THE BATTLE OF NEIGHBORHOODS:

BEST PLACE TO OPEN A DINE-OUT PLACE IN LOS ANGELES

Lina Sakiene

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1. INTRODUCTION

Los Angeles city, the heart of California, is the second-most populous city and metropolitan area after New York city in the United States. At the start of the 20th century, it was considered merely “a large village.” Yet it overcame natural deficiencies and established itself as an important center of commerce, agriculture, tourism, and industry.

In such a big and diverse city there are a lot of opportunities for those who want to start a business as well as risks of doing so. Thus, a business case analysis should be done before considering any business idea.

1.1. Problem description

Let’s imagine that someone wants to open a dine-out place in Los Angeles. It could be either a restaurant or a café, a pizzeria and so on. First what he needs to do, is to get a better understanding of what kind of venues are the most popular in Los Angeles and where could be the best place to open one.

I am going to analyze this problem based on certain criteria which I consider to be significant to results.

1.2. Target audience

The objective of this study is to locate and recommend the best neighborhood **to anyone who wants to open a dine-out place** in Los Angele and specify what kind of place it should be.

2. DATA

Since the target of this study is to find the best neighborhood in Los Angeles to open a dine-out place, we need to define first, what criteria we are going to use when evaluating neighborhoods.

First of all, I am going to look after the neighborhoods where dine-out places are among the most popular venues. Also, there is a high chance that people with high income are more likely to go for a dine-out, I will check this hypothesis too. And of course, a safe neighborhood is always a more attractive place to start a business.

Besides, we will find out what kind of dine-out place it would be the best to open as we have not determined this yet.

2.1. Neighborhoods in LA

First, we need to get a list of Los Angeles neighborhoods. We can find it on Wikipedia page: http://wiki.stat.ucla.edu/socr/index.php/SOCR_Data_LA_Neighborhoods_Data. It contains 110 Los Angeles neighborhoods’ names as well as some additional measures about each of them.

Luckily, there are geographical coordinates already included so I am not going to need to search for them additionally. Also, I am going to use the Income information. In this

case, it is a median household income, which reports the amount of money earned by the household that falls exactly in the middle of the pack. As I mentioned before, I presume that people, who live in a high-income rate neighborhood are more likely to go for a dine-out.

This is a table fragment from Wikipedia page with columns selected I am going to use:

Will use information about Los Angeles neighborhoods from Wikipedia.

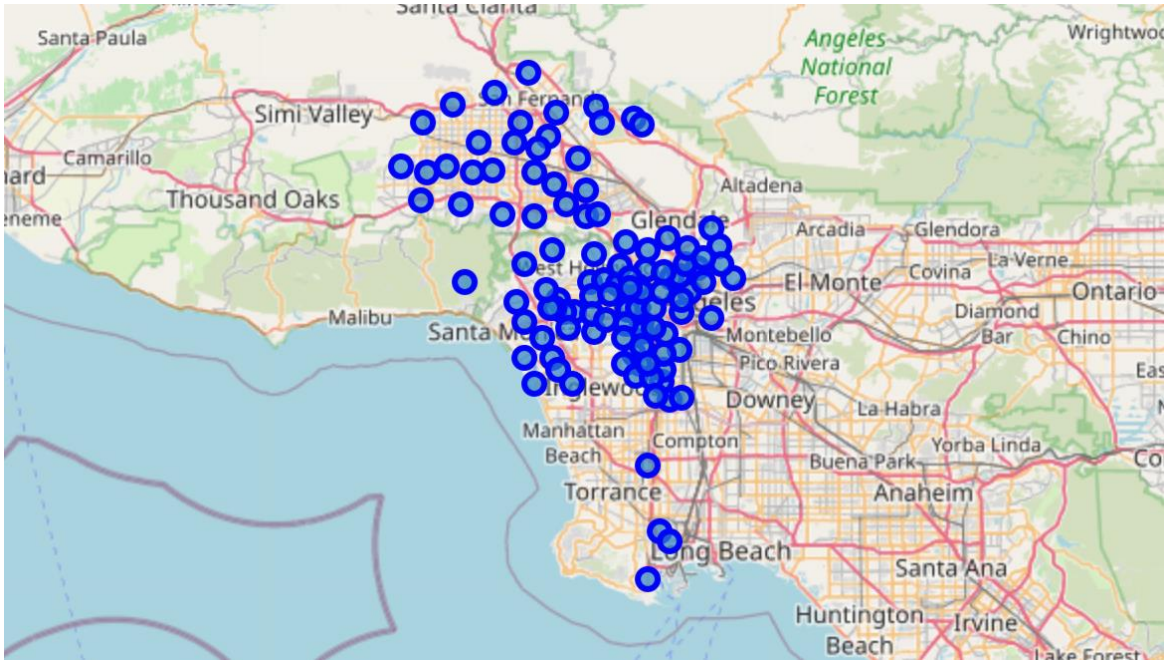
```
In [3]: url1 = 'http://wiki.stat.ucla.edu/socr/index.php/SOCR_Data_LA_Neighborhoods_Data'
        df1 = pd.read_html(url1, flavor='bs4')[2]
        df1.head()
```

Out[3]:

	LA_Nbhd	Income	Schools	Diversity	Age	Homes	Vets	Asian	Black	Latino	White	Population	Area	Longitude	Latitude
0	Adams_Normandie	29606	691	0.6	26	0.26	0.05	0.05	0.25	0.62	0.06	31068	0.8	-118.300270	34.030970
1	Arleta	65649	719	0.4	29	0.29	0.07	0.11	0.02	0.72	0.13	31068	3.1	-118.430015	34.240603
2	Arlington_Heights	31423	687	0.8	31	0.31	0.05	0.13	0.25	0.57	0.05	22106	1.0	-118.320109	34.043611
3	Atwater_Village	53872	762	0.9	34	0.34	0.06	0.20	0.01	0.51	0.22	14888	1.8	-118.265808	34.124908
4	Baldwin_Hills/Crenshaw	37948	656	0.4	36	0.36	0.10	0.05	0.71	0.17	0.03	30123	3.0	-118.366700	34.019090

2.2. Los Angeles map

I am going to use a geopy library to get the latitude and longitude values of Los Angeles. Then I will put them in Folium to create a map of Los Angeles with all its neighborhoods marked down:



2.2. Safety in neighborhoods

Los Angeles Times has a project named Mapping L.A. where certain statistics about Los Angeles neighborhoods are provided and showed on a map. I am going to use Property Crime Ranking information which indicates the rate of property crimes per 10,000 people from Dec. 30, 2019, to June 28, 2020, the most recent six months for all areas patrolled by the LAPD and L.A. County Sheriff's Department.

I will get the table from Los Angeles Times page by using BeautifulSoup:

Let's get Los Angeles neighborhoods Crime data.

In [5]:
```
url2 = 'http://maps.latimes.com/neighborhoods/property-crime/neighborhood/list/'
df2 = pd.read_html(url2, flavor='bs4')[3]
df2.head()
```

Out[5]:

	Rank	Neighborhood	Per Capita	Total
0	1	Elysian Park	263.2	70
1	2	Fairfax	251.5	336
2	3	Beverly Grove	243.3	556
3	4	Playa Vista	231.3	139
4	5	Rancho Park	199.7	91

2.3. Popular places to eat

I am going to return all venues in 500m. from Foursquare to all Los Angeles neighborhoods, based on their longitude and latitude. I will be concentrating on the Venue category since a more detailed level about venues is not needed here. Then I will take one hot encoding approach to build a table of frequencies of occurrence of each venue category. This will help me to create a data frame with TOP10 most common venues for each neighborhood:

Out[16]:

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Adams Normandie	Sushi Restaurant	Gas Station	Park	Grocery Store	Playground	Taco Place	Latin American Restaurant	Women's Store	Ethiopian Restaurant	Event Service
1	Arleta	Bakery	Flower Shop	Convenience Store	Historic Site	Video Store	Farm	Escape Room	Ethiopian Restaurant	Event Service	Fabric Shop
2	Arlington Heights	Seafood Restaurant	Shop & Service	Grocery Store	Rental Car Location	Restaurant	Donut Shop	Café	Escape Room	Women's Store	Event Service
3	Atwater Village	Food Truck	Mobile Phone Shop	Chinese Restaurant	Fast Food Restaurant	Ice Cream Shop	Diner	Steakhouse	Spa	Shoe Store	Coffee Shop
4	Baldwin Hills / Crenshaw	Flower Shop	Clothing Store	Women's Store	Escape Room	Food Stand	Food Service	Food Court	Food	Filipino Restaurant	Fast Food Restaurant