Introduction

London is the capital of the United Kingdom and is located near the river Thames. A largest multicultural city with more of 9 million people. The city of London is the financial and technology center in Europe. London offers a wide spectrum of venues, museums, art galleries, the finest restaurants in the world.

City growths very rapidly and rent prices grow very rapidly too. My good friend gets a good job near London center and he asks me for help to find the best neighborhood for him. London has 32 neighborhoods. Before I starter prepares my analysis he calls me and says that he has couple conditions:

1. Rent price should be in the range of 1500 - 2100 pounds per month for two room apartment
2. Crime rate should be no larger than 100 per thousand citizens
3. The capacity of the rented apartment also should be more than 500 rooms for a better choice
4. The population of the neighborhood can't be larger than 300000 citizens because of overcrowded
5. This neighborhood should also have a couple of Italian restaurants and a movie theatre

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.

Data Overview

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/
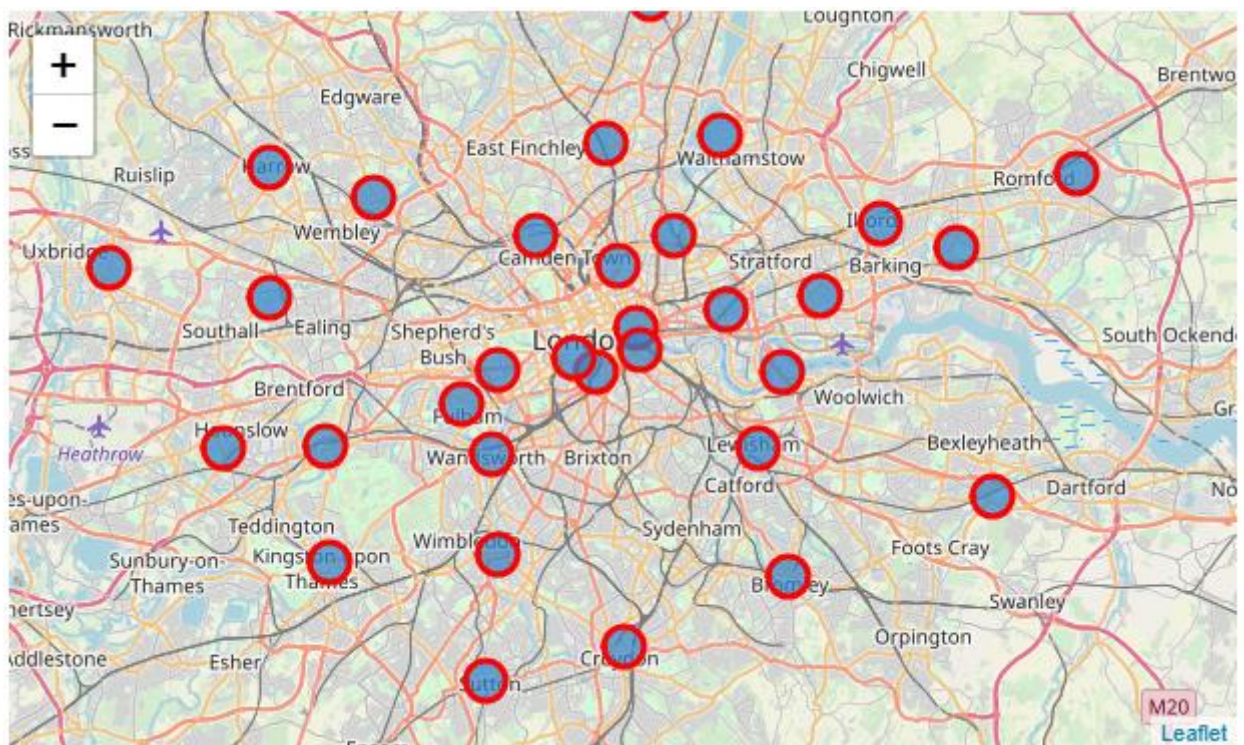
Using this data let us properly answer all question and see a full picture of London neighborhoods. Data will enable us to properly group rent prices, crime rates, population and the number of rental apartments. Best fitted neighborhoods locations were cluster by venues using Foursquare API to understand neighborhood climate.

Examine London neighborhoods

The first step is was to examine London neighborhood using folium maps:
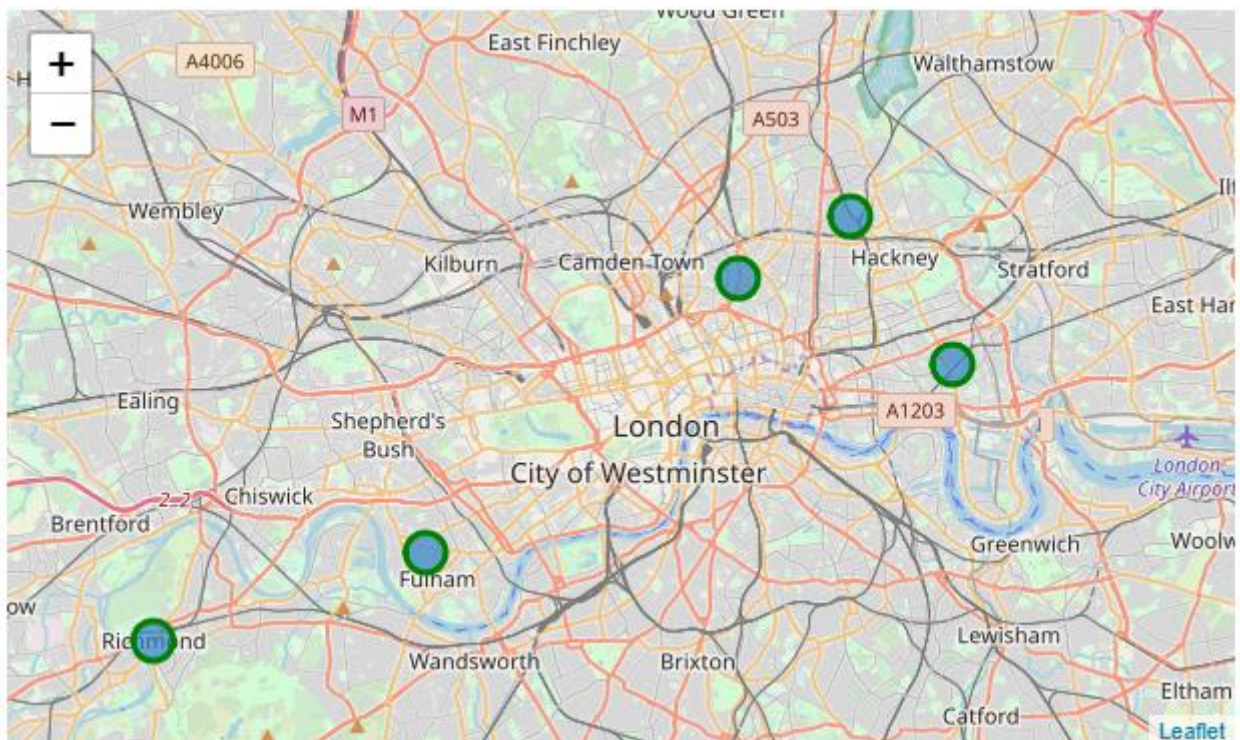

Map of London neighborhoods

London has 32 different neighborhood which is near the city center. Using prepared dataset and pandas data frame filtered function we find 5 neighborhood (Hackney, Hammersmith, and Fulham, Islington, Richmon upon the Thames, Tower Hamlets) that meet criterias for rent price, crime rate, population and capacity of the resting places.

	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

Each of the neighborhood has a location in different places around the city. Richmon upon the Thames is the cheapest and safest neighborhood but it's also farthest from the city center. Islington is opposite it near the city center but the rent price is high.

Neighborhood that has most of Italian restaurants and movie theatres
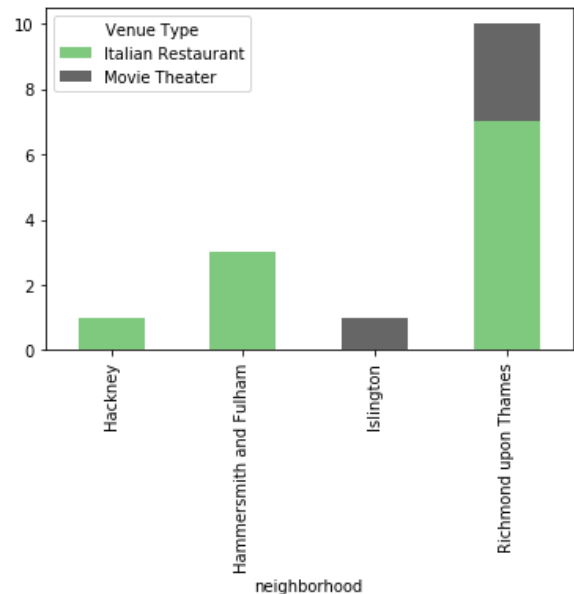
Using clustering technique from the prior section in the capstone project course, we examine most common venues by each of selected neighborhoods. This part of the analysis was prepared using the Foursquare API.

Map of London selected neighborhoods

When we clustered all selected neighborhood and get the result we find that only 2 locations have 100 venues in 500 meters radius: Richmond Upon Thames and Islington, which is most common for our analysis. Both areas have enough pubs and different type of restaurants (from Italian to French).

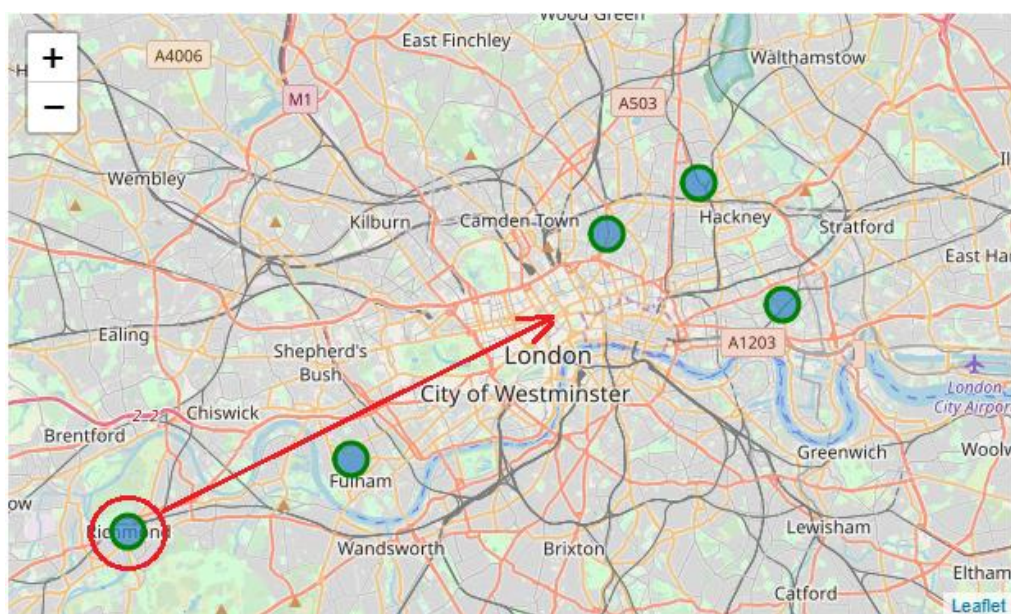| neighborhood	Venue Type	Venue_count
Hackney	Italian Restaurant	1
Hammersmith and Fulham	Italian Restaurant	3
Islington	Movie Theater	1
Richmond upon Thames	Italian Restaurant	7
	Movie Theater	3

So then we explore all selected neighborhood we need to find which of the area has most Italian restaurants and movie theaters. For this part of the analysis we using pivot table function and matplotlib library to visualize results.

The graph shows that only one area meet criteria of Italian restaurants and movie theatres that are: Richmond Upon Thames. Tower Hamlets neighborhood don't have any movie theatres or Italian cuisine restaurants in 500 meters radius.

Results and recommendations

After analysis Richmon upon the Thames beat all other neighborhoods with reasonable rent prices, low crime rate, and the finest Italian restaurants. Richmon has one issue that is far from the city center.

Map of London selected neighborhoods

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.