Sectors in Dubai

The Battle of Neighborhoods

Problem Statement

- Choose a neighborhood sector in Dubai that is most suited for Residents and Tourist
- Understanding the similarities and differences between the neighborhoods using Unsupervised K-Mean Clustering Algorithm

Objective

- Capture, Cleans and Prepare Dubai Sector and Community Dataset
- Integrate GeoPostCode with Dubai Sector and Community Dataset
- Collecting Neighborhood's top trending venues using Foursquare API(JSON, HTTP Request)
- Crafting neighborhood clusters based on venue categories using Scikit Learns Unsupervised K-Mean Clustering Algorithm
- Identifying and understanding the similarities and differences between two chosen sectors to establish "Resident Friendly" and "Tourist Friendly" sectors
- Conclude which Sector of Dubai is most suited for "Residents" and "Tourists"

Target Audience

- Tourists
- New Migrants
    - Short Term Visitors
    - Long Term Resident Migrants
- Business Owners Looking for Locations
- Locations for New Restaurant Openings

Packages Dependencies

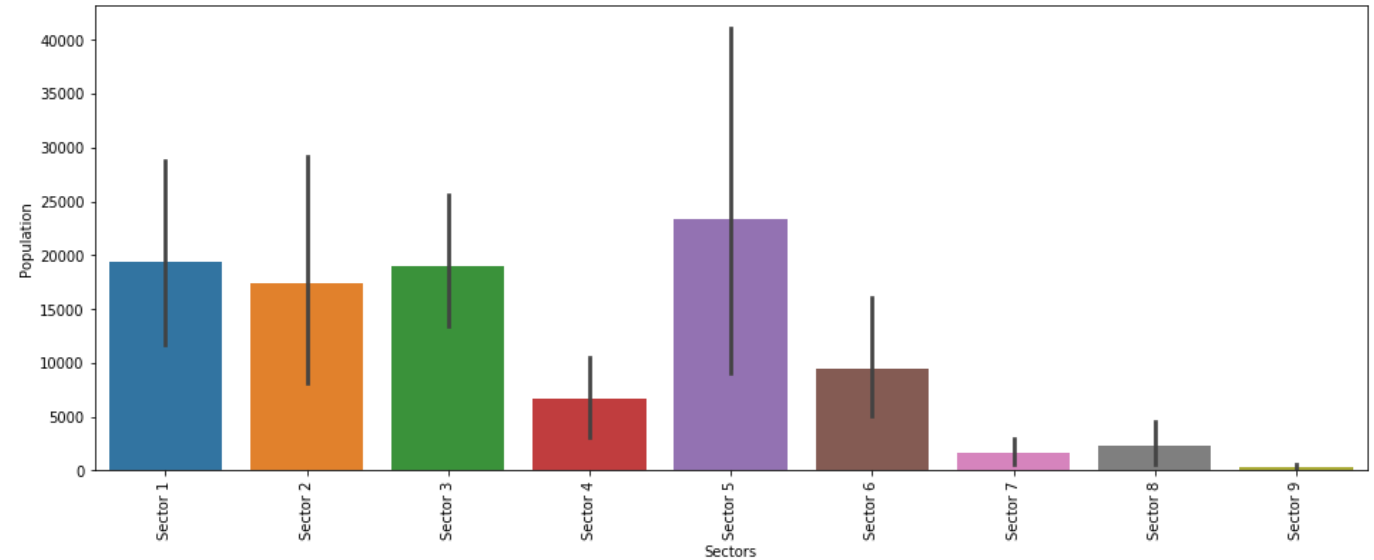- Pandas   –   Library for Data Analysis
- NumPy   –   Library to handle vectorized data
- JSON   –   Library to handle JSON files
- Geopy   –   To retrieve Location Data
- Requests   –   Library to handle HTTP Requests, Rest APIs
- Matplotlib   –   Python Plotting Module
- Sklearn   –   Python machine learning Library
- Folium   –   Map rendering Library

Workflow

- Prepare and Preprocess Data
- Integration of Data with GeoCoder
- Clustering of Sectors and Map Visualization
- Foursquare APIs Integration and Venue Categorization
- Analysis of Sectors
- K-Means Clustering and Common Place Categorization
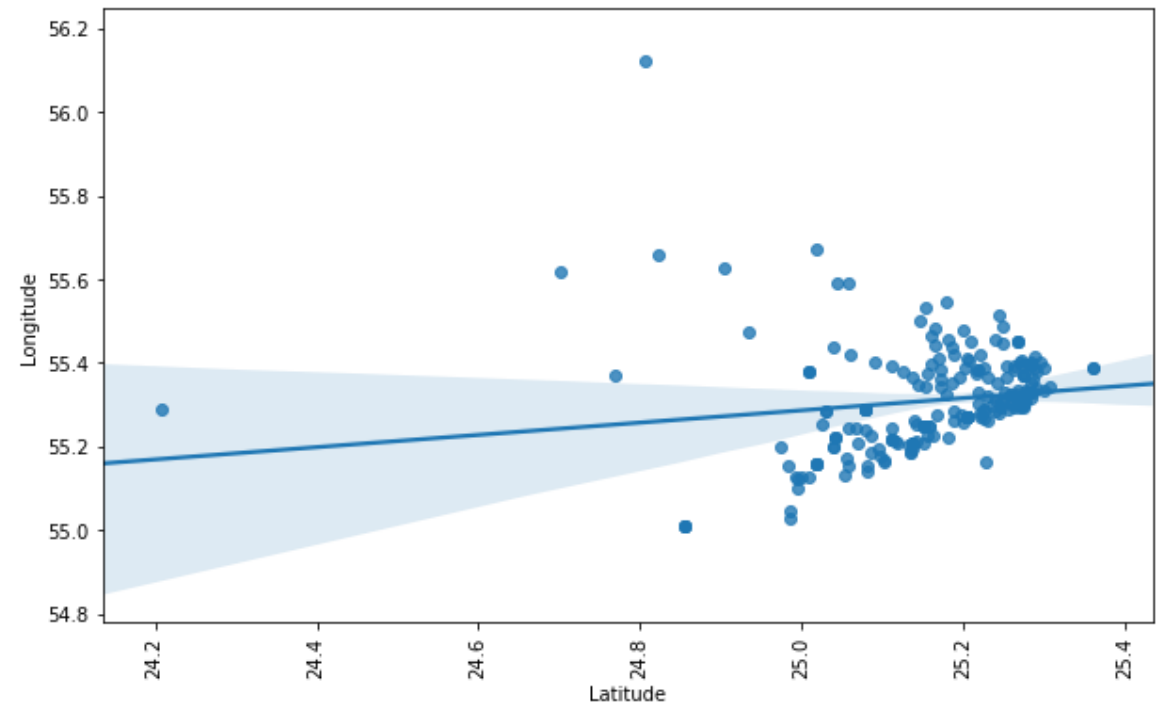- Tourist and Resident Friendly Sector Conclusion

Prepare and Preprocess Data

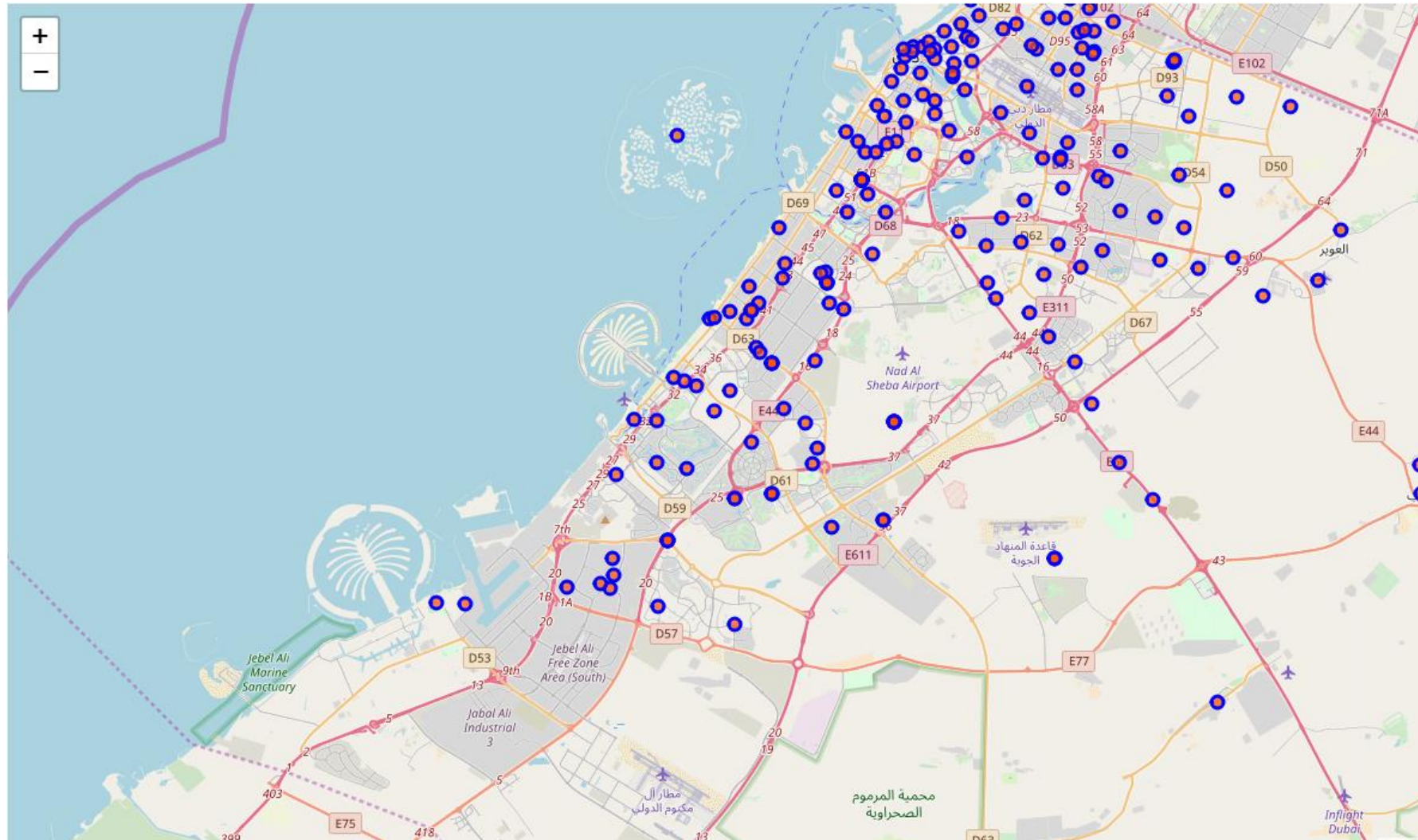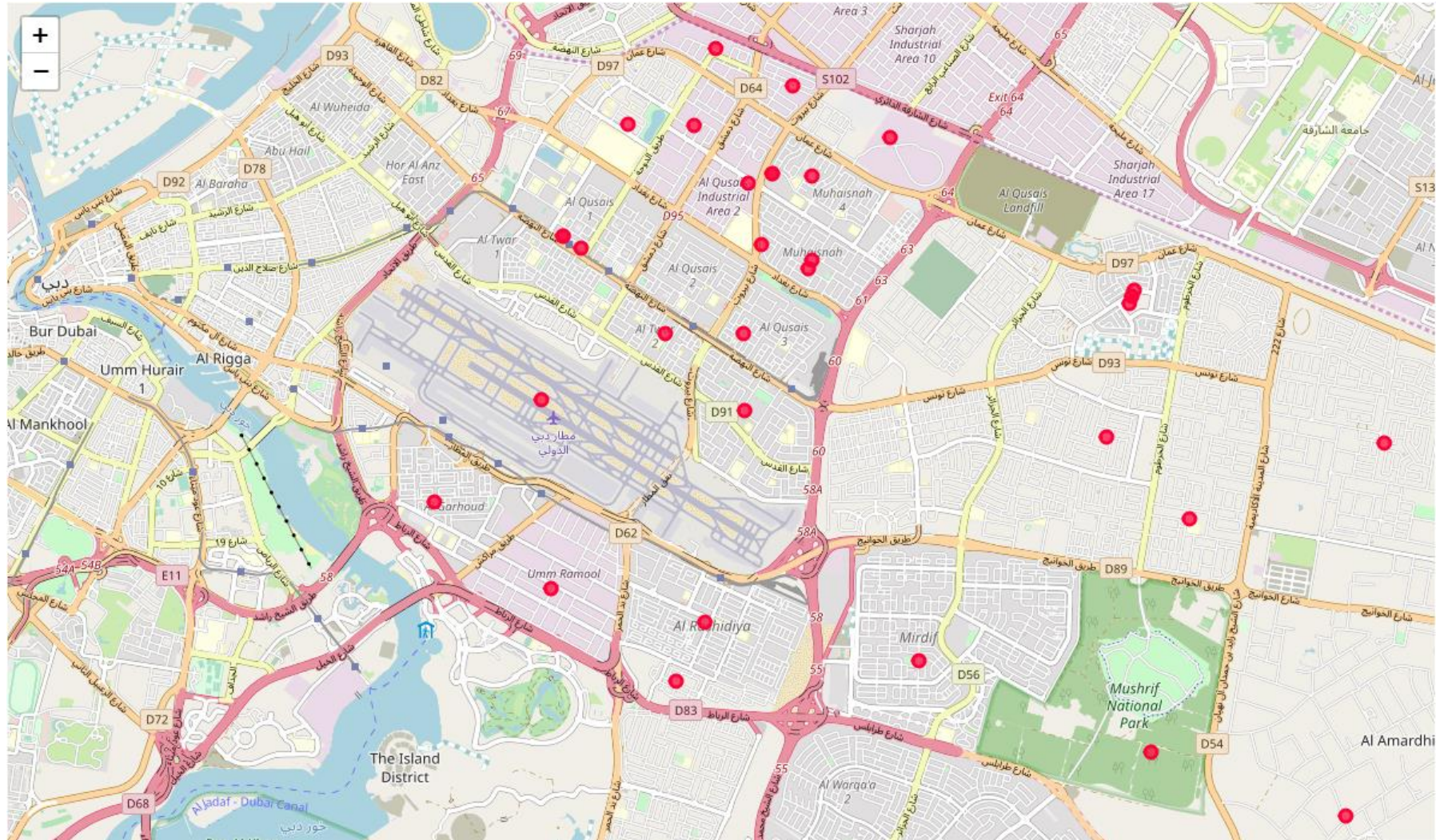| CommunityCode	Emirate	Sectors	Population	Area	AreaArabic
101	Dubai	Sector 1	2	NAKHLAT DEIRA	نخلة ديرة
111	Dubai	Sector 1	1550	AL CORNICHE	الكورنيش
112	Dubai	Sector 1	6621	AL RASS	الرأس
113	Dubai	Sector 1	14963	AL DHAGAYA	الضغاية
114	Dubai	Sector 1	2563	AL BUTEEN	البطين
115	Dubai	Sector 1	3750	AL SABKHA	السبخة
116	Dubai	Sector 1	18512	AYAL NASIR	عيال ناصر
117	Dubai	Sector 1	37371	AL MURAR	المرر
118	Dubai	Sector 1	47497	NAIF	نايف
119	Dubai	Sector 1	9976	AL REGA	الرقة
121	Dubai	Sector 1	14	CORNICHE DEIRA	كورنيش ديرة
122	Dubai	Sector 1	23838	AL BARAHA	البراحة
123	Dubai	Sector 1	42804	AL MUTEENA	المطينة
124	Dubai	Sector 1	68058	AL MURQABAT	المرقبات
125	Dubai	Sector 1	6690	REGA AL BUTEEN	رقة البطين
126	Dubai	Sector 1	15878	ABU HAIL	ابو هيل
127	Dubai	Sector 1	79735	HOR AL ANZ	هورالعنز
128	Dubai	Sector 1	1775	AL KHBEESI	الخبيصي
129	Dubai	Sector 1	12513	PORT SAEED	بور سعيد
131	Dubai	Sector 1	460	AL HAMRIYA PORT	ميناء الحمرية

Integration of GeoCodes

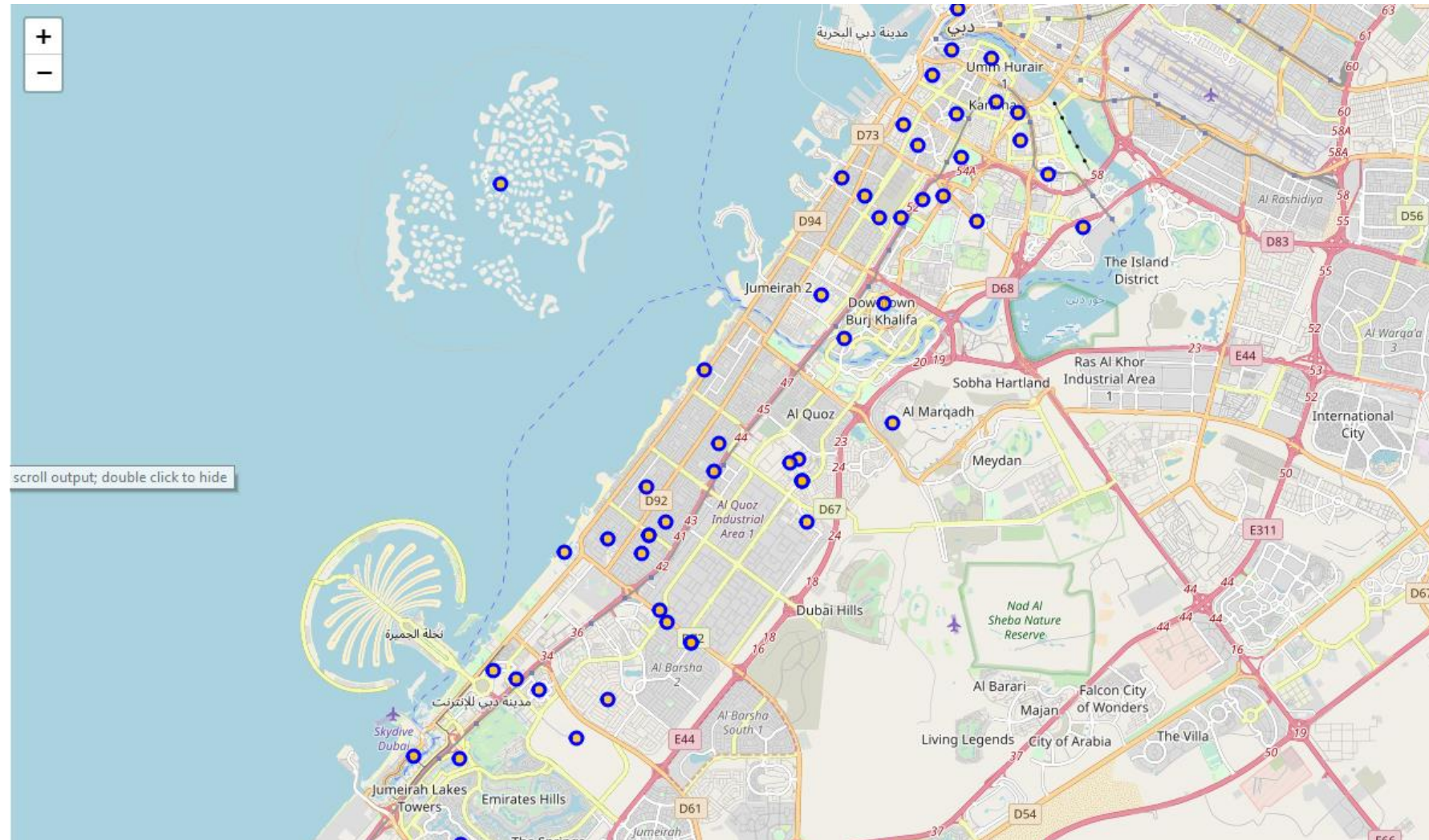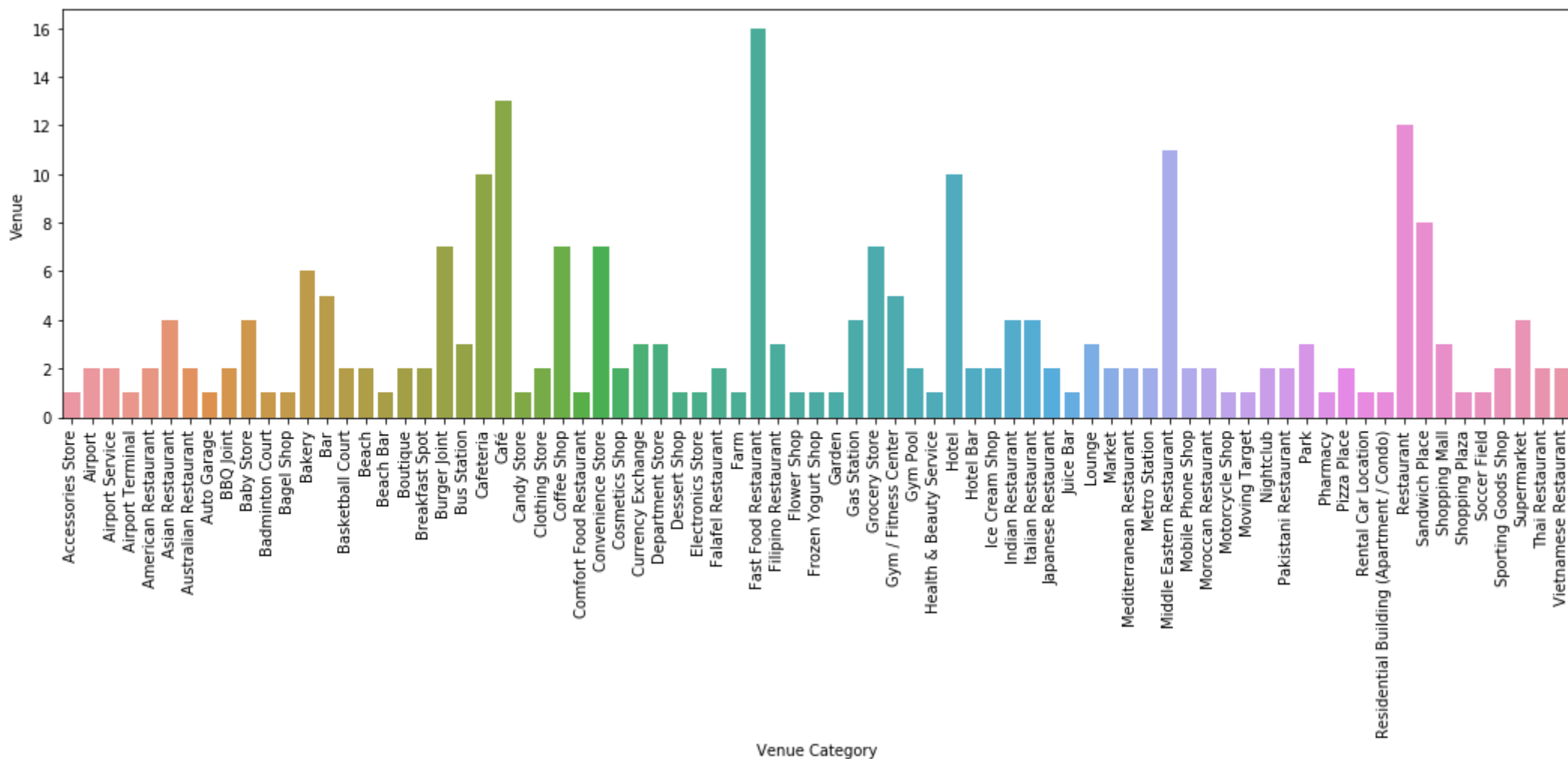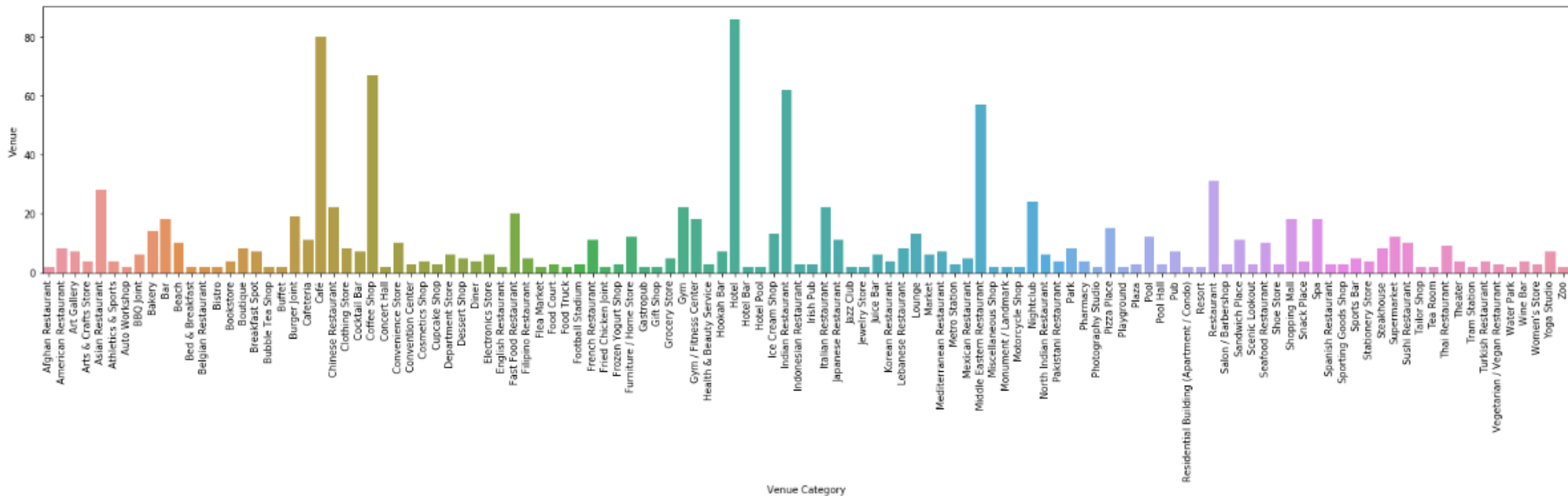| CommunityCode	Emirate	Sectors	Population	Area	AreaArabic	Latitude	Longitude
101	Dubai	Sector 1	2	NAKHLAT DEIRA	نخلة ديرة	25.36	55.39
111	Dubai	Sector 1	1550	AL CORNICHE	الكورنيش	25.28	55.33
112	Dubai	Sector 1	6621	AL RASS	الرأس	25.27	55.30
113	Dubai	Sector 1	14963	AL DHAGAYA	الضغاية	25.27	55.30
114	Dubai	Sector 1	2563	AL BUTEEN	البطين	25.26	55.32
115	Dubai	Sector 1	3750	AL SABKHA	السبخة	25.27	55.30
116	Dubai	Sector 1	18512	AYAL NASIR	عيال ناصر	25.27	55.31
117	Dubai	Sector 1	37371	AL MURAR	المرر	25.28	55.31
118	Dubai	Sector 1	47497	NAIF	نايف	25.27	55.31
119	Dubai	Sector 1	9976	AL REGA	الرقة	25.27	55.31

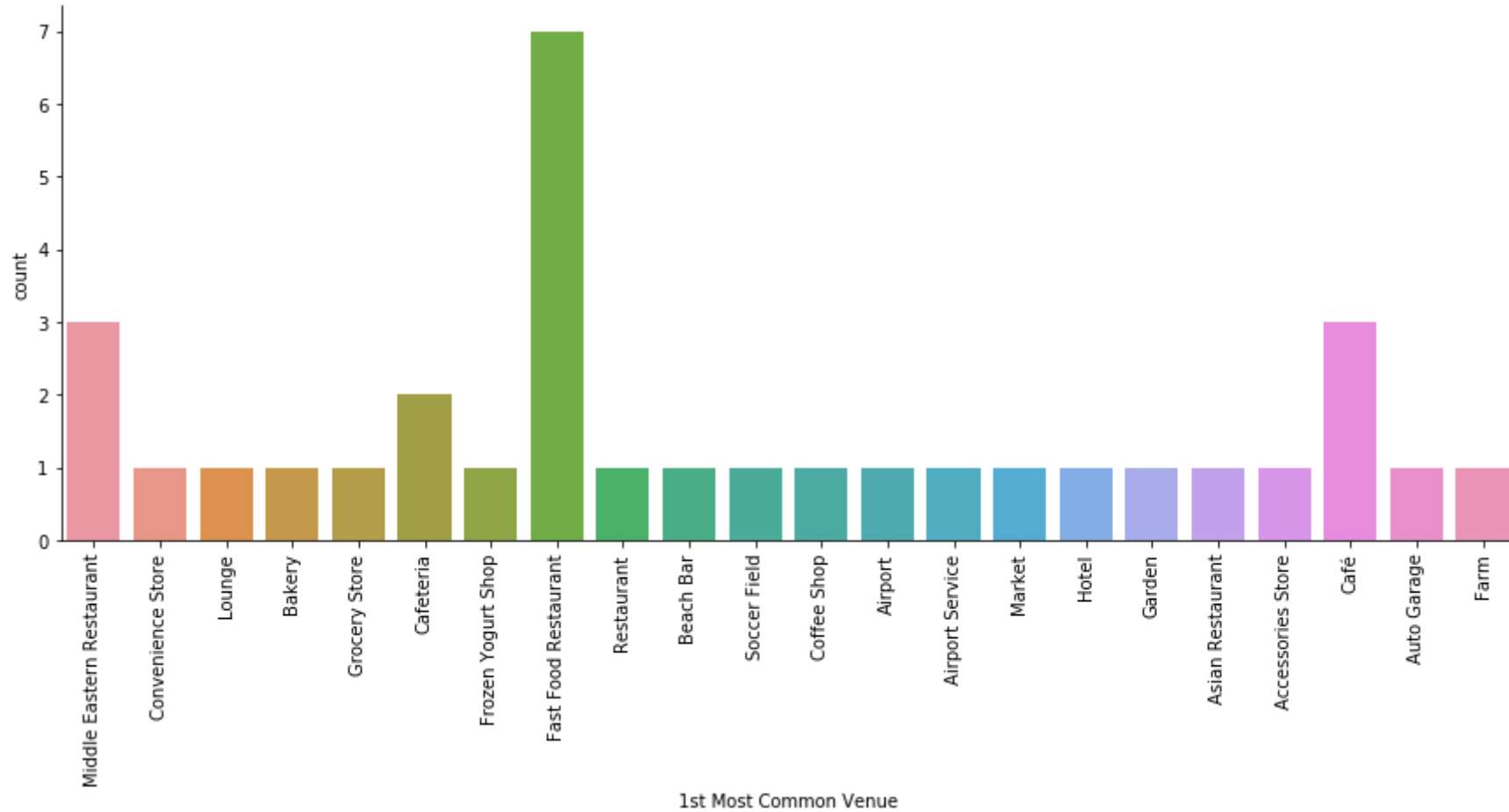# All Sectors in the MAP

Sector 2 - Map

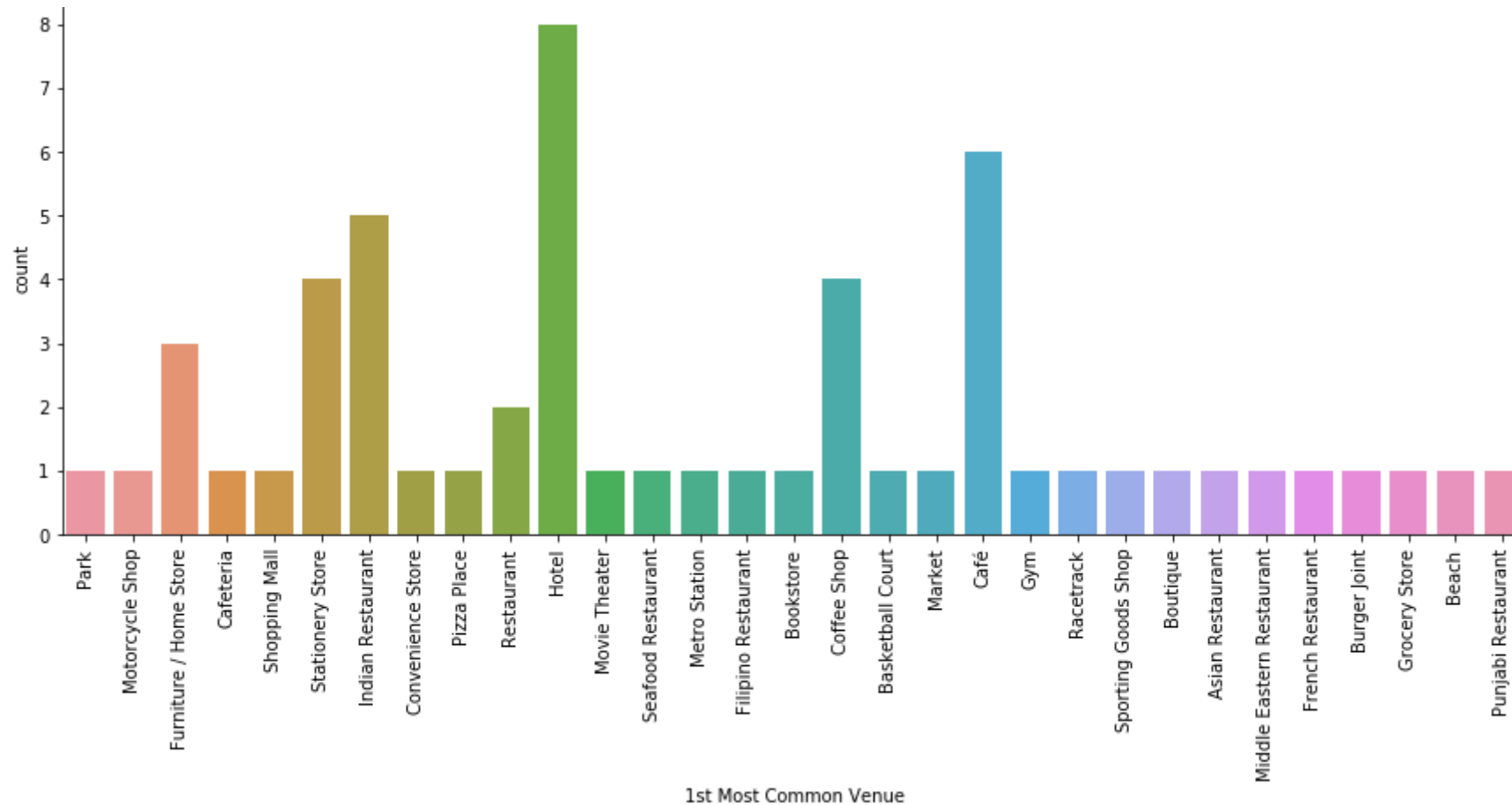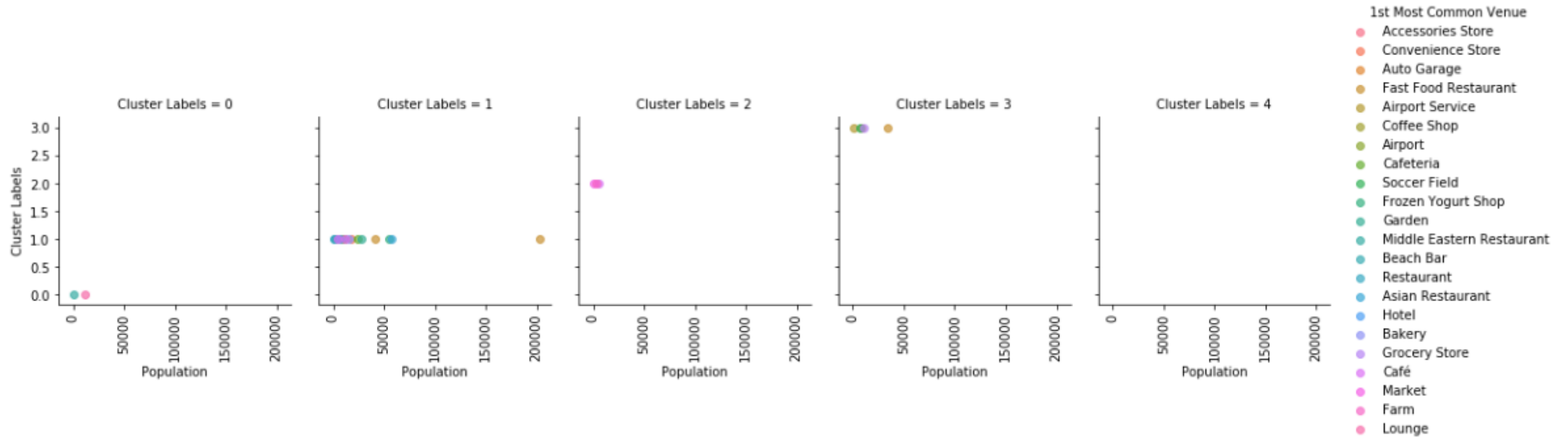# Sector 3 - MAP

Sector 2 - Venues

Sector 3 - Venues

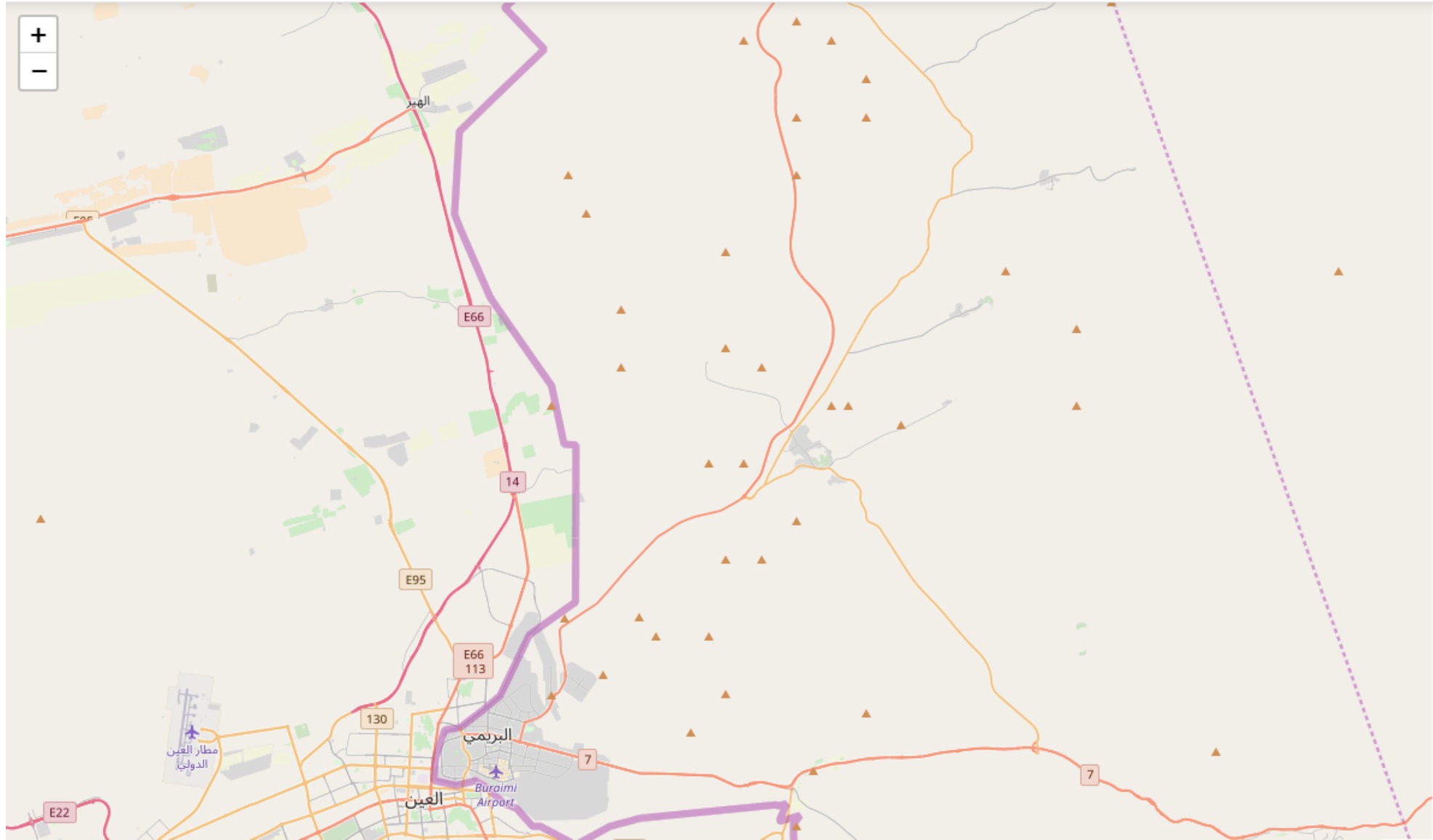# Analysis of Sector 2 – Most Common

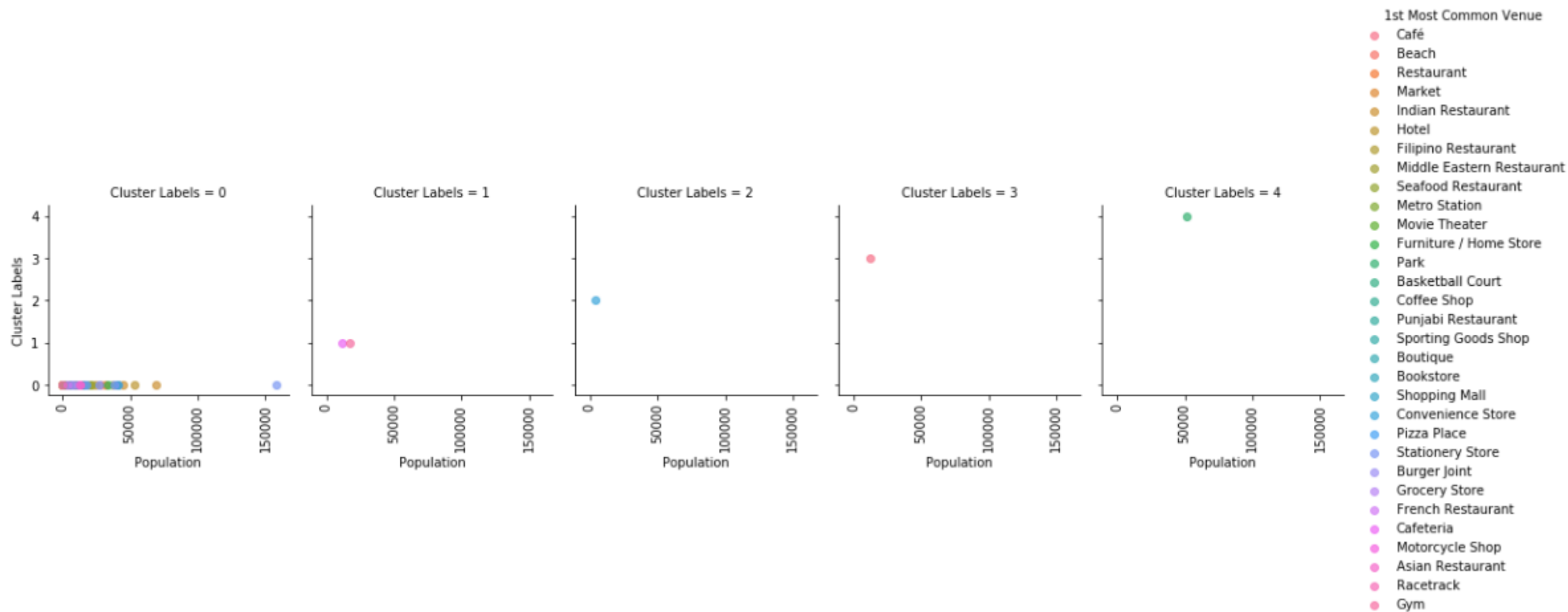# Analysis of Sector 3 – Most Common

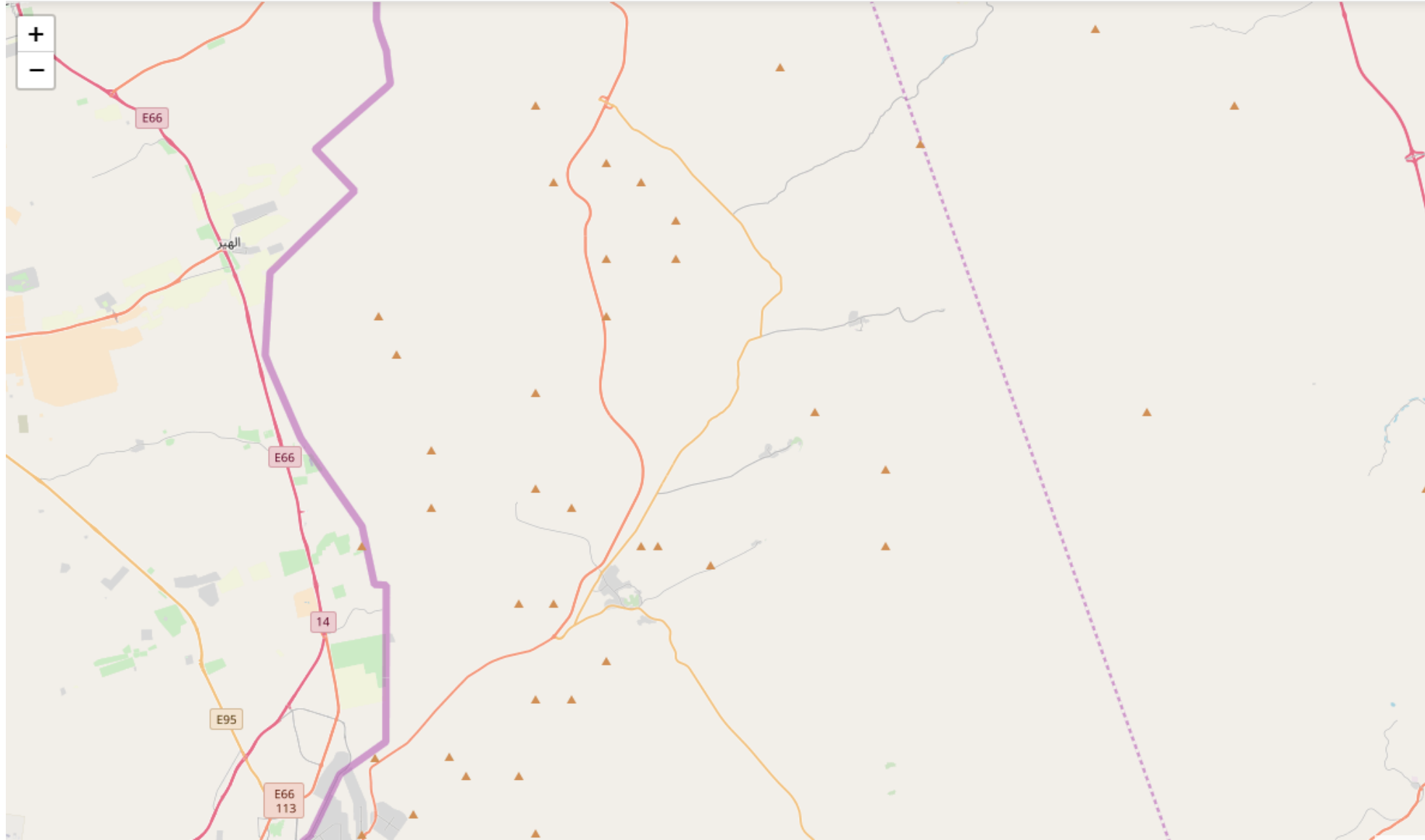# Sector 2 – K-Means Clustering

Sector 2 – K-Means Clustering

Sector 3 – K-Means Clustering

Sector 3 – K-Means Clustering

Conclusion

- Within Sector 2 and Sector 3 of Dubai, Sector 3 is more Tourist Friendly and offers more traction to short-term visitors and is therefore a prime venue for opening new restaurants. Sector 2 on the other hand is more of a Residential area which in turn also offers possibilities of opening new restaurants focused towards the Community and Ethnicity.

- Foursquare API is a powerful platform that enables us to capture detailed data about Common Places based on Geo Spatial Information of Dubai. Foursquare API has been proven valid in case of our Business Problem and enables us to identify 'Similarities' and 'Dissimilarities' between the Sector 2 and 3 of Dubai.