more traffic and more revenues. More financial analysis is needed to determine the capital required to acquire or invest in these businesses, as well as further ROI calculation required to make the final decision.

Limitations

The accuracy of data depends purely depends on the data provided by FourSquare

More financial analysis needed on the capital required and on the return on investment, in order to make a sound decision