Report on

Migrating to Spain – Exploring Similar Neighborhood

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1. Introduction

Migrating from one city to another is many a times a hectic process. New place, new people, new culture, and most importantly, new neighborhood. So exploring the new place is, thus, a new beginning from square one. It would really help one if he/she could find the amenities or restaurants or the venues just like the ones in their current location, in the city where they are migrating.

Here, I am assuming that I am migrating from my current city, Pune, India to city of Madrid, Spain. In this capstone, I will attempt to apply the techniques learned throughout the Data Science courses to explore the neighborhoods in the capital of Spain that is city of Madrid.

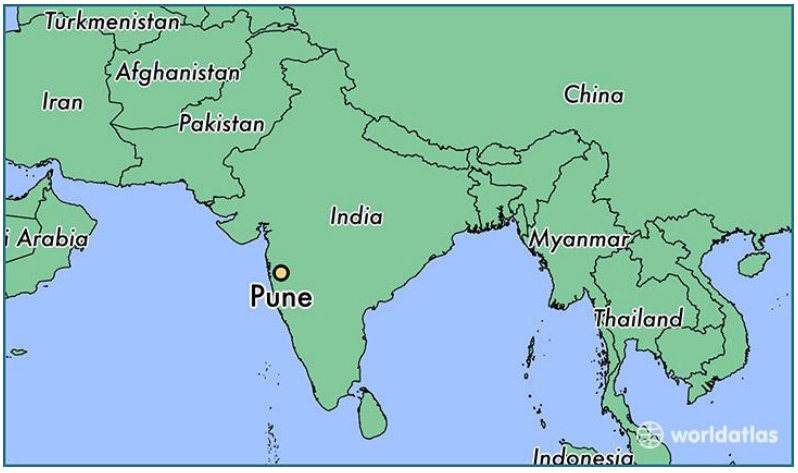
I will acquire my places of interest in my current location using the Foursquare API. I will then use the same API and explore the similar kind of venues in the city of Madrid.

2. Data

Let us discuss the data that I will be using for this project.

2.1 Data for current location

As discussed in the introduction, my current location is the city called ‘Pune’ in India.



Coordinates for Pune: 18.5203062 73.8543185

By using the Fousquare API with its explore endpoint and limiting the result to 80 venues and radius as 1000, I was returned with the following result:

```
51 venues were returned by Foursquare.
There are 28 unique categories.
```

2.2 Data for city of Madrid

Now let us get the data for neighborhoods in Madrid. For that, I am using the data from Portal de datos abiertos del Ayun- tamiento de Madrid. Download the csv file titled Relación de barrios (superficie y perímetro).

This file is a list of 128 districts and neighborhoods called as ‘Distrito and Barrio’ in Madrid. Following are the first ten records from the file:

```
(128, 2)
     Distrito                    Barrio
0  Arganzuela                    Atocha
1  Arganzuela                  Delicias
2  Arganzuela                  Imperial
3  Arganzuela                La Chopera
4  Arganzuela               Las Acacias
5  Arganzuela                   Legazpi
6  Arganzuela            Palos de Moguer
7     Barajas                 Aeropuerto
8     Barajas           Alameda de Osuna
9     Barajas  Casco Historico de Barajas
```

Let’s get their geo coordinates. For that I am using **Nominatim** from **geopy.geocoders**. The list returned 119 records. Here are the coordinates for the first ten records:

```
(119, 4)
     Distrito           Barrio    Latitud  Longitud
0  Arganzuela           Atocha  40.405731 -3.690142
1  Arganzuela         Delicias  40.397292 -3.689495
2  Arganzuela         Imperial  40.406915 -3.717329
3  Arganzuela       La Chopera  40.394893 -3.699705
4  Arganzuela      Las Acacias  40.400759 -3.706995
5  Arganzuela          Legazpi  40.391172 -3.695190
6  Arganzuela   Palos de Moguer  40.403927 -3.695561
7     Barajas        Aeropuerto  40.494426 -3.564283
8     Barajas  Alameda de Osuna  40.457581 -3.587975
9     Barajas        Corralejos  40.468164 -3.587073
```

By using the Fousquare API with its explore endpoint and limiting the result to 80 venues and radius as 1000, I was returned with the following result:

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category

Atocha	40.4054769	-3.68979999	Bodegas Rosell	40.403802520	-3.6906202941	Spanish Restaurant
Atocha	40.4054769	-3.68979999	Only You Hotel Atocha	40.407160659	-3.6884378646	Hotel
Atocha	40.4054769	-3.68979999	Running	40.40671358	-3.686904474	Sporting Goods
…	…	…	…	…	…	…

The dataframe is 2446 rows and 254 unique categories.