Coursera Capstone project
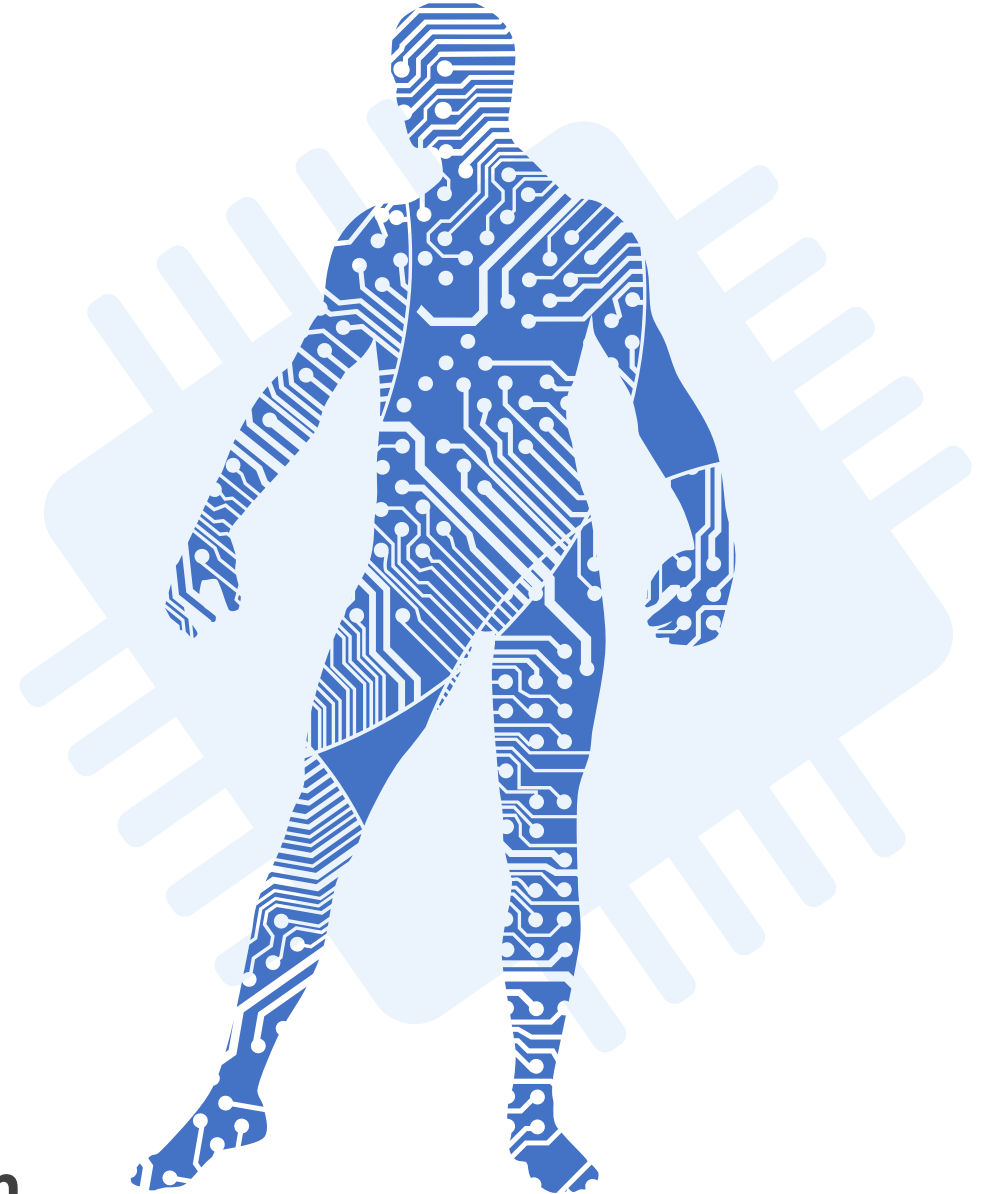
Coursera IBM Data Science Certification

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Content

1. INTRODUCTION/BUSINESS PROBLEM

1. Background

My good friend gets a good job near London center and he asks me for help to find the best neighborhood for him.

2. Conditions that will be resolved to find best neighborhood

- Rent price should be in the range of 1500 - 2100 pounds per month for two room apartment

- Crime rate should be no larger than 100 per thousand citizens

- The capacity of the rented apartment also should be more than 500 rooms for a better choice

- The population of the neighborhood can't be larger than 300000 citizens because of overcrowded

- This neighborhood should also have a couple of Italian restaurants and a movie theatre

3. Interested audience

I believe that my analysis helps people that move to London better understands which neighborhoods are for them. It can also be helpful to find in which neighborhoods people can start creating business and also it helps for me to build better data science skills.

2. DATA SECTION

The data that I use for analysis to find the best-fitted neighborhoods is a combination of a CSV file from different sources (london_data.csv). Dataset consists of average rent price data of only two rooms apartments, crime rates for different neighborhoods, the population of neighborhoods, and location data. Most of the data are get from government page:

- Rent prices: https://data.london.gov.uk/dataset/average-private-rents-borough
- Crime rates: https://data.london.gov.uk/dataset/recorded_crime_rates
- Population: https://data.london.gov.uk/dataset/population-change-1939-2015
- Location: https://www.distancesto.com/coordinates/gb
- Venues: https://foursquare.com

3. METHODOLOGY SECTION

The Strategy to find the answer:

Strategy for this project is based on mapping data in section 2 and define results. First, we map all London neighborhoods in one map. Second, we choose the best neighborhoods that meet criteria's. Third, using Foursquare API and pandas library find which of the neighborhood best fit.

Main Libraries:

Folium for mapping;

Pandas for data uploading and data frame manipulations;

Matplotlib for visualizing results;

Geocoder to convert an address into latitude and longitude values.

EXECUTION/RESULTS

MAP ALL NEIGHBORHOOD IN LONDON

FIND BEST FITTED NEIGHBORHOODS

|	Area	Count_of_rents	Average	Crime_rate	Population	latitude	longitude
11	Hackney	630	1849	91	269009	51.551795	-0.064644
12	Hammersmith and Fulham	700	1865	98	179410	51.480000	-0.210000
18	Islington	960	2050	100	227692	51.538621	-0.102835
26	Richmond upon Thames	540	1704	50	194730	51.461305	-0.303771
29	Tower Hamlets	1080	1869	85	295236	51.520261	-0.029340

VISUALIZE FITTED NEIGHBORHOODS
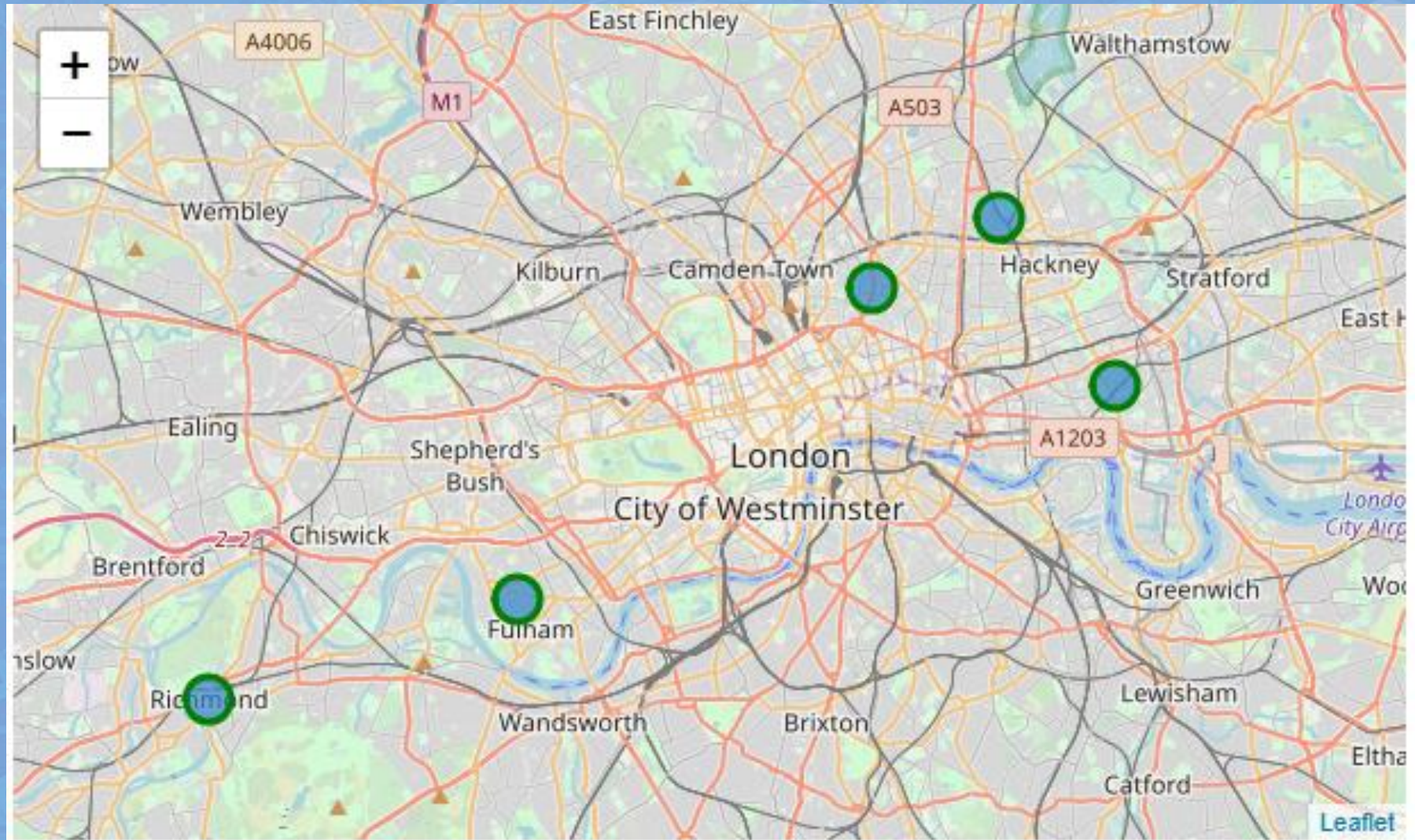
EXPLORE SELECTED NEIGHBORHOODS

Using Foursquare API we explore 5 selected neighborhoods and count how many venues they have in 500 meters radius.

neighborhood	Venue_count
Hackney	23
Hammersmith and Fulham	19
Islington	100
Richmond upon Thames	100
Tower Hamlets	12

FIND NEIGHBORHOODS WITH MEET ITALIAN RESTAURANT AND MOVIE THEATRE CRITERIA

		Venue_count
neighborhood	Venue Type	
Hackney	Italian Restaurant	1
Hammersmith and Fulham	Italian Restaurant	3
Islington	Movie Theater	1
Richmond upon Thames	Italian Restaurant	7
	Movie Theater	3
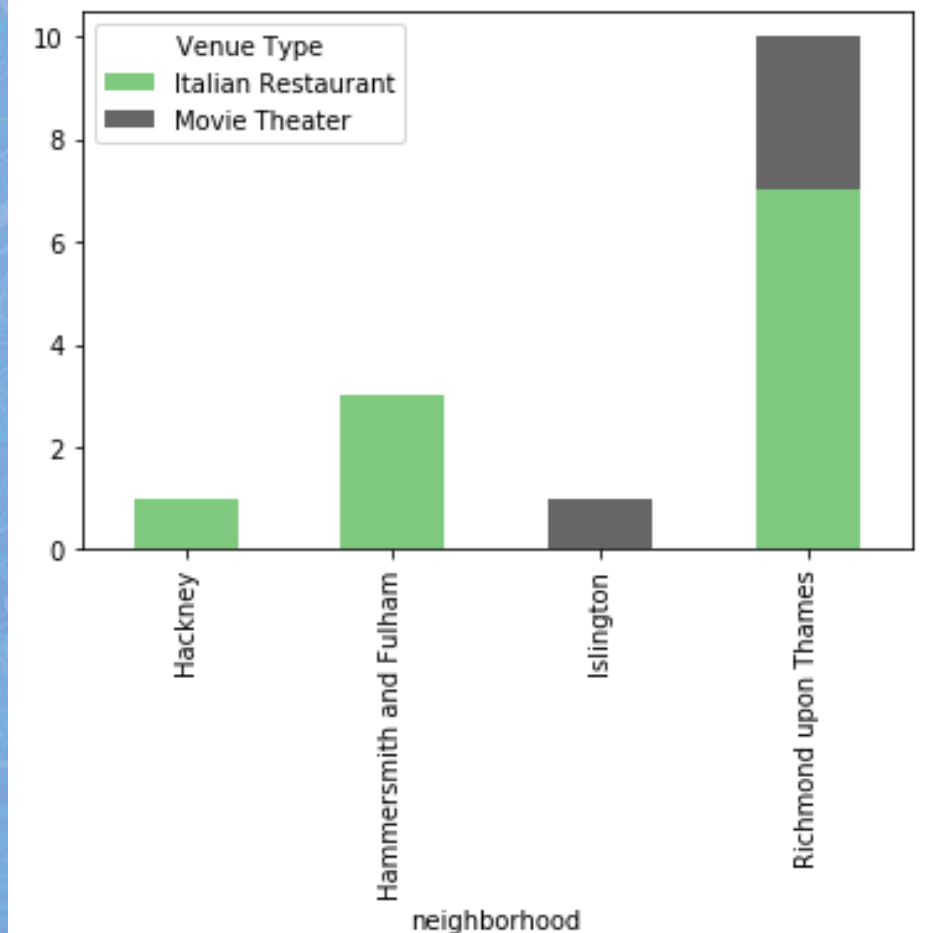
RESULTS

After analysis Richmon upon the Thames beat all other neighborhoods with reasonable rent prices, low crime rate, the 7 finest Italian restaurants, and 3 movie theatres
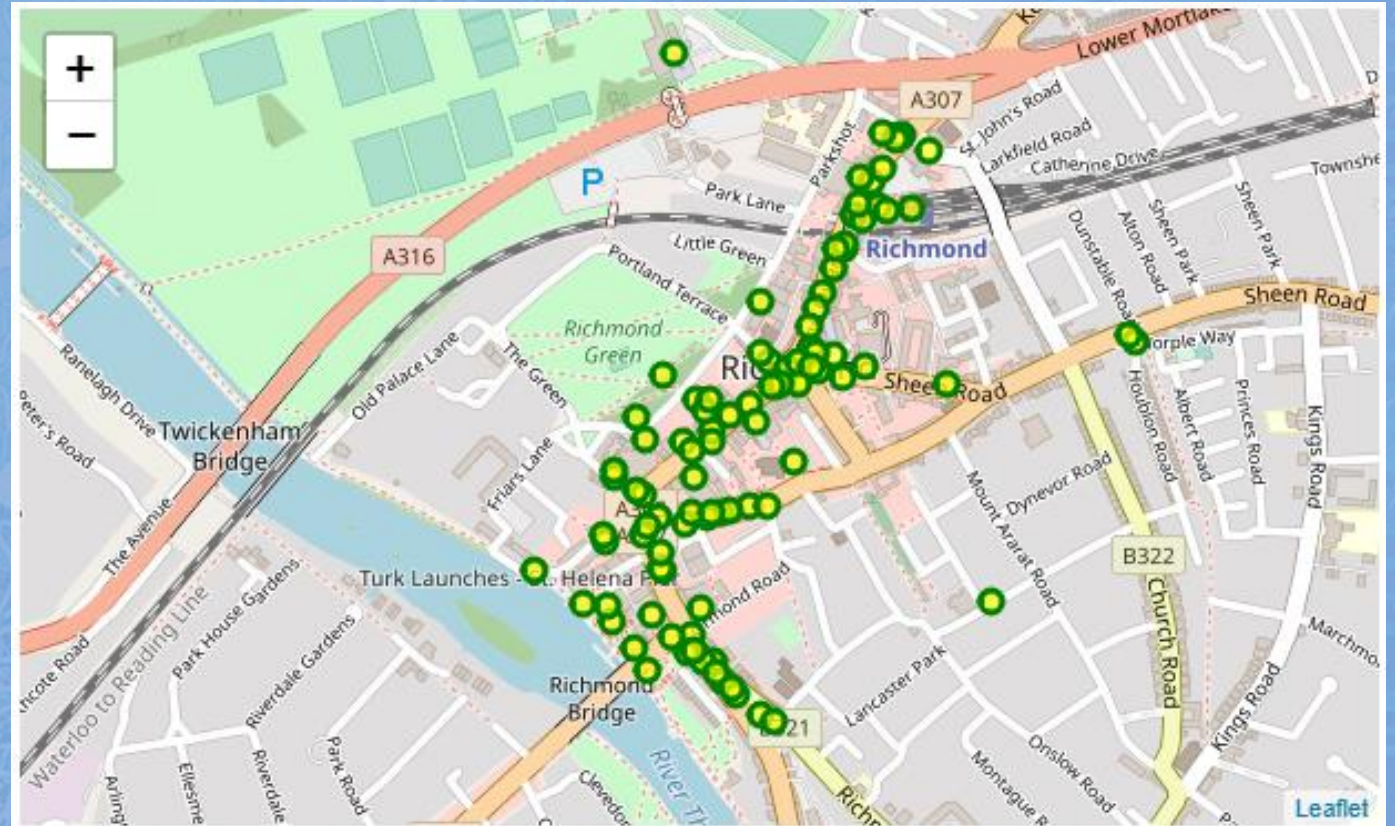
5. RECOMMENDATIONS /CONCLUSION

Richmon upon the Thames fitted all criteria's, but it has one issue that is far from the city center. So the second option is Islington that doesn't have an Italian restaurant, but have French restaurants and are near the beautiful city center of London also the price is reasonable and have more apartments available then Richmon. This suggestion was for my friend but after analysis, I know that I choose. For business opportunities, I choose Tower Hamlets and Islington and start an Italian restaurant business and for living Richmon upon the Thames are the best.

Thank You