DUBAI

Capstone Project - The Battle of Neighborhoods

ABSTRACT

Dubai is constantly evolving as a city. But does each locality have its character? Which are the best areas to live and How the Population of the city has settled? Where would you set up a business?

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Introduction

I have been working in the city of Dubai since 2017 and what I found that the city has its own peculiar way of expanding and settling the influx of population in the city unlike any other city in the World. Dubai is part of United Arab Emirates with a population of around **3.35 Million** people (Estimated as of 2019).

An important thing to understand about the demographics of Dubai is Male to Female ratio is **2.27:1** and has a massive EXPAT population of **92%** (As of 2019)

This presents us with an opportunity to understand how the different areas in Dubai are split with respect to Population and if at all there is a distinctive identity of each locality as this city develops outwards every day.

What I intended to achieve by this project is to identify which Communities(neighborhood) are seeing the most growth in terms of population and analyze of the most popular Sector (Borough) in Dubai using FourSquare API data.

With this project I intend to understand visually, which Sectors (Borough) have seen the most growth and the highest population areas. Once we find the most popular Sector, try to understand the Venues in each Communities (Neighborhood) and Cluster them using method of K-Means Clustering

Who would be interested in this Project:

a. New Residents - who want to select the best area to settle down

b. Businessmen - who want to setup new Business-like Restaurants, Coffee Shops, etc.

c. Real Estate prospectors – who want to understand the upcoming areas worth investing

d. Government Agencies – To visually analyze the spread of Population and Business across various Sectors and Communities.

Data

This part was perhaps the most challenging! for Dubai. Good thing was Data is published by **DUBAI STATISTIC CENTER** (https://www.dsc.gov.ae/en-us) regarding the Various Sectors and Communities with population each year.

But the troublesome part was Dubai is ever expanding!

And the Sector which Dubai Municipality uses to mark the geographies does not match with the modern names of those areas, as new development has taken place and its encoded-on Maps by new names.

For Example: The population file mentions of a Community in Area called **"Wadi Al Safa 5".**
When you try to spot the area on Google Map it gives the following output:
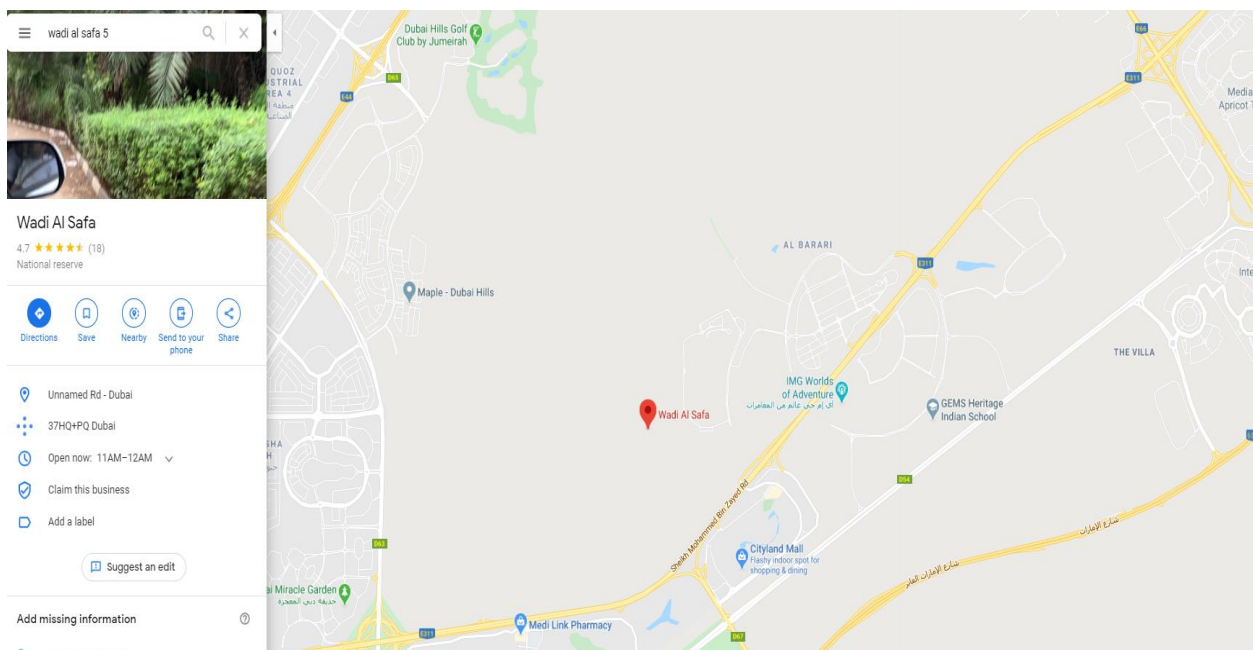
which is more general location of the Entire Area starting from "WADI AL SAFA 2" to "WADI AL SAFA 7"

But when you dig deep and try to find the exact Area of WADI Al Safa 5 Community, one will find it has been now renamed as the "**THE VILLA**" community or it's the more Popular Name by which everyone in Dubai would identify
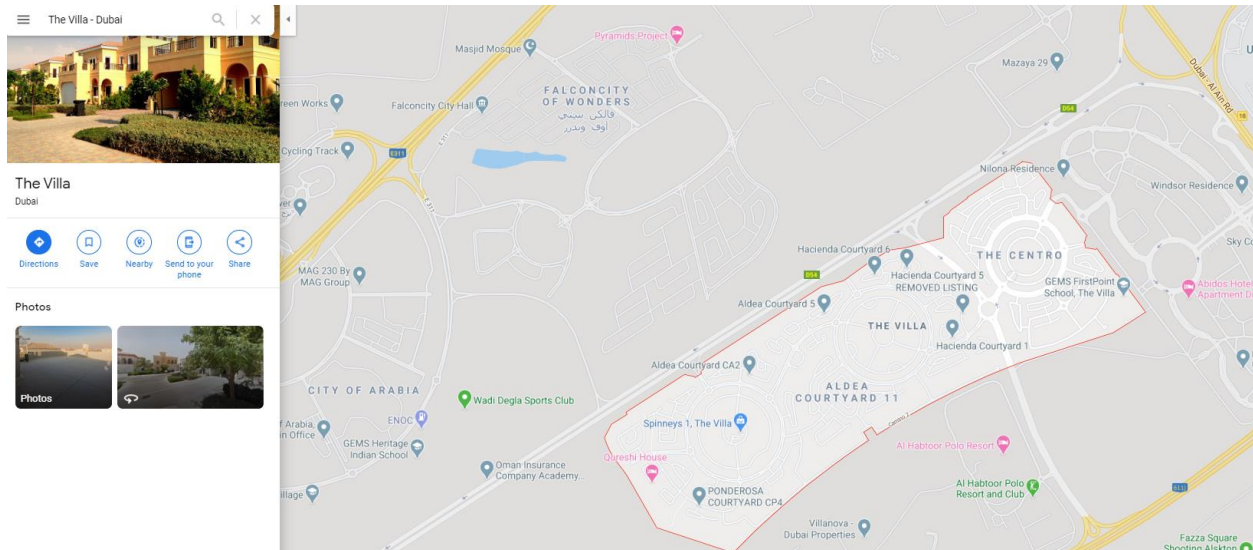
For this a different website, https://2gis.ae/dubai was more useful in mapping the Dubai Municipal Communities. Look in the Map below showing the **"Wadi Al Safa 5"**
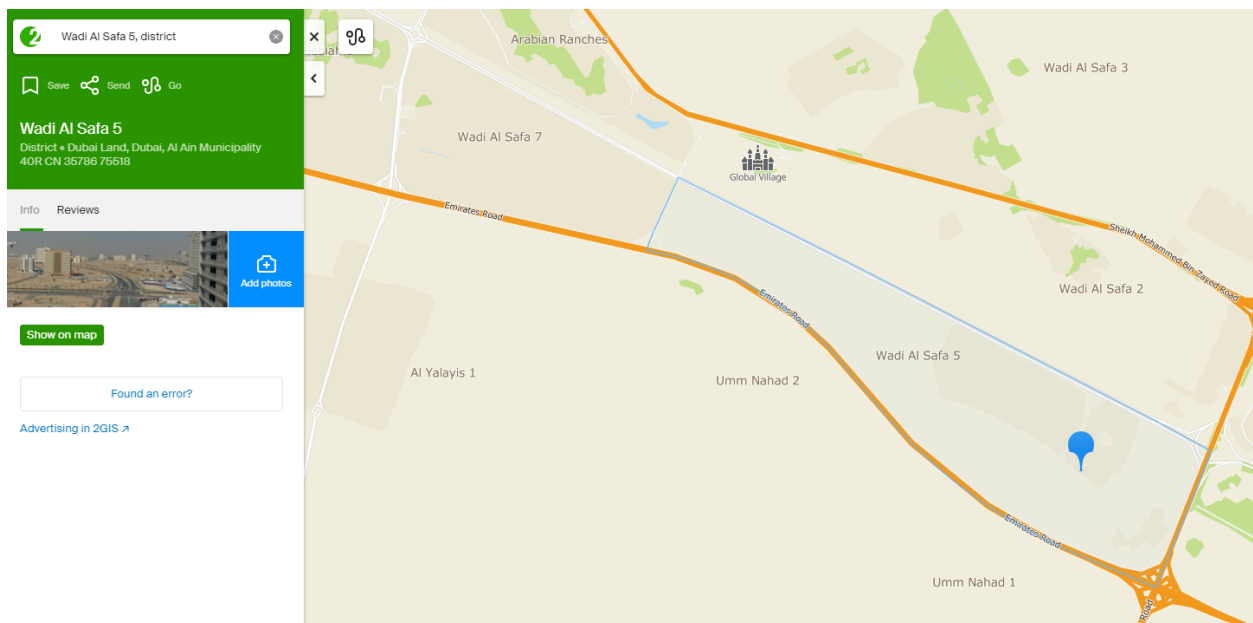
This meant for this project I had to manually find out the Lat Longs of the various communities in 9 Sectors of Dubai and map it to the population Data and this took some time.

i). Custom Data for Dubai Sectors/ Communities with Populations data from 2018 & 2019:
(Sample Data which I compiled for this project as below)

Out[3]:

	Sector	Community	Population_2018	Population_2019	Lat	Long
0	1	Abu Hail	16905	17240	25.285718	55.329000
1	1	Al Dhagaya	15453	15899	25.272634	55.300466
2	1	Al Baraha	24373	24747	25.282144	55.318292
3	1	Rigga Al Buteen	2766	2841	25.260219	55.318796
4	1	Al Khabaisi	1952	1992	25.265629	55.334682

<u>Size of Data:</u>

In [4]: `df.head()`

Out[4]:

	Sector	Community	Population_2018	Population_2019	Lat	Long
0	1	Abu Hail	16905	17240	25.285718	55.329000
1	1	Al Dhagaya	15453	15899	25.272634	55.300466
2	1	Al Baraha	24373	24747	25.282144	55.318292
3	1	Rigga Al Buteen	2766	2841	25.260219	55.318796
4	1	Al Khabaisi	1952	1992	25.265629	55.334682

In [5]:
```
print('The dataframe has {} Sectors and {} Communities.'.format(
        len(df['Sector'].unique()),
        df.shape[0]
    )
)
```

The dataframe has 9 Sectors and 226 Communities.

ii) FOURSQUARE API Data: Using my Foursquare Account we shall be analyzing the Venues of the Most popular Sector in Dubai and try to analyze if there is a specific trait of the Businesses and Establishment in that Sector (Sample Data below)

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Al Bada'a	25.224995	55.268193	Al Boom Diving Club	25.227329	55.266449	Pool
1	Al Bada'a	25.224995	55.268193	Hyatt Place Dubai/Al Rigga	25.226127	55.262599	Hotel
2	Al Bada'a	25.224995	55.268193	Walid Mohd. Bakhet Grocery بقالة وليد محمد بخيت	25.229654	55.265776	Grocery Store
3	Al Bada'a	25.224995	55.268193	The Ballet Center	25.228702	55.263938	Dance Studio
4	Al Bada'a	25.224995	55.268193	Karachi Darbar كراتشي دربار	25.226369	55.273223	Indian Restaurant

Methodology

Once we have collected the location data for Dubai and mapped it to Population of Dubai for 2018 and 2019, the next step was "Understanding and Preparation" of the Data for our Clustering Problem.

First, we imported all the important Libraries that would be required for this project

Importing the entire suite of Packages required for our Analysis -

```python
In [2]: import numpy as np # library to handle data in a vectorized manner

import pandas as pd # library for data analysis
pd.set_option('display.max_columns', None)
pd.set_option('display.max_rows', None)

#!pip install geopy
from geopy.geocoders import Nominatim # convert an address into latitude and longitude values

# Matplotlib and associated plotting modules
import matplotlib.cm as cm
import matplotlib.colors as colors

# import k-means from clustering stage
from sklearn.cluster import KMeans

#!pip install folium
import folium # map rendering library

print('Libraries imported.')

Libraries imported.
```

Next step to find the Latitude Longitude Coordinate for Dubai Emirate as a whole. For this, I used the Geopy encoder:

Use geopy library to get the latitude and longitude values of Dubai.

```python
In [6]: address = 'Dubai'

geolocator = Nominatim(user_agent="DUB_EXPLR")
location = geolocator.geocode(address)
latitude = location.latitude
longitude = location.longitude
print('The geograpical coordinate of Dubai are {}, {}.'.format(latitude, longitude))

The geograpical coordinate of Dubai are 25.0659637, 55.1713403.
```

Before we analyze the data further, a quick look of the various Communities and Sectors of Dubai using Folium Map. For better understanding, the have used Population data of 2019(latest) on the Radius attribute to give a better Visualization and Color coded by Sectors:

A Quick Map Visualisation to show the Concentration of population in Various Areas in Dubai -

```
In [22]:   # create map of Dubai using latitude and longitude values
           colordict = {1: 'blue', 2: 'lightgreen', 3: 'orange', 4: 'lightblue', 5: 'yellow', 6: 'red', 7: 'pink', 8: 'darkgreen', 9: 'purp

           map_Dubai = folium.Map(location=[latitude, longitude], zoom_start=10)

           # add markers to map
           for Lat, Long, Sector, Community,Pop in zip(df['Lat'], df['Long'], df['Sector'], df['Community'],df['Population_2019']):
               #label = '{}, {},{}'.format(Community, Sector,Pop)
               #label = folium.Popup(label, parse_html=True)
               folium.CircleMarker(
                   [Lat, Long],
                   radius=Pop*.0001,
                   popup=('Community: ' + str(Community).capitalize() + '<br>'
                          'Sector: ' + str(Sector) + '<br>'
                          'Population(2019): ' + str(Pop)
                         ),
                   color='black',
                   fill=True,
                   fill_color=colordict[Sector],
                   fill_opacity=0.7,
                   parse_html=False).add_to(map_Dubai)

           map_Dubai
```

Out[22]:
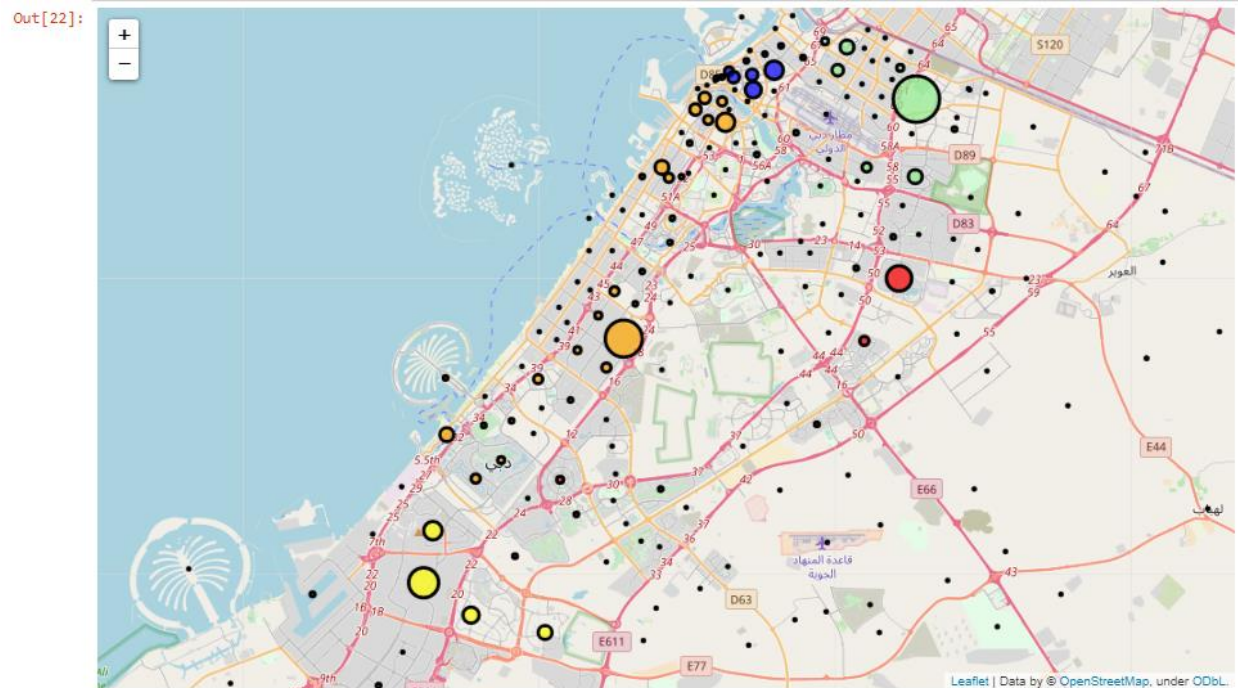
Its quite clear now, that the population of Dubai is concentrated in few pockets, with some communities (Neighborhoods) having more population than others. Another important visual information is areas around the port, especially North of Dubai, which we now know as BUR DUBAI (Old Dubai) has more concentration of population. Dubai started off with trading around the port areas, and then rapidly expanded south wards.

Next let us understand from the Data, how the Population of Dubai is located across various Sectors (Boroughs) and Communities (Neighborhood)

Finding No of Communities per Sector in Dubai

```
In [8]: Sector_Count=df['Sector'].value_counts().to_frame()
```

```
In [9]: Sector_Count.rename(columns={'Sector': 'No_of_Community'}, inplace=True)
```
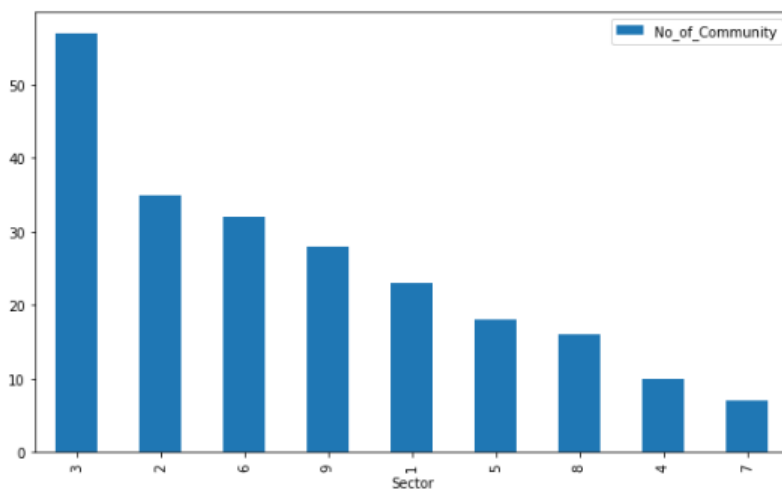
```
In [10]: Sector_Count.index.name='Sector'
```

```
In [11]: Sector_Count
```

Out[11]:

Sector	No_of_Community
3	57
2	35
6	32
9	28
1	23
5	18
8	16
4	10
7	7

```
In [12]: import matplotlib.pyplot as plt

Sector_Count.plot(kind='bar', figsize=(10, 6))

plt.show()
```

From the above graph we find the **Sector 3** has the most no. of communities (neighborhood). Sector 3 has total 57 communities.

Next important thing is to understand, where the population growth has happened and in which Sectors / Communities.

Visualising the change in Population in Different Sectors over years 2018 and 2019

```
In [16]: df_2019=df_group_one[['Sector','Population_2018','Population_2019']]
```

```
In [17]: df_2019.set_index('Sector', inplace=True)
```

```
In [72]: import matplotlib.pyplot as plt

         df_2019.plot(kind='bar', figsize=(10, 6))

         plt.show()
```
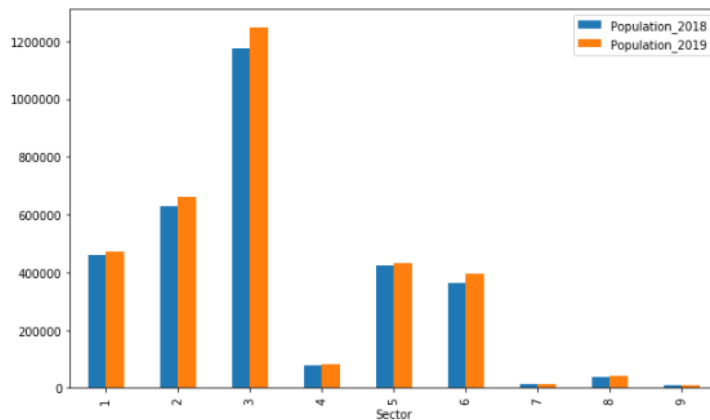

Clearly **Sector 3** in Dubai has seen the most population growth in Dubai over the years and is the most popular locality. But I wanted to further find out is the Sector 3 still the area where Dubai is seeing the most growth in Population. For this, we analyzed the % growth from 2018 to 2019.
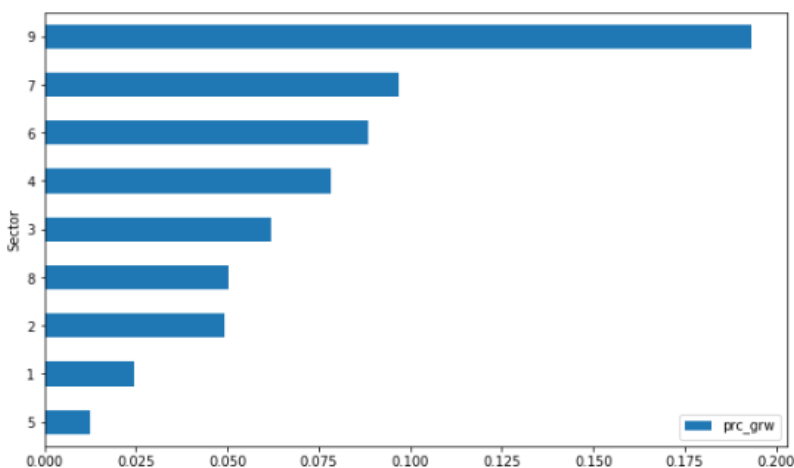
This let to conclusion that while most liked location was **Sector 3,** but **Sector 9,** has seen the most percentage growth, which are the new Sectors more away from the Coast. It proves that Dubai first expanded from North to South along the Coast and now expanding inland.

For the purpose of Clustering, we take up **Sector 3,** one with the most population and seeing steady growth in population in the period 2018 to 2019

We now limit our data to Sector 3-

```
In [24]: Sector3_data = df[df['Sector'] == 3].reset_index(drop=True)
         Sector3_data.head()
```

Out[24]:

	Sector	Community	Population_2018	Population_2019	Lat	Long
0	3	Al Bada'a	54338	56734	25.224995	55.268193
1	3	Al Barsha 1	35469	39451	25.111286	55.194680
2	3	Al Barsha 2	14815	15523	25.100175	55.213526
3	3	Al Barsha 3	13990	14601	25.095581	55.196543
4	3	Al Hamriya	33421	36738	25.260435	55.303978

```
In [25]: Sector3_data.describe()
```

Out[25]:

	Sector	Population_2018	Population_2019	Lat	Long
count	57.0	57.000000	57.000000	57.000000	57.000000
mean	3.0	20616.877193	21894.771930	25.176511	55.244732
std	0.0	24600.249416	25286.740039	0.059023	0.050676
min	3.0	2.000000	2.000000	25.057311	55.139549
25%	3.0	5592.000000	6126.000000	25.132472	55.206693
50%	3.0	13990.000000	14901.000000	25.180129	55.245391
75%	3.0	25360.000000	26656.000000	25.224995	55.285143
max	3.0	158543.000000	159978.000000	25.267278	55.330353

Within Sector 3, the top 5 areas with population area –

Sector	Community	Population_2018	Population_2019
3	Al Quoz Industrial Area 2	158543	159978
3	AL KARAMA	70558	75066
3	Dubai Marina	55052	61047
3	Al Bada'a	54338	56734
3	Al Souq Al Kabeer	46929	51012

For the next part of the analysis, we plot just the Sector 3 using Folium -
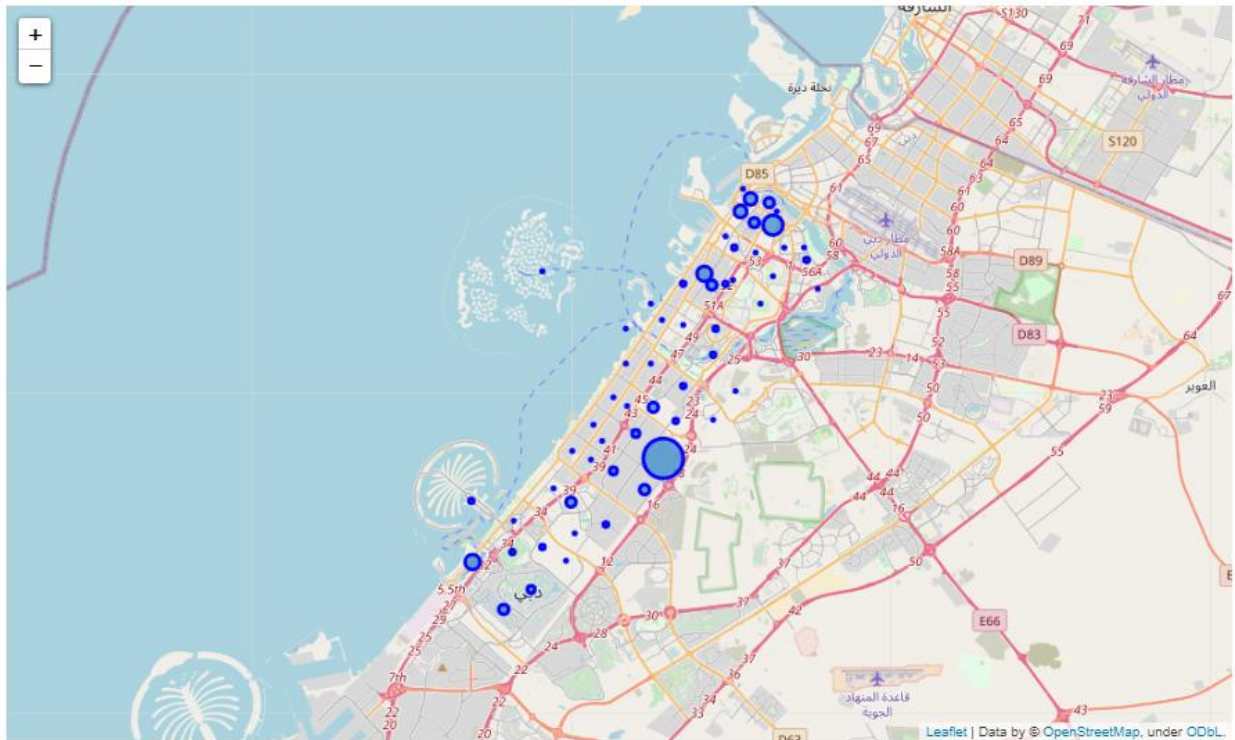
Next, we use the FourSquare API to pull the venues data -

```
In [43]: print(Sector3Dub_venues.shape)
         Sector3Dub_venues.head()

         (1480, 7)
```

Out[43]:

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Al Bada'a	25.224995	55.268193	Al Boom Diving Club	25.227329	55.266449	Pool
1	Al Bada'a	25.224995	55.268193	Hyatt Place Dubai/Al Rigga	25.226127	55.262599	Hotel
2	Al Bada'a	25.224995	55.268193	بقالة وليد محمد بخيت Walid Mohd. Bakhet Grocery	25.229654	55.265776	Grocery Store
3	Al Bada'a	25.224995	55.268193	The Ballet Center	25.228702	55.263938	Dance Studio
4	Al Bada'a	25.224995	55.268193	كراتشي دربار Karachi Darbar	25.226369	55.273223	Indian Restaurant

We found total **1480 Venues in Sector 3.** To understand how many of these are unique different types of venues –

```
In [45]: print('There are {} uniques categories.'.format(len(Sector3Dub_venues['Venue Category'].unique())))

         There are 214 uniques categories.
```

Next, we apply One-Hot encoding, and group each Community and Find the TOP 10 common Venues in each Community (Neighborhood).

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	AL KARAMA	Indian Restaurant	Restaurant	Asian Restaurant	Italian Restaurant	Seafood Restaurant	Fast Food Restaurant	North Indian Restaurant	Bakery	Middle Eastern Restaurant	Gym
1	AL MERKADH	Business Service	Zoo	Food & Drink Shop	German Restaurant	Gastropub	Garden	Gaming Cafe	Furniture / Home Store	Frozen Yogurt Shop	Fried Chicken Joint
2	AL RAFFA	Hotel	Indian Restaurant	Nightclub	Restaurant	Chinese Restaurant	Pub	Lounge	Bakery	North Indian Restaurant	Gastropub
3	Al Bada'a	Park	Hotel	Tailor Shop	Middle Eastern Restaurant	Grocery Store	Restaurant	Pool	Dance Studio	Café	Indian Restaurant
4	Al Barsha 1	Hotel	Bed & Breakfast	Middle Eastern Restaurant	Pakistani Restaurant	Indian Restaurant	Turkish Restaurant	Sandwich Place	Asian Restaurant	Breakfast Spot	Restaurant

The above report itself is important for any one willing to understand, what kind of Business are each area.

Further, we move the Clustering the Sector 3 area, using K-means Clustering and then merge the K-means Cluster Labels to the Original data of 57 communities of Sector 3

4. Cluster Neighborhoods

```
In [53]: # set number of clusters
         kclusters = 5

         DubSec3_grouped_clustering = DubSec3_grouped.drop('Neighborhood', 1)

         # run k-means clustering
         kmeans = KMeans(n_clusters=kclusters, random_state=0).fit(DubSec3_grouped_clustering)

         # check cluster labels generated for each row in the dataframe
         kmeans.labels_[0:10]

Out[53]: array([1, 0, 1, 1, 1, 3, 1, 1, 1, 1])
```

```
In [54]: # add clustering labels
         neighborhoods_venues_sorted.insert(0, 'Cluster Labels', kmeans.labels_)

         DubSec3_merged = Sector3_data

         # merge toronto_grouped with toronto_data to add latitude/longitude for each neighborhood
         DubSec3_merged = DubSec3_merged.join(neighborhoods_venues_sorted.set_index('Neighborhood'), on='Community')

         DubSec3_merged.head() # check the last columns!
```
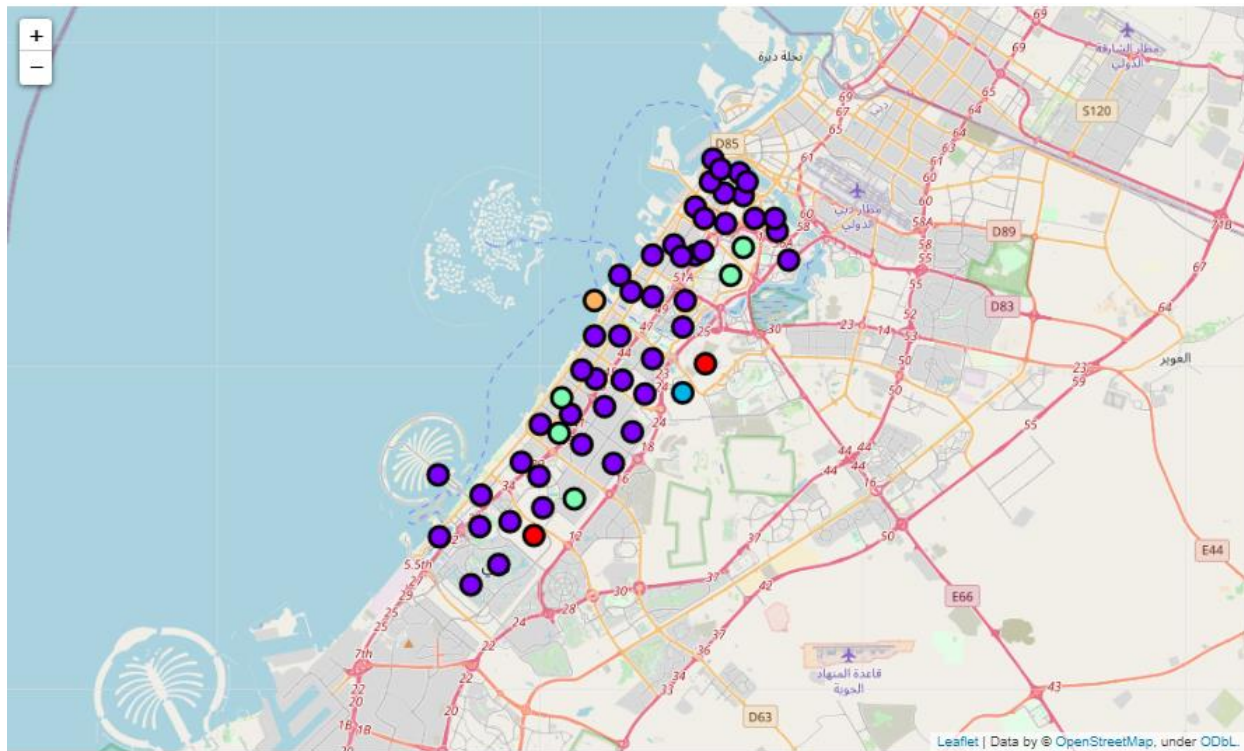
Out[54]:

	Sector	Community	Population_2018	Population_2019	Lat	Long	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common
0	3	Al Bada'a	54338	56734	25.224995	55.268193	1.0	Park	Hotel	Tailor Shop	Middle Eastern Restaurant	Grocery Store	Restaurant
1	3	Al Barsha 1	35469	39451	25.111286	55.194680	1.0	Hotel	Bed & Breakfast	Middle Eastern Restaurant	Pakistani Restaurant	Indian Restaurant	Turkish Restaurant
2	3	Al Barsha 2	14815	15523	25.100175	55.213526	3.0	Grocery Store	Coffee Shop	Convenience Store	Zoo	Food & Drink Shop	Gastropub
3	3	Al Barsha 3	13990	14601	25.095581	55.196543	1.0	Shopping Mall	Breakfast Spot	Bakery	Gluten-free Restaurant	German Restaurant	Gastropub
4	3	Al Hamriya	33421	36738	25.260435	55.303978	1.0	Hotel	Café	Middle Eastern Restaurant	Ice Cream Shop	Indian Restaurant	Restaurant

Finally, we plot the New Cluster using the Folium Map-

Results

Cluster 0: Total 2 Communities. Typically, a Business Cluster with Offices

```
In [65]: CLUSTER0=DubSec3_merged.loc[DubSec3_merged['Cluster Labels'] == 0, DubSec3_merged.columns[[1] + list(range(5, DubSec3_merged.shap
         CLUSTER0
```

Out[65]:

	Community	Long	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
13	AL MERKADH	55.285143	0.0	Business Service	Zoo	Food & Drink Shop	German Restaurant	Gastropub	Garden	Gaming Cafe	Furniture / Home Store	Frozen Yogurt Shop	Fried Chicken Joint
34	Jebel Ali Racecourse	55.192021	0.0	Business Service	Supermarket	Turkish Restaurant	Zoo	Food & Drink Shop	Gastropub	Garden	Gaming Cafe	Furniture / Home Store	Frozen Yogurt Shop

Cluster 1: Total 47 Communities. Typically represents the Lively communities of Dubai. Great mix of Restaurants, Cafes along with popular tourist spots like Burj Khalifa etc.

```
In [67]: CLUSTER1=DubSec3_merged.loc[DubSec3_merged['Cluster Labels'] == 1, DubSec3_merged.columns[[1] + list(range(5, DubSec3_merged.shap
         CLUSTER1
```

Out[67]:

	Community	Long	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Al Bada'a	55.268193	1.0	Park	Hotel	Tailor Shop	Middle Eastern Restaurant	Grocery Store	Restaurant	Pool	Dance Studio	Café	In Restau
1	Al Barsha 1	55.194680	1.0	Hotel	Bed & Breakfast	Middle Eastern Restaurant	Pakistani Restaurant	Indian Restaurant	Turkish Restaurant	Sandwich Place	Asian Restaurant	Breakfast Spot	Restau
3	Al Barsha 3	55.196543	1.0	Shopping Mall	Breakfast Spot	Bakery	Gluten-free Restaurant	German Restaurant	Gastropub	Garden	Gaming Cafe	Furniture / Home Store	Fro Yo S
4	Al Hamriya	55.303978	1.0	Hotel	Café	Middle Eastern Restaurant	Ice Cream Shop	Indian Restaurant	Restaurant	Burger Joint	Historic Site	Lebanese Restaurant	Per Restau
5	Al Hudaiba	55.280001	1.0	Hotel	Dessert Shop	Lounge	Convenience Store	Cocktail Bar	Nightclub	Café	Smoke Shop	South American Restaurant	Gro S

```
In [70]: print(CLUSTER1.shape)

         (47, 13)
```

Cluster 2: Total 1 Community. Industrial Area with lot of Furniture Outlets and Car Retailers.

```
In [71]: CLUSTER2=DubSec3_merged.loc[DubSec3_merged['Cluster Labels'] == 2, DubSec3_merged.columns[[1] + list(range(5, DubSec3_merged.shap
         CLUSTER2
```

Out[71]:

	Community	Long	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
17	Al Quoz 2	55.273032	2.0	Food Truck	Zoo	Gluten-free Restaurant	German Restaurant	Gastropub	Garden	Gaming Cafe	Furniture / Home Store	Frozen Yogurt Shop	Fried Chicken Joint

Cluster 3: Total 5 Communities. More "laid back" residential Communities unlike Cluster 1. Slightly Upmarket.

```
CLUSTER3=DubSec3_merged.loc[DubSec3_merged['Cluster Labels'] == 3, DubSec3_merged.columns[[1] + list(range(5, DubSec3_merged.shar
CLUSTER3
```

	Community	Long	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
2	Al Barsha 2	55.213526	3.0	Grocery Store	Coffee Shop	Convenience Store	Zoo	Food & Drink Shop	Gastropub	Garden	Gaming Cafe	Furniture / Home Store	Frozen Yogurt Shop
48	Umm Al Sheif	55.205302	3.0	Coffee Shop	Spa	Steakhouse	Supermarket	French Restaurant	Café	Shop & Service	Salon / Barbershop	Fondue Restaurant	Gaming Cafe
52	Umm Suqeim 2	55.206693	3.0	Coffee Shop	Playground	Cosmetics Shop	Cafeteria	Café	Shopping Mall	Gym	Salon / Barbershop	Convenience Store	Health & Beauty Service
55	Za'abeel 1	55.305703	3.0	Business Service	Restaurant	Grocery Store	Shopping Mall	Coffee Shop	Zoo	Fondue Restaurant	Gaming Cafe	Furniture / Home Store	Frozen Yogurt Shop
56	Za'abeel 2	55.299149	3.0	Martial Arts Dojo	Coffee Shop	Zoo	Fondue Restaurant	Gastropub	Garden	Gaming Cafe	Furniture / Home Store	Frozen Yogurt Shop	Fried Chicken Joint

Cluster 4: Total 1 Community. New Island development with Upmarket Venues. Still upcoming.

```
CLUSTER4=DubSec3_merged.loc[DubSec3_merged['Cluster Labels'] == 4, DubSec3_merged.columns[[1] + list(range(5, DubSec3_merged.shar
CLUSTER4
```

	Community	Long	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
39	Jumeira Island 2	55.225017	4.0	Beach	Playground	Zoo	Fondue Restaurant	Gastropub	Garden	Gaming Cafe	Furniture / Home Store	Frozen Yogurt Shop	Fried Chicken Joint

Discussion

We found very interesting conclusions post K-means clustering. Not only it could identify, on the basis, of various venues, the type of communities it surely assigned a certain character to the communities:

Cluster 0: Business Neighborhood

Cluster 1: Social Hub-Bub Locale with Residential

Cluster 2: Industrial Neighborhood – Bulk Retailers, Car Retail etc.

Cluster 3: Upmarket Residential Locale

Cluster 4: Beach Island Neighborhood (Upcoming)

The analysis also provided 10 ten Venues for each of the communities which is very useful for those who are looking to setup business. If someone is looking for Residential Areas, Cluster 1 is first to look in. For more upmarket Locale, Cluster 3 and 4 may be considered.

Conclusion

Dubai has expanded very rapidly as a global city with Tourism and Financial Businesses. One of the major parameters which is unique about this city is Expat population is 92% of the Dubai Population. This also means that the locale and the venues and businesses therein, represents the cultural Potpourri that Dubai has become. This is also perhaps one of the reasons that we found a large Cluster (Cluster 1) with even mix of all the venues.

Today after doing this Project, there are few outcomes –

1. *Understanding that Sector 3 is the Largest of 9 sectors (Both in terms of No. of Communities and Population)*
2. *New Sectors like 9 and 7 have seen the most growth over 2018 and 2019. Dubai is now growing Inland.*
3. *Clearly identifying the top 10 venues in each community in Sector 3. This would help Businesses to select specific Venues to invest in.*
4. *For real Estate, Cluster 1 is top choice. But Cluster 3 & 4 are for those looking for a up market properties.*

This project has brought more clarity about city of Dubai and as the city expands into new communities, such Machine learning projects will definitely guide Residents and Business alike on how to get the best out of one of the best cities of the world.

Al Ham Dullilah "All Praise is Upon Allah (God)"

Reference

DUBAI STATISTICS CENTER

https://www.dsc.gov.ae/en-us/Themes/Pages/Population-and-Vital-Statistics.aspx?Theme=42