

Hospitality and Food Industry Data Analysis for New Orleans

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Business Problem and Significance

- Analyzing locational data of hospitality/dining venues is important to address stakeholders like business owners of those services or potential customers
- New Orleans is one of the busiest US cities in terms of tourism and dining
- New Orleans is a top 3 place to visit for their acclaimed food by Travel + Leisure

Data Scraping and Cleaning

Scraped from Wikipedia page:

https://en.wikipedia.org/wiki/Neighborhoods_in_New_Orleans

	Neighborhood	Longitude	Latitude
0	U.S. NAVAL BASE	-90.026093	29.946085
1	ALGIERS POINT	-90.051606	29.952462
2	WHITNEY	-90.042357	29.947200
3	AUDUBON	-90.121450	29.932994
4	OLD AURORA	-90.000000	29.924440

Data Cleaning Cont'd

```
venue_list = ['Neighborhood', 'American Restaurant', 'Asian Restaurant', 'BBQ Joint', 'Bagel Shop', 'Bakery', 'Bar',
              'Baseball Field', 'Baseball Stadium', 'Basketball Court', 'Bed & Breakfast', 'Beer Garden', 'Beer Store', 'Bistro', 'Breakfast Spot', 'Brewery', 'Burger Joint', 'Burrito PI',
              'Cafe', 'Cajun / Creole Restaurant', 'Candy Store', 'Caribbean Restaurant', 'Cheese Shop', 'Chinese Restaurant', 'Cocktail Bar', 'Coffee Shop', 'Comedy Club', 'Comfort Food',
              'Deli / Bodega', 'Dessert Shop', 'Dive Bar', 'Donut Shop', 'Eastern European Restaurant', 'Ethiopian Restaurant', 'Farmers Market', 'Fast Food Restaurant', 'Flea Market',
              'Food', 'Food & Drink Shop', 'Food Court', 'Food Truck', 'French Restaurant', 'Fried Chicken Joint', 'Gay Bar', 'General Entertainment', 'Gift Shop', 'Gourmet Shop', 'Groc',
              'Halal Restaurant', 'Harbor / Marina', 'Hostel', 'Hot Dog Joint', 'Hotel', 'Hotel Bar', 'Hotel Pool', 'Ice Cream Shop', 'Indian Restaurant', 'Indie Theater', 'Irish Pub',
              'Juice Bar', 'Karaoke Bar', 'Liquor Store', 'Lounge', 'Mediterranean Restaurant', 'Men's Store', 'Mexican Restaurant', 'Middle Eastern Restaurant', 'Miscellaneous Shop',
              'Museum', 'Music Store', 'Music Venue', 'National Park', 'New American Restaurant', 'Nightclub', 'Nightlife Spot', 'Other Great Outdoors', 'Outdoors & Recreation', 'Park',
              'Pier', 'Pizza Place', 'Playground', 'Plaza', 'Pool', 'Pool Hall', 'Poutine Place', 'Pub', 'Public Art', 'Racetrack',
              'Recreation Center', 'Rental Car Location', 'Residential Building (Apartment / Condo)', 'Restaurant', 'Rock Club', 'Salad Place', 'Sandwich Place', 'Scenic Lookout', 'Seafood',
              'Smoothie Shop', 'Soup Place', 'Southern / Soul Food Restaurant', 'Spa', 'Spanish Restaurant', 'Speakeasy', 'Sports Bar', 'Stables', 'Steakhouse',
              'Sushi Restaurant', 'Taco Place', 'Tapas Restaurant', 'Tennis Court', 'Tex-Mex Restaurant', 'Thai Restaurant', 'Theater', 'Tourist Information Center',
              'Travel & Transport', 'Vegetarian / Vegan Restaurant', 'Vietnamese Restaurant', 'Wine Bar', 'Wine Shop', 'Winery', 'Wings Joint' ]

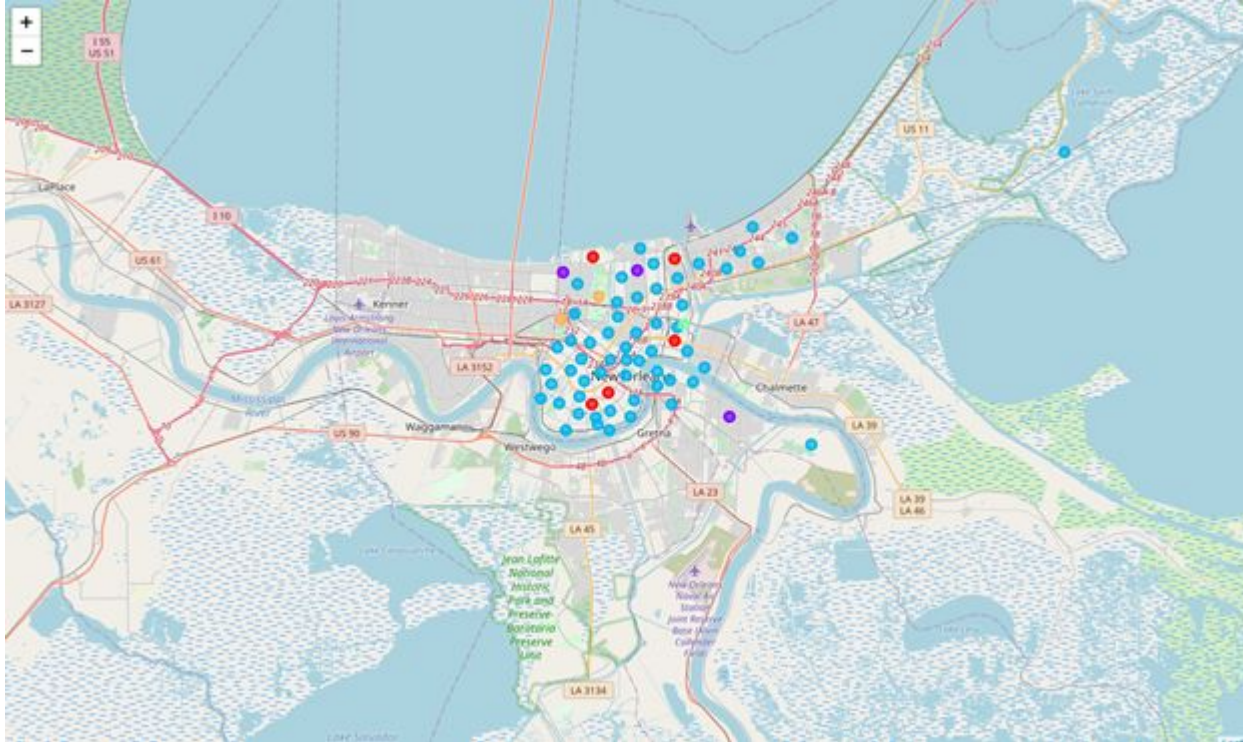
NO_grouped = NO_grouped[venue_list]
NO_grouped.head()
```

	Neighborhood	American Restaurant	Asian Restaurant	BBQ Joint	Bagel Shop	Bakery	Bar	Baseball Field	Baseball Stadium	Basketball Court	—	Thai Restaurant	Theater	Tourist Information Center	Travel & Transport	Vegetarian / Vegan Restaurant	Vietnamese Restaurant	Wine Bar	Wine Shop	Winery	Wings Joint
0	ALDIERS POINT	0.0	0.0	0.0	0.0	0.0	0.130435	0.0	0.0	0.0	—	0.0	0.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.043478
1	AUDUBON	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0	—	0.0	0.083333	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000000
2	B. W. COOPER	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0	—	0.0	0.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000000
3	BAYOU ST. JOHN	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0	—	0.0	0.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000000
4	BLACK PEARL	0.0	0.0	0.0	0.0	0.0	0.000000	0.0	0.0	0.0	—	0.0	0.000000	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.000000

5 rows × 22 columns

Identify key venues correlated with the hospitality, dining, and tourism industry that could be further used to analyze the clusters

K Means Clustering



Use K Means Clustering Algorithm due to its robustness and easy implementation

Use a K=5 cluster to set five groups to group upon

Cluster 0

Cluster 0 - RED

```
NO_merged.loc[NO_merged['Cluster Labels'] == 0, NO_merged.columns[list(range(9))]]
```

	Neighborhood	Longitude	Latitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
12	ST. CLAUDE	-90.039258	29.971814	0	Plaza	Park	Wings Joint	Japanese Restaurant	Ethiopian Restaurant
15	CENTRAL CITY	-90.086689	29.939465	0	Park	Fried Chicken Joint	Seafood Restaurant	Cajun / Creole Restaurant	Grocery Store
25	MILAN	-90.098362	29.932548	0	Wine Shop	Dive Bar	Park	Theater	Wings Joint
44	LAKESHORE - LAKE VISTA	-90.097847	30.023253	0	Harbor / Marina	Park	Wings Joint	General Entertainment	Ethiopian Restaurant
51	PONTCHARTRAIN PARK	-90.039310	30.021989	0	Park	Wings Joint	General Entertainment	Ethiopian Restaurant	Farmers Market

Cluster 1

Cluster 1 - PURPLE 🍷

```
NO_merged.loc[NO_merged['Cluster Labels'] == 1, NO_merged.columns[list(range(9))]]
```

	Neighborhood	Longitude	Latitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
4	OLD AURORA	-90.000000	29.924440	1	Concert Hall	Playground	Wings Joint	Donut Shop	Ethiopian Restaurant
43	WEST END	-90.118618	30.013666	1	Playground	Wings Joint	General Entertainment	Ethiopian Restaurant	Farmers Market
48	ST. ANTHONY	-90.065746	30.015152	1	Playground	Wings Joint	General Entertainment	Ethiopian Restaurant	Farmers Market

Cluster 2

Cluster 2 - BLUE

```
print(NO_merged.loc[NO_merged['Cluster Labels'] == 2, NO_merged.columns[list(range(9))]].shape)
NO_merged.loc[NO_merged['Cluster Labels'] == 2, NO_merged.columns[list(range(9))]]
```

(56, 9)

	Neighborhood	Longitude	Latitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	U.S. NAVAL BASE	-90.026093	29.946085	2	Wings Joint	Gift Shop	Ethiopian Restaurant	Farmers Market	Fast Food Restaurant
1	ALGIERS POINT	-90.051606	29.952462	2	Bar	Wings Joint	Scenic Lookout	New American Restaurant	Café
2	WHITNEY	-90.042357	29.947200	2	Nightclub	Gift Shop	Ethiopian Restaurant	Farmers Market	Fast Food Restaurant
3	AUDUBON	-90.121450	29.932994	2	Park	Plaza	Concert Hall	Playground	Coffee Shop
5	B. W. COOPER	-90.091753	29.951774	2	Recreation Center	Wings Joint	General Entertainment	Eastern European Restaurant	Ethiopian Restaurant
6	BAYOU ST. JOHN	-90.086517	29.976071	2	Sandwich Place	Playground	Other Great Outdoors	Park	Lounge
7	BLACK PEARL	-90.134883	29.935895	2	Farmers Market	Pool	Food Truck	Grocery Store	Wings Joint
8	BROADMOOR	-90.103812	29.946568	2	Recreation Center	Music Venue	Taco Place	Food Truck	Coffee Shop
9	MARLYVILLE - FONTAINEBLEAU	-90.113468	29.953001	2	Bar	Plaza	Food & Drink Shop	Lounge	Nightclub
10	GERT TOWN	-90.105829	29.960289	2	Asian Restaurant	Bakery	Seafood Restaurant	Wings Joint	Food & Drink Shop
11	MID-CITY	-90.099392	29.970401	2	American Restaurant	Bed & Breakfast	Cocktail Bar	Spa	Cajun / Creole Restaurant
13	CENTRAL BUSINESS DISTRICT	-90.074458	29.950026	2	Hotel	Hotel Bar	Coffee Shop	Bar	Sandwich Place
14	FRENCH QUARTER	-90.064373	29.958839	2	Cajun / Creole Restaurant	Bar	Jazz Club	Hotel	Breakfast Spot
16	LAKE CATHERINE	-89.761047	30.088108	2	Wings Joint	Gift Shop	Ethiopian Restaurant	Farmers Market	Fast Food Restaurant

Cluster 3

Cluster 3 - GREEN 🟢

```
NO_merged.loc[NO_merged['Cluster Labels'] == 3, NO_merged.columns[list(range(9))]]
```

	Neighborhood	Longitude	Latitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
56	FLORIDA DEV	-90.03253	29.981702	3	Wings Joint	Gift Shop	Ethiopian Restaurant	Farmers Market	Fast Food Restaurant

Cluster 4

Cluster 4 - ORANGE

```
NO_merged.loc[NO_merged['Cluster Labels'] == 4, NO_merged.columns[list(range(9))]]
```

	Neighborhood	Longitude	Latitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
39	LAKEWOOD	-90.119991	29.985494	4	Baseball Field	Spa	Wings Joint	General Entertainment	Ethiopian Restaurant
41	CITY PARK	-90.093727	29.999172	4	Baseball Field	Park	Tennis Court	Wings Joint	Food & Drink Shop

Conclusion and Next Steps

- More of the social attractions like bars, clubs, and parks were located more inland and a great place for aspiring owners to prop up their venues
- As for more dining and especially of Creole/Haitian type, they were more likely to be found along the shores and in the non-blue clusters.
- Moving forward more analysis can be done on possibly reviews of said tourist and restaurant attractions to get a better sense of optimal locations for touring, dining, or having fun for both owners and customers.