

New Restaurant in San Diego, California

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1. Introduction

1.1 Background

San Diego is a city on the Pacific coast of California known for its beaches, parks and warm climate. Immense Balboa Park is the site of the renowned San Diego Zoo, as well as numerous art galleries, artist studios, museums and gardens. A deep harbor is home to a large active naval fleet, with the USS Midway, an aircraft-carrier-turned-museum, open to the public. Known for its proximity to the ocean and its enviable weather, the local ingredients found in San Diego, from fresh fish to California fusion, craft beer to re-envisioned Mexican fare are among the best in the United States.

1.2 Problem

Data that might contribute to determining the area to place the new restaurant might include competition and ability to achieve fresh ingredients for that type of restaurant. This project aims to predict the best neighborhood for the new upcoming restaurant based on these data.

1.3 Interest

New restaurant owners might want to know the prospect locations for opening up new locations of their restaurant and perhaps customers that want to know where new restaurants will be appearing so they can eat there.

2. Data Acquisition and Cleaning

2.1 Data Sources

Zillow API for gathering all the neighborhoods within San Diego Metro area:

<https://public.opendatasoft.com/api/records/1.0/search/?dataset=zillow-neighborhoods&rows=200&facet=state&facet=county&facet=city&facet=name&refine.state=CA&refine.county=San+Diego>

Foursquare Datasets for existing restaurant information for neighborhoods within the San Diego Metro area:

https://api.foursquare.com/v2/venues/explore?&client_id=UUTW1SJMSRNAECWRGCB2YATUOPNRT3KZMBCDUEGMNRT2KAA&client_secret=QQFYX4G5WB4NUXCKXVV3MY3DLOVOO2IEYNNYIDPACJO514PF&v=20200311&ll=32.7157,117.1611&radius=500&limit=100

2.2 Data Cleaning

First the data is retrieved via JSON format, then had to loop through the JSON objects for each record and retrieve the data into a data frame for the Neighborhoods and their Location information.

2.3 Feature Selection

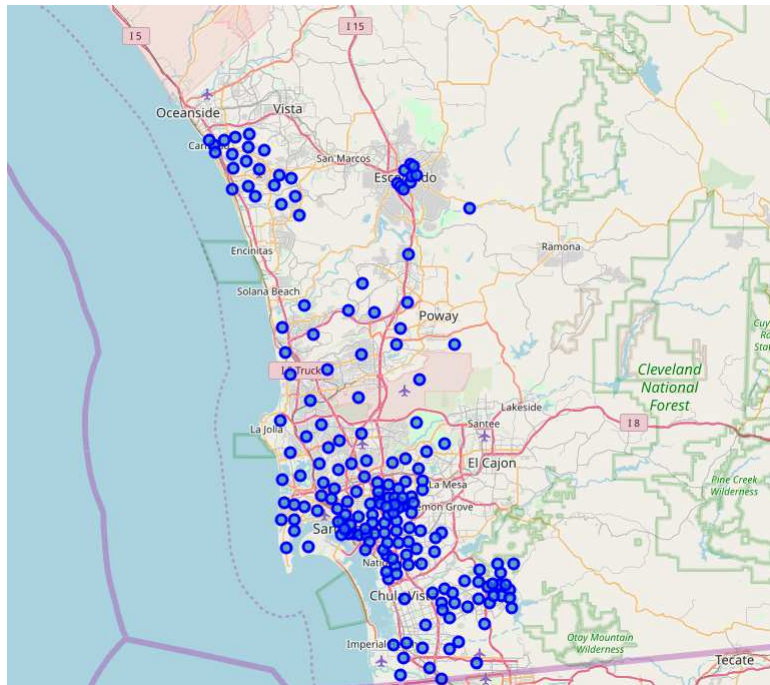
After cleaning the data, there were 187 neighborhoods within the San Diego Metro Area, and over 400 venues within those neighborhoods.

	Neighborhood	City	County	State	Latitude	Longitude
0	University Heights	San Diego	San Diego	CA	32.759213	-117.149041
1	Sorrento Valley	San Diego	San Diego	CA	32.899825	-117.188819
2	Midway District	San Diego	San Diego	CA	32.737944	-117.202478
3	Central	National City	San Diego	CA	32.674359	-117.094965
4	Torrey Highlands	San Diego	San Diego	CA	32.968050	-117.159007

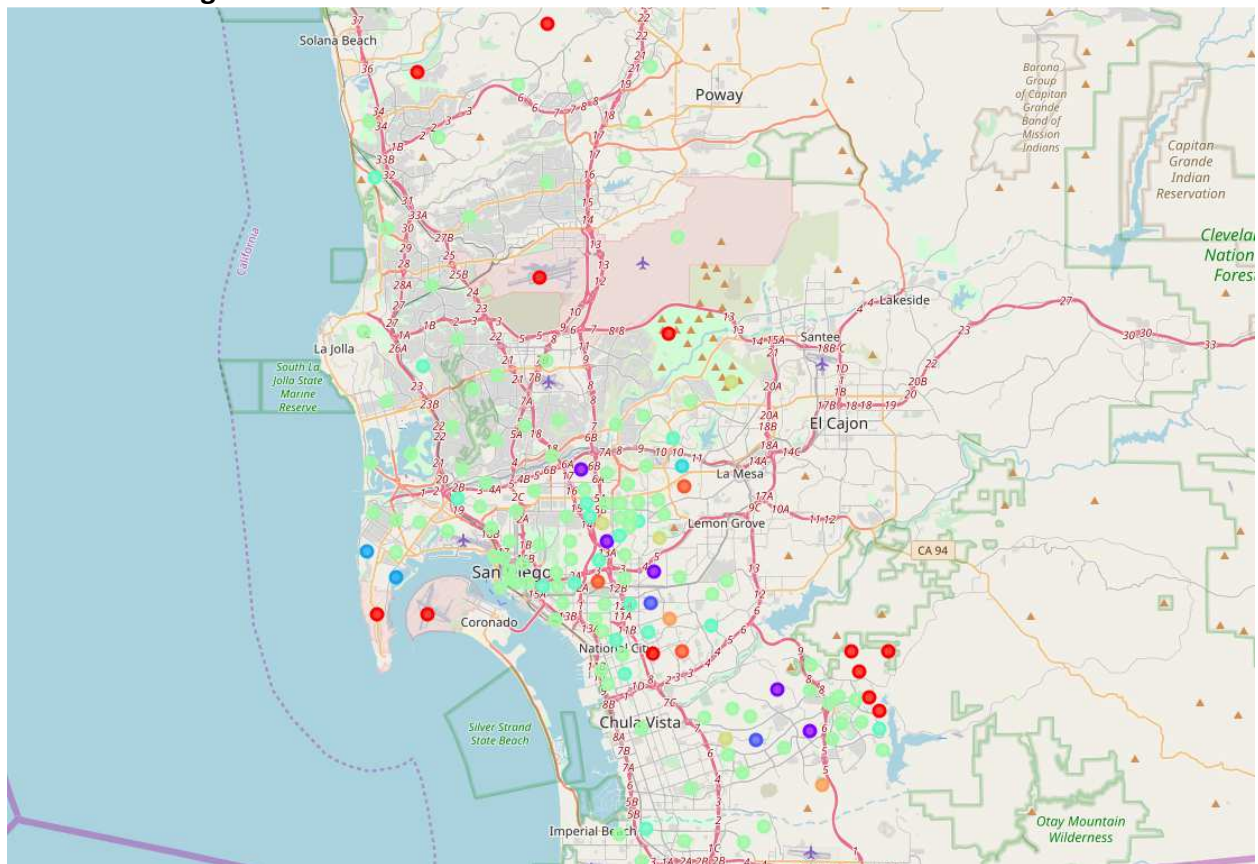
(187, 6)

3. Exploratory Data Analysis

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	University Heights	32.759213	-117.149041	Lestat's on Park	32.758962	-117.146429	Coffee Shop
1	University Heights	32.759213	-117.149041	Parkhouse Eatery	32.760370	-117.146610	Breakfast Spot
2	University Heights	32.759213	-117.149041	Pop Pie	32.757420	-117.146450	Pie Shop
3	University Heights	32.759213	-117.149041	Stella Jean's Ice Cream	32.757417	-117.146305	Ice Cream Shop
4	University Heights	32.759213	-117.149041	Kairoa Brewing Co	32.761168	-117.146007	Brewery
5	University Heights	32.759213	-117.149041	Small Bar	32.761541	-117.146438	Bar
6	University Heights	32.759213	-117.149041	El Zarape	32.761815	-117.146370	Mexican Restaurant
7	University Heights	32.759213	-117.149041	Bahn Thai	32.761971	-117.146352	Thai Restaurant
8	University Heights	32.759213	-117.149041	Park&Rec	32.761359	-117.146523	Bar
9	University Heights	32.759213	-117.149041	Plumeria	32.762042	-117.146203	Vegetarian / Vegan Restaurant
10	University Heights	32.759213	-117.149041	Muzita Abyssinian Bistro	32.761856	-117.146183	Ethiopian Restaurant



3.1 Cluster Neighborhoods



	Neighborhood	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
41	Granger	-117.076716	0	American Restaurant	Yoga Studio	Fish & Chips Shop	Exhibit	Eye Doctor
45	North Island Naval Air Station	-117.214267	0	NaN	NaN	NaN	NaN	NaN
54	Tierrasanta	-117.066712	0	NaN	NaN	NaN	NaN	NaN
59	Miramar	-117.145886	0	NaN	NaN	NaN	NaN	NaN
69	WIN	-117.088431	0	American Restaurant	Yoga Studio	Fish & Chips Shop	Exhibit	Eye Doctor
70	Rolling Hills Ranch	-116.950277	0	NaN	NaN	NaN	NaN	NaN
77	Old Escondido Historic District	-117.074452	0	NaN	NaN	NaN	NaN	NaN
87	S. Elm/Hickory	-117.072731	0	American Restaurant	Cosmetics Shop	Yoga Studio	Fish & Chips Shop	Eye Doctor
88	Rancho Carlsbad/Sunny Creek	-117.274627	0	NaN	NaN	NaN	NaN	NaN
95	Otay - Ranch	-116.938098	0	NaN	NaN	NaN	NaN	NaN
116	Golf Course	-116.955002	0	NaN	NaN	NaN	NaN	NaN
120	Bella Lago	-116.932393	0	NaN	NaN	NaN	NaN	NaN
128	North City	-117.220478	0	NaN	NaN	NaN	NaN	NaN
142	Black Mountain Ranch	-117.140732	0	NaN	NaN	NaN	NaN	NaN
150	Wooded Area	-117.245385	0	NaN	NaN	NaN	NaN	NaN
166	Eastlake Woods	-116.943652	0	NaN	NaN	NaN	NaN	NaN

	Neighborhood	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
37	Otay Ranch Village 5	1	Park	Pool	Playground	Yoga Studio	Filipino Restaurant
44	Bonita Long Canyon	1	Park	Yoga Studio	Food Service	Exhibit	Eye Doctor
75	Azalea-Hollywood Park	1	Restaurant	Park	Yoga Studio	Filipino Restaurant	Exhibit
79	Robertson Ranch	1	Park	Yoga Studio	Food Service	Exhibit	Eye Doctor
109	Adams North	1	Park	Garden	Yoga Studio	Financial or Legal Service	Eye Doctor
134	Rancho Carrillo	1	Park	Pool	Ethiopian Restaurant	Exhibit	Eye Doctor
157	Emerald Hills	1	Park	Yoga Studio	Food Service	Exhibit	Eye Doctor

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12	San Pasqual	2	Intersection	Yoga Studio	Fish & Chips Shop	Exhibit	Eye Doctor
35	Paseo Ranchoero	2	Intersection	Yoga Studio	Fish & Chips Shop	Exhibit	Eye Doctor
67	Valencia Park	2	Intersection	Yoga Studio	Fish & Chips Shop	Exhibit	Eye Doctor

	Neighborhood	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
18	La Playa	3	Harbor / Marina	Beach	Yoga Studio	Filipino Restaurant	Exhibit
98	Hedionda Point	3	Beach	Yoga Studio	Event Space	Eye Doctor	Falafel Restaurant
102	Sunset Cliffs	3	Beach	Yoga Studio	Event Space	Eye Doctor	Falafel Restaurant

	Neighborhood	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
161	College East	4	Supermarket	Food Service	Exhibit	Eye Doctor	Falafel Restaurant

	Neighborhood	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
15	Palm City	5	Mexican Restaurant	Pizza Place	Miscellaneous Shop	Liquor Store	Light Rail Station
19	Torrey Preserve	5	Art Gallery	Fish & Chips Shop	Exhibit	Eye Doctor	Falafel Restaurant
23	Chollas Creek	5	Food Truck	Mexican Restaurant	Clothing Store	Eye Doctor	Falafel Restaurant
31	Bay Ho	5	Mexican Restaurant	Baseball Field	Park	Pizza Place	Liquor Store
32	Eastside	5	BBQ Joint	Mexican Restaurant	Fried Chicken Joint	Eye Doctor	Falafel Restaurant
52	Fairmount Park	5	Mexican Restaurant	Convenience Store	Market	Pizza Place	Yoga Studio
55	Old Town	5	Mexican Restaurant	History Museum	Hotel	Hobby Shop	Gift Shop
57	Bay Terraces	5	Mexican Restaurant	Sandwich Place	Taco Place	Laundromat	Liquor Store
65	Sherman Heights	5	Mexican Restaurant	Hotel	Historic Site	Restaurant	Fast Food Restaurant
71	Olivewood	5	Mexican Restaurant	Fried Chicken Joint	Pub	Cosmetics Shop	Convenience Store
82	Corridor	5	Mexican Restaurant	Fried Chicken Joint	Burger Joint	Convenience Store	Liquor Store
94	Cherokee Point	5	Mexican Restaurant	Liquor Store	Convenience Store	Park	Gym / Fitness Center
104	Stockton	5	Mexican Restaurant	Marijuana Dispensary	Intersection	Hardware Store	Other Repair Shop
106	Lincoln Park	5	Health & Beauty Service	Cosmetics Shop	Theater	Mexican Restaurant	Coffee Shop
126	Los Arboles	5	Mexican Restaurant	Yoga Studio	Event Space	Eye Doctor	Falafel Restaurant
129	South Tulip	5	American Restaurant	Convenience Store	Mexican Restaurant	Automotive Shop	Coffee Shop
146	Del Cerro	5	Mexican Restaurant	Restaurant	Grocery Store	Park	Bagel Shop
148	Otay Mesa	5	Intersection	Mexican Restaurant	Yoga Studio	Financial or Legal Service	Exhibit
167	Eastlake Vistas	5	Wine Bar	Trail	Lake	Park	Mexican Restaurant
168	Swan Canyon	5	Convenience Store	Mexican Restaurant	Trail	Yoga Studio	Exhibit
173	Northside	5	Mexican Restaurant	Grocery Store	Convenience Store	Donut Shop	Pizza Place

	Neighborhood	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	University Heights	6	Spa	Coffee Shop	Bar	Brewery	Thai Restaurant
1	Sorrento Valley	6	Hotel	Chinese Restaurant	Deli / Bodega	Restaurant	Café
2	Midway District	6	BBQ Joint	Wine Bar	Harbor / Marina	Coffee Shop	Filipino Restaurant
3	Central	6	Fast Food Restaurant	Bakery	Chinese Restaurant	Sushi Restaurant	Tea Room
4	Torrey Highlands	6	Playground	Sushi Restaurant	Cosmetics Shop	Convenience Store	Italian Restaurant
5	South Port Business Center	6	Mexican Restaurant	Fast Food Restaurant	Auto Workshop	Sushi Restaurant	Gym / Fitness Center
6	Village Center	6	Coffee Shop	Grocery Store	Fast Food Restaurant	Sandwich Place	Breakfast Spot
7	Mission Beach	6	Theme Park	Sandwich Place	Sushi Restaurant	Taco Place	Board Shop
8	Mira Mesa	6	Photography Studio	Fast Food Restaurant	Grocery Store	Kids Store	Pet Store
9	Tamarack Point	6	Gym / Fitness Center	Nature Preserve	Dog Run	Financial or Legal Service	Exhibit
10	Mission Valley East	6	Gym	Food Truck	Salon / Barbershop	Furniture / Home Store	Hotel

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47	Lake Murray	7	Trail	Yoga Studio	Financial or Legal Service	Exhibit	Eye Doctor
115	Oak Park	7	Trail	Baseball Field	Yoga Studio	Financial or Legal Service	Eye Doctor
117	Calavera Hills	7	Trail	Coffee Shop	Yoga Studio	Filipino Restaurant	Exhibit
145	Lynwood Hills	7	Trail	Park	Pet Store	Yoga Studio	Fast Food Restaurant
152	La Costa Ridge	7	Trail	Yoga Studio	Financial or Legal Service	Exhibit	Eye Doctor
185	Castle	7	Liquor Store	Trail	Park	Filipino Restaurant	Exhibit

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25	La Costa Oaks	8	Gym	Food Service	Event Space	Exhibit	Eye Doctor
137	Otay Ranch	8	Football Stadium	Gym	Yoga Studio	Financial or Legal Service	Exhibit
162	Alta Vista	8	Gym	Food Service	Event Space	Exhibit	Eye Doctor

	Neighborhood	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
72	Rolando	9	Pharmacy	Shipping Store	Park	Sandwich Place	Farmers Market
133	Mt. Hope	9	Liquor Store	Shipping Store	Park	Fast Food Restaurant	Event Space
177	Paradise Hills	9	Pharmacy	Food Service	Event Space	Exhibit	Eye Doctor

4. Conclusions

In this study, I analyzed the relationship between Venues in the Neighborhoods and their data. I identified the Neighborhoods with most competition and least competition and neighborhoods that are in the need for restaurant type establishments. Clusters 1 and 3 neighborhoods are the best for opening a new restaurant. Within these areas there are few restaurants, but more recreational type venues where people gather and migrate to.