COURSERA CAPSTONE
IBM APPLIED DATA SCIENCE CAPSTONE

OPENING A NEW SHOPPING MALL IN BALI, INDONESIA

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BUSINESS PROBLEM

- Location of the shopping mall is one of the most important factors in determining the Return of Investment (ROI) of a property or mall

- Objective: To analyse and recommend locations in Bali to open a new shopping mall

- Business question

  - In Bali, a popular destinations for tourists and local to improve their lives, which region would you recommend to build a new one?

DATA

- Data required

  - List of neighbourhoods in Bali, Indonesia

  - Latitute and longitude coordinates of the neighbourhoods

  - Venue datga, particularly data related to shopping malls

- Sources of data

  - Wikipedia page for Bali neighbourhoods (https://en.wikipedia.org/wiki/List_of_districts_of_Bali)

  - Geocoder package for latitude and longitude coordinaes

  - Foursquare API for venue data

METHODOLOGY

- Web scraping Wikipedia for neighbourhood list

- Get latitude and longitude coordinates using geocoder

- Use Foursquare API to get venue data

- Group data by neighbourhood and taking the mean of frequency of occurrence of each venue category

- Filter venue category by Shopping mall

- Perform clustering on the data by using k-means clustering based on frequency of 'Shopping mall'

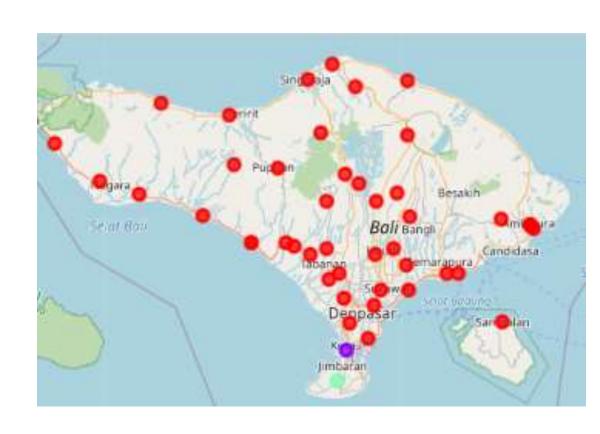- Visualize the clusters in a map using Folium

RESULTS

- Categorized the neighbourhoods into 3 clusters

  - Cluster 0: Neighbourhoods with low number to no shopping malls

  - Cluster 1: Neighbourhoods with moderate number of shopping malls

  - Custer 2: Neighbourhoods with high concentration of shopping malls

Note: Cluster 0 -> Red dots
       Cluster 1 -> Purple dot
       Cluster 2 -> Green dot

DISCUSSIONS

- Most sopping malls are concentrated near local tourist attractions i.e. Kuta or Jimbaran areas.

- Highest number in cluster 2 and lowest number in cluster 0

- Oversupply of shopping malls at tourist attractions while suburb areas to cater local residents have very few shopping malls.

RECOMMENDATIONS

- Open new shopping mall in cluster 0 to cater to local entertainment needs

- Little competition is expected in cluster 0 as malls are concentrated in cluster 1 and 2

- With unique stand out features of the new shopping mall. People are willing to travel for experience

CONCLUSION

- Answer to business question: Cluster 0 neighbourhoods are potential locations to build and open a new shopping mall

- Conclusions of this project will assist relevant stakeholders to capitalize on opportunities and enjoy first mover advantage to gain profit