

Business Problem

This capstone project is going to give a recommendation in which community (defined by the postal code) one should open a restaurant in Los Angeles County, CA. In addition, there will be a recommendation given which food venue category could be chosen, based on census data and data of the existing food places in the community, and the whole county.

Data

The basis for the analysis will be the 2010 census data of all zip codes in Los Angeles County, CA. This census data provides information on the composition of the population, age distribution, and the total numbers. This dataset will be enhanced with the 2019 median household income per zip code. The income can also serve as factor in the recommendation on where to open a restaurant, how it should be set up, and what the target audience could be. As a third part geospatial data is added for every zip code, to be able to use Foursquare to explore existing food offerings in the communities of Los Angeles County, CA.

	Zip Code	City	Community	Estimated Median Income	Longitude	Latitude	Total Population	Median Age	Total Males	Total Females	Total Households	Average Household Size
1	90001	Los Angeles	Los Angeles (South Los Angeles), Florence-Graham	\$43,360	-118.24878	33.972914	57110	26.6	28468	28642	12971	4.40
2	90002	Los Angeles	Los Angeles (Southeast Los Angeles, Watts)	\$37,285	-118.24845	33.948315	51223	25.5	24876	26347	11731	4.36
3	90003	Los Angeles	Los Angeles (South Los Angeles, Southeast Los ...	\$40,598	-118.27600	33.962714	66266	26.3	32631	33635	15642	4.22
4	90004	Los Angeles	Los Angeles (Hancock Park, Rampart Village, Vi...	\$49,675	-118.30755	34.077110	62180	34.8	31302	30878	22547	2.73
5	90005	Los Angeles	Los Angeles (Hancock Park, Koreatown, Wilshire...	\$38,491	-118.30848	34.058911	37681	33.9	19299	18382	15044	2.50
6	90006	Los Angeles	Los Angeles (Byzantine-Latino Quarter, Harvard...	\$37,072	-118.29430	34.048351	59185	32.4	30254	28931	18617	3.13
7	90007	Los Angeles	Los Angeles (Southeast Los Angeles, Univerity ...	\$27,406	-118.28290	34.026448	40920	24.0	20915	20005	11944	3.00

Figure 1 - subset of the prepared dataset

Using Foursquare, already existing food venues can be explored, and grouped. This way the competitors can be explored, for example by the food type or rating. It is also possible to identify market niches and give a recommendation for a type of restaurant that could be opened.

	Zip Code	Community	Zip Code Latitude	Zip Code Longitude	Venue	Venue Category
0	90001	Los Angeles (South Los Angeles), Florence-Graham	33.972914	-118.24878	Emy Burgers	Food
1	90001	Los Angeles (South Los Angeles), Florence-Graham	33.972914	-118.24878	Pancho's Bakery	Bakery
2	90001	Los Angeles (South Los Angeles), Florence-Graham	33.972914	-118.24878	Jack in the Box	Fast Food Restaurant
3	90001	Los Angeles (South Los Angeles), Florence-Graham	33.972914	-118.24878	Burger King	Fast Food Restaurant
4	90001	Los Angeles (South Los Angeles), Florence-Graham	33.972914	-118.24878	Carl's Jr.	Fast Food Restaurant
5	90001	Los Angeles (South Los Angeles), Florence-Graham	33.972914	-118.24878	Starbucks	Coffee Shop
6	90001	Los Angeles (South Los Angeles), Florence-Graham	33.972914	-118.24878	Taqueria Rosy	Mexican Restaurant
7	90001	Los Angeles (South Los Angeles), Florence-Graham	33.972914	-118.24878	La Pizza Loca	Pizza Place
8	90001	Los Angeles (South Los Angeles), Florence-Graham	33.972914	-118.24878	Andy's burgers	Burger Joint
9	90001	Los Angeles (South Los Angeles), Florence-Graham	33.972914	-118.24878	All Star Fish Market	American Restaurant

Figure 2 - Foursquare Data for Zip Code 90001

Capstone Project

The following example illustrates how the data from Foursquare helps to analyze the food venues in a community. Using this API, one can determine that Mexican restaurants are the dominant food venue category in Florence-Graham, South Los Angeles.

	Zip Code	
	mean	count
Venue Category		
Mexican Restaurant	90001	6
Bakery	90001	3
Donut Shop	90001	3
Fast Food Restaurant	90001	3
Burger Joint	90001	2
Food Truck	90001	2
Seafood Restaurant	90001	2
American Restaurant	90001	1

Figure 3 - Food Venues grouped by Category in Florence-Graham