

Battle of the Neighbourhoods

IBM Data Science Specialization Capstone

R Forest

Introduction:

Within this notebook, I will address the business issue which will be solved during this project. In short, we intend to locate the best neighbourhood in which to open a new restaurant

Problem Background:

London, The Big Smoke, a concrete jungle. All names given to the UK's busiest and most populated city, hosting around 9.3million people (2020) over 1,500 square miles of land space. It produced £500billion which equated to around 1/4 of the UK's GDP in 2018.

With that wealth comes power and influence and what better place for wannabe entrepreneurs, business owners and politicians.

It is well known as one of the world leaders in banking, retail, fashion, tourism, transport and within media is one of the most used movie/TV settings. However, it is a dog eat dog world within the streets underneath the sky scrapers, one where business are constantly rising and falling and to that end, any new business venture needs to plan carefully to avoid failure.

Using analysis from data structures will enable any upcoming restaurateur to pick the right location, the right type of cuisine to serve and the right price.

Problem Description:

The restaurant business is all about the customer; if the customer isn't happy - you won't make it. As such, a sound knowledge in the food type depending on the area you set up shop is vital. The business model is, in theory easy;

- customer orders food
- You provide said food
- customer pays
- repeat

But how can we know what type of restaurant is best to open up and where? London is one of the most diverse places in the world with more than 270 different nationalities and around 300 languages being spoken within it. With this comes some of the most diverse types of cuisine all within a few mile radius - head to Brick Lane for some of the best curry, head to Picadilly where China town can serve you up some fresh duck or head over to Knightsbridge/Mayfair for some upscale fine dining.

So what if we wanted to open a Pizza restaurant or a noodle bar? Where would be best to go? This project will tackle this issue head on using data sets on cuisine and demographics throughout London.

The Plan

To create a successful business model, we are going to look at various factors to gain the best insight into where to select a location for our restaurant. We will look at;

- London Population
- London's Demographics
- Accessibility to nearby markets to ensure costs are low but quality high
- Reviews of similar local eateries
- Who are the competitors in that location?
- Cuisine served / Menu of the competitors
- Segmentation of the Borough
- Untapped markets
- Saturated markets etc

Using the above, we will be able to select the best location for this company to begin their restaurant business in.

Target audience

To meet the companies expectations, I will identify the best location for the company to put roots down and also rationale any decisions or outcome I produce for them.

Outcome criteria;[1](#)

The outcome criteria of the project will be a good recommendation of borough/Neighbourhood choice the company based on lack of such restaurants in that location and nearest suppliers of ingredients.

Data

The city I have chosen to analyse is: **London**

Data 1

The first set of data will be from looking at the make-up of London itself as well as defining the boundaries of London. There is the 'City of London' which is known as 'the square mile' making up only 1.12miles squared - it even has it's own police service seperate to the Metropolitan Police who police the rest of London and it's 32 Boroughs.

For this data, it will be 'The Greater London Area' that we are referring to. So everything up to Enfield, down to Croydon and over to Hillingdon in the West and Havering in the East.

This data will be extracted from Wikipedia and will also use FourSquare.

London's 32 boroughs; https://en.wikipedia.org/wiki/List_of_areas_of_London

Specific area to review

The area of London I wish to focus is the diverse area of the South and South East. Contained within here we have London's famous 'Borough Market' just by London Bridge. A great place to get any kind of food you can imagine.

Data 2

We will now examine the demographics of these areas to work out the proportion of nationalities. This area of London is very diverse with a large make-up of Afro-Caribbean populace. This data will enable us to gain a better idea of what cuisine is likely to be found. For this, we are using demographic data from Wikipedia.

https://en.wikipedia.org/wiki/Demography_of_London

Data 3

We will next be looking at obtaining the location data for our targeted areas. To accomplish this, we will be using a Geocoder which will provide longitude and latitudes.

Methodology

We will now look at our data after pre-processing scraped data from Wikipedia to access which area would be the best to establish a new restaurant with the South-East of London.

Using K-Means clustering, scraping, data grouping/re-arranging and also using various coefficients in order to sort and visualise the data in the most digestible way.

When looking at specific areas, we can see that the majority of venue types within Lambeth are pubs and coffee shops. Restaurants are not even in the top 5. Lambeth is a commuter heavy area of South East London. There are more Pret-A-Mangers in a small area than most other parts - this is reflected by the coffee shop being in tied first spot with pubs.

People go to the coffee shops on their way into work and head home via the pub.

A slight caveat here - we only examined 100 locations within Lambeth. Expanding the search may provide slightly different results but this will be fairly comparable throughout all of the data.

We then looked at multiple venues with venue types to gain an overlook on the data as a whole to see if the amount of types correlated across the board.

Result

After reviewing the above cluster data, we can now make certain observations;

1. Pubs & Coffee shops are the most popular venue type in SE London

2. Pizza places/Italian Restaurants are very popular.

3. Other cultural food places (Indian, Korean etc) are quite far down the list in terms of popularity. But they are still on the list meaning there could be a market for them there?

Conclusion

Based on the data and the visualisation of our data frames, we can make an assumption that a pub or coffee shop/cafe is the best type of venue to open in SE London. London is a commuter heavy location and as such, they want quick, easily accessible food.

Tourism is lower in SE London than in other parts and as such, less likely to have visitors wanting a sit-down meal in it.

That being said, there are some venues of a restaurant experience who feature in the top 10 venues across most clusters. If you're in Greenwich, then Mediterranean food is a good choice and across the board Italian seems to be a good type to go for.

It would be helpful to know if these particular venues offer takeaway or dine-in only experiences to assess fully if they fit in the assumption of the 'commuter dash'.