IBM Applied Data Science Capstone

Coursera Project

A Comparison of America's Large Cities In Terms of Access to Ethnic Foods

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1   Introduction

The United States of America has been one of the primary, if not the most prominent, destinations for many immigrants in the past 200 years. People from all over the world have come to the US and built a new home for themselves. Some might have come seeking freedom of speech or religion, and others might have come hoping for the American dream and greater economic opportunities. While the reason behind immigration might be different from time to time, and for one person to another, there is a collective experience for most immigrants: People come from different cultures and go through great hardship and emotional distress. Food is not just nutrients; it is a simple way to bring back memories and make people feel good. It is also a way to connect with local residents.

Over the past two hundred years, many immigrants have opted for large cities in the US, such as Chicago, NYC, Los Angeles, etc., resulting in abundant ethnic restaurants in major cities. In this project, we are going to explore some major US cities in terms of diversity and access to local cuisines. Also, we will pay attention to this question of whether one can trace the history of immigration to these cities. Can we find out whether a specific city had been a significant destination for people of a particular ethnicity? While such an exploration provides useful insights into the culture and common traditions in these areas, inherited from the first generations of immigrants, we will particularly look for tentative business opportunities. We want to find out what type of cuisine is not well-represented. Would it be economically justifiable to invest in opening a new ethnic restaurant?

1.1   Interested Audience

This project is in the interest of two groups. First, historians and social science research communities who are interested in the impact of immigration on Amer-

ican societies. The process of migration leads to mutual cultural exchange, one of which is the impact of immigrant culture on the target community. Second, business investors and entrepreneurs who are interested in the establishment of a new ethnic restaurant will be able to find out what type of cuisine is not well-represented. While investing in the food and restaurant industry in a large city can be fruitful, the kind of restaurant must be carefully selected to avoid losing out on competition with other city restaurants. The result of this project will provide useful insight into planning toward establishing a new ethnic restaurant.

2 Data

The focus of this project is on ethnic restaurants available in some major US cities. I use Foursquare API to obtain a list of restaurants within each city. In this project, which intends solely to practice data science in Python, I am using the non-premium version of APIs for developers. Therefore, Foursquare API only provides 100 restaurants per request, which I think is sufficient for our purpose. To preserve the flexibility of adding and removing cities of interest easily, I limit this project to cuisines within a specified radius of the center of each city. In such case, a list of neighborhoods in each city is not required.

The first information that we need is the geographical coordinates (latitude and longitude) of each city of interest, which can be obtained using the Nominatim geocoder. Then, exploring nearby venues of each location with a query of "restaurant" will give us a list of 100 restaurants. The hierarchy of venue categories by Foursquare is listed here. By looking at the hierarchy of categories, we realize that in order to filter ethnic cuisines from unrelated categories, such as coffee shops and bakeries, we need to keep those only that their venue category contains the term "Restaurant."