IBM APPLIED DATA SCIENCE CAPSTONE PROJECT
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OPENING A TAKE-AWAY INDIAN RESTAURANT IN CHRISTCHURCH CITY OF NEW ZEALAND

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01	02	03	04
Business Problem	Data	Methodology	Findings & Suggestions

Question: Which locations would you recommended in the city of Christchurch if someone is looking to open or invest in a take-away Indian restaurant?

This project will solely focused on analyzing and selecting best locations in the city of Christchurch to open a Take-away Indian restaurant. We will be using data science and machine learning techniques.

Target Audience: The project findings will be useful for Investors, Entrepreneurs, Food Enthusiast Researchers looking to get into the restaurant business

Data Requirement:
- List of Suburbs for the city of Christchurch in New Zealand.
- Geographical location such as longitude and latitude data of Christchurch and all the suburbs
- List of Venue categories in the city
- Venue Data relating to Indian restaurants such as Location

Source: Wikipedia

Foursquare location data:

- **Suburbs**: Name of the Suburbs
- **Suburbs Latitude**: Latitude of the Suburbs
- **Suburbs Longitude**: Longitude of the Suburbs

- **Venue**: Name of the Venue
- **Venue Latitude**: Latitude of Venue
- **Venue Longitude**: Longitude of Venue
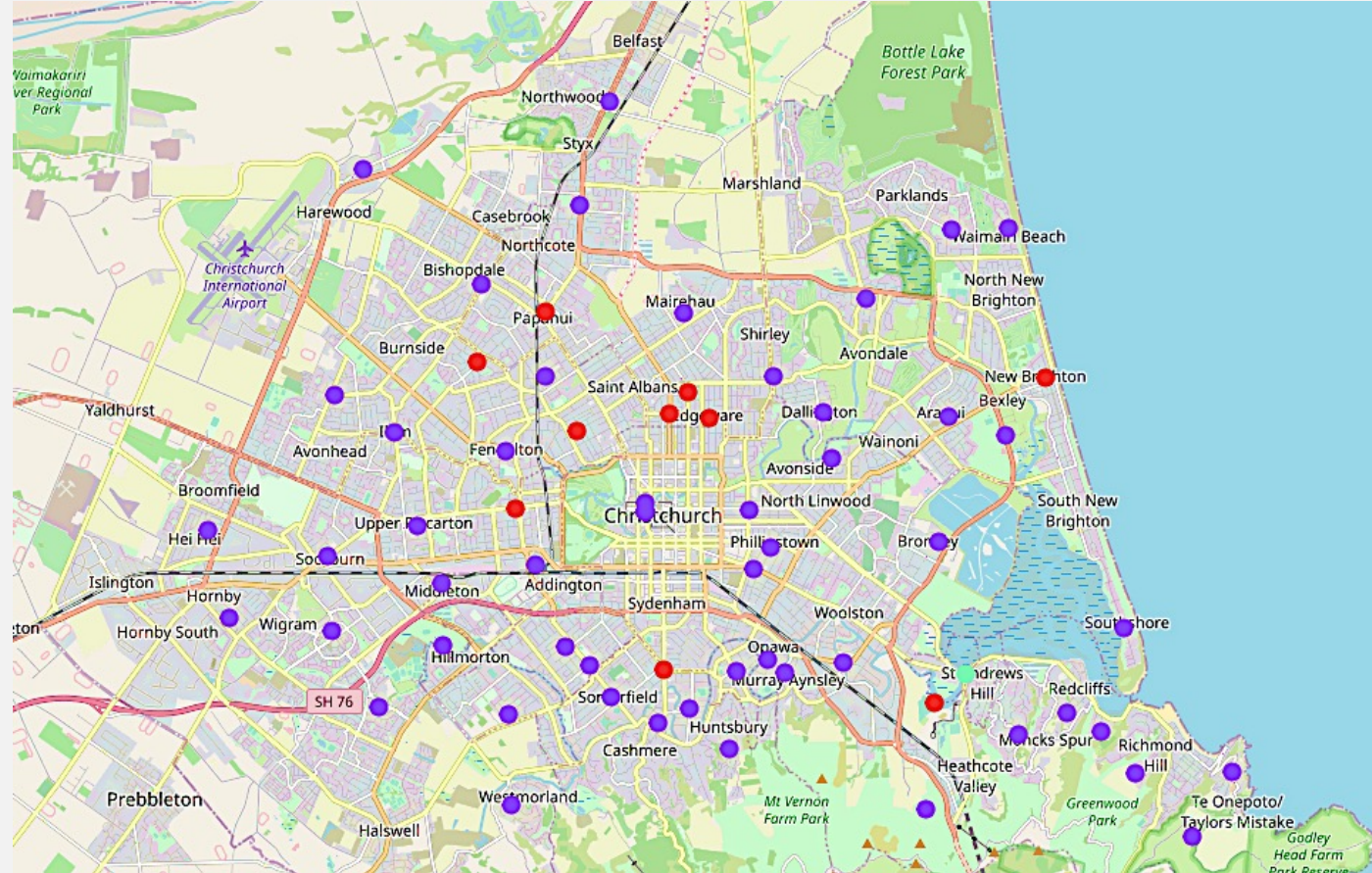- **Venue Category**: Category of Venue

- Web scrapping and processing data from Wikipedia page to obtain list of suburbs

- Obtaining Geographical coordinates for Christchurch City and its suburbs

- Using Foursquare API to obtain Venue data

- Grouping data by suburbs and taking the mean of frequency of occurrences for each venue

- Filtering venue category by Indian restaurants

- With the help of Kmeans Machine Learning, clustering the data

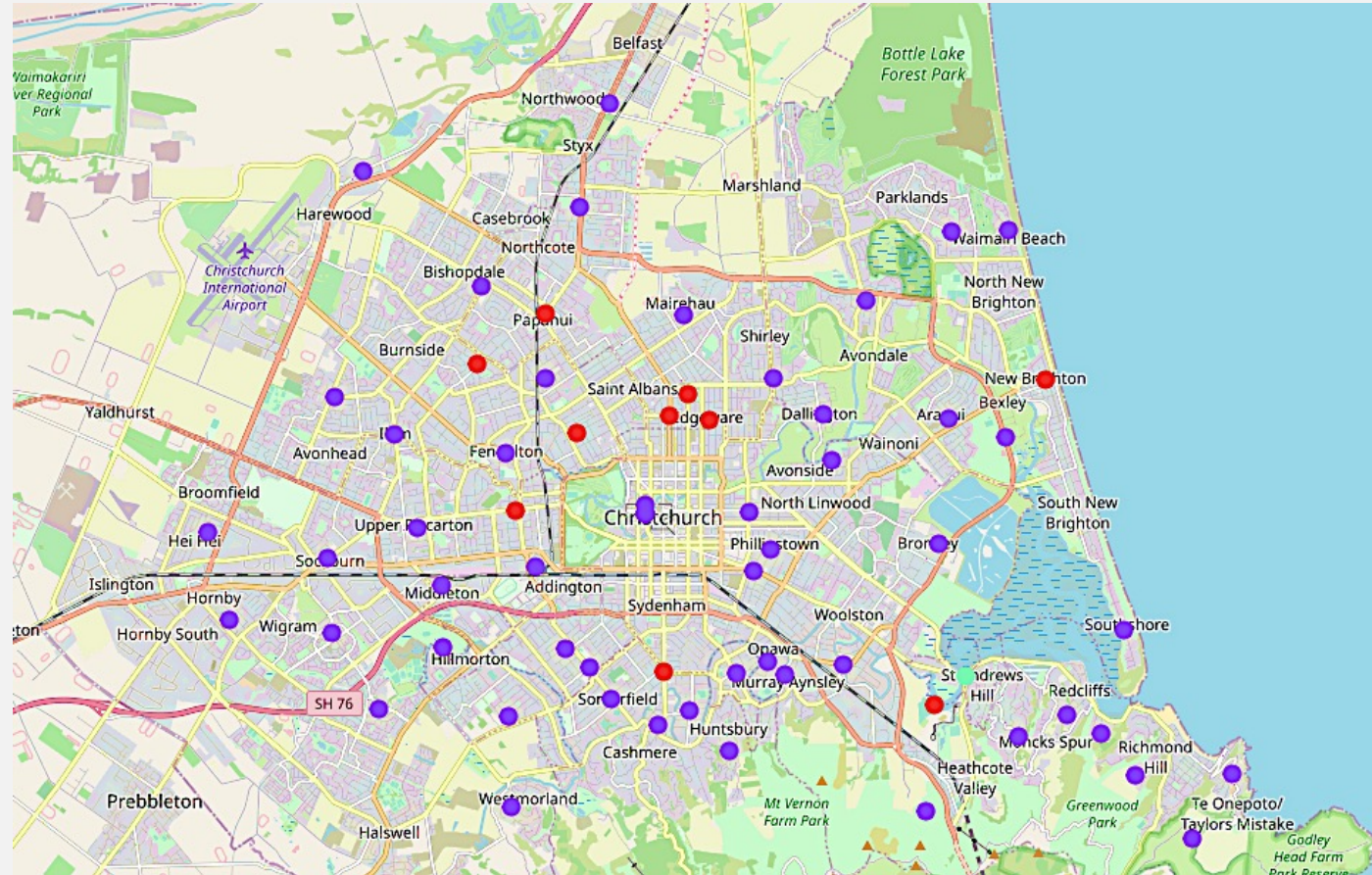- Visualize and examine the map using folium library

After Examining the clusters, we can visualize that (for high to low occurrence):

- **Cluster 0** (Red) contains highest number of Indian Restaurants
- **Cluster 2** (Green) contains moderate number of Indian Restaurants
- **Cluster 1** (Purple) Contains very few or no Indian Restaurants

- The cluster map points out that **Cluster 0** and **Cluster 2** have most of the Indian restaurant.
- **Cluster 1** has few to no Indian restaurants. This cluster can be called the cluster of opportunity. This cover about ~**80%** of the suburbs in the city of Christchurch which include the central part of the city.

I can recommend to investors, entrepreneurs or anyone interested who are looking to open a take-away Indian restaurant to capitalize on these findings. As mentioned before **Clusters 1** covers the central part of the city which has plenty of opportunity as it is under redevelopment phase and new spaces as well as land is up for sale/rent.

LIMITATION

This project was limited to frequency of occurrence Indian Restaurants in Christchurch suburbs. There are a lot of factors that could be considered for further studies and projects such as, population per suburb, popularity of a particular cuisine in the city, landmarks near-by which may attract more people in a particular suburb. A lot of these data is not readily available for use or might require some field work in a bigger scale. Use of Premium API calls and more advanced software will help in deeper analysis.

Please Note: My suggestion to open a take-away restaurant is solely based on the current changes around the world due to coronavirus. And people ordering online rather than dine-in. The investors can use this research to open a dine-in restaurants as well.).

THANK YOU