Coursera Capstone

IBM Applied Data Science Capstone

Opening a New Vegetarian/Vegan Restaurant in Singapore

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Business Problem

- Location is one of the most important decisions that will determine whether any business will be a success or a failure

- Objective: to analyse and select the best districts in Singapore to open a new vegetarian/vegan restaurant.

- Business question: In Singapore, if entrepreneurs are looking to open a new vegetarian/vegan restaurant, where would you recommend that they open it?

Data

- Data required
- ➢ List of districts in Singapore.
- ➢ Latitude and longitude coordinates of those districts.
- ➢ Venue data, particularly data related to vegetarian/vegan restaurants.

- Sources of data
- ➢ This keylocations page (https://keylocation.sg/singapore/districts-map)
- ➢ Geocoder package for latitude and longitude coordinates
- ➢ Foursquare API for venue data

Methodology

- Web scraping keylocations page for districts list
- Get latitude and longitude coordinates using Geocoder
- Use Foursquare API to get venue data
- Group data by district and taking the mean of the frequency of occurrence of each venue category
- Filter venue category by Vegetarian / Vegan Restaurant
- Perform clustering on top 20 venues of each districts by using k-means clustering
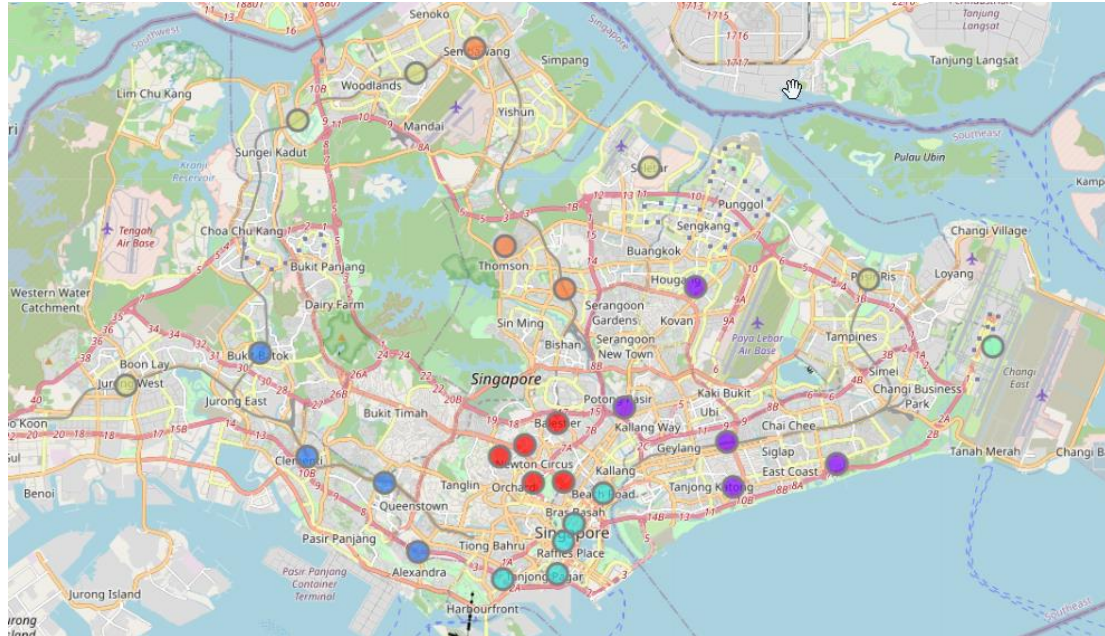- Visualize the clusters in a map using Folium

Results

- Categorized the districts into 7 clusters

➤ Cluster 0 (tourist district in SG surrounded by hotels, shopping malls, and different types of restaurants including Vegetarian / Vegan)

➤ Cluster 1 (east area of SG surrounded by coffee shop, cafe, and different types of restaurants including Vegetarian / Vegan)

➤ Cluster 2 (west area of SG surrounded by bakery, cafe, park, and different types of restaurants including Vegetarian / Vegan)

➤ Cluster 3 (central business district area of SG surrounded by hotel, cafe, and different types of restaurants including Vegetarian / Vegan)

➤ Cluster 4 (far east area of SG near airport)

➤ **Cluster 5 (far north west area + north east of SG surrounded by coffee shop, cafe, food court, and different kind of restaurants excluding Vegetarian / Vegan)**

➤ Cluster 6 (north area of SG surrounded by coffee shop, cafe, food court, park, and different kind of restaurants including Vegetarian / Vegan)

Clusters map

- Cluster 0 in red
- Cluster 1 in purple
- Cluster 2 in blue
- Cluster 3 in light blue
- Cluster 4 in aquamarine
- **Cluster 5 in lime**
- Cluster 6 in orange

Discussion

- We will recommend entrepreneur to focus on cluster 5 which are suburban areas without much presence of vegetarian / vegan restaurants.

➢ District 18 (Pasir Ris, Simei, Tampines)

➢ District 22 (Boon Lay, Jurong, Tuas)

➢ District 24 (Kranji, Lim Chu Kang, Tengah)

➢ District 25 (Admiralty, Woodlands)

➢ District 28 (Yio Chu Kang, Seletar)

Conclusion

- Answer to business question : The districts in cluster 5 are the most preferred locations to open a new vegetarian / vegan restaurant

- Finding of this project will help entrepreneur to capitalize on the opportunities on high potential locations while avoiding overcrowded areas in their decision to open a new vegetarian/ vegan restaurant

Thank you