

Coursera Capstone

IBM Applied Data
Science Capstone



Opening a new hotel in London, United Kingdom

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Business Problem

- Evaluation of the possibility of opening a new hotel in London
- Suggestion for the optimal location of such action
- The demand of accommodation is remarkably high
- Which region should a new hotel be opened?

Data

- ◉ Data required
 - ◉ List of areas of London
 - ◉ Latitude and longitude coordinates of the neighborhoods
 - ◉ Hotel data and coordinates
- ◉ Sources
 - ◉ Wikipedia
 - ◉ Geocoder package
 - ◉ Foursquare API

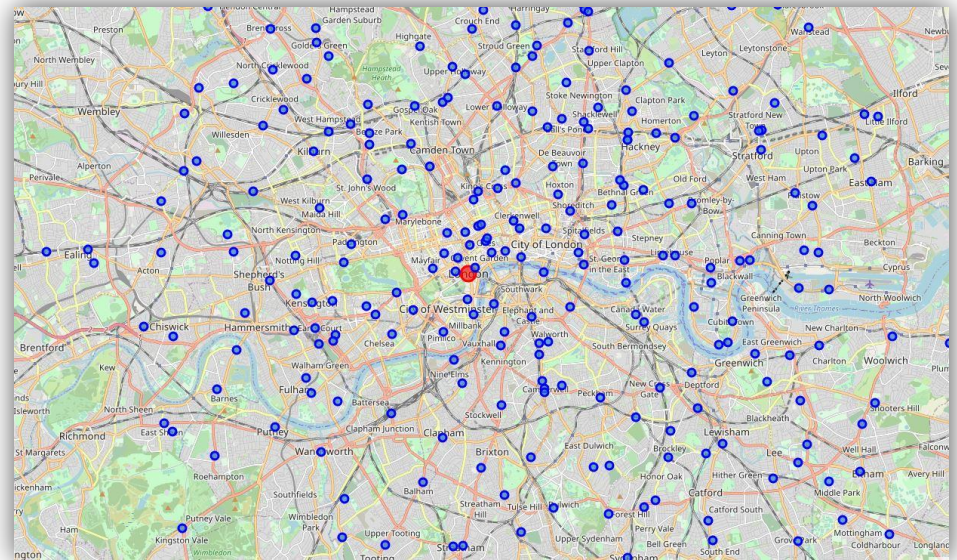
Methodology

- Retrieving and scrapping the data of the areas in London
- Retrieving the locations of the already existing hotels using the Foursquare API
- Filtering the data by 'Hotel' category only
- Clustering the neighborhoods (by using the k-means clustering algorithm)
 - The number of clusters (k variable) was found to be $k=5$
- Visualize the clusters using Folium
- Visualize the hotels' locations with heat map

Results

Map of neighborhoods

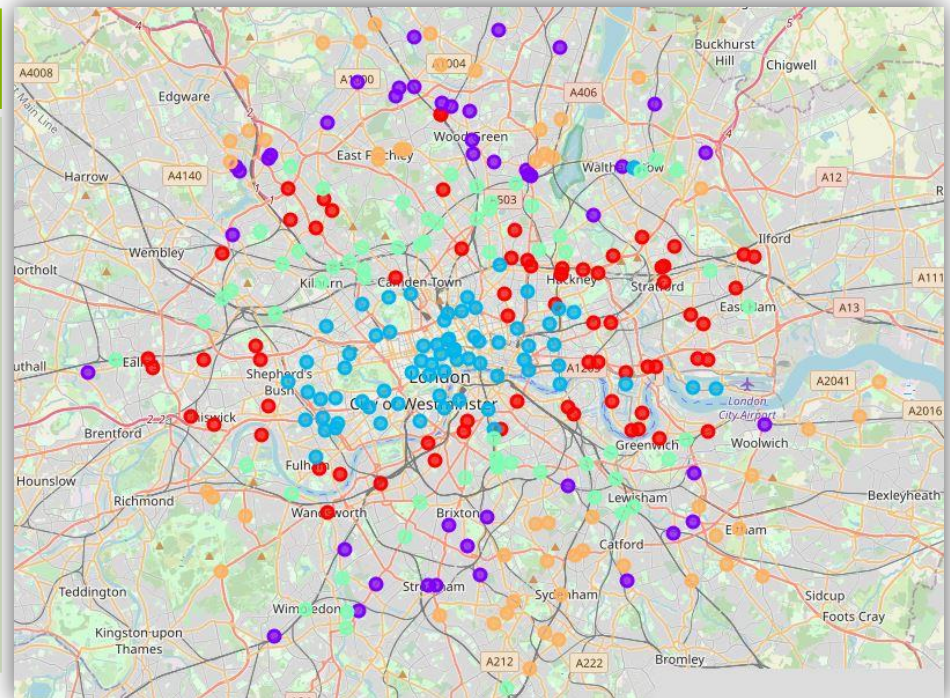
The blue dots represent all of the areas belonging to Greater London



Results

Clusters

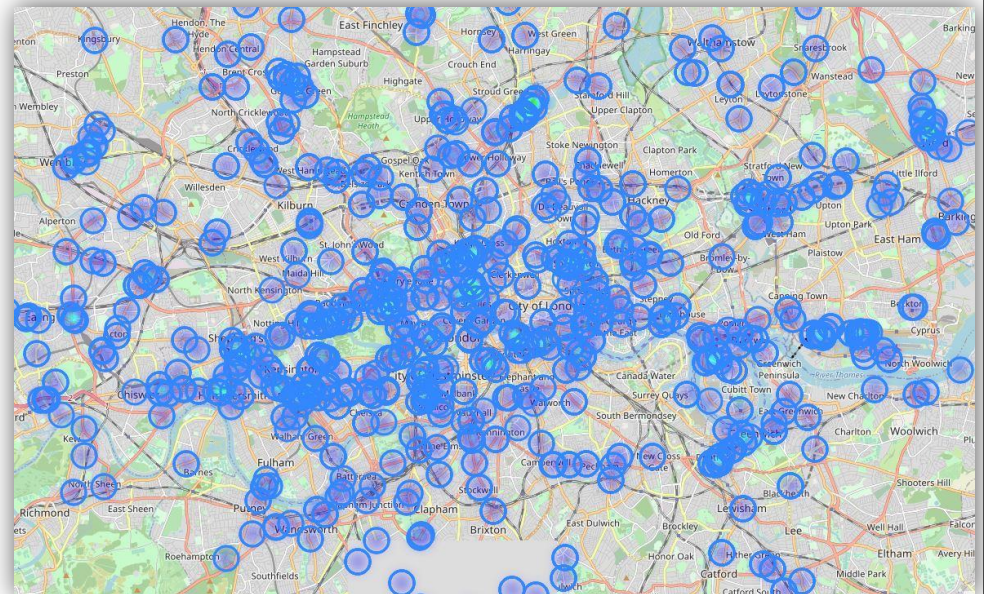
By using k-means algorithm for clustering the neighborhoods, 5 clusters were created based on the total number of hotels per neighborhood.



Results

Heat Map

A heat map was generated using the geographical coordinates of each hotel as it is mentioned in Foursquare API.



Discussion

- A large number of the hotels are concentrated in the central London
- Many hotels are located near airports, train stations and tube stations
- The neighborhoods in cluster 5 have the smallest amount of hotels
- The neighborhoods in cluster 3 have the largest number of hotels

Recommendations

- Due to the fact that hotels near the city center will be more preferable, neighborhoods included in cluster 2 (~8 hotels per neighborhood) would be suggested for a new hotel.
- Alternatively, cluster 4 areas would also be suggested (~14 hotels per neighborhood)

Recommendations / Further research

- The client will make the final decision by checking the neighborhoods distances to points of interest and analyzing the number of stars per hotel which indicates the quality category of their service.

Thank you!

