

Houston Restaurant Analysis

Project Definition

- Houston Restaurant Opening
- A business owner would like to open a restaurant in Houston, Texas. He would like to know two questions:
 - 1) What type of restaurant/cuisine he should consider?
 - 2) Where is the location in Houston he should open his restaurant. He would like a Data Scientist to help him to identify the most popular cuisine in Houston and the best location/neighborhood to potential have the highest traffic and customers.

Data

- 1) List of Houston all restaurants, can be obtained from Yelp or other sources, to analyze and gain insights of current opened restaurants
- 2) Location of all restaurants, can be obtained from Foursquare. To gain spatial information of restaurants
- 3) Review/Ratings of all restaurants, can be obtained from Foursquare or Yelp.
- 4) Houston district information, can be obtained from Wikipedia or Houston city government web

1. Get all restaurants information

```
df1.head()
```

	business_name	rank	review_count	categories	rating	address	price_range	url
0	BCK Kitchen & Cocktail Adventures	1	453	American (New),American (Traditional),Cocktail...	4.5	933 Studewood St	\$\$	https://www.yelp.com/biz/bck-kitchen-and-cockt...
1	Ritual	2	1087	Southern,American (New)	4.0	602 Studewood St	\$\$	https://www.yelp.com/biz/ritual-houston?osq=Re...
2	The Pit Room	3	1135	Barbeque	4.5	1201 Richmond Ave	\$\$	https://www.yelp.com/biz/the-pit-room-houston?...
3	The Breakfast Klub	4	3704	Breakfast & Brunch,Southern	4.5	3711 Travis St	\$\$	https://www.yelp.com/biz/the-breakfast-klub-ho...
4	Elliot's Table	5	38	American (New)	4.0	465 T C Jester Blvd		https://www.yelp.com/biz/elliots-table-houston...

Find how many restaurants for each type of cuisine, sorted by number

Ranking of No. of restaurant for Cuisine:

```
[('Breakfast & Brunch', 75),  
 ('Seafood', 70),  
 ('American (New)', 66),  
 ('American (Traditional)', 57),  
 ('Bars', 51),  
 ('Burgers', 48),  
 ('Sandwiches', 47),  
 ('Coffee & Tea', 37),  
 ('Food Trucks', 34),  
 ('Mexican', 33),  
 ('Cocktail Bars', 32),  
 ('Southern', 29),  
 ('Cajun/Creole', 29),  
 ('Wine Bars', 28),  
 ('Italian', 26),  
 ('Pizza', 25),  
 ('Steakhouses', 23)].
```

Find the cuisine type of the most popular restaurant

Most popular restaurant cuisine type:

```
[('American (New)', 41),  
 ('Breakfast & Brunch', 39),  
 ('Seafood', 28),  
 ('Coffee & Tea', 27),  
 ('Sandwiches', 24),  
 ('Wine Bars', 22),  
 ('American (Traditional)', 20),  
 ('Burgers', 18),  
 ('Mexican', 17),  
 ('Italian', 17),  
 ('Pizza', 17),  
 ('Bars', 16),  
 ('Cocktail Bars', 16),  
 ('Mediterranean', 14),  
 ('Steakhouses', 14),  
 ('Sushi Bars', 13),  
 ('Southern', 12),  
 ('Food Trucks', 12),
```

Find Latitude/Longitude for each Restaurants

`df2.head()`

	business_name	rank	review_count	categories	rating	address	price_range	url	Latitude	Longitude
0	BCK Kitchen & Cocktail Adventures	1	453	American (New),American (Traditional),Cocktail...	4.5	933 Studewood St	\$\$	https://www.yelp.com/biz/bck-kitchen-and-cockt...	29.7887	-95.388
1	Ritual	2	1087	Southern,American (New)	4.0	602 Studewood St	\$\$	https://www.yelp.com/biz/ritual-houston?osq=Re...	29.7818	-95.3876
2	The Pit Room	3	1135	Barbeque	4.5	1201 Richmond Ave	\$\$	https://www.yelp.com/biz/the-pit-room-houston?...	29.7344	-95.3938
3	The Breakfast Klub	4	3704	Breakfast & Brunch,Southern	4.5	3711 Travis St	\$\$	https://www.yelp.com/biz/the-breakfast-klub-ho...	29.7385	-95.3804
4	Elliot's Table	5	38	American (New)	4.0	465 T C Jester Blvd		https://www.yelp.com/biz/elliots-table-houston...	29.7795	-95.4182

2. Get all neighborhood in Houston from Wikipedia

```
df_neighbor.head()
```

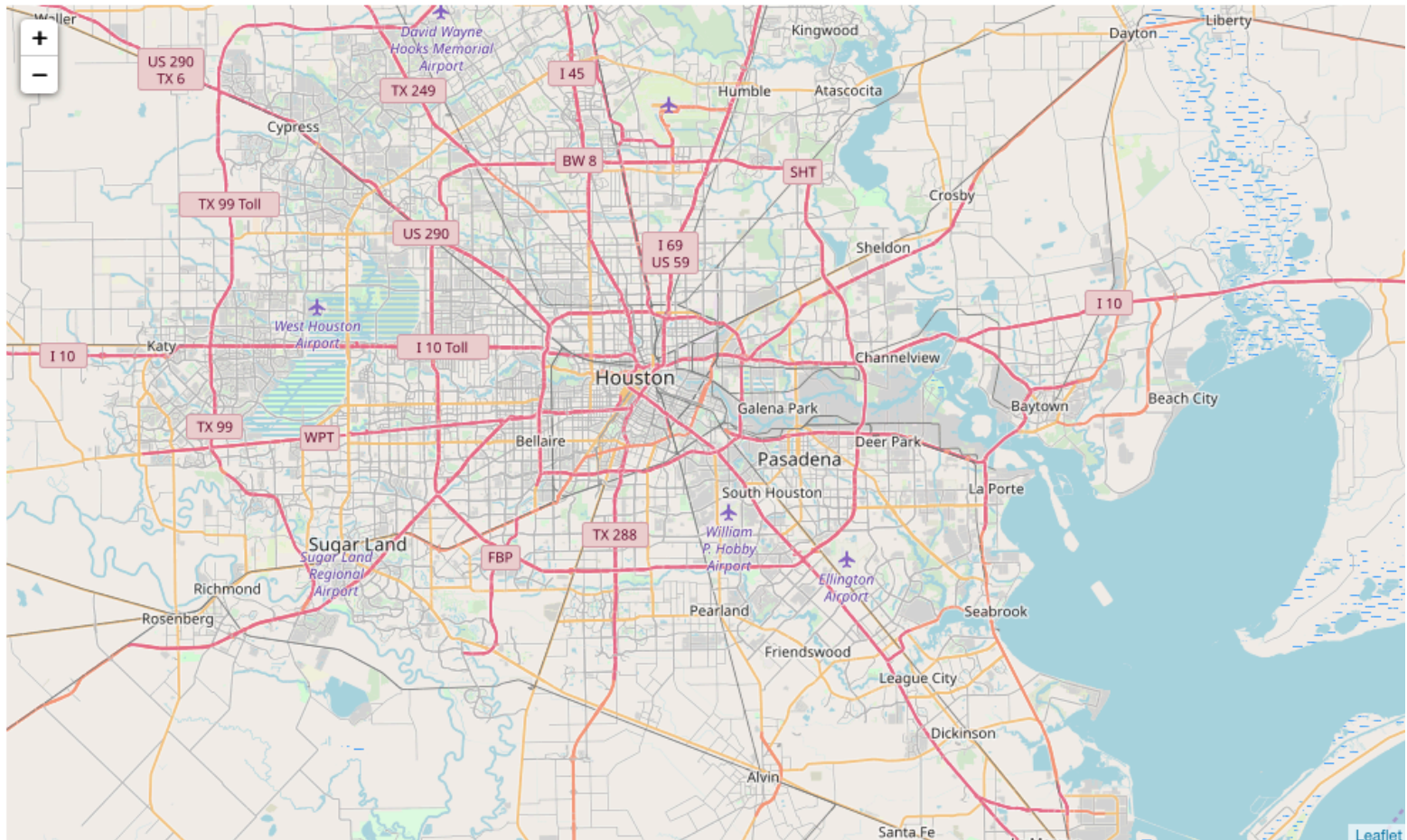
	Name	RelativeLocation
1	Willowbrook	Northwest
2	Greater Greenspoint	North
3	Carverdale	Northwest
4	Fairbanks / Northwest Crossing	Northwest
5	Greater Inwood	Northwest

Find Latitude/Longitude for each Neighborhood

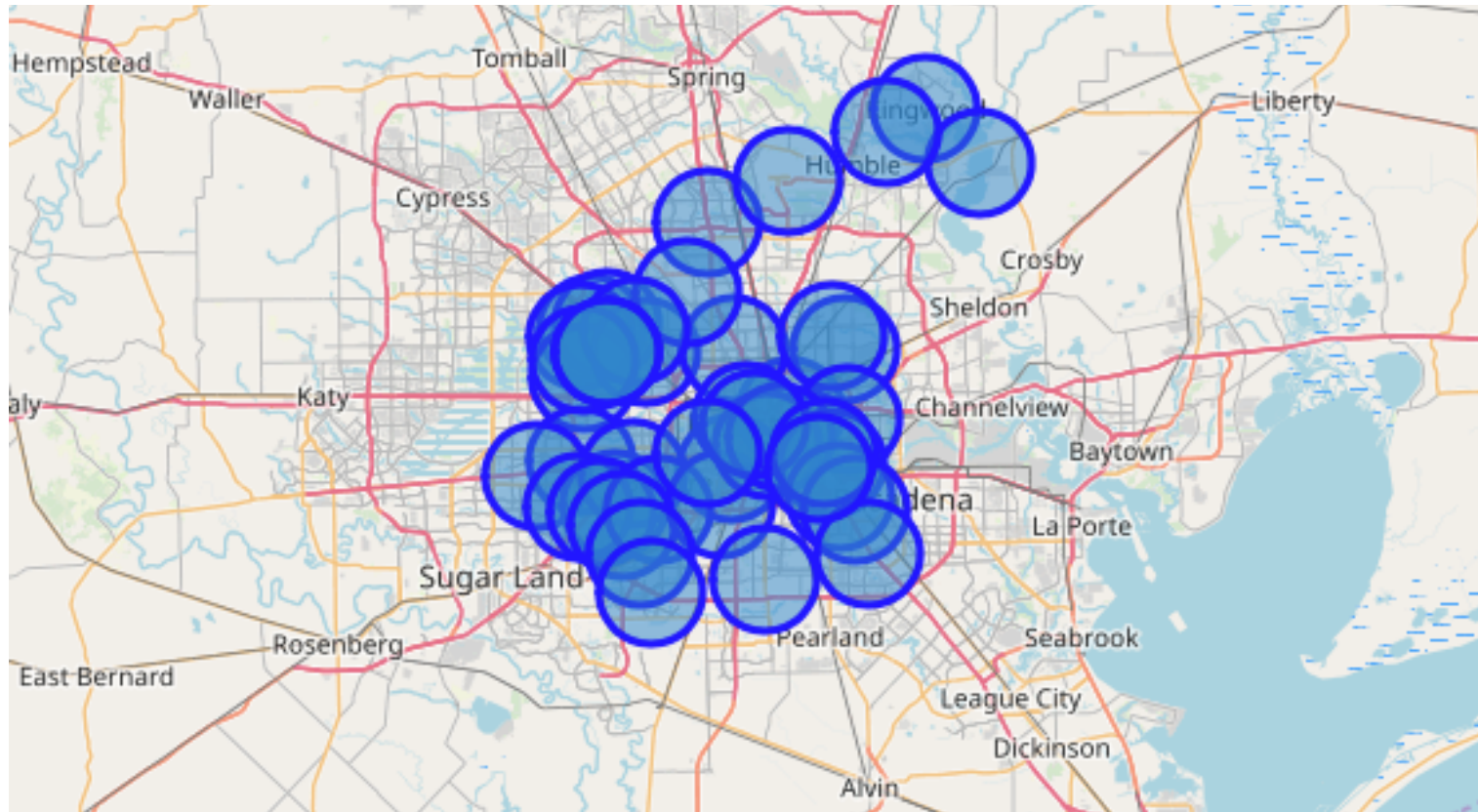
	Name	RelativeLocation	Latitude	Longitude
0	Willowbrook	Northwest	29.9447	-95.4161
1	Greater Greenspoint	North	29.8487	-95.5395
2	Carverdale	Northwest	29.8527	-95.5244
3	Greater Inwood	Northwest	29.7708	-95.3281
4	Acres Home	Northwest	39.4895	-119.753
5	Hidden Valley	North	29.8395	-95.5515
6	Addicks / Park Ten	West	29.8014	-95.5479
7	Spring Branch West	West	29.8263	-95.4828
8	Central Northwest (formerly Near Northwest)	Northwest	29.8283	-95.388
9	Lazybrook / Timbergrove	Northwest	29.8816	-95.4387
10	Greater Heights	Northwest	29.7186	-95.3909
11	Briar Forest	West	29.7252	-95.551
12	Neartown / Montrose	Southwest	29.7111	-95.5963

3. Plot the Houston map

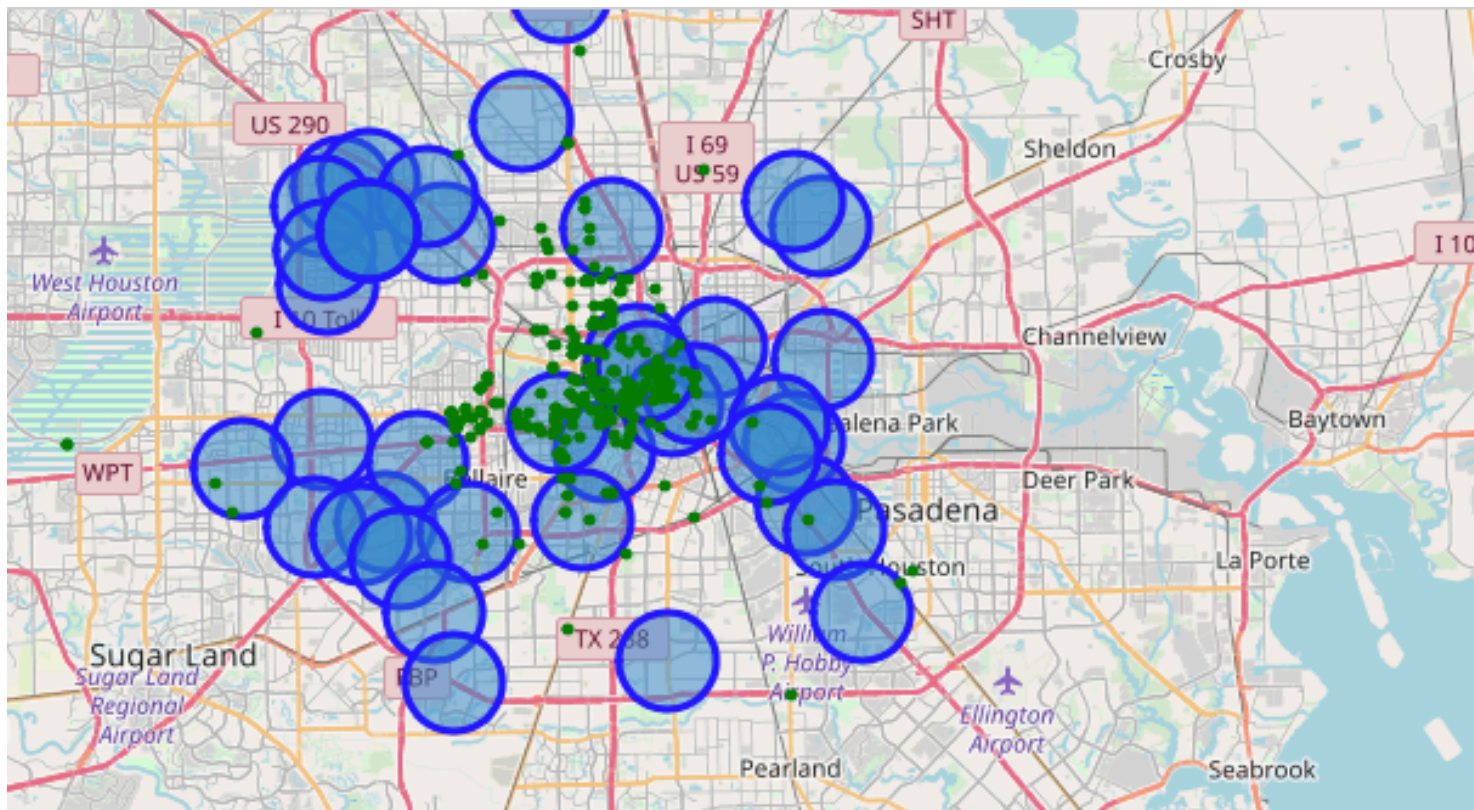
```
map_Houston = folium.Map(location=[latitude, longitude], zoom_start=10)
map_Houston
```



Plot the Neighborhood on map



Plot the most popular restaurants on Map



For the most popular restaurants, find its neighbor, and find the neighbor has most restaurants

```
df_mostpop_rest.Neighbor.value_counts()
```

Sunnyside	82
Pecan Park	59
East Little York / Homestead	46
Sharpstown	41
Central Northwest (formerly Near Northwest)	26
Greater Heights	25
Downtown	17
Medical Center	11
Midtown	8
Neartown / Montrose	5
Braeburn	4
Lazybrook / Timbergrove	3
Greater Hobby Area	3
Spring Branch West	3
Greenway / Upper Kirby	2
Golfcrest / Bellfort / Reveille	2
Willowbrook	2
Clear Lake	1
East Houston	1
Addicks / Park Man	1

Decision: Most Popular Restaurants at Most popular Neighborhood

Most popular restaurant cuisine type:

```
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 ('Wine Bars', 22),  
 ('American (Traditional)', 20),  
 ('Burgers', 18),  
 ('Mexican', 17),  
 ('Italian', 17),  
 ('Pizza', 17),  
 ('Bars', 16),  
 ('Cocktail Bars', 16),  
 ('Mediterranean', 14),  
 ('Steakhouses', 14),  
 ('Sushi Bars', 13),  
 ('Southern', 12),  
 ('Food Trucks', 12),
```

df_mostpop_rest.Neighbor.value_counts()

```
Sunnyside 82  
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East Little York / Homestead 46  
Sharpstown 41  
Central Northwest (formerly Near Northwest) 26  
Greater Heights 25  
Downtown 17  
Medical Center 11  
Midtown 8  
Neartown / Montrose 5  
Braeburn 4  
Lazybrook / Timbergrove 3  
Greater Hobby Area 3  
Spring Branch West 3  
Greenway / Upper Kirby 2  
Golfcrest / Bellfort / Reveille 2  
Willowbrook 2  
Clear Lake 1  
East Houston 1  
Addicks / Park Ten 1
```

For type of restaurants: American, Breakfast & Brunch, Seafood, Coffee & Tea and Sandwiches are the most popular restaurants in Houston

For location: Sunnyside, Pecan Park, East Little York, Sharpstown, Central Northwest are the neighborhood have the most number of most popular restaurants.