Capstone Project - The Battle of Neighborhoods

OPENING A NEW FRUIT & VEGETABLE STORE IN AUCKLAND, NEW ZEALAND

AINU JOY

INTRODUCTION

- Auckland is a large metropolitan city in the North Island of New Zealand.
- The most populous urban area in the country, Auckland has an urban population of about 1,467,800 (June 2019), which is 29.9 percent of New Zealand's population.
- Auckland ranked third in a survey of the quality of life of 215 major cities of the world (2015 data).

BUSINESS PROBLEM

- The objective of this project is to analyze and find out the best locations in the city of Auckland, New Zealand to open a new Fruits and Vegetable store.

- Business question: “If an investor is planning to open a new Fruits and Vegetable store in the city of Auckland, New Zealand, where would you recommend them to open it?”

DATA

The data used for this project comprises of three sources:

1) List of Neighbourhood in Auckland
https://en.wikipedia.org/wiki/List_of_suburbs_of_Auckland

2)Latitude and Longitude of the desired neighbourhoods (Geocoder)

3) Venue data obtained from Foursquare app

METHODOLOGY

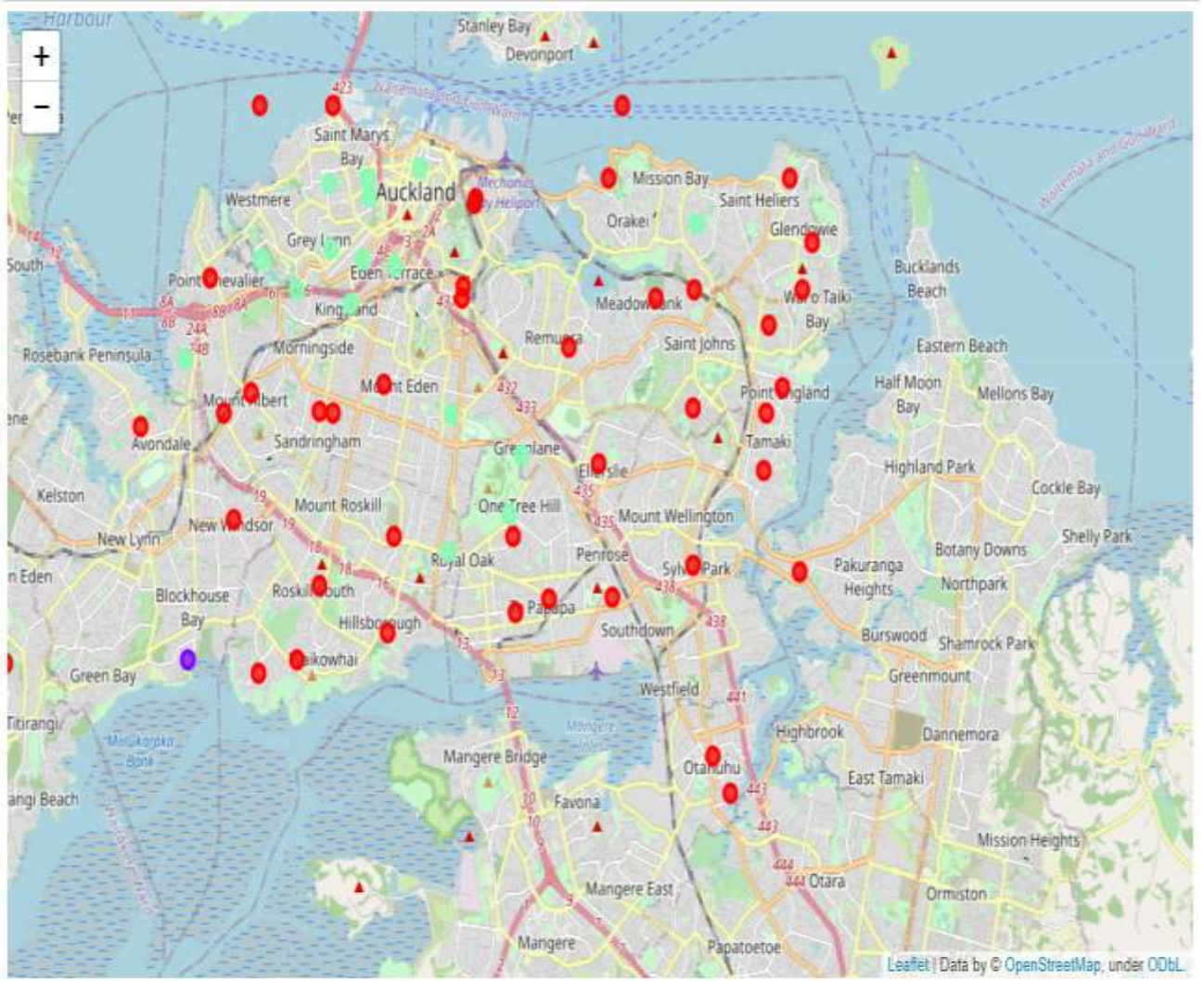
- Web scrap the Wikipedia page (https://en.wikipedia.org/wiki/List_of_suburbs_of_Auckland) for neighborhoods list.
- Get latitude and longitude coordinates using Geocoder.
- Use Foursquare API to get venue data.
- Group data by neighborhood and taking the mean of the frequency of occurrence of each venue category.
- Filter venue category by Fruit & Vegetable store.
- Perform clustering on data using k-means clustering
- Visualize the clusters in a map using Folium

RESULTS

Categorized the neighborhoods into 3 clusters based on the frequency of occurrence for “Fruits and Vegetable store”:

- Cluster 2: Neighborhoods with moderate number of Food and vegetable stores
- Cluster 0: Neighborhoods with low number to no existence of Food and vegetable stores
- Cluster 1: Neighborhoods with high concentration of Food and vegetable stores

The results of the clustering are visualized in the map below with cluster 0 in red color, cluster 2 in purple color, and cluster 2 in mint green color.



DISCUSSION

- In the analysis neighbourhood with the highest number of fruit and vegetable store is in cluster 1 and moderate number in cluster 2.
- Cluster 0 has very low number to totally no fruit and vegetable store in the neighbourhoods.
- This represents a great opportunity and high potential areas to open new fruit and vegetable store as there is very little to no competition from existing ones.
- Meanwhile, fruit and vegetable stores in cluster 1 are likely suffering from intense competition due to oversupply and high concentration of fruit and vegetable stores.

RECOMMENDATIONS

- This project recommends investors to capitalize on these findings to open new fruit and vegetable store in neighbourhoods in cluster 0 with little to no competition.
- Investors with unique selling propositions to stand out from the competition can also open new fruits and vegetable stores in neighbourhoods in cluster 2 with moderate competition.
- Investors are advised to avoid neighbourhoods in cluster 1 which already have high concentration of fruit and vegetable store and suffering from intense competition.

CONCLUSION

- In this project, we have gone through the process of identifying the business problem, specifying the data required, extracting and preparing the data, performing machine learning by clustering the data into 3 clusters based on their similarities, and lastly providing recommendations to the relevant stakeholders i.e. investors regarding the best locations to open a new fruit and vegetable store.
- To answer the business question that was raised in the introduction section, the answer proposed by this project is: The neighbourhoods in cluster 0 are the most preferred locations to open a new fruit and vegetable store.
- The findings of this project will help the relevant stakeholders to capitalize on the opportunities on high potential locations while avoiding overcrowded areas in their decisions to open a new fruit and vegetable store.

THANK YOU…