

The Battle of the Neighborhoods

- Choosing The Neighborhood For Opening A Restaurant In Los Angeles

Background Introduction

- ▶ Los Angeles is a very diverse city and it is one of the financial capitals of USA. So it's a good place to open a business, like a restaurant.
- ▶ One of the most important things about opening a restaurant is to choose the right location.
- ▶ Do some serious research on the target location is really helpful.
- ▶ I will do the segmenting and clustering the neighborhoods of Los Angeles to explore and analyze the neighborhoods.
- ▶ Based on these data analysis, people can choose which location is better for opening a restaurant in Los Angeles region.

Data Acquisition And Cleaning

- ▶ I used the online Wikipedia web page (https://en.wikipedia.org/wiki/List_of_districts_and_neighborhoods_of_Los_Angeles) to get the neighborhoods of Los Angeles city.
- ▶ I imported library of BeautifulSoup to clean the html file.
- ▶ I imported nominatim to find the latitude and longitude of the corresponding neighborhood.
- ▶ I imported geopy library and foium library for making a map.

Methodology

- ▶ I choose K-means clustering as the model to analyze the data that obtained from Foursquare API.
- ▶ K-means clustering is a type of unsupervised learning, which is used when you have unlabeled data.
- ▶ The results can be used to help make a decision of open a restaurant assumptions.
- ▶ Foursquare is a technology company that built a massive data set of location data. What is interesting about Foursquare is that they were very smart about building their data set.

Results

I got the top 100 venues that are in each neighborhood within a radius of 500 meters.

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
Angelino Heights	Taco Place	Boxing Gym	Trail	Breakfast Spot	Market	Boutique	Motel	Jewelry Store	Bakery
Arleta	Movie Theater	Historic Site	Seafood Restaurant	Women's Store	Entertainment Service	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store
Arts District	Café	Pub	Coffee Shop	Bar	Nightclub	Burger Joint	Middle Eastern Restaurant	Restaurant	Sushi Restaurant
Atwater Village	Coffee Shop	Pet Store	Gym	Sporting Goods Shop	Theater	Restaurant	Thrift / Vintage Store	Boutique	Mediterranean Restaurant
Baldwin Hills	Trail	Park	Women's Store	Entertainment Service	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School

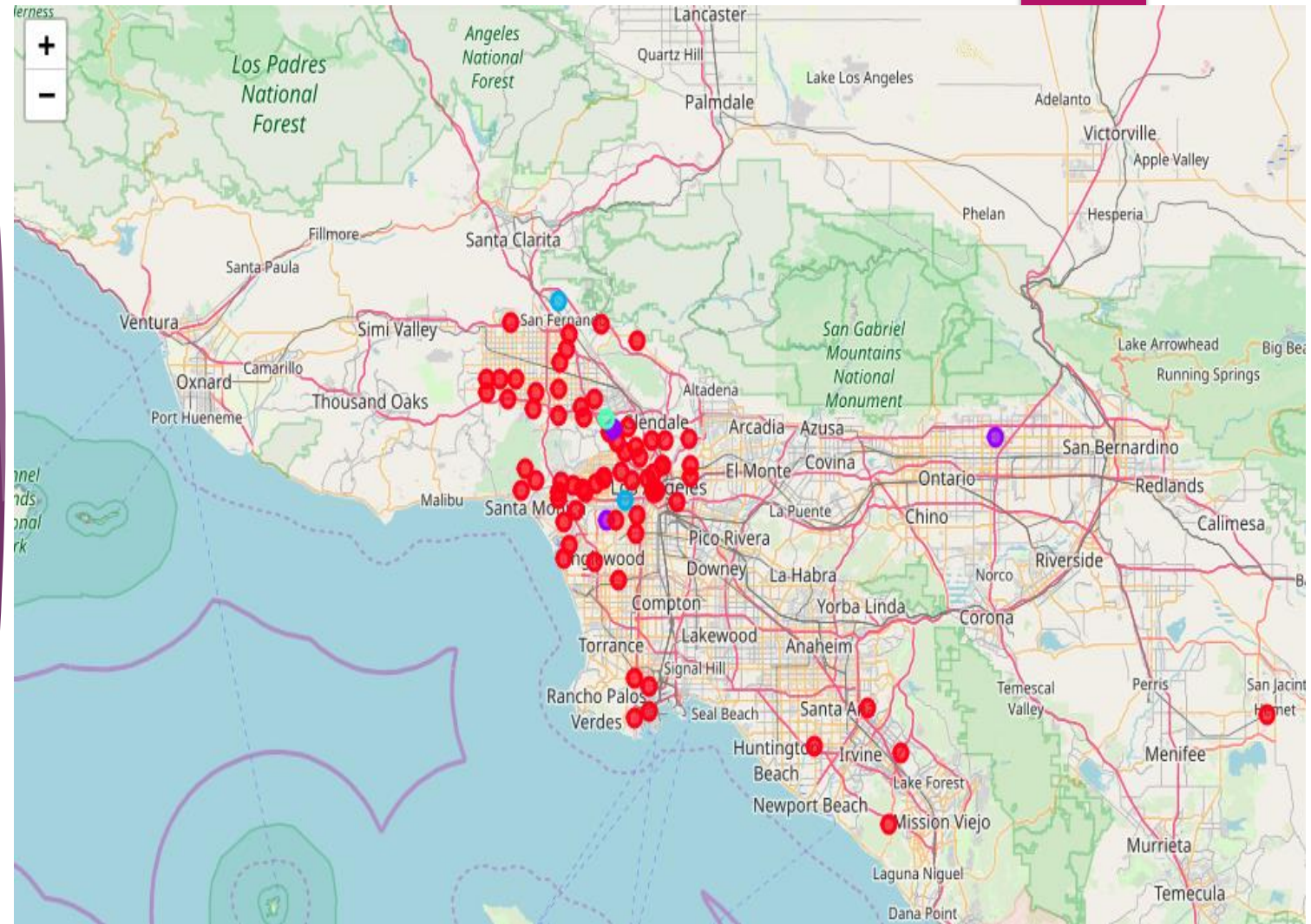
Results

I used K-means clustering algorithm to calculate the obtained venues data set.

	Neighborhood	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Angelino Heights	34.0703	-118.255	0.0	Taco Place	Boxing Gym	Trail	Breakfast Spot	Market
1	Arleta	34.2413	-118.432	0.0	Movie Theater	Historic Site	Seafood Restaurant	Women's Store	Entertainment Service
2	Arts District	42.3178	-83.0415	0.0	Café	Pub	Coffee Shop	Bar	Nightclub
3	Atwater Village	34.1164	-118.256	0.0	Coffee Shop	Pet Store	Gym	Sporting Goods Shop	Theater
4	Baldwin Hills	34.0076	-118.351	1.0	Trail	Park	Women's Store	Entertainment Service	Dumpling Restaurant
5	Baldwin Village	47.5956	-57.6407	NaN	NaN	NaN	NaN	NaN	NaN
6	Baldwin Vista	34.4302	-119.732	0.0	Liquor Store	Insurance Office	Tanning Salon	Chinese Restaurant	BBQ Joint
7	Benedict Canyon	34.0494	-118.4	0.0	Gym Pool	Other Repair Shop	Food Truck	Women's Store	Dumpling Restaurant

Results

I visualized the obtained clusters in a map.



Discussion

- ▶ In cluster 1 the diversity of the type of restaurant is significant.
- ▶ People frequently to eat outside.
- ▶ you have a wide range of choice of the type of restaurant.

								Restaurant	
3	Atwater Village	Coffee Shop	Pet Store	Gym	Sporting Goods Shop	Theater	Restaurant	Thrift / Vintage Store	Bo
6	Baldwin Vista	Liquor Store	Insurance Office	Tanning Salon	Chinese Restaurant	BBQ Joint	Farmers Market	Falafel Restaurant	Du Re
7	Benedict Canyon	Gym Pool	Other Repair Shop	Food Truck	Women's Store	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Ele Stc
8	Beverly Crest	Stadium	Women's Store	Ethiopian Restaurant	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Ele Sc
10	Beverly Grove	Fast Food Restaurant	Bakery	Buffet	Pharmacy	Hotel	Coffee Shop	Thrift / Vintage Store	Dir
12	Beverly Park	Art Gallery	Thai Restaurant	Park	Filipino Restaurant	Latin American Restaurant	Bubble Tea Shop	Supermarket	Ca
13	Beverlywood	Paper / Office Supplies Store	Women's Store	Donut Shop	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Ele Sc

Discussion

- ▶ In this cluster, nearly no restaurant in top 4 common venues.
- ▶ For opening restaurant in these five neighborhoods will be dumpling restaurant or English restaurant.

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
Baldwin Hills	Trail	Park	Women's Store	Entertainment Service	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School
Hollywood Hills	Trail	Women's Store	Entertainment Service	Drugstore	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School
Hollywood Hills West	Trail	Women's Store	Entertainment Service	Drugstore	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School
South Robertson	Park	Women's Store	Donut Shop	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School	English Restaurant
Vermont Vista	Park	Trail	Women's Store	Entertainment Service	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School

Discussion

- ▶ In cluster 3, four neighborhoods were included. In these four neighborhoods, the first most common venues are all pizza place.
- ▶ Opening a pizza place is a good suggestion.
- ▶ Other kinds of restaurant is also be good choice.

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	10 Most Common Venue
Florence	Pizza Place	Women's Store	Ethiopian Restaurant	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School	English Restaurant	English Restaurant
Gramercy Park	Pizza Place	Market	Food Truck	Women's Store	Ethiopian Restaurant	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School
Sylmar	Pizza Place	Mexican Restaurant	Food	Food Truck	Event Space	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School	English Restaurant
Whitley Heights	Pizza Place	Women's Store	Ethiopian Restaurant	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School	English Restaurant	English Restaurant

Discussion

- ▶ In cluster 4, two neighborhoods were studied.
- ▶ My suggestion for these places to open a restaurant is donut shop.

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
Spaulding Square	Music Venue	Golf Course	Donut Shop	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School	English Restaurant	Entertainment Service
Toluca Lake	Golf Course	Women's Store	Donut Shop	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School	English Restaurant	Entertainment Service

Discussion

- ▶ In cluster 5, there are only one neighborhoods. There are different types of restaurant in this neighborhoods.
- ▶ Opening a type of restaurant that already exist is a good idea.

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
South Park	Hockey Arena	Concert Hall	Dumpling Restaurant	Duty-free Shop	Eastern European Restaurant	Electronics Store	Elementary School	English Restaurant	Entertainment Service	Et Ri

Conclusion

- ▶ I analyzed the neighborhoods of Los Angeles with data set that obtained from Foursquare API.
- ▶ I chose k-mean clustering algorithm to built the model. And I visualized the results by creating a map.
- ▶ The model that I made can be very useful in helping people choose how to open a certain type of restaurant in the better neighborhood
- ▶ For each cluster, the venues showed the most common venues they visited recently. So we can decide what kind of restaurant we can open in certain place.