

# **IL CANE'S CAMION**

**Applied Data Science Capstone Project  
Presentation**

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## IL CANE'S CAMION - A DOG'S FOOD TRUCK

- Pets are an integral part of daily life for many Americans, and are often considered members of the family
- Food trucks are a growing and vibrant industry, driving innovation and creativity in the mobile food scene
- Max and Fido want to capitalize on both trends by launching Il Cane's Camion – The Dog's Truck – a food truck catering to dogs



## BUSINESS QUESTIONS TO CONSIDER:

- Which major US city is recommended as a launch location for Il Cane's Camion?
  - Population density of the 5 largest US cities?
  - Percentage of the population that are pet owners in each of the 5 largest cities?
- Once a city has been recommended:
  - Locate and map dog-friendly business venues, including
    - Veterinarians
    - Dog runs/parks
    - Pet stores
    - Pet services
  - Suggest and map several spots for Il Cane's Camion to operate



# DATA ACQUISITION

- Population density scraped from Wikipedia using BeautifulSoup
- American Housing Survey data from US Census Bureau used to compute percentage of population that are pet owners in major cities
- Latitude/longitude of Chicago acquired through geocod.io API
- Dog-centric venues in Chicago located with Foursquare API
- KMeans clustering algorithm imported from scikit.learn
- All maps rendered using Folium

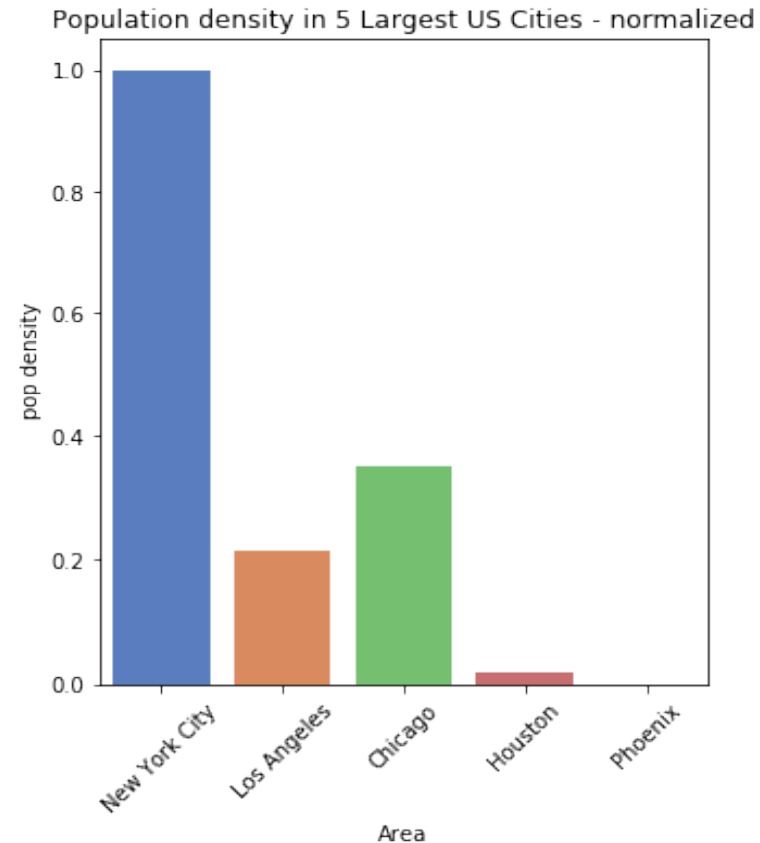
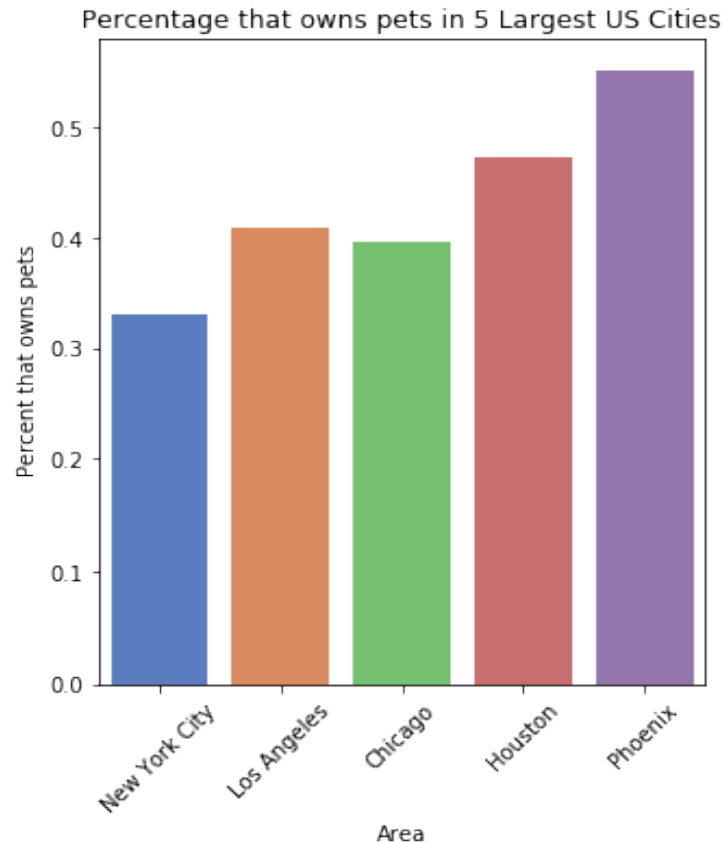
## BeautifulSoup



Folium



# POPULATION DENSITY AND PET OWNERSHIP PERCENTAGE



**Evaluation using the key indicators of population density and percentage of population that owns pets completed. Chicago suggested as the operating location for Il Cane's Camion.**



# FOURSQUARE LOCATION DATA FOR DOG-CENTRIC VENUES IN CHICAGO

An example of the location data obtained from Foursquare for pet stores in a ~5 mile radius in downtown Chicago:

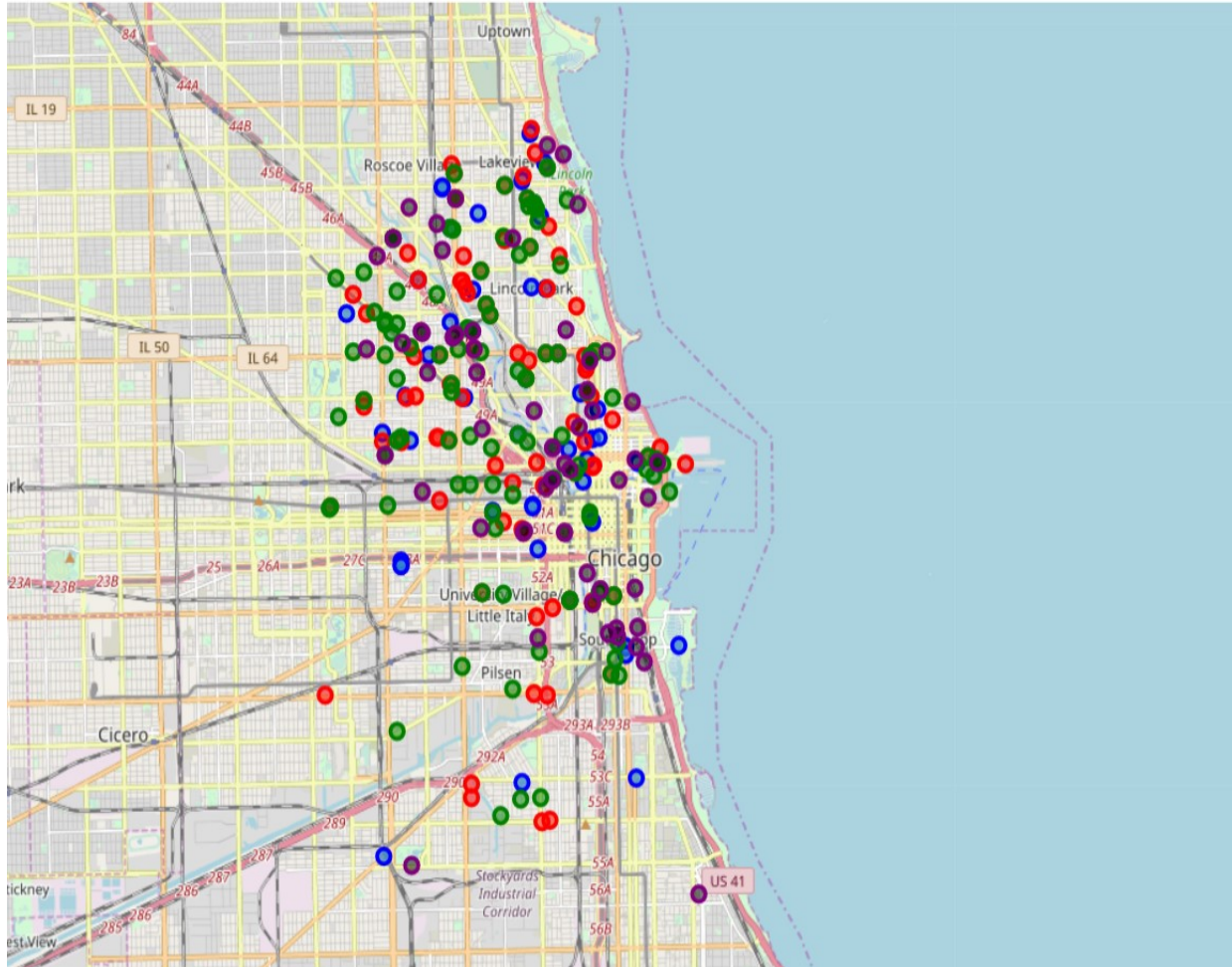
Out[27]:

	Name	Category	Latitude	Longitude
0	Kriser's Natural Pet	Pet Store	41.869137	-87.627229
1	The Anti-Cruelty Society	Pet Store	41.891375	-87.632548
2	Paw Naturals	Pet Store	41.880418	-87.650930
3	Kriser's Natural Pet	Pet Store	41.892732	-87.618315
4	PetSmart	Pet Store	41.906464	-87.650007
5	Old Town Aquarium	Pet Store	41.910252	-87.634857
6	Doggy Style Pet Shop	Pet Store	41.903182	-87.678284
7	Bark N' Bites	Pet Store	41.830842	-87.643930
8	Kriser's Natural Pet	Pet Store	41.911733	-87.679972
9	Petco	Pet Store	41.890087	-87.637159

Each of the four categories queried had between 50-100 results, providing ample location data for clustering



Chicago's Dog-Centric Locations, including Dog Runs, Pet Stores, Pet Services and Vet Services

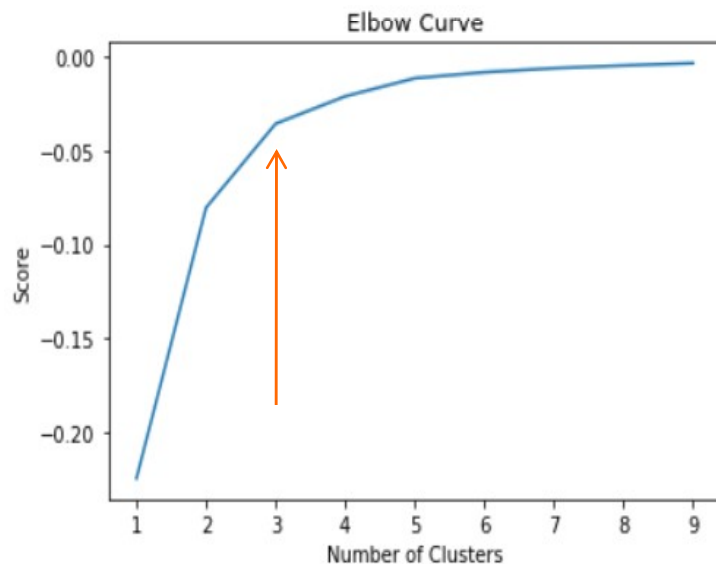


- Many dog friendly venues evident, but no easily identifiable clusters
- Pet friendly venues more concentrated at the top of the dataset location
- Greater distance between data points in the central and south area of dataset



# KMEANS ALGORITHM FOR CLUSTERING

Elbow curve  
visualization to  
determine k=3



Latitude/longitude for  
center of clusters

```
print(centers_df)  
X.tail(5)
```

	Latitude	Longitude
0	41.926190	-87.652723
1	41.876270	-87.638224
2	41.905702	-87.680656

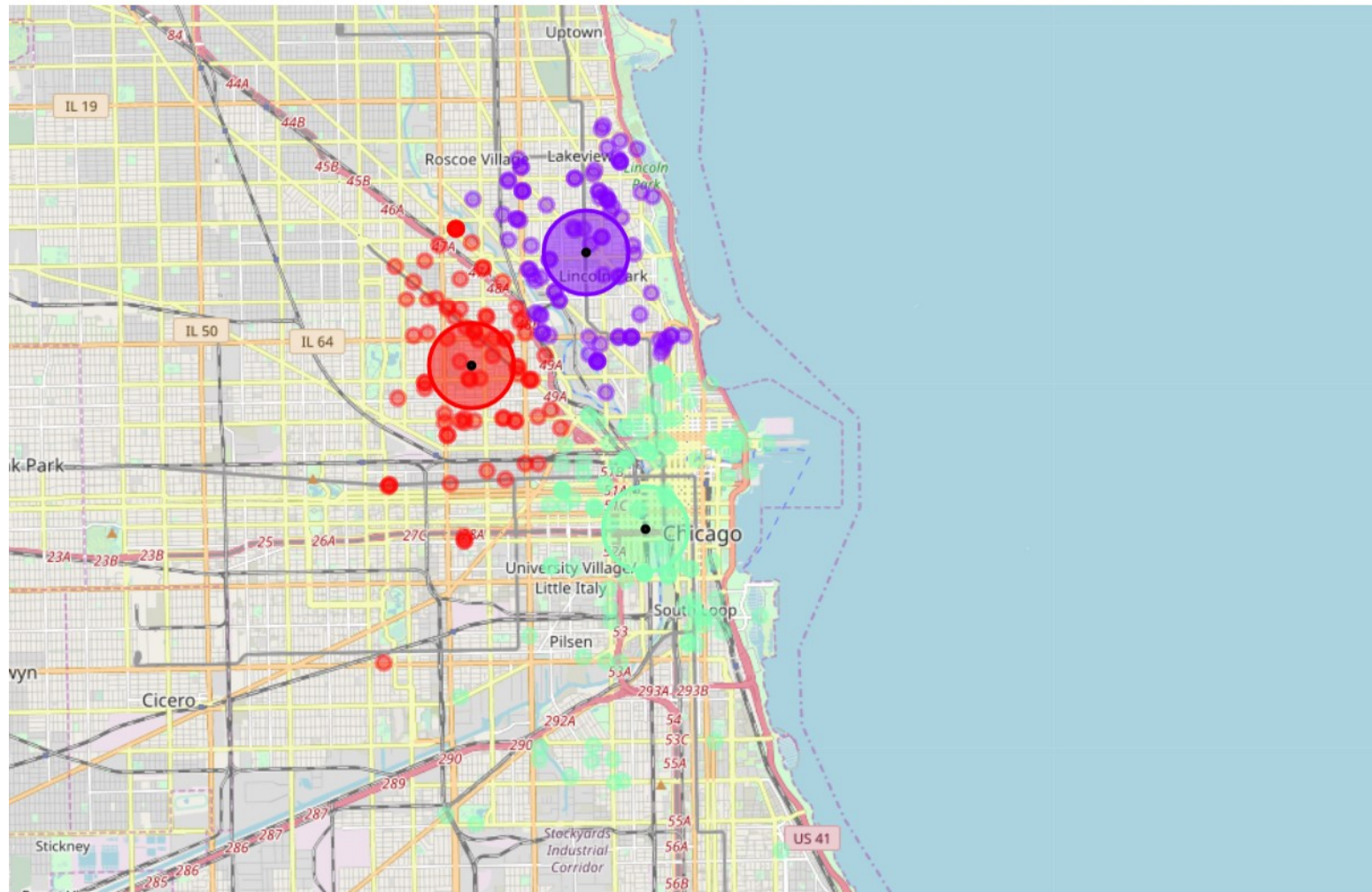
	Name	Latitude	Longitude	cluster_label
48	Pets First Veterinary Clinic	41.943755	-87.644989	0
49	Roscoe View Animal Clinic	41.939317	-87.671517	0
50	Higgins Animal Clinic	41.939650	-87.671462	0
51	Wrigleyville Veterinary Center	41.948889	-87.649093	0
52	Brighton Park Animal Hospital	41.824741	-87.686716	1

Sample of labeled dataset  
after applying KMeans



# CLUSTER MAP

Possible Il Cane's Camion Locations - 3 Main Clusters of Dog-Centric Locations in Chicago, IL



# CONCLUSIONS AND FUTURE OPTIONS

- Analysis showed that of the 5 largest US cities by population, Chicago scored well on both key indicators of population density and percentage of population that owned pets.
- Dog-centric venues located and mapped in 5 mile radius of downtown Chicago. By nature of dogs needing to go outside regularly, foot traffic in dog-friendly areas should be high.
- Three clusters in Chicago identified and mapped through the Kmeans algorithm. Latitude and longitude data were found and mapped for the centers of the clusters, indicating suggested areas for Il Cane's Camion to operate.
- Further research and analysis could include:
  - Comparison of costs of permits, licensing, and operation for food trucks in major US cities
  - Areas with dog-friendly housing in Chicago
  - Pet treats aimed at other animals
  - Franchising opportunities in other US cities

