Hotel investment in the neighborhoods of Athens

IBM APPLIED DATA SCIENCE CAPSTONE

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Business Problem

Location

- An international fund plans to expand its hotel amenities in Athens, Greece with a 4* or 5* star hotel

- After the successful treatment of COVID-19, the fund believes that Athens is not only a safe choice for tourism but also the country is highly ranked among the tourist destinations worldwide

Objective:

- The project will analyze all possible locations in Athens in order to acquire the possible best ones in Athens for the new hotel

Data

- Data
  - A list of neighborhoods of Athens
  - Latitude and longitude of the neighborhoods
 - Venue data, particularly data related with the category of hotels

- Sources of data
  - Wikipedia page for neighborhoods
    - (https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Athens)
  - Geocoder package for latitude and longitude coordinates
  - An account to Foursquare API for venue data

Methodology

- Web scraping from Wikipedia page for the neighborhood list (BeautifulSoup)

- Getting latitude and longitude for the neighborhoods (Geocoder)

- Connect to Foursquare API to get the venue data

- Group data by neighborhood and then compute the frequency of the 5 most common amenities in each neighborhood

- Use filter to get the frequency only for hotels in each neighborhood

- Perform clustering of neighborhoods using k-means

- Visualize the clusters in a map using Folium
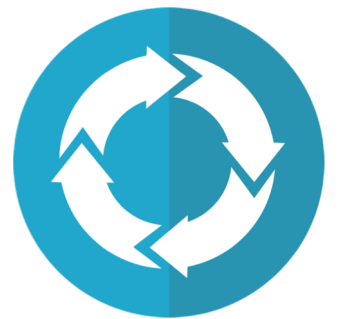
Results

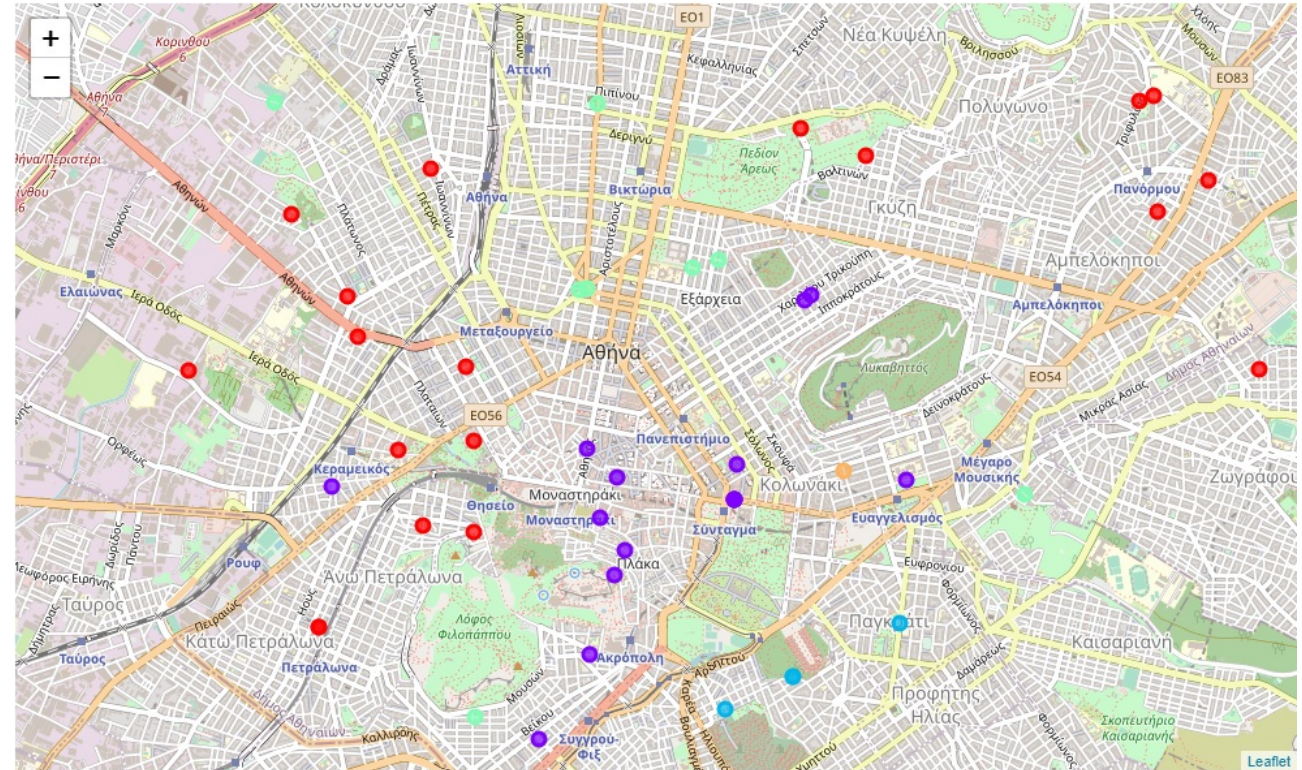- k-means clustering categorized the neighborhoods in 5 clusters

Cluster 0

Cluster 1

Cluster 2

Cluster 3

Cluster 4

Discussion

Cluster 0
- Size : 31 neighborhoods
- Frequency of Hotels : Very Low
- Density: Moving outside the center

Cluster 1
- Size : 14 neighborhoods
- Frequency of Hotels : Moderate
- Density: In the center of city

Cluster 2
- Size : 3 neighborhoods
- Frequency of Hotels : Very High
- Density: Very close to the center of city

Cluster 3
- Size : 10 neighborhoods
- Frequency of Hotels : Low
- Density: Close to the center

Cluster 4
- Size : 1 neighborhood
- Frequency of Hotels : High
- Density: In the center of city

Conclusion

A suggestion based on this project will be in the Cluster o in the neighborhoods very close to the center of Athens. The reasons in order to operate a new hotel there are 3:

- The competiveness is very low in these neighborhoods with great prospects of profit

- In a very close distance, there are ancient monuments and museums but also the center of Athens

- There is a dense public transport network connecting all main destinations not only in Athens but in other districts

Thank you!!!