IBM APPLIED DATA SCIENCE: COURSERA CAPSTONE FINAL PROJECT

Pizza Restaurants in Salt Lake City,UT

Matt McDermott

June 2020

Introduction

Pizza. Undeniably one of the world's most popular dishes. It's versatility with the different pizza toppings to choose from, different methods of cooking it and different quality whether you order pizza at a high end Italian restaurant or have it delivered by your local pizzeria, one thing for certain is almost everyone loves pizza. In the United States, pizza was ranked first in favorite comfort food according to a recent survey conducted by The Harris Poll. In the same survey, 21% of people said if they had to eat one food for the rest of their lives, pizza would be that dish. Second place was chicken with 16% of the votes. It's clear that pizza is a favorite for many people, especially in the United States, but are there enough pizzerias? Salt Lake City for example is well below the average pizzeria per capita. Should there be more pizzerias in Salt Lake City, Utah?

Business Problem

The objective of this capstone project is to analyze where the best location in Salt Lake City, Utah would be if you wanted to open a new pizzeria. I will be using data science methodology and machine learning in order to find the best location for a new pizzeria.

Target Audience

This project will be useful for potential restaurant owners or investors in Salt Lake City. As mentioned before, Salt Lake City is below the national average for pizzerias per capita and since pizza is the nation's most popular food, it would be ideal to open more pizzerias in Salt Lake City.

About Salt Lake City…

Salt Lake City (SLC) is a city in the United States and capital of the state Utah. SLC was given its name due to its proximity to the Great Salt Lake. The city is known for being the world headquarters of The Church of Jesus Christ of Latter-day Saints and has a strong outdoor recreation tourist industry based

primarily on skiing and outdoor recreation such as climbing and hiking. The population of Salt Lake City metro area is 1,222,540. Salt Lake City has an area of 110.4 square miles (286 km2) and an average elevation of 4,327 feet (1,319 m) above sea level.

Data

To solve the problem, I will use the following data:

- List of neighborhoods in Salt Lake City.
- Latitude and longitude coordinates of those neighborhoods in order to plot a map and also to get venue data.
- Venue data of other pizza restaurants in SLC.

Data Source

This wiki page (https://en.wikipedia.org/wiki/List_of_Salt_Lake_City_neighborhoods) has the list of neighborhoods in SLC that I will extract using Python requests. Once extracted, I will use the geographical coordinates of the neighborhoods using Python

Geocoder which will provide the latitude and longitude coordinates for the neighborhoods.

I will also use Foursquare API to get the venue data. With Foursquare's large database of 105+ million places and 125,00+ developers it will provide valuable venue data, especially for pizza restaurants which will help with our business problem stated above.

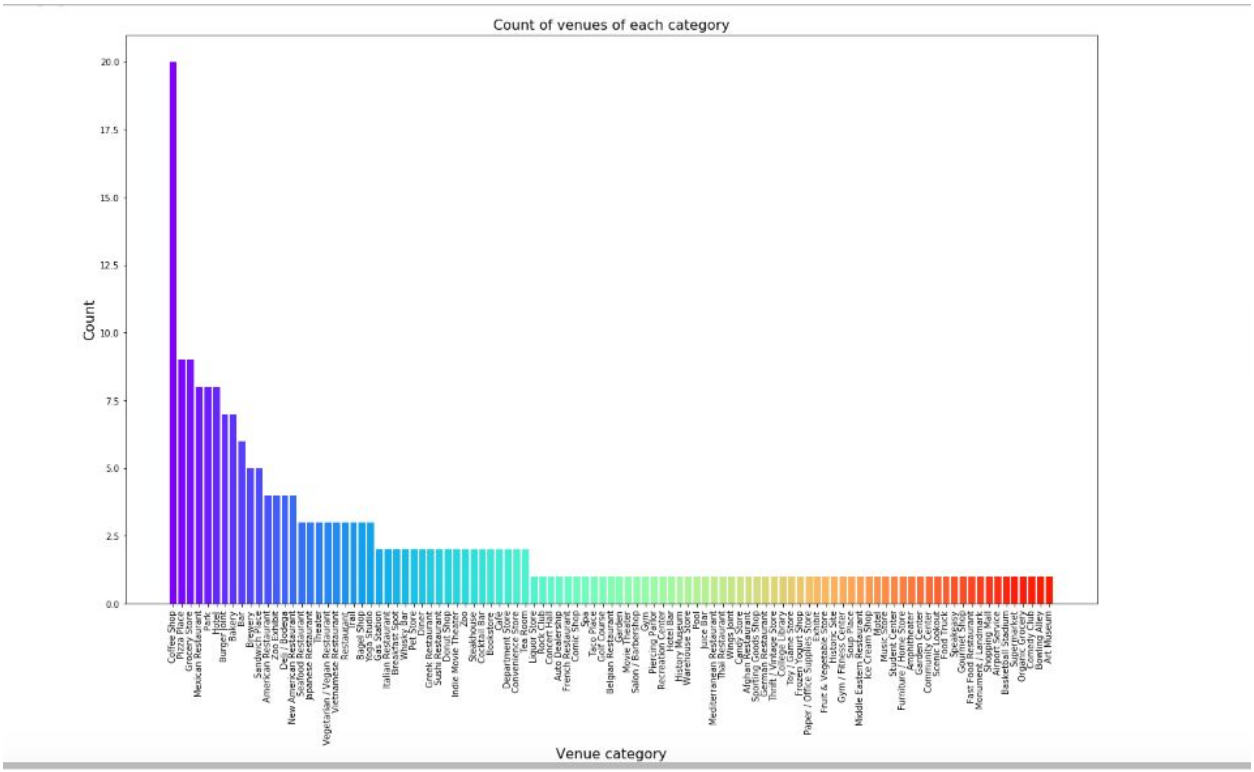
[7]:

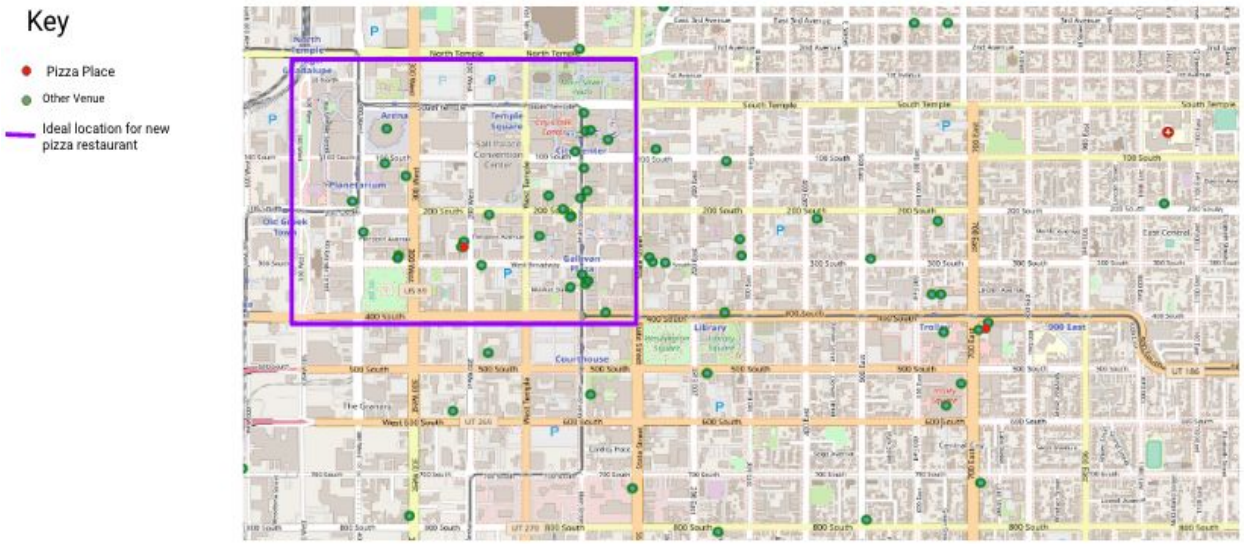
	name	categories	lat	lng
0	The Robins Nest	Sandwich Place	40.762339	-111.891090
1	White Horse Spirits & Kitchen	Whisky Bar	40.762074	-111.890802
2	The Grand America Hotel	Hotel	40.757413	-111.890664
3	Takashi	Japanese Restaurant	40.761824	-111.891663
4	The Rest	Speakeasy	40.761948	-111.890909
5	The Copper Onion	New American Restaurant	40.762857	-111.887471
6	Valter's	Italian Restaurant	40.762722	-111.896216

Methodology

Firstly, I created a Foursquare Developer account in order to obtain the Foursquare Client ID and Foursquare Secret Key which I used to retrieve the venues in Salt Lake City by using Foursquare API. I extracted the location data from Foursquare API for all venues within 8 kilometers of the center of SLC. After extracting the data from Foursquare API, I was able to see the name, latitude, longitude and category of 234 venues within the radius specified above and created a dataframe with this information. The venues consisted of all different type of categories such as yoga studios, parks, hotels and so on, therefore, I created another data frame and filtered the data to only show venues under the category Pizza Place. Once I had two data frames created, I began to explore the venues on a map. Visualizing each of the venues on a map gave a better understanding of where most of the venues were and which neighborhoods were lacking not only pizza places but other restaurants in general. I also created a graph to illustrate the different types of venues in SLC and how many venues there were in each category.

Results


Count of venues of each category
Count
Venue category


Key
Pizza Place
Other Venue
Ideal location for new pizza restaurant

Once I collected all the data from Foursquare of the venues in SLC and mapped each venue, we could see that the majority of the venues in SLC are coffee shops. Most of the pizza places are located towards the east side of the city and there's only one pizza place in the section highlighted in purple in the map above.

Conclusion

In conclusion, the objective of this project was to explore which location in Salt Lake City would be ideal for opening a pizza restaurant. All the venues in SLC were identified using Foursquare API and plotted on a map. The map revealed that there is a certain section of SLC where there are not only any pizza restaurants but not many restaurants in general even though this section of SLC has many attractions such at Vivent Smart Home Arena, the Gateway Mall, City Creek Mall, bars and the LDS Temple. Due to this area not having any pizza places and the lack of other restaurants makes it a prime location for a new pizza restaurant.