

# 1 Introduction

In a city of New York, if someone is looking to open an Indian restaurant, recommend that where they should open it.

## 1.1 Background

Opening a new restaurant can be daunting. There are so many things to consider – from choosing the right location to finding financing to selecting the right name. And, of course, buying equipment and hiring staff. The first step in opening a new restaurant is deciding what type of restaurant it is going to be. Do you want to open a high-end fine dining restaurant? A casual 1950s-style diner? Do you have a specific type of cuisine in mind, such as Italian, French, or Indian? Perhaps a microbrewery or a pub.

Before a lease is signed for a restaurant's location, homework must be done. Is the restaurant location in a busy area with plenty of foot traffic? If not, is there enough parking? Have several other restaurants opened and closed in the same spot?

The most enjoyable part of opening a new restaurant can be selecting a restaurant name that means something to you. It can be a family name, a play on words, another meaningful turn of phrase, or it can reflect the theme or location you chose, such as Broadway Diner or The Highlands. But if it turns out that it wasn't a good location for a type of restaurant you are decided to open, all the efforts will go waste and it could cost a lot of money.

## 1.2 Problem

New York has is multicultural city and with many neighborhoods. It has many ethnicities and indeed a large Indian community. It would advantageous to predict whether an India restaurant would be a good choice to open and if so, where would that be. The project aims to determine whether Indian restaurant is a right choice and if so, where that would be in New Your city.

## 1.3 Interest

Obviously, the restaurant opener would be very interested in knowing where to open the restaurant for competitive advantage and business values. Others who are interested in opening any type of restaurant also may also be interested.

# 2 Data

## 2.1 Data Sources

New York primary has 5 boroughs and 300+ neighborhoods. In order to determine where to open the restaurant, we will segment and explore the neighborhoods. The dataset that will be used can be found [here](#). We will then use Foursquare API to explore the neighborhoods and determine the good location to open the Indian restaurant. We will use the explore function to get the most common venue categories in each neighborhood, and then use this feature to group the neighborhoods into clusters. I will use the k-means clustering algorithm to complete this task. I will also use scatter, box plot, histogram etc. diagrams and also develop distribution using linear regression.

## 2.2 Data Cleaning and Exploration

Neighborhood has a total of 5 boroughs and 306 neighborhoods. In order to segment the neighborhoods and explore them, we will essentially need a dataset that contains the 5 boroughs and the neighborhoods that exist in each borough as well as the latitude and longitude coordinates of each neighborhood.

Data will be downloaded from above source. Will convert addresses into their equivalent latitude and longitude values. Also, will use the Foursquare API to explore neighborhoods in New York City. Will use the explore function to get the most common venue categories in each neighborhood, and then use this feature to group the neighborhoods into clusters.

## 2.3 Feature Selection

TBD for report

## 3 Exploratory Data Analysis

TBD for report