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IBM Applied Data Science Capstone

Proposal for a new vegetarian / vegan restaurant in Berlin, Germany



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Business Problem

- The location of every new venue is one of the most important decisions that will determine whether it will be a success or a failure
- According to the European Vegetarian Union, 10% of German consumers (7.8 million individuals) are vegetarians, and 1.1% are vegans (900,000 individuals).
- Objective of this project: To analyze and select the best locations in Berlin, Germany to open a new vegetarian / vegan restaurant.

Required Data

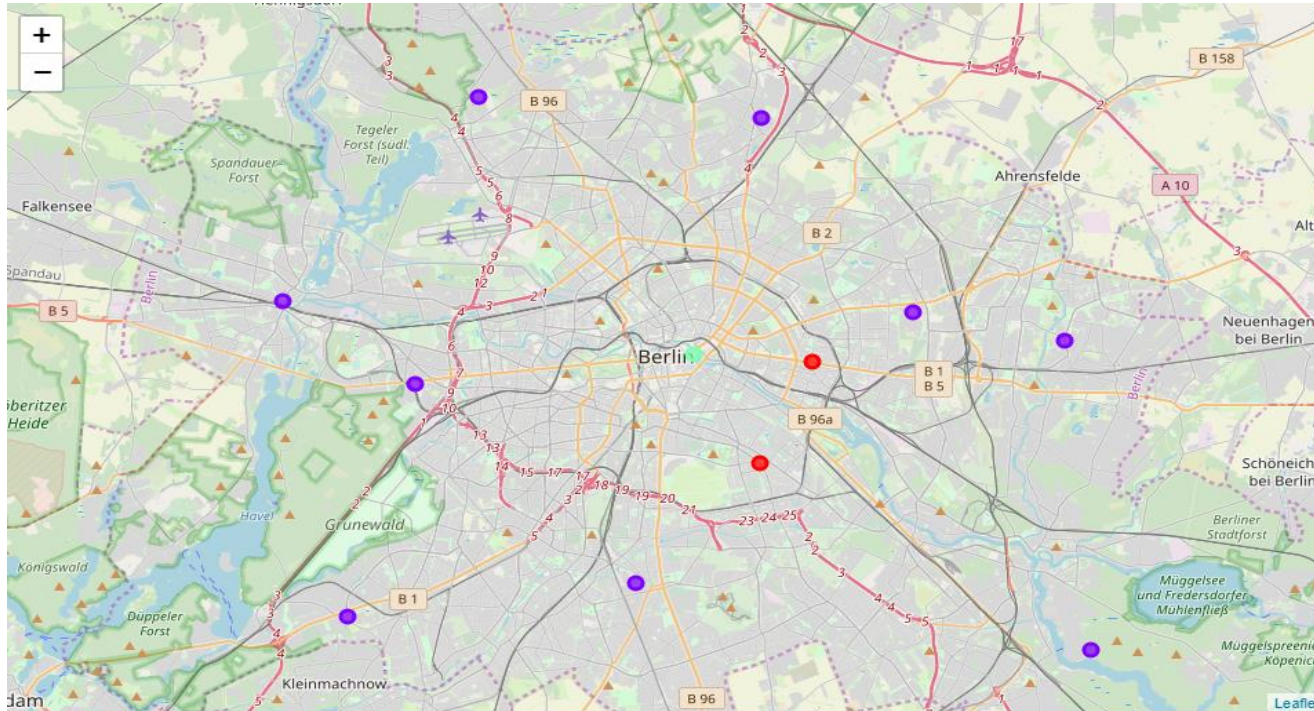
- List of districts in Berlin, from Wikipedia.
 - https://de.wikipedia.org/wiki/Kategorie:Bezirk_von_Berlin
- Latitude and longitude coordinates of those districts, from a CSV File hosted on GitHub.
 - [https://github.com/Tatirmp/Coursera IBM Data Science/blob/master/Berlin_Bezirk.csv](https://github.com/Tatirmp/Coursera_IBM_Data_Science/blob/master/Berlin_Bezirk.csv)
- Venue data, particularly data related to gastronomie and vegetarian / vegan restaurants on Foursquare.

Methodology

- Web scraping Wikipedia page to obtain a list of districts of Berlin.
- Get latitude and longitude coordinates from a CSV File on GitHub.
- Use Foursquare API to get venue data.
- Group data by districts and taking the mean of the frequency of occurrence of each venue category
- Filter venue category by vegetarian / vegan Restaurants.
- Perform clustering on the data by using k-means clustering
- Visualize the clusters in a map using Folium

Results

- Categorized the districts into 3 clusters :



- **Cluster 0:** represented in purple color.
- **Cluster 1:** no representation.
- **Cluster 2:** represented in red color.

Discussion

- The most of the vegetarian / vegan restaurants are located around Berlin's downtown.
- The clusters are divided in this way:
 - Cluster 0: Districts with a few number of vegetarian / vegan restaurants, represented in purple color.
 - Cluster 1: Districts with no existence of vegetarian / vegan restaurants. No representation.
 - Cluster 2: Districts with very low concentration of vegetarian / vegan restaurants. Represented in red color.
- This represents a great opportunity and high potential areas to open a new vegetarian / vegan restaurants as there is very little to no competition from existing restaurants of this kind.

Conclusion

- This project recommends property developers to capitalize on these findings to open new vegetarian / vegan restaurants in districts in cluster 1 with little to no competition.
- To go deep into this recommendation, we recommend to consider other factors as gender, education level and income of residents to help the decision making of stakeholders and to find an optimal place to open a new vegetarian / vegan restaurant.