Battle of the Neighbourhoods
Eat-In, London!

1. Introduction

1.1. Background

The past decade has witnessed dramatic changes in the operating model of restaurants and eateries all over the world. Until the 2000s, dining-in used to be the default option at a restaurant and takeaway food was restricted to a select few fast food chains. Cut to today - at the touch of a button, one can choose to order food from among a wide range of restaurants and enjoy the ultimate comfort and convenience of eating in. This has been made possible by the emergence of restaurant-aggregating food delivery platforms. Food delivery has become one of fastest growing businesses across the cities of the world.

In a large, diverse city like London, UK, eating-in is quickly becoming more popular and practical than eating out. Also, with the entry of several players in the industry, each food delivery platform is scampering to have that edge over the others. There are several factors that drive the success of these platforms including pricing, frequency of orders, ratings of restaurants and consistent, on-time delivery. This is a really large scale and costly problem to solve. In this study, we specifically look at how we can employ Foursquare data in conjunction with other publicly available data to provide insights that could improve the performance of these platforms. We will specifically look at data pertaining to London and attempt to identify patterns and trends that could aid food delivery services.

1.2. Audience

This study will be of specific interest to people involved in the restaurant/ takeaway business around the world. Although the data is specific to London, the general approach to the analysis can be applied to any city of similar scale and

diversity. Insights gained could be used in refining already existing machine learning techniques being employed by these businesses. The results of the study can also prove useful to a new business (either restaurant or food delivery service) that is in the process of being setup, in order to determine the considerations during setup (i.e. Location, density of operations per area, number of delivery personnel stationed in each area etc.).

2. Data

2.1. Data Sources

London is the capital city of the United Kingdom and is one of the oldest and the most important cities of the world. Occupying an area of 600 square miles, London is home to 8.9 million people.

London is organised into 32 boroughs as shown in the image below:

Most of the data on the internet, pertaining to London, is organised per borough. Hence, it seems logical to use the same approach for this data analysis.

Data for this study was collected from the following sources:

- [Area, Population, Latitude & Longitude data for London boroughs](#)
- Venues across London - Foursquare API
- [Age information for population across London Boroughs.](#) This data is not readily available, so it had to be tabulated separately and then used in the analysis, as available [here](#).

2.2. Approach to data

The data about each London borough from the above sources are available in the form of tables (Wikipedia) and excel sheets. These tables and sheets are first converted into Python dataframes and appropriately merged. Once all the London borough data is organised into one single table, following cleaning and wrangling, the relevant columns of this data (Borough Name, Latitude, Longitude) are passed through to Foursquare through the Foursquare API in order to fetch information about venues in each of the boroughs. The venues are then analysed to categorise them as eateries or otherwise. Following this, further analysis is performed, as will be outlined in the upcoming sections of this report. This includes visualization of the venues, clustering of boroughs based on eateries, age of population etc.