IBM APPLIED DATA SCIENCE CAPSTONE PROJECT

OPENING A NEW SHOPPING MALL IN KUALA LUMPUR, MALAYSIA

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BUSINESS PROBLEM

- Location of the shopping mall is one of the most important decisions that will determine whether the mall will be a success or not.
- Objective: To analyse and select the best locations in Kuala Lumpur, Malaysia, to open a new shopping mall.
- This project is timely as the city is currently facing an issue of oversupplying of shopping malls.
- Business question: In Kuala Lumpur, if a property developer is looking to open a new shopping mall, where would you recommend that they open it?

DATA

- **Data required:**
  - List of neighbourhoods in Kuala Lumpur
  - Latitude and longitude coordinates of the neighbourhoods
  - Venue data, particularly data related to shopping malls

- **Sources of data:**
  - Wikipedia page for neighbourhoods (https://en.wikipedia.org/wiki/Category:Suburbs_in_Kuala_Lumpur)
  - Geocoder package for latitude and longitude coordinates
  - Foursquare API for venue data

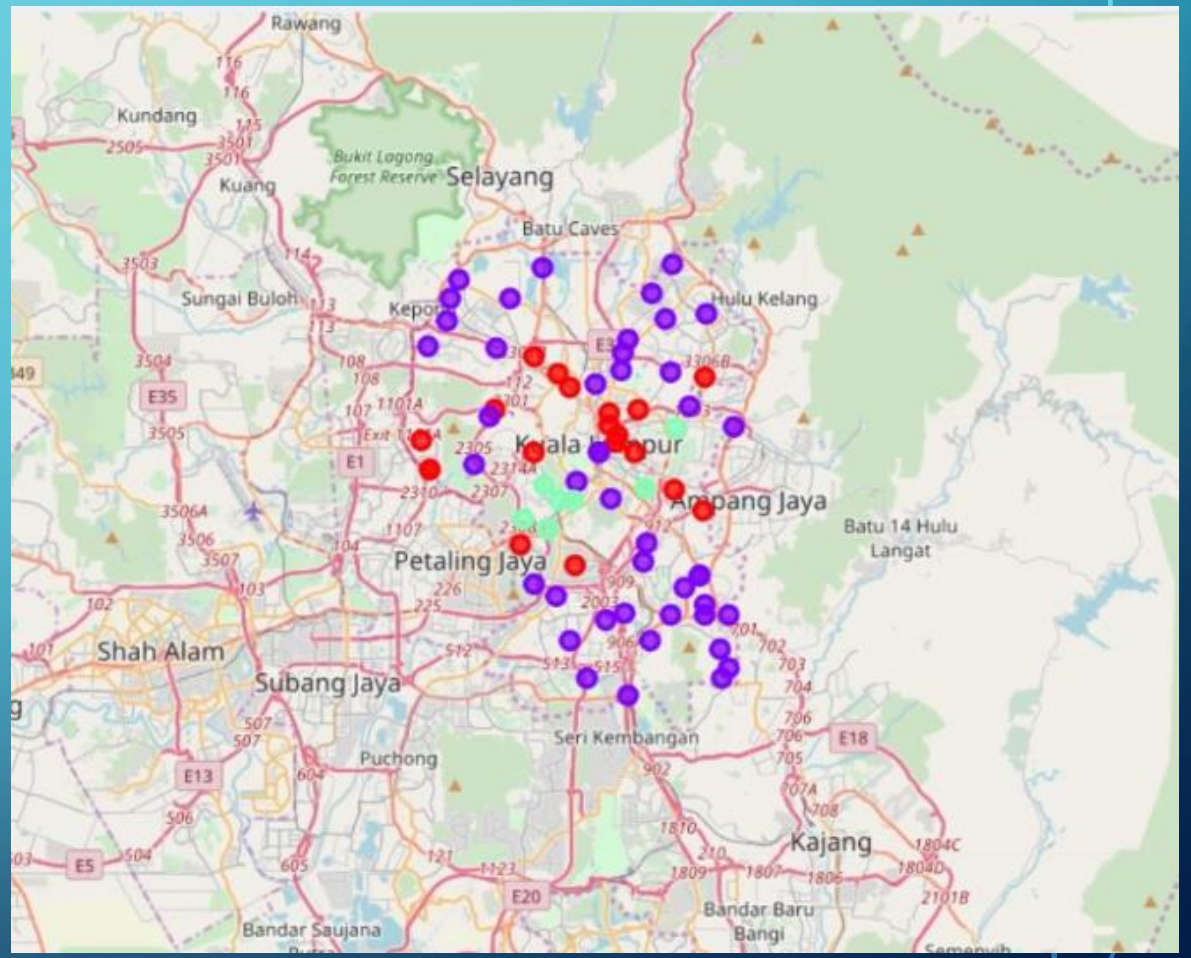
METHODOLOGY

- Web scraping Wikipedia page for neighbourhoods list.
- Get latitude and longitude coordinates using Geocoder.
- Use Foursquare API to get venue data.
- Group data by neighbourhood and taking the mean of the frequency of occurrence of each venue category.
- Filter venue category by Shopping Mall.
- Perform clustering on the data by using k-means clustering.
- Visualise the clusters in a map using Folium.

RESULTS

- Categorised the neighbourhoods into 3 clusters:

1. Cluster 0: Neighbourhoods with moderate number of shopping malls.
2. Cluster 1: Neighbourhoods with low number to no existence of shopping malls.
3. Cluster 2: Neighbourhoods with high concentration of shopping malls.



DISCUSSION

- Most of the shopping malls are concentrated in the central area of the city.
- Highest number in cluster 2 and moderate number in cluster 0.
- Cluster 1 has very low number to no shopping mall in the neighbourhoods.
- Oversupply of shopping malls mostly happened in central area of the city, with the suburb area still have very few shopping malls.

RECOMMENDATIONS

- Open new shopping malls in neighbourhoods in cluster 1 with little to no competition.
- Can also open in neighbourhoods in cluster 0 with moderate competition if have unique selling propositions to stand out from the competition.
- Avoid neighbourhoods in cluster 2, already high concentration of shopping malls and intense competition.

CONCLUSION

- Answer to business question: The neighbourhoods in cluster 1 are the most preferred locations to open a new shopping mall.
- Findings of this project will help the relevant stakeholders to capitalise on the opportunities on high potential locations while avoiding overcrowded areas in their decisions to open a new shopping mall.

THANK YOU!