

## Introduction - Copenhagen Vegetarian / Vegan restaurant scene

During last couple of years more and more people have started to decrease meat consumption for various reasons (e.g. environmental, ethical or other), which has increased the demand for vegetarian and vegan food options across cities. Copenhagen is the largest city of Denmark with estimated population of around 800 thousand (based on Denmark Statistics latest information). Additionally, Copenhagen is attracting large amount of tourists every year.

In a light of the newest trends, this report will investigate the current scene of restaurants with Vegetarian/Vegan friendly options in Copenhagen in order to establish a good overview of available options and understanding of the gaps in the market by segmenting and clustering the different districts in Copenhagen. For these reasons, the research is valuable as the first starting point of further market research in case someone would like to open a vegetarian/vegan restaurant.

Target for this report is new enterpranuer looking for possibilities to open new Vegan/Vegetarian restaurant in Copenhagen area. In order to open in competitive area - this research will give basis for this choice.

Question addressed in this research is: **Where are the most vegan/vegetarian friendly restaurants in Copenhagen and are there any other similar neighborhoods for potential new restaurant?**

## Data

Data used for such analysis will include GeoJson file with districts of Copenhagen Area. Together 12 districts have been used for this purpose. Firstly, data on Postal code level was used, however due to huge amount of postal codes and small area size, it was decided to rather utilize district level detail to get more sensible overview. Data was gathered from <https://giedriusk.carto.com/>. In addition to geometry data, information regards venues was gathered from Foursquare API, where venue category, venue name, latitude, longitude was gathered on the nearby distance. GeoJson data will be used to both get the geospatial information to visualize it on folium maps, as well as derive centroids of the different districts of Copenhagen. These lon and lat data points will further be used to gather data from Foursquare API on nearby Vegan/Vegetarian restaurants as well as other venues for segmentation and clustering purposes.

Data from GeoJson includes District's name and geometry. Screenshot below. This data will be used to draw polygons and districts on folium maps.

cartodb_id	id	lokaludval	price	k_price	offices	malls	supermark	total_pop	name	v_st_pl	v_st_op	v_kw_chrg	v_km_avg	v_prof_avg	total_ev_s	all_pop	geometry	
0	1	17	3	26911	0.688110	24	0	26	58235	Osterbro	5	6	12000	10200	900	4	557673	MULTIPOLYGON (((12.59777 55.70348, 12.59700 55...

From data above centroids for each of the districts have been gathered. This data will be used in order to gather information about nearby venues in the area from Foursquare API.

	Area	Latitude	Longitude
0	Osterbro	55.712243	12.586527
1	Valby	55.656698	12.502977
2	Kongens Enghave	55.648360	12.536129
3	Amager Ost	55.663357	12.625562
4	Bronshøj-Husum	55.710064	12.486300
5	Norrebro	55.696187	12.550974
6	Vesterbro	55.664883	12.551553
7	Indre By	55.683996	12.578535
8	Bispebjerg	55.714078	12.533830
9	Christianshavn	55.682234	12.606506
10	Fredriksberg	55.679982	12.523552
11	Amager Vest	55.638721	12.572178
12	Vanløse	55.690050	12.489985

Lastly data from Foursquare API consists on the followin information. This data will be used to count venues available in each district, as well as information on different venue categories to perform machine learning algorithm for clustering and segmenting the districts. Venue lon and lat information will be used to put those on folium map.

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Address	Distnace	Venue Latitude	Venue Longitude	Venue Category
0	Osterbro	55.712243	12.586527	Souls	{ 'address': 'Melchiors Plads 3', 'lat': 55.703...	976	55.703503	12.585135	Vegetarian / Vegan Restaurant
1	Osterbro	55.712243	12.586527	Nordisk Falafel	{ 'address': 'Nordre Frihavsgade 55', 'lat': 5...	1083	55.702630	12.583862	Vegetarian / Vegan Restaurant
2	Osterbro	55.712243	12.586527	Kolonial 2100	{ 'address': 'Landskronagade 27', 'lat': 55.713...	981	55.713032	12.570944	Vegetarian / Vegan Restaurant
3	Osterbro	55.712243	12.586527	42 Raw Waterfront	{ 'address': 'Tuborg Havnevej 4', 'lat': 55.725...	1555	55.725686	12.579755	Vegetarian / Vegan Restaurant