To explore new shopping complex oppurtunities in KUALA LUMPUR , MALAYSIA

INTRODUCTION :

For majority of tourists , visiting a shopping malls and other shopping avenues is part of their schedule and a great leisure activity . It includes grocery shopping, dine at restaurants, shop at the various fashion outlets, watch movies and perform many more activities . For retailers, the central location and the large crowd at the shopping malls provides a great distribution channel to market their products and services. Property developers are also taking advantage of this trend to build more shopping malls to cater to the demand. As a result, there are many shopping malls in the city of Kuala Lumpur and many more are being built. Opening shopping malls allows property developers to earn consistent rental income.

THE BUSINESS PROBLEM :

The objective of this capstone project is to analyse and select the best locations in the city of Kuala Lumpur, Malaysia to open a new shopping mall. Using data science methodology and machine learning techniques like clustering, this project aims to provide solutions to

answer the business question: In the city of Kuala Lumpur, Malaysia, if a property developer is looking to open a new shopping mall, where would you recommend that they open it? And what all factors should be taken into consideration while taking the decision .

WHY KUALA LUMPUR :

It is one of the most popular tourist destination for the global tourists . Hence this place has a huge revenue potential , if analysed properly .

Data for the new shopping complex oppurtunities in KUALA LUMPUR , MALAYSIA

HERE WE NEED FOLLOWING TYPES OF DATA :

1) List of the nearby shopping malls in Kuala Lumpur and their latitude and longitude .
2) List of the neighbour places aroud Kuala lumpur
3) List of coordinates of these places .

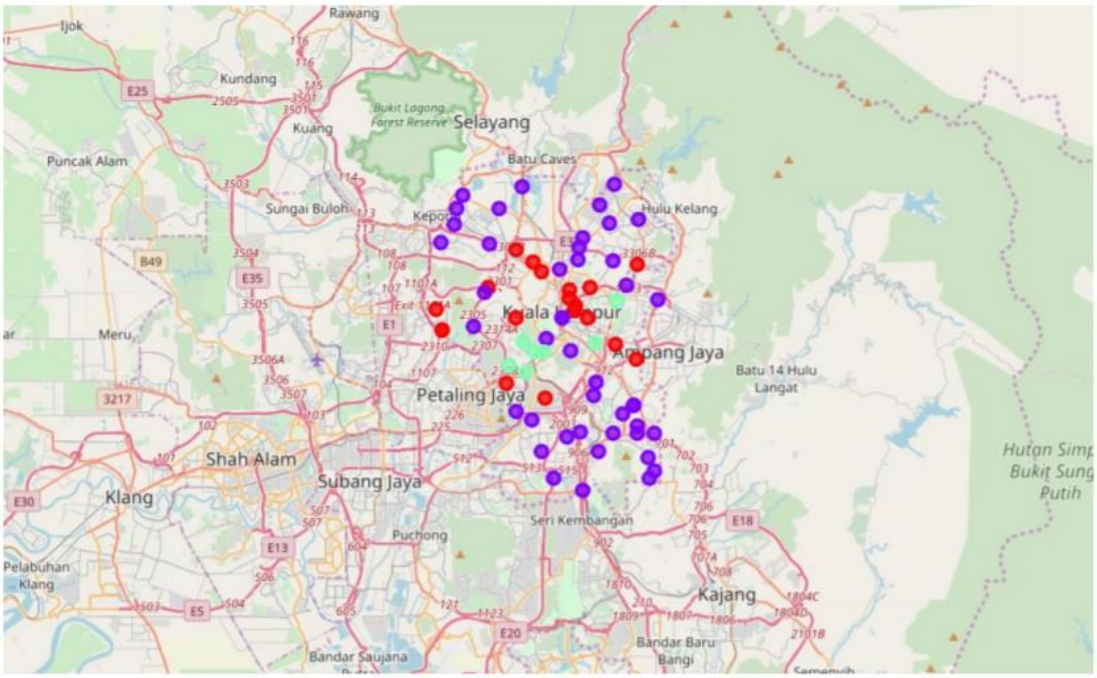
SOURCES OF THE DATA :

1) This Wikipedia page (https://en.wikipedia.org/wiki/Category:Suburbs_in_Kuala_Lumpur) contains a list of neighbourhoods in Kuala Lumpur, with a total of 70 neighbourhoods.

2) Foursquare API to get the venue data for those neighbourhoods. Foursquare has one of the largest database of 105+ million places . Foursquare API will provide many categories of the venue data, we are particularly interested in the Shopping Mall category in order to help us to solve the business problem put forward.

Results :

The results from the k-means clustering show that we can categorize the neighbourhoods into 3 clusters based on the frequency of occurrence for “Shopping Mall”: • Cluster 0: Neighbourhoods with moderate number of shopping malls
• Cluster 1: Neighbourhoods with low number to no existence of shopping malls
• Cluster 2: Neighbourhoods with high concentration of shopping malls The results of the clustering are visualized in the map below with cluster 0 in red colour, cluster 1 in purple colour, and cluster 2 in mint green colour.



Limitations and Suggestions for Future Research:

In this project, we only consider one factor i.e. frequency of occurrence of shopping malls, there are other factors such as population and income of residents that could influence the location decision of a new shopping mall. However, to the best knowledge of this researcher such data are not available to the neighbourhood level required by this project. Future research could devise a methodology to estimate such data to be used in the clustering algorithm to determine the preferred locations to open a new shopping mall. In addition, this project made use of the free Sandbox Tier Account of Foursquare API that came with limitations as to the number of API calls and results returned. Future research could make use of paid account to bypass these limitations and obtain more results.