

The background features abstract green geometric shapes. On the left, a solid green trapezoid points towards the center. On the right, a complex arrangement of overlapping translucent green triangles and polygons creates a layered, crystalline effect. The text is centered in a clean, green, sans-serif font.

Vegan Restaurants to fight Climate Change

Environmental Impact of Meat Consumption

- ▶ Rising temperatures, increased rain and more extreme weather events will all have an impact on crops and livestock.
- ▶ Livestock rearing contributes to global warming through the methane gas the animals produce, but also via deforestation to expand pastures.
- ▶ Feeding massive amounts of grain and water to farmed animals and then killing them and processing, transporting, and storing their flesh is extremely energy-intensive.
- ▶ Animals themselves and all the manure that they produce release even more greenhouse gases into our atmosphere.

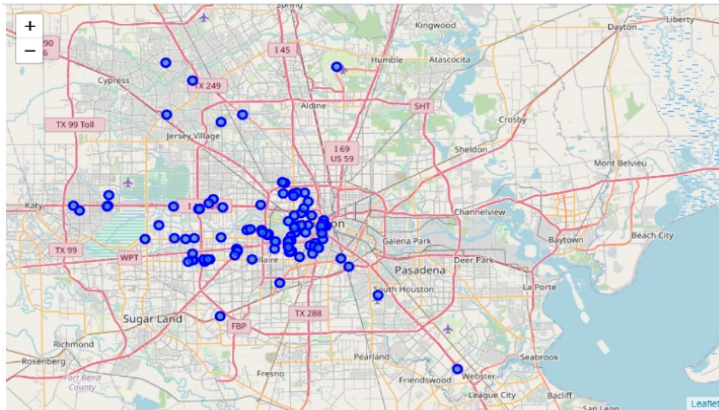
Business Problem

- ▶ Eating vegan foods rather than animal-based ones is the one of the best ways to reduce your carbon footprint.
- ▶ Many meat consumers may not have many choices in their neighborhoods or cities for meat alternatives such as Vegan food.
- ▶ Attempt to find one or several optimal locations for a Vegan restaurant.
- ▶ Specifically, targeted to stakeholders interested in opening a Vegan restaurant in one of the populous cities, in the most populous states in the U.S, California and Texas.
- ▶ Used data science powers to generate a few most promising neighborhoods based on the population criterion.

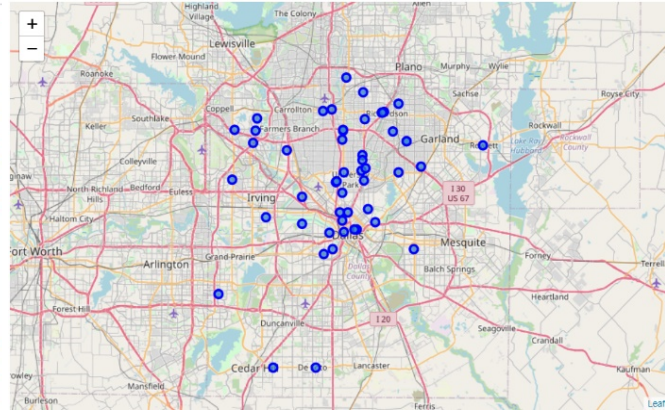
Data Acquisition

- ▶ Foursquare API to collect data about locations of Vegan places in 4 US metros areas: Houston, TX, Dallas, TX, San Francisco, CA and Los Angeles, CA.
- ▶ The zip codes of the neighborhoods and population information was be obtained using open data available in <https://catalog.data.gov/dataset>
- ▶ Based on business problem, factors that influenced our decisions were:
 - Number of existing vegan restaurants in the metro area
 - Mean distance to the vegan restaurants in the metro area.
 - Population levels within the metro region and neighborhoods that have least number of Vegan restaurants.

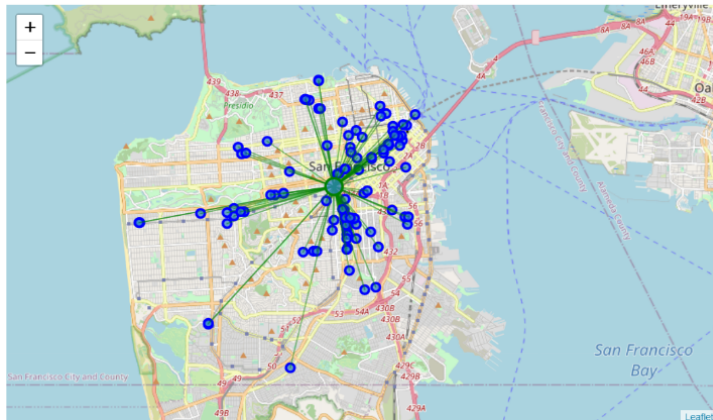
Maps of Metro Area Vegan Locations



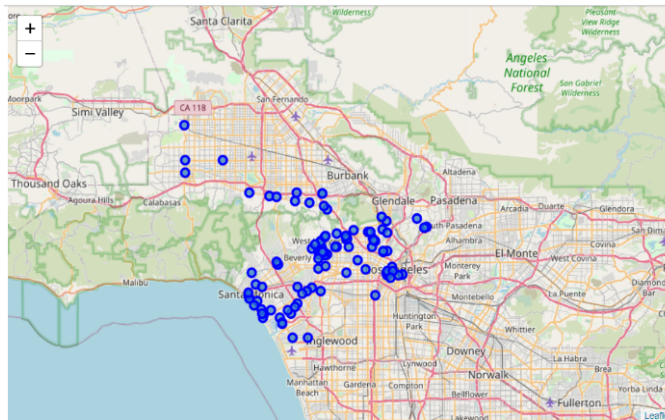
Houston, TX



Dallas, TX



San Francisco, CA

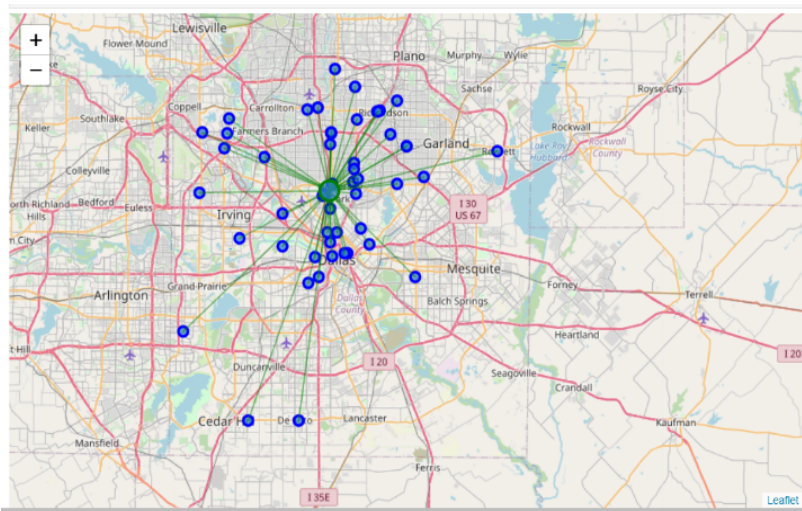


Los Angeles, CA

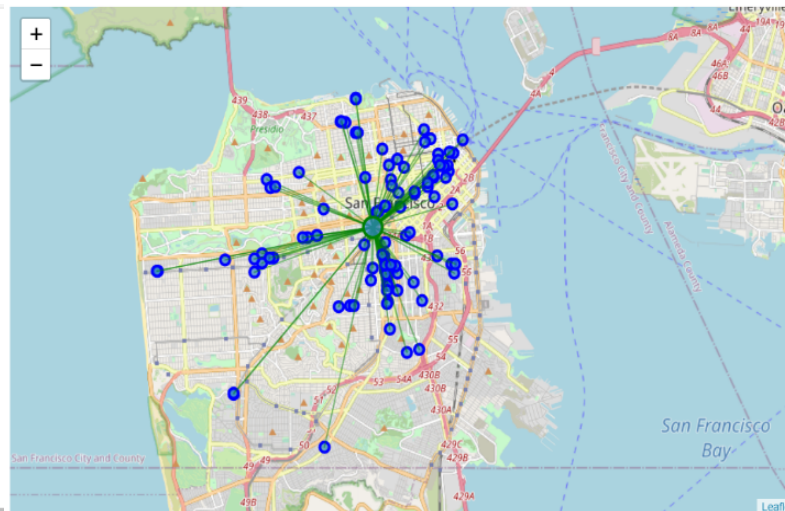
Methodology and Assumptions

- ▶ Assess which metro area would have the least established vegan restaurants density and further explore the focused area to determine possible neighborhoods for a new restaurant based on population levels.
- ▶ For the four metro areas, the main city within the metro is chosen initially for simplicity. The number of Vegan places in the main city is assumed to be an indicator of the Vegan places in that entire metro region.
- ▶ The Foursquare API query Category ID that is available for Vegan/Vegetarian place is assumed for Vegan restaurants.
- ▶ To get an indicator of the density of Vegan Places, mean distance to the mean coordinate was calculated.
- ▶ The metro with least densely populated with Vegan places is determined and this was the focus area for further analysis. Assumes more the people, more the demand for Vegan food.
- ▶ The most populated neighborhoods with least number of vegan places are then obtained.

Analysis

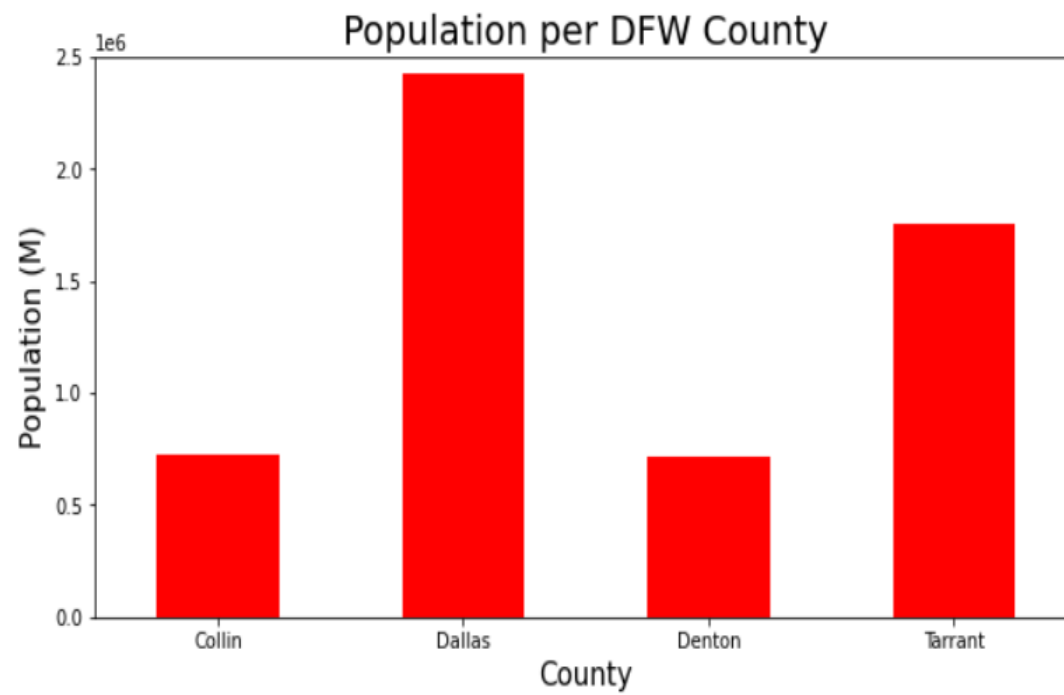


Least Dense Metro Area
(Dallas, TX)

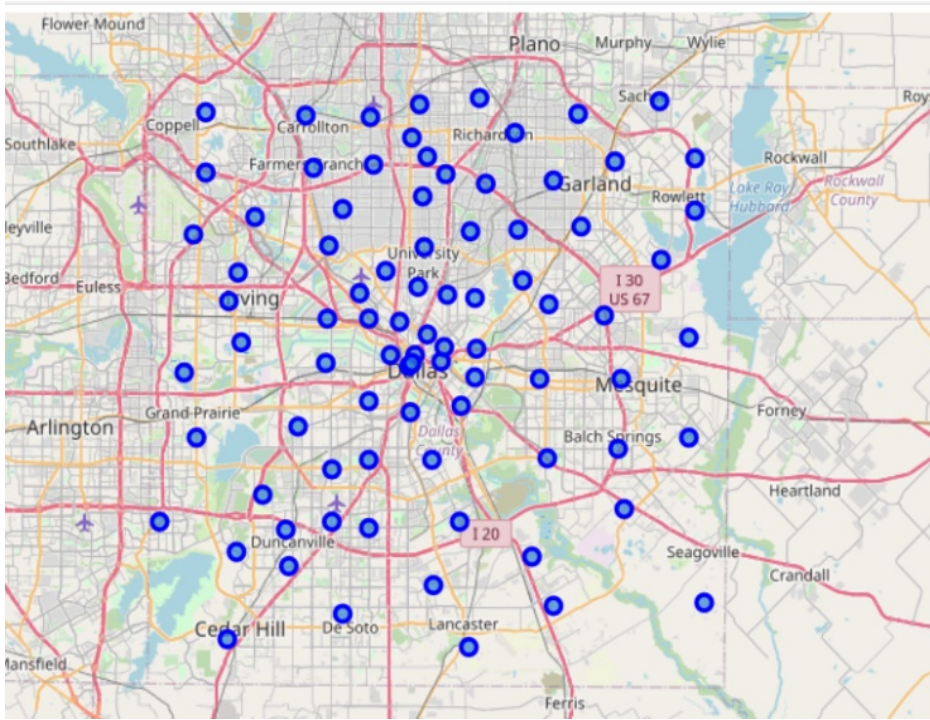


Most Dense Metro Area
(San Francisco, CA)

Analysis



Analysis



Neighborhood Cities within Dallas County

Results and Discussion

- ▶ Dallas has 1 Vegan place for approximately every 23K residents.
- ▶ Garland has 1 Vegan place for approximately every 4K residents.
- ▶ Mesquite has 1 Vegan place for approximately every 4K residents.
- ▶ Rowlett has 1 Vegan place for approximately every 5K residents.

Dallas County Neighborhood/City	Population (Rounded Number)	No. of Vegan Places
Dallas	1.2 million	51
Garland	227,000	48
Grand Prairie	170,000	58
Irving	218,000	65
Mesquite	141,000	35
Richardson	78,000	47
Rowlett	55,000	11

Conclusion

- ▶ Based on an analysis, Dallas TX metro provides opportunities for the stake holders to open Vegan restaurant and encourage Vegan food among residents to help fight climate change.
- ▶ Within the DFW metro, the top 4 neighborhoods within Dallas county area for opening new business for Vegan food are Dallas, Rowlett, Garland and Mesquite.

Future Directions

- ▶ This project took into account only the population levels and assumed more the people, more demand for Vegan food.
- ▶ Further analysis can be conducted taking into the account the education and employment levels in the neighborhoods, the income levels and age groups.
- ▶ The analysis can be repeated for a greater number of cities or metro areas.