Los Angeles Restaurant Placement

Restaurants appear in Los Angeles like shooting stars, appearing suddenly in a blaze, the fading off into the horizon. Many of the restaurants that go out of business in the area are well designed, have an interesting menu, and great staff, but suffer from placement.

If a way could be found to assist a prospective restaurant developer in exploring the city using data, business owners could have more confidence in their ventures.

Web Scraping

Writing a small webscraping script was useful in harvesting the long list of neighborhoods from Wikipedia.

Out[28]:

	Neighborhood
0	Angelino Heights
1	Angeles Mesa
2	Angelus Vista
3	Arleta
4	Arlington Heights
5	Arts District
6	Atwater Village
7	Baldwin Hills
8	Baldwin Hills/Crenshaw
9	Baldwin Village
10	Baldwin Vista
11	Beachwood Canyon

A–E [edit]

- Angelino Heights[1]
- Angeles Mesa[2]
- Angelus Vista[2]
- Arleta[3][1]
- Arlington Heights[3]
- Arts District[4]
- Atwater Village[3]
- Baldwin Hills[1]
- Baldwin Hills/Crenshaw[3]
- Baldwin Village[1]
- Baldwin Vista[5]
- Beachwood Canyon[6]
- Bel Air, Bel-Air or Bel Air Estates[3][1]
- Benedict Canyon[7]
- Beverly Crest[3]
- Beverly Glen[1]
- Canoga Park[3][1]
- Canterbury Knolls[13]
- Carthay[3]
- Castle Heights
- Central-Alameda[3]
- Central City[1]
- Century City[3][1]
- Chatsworth[3][1]
- Chesterfield Square[3][1]
- Cheviot Hills[3][1]
- Chinatown[3][1]
- Civic Center[14]
- Crenshaw[1]
- Crestwood Hills[15]
- Cypress Park[3][1]
- Del Rey[3][1]

```
catgrp = soup.find_all(class_ = "mw-category-group")

length = len(catgrp)

for i in range(1, length):  # Gets all neighbourhoods
    lists = mwcg [i].find_all('a')
    for list in lists:
        nbd = list.get('title')
        csv_writer.writerow([nbd])
```

Geolocating

ArcGIS was used through the Geopy geolocating library in Python. It enabled us to find the location of all neighborhoods in Los Angeles.

This was a starting point from which to circle our searches by neighborhoods.

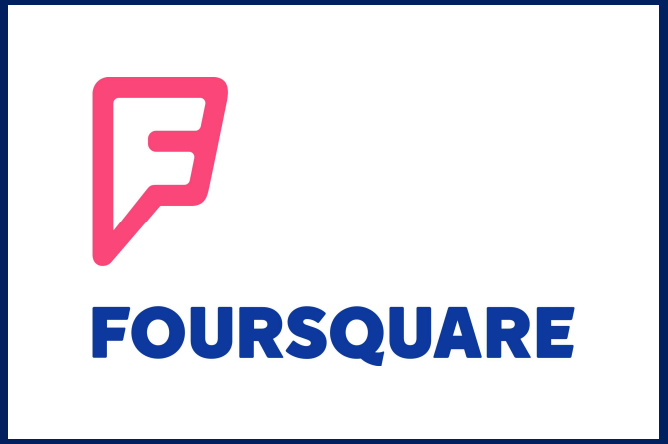
```
In [36]: LA_Neighborhoods
```

Out[36]:

	Neighborhood	Latitude	Longitude
0	Angelino Heights	34.070290	-118.254800
1	Angeles Mesa	32.764074	-116.986171
2	Angelus Vista	34.087575	-118.267156
3	Arleta	34.249050	-118.433490
4	Arlington Heights	34.039890	-118.325160
5	Arts District	34.041952	-118.236385
6	Atwater Village	34.119700	-118.258870
7	Baldwin Hills	34.021570	-118.367650
8	Baldwin Hills/Crenshaw	34.010428	-118.336776
9	Baldwin Village	34.070445	-118.200710
10	Baldwin Vista	34.070445	-118.200710
11	Beachwood Canyon	34.109150	-118.320450

Foursquare API

Using the Foursquare API, locations of venues in geolocated neighborhoods were discovered and indexed. Category information on geolocated venues is very difficult to obtain (reliably) from any other source.



	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue Name	Venue Category	Venue Latitude	Venue Longitude
0	Angelino Heights	34.07029	-118.2548	Halliwell Manor	Performing Arts Venue	34.069329	-118.254165
1	Angelino Heights	34.07029	-118.2548	Guisados	Taco Place	34.070262	-118.250437
2	Angelino Heights	34.07029	-118.2548	Eightfold Coffee	Coffee Shop	34.071245	-118.250698
3	Angelino Heights	34.07029	-118.2548	Tsubaki	Japanese Restaurant	34.072938	-118.251298
4	Angelino Heights	34.07029	-118.2548	Subliminal Projects	Art Gallery	34.072290	-118.250737

Venue Frequency

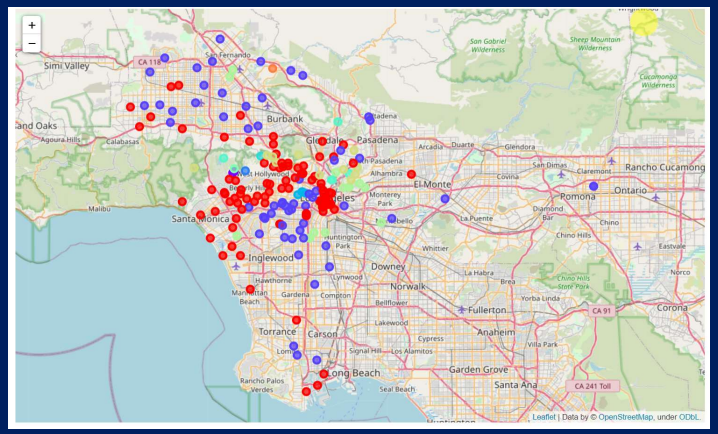
The frequency of venue per neighborhood was established and a new dataframe to work with was fashioned. The new dataframe pivots and classified all categorized venues.

	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	11th Most Common Venue	
41	Crestwood Hills	Trail	Grocery Store	Food Truck	Salon / Barbershop	Fast Food Restaurant	Taco Place	Beer Garden	Park	Coffee Shop	Pharmacy	Bakery	
49	Edendale	Trail	Coffee Shop	Convenience Store	Furniture / Home Store	Yoga Studio	Music Venue	Mexican Restaurant	American Restaurant	Park	Home Service	Dog Run	
70	Griffith Park	Trail	Scenic Lookout	Exhibit	Mountain	Amphitheater	Café	Planetarium	Sculpture Garden	Science Museum	Automotive Shop	Observatory	
76	Hermon	Trail	Café	Supermarket	Dog Run	Park	Pharmacy	Health & Beauty Service	Grocery Store	Yoga Studio	Event Service	Ethiopian Restaurant	
82	Hollywood Hills West	Trail	Scenic Lookout	Park	Pharmacy	Filipino Restaurant	Rest Area	Japanese Restaurant	Mountain	Ethiopian Restaurant	Fabric Shop	Escape Room	Er

This new dataframe will be clustered, mapped, and evaluated for any potential commercial restaurant development in the neighborhoods indexed.

Final Analysis

Using K-Means clustering from scikitlearn in Python, venue category / type was indexed and mapped. After testing each cluster individually, it was determined that Arlington Heights could be a potentially good location for a new mid-range restaurant.



Arlington Heights was indicated as a good place to place a small diner to maximize profits. Arlighton Heights is a small, diverse neighborhood. It has karaoke bars, grocery stores, a large art gallery, and several convenience stores, but a startling lack of restaurants.