Battle of the Neighborhoods – The Best City with African Restaurants

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Introduction

Background

A friend of mine is considering moving to the United States of America on work-related international cross-posting. He has never been to the United States before. He has an option to choose the city he wants to be posted to from five different cities: New York City, NY; Houston, TX; Atlanta, GA; Los Angeles, CA; and Denver, CO. His preference is that he will want to live in a city with high density of African restaurants around him.

Problem

The problem I plan to solve is to compare the locations of African restaurants in the specified five cities. I will then make recommendations to him on the best city with African restaurants for him to request to be posted to in the United States.

Data

Foursquare API will be utilized to collect location data about African restaurants in these five interested United States cities: New York City, NY; Houston, TX; Atlanta, GA; Los Angeles, CA; and Denver, CO. These are all the major cities in the United States with sizable African populations, and I do hope that all or at least one of them should have excellent collections of great African restaurants.

Methodology

In this battle of the neighborhood project, the aim is to find which city the following five cities: New York City, NY; Houston, TX; Atlanta, GA; Los Angeles, CA; and Denver, CO, is best if one is interested in living close the African restaurant locations. Foursquare API was utilized for the project. Queries to get venues in the different cities was used and the CategoryID I selected was that for African restaurants category. Listed below is an example of the code I used, as specified in the Notebook:

```
# start of code

LIMIT = 500 # Maximum is 100

cities = ["New York, NY", 'Houston, TX', 'Atlanta, GA', 'Los Angeles, CA', 'Denver, CO']

results = {}

for city in cities:
```

```
    url = 'https://api.foursquare.com/v2/venues/explore?&client_id={}&client_secret={}&v={}&near={}&limit={}&categoryId={}'.format(
        CLIENT_ID,
        CLIENT_SECRET,
        VERSION,
        city,
        LIMIT,
        "4bf58dd8d48988d1c8941735") # AFRICAN RESTAURANT CATEGORY ID
    results[city] = requests.get(url).json()
```

As one can see from the code copied above, the limit was for maximum of top 100 venues for each of the five cities. For visual confirmation, the map of each of the five cities with African restaurant locations were plotted. Further, to have an idea of the density of the African restaurant locations, the center coordinate of the venues were calculated to get the mean longitude and latitude measurements. This gave the values of the mean distance from the mean coordinates for each of the five cities.

Results

After running the codes, the results of the number of African restaurants from each of the five cities were below the limit of 100 that Foursquare would give us. Below are the total number of African restaurants from each of the five cities:

New York, NY = 69,

Houston, Texas = 20,

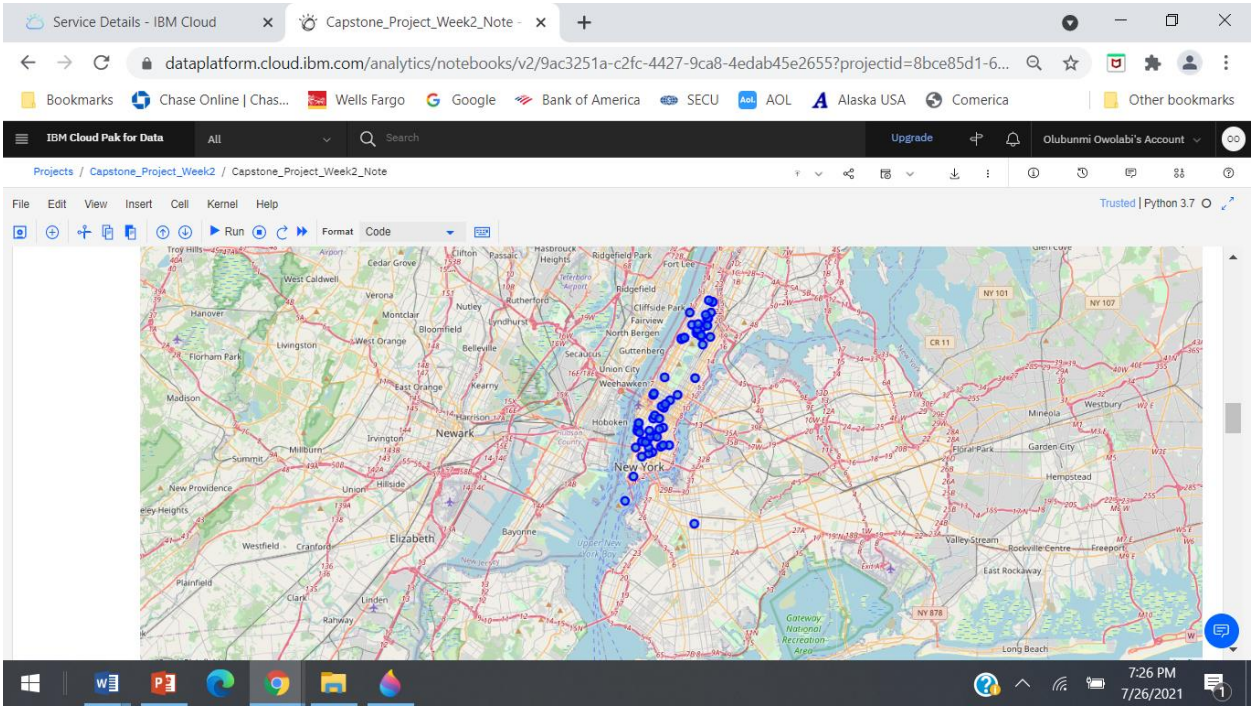
Atlanta, Georgia = 34,

Los Angeles, California = 25, and

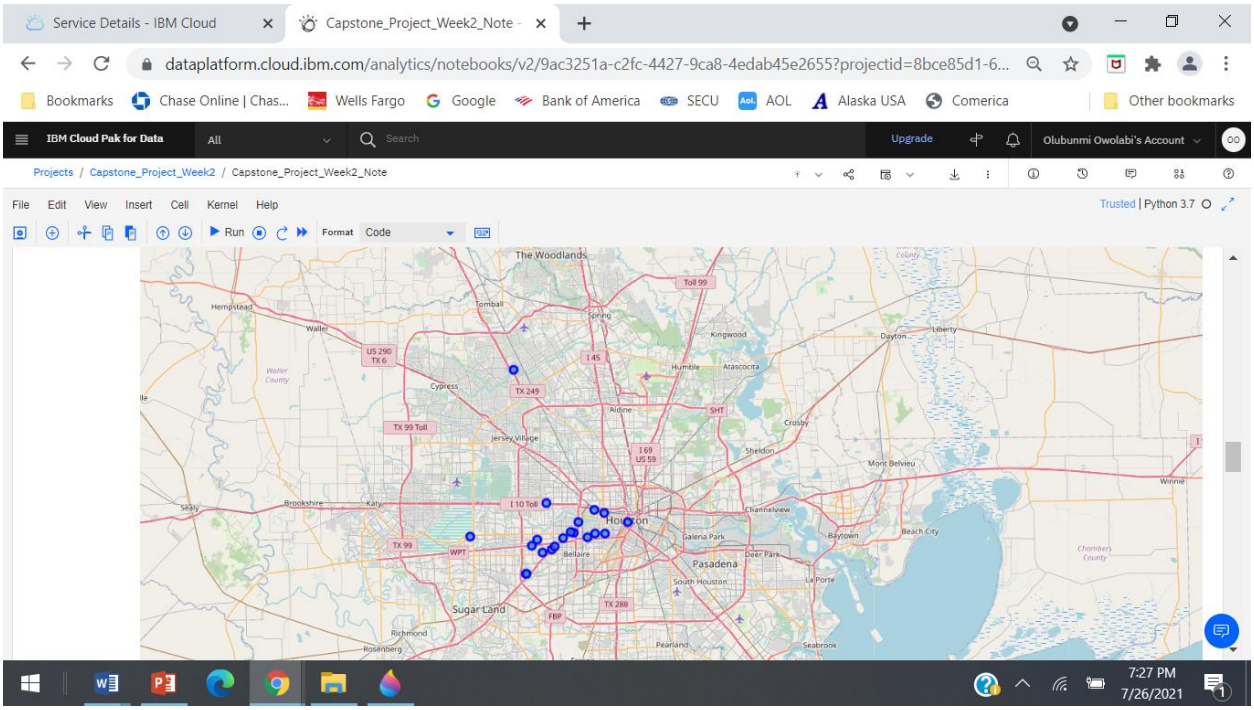
Denver, Colorado = 16.

The following are the maps of the folium generated geoplot for the five cities:

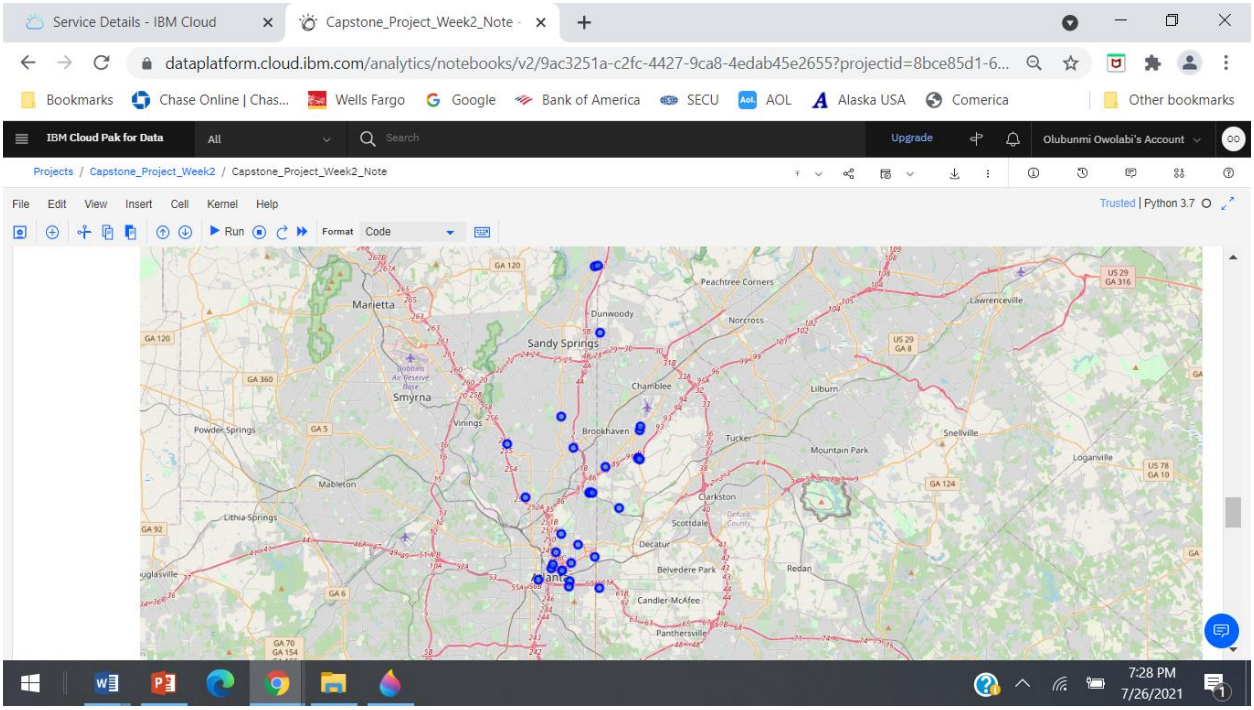
New York, New York:



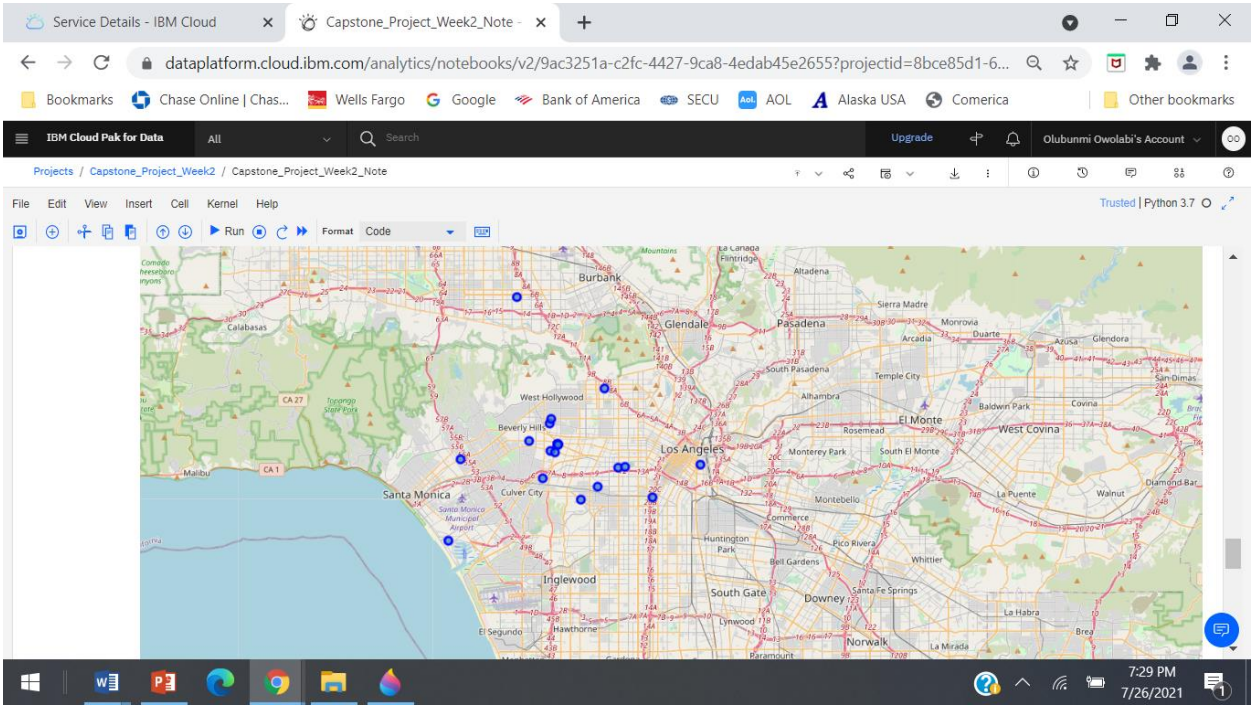
Houston, Texas:



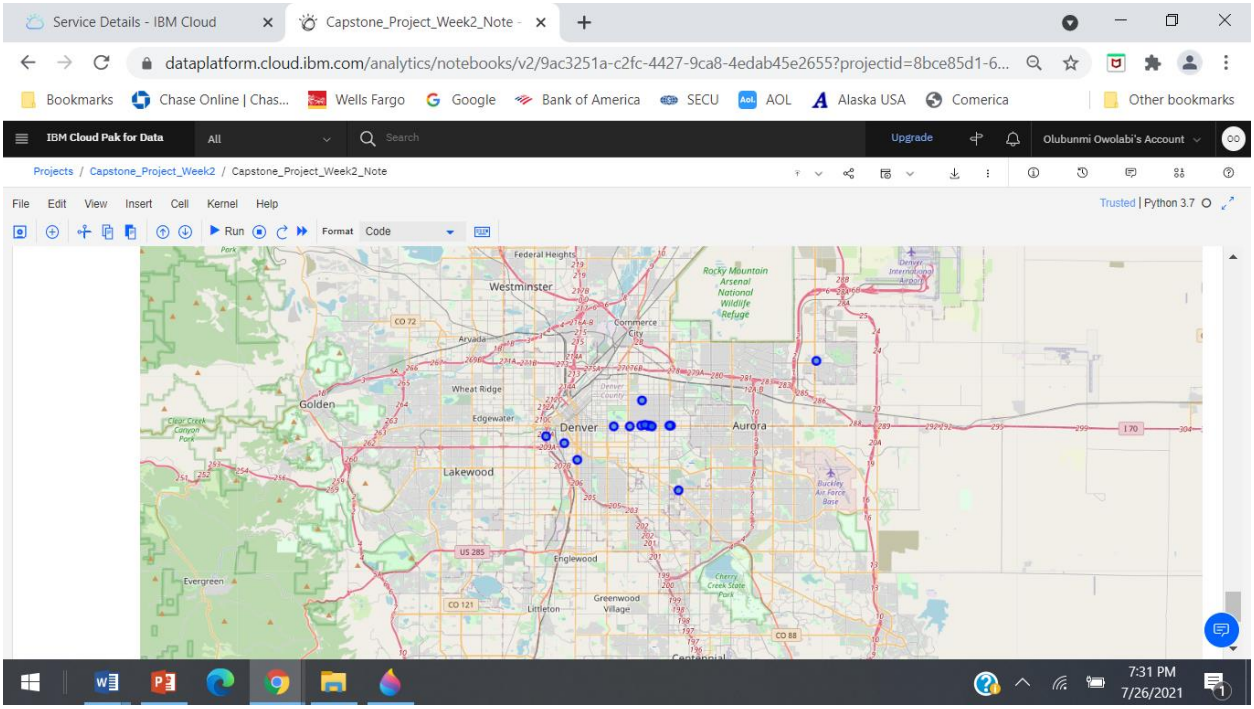
Atlanta, Georgia:



Los Angeles, California



Denver, Colorado



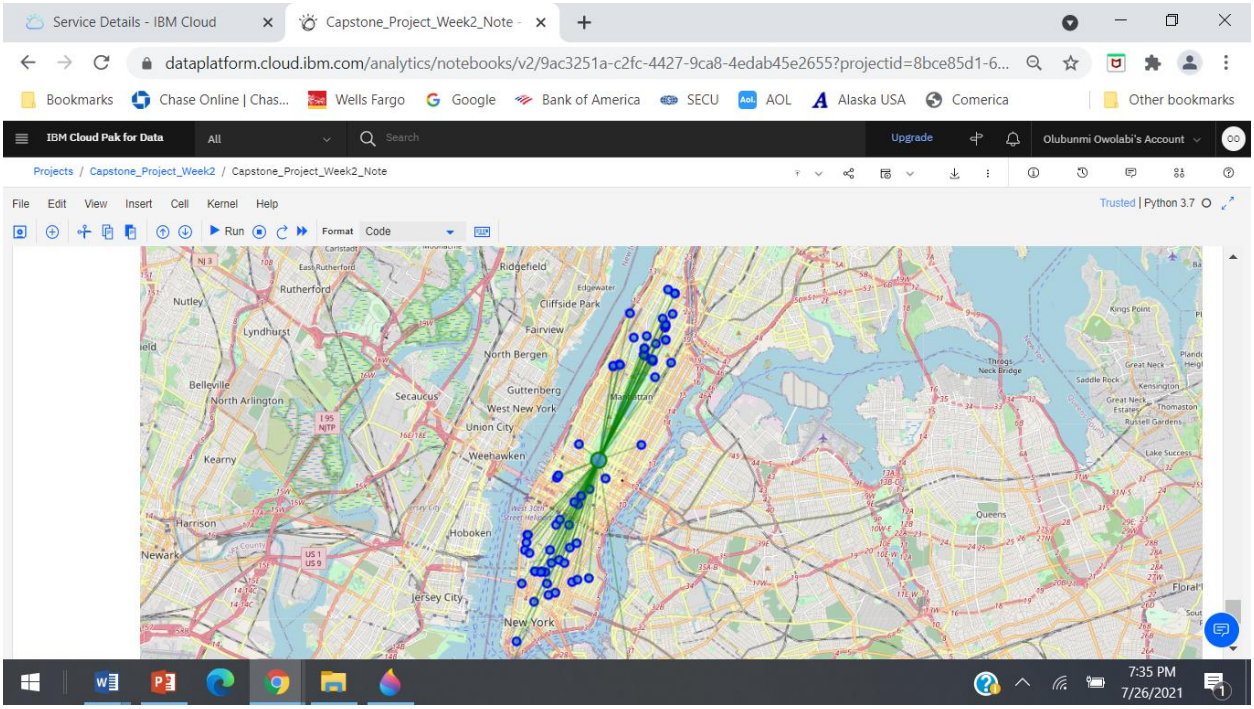
From the inspection of the above maps, it is not easy to choose the city with the highest density of African restaurants among this five cities. Then the decision was made to go ahead to calculate the mean distance from mean coordinates for each of the cities. On the maps, the distances are represented with green lines and the mean coordinates are represented with a green circle.

The mean distance from the mean coordinates for each of the cities are given below:

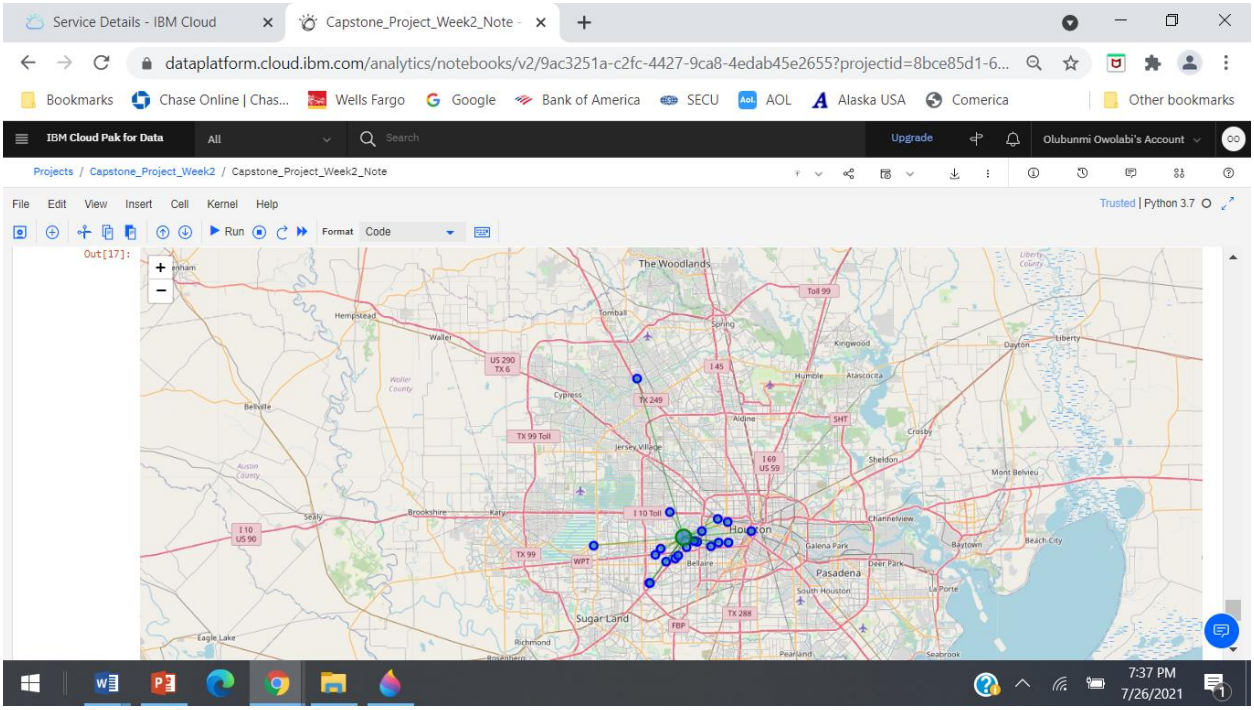
New York, NY = 0.0427689,
Houston, TX = 0.0721877,
Atlanta, GA = 0.0588588,
Los Angeles, CA = 0.0396257, and
Denver, CO = 0.0359321.

The following are the maps of the folium generated geoplot for the five cities, showing the calculated distances and the mean coordinates:

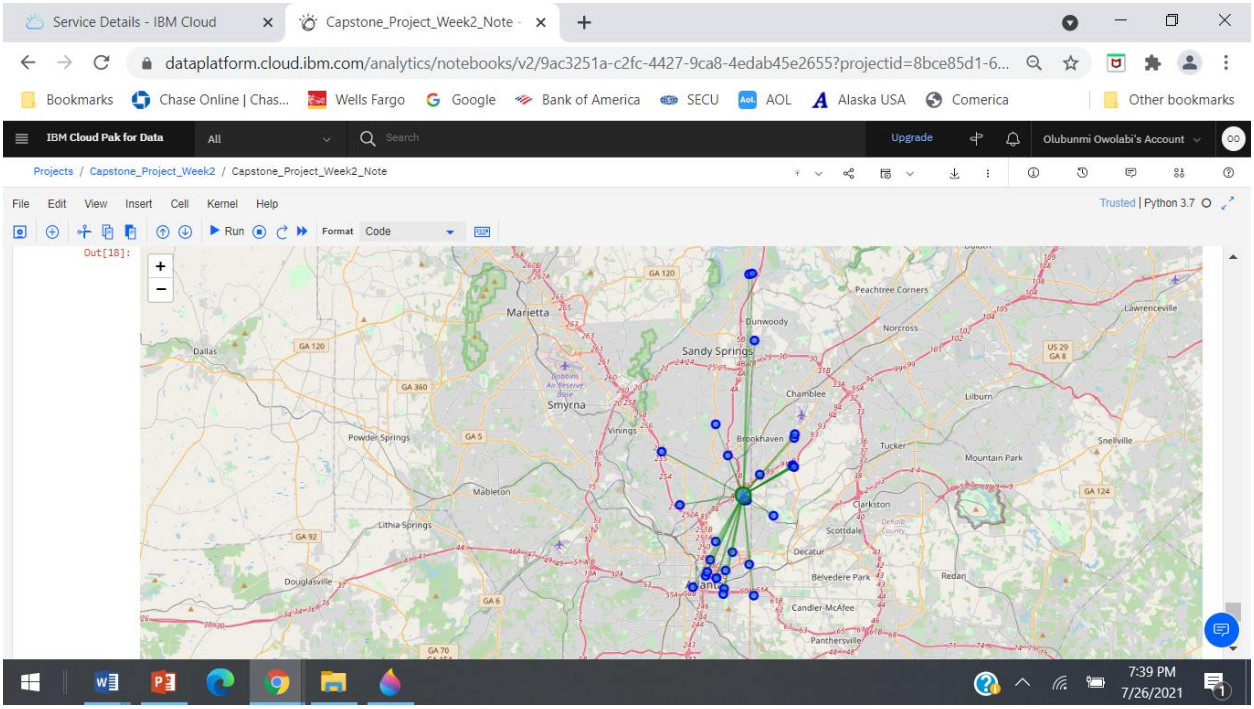
New York, New York:



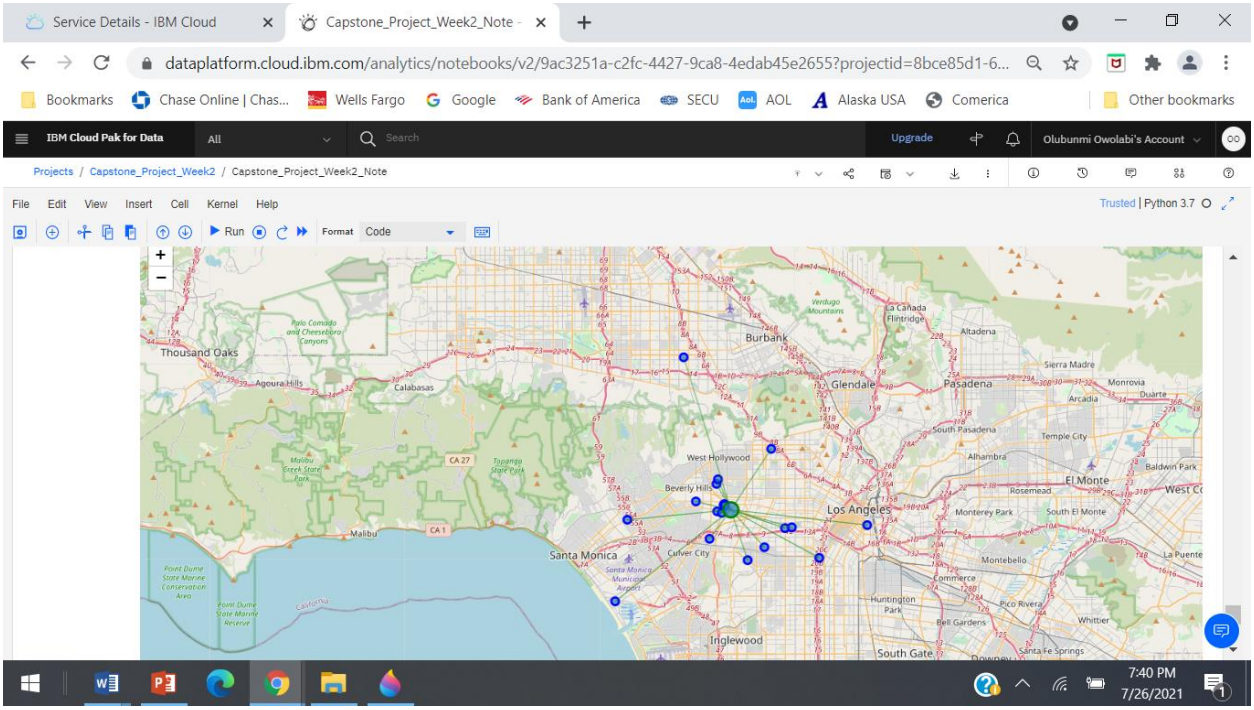
Houston, Texas:



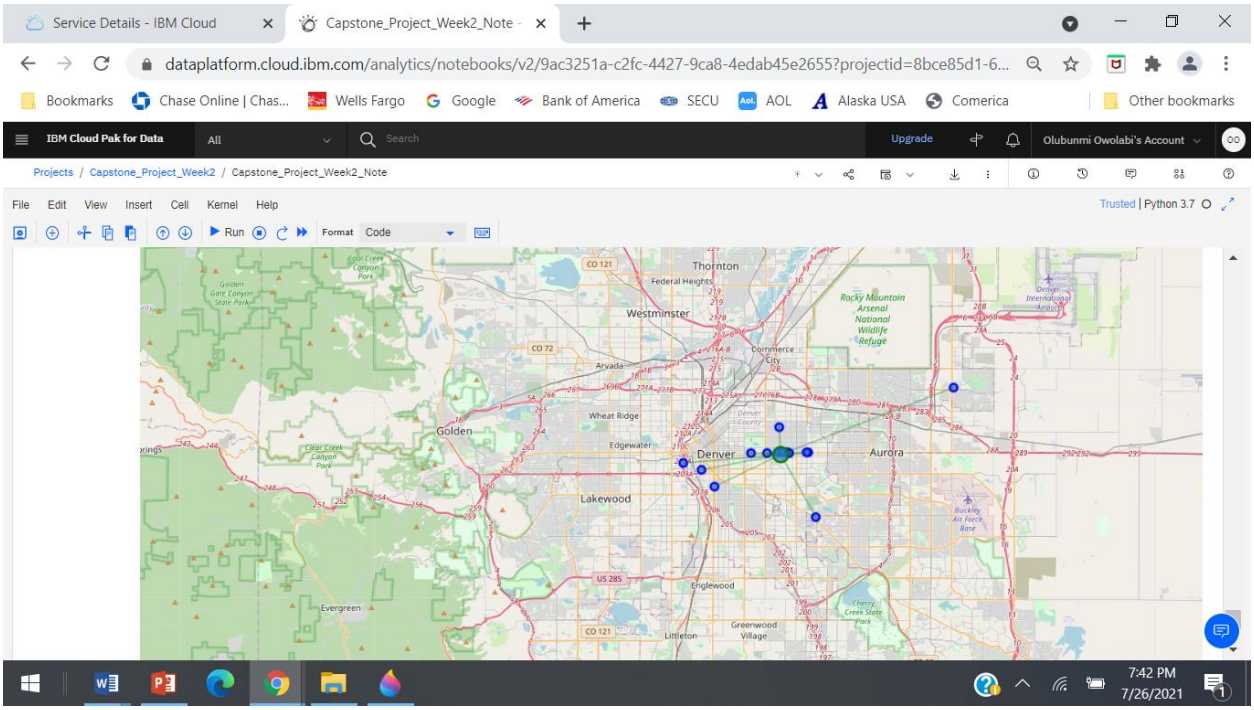
Atlanta, Georgia:



Los Angeles, California:



Denver, Colorado:



Hence, if we have to rank our results based on the density of the venues from best to worst, it is:

1. Denver, CO,
2. Los Angeles, CA,
3. New York, NY,
4. Atlanta, GA, and
5. Houston, TX.

Discussion

From the above results it appears that the best city to advice my friend to consider moving to is Denver, CO. If he is able to find an apartment close to the center of the mean coordinate, he would be able to have closer proximity to 16 African restaurant venues that are located in the city. Los Angeles, CA with 25 African restaurant venues came second and New York, NY with 69 African restaurant venues was ranked third. Atlanta, GA and Houston, TX were ranked fourth and fifth, respectively.

Conclusion

Considering the outcome of studies, I will strongly recommend that my friend requests to be transferred to Denver, Colorado for his forthcoming U.S. cross-posting.

During his four years of planned stay in the United States he could also visit Los Angeles, CA, or New York, NY or Atlanta, GA, or Houston, TX, in those orders, and still enjoy being in proximity of some good African restaurants, if he chose his hotel to be close to the mean coordinates area of these cities.