Finding a Unique Place to Eat in Burbank

1. Introduction

1a. A bit of Background

People get hungry, even in Burbank. Living in the greater Los Angeles area has its advantages -- large population, diverse ethnic groups, and a good -- if busy -- transportation network. There are a lot of venues for someone to get food.

This is a problem that faces several types of people. As well as someone who hasn't eaten in several hours, there is the person with a bored or curious palate. There are many parents whose children want "something I haven't had before."

I am a resident of Burbank, and will admit to getting hungry sometimes. Also, to wanting "something different." And, to being one of those parents.

Finding a novel place to eat doesn't have to be a chore. Using Data Science to solve the problem could be fun. Shall we begin our search?

1b. The Problem

The first step is to define our problem. A *hungry person* in Burbank (California) wants to get food. However, they've been to many places, and don't want "the same old thing." The question becomes: Where to go?

Without a profile of venues a person has visited, how likely are they to find a unique place to eat in Burbank? Would they do better in neighboring Glendale? Or nearby Los Angeles? (There are 272 neighborhoods in L.A.[1], so I'm limiting the scope of our inquiry to these three.)

Technically and practically, the problem of finding a unique place to eat needs to be clarified. The problem has two parts:

1. **Rate of Opportunity:** How many different choices are available? (And how close?)
2. **Suggestions:** Make a list of unique venues.

1c. Data Sources

My primary source of data was Foursquare[2]. I used their API to request food venues and associated categories. This data was used in different ways to answer both parts of the problem.

I also located information on the population[3] and size[4] of each city.

Because Foursquare searches are performed in a radius around a given location, I sourced zip codes[5] for each city. Then, I used Geopy[6] determined geographic coordinates (latitude, longitude) of each zip code.

2. Methodology

2a. A Quick Overview

Using Foursquare, I made a list of food venues for each city. I refined each list so that it included only venues within the respective city, and each venue was represented only once.

Then I calculated the Rate of Opportunity for the size and population of each city.

After that, I made venue Suggestions by cross-referencing the city lists and eliminating common categories.

2b. Making a Clean List of Food Venues

Searching in Foursquare is location-based, along the lines of "What's near me?" Results are a list of venues within a certain distance of a given point. Within that list, a lot of information is given about each venue. Unfortunately, certain information -- like the specific menu, and hours of operation -- is only available for a price. Since I'm looking to spend my money on food, not the quest for it, I'll be using the free information only.

Since I'll be comparing Burbank with Glendale and Los Angeles, I'll be performing the following operations for each city:

i. Before I request information from Foursquare, I need to know the location I am inquiring about. For that, I built a list of zip codes per city.
ii. The list included a lot of unhelpful zip codes (for example, P.O. boxes), so I eliminated all except the "street address" type zip codes.
iii. For each zip code in a given city, I acquired the latitude and longitude. This gave me a location to query Foursquare about.
iv. To determine the distance to search around that location, I experimented a bit. Too small a distance, and I would miss some necessary venues. Too great a distance, and I would get a lot of unnecessary ones. Zip codes don't describe a circular area, so I attempted to get all necessary venues. (Eliminating the others came later.) I ultimately used a distance of about 1.5 miles for Burbank and Glendale, and 2.25 miles for Los Angles.
v. Even so, I ended up with a long list. My next step was to eliminate all duplicate venues, keeping only a single venue per name. This reduced (restaurant, store) chains to a single representative venue. Remember: we are trying to find a unique food venue.
vi. I then eliminated all "outside" venues whose zip code was not in the list for a given city. I now had a clean list of food venues for that city. Each venue was represented only once.

2c. Gather City Statistics

In order to determine the Rate of Opportunity for each city, I calculated the number of venues per square mile (opportunity by proximity), and the number of venues per person (opportunity per population.)

To visualize the results, I used Folium[7] to plot the venues on a map. In comparing the three cities, I graphed the results using Matplotlib[8].

2d. Make a List of Suggestions

The process of determining venue suggestions for each city was a two-fold process:

i. Eliminate categories containing more than one venue.
ii. Eliminate venues (for a given city) that had a category in common with either of the other two cities.

3. Discussion & Results

3a. Lists of Venues

The initial search on Foursquare generated the following:

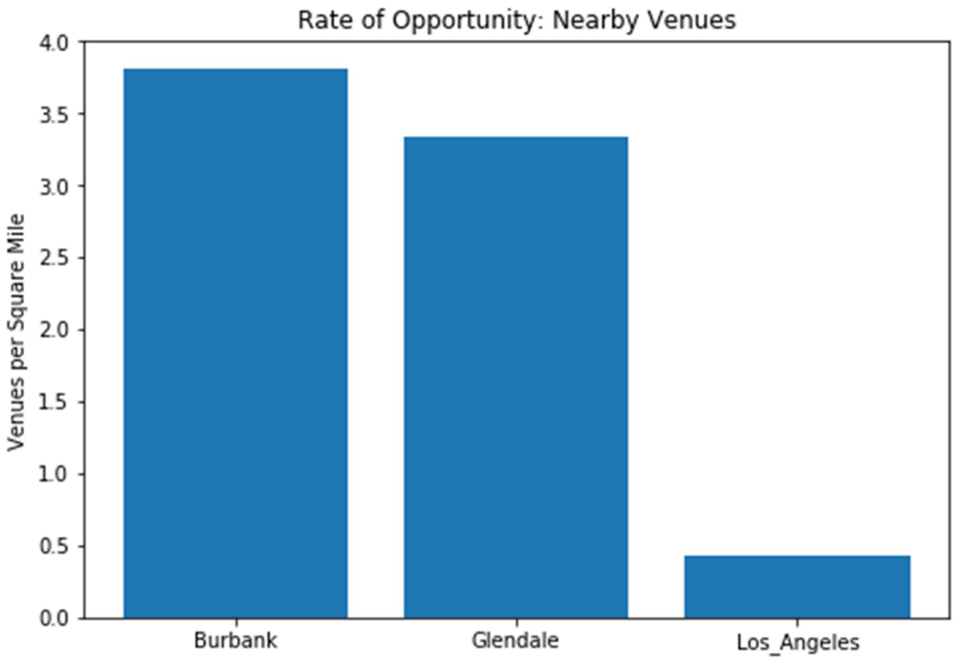
- Burbank
  - 250 venues WITH duplicates
  - 77 unique venues
  - 66 unique venues within Burbank zip codes
- Glendale
  - 492 venues WITH duplicates
  - 148 unique venues
  - 102 unique venues within Glendale zip codes
- Los Angeles
  - 3250 venues WITH duplicates
  - 353 unique venues
  - 200 unique venues within Los Angeles zip codes

3b. Determining Rate of Opportunity

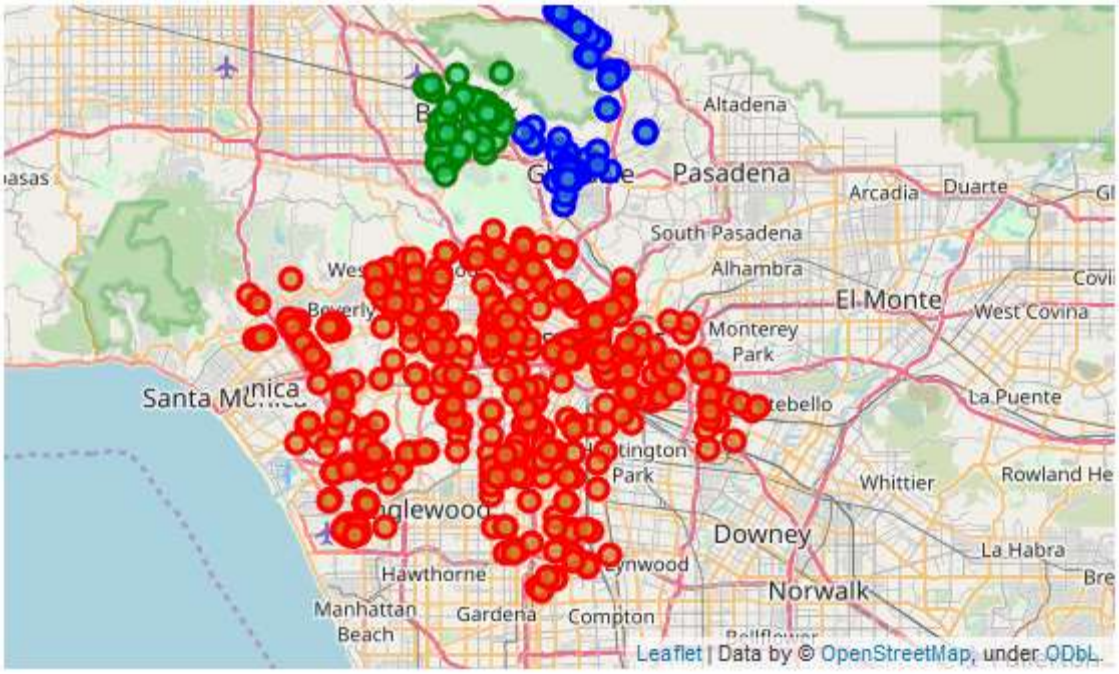
Opportunity consists of being the right person at the right place.

In this case, that means our hungry person has found the unique food venue. But is it better to look in Burbank, or in Glendale, or in Los Angeles?

One way to look at this is to determine which city has nearby venues. The higher the number of venues per square mile, the more likely a person is close to a unique one.



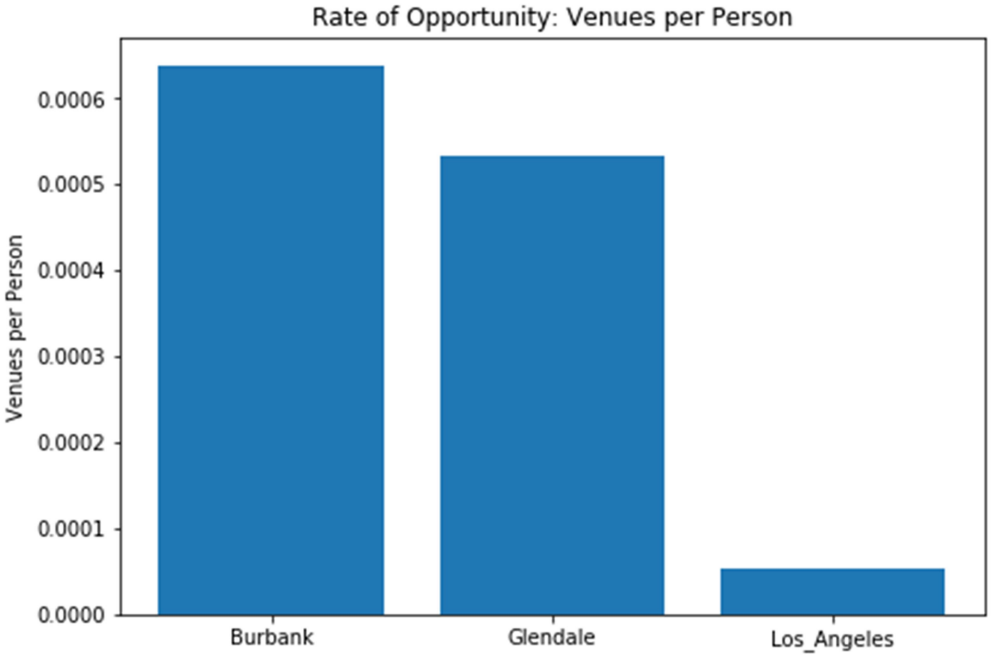
In this case, Burbank has a slight advantage in venue density over Glendale. Both of them have a large advantage over Los Angeles. This makes sense, looking at the relative sizes of the cities.



Map with food venues for Burbank (green), Glendale (blue), and Los Angeles (red.)

A word of Caution: this rate is the **average** for a given city. It doesn't hold equally in every square mile. Most of the food venues are in clusters -- good for the person nearby; not so good, for someone farther away.

The other consideration in Rate of Opportunity is being “the right person.” For this, we use the number of food venues divided by the population. This is the rate at which one person (in a given city) happens to be at the unique venue.



Again, Burbank and Glendale have a large advantage over Los Angeles. With a population of nearly 4 million people, it is simply hard to be “the right person”, in Los Angeles, seeking a unique food venue.

As a result of this calculation, we determine that Burbank has a slightly better opportunity than Glendale -- and much better than Los Angeles -- of having the unique food venue.

3c. Making a List of Suggestions

The Rate of Opportunity is a very academic number; however, a hungry person wants to know what the choices are. Now my goal is to make a short list of unique food venue(s.)

A sampling of the venue **categories** in Burbank reveals this:

- Convenience Store
- Café
- American Restaurant
- Ice Cream Shop
- Breakfast Spot
- *Coffee Shop*
- Burger Joint
- New American Restaurant
- Wings Joint
- Farmers Market
- Fast Food Restaurant

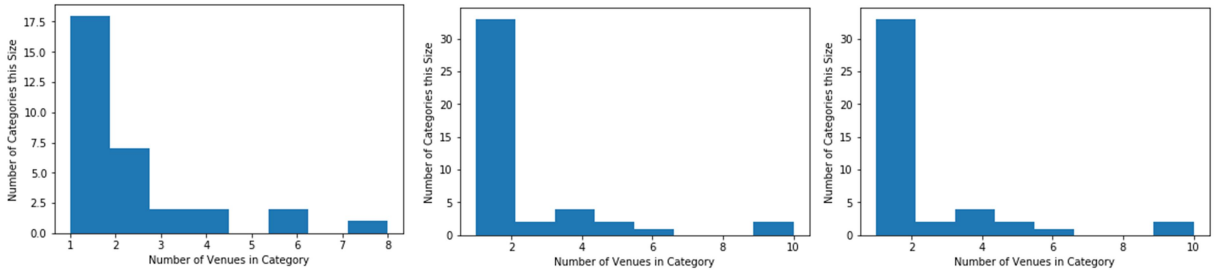
- Pizza Place
- Fast Food Restaurant
- Mexican Restaurant
- *Coffee Shop*
- *Coffee Shop*
- Burrito Place

The venues in Glendale and Los Angeles are also categorized. But there is often more than one venue in each category. (For example, note “Coffee Shop” in the list above.)

In fact, the venue categories break down, by city, like this:

- Burbank -- 66 categorized venues
- Glendale -- 102 categorized venues
- Los Angeles -- 200 categorized venues

Here is the distribution of venues in each category for Burbank, Glendale, and Los Angeles.



All three cities have a large number of venues in unique categories. This is good. But the categories with multiple venues can be eliminated. The reasoning is that five “Hamburger” venues are less unique than one “Fish” venue.

For each city, I now have a list of categorically-unique venues -- in other words, one-of-a-kind in that city. They are:

- Burbank -- 18 venues
- Glendale -- 21 venues
- Los Angeles -- 27 venues

There remains one step yet to be done. I’ve removed as much similarity as I could on a city-by-city basis. Next, I cross-compared the cities to find which (if any) venues in each city are unique.

From the list of 27 one-of-a-kind venues in Los Angeles, I removed any venues whose category is in either Burbank or Glendale. I now had 20 food venues uniquely found in Los Angeles.

Los Angeles Venue Suggestions

Category	Name
Pub	Astro Pub
Creperie	Chocolate Bash
Bar	Cole's
Gourmet Shop	Eataly
Gastropub	Father's Office
Supermarket	Gelson's Market
Market	Grand Central Market
Hookah Bar	Habibi Cafe
Health Food Store	Lassens Natural Foods
Food	Lupe's #2
Brewery	Modern Times Beer: The Dankness Dojo
Salvadoran Restaurant	Paseo San Miguel
Southern / Soul Food Restaurant	Phat Birds
Lebanese Restaurant	Pi On Sunset
Taiwanese Restaurant	Pine & Crane
Residential Building(Apartment/Cond	Spring Arcade Building
Bagel Shop	The Original Brooklyn Water Bagel Co.
Roof Deck	The Roof
Noodle House	Tsujita Annex
German Restaurant	Wurstküche

Yes, you can go to a Hookah Bar in L.A.

Glendale Venue Suggestions

I did a similar elimination on the 21 one-of-a-kind venues in Glendale, narrowing the list to 8.

Category	Name
Bookstore	Barnes & Noble
Kebab Restaurant	Byblos Mediterranean Bakery
Dumpling Restaurant	Din Tai Fung
Buffet	FUJi Buffet & Grill
Poke Place	Glendale Poke House
Filipino Restaurant	Max's of Manila
Halal Restaurant	The Halal Guys
Hot Dog Joint	Wienerschnitzel

Yes, you can eat food at a Bookstore in Glendale. Bookworms, rejoice!

Burbank Venue Suggestions

However, Burbank had the statistically best Rate of Opportunity to find that unique food venue. The 18 one-of-a-kind venues in Burbank shrank to only three -- not available in Glendale or Los Angeles -- unique venues.

Category	Name
Wings Joint	Buffalo Wild Wings
Burrito Place	Corner Cottage
Scandinavian Restaurant	IKEA Restaurant

Who would guess that "**Scandinavian Restaurant**" might be a food venue uniquely in Burbank?

4. Conclusion

In this project, I used data to determine a unique food venue in Burbank. After determining the optimal city of the three, I narrowed the venues based on category and across cities, to come up with a short list of venues available only to each of the cities.

There are, obviously, a few flaws with this approach. Potential venue candidates may not have been included because they were not -- or incorrectly -- listed in Foursquare. Others may have been eliminated because their name was the same as another venue, despite being fundamentally different. The Rate of Opportunity is not consistent across any given city, and may have steered the search astray. The venue categories are not consistent, fully descriptive, or detailed. A boring, common venue may serve an food item not found elsewhere. I'm also pretty sure there are other Buffalo wing-style venues and Burrito venues out there. There was also a "Byblos" in the earlier LA listing, under the category "Mediterranean Restaurant" -- compare this with "Byblos Mediterranean Bakery", uniquely in Glendale. There might be a problem there.

But **the point in all this** is that Data Science doesn't have to be boring. Finding a place to eat should be fun. I hope the journey has been enjoyable. And just think...

If you're in Los Angeles, and you think of visiting the Habibi Cafe, you're craving a unique food venue.

If you want to read a book and eat (it too), you'd be welcome at Barnes & Noble in Glendale.

But if you visit IKEA in Burbank, you are the Opportunist -- the right person in the right place. Pause before you eat that next Swedish Meatball, and bask in your glory.

At least, according to the data. Regardless of where you're eating, remember to enjoy the venue, and smile.

David Masselink
April 10, 2020

5. References

- [1] Communities in San Fernando Valley - Wikipedia
- [2] Foursquare.com API
- [3] Los Angeles County Wikipedia
- [4] Los Angeles Neighborhoods LA Times
- [5] Zip Codes.com API
- [6] Geopy - Python library
- [7] Folium - Python library
- [8] Matplotlib - Python library