THE BATTLE OF NEIGHBORHOODS IN PADDINGTON, LONDON, UK

Advance Data Science Capstone

INTRODUCTION

Paddington is an area within the City of Westminster, in central London, located in the West End of London.

As the city grows and develops, it becomes increasingly important to examine and understand it quantitatively to develop services for the benefit of its citizens.

DATA

- About the Paddington district in London: https://en.wikipedia.org/wiki/Paddington

- The postcode area of Paddington: https://en.wikipedia.org/wiki/W_postcode_area

- UK Postcodes with Latitude and Longitude: https://www.freemaptools.com/download/outcode-postcodes/postcode-outcodes.csv

- Foursquare Developers Access to venue data: https://foursquare.com/
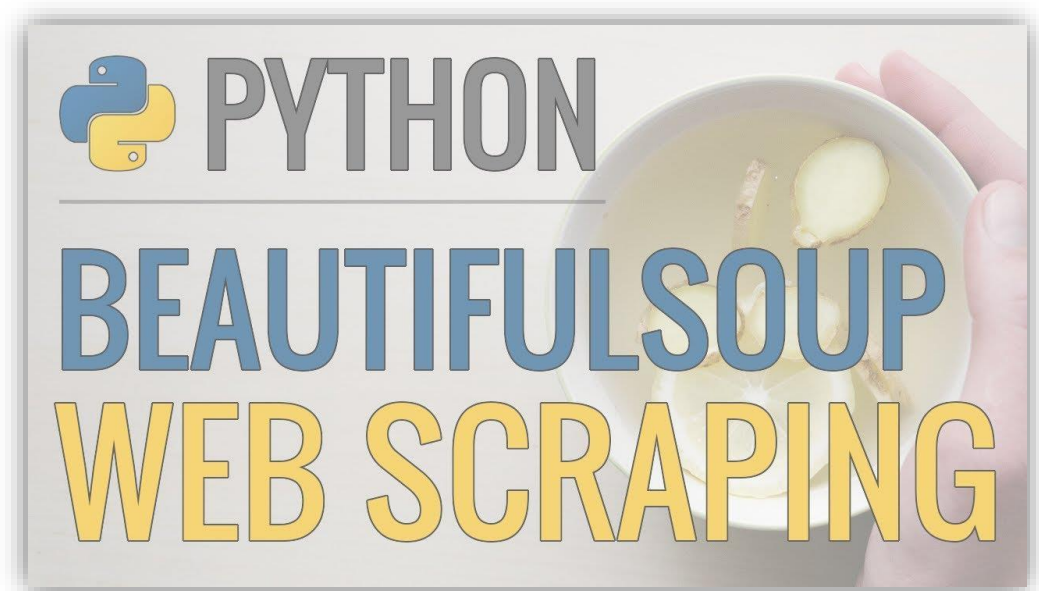
METHODOLOGY

Loading the data

Exploring the data

Exploring The Neighbourhoods of Western and Paddington, London

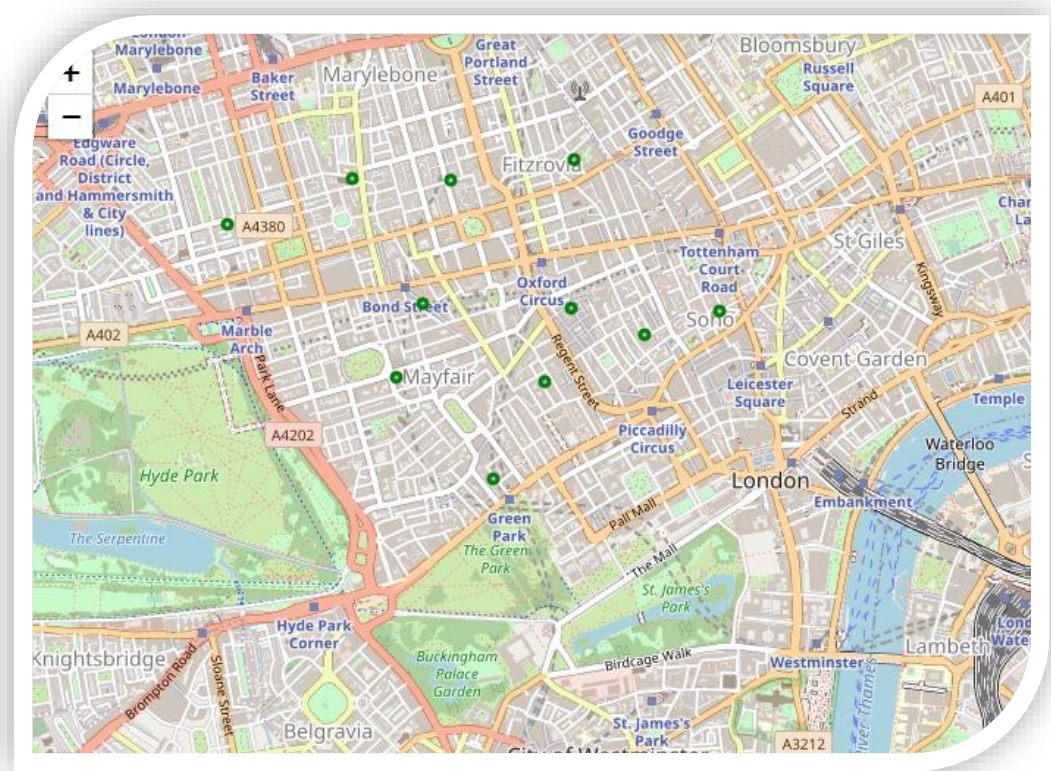Clustering Paddington Location by using k-means

LOADING THE DATA

- Using the BeautifulSoup package to scrape the Wikipedia page, https://en.wikipedia.org/wiki/W postcode_area, to obtain the data that is in the table of postal

- Use Pandas to transform the data in the table on the Wikipedia page into the above Pandas dataframe.

EXPLORING THE DATA

- Using Foursquare location data to explore or compare neighborhoods or cities of our choice or to come up with a problem.

- Create the map of Western and Paddington, London by using latitude and longitude values.

- Add markers to the map.

EXPLORING THE NEIGHBOURHOODS OF WESTERN AND PADDINGTON, LONDON

- Exploring and clustering the neighborhoods in Paddington can help to explain what you decided to do and to report any observations you make and to generate maps to visualize the neighborhoods and how they cluster together.

- Using this data will allow exploration and examination to answer the questions. Paddington locations of interest will then allow us to cluster and quantitatively understand the venues most common to that location.

CLUSTERING PADDINGTON LOCATION BY USING K-MEANS

- Loading the Paddington Locations data enables us to perform statistical analysis on the most common venues by location.

- Plotting the latitude and longitude coordinates of the locations of interest that enables us to now study the most common venues by using the Foursquare data.

- Analyzing each location by grouping rows by location and the mean of the frequency of occurrence of each category we venue categories we study the top five most common venues.

- Putting this data into a pandas dataframe we can then determine the most common venues by location and plot onto a map.

RESULTS

The analysis enabled us to discover and describe visually and quantitatively:

- Identify the Neighborhoods in Paddington
- Determine the top 10 most common venues by location of interest within a 1 km radius of the center by using k-means.
- Evaluate the number of restaurants/business offices within each cluster of locations by statistics.

	Location	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Acton district: Acton, West Acton, North Acton...	Pub	Gym / Fitness Center	Grocery Store	Café	Park	Train Station	Fast Food Restaurant	Chinese Restaurant	Gym	Pool
1	Chiswick district: Chiswick, Gunnersbury, Turn...	Pub	Café	Coffee Shop	Bakery	Park	Burger Joint	French Restaurant	Ice Cream Shop	Italian Restaurant	Gift Shop
2	Ealing district: Ealing, South Ealing, Ealing ...	Coffee Shop	Pub	Hotel	Italian Restaurant	Park	Burger Joint	Pizza Place	Thai Restaurant	Café	Supermarket
3	Fitzrovia, Tottenham Court Road	Coffee Shop	Cocktail Bar	Hotel	Pizza Place	French Restaurant	Theater	Burger Joint	Wine Bar	English Restaurant	Arts & Crafts Store
4	Great Portland Street, Fitzrovia	Coffee Shop	Pizza Place	Cocktail Bar	Hotel	Wine Bar	French Restaurant	Clothing Store	Lingerie Store	Burger Joint	Café
5	Hammersmith district: Fulham, Hammersmith, Rav...	Pub	Coffee Shop	Italian Restaurant	Café	Park	Sandwich Place	Gym / Fitness Center	Indian Restaurant	French Restaurant	Tapas Restaurant
6	Hanwell district: Hanwell, Boston Manor (part)	Coffee Shop	Pub	Café	Supermarket	Hotel	Fast Food Restaurant	Park	Bus Stop	Grocery Store	Fish & Chips Shop
7	Harley Street	Coffee Shop	Hotel	Burger Joint	Cocktail Bar	French Restaurant	Café	Art Gallery	Juice Bar	Department Store	Hotel Bar
8	Kensington district: Kensington, Holland Park ...	Hotel	Pub	Italian Restaurant	Café	Thai Restaurant	Bakery	Restaurant	Indian Restaurant	Juice Bar	Supermarket
9	Maida Hill district: Maida Hill, Maida Vale, L...	Pub	Café	Coffee Shop	Grocery Store	Pizza Place	Garden	Bar	Thai Restaurant	Deli / Bodega	Bakery
10	Marylebone	Hotel	Juice Bar	Café	Sandwich Place	Bakery	Burger Joint	Hotel Bar	Coffee Shop	French Restaurant	Gym / Fitness Center

DISCUSSION

- If someone is looking to open a restaurant, where would they open it?

- If a contractor is trying to start their own business, where would they setup their office?

- What venues are most common in different locations within the city?

CONCLUSION

- Using a combination of datasets of Paddington and Foursquare venue data we were able to analyze, discover, and describe neighborhoods, and statistically describe quantitatively venues by locations of interest.

- In brief, the datasets of Paddington are interesting, they miss the details required for true valued quantitative analysis and predictive analytics which would be most valued by investors and developers to make appropriate investments and to minimize risk.