

Coursera Capstone Project

IBM Applied Data Science Course

Opening a new business near Tesla Superchargers!

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Agenda

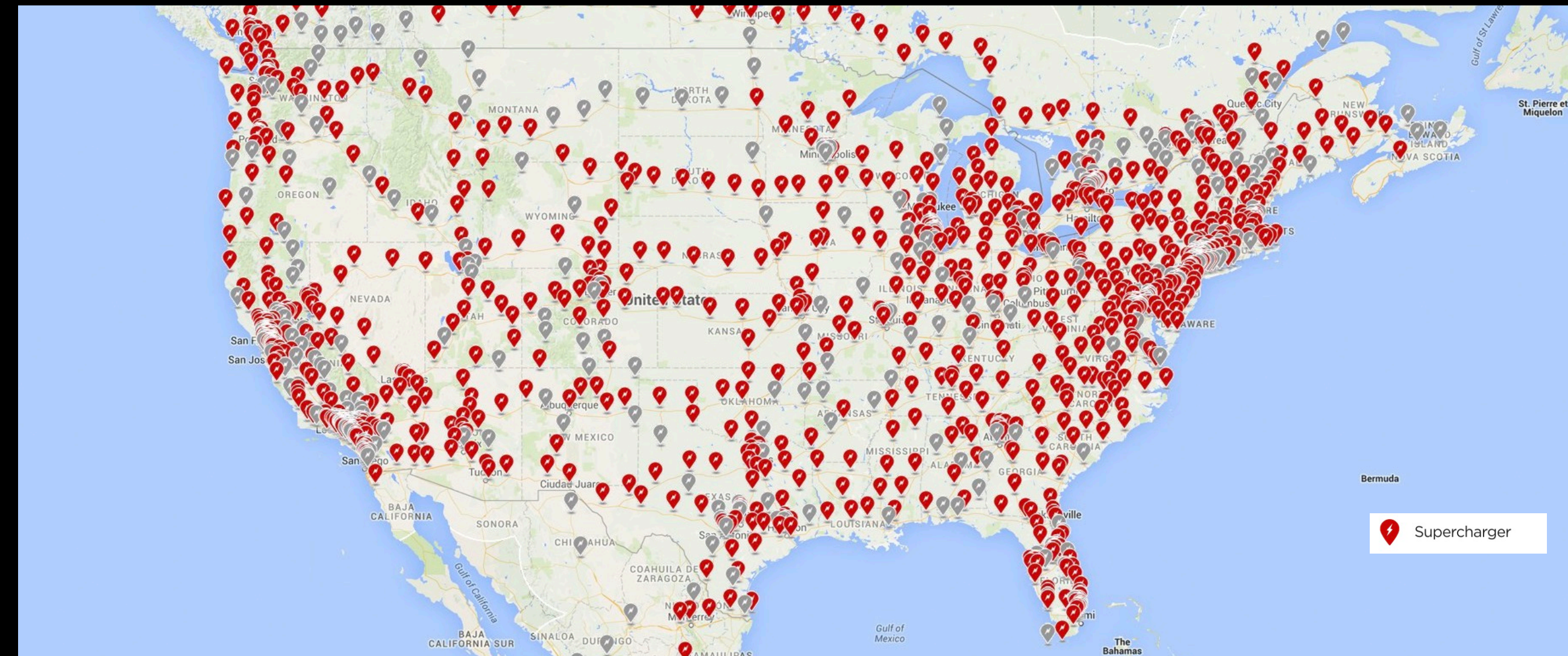
- Introduction to problem space
- Data procurement
- Analysis
- Conclusion

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Problem

- Over 1900 Tesla Superchargers in USA
- Average time spent at a supercharger is 15-20mins
- Data lacking on type of restaurants most popular near a given Supercharger



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Data Procurement

- Tesla Supercharger location data is available on supercharger.info
- Lists out data in json format with about 24 different data points
- There are 982 different superchargers within USA

Data Procurement

- We use Foursquare's venues api to pass the location of the Supercharger
- We filter venues by Food category

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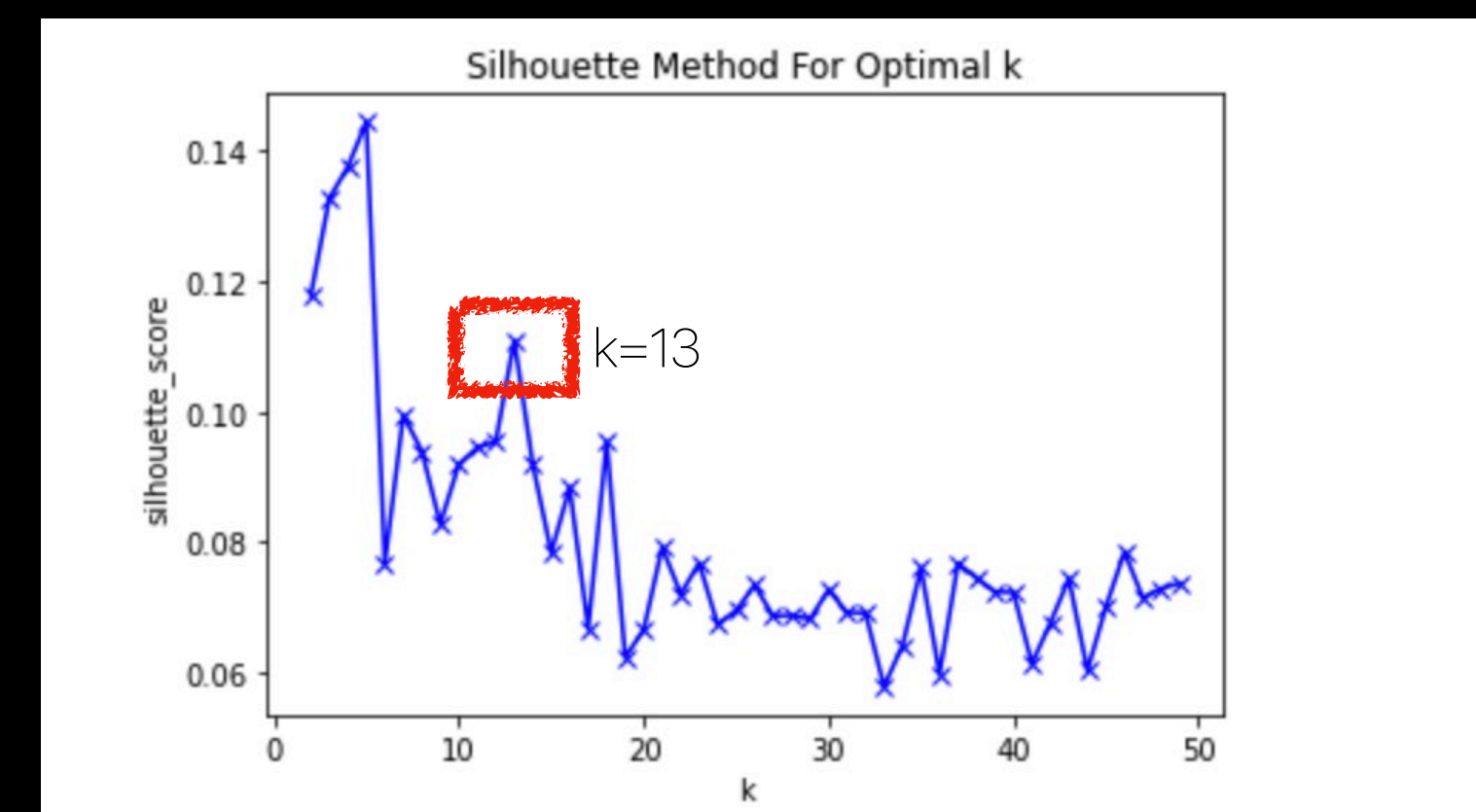
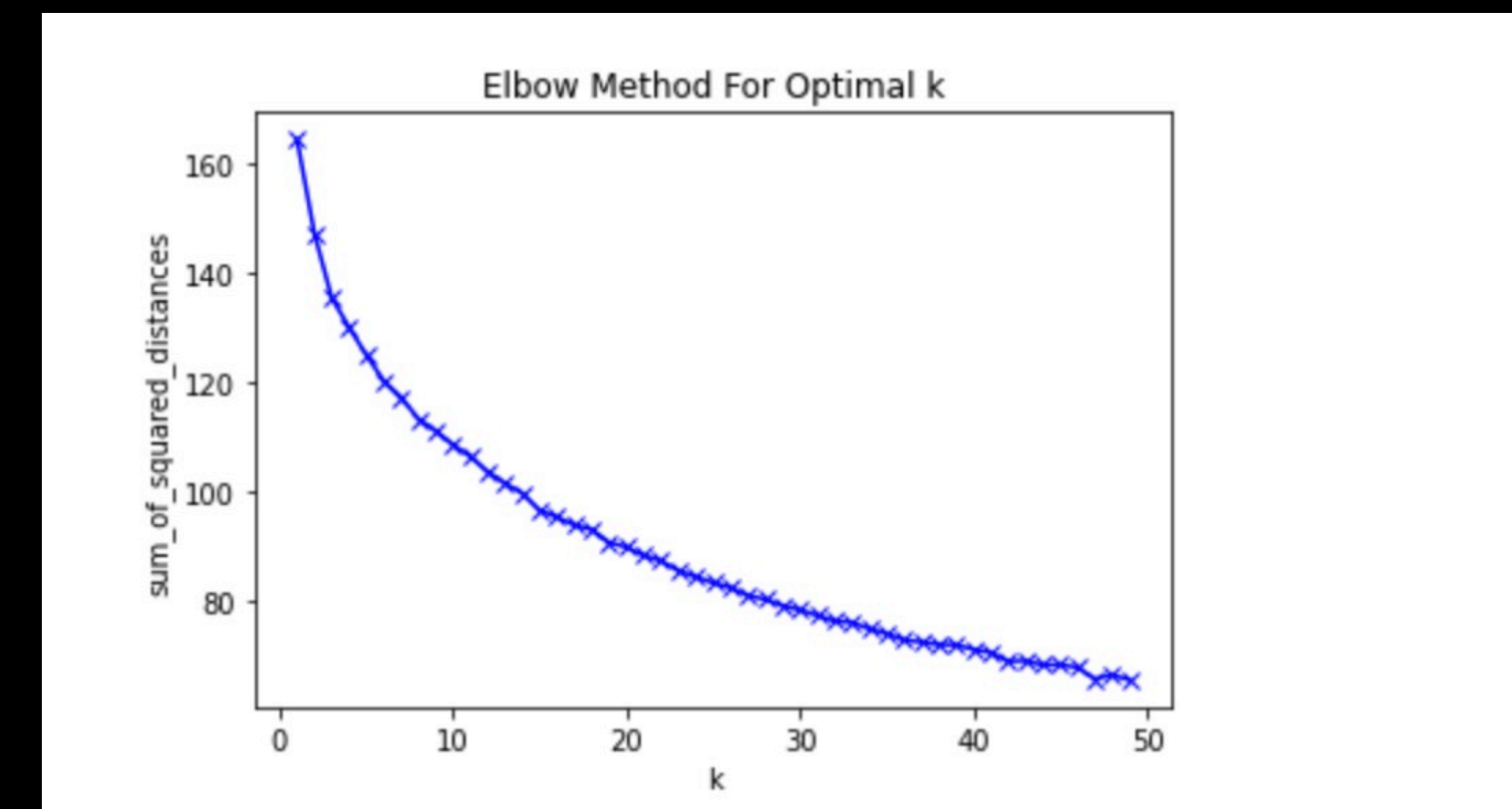
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Analysis

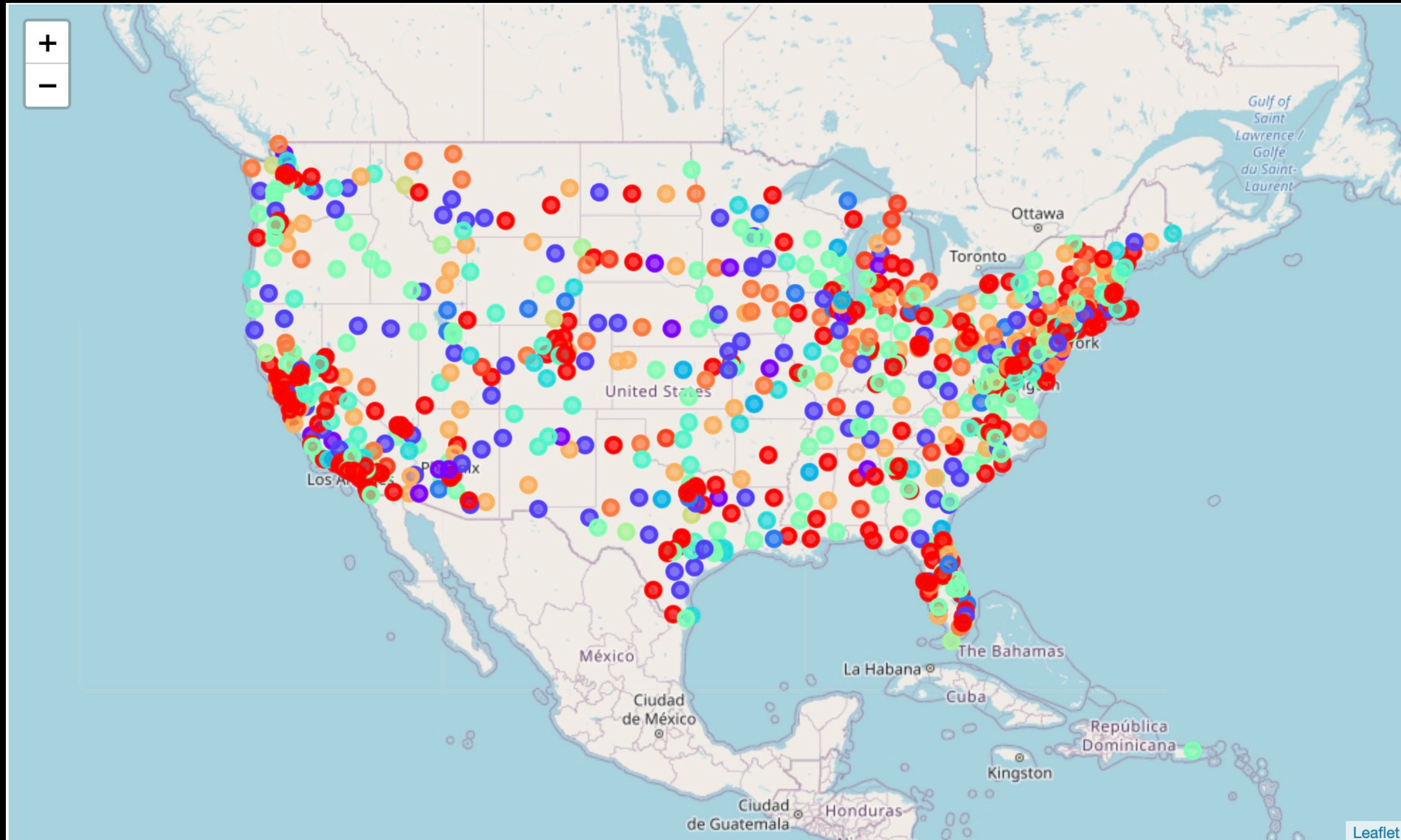
- Group the data from Foursquare's venues api by neighborhood
- Encode the data use one-hot encoding
- Extract the top-5 most common venues (restaurants) by each venue
- Join this data with the Supercharger location data

Analysis

- To perform k-means clustering we figure out the optimal k
- Elbow Method doesn't yield good results, but Silhouette Method shows peak around $k=2$, $k=3$ and $k=13$
- So we pick $k=13$ for our k-means clustering



Analysis



Tesla Supercharger clustered data rendered on map

Analysis

Cluster number	1st most common food venue	2nd most common food venue	Total superchargers
0	Steakhouse	American	13
1	Sandwich Place	Asian	21
2	Fast food	Mexican	97
3	Fast food	Asian	16
4	Breakfast spot	Ethiopian	9
5	Restaurant	BBQ	25
6	Mexican	American	44
7	Fast food	Pizza	205
8	Cafe	Asian	14
9	Diner	Food Court	4
10	American	Fast food	83
11	Pizza	Fast food	68
12	American	Asian	15
13	American	Pizza	349

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Conclusion

- American and Fast-food are by far the most common food venues located within walking distance of Tesla superchargers.
- Given that it takes about 15-20mins to charge an average Tesla car, it makes sense that people choose these cuisine over others as its easy to get in and get out with the choice of food and/or beverage in the time Tesla car owners have.