

# **OPENING A NEW SHOPPING MALL IN MALAYSIA**

## **Introduction:**

Shopping is a great way to relax and enjoy themselves during weekends and holidays. There is grocery shopping, dining at restaurants, shopping at the various fashion outlets etc. Shopping malls are like a one-stop destination for all types of people. For retailers, the central location and the large crowd at the shopping malls provides a great distribution channel to market their products and services. As a result, there are many shopping malls in Kuala Lumpur and many more are being built. Opening shopping malls allows property developers to earn consistent rental income. Of course, as with any business decision, opening a new shopping mall requires serious consideration and is a lot more complicated than it seems. Particularly, the location of the shopping mall is one of the most important decisions that will determine whether the mall will be a success or a failure.

## **Business Problem:**

The objective of this capstone project is to analyse and select the best locations in the city of Kuala Lumpur, to open a new shopping mall. Using ML 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?

### **Target audience:**

This project is particularly useful to property developers and investors looking to open or invest in new shopping malls in the capital city of Malaysia i.e. Kuala Lumpur. This project is timely as the city is currently suffering from oversupply of shopping malls. Data from the National Property Information Centre (NAPIC) released last year showed that an additional 15 per cent will be added to existing mall space, and the agency predicted that total occupancy may dip below 86 per cent. The local newspaper The Malay Mail also reported in March last year that the true occupancy rates in malls may be as low as 40 per cent in some areas, quoting a Financial Times (FT) article cataloguing the country's continued obsession with building more shopping space despite chronic oversupply.

### **Data**

- List of neighbourhoods in Kuala Lumpur.
- Latitude and longitude coordinates of those neighbourhoods.
- Venue data, particularly data related to shopping malls.

## Sources:

This Wikipedia page

([https://en.wikipedia.org/wiki/Category:Suburbs\\_in\\_Kuala\\_Lumpur](https://en.wikipedia.org/wiki/Category:Suburbs_in_Kuala_Lumpur)) contains a list of neighbourhoods in Kuala Lumpur, with a total of 70 neighbourhoods. We will use web scraping techniques to extract the data from the Wikipedia page, with the help of Python requests and BeautifulSoup packages. Then we will get the geographical coordinates of the neighbourhoods using Python Geocoder package which will give us the latitude and longitude coordinates of the neighbourhoods.

After that, we will use Foursquare API to get the venue data for those neighbourhoods. Foursquare has one of the largest database of 105+ million places and is used by over 125,000 developers. 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. This is a project that will make use of many data science skills, from web scraping (Wikipedia), working with API (Foursquare), data cleaning, data wrangling, to machine learning (K-means clustering) and map visualization (Folium). In the next section, we will present the Methodology section where we will discuss the steps taken in this project, the data analysis that we did and the machine learning technique that was used.