Coursera Capstone

IBM Applied Data Science Capstone

Opening a coffee shop in Athens, Greece

By- shivani Chitre

Business Problem

The Question/Problem is to find a solution to where to open up a coffee shop that does not have too much competition but has a good amount of tourists/locals. There are lots of cafes in Athens we will try to detect locations that are not already crowded with coffee stores or cafes

Data

In this project, I will determine which place is good for opening a coffee shop in Athens, Greece.

1. I will convert address data into their equivalent latitude and longitude values.
2. For Athens neighborhood data, I will use wikipedia, https://en.wikipedia.org/wiki/Category:Districts of Greece
3. I will use the Foursquare API to explore Athens neighborhoods and to get cafe venues in neighborhoods.
4. I will use the Foursquare API to get venue ratings and likes in neighborhoods.
5. I will use the k-means clustering and Agglomerative algorithms to complete the clustering task
6. I will use the Folium library to visualize the neighborhoods, venues, clusters in Athens

The goals are as follows:

- Download and Explore Neighborhood Dataset
- Load and Analyze Venues of Neighborhoods in Athens
- Cluster Neighborhoods using kmean Clustering
- Discussion
- Conclusion

Methodology

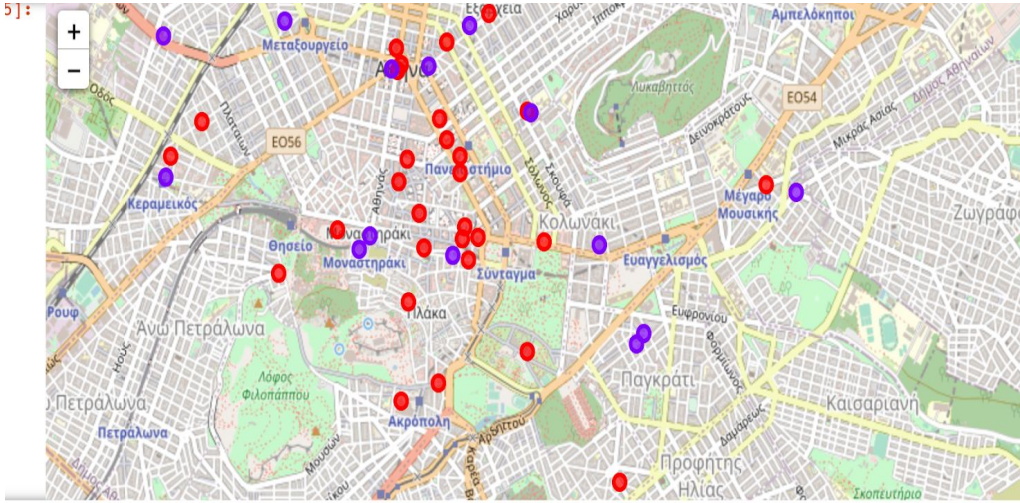
- Web scraping Wikipedia page for neighbourhoods list
- Get latitude and longitude coordinates using Geocoder
- Use Foursquare API to get venue data
- Group data by neighbourhood and taking the mean of the frequency of occurrence of each venue category
- Filter venue category by cafes
- Perform clustering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

Results

Categorized the neighbourhoods into 2 clusters :

➢Cluster 0: Neighbourhoods with high number of cafes (red)

➢Cluster 1: Neighbourhoods with low number to no existence of shopping malls (purple)



Discussion

Cluster 1 has very low number cafes in the neighbourhoods

Most of the cafes are concentrated in the central area of the city

Highest number in cluster 0 and low number in cluster 1

Overcrowding of cafes mostly happened in the central area of the Athens, with the suburb area still have very few cafes.

Recommendation

This project recommends property developers to capitalize on these findings to open a new coffee shop in neighborhoods in cluster 1 with little to no competition. Kypseli and Pangrati do not have a lot of coffee shops but are also popular areas in Athens in the central region as well. Lastly, property developers are advised to avoid neighborhoods in cluster 0 (Main Athens) which already have a high concentration of cafes, restaurants, and are facing adverse competition.

Recommendation continued

Pangrati has attracted artists from all over Greece, who arrive in the city of Athens to educate themselves and to seek inspiration from its vast pool of artistic resources and galleries. Poets, novelists, writers, painters, composers, musicians made Pangrati one of the most important artistic hubs of Athens

Conclusion

In this project, we have gone through the process of identifying the business problem, specifying the data required, extracting and preparing the data, performing machine learning by clustering the data into 2 clusters based on their similarities, and lastly providing recommendations to the relevant stakeholders i.e. property developers and investors regarding the best locations to open a new cafe. To answer the business question that was raised in the introduction section, the answer proposed by this project is: **The neighborhoods in cluster 1 are the most preferred locations to open a new cafe**. The 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 cafe in Athens, Greece.


MACEDONIA
Rhodope Mountains
BULGARIA
Black Sea
Balkan Peninsula
TURKEY
Komotini
Serres
Alexandroupoli
Sea of Marmara
Thessaloniki
Thracian Sea
ALBANIA
Thasos
Samothrace
Chalkidiki
Lemnos
Ioannina
Trikala
Larissa
Aegean Sea
Corfu
Volos
Pindus
Lesbos
TURKEY
Lefkada
Lamia
Euboea
Skyros
Chalcis
Chios
Cephalonia
Patras
Athens
Andros
Samos
Zakynthos
Peloponnese
Kea
Tinos
Icaria
Tripolis
Ionian Sea
Kythnos
Mykonos
Paros
Naxos
Myrtoan Sea
Kos
Milos
Kythira
Cyclades
Rhodes
Sea of Crete
Crete
Karpathos
Heraklion
Mediterranean Sea
Greece
Population 11 142 000
Capital city Athens
The climate of Greece is primarily Mediterranean, featuring mild, wet winters and hot, dry summers.
The country consists of a mountainous, peninsular mainland jutting out into the Mediterranean Sea at the southernmost tip of the Balkans, and two smaller peninsulas projecting from it: the Chalkidiki and the Peloponnese, which is joined to the mainland by the Isthmus of Corinth. Greece also has many islands, of various sizes, the largest being Crete, Euboea, Lesvos, Rhodes, Chios, Kefalonia, and Corfu; groups of smaller islands include the Dodecanese and the Cyclades.
Greek cuisine is a Mediterranean cuisine.

THANK YOU