OPENING A SHOPPING MALL IN KIEV, UKRAINE

Coursera IBM Applied Data Science
Capstone Project
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BUSINESS PROBLEM

1. 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

2. Objective: To analyze and select the best locations in the city of Kiev, Ukraine to open a new shopping mall

3. This project is timely as the city is currently suffering from oversupply of shopping malls

4. Business question: In the city of Kiev, Ukraine, if a property developer is looking to open a new shopping mall, where would you recommend that they open it?

DATA

Data required:

1. List of neighborhoods in Kiev

2. Latitude and longitude coordinates of the neighbourhoods

3. Venue data, particularly data related to shopping malls

Sources of data:

1. Wikipedia page for neighborhoods (https://en.wikipedia.org/wiki/Category:Suburbs_in_Kiev)

2. Geocoder package for latitude and longitude coordinates

3. Foursquare API for venue data

METHODOLOGY

1. Web scraping Wikipedia page for neighborhoods list

2. Get latitude and longitude coordinates using Geocoder

3. Use Foursquare API to get venue data

4. Group data by neighborhood and taking the mean of the frequency of occurrence of each venue category

5. Filter venue category by Shopping Mall

6. Perform clustering on the data by using k-means clustering

7. Visualize the clusters in a map using Folium

RESULTS

Neighborhoods are categorized into 3 clusters:

1. Cluster 0: Neighborhoods with high concentration of shopping malls;

2. Cluster 1: Neighborhoods with moderate number of shopping malls;

3. Cluster 2: Neighborhoods with low number to no existence of shopping malls.
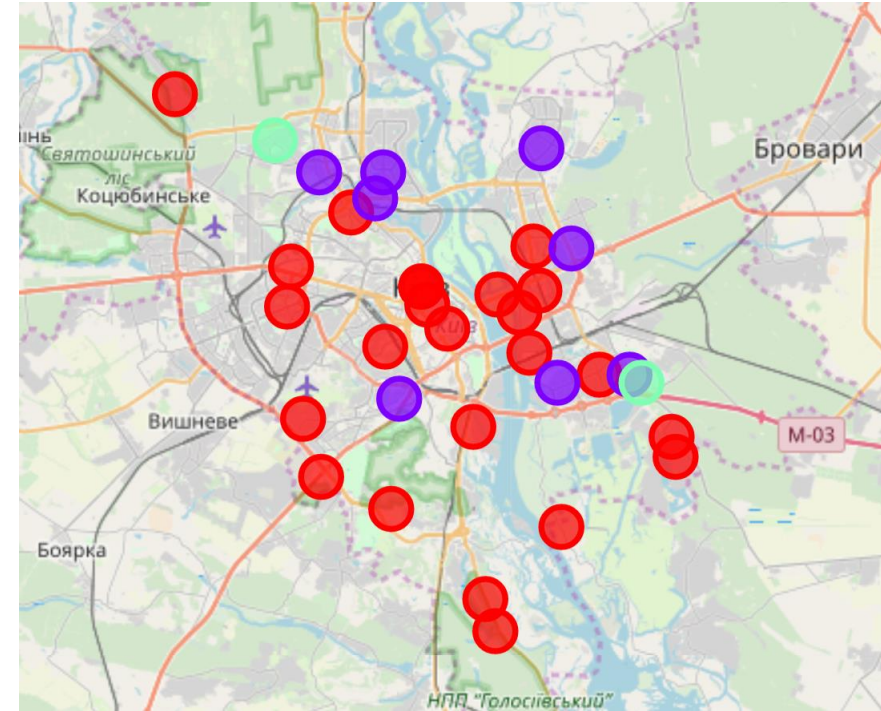
DISCUSSION

1. Most of the shopping malls are concentrated in the central area of the city

2. Highest number in cluster 0 and moderate number in cluster 1

3. Cluster 2 has very low number to no shopping mall in the neighbourhoods

4. Undersupply of shopping malls mostly happened in the central area of the city, with the suburb area still have very few shopping malls

RECOMENDATIONS

1. Open new shopping malls in neighborhoods in cluster 2 with little to no competition

2. Can also open in neighborhoods in cluster 1 with moderate competition if have unique selling propositions to stand out from the competition

3. Avoid neighborhoods in cluster 0, already high concentration of shopping malls and intense competition

CONCLUSION

1. Answer to business question: The neighborhoods in cluster 2 are the most preferred locations to open a new shopping mall

2. 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 shopping mall