

# Searching the Best Location for a New Restaurant in London

Zhujun Li

## 1. Introduction

### 1.1 Background

London is the capital and largest city of United Kingdom, it is considered one of the world's most important cities. It's financial influence and diverse culture attract people around the world to work and live in London. London is the most populated city in the UK, and the second most populated in Europe. With such dense population, the demand for restaurants is high in London, and the restaurant business constantly attracts investors. One of the most important business decisions to make when opening a restaurant, is choosing the best location that help the business to succeed.

### 1.2 Problem

The problem here is to find the area that is the best for opening a new restaurant, based on current locations of restaurants. Areas currently contain the most restaurants are more popular for the restaurant business, and are potentially better for opening new restaurants. Further details can be explored, such as which type of cuisine is more popular in each area, this will help the client to determine what type of restaurant could be potentially attract more customer in each area.

### 1.3 Interest

The results of this study can help clients who wants to open new restaurants planning the best location for their new business.

## 2. Data

### 2.1 Data sources

We use list of areas of London from Wikipedia page [https://en.wikipedia.org/wiki/List\\_of\\_areas\\_of\\_London](https://en.wikipedia.org/wiki/List_of_areas_of_London) to define areas in London. And use Foursquare API to retrieve restaurants and their locations within each area.

### 2.2 Data selection

The list of total 60 boroughs in London are acquired from the Wikipedia page using python BeautifulSoup package. The latitude and longitude are obtained through python geopy.geocoders for each borough, and are added to the data frame.

Foursquare API is used to search for venues that belong to the category of "food". The coordinates of each borough are used to search for food venues, a radius of 5 km is used for each borough. A total of 1620 venues are obtained through this search method, a list of venue names, coordinates, and categories are recorded. An example of the obtained data is shown in the screenshot below.

	Borough	Latitude	Longitude	Venue	Venue lat	Venue lng	Venue cat
0	Bexley, Greenwich	51.451242	0.065413	Boulangerie Jade	51.492575	0.070559	Bakery
1	Bexley, Greenwich	51.451242	0.065413	The Taproom SE18	51.492198	0.071456	Pub
2	Bexley, Greenwich	51.451242	0.065413	Costa Coffee	51.433422	0.102713	Coffee Shop
3	Bexley, Greenwich	51.451242	0.065413	Le Délice	51.456610	-0.019732	Bakery
4	Bexley, Greenwich	51.451242	0.065413	Saikei	51.492256	0.009579	Chinese Restaurant

### 2.3 Data processing

The statistics of venues are calculated, including the total number of food venues in each borough, the most common category in every borough, and where are the venues located within the borough. These statistics will help determine the best location for a new restaurant in London.