IBM Data Science Professional Certification on Coursera

Capstone Project - The Battle of Neighborhoods

Finding Optimal Locations to Open an Indian Restaurant in Singapore

Final Report

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Introduction/Business Problem

Singapore is one of the most diverse countries in the world. It is a small yet mighty city-state, that's home to a wide range of cultures, ethnicities and religions. This is especially evident in the wide availability of its cuisines, which predominantly come from the Chinese, Malay and Indian communities. This makes Singapore a very attractive hub for restaurateurs who are contemplating to open a restaurant that serves one of these cuisines. In this project, we aim to find the most optimal location to recommend to stakeholders who are planning to open an Indian restaurant in Singapore.

There are many things to consider when choosing a location, but some basic principles can help restaurateurs get a better understanding of what it takes to make up a good restaurant location. We will define an optimal location based on the following criteria:

Competition - Being too close to established competition may help with business marketing, but if the new restaurant is too close to its competition, it may have a tough time gaining a foothold in the community. Hence, we prefer neighborhoods that don't already have many Indian restaurants.

Accessibility - Another important factor is how accessible the potential location is. When looking at a restaurant location, we need to consider the amount of accessibility to make it as easy as possible for customers to visit the establishment. We should also keep in mind that tourists tend to visit eateries that are in or around the city center. Hence, we prefer more centrally located neighborhoods.

Data

To obtain the list of neighborhoods and their corresponding regions in Singapore, there exists a Wikipedia page titled "Planning Areas of Singapore" that has all the information we need to explore and cluster the neighborhoods in Singapore. We will scrape this Wikipedia page, wrangle the data and clean it to prepare it for use.

We will then proceed to use the Geocoder Python package to obtain the latitude and the longitude coordinates of each neighborhood.

Lastly, we will use the Foursquare API to explore the neighborhoods and segment them. We will analyze the venue data, cluster the neighborhoods with respect to the number of Indian restaurants, and finally examine the results to make recommendations based on the data.