Capstone project - Battle of the Neighborhood - Week 2

Applied Data Science Capstone by IBM/Coursera

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Resident of Dubai/UAE

Introduction: Business Problem

Whether you are single or relocating to the UAE (United Arab Emirates) with your family, there are certain areas that continue to attract expats in their droves.

Capital city Abu Dhabi and its neighbor Dubai are the hotspots of the UAE for expat activity. Skyscrapers, a thriving hospitality industry, and the inner-city beaches are attractive places to reside.

Top of the list for many families moving to a new location is **quality schooling**, and the UAE provides high-quality education all around. Many nations have schools for their expats, and there are plenty of international schools to choose from.

Closeness to facilities such as recreational areas is also important. There are many areas to choose from in both cities, depending on what your family needs are. Not all residential areas are in high-rise buildings, but this might best suit you and your family.

We'll be focousing on **Abu Dhabi as its the capital of the UAE** and the second-largest city after Dubai. If you choose to live here, there are ample options and we'll demonstrate how an **XPATs can pick the neighberhood** of his/her choice based on **private school**,s **rating** and **curriculum** and of course **near by venues**.

We will use our data science powers to generate a few most promissing neighborhoods based on this criteria. Advantages of each area will then be clearly expressed towards best possible selection of best locations.

Data

Based on definition of our problem, factors that will influence our decission are:

- number of existing venues near by schools (any type of venues)
- number of private schools in general
- number of private schools based on ratings i.e. Outstanding, Very Goog, Good , Acceptable, Weak, Very Weak
- number of private schools based on curriculums i.e. American , English , indian, japanies, German, Canadian..etc

Following data sources will be needed to extract/generate the required information:

- WIll be using **GEOPY python library** to generate Latitude and Longitude for the Abu Dhabi Island
- Will be using the **GEOCODER python library** to geocode coordinates (Latituded and Longitude for schools in Abu Dhabi.
- Downloaded csv file for all Abu Dhabi localities (Neigberhoods) along with thier coordinates (Latitudes and Longitudes) from [https://www.geopostcodes.com/Abu_Dhabi (https://www.geopostcodes.com/Abu_Dhabi)](https://www.geopostcodes.com/Abu_Dhabi)
- Used a free handy tool**(WEBHARVY)** [https://www.webharvy.com/ (https://www.webharvy.com/)](https://www.webharvy.com/) to srape multiple pages to get school's related ratings and curriculums to a csv file.
- number of restaurants and their type and location in every neighborhood will be obtained using **FOURSQUARE API**
- Write near by venues and venue's details returned via FOURSQUARE APIs to unique separate csv files. The files will read later to data \ frames for continued testing. This is necessary since FOURSQUARE has limitation in making daily calls to their API's.

Methodology

In this project we will direct our efforts on detecting areas of Abu Dhabi with Private schools that have hight ratings i.e. Outstanding and Very Good which will lead to the neighborhood to be considered living in since schools fees reflects its overall ratings i.e. Outstanding and Very Good are relatively more expensive than Schools with Ratings of Good and/or Acceptable.

We WIll cluster the Schools based on its curriculum i.e. American , English, Indian, German, Canadian, ..etc This is important since it will reflect demographic of people living in the hosted neighborhood. Here we will use the One Hot Encoding technique and using Kmeans and later show clusters on a map.

ALso will look into the venues near by the schools and will show how to manipulate the data for the purpose of plotting meaningful bar charts to be used as tools to be used in building a case in making a descision to consider a neighborhood to live in.

We will also calculate total venue's average rating. The cumulative average will provide more decision power for Xpats or parents towards considering the locality(Neighborhood) to live in.

Results and Discussion

Its important to know that the city of Abu Dhabi is really an Island and its the capitol city of the UAE. Also its the Capitol city of the Emirates of Abu Dhabi. The Emirates of Abu Dhabi is one of Seven emirates making up UAE : Dubai, Abu Dhabi, Fujaira, Ejman, Um AL Quain, Ras Al Khaima, and Sharja.

The Island is where the government resides. Its a world class city that exercise up to date technological trends and as such attracts many professionals (XPATS) form all over globe. Those are our stakeholders who we are targeting to provide them with minimum and sufficient analysis to assist them in making a decision to pick the right neighborhood.

ALso its important to remember that the term community/locality resembles neighborhoods. The term Bouroughs is not used.

The XPATs(Residents) will target the Private schools as oppose to public schools which is attended by the locals(citizens) and thus our analysis is centered around private schools and near by venues. This project will also focous on identifying neighborhoods where private schools resides in with rating of "Outstanding" and "Very Good".

We first map out all the private schools in the emirates of Abu dhabi inculuidng the island of Abu Dhabi and our first observation shows that the private schools are centered in the Island of Abu Dhabi and the city of ALAin. This indicates that XPAT that surly they will target two cities.

Next step will focus on private schools with rating of "OutStandng" and "Very Good". So we filter the desired schools out and cluster them based on the curriculum offered by these schools. Will adopt the One Hot Encoding technique to convert the categorical values i.e. "American", "English", Indian"..etc into numerical values and then adopt the Kmeans clustreing technique to cluster the schools into three clusters.

The top three localities (Neighberhoods) with most schools with rating of "Outstanding" and "Very Good" will be found in AlBateen, Khalifa City and Mohamed bin Zaid. This will conclude the these neighborhoods will mostly be targeted by XAPTS.

Next we pick "ALbateen" Locality since it has the most schools with ratings of outstanding/very good among the the other localities and will fetch the near by venues. We categorize them and lookup the statistics i.e. how many hospitals or restaurants (Indians, italians..etc)

Once we get the venues , we then fetch the related venue details i.e. ratings/likes/tips. Here we will calculate the average ratings of all venues surrounding each schools in the Albateen locality.

Finally we show all venues surrounding the ALbateen schools.

Conclusion

Purpose of this project was to identify Abu Dhabi's most popular localities based on the private school's ratings and curriculum. ALso we factor in venues and its details surrounding these schools which will be very imperative to be considered in selecting the area/communities. This project is a corner stone for further enhancements to account for further criteria.

We applied One Heat Encoding along usage of Kneans clustring technique to cluster schools based on curriculum. The schools can be as well clustered per ratings for added value.

In this project we spend lots of efforts and time towards compiling data via scraping and geocoding coordinates. Illustration is very important to demonstrate to Stakeholders and thus relied heavilly on making sure the schools. localities and venues latitudes and Loogitudes are available for sake mapping on maps using the folium library.

Also demostrated bar charts to effectively show how the communities and Schools compare to each other.

In [7]:
```python
import sys
!{sys.executable} -m pip install geocoder
!{sys.executable} -m pip install folium
!{sys.executable} -m pip install BeautifulSoup4
!{sys.executable} -m pip install geopy
!{sys.executable} -m pip install nbconvert


print('Packages installed.')
```

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rom importlib-metadata; python_version < "3.8"->jsonschema!=2.5.0,>=2.4->nbformat>=4.4->nbconvert) (3.1.0)
Packages installed.

```python
In [8]: import numpy as np # library to handle data in a vectorized manner
        import pandas as pd # library for data analsysis
        import geocoder # import geocoder
        import requests
        from bs4 import BeautifulSoup

        # 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
        from pandas.io.json import json_normalize
        from sklearn.cluster import KMeans
        from geopy.geocoders import Nominatim


        #!conda install -c conda-forge folium=0.5.0 --yes # uncomment this line if you haven't completed the Foursqua
        re API lab
        import folium # map rendering library
        import matplotlib.pyplot as plt
        import matplotlib.cm as cm
        import matplotlib.colors as colors
        print('Libraries imported.')
```

Libraries imported.

Fetching Abu Dhabi localities names and coordinates

In [9]:
```python
df_abdhbi = pd.read_csv('AbuDhabiLatLong.csv')
#with pd.option_context('display.max_rows', None, 'display.max_columns', None):  # more options can be specif
ied also
#    print(df_abdhbi)
```

In [4]:
```python
df_abdhbi.head(5)
```

Out[4]:

	Locality	Latitude	Longitude
0	Abu Dhabi Airport	24.423100	54.656100
1	Abu Dhabi Gate City	24.393700	54.502100
2	Al Ain	24.223974	55.751006
3	Al Aman	24.432260	54.423530
4	Al Saadiyat beach	24.548870	54.436610

In [14]:
```python
df_abdhbi.shape
```

Out[14]: (94, 3)

Fetching Private schools information i.e. Names, Ratings, Curriculum

In [15]:
```python
df_abdhbi_school = pd.read_csv('adallschoolsrateandcurriculum.csv')
df_abdhbi_school.head(5)
```

Out[15]:

	School	Address	Curriculum	Rate
0	International Academic School	Al Wathba	American	Acceptable
1	Baniyas International Private School	Baniyas East	American	Acceptable
2	Virginia International Private School	Khalifa City	American	Acceptable
3	Summit International School	Mohamed Bin Zayed City	American	Acceptable
4	Elite (Al Nukhba) Private School	Mohamed Bin Zayed City	American	Acceptable

In [16]: `df_abdhbi_school.shape`

Out[16]: (116, 4)

In [17]:
```python
plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('Number of schools for each locality in Abu Dhabi City')
#On x-axis
plt.xlabel('Locality', fontsize = 15)
#On y-axis
plt.ylabel('No.of Private Schools', fontsize=15)
#giving a bar plot
df_abdhbi_school.groupby('Address')['School'].count().plot(kind='bar')
#Legend
plt.legend()
#displays the plot
plt.show()
```
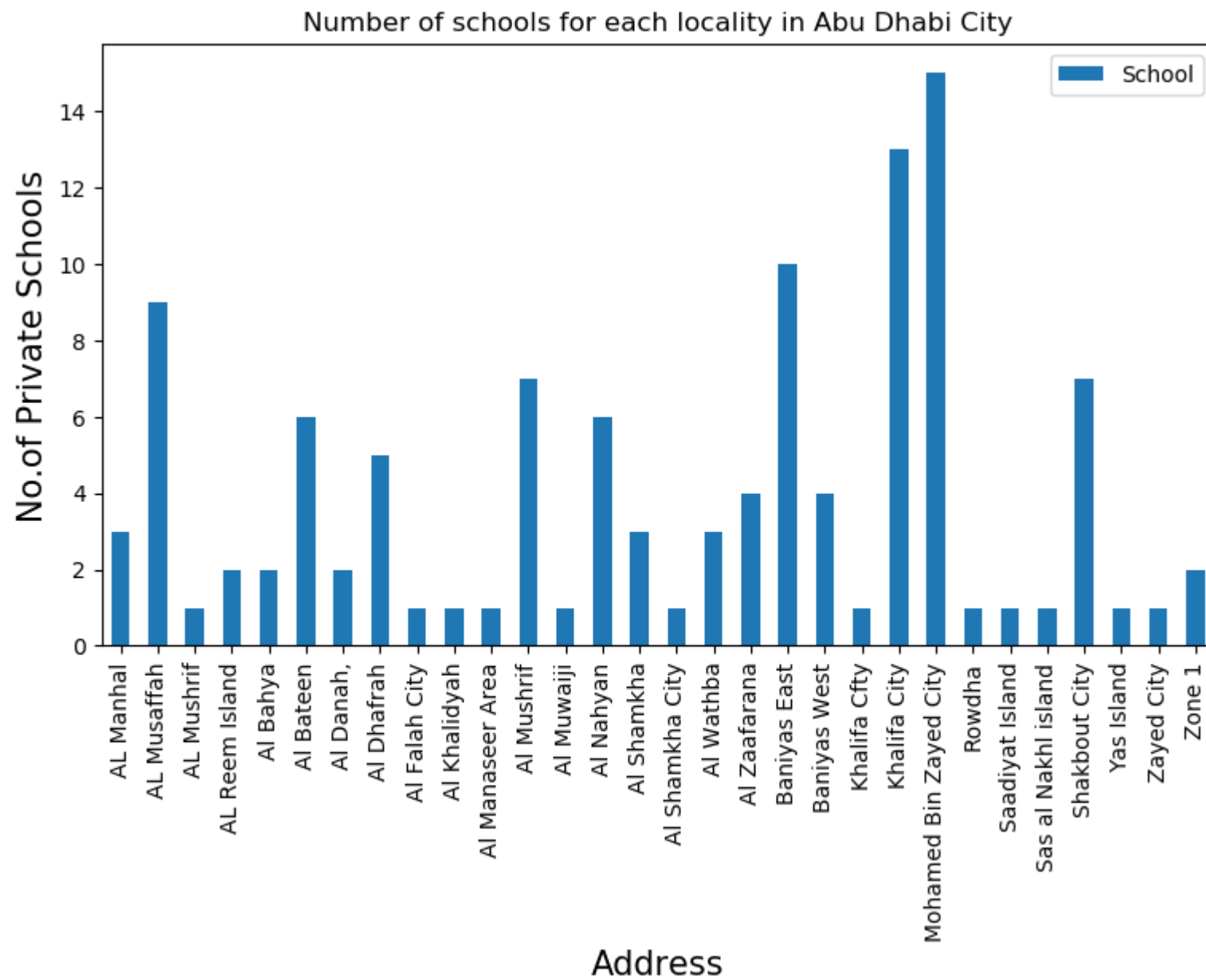
Number of schools for each locality in Abu Dhabi City

In [18]:
```python
plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('Number of private schools per rating in Abu Dhabi City')
#On x-axis
plt.xlabel('Locality', fontsize = 15)
#On y-axis
plt.ylabel('No.of Private Schools', fontsize=15)
#giving a bar plot
df_abdhbi_school.groupby('Rate')['School'].count().plot(kind='bar')
#Legend
plt.legend()
#displays the plot
plt.show()
```
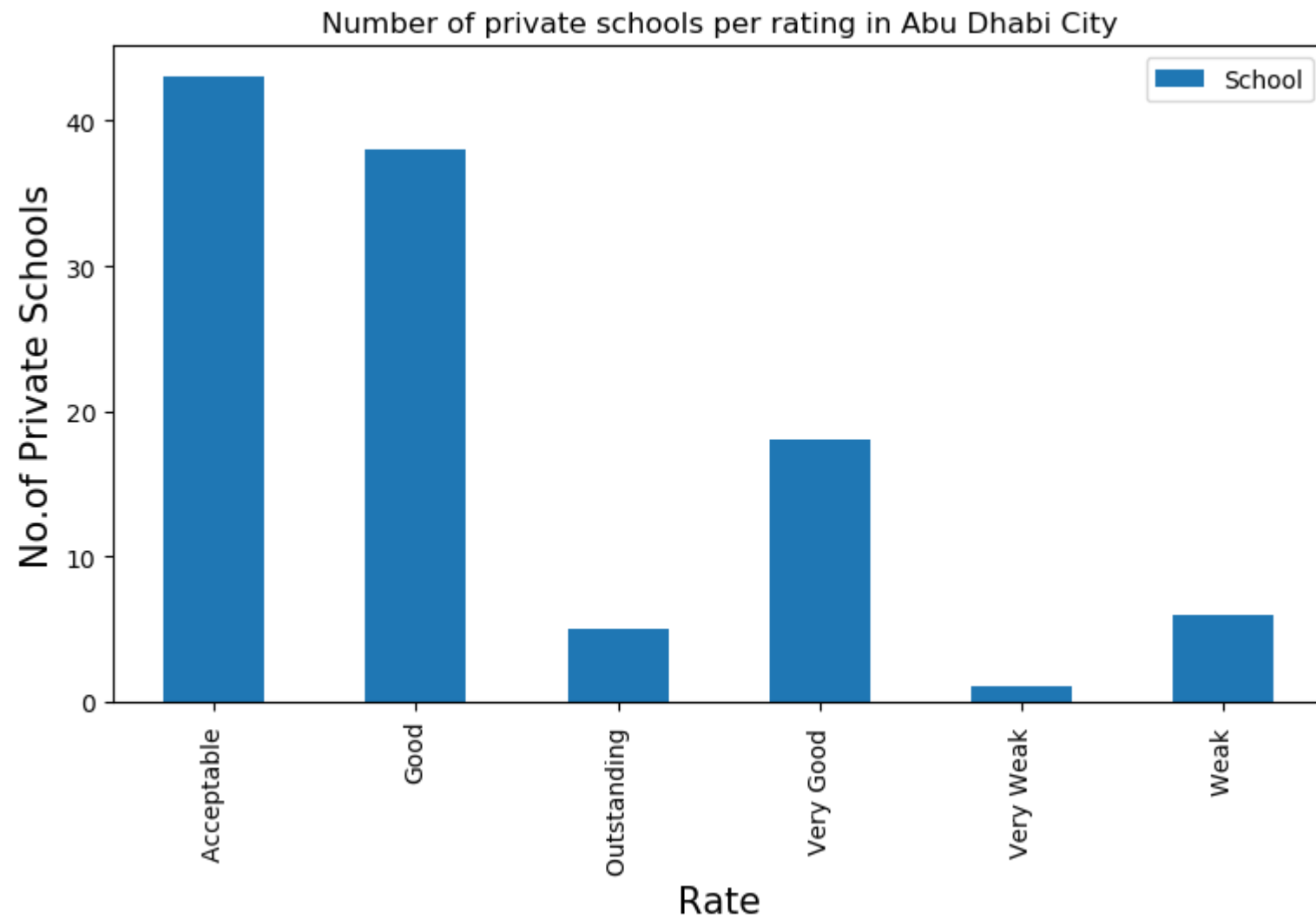
Number of private schools per rating in Abu Dhabi City

In [19]:
```python
plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('Number of private Schools per curriculum in Abu Dhabi City')
#On x-axis
plt.xlabel('Locality', fontsize = 15)
#On y-axis
plt.ylabel('No.of Private schools', fontsize=15)
#giving a bar plot
df_abdhbi_school.groupby('Curriculum')['School'].count().plot(kind='bar')
#Legend
plt.legend()
#displays the plot
plt.show()
```

Number of private Schools per curriculum in Abu Dhabi City
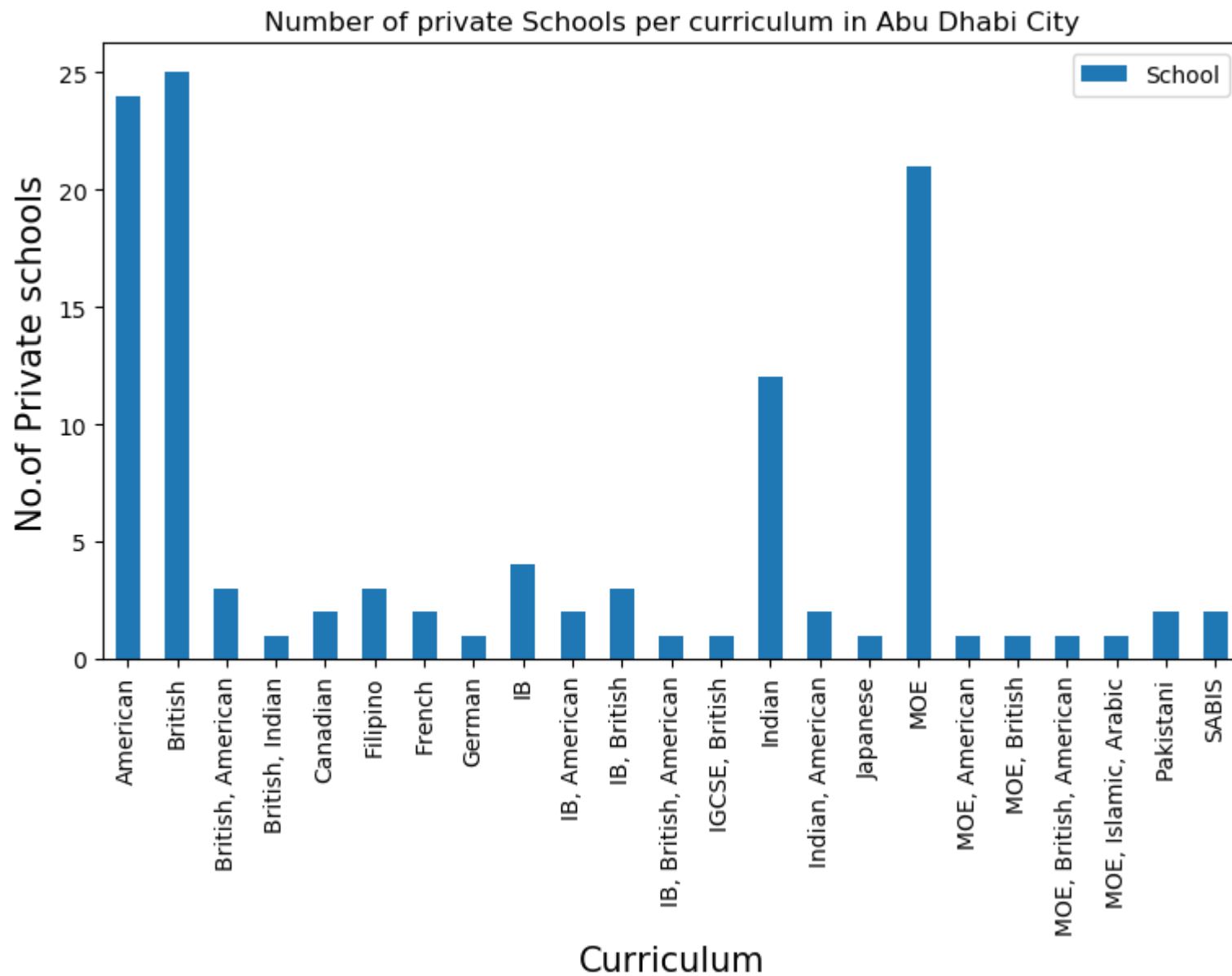
Function to geocode the schools coordinates

- We utilize the geocoder python library

```python
In [20]: # function to retrieve scools coordinates i.e. LAT and LONG
         def get_latilong(school):
             lati_long_coords = None
             while(lati_long_coords is None):
                 g = geocoder.arcgis('{}, abu dhabi'.format(school))
                 lati_long_coords = g.latlng
             return lati_long_coords

         get_latilong('GEMS American Academy')
```

Out[20]: [24.428770000000043, 54.56411000000003]

Return the Latitude and Longitude for each school

```python
In [12]: # Retrieving school Co-ordinates via GEOCODER library ..
         Schools = df_abdhbi_school['School']
         abdhbi_school_coords = [ get_latilong(school) for school in Schools.tolist() ]
```

```python
In [13]: #Adding column lables  for generated coordinates i.e LAT and LONG
         abdhbi_school_coords = pd.DataFrame(abdhbi_school_coords, columns=['Latitude', 'Longitude'])
```

```python
In [14]: abdhbi_school_coords.head(5)
```

Out[14]:

	Latitude	Longitude
0	24.36407	54.63773
1	24.32334	54.63291
2	24.39082	54.65403
3	24.47879	54.36806
4	24.15696	47.33075

Adding new columns (Latitude and Longitude) to the schools data frame

```
In [15]: #reset data farme indexes
         df_abdhbi_school= df_abdhbi_school.reset_index(drop=True)
         #Adding LAT and LONG columns
         df_abdhbi_school['Latitude'] = abdhbi_school_coords['Latitude']
         df_abdhbi_school['Longitude'] = abdhbi_school_coords['Longitude']
```

```
In [16]: df_abdhbi_school.head(5)
```

Out[16]:

	School	Address	Curriculum	Rate	Latitude	Longitude
0	International Academic School	Al Wathba	American	Acceptable	24.36407	54.63773
1	Baniyas International Private School	Baniyas East	American	Acceptable	24.32334	54.63291
2	Virginia International Private School	Khalifa City	American	Acceptable	24.39082	54.65403
3	Summit International School	Mohamed Bin Zayed City	American	Acceptable	24.47879	54.36806
4	Elite (Al Nukhba) Private School	Mohamed Bin Zayed City	American	Acceptable	24.15696	47.33075

Writing data frame into CSV files for safe keeping

```
In [25]: df_abdhbi_school.to_csv('df_abdhbi_school_with_coords.csv', index=False)
```

Reading data frame into CSV file and veryfying data

```
In [21]: #Reading data frame into CSV file and veryfying data
         df_abdhbi_school=pd.read_csv('df_abdhbi_school_with_coords.csv')
         df_abdhbi_school.shape
```

Out[21]: (116, 6)

Using the GEOPY python library to get Latitude and Longitude for ABU DHABI Island

In [22]:
```python
# I am using the geopy library to obtain the lat and long for ABU Dhabi Island
address = 'abu dhabi island'

geolocator = Nominatim(user_agent="capstone")
location = geolocator.geocode(address)
latitude_x = location.latitude
longitude_y = location.longitude
print('The Geograpical Co-ordinate of Neighborhood_1 are {}, {}.'.format(latitude_x, longitude_y))
```

The Geograpical Co-ordinate of Neighborhood_1 are 24.4747961, 54.3705762.

Mapping out Abu Dhabi communities along with Abu Dhabi Schools

In [49]:
```python
# Showing schools with Outstanding and Very good in Abu Dhabi island Locaity
map_AbuDhabi = folium.Map(location=[latitude_x, longitude_y], zoom_start=9)

# add markers to map "Loclities"
for lat, lng, neighborhood in zip(df_abdhbi['Latitude'],
                                  df_abdhbi['Longitude'],
                                  df_abdhbi['Locality']):
    label_text = neighborhood
    label = folium.Popup(label_text, parse_html=True)
    #print(label)
    folium.CircleMarker(
        [lat, lng],
        radius=5,
        popup=label,
        color='blue',
        fill_color='#3186cc',
        fill_opacity=0.5,
        parse_html=False).add_to(map_AbuDhabi)

# add markers to map "Private schools"
for lat, lng, name in zip(df_abdhbi_school['Latitude'],
                          df_abdhbi_school['Longitude'],
                          df_abdhbi_school['School']):
    label_text = name
    label = folium.Popup(label_text, parse_html=True)
    #print(label)
    folium.CircleMarker(
        [lat, lng],
        radius=5,
        popup=label,
        color='red',
        fill_color='#3186cc',
        fill_opacity=0.5,
        parse_html=False).add_to(map_AbuDhabi)
map_AbuDhabi
```

Out[49]:
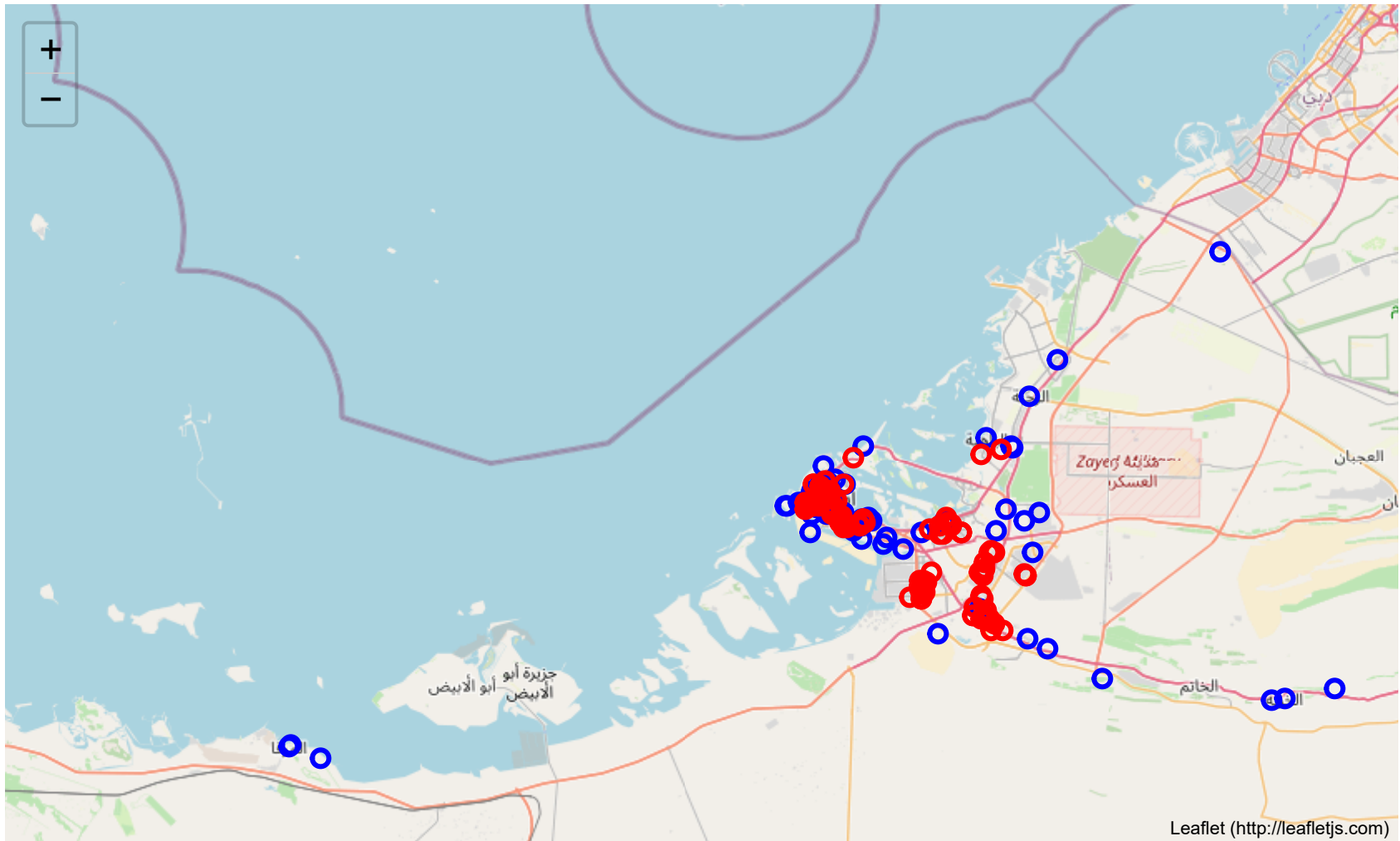
Filtering the Schools with rating Outstandig and Very Good

In [24]:
```python
df_abdhbi_school_outstanding_VG = df_abdhbi_school[df_abdhbi_school['Rate'].isin(['Outstanding ', 'Very Good
']) ]
df_abdhbi_school_outstanding_VG.reset_index(drop=True)
```

Out[24]:

	School	Address	Curriculum	Rate	Latitude	Longitude
0	Sheikh Zayed Private Academy for Girls	Al Bateen	American	Very Good	24.46471	54.35064
1	American Community School	Al Bateen	American	Very Good	24.46498	54.34085
2	The Sheikh Zayed Private Academy for Boys	Al Khalidyah	American	Very Good	24.46471	54.35064
3	American International School	AL Reem Island	American	Very Good	24.43038	54.43085
4	Horizon Private School- Branch, Khalifa City	Khalifa City	American	Very Good	24.42008	54.59828
5	Emirates National School	Mohamed Bin Zayed City	American	Very Good	24.47616	54.38255
6	International School	Mohamed Bin Zayed City	American	Very Good	24.09903	55.83098
7	Al Muna Academy - Aldar Academies	Al Bateen	British	Outstanding	24.47488	54.37598
8	Al Basma British School	Al Dhafrah	British	Very Good	24.18700	55.62789
9	Aldar Academies, The Pearl Academy	Al Dhafrah	British	Very Good	24.47488	54.37598
10	Merryland International School	AL Musaffah	British	Outstanding	24.34634	54.53622
11	British School Al Khubairat	AL Mushrif	British	Outstanding	24.44773	54.38753
12	Repton School	AL Reem Island	British	Very Good	24.49333	54.40531
13	Aldar Academies, Al Yasmina Academy	Khalifa Cfty	British	Very Good	24.42563	54.54753
14	Cranleigh School	Saadiyat Island	British	Outstanding	24.53262	54.42142
15	Lycee Louis Massignon	Zone 1	French	Very Good	24.43143	54.43004
16	German International School	AL Manhal	German	Very Good	24.46587	54.36025
17	GEMS World Academy	Al Danah,	IB	Very Good	24.48220	54.37888
18	Raha International School	Khalifa City	IB	Outstanding	24.43425	54.57602
19	GEMS American Academy	Khalifa City	IB, American	Very Good	24.42877	54.56411
20	British International School	Zayed City	IB, British	Very Good	24.44973	54.38646
21	Private International English School	Mohamed Bin Zayed City	Indian	Very Good	24.33988	54.53110
22	Japanese Private School	Al Bateen	Japanese	Very Good	24.45636	54.34375

Writing data frame into CSV files for safe keeping

```
In [25]: df_abdhbi_school_outstanding_VG.to_csv('df_abdhbi_school_outstanding.csv', index=False)
```

drop rown wih NAN values (Good practice)

```
In [26]: df_abdhbi_school_outstanding_VG = df_abdhbi_school_outstanding_VG[df_abdhbi_school_outstanding_VG['School'].n
         otna()]
         df_abdhbi_school_outstanding_VG.shape
```

```
Out[26]: (23, 6)
```

Projecting the schools with Outstanding and Very good in Abu Dhabi island Locaity

- Blue markers --> Abu Dhabi island and srrounding Abu Dhabi main land Localities (Naigberhoods)
- Red markers --> Abdu Dhabi outstanding and very Good rating schools

In [27]:
```python
# Showing schools with Outstanding and Very good in Abu Dhabi island Locaity
map_AbuDhabi = folium.Map(location=[latitude_x, longitude_y], zoom_start=11)

# add markers to map "Loclities"
for lat, lng, neighborhood in zip(df_abdhbi['Latitude'],
                                  df_abdhbi['Longitude'],
                                  df_abdhbi['Locality']):
    label_text = neighborhood
    label = folium.Popup(label_text, parse_html=True)
    #print(label)
    folium.CircleMarker(
        [lat, lng],
        radius=5,
        popup=label,
        color='blue',
        fill_color='#3186cc',
        fill_opacity=0.5,
        parse_html=False).add_to(map_AbuDhabi)

# add markers to map "Private schools"
for lat, lng, name in zip(df_abdhbi_school_outstanding_VG['Latitude'],
                          df_abdhbi_school_outstanding_VG['Longitude'],
                          df_abdhbi_school_outstanding_VG['School']):
    label_text = name
    label = folium.Popup(label_text, parse_html=True)
    #print(label)
    folium.CircleMarker(
        [lat, lng],
        radius=5,
        popup=label,
        color='red',
        fill_color='#3186cc',
        fill_opacity=0.5,
        parse_html=False).add_to(map_AbuDhabi)
map_AbuDhabi
```

Out[27]:
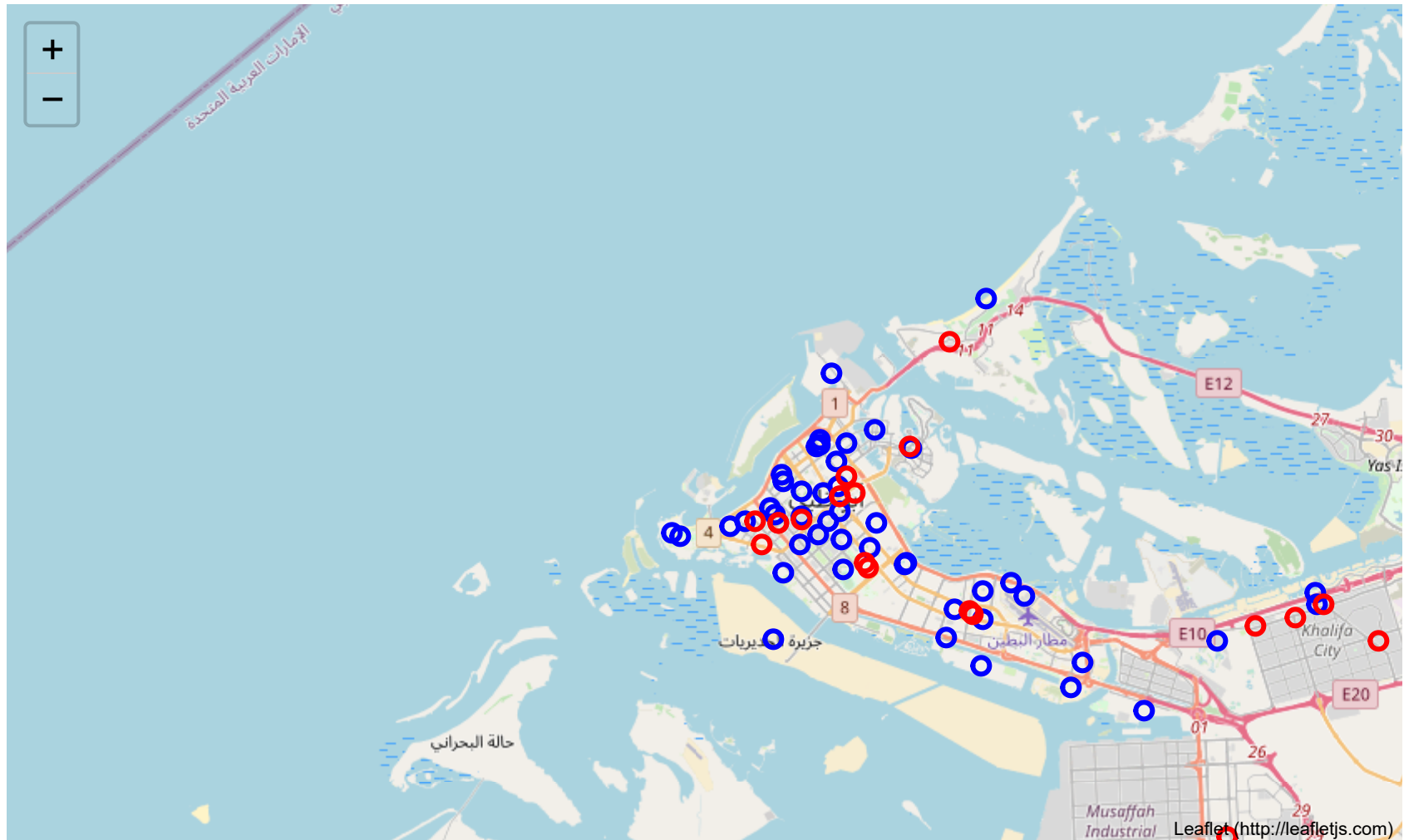
Applying the OneHot Encoding

Applying a machine learning technique to allow clustring the data

- Converting the Curriculum categorical data into Numerical data

In [28]:
```
Feature = pd.get_dummies(df_abdhbi_school_outstanding_VG[['Curriculum']], prefix="", prefix_sep="")
Feature.shape
```

Out[28]: (23, 9)

In [29]:
```
# add neighborhood column back to dataframe
Feature['School'] = df_abdhbi_school_outstanding_VG['School']
```

- Group the numerical data. We get 22 rows(groups). These are number of private schools

In [30]:
```
# move neighborhood column to the first column
fixed_columns = [Feature.columns[-1]] + list(Feature.columns[:-1])
Feature = Feature[fixed_columns]
df_abdhbi_school_grouped = Feature.groupby('School').mean().reset_index()
```

In [31]: `df_abdhbi_school_grouped`

Out[31]:

	School	American	British	French	German	IB	IB, American	IB, British	Indian	Japanese
0	International School	1	0	0	0	0	0	0	0	0
1	Al Basma British School	0	1	0	0	0	0	0	0	0
2	Al Muna Academy - Aldar Academies	0	1	0	0	0	0	0	0	0
3	Aldar Academies, Al Yasmina Academy	0	1	0	0	0	0	0	0	0
4	Aldar Academies, The Pearl Academy	0	1	0	0	0	0	0	0	0
5	American Community School	1	0	0	0	0	0	0	0	0
6	American International School	1	0	0	0	0	0	0	0	0
7	British International School	0	0	0	0	0	0	1	0	0
8	British School Al Khubairat	0	1	0	0	0	0	0	0	0
9	Cranleigh School	0	1	0	0	0	0	0	0	0
10	Emirates National School	1	0	0	0	0	0	0	0	0
11	GEMS American Academy	0	0	0	0	0	1	0	0	0
12	GEMS World Academy	0	0	0	0	1	0	0	0	0
13	German International School	0	0	0	1	0	0	0	0	0
14	Horizon Private School- Branch, Khalifa City	1	0	0	0	0	0	0	0	0
15	Japanese Private School	0	0	0	0	0	0	0	0	1
16	Lycee Louis Massignon	0	0	1	0	0	0	0	0	0
17	Merryland International School	0	1	0	0	0	0	0	0	0
18	Private International English School	0	0	0	0	0	0	0	1	0
19	Raha International School	0	0	0	0	1	0	0	0	0
20	Repton School	0	1	0	0	0	0	0	0	0
21	Sheikh Zayed Private Academy for Girls	1	0	0	0	0	0	0	0	0
22	The Sheikh Zayed Private Academy for Boys	1	0	0	0	0	0	0	0	0

In [32]: `df_abdhbi_school_grouped.shape`

Out[32]: (23, 10)

- Cluster the data (curriculum) into 3 clusters 0,1,2. The output is 23 lables(Outstanding/VG Schools) that matches the number of groups

In [33]:
```
# Using K-Means to cluster neighborhood into 3 clusters
df_abdhbi_school_clustering = df_abdhbi_school_grouped.drop('School', 1)
kmeans = KMeans(n_clusters=3, random_state=0).fit(df_abdhbi_school_clustering)
kmeans.labels_
```

Out[33]: array([2, 1, 1, 1, 1, 2, 2, 0, 1, 1, 2, 0, 0, 0, 2, 0, 0, 1, 0, 0, 1, 2,
            2], dtype=int32)

In [34]: `df_abdhbi_school_outstanding_VG= df_abdhbi_school_outstanding_VG.reset_index(drop=True)`

In [35]:
```
# merge abu dhabi_grouped with abdu dhabi data to add latitude/Longitude for each neighborhood
df_abdhbi_school_merged = df_abdhbi_school_outstanding_VG
df_abdhbi_school_merged = df_abdhbi_school_merged.join(df_abdhbi_school_grouped.set_index('School'), on='School')
```

In [35]: df_abdhbi_school_merged

Out[35]:

	School	Address	Curriculum	Rate	Latitude	Longitude	American	British	French	German	IB	IB, American	IB, British	In
0	Sheikh Zayed Private Academy for Girls	Al Bateen	American	Very Good	24.46471	54.35064	1	0	0	0	0	0	0	
1	American Community School	Al Bateen	American	Very Good	24.46498	54.34085	1	0	0	0	0	0	0	
2	The Sheikh Zayed Private Academy for Boys	Al Khalidyah	American	Very Good	24.46471	54.35064	1	0	0	0	0	0	0	
3	American International School	AL Reem Island	American	Very Good	24.43038	54.43085	1	0	0	0	0	0	0	
4	Horizon Private School-Branch, Khalifa City	Khalifa City	American	Very Good	24.42008	54.59828	1	0	0	0	0	0	0	
5	Emirates National School	Mohamed Bin Zayed City	American	Very Good	24.47616	54.38255	1	0	0	0	0	0	0	
6	International School	Mohamed Bin Zayed City	American	Very Good	24.09903	55.83098	1	0	0	0	0	0	0	
7	Al Muna Academy - Aldar Academies	Al Bateen	British	Outstanding	24.47488	54.37598	0	1	0	0	0	0	0	
8	Al Basma British School	Al Dhafrah	British	Very Good	24.18700	55.62789	0	1	0	0	0	0	0	
9	Aldar Academies, The Pearl Academy	Al Dhafrah	British	Very Good	24.47488	54.37598	0	1	0	0	0	0	0	

	School	Address	Curriculum	Rate	Latitude	Longitude	American	British	French	German	IB	IB, American	IB, British	In
10	Merryland International School	AL Musaffah	British	Outstanding	24.34634	54.53622	0	1	0	0	0	0	0	
11	British School Al Khubairat	AL Mushrif	British	Outstanding	24.44773	54.38753	0	1	0	0	0	0	0	
12	Repton School	AL Reem Island	British	Very Good	24.49333	54.40531	0	1	0	0	0	0	0	
13	Aldar Academies, Al Yasmina Academy	Khalifa Cfty	British	Very Good	24.42563	54.54753	0	1	0	0	0	0	0	
14	Cranleigh School	Saadiyat Island	British	Outstanding	24.53262	54.42142	0	1	0	0	0	0	0	
15	Lycee Louis Massignon	Zone 1	French	Very Good	24.43143	54.43004	0	0	1	0	0	0	0	
16	German International School	AL Manhal	German	Very Good	24.46587	54.36025	0	0	0	1	0	0	0	
17	GEMS World Academy	Al Danah,	IB	Very Good	24.48220	54.37888	0	0	0	0	1	0	0	
18	Raha International School	Khalifa City	IB	Outstanding	24.43425	54.57602	0	0	0	0	1	0	0	
19	GEMS American Academy	Khalifa City	IB, American	Very Good	24.42877	54.56411	0	0	0	0	0	1	0	
20	British International School	Zayed City	IB, British	Very Good	24.44973	54.38646	0	0	0	0	0	0	1	
21	Private International English School	Mohamed Bin Zayed City	Indian	Very Good	24.33988	54.53110	0	0	0	0	0	0	0	
22	Japanese Private School	Al Bateen	Japanese	Very Good	24.45636	54.34375	0	0	0	0	0	0	0	

In [36]:
```python
del df_abdhbi_school_merged['Curriculum']
del df_abdhbi_school_merged['Rate']
```

In [37]:
```python
df_abdhbi_school_merged.head(5)
```

Out[37]:

	School	Address	Latitude	Longitude	American	British	French	German	IB	IB, American	IB, British	Indian	Japanese
0	Sheikh Zayed Private Academy for Girls	Al Bateen	24.46471	54.35064	1	0	0	0	0	0	0	0	0
1	American Community School	Al Bateen	24.46498	54.34085	1	0	0	0	0	0	0	0	0
2	The Sheikh Zayed Private Academy for Boys	Al Khalidyah	24.46471	54.35064	1	0	0	0	0	0	0	0	0
3	American International School	AL Reem Island	24.43038	54.43085	1	0	0	0	0	0	0	0	0
4	Horizon Private School- Branch, Khalifa City	Khalifa City	24.42008	54.59828	1	0	0	0	0	0	0	0	0

Add Clusters lables

In [36]:
```python
df_abdhbi_school_merged.insert(0, 'Cluster Labels', kmeans.labels_)
```

In [37]: `df_abdhbi_school_merged`

Out[37]:

	Cluster Labels	School	Address	Curriculum	Rate	Latitude	Longitude	American	British	French	German	IB	IB, American	E
0	2	Sheikh Zayed Private Academy for Girls	Al Bateen	American	Very Good	24.46471	54.35064	1	0	0	0	0	0	
1	1	American Community School	Al Bateen	American	Very Good	24.46498	54.34085	1	0	0	0	0	0	
2	1	The Sheikh Zayed Private Academy for Boys	Al Khalidyah	American	Very Good	24.46471	54.35064	1	0	0	0	0	0	
3	1	American International School	AL Reem Island	American	Very Good	24.43038	54.43085	1	0	0	0	0	0	
4	1	Horizon Private School-Branch, Khalifa City	Khalifa City	American	Very Good	24.42008	54.59828	1	0	0	0	0	0	
5	2	Emirates National School	Mohamed Bin Zayed City	American	Very Good	24.47616	54.38255	1	0	0	0	0	0	
6	2	International School	Mohamed Bin Zayed City	American	Very Good	24.09903	55.83098	1	0	0	0	0	0	
7	0	Al Muna Academy - Aldar Academies	Al Bateen	British	Outstanding	24.47488	54.37598	0	1	0	0	0	0	
8	1	Al Basma British School	Al Dhafrah	British	Very Good	24.18700	55.62789	0	1	0	0	0	0	
9	1	Aldar Academies, The Pearl Academy	Al Dhafrah	British	Very Good	24.47488	54.37598	0	1	0	0	0	0	

	Cluster Labels	School	Address	Curriculum	Rate	Latitude	Longitude	American	British	French	German	IB	IB, American	B
10	2	Merryland International School	AL Musaffah	British	Outstanding	24.34634	54.53622	0	1	0	0	0		0
11	0	British School Al Khubairat	AL Mushrif	British	Outstanding	24.44773	54.38753	0	1	0	0	0		0
12	0	Repton School	AL Reem Island	British	Very Good	24.49333	54.40531	0	1	0	0	0		0
13	0	Aldar Academies, Al Yasmina Academy	Khalifa Cfty	British	Very Good	24.42563	54.54753	0	1	0	0	0		0
14	2	Cranleigh School	Saadiyat Island	British	Outstanding	24.53262	54.42142	0	1	0	0	0		0
15	0	Lycee Louis Massignon	Zone 1	French	Very Good	24.43143	54.43004	0	0	1	0	0		0
16	0	German International School	AL Manhal	German	Very Good	24.46587	54.36025	0	0	0	1	0		0
17	1	GEMS World Academy	Al Danah,	IB	Very Good	24.48220	54.37888	0	0	0	0	1		0
18	0	Raha International School	Khalifa City	IB	Outstanding	24.43425	54.57602	0	0	0	0	1		0
19	0	GEMS American Academy	Khalifa City	IB, American	Very Good	24.42877	54.56411	0	0	0	0	0		1
20	1	British International School	Zayed City	IB, British	Very Good	24.44973	54.38646	0	0	0	0	0		0
21	2	Private International English School	Mohamed Bin Zayed City	Indian	Very Good	24.33988	54.53110	0	0	0	0	0		0
22	2	Japanese Private School	Al Bateen	Japanese	Very Good	24.45636	54.34375	0	0	0	0	0		0

Showing Outstanding/very good schools clustered by its curriculum on Abu Dhabi islnad

In [38]:
```python
# create map
kclusters = 3
map_clusters = folium.Map(location=[latitude_x, longitude_y], zoom_start=11)

# set color scheme for the clusters
x = np.arange(kclusters)
ys = [i + x + (i*x)**2 for i in range(kclusters)]
colors_array = cm.rainbow(np.linspace(0, 1, len(ys)))
rainbow = [colors.rgb2hex(i) for i in colors_array]

# add markers to the map
markers_colors = []
for lat, lon, poi, cluster in zip(df_abdhbi_school_merged['Latitude'], df_abdhbi_school_merged['Longitude'],
df_abdhbi_school_merged['School'], df_abdhbi_school_merged['Cluster Labels']):
    label = folium.Popup(str(poi) + ' Cluster ' + str(cluster), parse_html=True)
    folium.CircleMarker(
        [lat, lon],
        radius=5,
        popup=label,
        color=rainbow[cluster-1],
        fill=True,
        fill_color=rainbow[cluster-1],
        fill_opacity=0.7).add_to(map_clusters)

map_clusters
```

Out[38]:
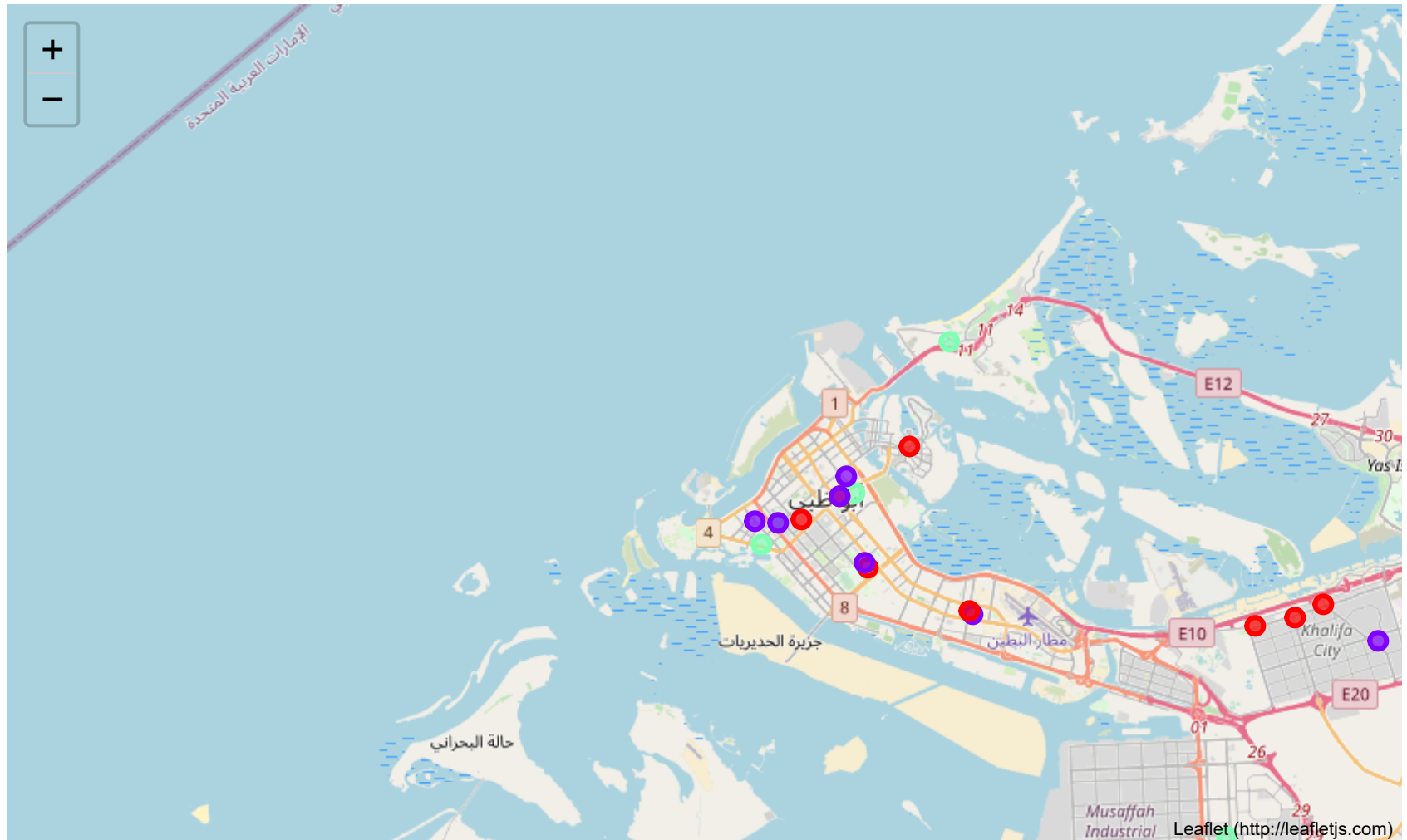
Function to get venues

In [50]:
```python
#Function to get the id , name, category , and latitude and Longitude for for each venue
def getNearbyVenues(names, naigberhoods, latitudes, longitudes, radius=500):

    venues_list=[]
    for name, naighberhood, lat, lng in zip(names, naigberhoods,latitudes, longitudes):
        print(name,' ',naighberhood)

        #set variables
        radius=1000
        LIMIT=100
        CLIENT_ID = 'ZKDGK14HFNPEYFQLZGZNFUE43KVETJIR4IZ4ISGPTCFNL5P3' # changed my Foursquare ID
        CLIENT_SECRET = 'WDOKOSEMSBQSZPFBMDR1QEJHJ2BFG4MOUY43N2HGABM4XRF1' # changed Foursquare Secret
        VERSION = '20180604' # Foursquare API version

        # create the API request URL
        url = 'https://api.foursquare.com/v2/venues/explore?&client_id={}&client_secret={}&v={}&ll={},{}&radius={}&limit={}'.format(
            CLIENT_ID,
            CLIENT_SECRET,
            VERSION,
            lat,
            lng,
            radius,
            LIMIT)

        # make the GET request
        results = requests.get(url).json()["response"]['groups'][0]['items']

        # return only relevant information for each nearby venue
        venues_list.append([(
            name,
            lat,
            lng,
            naighberhood,
            v['venue']['id'],
            v['venue']['name'],
            v['venue']['location']['lat'],
            v['venue']['location']['lng'],
            v['venue']['categories'][0]['name']) for v in results])

    nearby_venues = pd.DataFrame([item for venue_list in venues_list for item in venue_list])
    nearby_venues.columns = ['School',
```

```
                'School Latitude',
                'School Longitude',
                'Naighberhood',
                'Venue ID',
                'Venue',
                'Venue Latitude',
                'Venue Longitude',
                'Venue Category']

    return(nearby_venues)
```

Function to get venues details i.e Rates, Likes , Tips for the venues

```
In [51]: def get_venue_details(venue_id):

             CLIENT_ID = 'ZKDGK14HFNPEYFQLZGZNFUE43KVETJIR4IZ4ISGPTCFNL5P3' # i have changed the id with ##
             CLIENT_SECRET = 'WDOKOSEMSBQSZPFBMDR1QEJHJ2BFG4MOUY43N2HGABM4XRF1' # i have changed the secret with ##
             VERSION = '20180604' # Foursquare API version

             #url to fetch data from foursquare api
             url = 'https://api.foursquare.com/v2/venues/{}?&client_id={}&client_secret={}&v={}'.format(
                     venue_id,
                     CLIENT_ID,
                     CLIENT_SECRET,
                     VERSION)

             # get all the data
             results = requests.get(url).json()
             venue_data=results['response']['venue']
             venue_details=[]
             try:
                 venue_id=venue_data['id']
                 venue_name=venue_data['name']
                 venue_likes=venue_data['likes']['count']
                 venue_rating=venue_data['rating']
                 venue_tips=venue_data['tips']['count']
                 venue_details.append([venue_id,venue_name,venue_likes,venue_rating,venue_tips])
             except KeyError:
                 pass

             column_names=['ID','Name','Likes','Rating','Tips']
             df = pd.DataFrame(venue_details,columns=column_names)
             return df
```

Get Venues near by schools

In [123]:
```
#make the call to the getvenues function
abudhabi_venues = getNearbyVenues(names=df_abdhbi_school_outstanding_VG['School'],
                                  naigberhoods=df_abdhbi_school_merged['Address'],
                                   latitudes=df_abdhbi_school_outstanding_VG['Latitude'],
                                   longitudes=df_abdhbi_school_outstanding_VG['Longitude']
                                  )
```

```
Sheikh Zayed Private Academy for Girls     Al Bateen
American Community School    Al Bateen
The Sheikh Zayed Private Academy for Boys    Al Khalidyah
American International School    AL Reem Island
Horizon Private School- Branch, Khalifa City    Khalifa City
Emirates National School    Mohamed Bin Zayed City
 International School    Mohamed Bin Zayed City
Al Muna Academy - Aldar Academies    Al Bateen
Al Basma British School    Al Dhafrah
Aldar Academies, The Pearl Academy    Al Dhafrah
Merryland International School    AL Musaffah
British School Al Khubairat    AL Mushrif
Repton School    AL Reem Island
Aldar Academies, Al Yasmina Academy    Khalifa Cfty
Cranleigh  School    Saadiyat Island
Lycee Louis Massignon    Zone 1
German International School    AL Manhal
GEMS World Academy    Al Danah,
Raha International School    Khalifa City
GEMS American Academy    Khalifa City
British International School    Zayed City
Private International English School    Mohamed Bin Zayed City
Japanese Private School    Al Bateen
```

In [67]: `abudhabi_venues.head(5)`

Out[67]:

	School	School Latitude	School Longitude	Naighberhood	Venue ID	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Sheikh Zayed Private Academy for Girls	24.46471	54.35064	Al Bateen	4cebe003678aa09391f4faea	Al Afiya Bath & Saloon	24.468989	54.346904	Spa
1	Sheikh Zayed Private Academy for Girls	24.46471	54.35064	Al Bateen	53ff53b9498ef90189445fe5	Art House Cafe	24.460580	54.348782	Café
2	Sheikh Zayed Private Academy for Girls	24.46471	54.35064	Al Bateen	593db4fb1c0b3415effa643c	Qasmieh Al Fawal	24.472018	54.347444	Middle Eastern Restaurant
3	Sheikh Zayed Private Academy for Girls	24.46471	54.35064	Al Bateen	50042c06e4b000091039f966	The Living Room Cafe	24.469276	54.349370	Café
4	Sheikh Zayed Private Academy for Girls	24.46471	54.35064	Al Bateen	5ce051d8b9ac38002c742988	Cartel Coffee Roasters	24.458170	54.356326	Coffee Shop

In [66]: `abudhabi_venues.shape`

Out[66]: `(912, 9)`

In [126]: `abudhabi_venues.to_csv('OutstandVG_School_venu.csv', index=False)`

Read venues files (conserve on API calls to FOURSQUARE)

In [39]: `abudhabi_venues=pd.read_csv('OutstandVG_School_venu.csv')`

plot venue categories statistics

In [40]:
```python
#Plot the venue categories in ALbateen neighberhood near by the designated outstanding/very good rated school
s
plt.figure(figsize=(17,8), dpi = 150)
# title
plt.title('No of venues/categories in ABu dhabi island neighberhoods nearby the outstanding/very good school
s')
#On x-axis
plt.xlabel('Category', fontsize = 5)
#On y-axis
plt.ylabel('No. of venues in Abu dhabi', fontsize=15)
#giving a bar plot
abudhabi_venues.groupby('Venue Category')['Naighberhood'].count().plot(kind='bar')
#legend
plt.legend()
#displays the plot
plt.show()
```

No of venues/categories in ABu dhabi island neighberhoods nearby the outstanding/very good schools
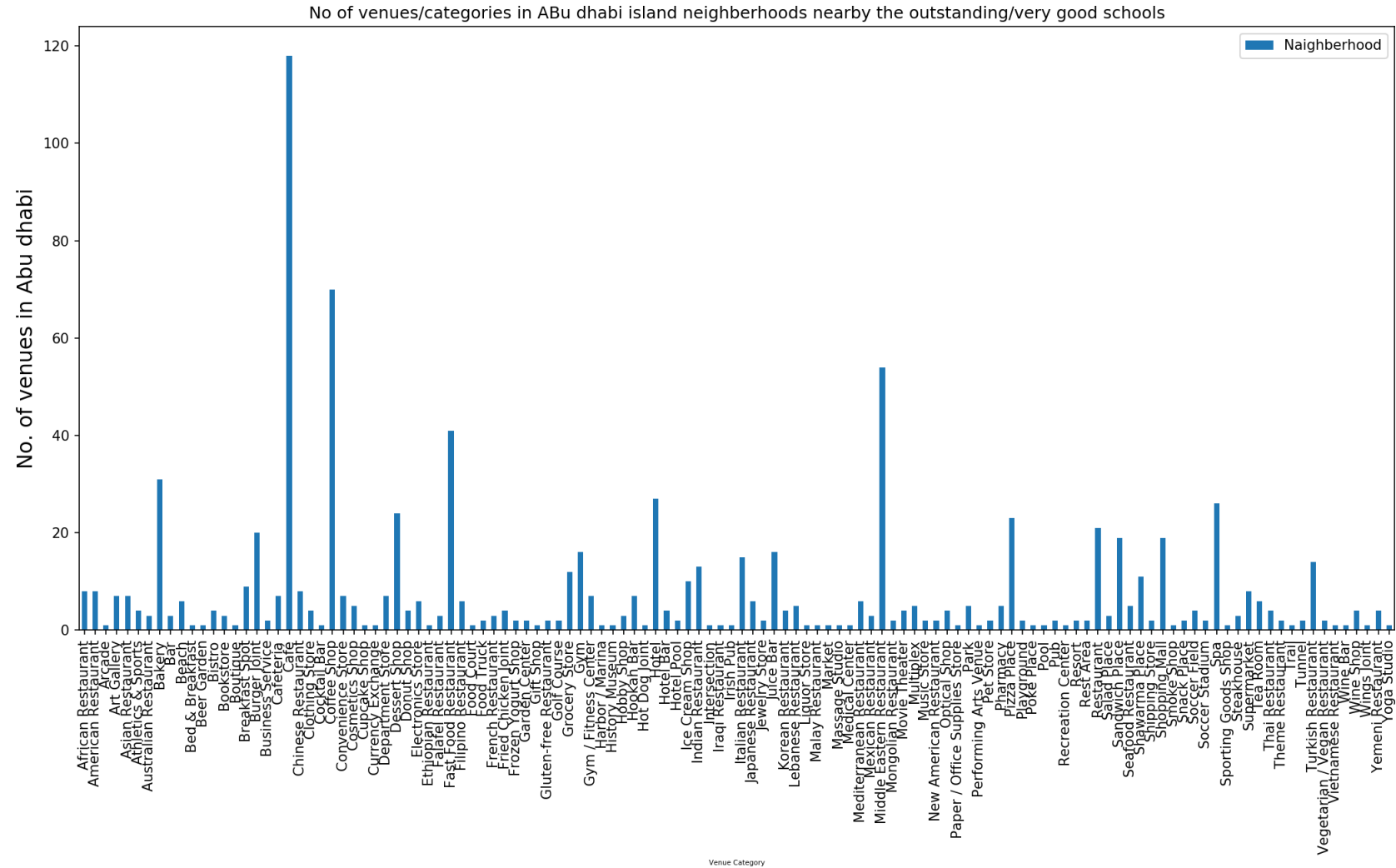
Printing report style showing categories statistics for near by venues

Listing all near by venues groups with totals per category per school (Outstamd/Very Good) in Abu Dhabi island

In [41]:
```python
# printing aall venues per categories nearby designated schools
ADSchoolsNearByVenuesGrp=abudhabi_venues.groupby('School')['Venue Category'].value_counts()
with pd.option_context('display.max_rows', None, 'display.max_columns', None):  # more options can be specifi
ed also
    print(ADSchoolsNearByVenuesGrp)
```

School	Venue Category	
International School	Café	1
Al Basma British School	Fast Food Restaurant	2
	Ice Cream Shop	1
	Market	1
	Middle Eastern Restaurant	1
	Pizza Place	1
	Restaurant	1
Al Muna Academy - Aldar Academies	Café	12
	Middle Eastern Restaurant	9
	Coffee Shop	7
	Hotel	5
	Bakery	4
	Dessert Shop	4
	Italian Restaurant	3
	Restaurant	3
	African Restaurant	2
	American Restaurant	2
	Clothing Store	2
	Fast Food Restaurant	2
	Filipino Restaurant	2
	Fried Chicken Joint	2
	Gym	2
	Juice Bar	2
	Pizza Place	2
	Spa	2
	Turkish Restaurant	2
	Beach	1
	Bistro	1
	Bookstore	1
	Breakfast Spot	1
	Chinese Restaurant	1
	Cosmetics Shop	1
	Department Store	1
	Electronics Store	1
	Falafel Restaurant	1
	French Restaurant	1
	Frozen Yogurt Shop	1
	Grocery Store	1
	Hotel Bar	1
	Ice Cream Shop	1
	Indian Restaurant	1
	Jewelry Store	1

	Korean Restaurant	1
	Mediterranean Restaurant	1
	Mongolian Restaurant	1
	Movie Theater	1
	Multiplex	1
	Music Store	1
	Pharmacy	1
	Pub	1
	Salad Place	1
	Seafood Restaurant	1
	Shawarma Place	1
	Shopping Mall	1
	Snack Place	1
	Soccer Field	1
	Wine Shop	1
Aldar Academies, Al Yasmina Academy	Spa	2
	Athletics & Sports	1
	Garden Center	1
Aldar Academies, The Pearl Academy	Café	12
	Middle Eastern Restaurant	9
	Coffee Shop	7
	Hotel	5
	Bakery	4
	Dessert Shop	4
	Italian Restaurant	3
	Restaurant	3
	African Restaurant	2
	American Restaurant	2
	Clothing Store	2
	Fast Food Restaurant	2
	Filipino Restaurant	2
	Fried Chicken Joint	2
	Gym	2
	Juice Bar	2
	Pizza Place	2
	Spa	2
	Turkish Restaurant	2
	Beach	1
	Bistro	1
	Bookstore	1
	Breakfast Spot	1
	Chinese Restaurant	1
	Cosmetics Shop	1

	Department Store	1
	Electronics Store	1
	Falafel Restaurant	1
	French Restaurant	1
	Frozen Yogurt Shop	1
	Grocery Store	1
	Hotel Bar	1
	Ice Cream Shop	1
	Indian Restaurant	1
	Jewelry Store	1
	Korean Restaurant	1
	Mediterranean Restaurant	1
	Mongolian Restaurant	1
	Movie Theater	1
	Multiplex	1
	Music Store	1
	Pharmacy	1
	Pub	1
	Salad Place	1
	Seafood Restaurant	1
	Shawarma Place	1
	Shopping Mall	1
	Snack Place	1
	Soccer Field	1
	Wine Shop	1
American Community School	Café	13
	Coffee Shop	10
	Fast Food Restaurant	4
	Middle Eastern Restaurant	4
	Beach	3
	Italian Restaurant	3
	Shawarma Place	3
	Turkish Restaurant	3
	Gym	2
	Sandwich Place	2
	Spa	2
	Supermarket	2
	Art Gallery	1
	Australian Restaurant	1
	Bakery	1
	Bed & Breakfast	1
	Boutique	1
	Business Service	1

	Cafeteria	1
	Convenience Store	1
	Cosmetics Shop	1
	Department Store	1
	Dessert Shop	1
	Donut Shop	1
	Grocery Store	1
	Gym / Fitness Center	1
	Harbor / Marina	1
	Hobby Shop	1
	Hookah Bar	1
	Hot Dog Joint	1
	Hotel	1
	Ice Cream Shop	1
	Indian Restaurant	1
	Japanese Restaurant	1
	Juice Bar	1
	Optical Shop	1
	Performing Arts Venue	1
	Recreation Center	1
	Restaurant	1
	Shopping Mall	1
	Sporting Goods Shop	1
	Wings Joint	1
American International School	Café	6
	Fast Food Restaurant	5
	Coffee Shop	3
	Dessert Shop	3
	Hotel	3
	Bakery	2
	Burger Joint	2
	Hookah Bar	2
	Lebanese Restaurant	2
	Tea Room	2
	Asian Restaurant	1
	Bar	1
	Breakfast Spot	1
	Cafeteria	1
	Chinese Restaurant	1
	Convenience Store	1
	Department Store	1
	Gluten-free Restaurant	1
	Gym	1

	Middle Eastern Restaurant	1
	Restaurant	1
	Sandwich Place	1
	Spa	1
	Supermarket	1
	Theme Restaurant	1
British International School	Café	8
	Burger Joint	5
	Coffee Shop	5
	Pizza Place	4
	Middle Eastern Restaurant	3
	Bakery	2
	Gym / Fitness Center	2
	Juice Bar	2
	Park	2
	Restaurant	2
	Yemeni Restaurant	2
	Athletics & Sports	1
	Breakfast Spot	1
	Chinese Restaurant	1
	Electronics Store	1
	Fast Food Restaurant	1
	Food Truck	1
	Golf Course	1
	Hotel	1
	Iraqi Restaurant	1
	Japanese Restaurant	1
	Playground	1
	Sandwich Place	1
	Shipping Store	1
	Soccer Field	1
	Soccer Stadium	1
	Spa	1
	Tea Room	1
British School Al Khubairat	Coffee Shop	5
	Burger Joint	4
	Café	4
	Pizza Place	3
	Bakery	2
	Gym / Fitness Center	2
	Juice Bar	2
	Middle Eastern Restaurant	2
	Yemeni Restaurant	2

	Athletics & Sports	1
	Chinese Restaurant	1
	Electronics Store	1
	Fast Food Restaurant	1
	Golf Course	1
	Japanese Restaurant	1
	New American Restaurant	1
	Park	1
	Playground	1
	Restaurant	1
	Sandwich Place	1
	Shipping Store	1
	Soccer Field	1
	Soccer Stadium	1
	Spa	1
Cranleigh School	Art Gallery	3
	Café	2
	Gym / Fitness Center	2
	Hotel Pool	2
	Mediterranean Restaurant	2
	Resort	2
	American Restaurant	1
	Asian Restaurant	1
	Bar	1
	Cocktail Bar	1
	Grocery Store	1
	History Museum	1
	Hotel	1
	Hotel Bar	1
	Indian Restaurant	1
	Italian Restaurant	1
	Japanese Restaurant	1
	Lebanese Restaurant	1
	Pool	1
	Shopping Mall	1
	Spa	1
	Steakhouse	1
Emirates National School	Café	13
	Bakery	5
	Middle Eastern Restaurant	5
	Dessert Shop	4
	Coffee Shop	3
	African Restaurant	2

	Hotel	2
	Juice Bar	2
	Beer Garden	1
	Bistro	1
	Breakfast Spot	1
	Burger Joint	1
	Electronics Store	1
	Gym	1
	Indian Restaurant	1
	Italian Restaurant	1
	Korean Restaurant	1
	Mediterranean Restaurant	1
	Park	1
	Pharmacy	1
	Pizza Place	1
	Rest Area	1
	Restaurant	1
	Salad Place	1
	Shawarma Place	1
	Spa	1
	Thai Restaurant	1
	Tunnel	1
	Turkish Restaurant	1
	Wine Shop	1
GEMS American Academy	Burger Joint	3
	Sandwich Place	3
	Bakery	2
	Café	2
	Convenience Store	2
	Gym	2
	Shopping Mall	2
	Asian Restaurant	1
	Australian Restaurant	1
	Cupcake Shop	1
	Currency Exchange	1
	Garden Center	1
	Grocery Store	1
	Hotel	1
	Indian Restaurant	1
	Middle Eastern Restaurant	1
	Paper / Office Supplies Store	1
	Pet Store	1
	Pharmacy	1

	Pizza Place	1
	Seafood Restaurant	1
	Smoke Shop	1
	Spa	1
GEMS World Academy	Middle Eastern Restaurant	11
	Café	9
	Bakery	4
	Breakfast Spot	3
	Coffee Shop	3
	Shawarma Place	3
	Hotel	2
	Juice Bar	2
	Pizza Place	2
	Turkish Restaurant	2
	African Restaurant	1
	Beach	1
	Bistro	1
	Burger Joint	1
	Chinese Restaurant	1
	Department Store	1
	Dessert Shop	1
	Electronics Store	1
	Ethiopian Restaurant	1
	Fast Food Restaurant	1
	Hotel Bar	1
	Indian Restaurant	1
	Korean Restaurant	1
	Mediterranean Restaurant	1
	Pharmacy	1
	Restaurant	1
	Sandwich Place	1
	Spa	1
	Tunnel	1
	Wine Bar	1
	Wine Shop	1
German International School	Café	4
	Fast Food Restaurant	4
	Coffee Shop	3
	Grocery Store	2
	Pizza Place	2
	Shopping Mall	2
	American Restaurant	1
	Cafeteria	1

	Convenience Store	1
	Donut Shop	1
	French Restaurant	1
	Hotel	1
	Italian Restaurant	1
	Medical Center	1
	Mexican Restaurant	1
	Multiplex	1
	Spa	1
	Supermarket	1
	Thai Restaurant	1
	Yoga Studio	1
Horizon Private School- Branch, Khalifa City	Coffee Shop	3
	Athletics & Sports	1
	Juice Bar	1
	Park	1
	Sandwich Place	1
Japanese Private School	Café	4
	Coffee Shop	3
	Restaurant	2
	Spa	2
	African Restaurant	1
	Art Gallery	1
	Business Service	1
	Cosmetics Shop	1
	Fast Food Restaurant	1
	Hotel	1
	Ice Cream Shop	1
	Intersection	1
	Optical Shop	1
	Rest Area	1
	Sandwich Place	1
	Shopping Mall	1
Lycee Louis Massignon	Café	6
	Fast Food Restaurant	5
	Coffee Shop	3
	Dessert Shop	3
	Hotel	3
	Bakery	2
	Burger Joint	2
	Hookah Bar	2
	Lebanese Restaurant	2
	Tea Room	2

	Asian Restaurant	1
	Bar	1
	Breakfast Spot	1
	Cafeteria	1
	Chinese Restaurant	1
	Convenience Store	1
	Gluten-free Restaurant	1
	Gym	1
	Middle Eastern Restaurant	1
	Restaurant	1
	Sandwich Place	1
	Spa	1
	Supermarket	1
	Theme Restaurant	1
Merryland International School	Cafeteria	2
	Café	2
	Gym	2
	Burger Joint	1
	Coffee Shop	1
	Department Store	1
	Grocery Store	1
	Ice Cream Shop	1
	Indian Restaurant	1
	Juice Bar	1
	Movie Theater	1
	Seafood Restaurant	1
	Shopping Mall	1
	Vegetarian / Vegan Restaurant	1
Private International English School	Café	4
	Indian Restaurant	3
	Middle Eastern Restaurant	3
	Asian Restaurant	2
	Coffee Shop	2
	Dessert Shop	2
	Gym	2
	Restaurant	2
	Arcade	1
	Bookstore	1
	Burger Joint	1
	Cafeteria	1
	Department Store	1
	Falafel Restaurant	1
	Food Court	1

	Grocery Store	1
	Ice Cream Shop	1
	Juice Bar	1
	Movie Theater	1
	Sandwich Place	1
	Seafood Restaurant	1
	Tea Room	1
	Vegetarian / Vegan Restaurant	1
Raha International School	Café	4
	Indian Restaurant	2
	Sandwich Place	2
	Shopping Mall	2
	Australian Restaurant	1
	Bakery	1
	Cosmetics Shop	1
	Food Truck	1
	Gift Shop	1
	Hotel	1
	Irish Pub	1
	Pet Store	1
	Pizza Place	1
	Restaurant	1
	Spa	1
	Trail	1
Repton School	Café	2
	Coffee Shop	2
	Sandwich Place	2
	Asian Restaurant	1
	Chinese Restaurant	1
	Convenience Store	1
	Fast Food Restaurant	1
	Grocery Store	1
	Gym	1
	Ice Cream Shop	1
	Italian Restaurant	1
	Liquor Store	1
	Malay Restaurant	1
	Massage Studio	1
	New American Restaurant	1
	Poke Place	1
	Restaurant	1
	Shopping Mall	1
	Supermarket	1

	Vietnamese Restaurant	1
Sheikh Zayed Private Academy for Girls	Fast Food Restaurant	6
	Café	5
	Coffee Shop	5
	Shopping Mall	3
	Spa	3
	Middle Eastern Restaurant	2
	Pizza Place	2
	Turkish Restaurant	2
	American Restaurant	1
	Art Gallery	1
	Bakery	1
	Dessert Shop	1
	Donut Shop	1
	Filipino Restaurant	1
	Grocery Store	1
	Hobby Shop	1
	Hookah Bar	1
	Ice Cream Shop	1
	Italian Restaurant	1
	Japanese Restaurant	1
	Mexican Restaurant	1
	Multiplex	1
	Optical Shop	1
	Sandwich Place	1
	Shawarma Place	1
	Steakhouse	1
	Supermarket	1
	Thai Restaurant	1
The Sheikh Zayed Private Academy for Boys	Fast Food Restaurant	6
	Café	5
	Coffee Shop	5
	Shopping Mall	3
	Spa	3
	Middle Eastern Restaurant	2
	Pizza Place	2
	Turkish Restaurant	2
	American Restaurant	1
	Art Gallery	1
	Bakery	1
	Dessert Shop	1
	Donut Shop	1
	Filipino Restaurant	1

```
                    Grocery Store             1
                    Hobby Shop                1
                    Hookah Bar                1
                    Ice Cream Shop            1
                    Italian Restaurant        1
                    Japanese Restaurant       1
                    Mexican Restaurant        1
                    Multiplex                 1
                    Optical Shop              1
                    Sandwich Place            1
                    Shawarma Place            1
                    Steakhouse                1
                    Supermarket               1
                    Thai Restaurant           1
          Name: Venue Category, dtype: int64
```

Plot Number of Outstnding and Very Good private Schools per locality in Abu Dhabi City

In [41]:
```python
plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('Number of Outstnding and Very Good private Schools per locality in Abu Dhabi City')
#On x-axis
plt.xlabel('Locality', fontsize = 15)
#On y-axis
plt.ylabel('No.of Private schools', fontsize=15)
#giving a bar plot
df_abdhbi_school_outstanding_VG.groupby('Address')['School'].count().plot(kind='bar')
#Legend
plt.legend()
#displays the plot
plt.show()
```

Number of Outstnding and Very Good private Schools per locality in Abu Dhabi City
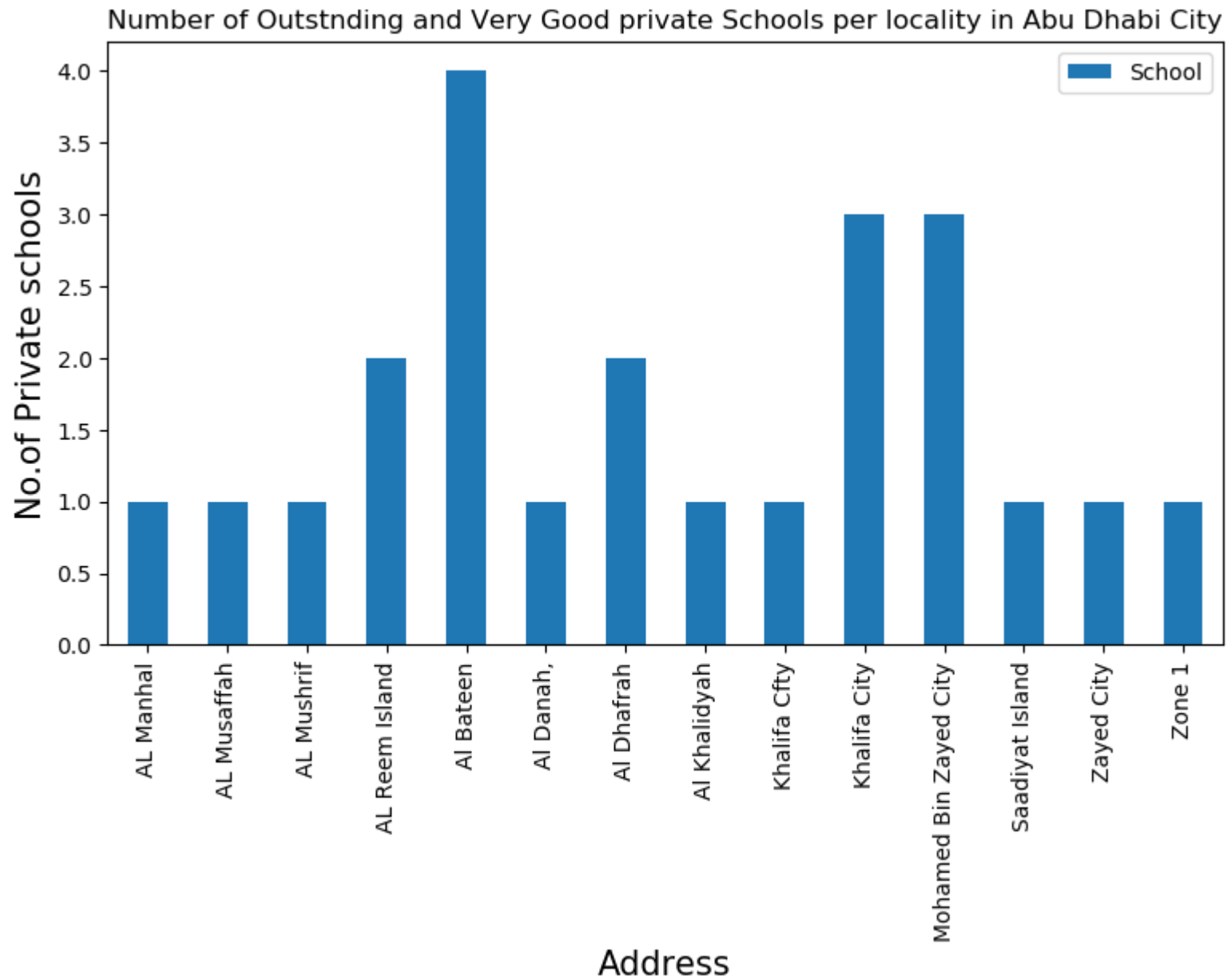
Albateen community has the highest numbers of schools with rating of Outstanding /Very Good

In [42]:
```python
albateen_venues = abudhabi_venues[abudhabi_venues['Naighberhood'].isin(['Al Bateen']) ]
```

In [43]: `albateen_venues.reset_index(drop=True)`

Out[43]:

	School	School Latitude	School Longitude	Naighberhood	Venue ID	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Sheikh Zayed Private Academy for Girls	24.46471	54.35064	Al Bateen	4cebe003678aa09391f4faea	Al Afiya Bath & Saloon	24.468989	54.346904	Spa
1	Sheikh Zayed Private Academy for Girls	24.46471	54.35064	Al Bateen	53ff53b9498ef90189445fe5	Art House Cafe	24.460580	54.348782	Café
2	Sheikh Zayed Private Academy for Girls	24.46471	54.35064	Al Bateen	593db4fb1c0b3415effa643c	Qasmieh Al Fawal	24.472018	54.347444	Middle Eastern Restaurant
3	Sheikh Zayed Private Academy for Girls	24.46471	54.35064	Al Bateen	50042c06e4b000091039f966	The Living Room Cafe	24.469276	54.349370	Café
4	Sheikh Zayed Private Academy for Girls	24.46471	54.35064	Al Bateen	5ce051d8b9ac38002c742988	Cartel Coffee Roasters	24.458170	54.356326	Coffee Shop
...	...	...	...	...	...	...	...	...	...
247	Japanese Private School	24.45636	54.34375	Al Bateen	4d15ec0981cea35d9995ddec	Royal Spanish Center Lasik, Eyes, Cosmetic	24.461767	54.348339	Optical Shop
248	Japanese Private School	24.45636	54.34375	Al Bateen	4d58deca24466ea88636719f	Al Bateen Mall	24.460422	54.347736	Shopping Mall
249	Japanese Private School	24.45636	54.34375	Al Bateen	5a996e4183e38018d931a854	SADDLE	24.453539	54.340097	Coffee Shop
250	Japanese Private School	24.45636	54.34375	Al Bateen	4c19d531834e2d7fa7022b80	Regus - Abu Dhabi, Al Bateen C6	24.456307	54.338587	Business Service
251	Japanese Private School	24.45636	54.34375	Al Bateen	5663b1fa498e3f71fcda5df5	تقاطع شارع شيخ هزاع بن زايد الاول و البطين	24.453645	54.352703	Intersection

252 rows × 9 columns

In [48]: `albateen_venues.to_csv('albateen_venues.csv', index=False)`

Get Albateen community Venues details i.e rate, likes,tips

In [52]:
```python
# Get detais i.e rate, likes,tips  for venues
column_names=['School','SchoolLatitude','SchoolLongitude','Naighberhood','VenueID','Venue','VenueLatitude','V
enueLongitude','VenueCategory','Likes','Rating','Tips']
albateen_venue_det=pd.DataFrame(columns=column_names)
count=1

for row in albateen_venues.values.tolist():

    School,SchoolLatitude,SchoolLongitude,Naighberhood,VenueID,Venue,VenueLatitude,VenueLongitude,VenueCatego
ry=row

    try:
        venue_details=get_venue_details(VenueID)
        print(venue_details)
        id,name,likes,rating,tips=venue_details.values.tolist()[0]
    except IndexError:
        print('No data available for id=',VenueID)
        # we will assign 0 value for these resturants as they may have been
        #recently opened or details does not exist in FourSquare Database
        id,name,likes,rating,tips=[0]*5
    print('(',count,'/',len(albateen_venues),')','processed')
    albateen_venue_det = albateen_venue_det.append({'School': School,
                                                    'Neighborhood': Naighberhood,
                                                    'VenueID': VenueID,
                                                    'VenueName' : name,
                                                    'VenueLatitude' : VenueLatitude,
                                                    'VenueLongitude' : VenueLongitude,
                                                    'Likes' : likes,
                                                    'Rating' : rating,
                                                    'Tips' : tips
                                                    }, ignore_index=True)
    count+=1
```

```
                         ID                          Name  Likes  Rating  Tips
0  4cebe003678aa09391f4faea   Al Afiya Bath & Saloon     18     8.5     4
( 1 / 252 ) processed
                         ID               Name  Likes  Rating  Tips
0  53ff53b9498ef90189445fe5   Art House Cafe     32     7.6     7
( 2 / 252 ) processed
                         ID                Name  Likes  Rating  Tips
0  593db4fb1c0b3415effa643c   Qasmieh Al Fawal      9     8.6     4
( 3 / 252 ) processed
                         ID                   Name  Likes  Rating  Tips
0  50042c06e4b000091039f966   The Living Room Cafe     28     7.5     9
( 4 / 252 ) processed
                         ID                    Name  Likes  Rating  Tips
0  5ce051d8b9ac38002c742988   Cartel Coffee Roasters     12     8.6     6
( 5 / 252 ) processed
                         ID          Name  Likes  Rating  Tips
0  4e19d7ee6284ea724705d032   Royal Tea 5      8.2      9   ملك الشاي
( 6 / 252 ) processed
                         ID         Name  Likes  Rating  Tips
0  4faa47d2e4b09645c00acccb   Starbucks      0     7.5      0
( 7 / 252 ) processed
                         ID       Name  Likes  Rating  Tips
0  4d4e8aff122b5481396a864f   Subway     46     8.1      6
( 8 / 252 ) processed
                         ID                        Name  Likes  Rating  Tips
0  525431c811d273d74110a7e6   Etihad Modern Art Gallery      6     7.2      3
( 9 / 252 ) processed
                         ID             Name  Likes  Rating  Tips
0  4bf01424d4f70f47476e390f   Cantina Laredo     41     7.3     24
( 10 / 252 ) processed
                         ID      Name  Likes  Rating  Tips
0  4d0a19dfd4018cfab5db4528   tchibo      5     7.3      0
( 11 / 252 ) processed
                         ID           Name  Likes  Rating  Tips
0  4d8bd7d3d49f370493412f8a   McDonald's      2     6.7      0
( 12 / 252 ) processed
                         ID                          Name  Likes  Rating  Tips
0  528640d411d2f5f2ed5ddf60   Al Afiya Turkish Restaurant     22     7.7      6
( 13 / 252 ) processed
                         ID           Name  Likes  Rating  Tips
0  4d2d552efeaaa1cde2cee790   The Lounge      6     6.8      4
( 14 / 252 ) processed
                         ID        Name  Likes  Rating  Tips
```

```
0   4d26dd56b818a35df60e868a    Arabisque        5      7.3        3
( 15 / 252 ) processed
                        ID                   Name   Likes   Rating   Tips
0   4c85218851ada1cdaaaf3410    Papa John's Pizza      10      7.1        7
( 16 / 252 ) processed
                        ID   \
0   4c2f710416adc9286687bd9c


                                       Name   Likes   Rating   Tips
0  Abu Dhabi Co-Operative Society 13      7.5        82     جمعية أبوظبي ال...
( 17 / 252 ) processed
                        ID           Name   Likes   Rating   Tips
0   4cb9602c9552b60c1a2dd38b    Maison Sucre      12      7.4        3
( 18 / 252 ) processed
                        ID             Name   Likes   Rating   Tips
0   54081c4d498ecf0baa24e608    Caribou Coffee       6      7.3        0
( 19 / 252 ) processed
                        ID                 Name   Likes   Rating   Tips
0   5475b40e498e8d78edd3f59e    Shawarma Al Rannah       7      7.0        2
( 20 / 252 ) processed
                        ID             Name   Likes   Rating   Tips
0   50e7d671e4b0d16afc14a4ec    Sushi Central      44      7.1       17
( 21 / 252 ) processed
                        ID         Name   Likes   Rating   Tips
0   5734b90bcd10d2af86cbd6cc    La Brioche       3      6.8        0
( 22 / 252 ) processed
                        ID          Name   Likes   Rating   Tips
0   4c2f3f40452620a128201d0f    Krispy Kreme      30      6.8       10
( 23 / 252 ) processed
                        ID               Name   Likes   Rating   Tips
0   4c5993d12091a59372315dd0    The Pizza Company       8      6.6        6
( 24 / 252 ) processed
                        ID        Name   Likes   Rating   Tips
0   4c088b377e3fc9282896f082    Dôme (13     6.6       17    (دوم
( 25 / 252 ) processed
                        ID               Name   Likes   Rating   Tips
0   4c52f75cb6dabe9ab0900a14    Vivel Patisserie       3      6.9        4
( 26 / 252 ) processed
                        ID          Name   Likes   Rating   Tips
0   4d1862d8e190721e04892121    Burger King      25      6.9        5
( 27 / 252 ) processed
                        ID      Name   Likes   Rating   Tips
0   4d53d3ef5b3f6dcb05d5d7cc    Chili's      35      6.5       17
```

```
( 28 / 252 ) processed
                        ID                      Name  Likes  Rating  Tips
0  554792be498eb399774bfd23  BuShanab (21    6.9     80     (مطعم بو شنب)
( 29 / 252 ) processed
                        ID                        Name  Likes  \
0  4f3b756be5e8de74f1787388  McDonald's (2    (ماكدونالدز) (ماكدونالدز)

   Rating  Tips
0     6.4     2
( 30 / 252 ) processed
                        ID             Name  Likes  Rating  Tips
0  4bb61d811344b71356fd9c04  CineRoyal 23    6.4     88      سيني رويال
( 31 / 252 ) processed
                        ID                  Name  Likes  Rating  Tips
0  4b698711f964a52000a62be3  Khalidiyah Mall 66    6.4     324    الخالدية مول
( 32 / 252 ) processed
                        ID                   Name  Likes  Rating  Tips
0  4bea43a661aca593bf9b8300  Oriental Spa & Fitness     5     6.3     3
( 33 / 252 ) processed
                        ID Name  Likes  Rating  Tips
0  4dce840fae603b786d308c7f  KFC     0     6.3     0
( 34 / 252 ) processed
                        ID                                        Name  \
0  4d15ec0981cea35d9995ddec  Royal Spanish Center Lasik, Eyes, Cosmetic

   Likes  Rating  Tips
0      5     6.0     2
( 35 / 252 ) processed
                        ID               Name  Likes  Rating  Tips
0  4d594298296d5481630657b1  Baskin Robbins 3    6.1     8      باسكن روبنز
( 36 / 252 ) processed
                        ID Name  Likes  Rating  Tips
0  4b727d45f964a520337c2de3  KFC     4     6.4     0
( 37 / 252 ) processed
                        ID        Name  Likes  Rating  Tips
0  4cf0f7367bf3b60cfac35c7f  Briccocafe     6     6.1     11
( 38 / 252 ) processed
                        ID  \
0  4cef57ec7db3224b9f3b2c2e

                              Name  Likes  Rating  Tips
0  LuLu Hypermarket - Khalidiyah Mall (11    6.0     23    ...لولو هايبر
( 39 / 252 ) processed
```

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                          ID              Name  Likes  Rating  Tips
0  4d58deca24466ea88636719f   Al Bateen Mall     29     5.8     2
( 40 / 252 ) processed
                          ID       Name  Likes  Rating  Tips
0  51e98bad498ecf33113b0852   Chili's      4     5.9     1
( 41 / 252 ) processed
                          ID                           Name  Likes  Rating  Tips
0  4d184671bb488cfa7697b3d4   McDonald's (10    5.9     14    ماكدونالدز)
( 42 / 252 ) processed
                          ID            Name  Likes  Rating  Tips
0  4cc03279b6c4224bf172f794   Mondo Moderno      3     5.8    10
( 43 / 252 ) processed
                          ID          Name  Likes  Rating  Tips
0  4f5dd111e4b0d8f7b8262ed8   Resto pinoy      4     6.0     1
( 44 / 252 ) processed
                          ID             Name  Likes  Rating  Tips
0  4b6d2098f964a520f6672ce3   Dana Plaza 1      6.0      6    دانة بلازا
( 45 / 252 ) processed
Empty DataFrame
Columns: [ID, Name, Likes, Rating, Tips]
Index: []
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( 46 / 252 ) processed
                          ID          Name  Likes  Rating  Tips
0  4d050707e350b60cba618642   Thai Express      2     5.5     3
( 47 / 252 ) processed
                          ID             Name  Likes  Rating  Tips
0  4d16216b401db60ca732e4a4   Al Safadi (11    5.7     10    الصفدي)
( 48 / 252 ) processed
                          ID             Name  Likes  Rating  Tips
0  4eb971a85c5c5a5321b70ca8   Il Caffè Di Roma   230    8.2    76
( 49 / 252 ) processed
                          ID  Name  Likes  Rating  Tips
0  596dbbcb10345b123cebe16f   1762      8     8.1     3
( 50 / 252 ) processed
                          ID             Name  Likes  Rating  Tips
0  4d6374b1d6b26ea8c9894f7a   Jones The Grocer   161    8.2    66
( 51 / 252 ) processed
                          ID          Name  Likes  Rating  Tips
0  507956d0e4b0ce42c631bc4a   Starbucks (9    8.1     56    ستاربكس)
( 52 / 252 ) processed
                          ID          Name  Likes  Rating  Tips
0  4b6d2023f964a520e0672ce3   Starbucks (21   7.8    120    ستاربكس)
```

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( 53 / 252 ) processed
                        ID                 Name  Likes  Rating  Tips
0  4bd13e219854d13a925af94d  Spinneys (37     8.6     220    (سبينس
( 54 / 252 ) processed
                        ID    Name  Likes  Rating  Tips
0  4d4e8aff122b5481396a864f  Subway    46     8.1     6
( 55 / 252 ) processed
                        ID                 Name  Likes  Rating  Tips
0  534ffca4498e05852c528513  The Third Place Cafe     97     8.2    35
( 56 / 252 ) processed
                        ID          Name  Likes  Rating  Tips
0  509a806ae4b078b1cd17723a  Flame & Bake     27     8.3    11
( 57 / 252 ) processed
                        ID                 Name  Likes  Rating  Tips
0  4cebe003678aa09391f4faea  Al Afiya Bath & Saloon     18     8.5     4
( 58 / 252 ) processed
                        ID                 Name  Likes  Rating  Tips
0  4e59412752b1b78b819a69f0  Shish Shawerma 61     8.2     130   شيش شاورما
( 59 / 252 ) processed
                        ID    Name  Likes  Rating  Tips
0  4fb55165e4b06fedadf19a00  Pizzaro    13     7.7     3
( 60 / 252 ) processed
                        ID             Name  Likes  Rating  Tips
0  4fa13f04e4b07aaa450c8bfe  Saudi Cuisine VIP     10     8.1     1
( 61 / 252 ) processed
                        ID       Name  Likes  Rating  Tips
0  50dac305e4b0f4385c1380be  Starbucks      1     7.4     0
( 62 / 252 ) processed
                        ID         Name  Likes  Rating  Tips
0  4b6c4481f964a520ba2c2ce3  Cafe du Roi     54     8.0    27
( 63 / 252 ) processed
                        ID        Name  Likes  Rating  Tips
0  551be3e7498eb74ede660b42  La Brioche     26     7.9     4
( 64 / 252 ) processed
                        ID     Name  Likes  Rating  Tips
0  4e691e3b18a89685777dd71a  Camacho     47     7.9    44
( 65 / 252 ) processed
                        ID                 Name  Likes  Rating  Tips
0  4c8508aed92ea093bfdf6172  Corniche Public Beach    197     8.8    64
( 66 / 252 ) processed
                        ID        Name  Likes  Rating  Tips
0  4bd6e4161728986eca28b735  Oryx Hotel     12     7.4     2
( 67 / 252 ) processed
```

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                           ID                      Name  Likes  Rating  Tips
0  51b97c3450190069f2ee83b7  Shish Shawerma Al Bateen     28     7.6     6
( 68 / 252 ) processed
                           ID            Name  Likes  Rating  Tips
0  54081c4d498ecf0baa24e608  Caribou Coffee      6     7.3     0
( 69 / 252 ) processed
                           ID              Name  Likes  Rating  Tips
0  5dc6b41bc6fed1000856530d  Patron Meat House      7     8.4     7
( 70 / 252 ) processed
                           ID                                     Name  Likes  \
0  4eb6490d4901cef9d8e8aad1  Abu Dhabi Science Festival - Corniche     23

   Rating  Tips
0     8.3     1
( 71 / 252 ) processed
                           ID                 Name  Likes  Rating  Tips
0  4c99fdb178ffa0932f4f6875  Aesthetic Polyclinic     22     7.6     2
( 72 / 252 ) processed
                           ID  Name  Likes  Rating  Tips
0  4e7a38ea88778f52606673a0  Spar     32     7.4     3
( 73 / 252 ) processed
                           ID      Name  Likes  Rating  Tips
0  5246eecc498e2814da8c4616  ADCO GYM     16     7.8     0
( 74 / 252 ) processed
                           ID            Name  Likes  Rating  Tips
0  509a98f4e4b07f2723df2e05  Caribou Coffee      7     7.2     7
( 75 / 252 ) processed
                           ID               Name  Likes  Rating  Tips
0  4e017bfc483bd352f721aa13  The Gourmet Theatre      5     6.8     4
( 76 / 252 ) processed
                           ID          Name  Likes  Rating  Tips
0  551a4419498e9ba3d6131319  Costa Coffee      9     7.0     4
( 77 / 252 ) processed
                           ID          Name  Likes  Rating  Tips
0  4cb9602c9552b60c1a2dd38b  Maison Sucre     12     7.4     3
( 78 / 252 ) processed
                           ID                          Name  Likes  Rating  \
0  54918f06498eb2d74fc14985  Mikado Restaurant & Sushi Bar     20     7.3

   Tips
0    11
( 79 / 252 ) processed
                           ID          Name  Likes  Rating  Tips
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0   53ff53b9498ef90189445fe5   Art House Cafe     32     7.6     7
( 80 / 252 ) processed
                         ID          Name  Likes  Rating  Tips
0   5304c922498e63c94ca3b443   Chagh Kabab    33     7.2     16
( 81 / 252 ) processed
                         ID       Name  Likes  Rating  Tips
0   4d26dd56b818a35df60e868a   Arabisque     5     7.3     3
( 82 / 252 ) processed
                         ID          Name  Likes  Rating  Tips
0   4e136bd7e4cdef074b84ff31   McDonald's (10     7.3     40     ( ماكدونالدز
( 83 / 252 ) processed
                         ID                  Name  Likes  Rating  Tips
0   4ebd3f845c5c279832eee3a8   Lafontana Restaurant & Cafe     54     6.9     37
( 84 / 252 ) processed
                         ID               Name  Likes  Rating  Tips
0   50042c06e4b000091039f966   The Living Room Cafe     28     7.5     9
( 85 / 252 ) processed
                         ID        Name  Likes  Rating  Tips
0   5019a0d2e4b07abf17bb7609   KebabZ & BunZ    26     7.2     14
( 86 / 252 ) processed
                         ID             Name  Likes  Rating  Tips
0   5869f7fc92ca4c7f6fb5a70d   Caribou Coffee | 0     6.9     2     كاريبو
( 87 / 252 ) processed
                         ID Name  Likes  Rating  Tips
0   52d2b481498e71e99fb298da   FNB     11     7.0     4
( 88 / 252 ) processed
                         ID      Name  Likes  Rating  Tips
0   56a76ed2498ec048f68269df   Café Artea     4     6.7     4
( 89 / 252 ) processed
                         ID        Name  Likes  Rating  Tips
0   551a44a7498e9ba3d6131e70   Costa Coffee    1     6.6     0
( 90 / 252 ) processed
                         ID           Name  Likes  Rating  Tips
0   4c52f75cb6dabe9ab0900a14   Vivel Patisserie     3     6.9     4
( 91 / 252 ) processed
                         ID                          Name  Likes  Rating  \
0   4c2310509a67a593bc7cdd87   Cafe Sante @ Abu Dhabi Corniche     15     7.3

    Tips
0     1
( 92 / 252 ) processed
                         ID       Name  Likes  Rating  Tips
0   4bb4518749bdc9b698b60c10   Mugg & Bean    33     6.8     13
```

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( 93 / 252 ) processed
                        ID              Name   Likes   Rating   Tips
0   51dd9325498ed113d2337821   Saudi VIP Cuisine      4      6.9      5
( 94 / 252 ) processed
                        ID                       Name   Likes   Rating   Tips
0   525431c811d273d74110a7e6   Etihad Modern Art Gallery      6      7.2      3
( 95 / 252 ) processed
                        ID           Name   Likes   Rating   Tips
0   543ebb33498ee9906bef8294   Shawarma Street      8      6.6      2
( 96 / 252 ) processed
                        ID        Name   Likes   Rating   Tips
0   4d1862d8e190721e04892121   Burger King     25      6.9      5
( 97 / 252 ) processed
                        ID              Name   Likes   Rating   Tips
0   5475b40e498e8d78edd3f59e   Shawarma Al Rannah      7      7.0      2
( 98 / 252 ) processed
                        ID         Name   Likes   Rating   Tips
0   4d862a537e8ef04d48112fbe   Lifeline Gym      7      6.3      6
( 99 / 252 ) processed
                        ID               Name   Likes   Rating   Tips
0   4bea43a661aca593bf9b8300   Oriental Spa & Fitness      5      6.3      3
( 100 / 252 ) processed
                        ID           Name   Likes   Rating   Tips
0   4d0875b0cda25481bc412d65   Nova Beach Cafe     19      6.7      6
( 101 / 252 ) processed
                        ID Name   Likes   Rating   Tips
0   4b727d45f964a520337c2de3   KFC      4      6.4      0
( 102 / 252 ) processed
                        ID         Name   Likes   Rating   Tips
0   4c8cfb795e048cfa5c77d1cd   Chillax Café     12      6.3     14
( 103 / 252 ) processed
                        ID                          Name   Likes   Rating   \
0   4d83d33c353060fcfb2af9e2   Corniche Towers Hotel Apartments     13      6.2

   Tips
0     1
( 104 / 252 ) processed
                        ID         Name   Likes   Rating   Tips
0   4c037ee8f423a5932a52d016   Idioms Cafe      5      6.1      4
( 105 / 252 ) processed
                        ID        Name   Likes   Rating   Tips
0   4e197dd718a8166f7396893b   Second Cup      5      5.9      8
( 106 / 252 ) processed
```

```
                        ID                           Name   Likes   Rating  Tips
0  4d594298296d5481630657b1   Baskin Robbins 3       6.1      8      باسكن روبنز
( 107 / 252 ) processed
                        ID              Name   Likes   Rating  Tips
0  4cfa53baee9cb60c158689ad   Rosina Bellina     19     6.1     12
( 108 / 252 ) processed
                        ID                                        Name   \
0  4d15ec0981cea35d9995ddec   Royal Spanish Center Lasik, Eyes, Cosmetic

    Likes  Rating  Tips
0      5     6.0     2
( 109 / 252 ) processed
                        ID                   Name   Likes   Rating  Tips
0  53b47837498ecdc16472375f   Fly Hotdog Restaurant    11     5.7     13
( 110 / 252 ) processed
                        ID                  Name   Likes   Rating  Tips
0  53a2cca3498ec3cd5c80010d   Buffalo Wings & Ring    19     5.7     10
( 111 / 252 ) processed
                        ID             Name   Likes   Rating  Tips
0  4d58deca24466ea88636719f   Al Bateen Mall    29     5.8     2
( 112 / 252 ) processed
                        ID                Name   Likes   Rating  Tips
0  4d16216b401db60ca732e4a4   Al Safadi (11    5.7     10      الصفدي)
( 113 / 252 ) processed
Empty DataFrame
Columns: [ID, Name, Likes, Rating, Tips]
Index: []
No data available for id= 4d7fa85fe7e1721ec59ef60b
( 114 / 252 ) processed
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Columns: [ID, Name, Likes, Rating, Tips]
Index: []
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( 115 / 252 ) processed
Empty DataFrame
Columns: [ID, Name, Likes, Rating, Tips]
Index: []
No data available for id= 50c9f359e4b0b4afcfccc327
( 116 / 252 ) processed
Empty DataFrame
Columns: [ID, Name, Likes, Rating, Tips]
Index: []
No data available for id= 4ef9bae06c25c411ed3610ad
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( 117 / 252 ) processed
Empty DataFrame
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( 118 / 252 ) processed
Empty DataFrame
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Index: []
No data available for id= 51a8cf70498e87afb2cd2292
( 119 / 252 ) processed
Empty DataFrame
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Index: []
No data available for id= 4e032ee5b61ce80e5d678393
( 120 / 252 ) processed
Empty DataFrame
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Index: []
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( 121 / 252 ) processed
Empty DataFrame
Columns: [ID, Name, Likes, Rating, Tips]
Index: []
No data available for id= 4eaaa91ddab40d132650f219
( 122 / 252 ) processed
Empty DataFrame
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Index: []
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( 123 / 252 ) processed
Empty DataFrame
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( 124 / 252 ) processed
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( 125 / 252 ) processed
Empty DataFrame
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( 126 / 252 ) processed
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No data available for id= 4e03650faeb798576579664b
( 127 / 252 ) processed
Empty DataFrame
Columns: [ID, Name, Likes, Rating, Tips]
Index: []
No data available for id= 5bf17404ecb3ed002522ebc3
( 128 / 252 ) processed
Empty DataFrame
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Index: []
No data available for id= 4c19d531834e2d7fa7022b80
( 129 / 252 ) processed
                          ID                 Name  Likes  Rating  Tips
0  589b2c7b6ad5a176dd15f007  Bosphorus (6     8.3     9   البوسفور)
( 130 / 252 ) processed
                          ID                 Name  Likes  Rating  Tips
0  4cfcc529c6cca35da9329332  Al Sultan Restaurant     15     8.1     6
( 131 / 252 ) processed
                          ID          Name  Likes  Rating  Tips
0  57000a8e498ef963d3beae7d  The One Men Spa     18     8.0     8
( 132 / 252 ) processed
                          ID     Name  Likes  Rating  Tips
0  5746fecdcd1084eabd620d13  Al-ulya     19     8.2     5
( 133 / 252 ) processed
                          ID            Name  Likes  Rating  Tips
0  504767c7e4b0deba9aa7c8fb  Farghaly Fruits     14     7.9     7
( 134 / 252 ) processed
                          ID                     Name  Likes  Rating  Tips
0  4d93647e9213b1f7fa65c746  Hankook Korean Restaurant     44     7.8    12
( 135 / 252 ) processed
                          ID                          Name  Likes  Rating  \
0  4e8b2af546906c10f824b3f4  Defence St - Mobile Phone Shops     54     7.7

   Tips
0     7
( 136 / 252 ) processed
                          ID                     Name  Likes  Rating  Tips
```

```
0  4cf12650cc61a35dba0a139e  Grand Millennium Al Wahda    172    8.2    42
( 137 / 252 ) processed
                          ID                         Name  Likes  Rating  Tips
0  4beee1bee24d20a1ae887314  Lebanese Flower Restaurant    184    7.6    63
( 138 / 252 ) processed
                          ID                         Name  Likes  Rating  \
0  523690bb11d22da9cc5a99a0  Al Khabiya Pastries and Falafel   30    7.6

   Tips
0    10
( 139 / 252 ) processed
                          ID                               Name  Likes  \
0  4e3134dcaeb7d41efd921baf  Spinney's Muroor Road - Wine Cellar     9

   Rating  Tips
0    7.5     1
( 140 / 252 ) processed
                          ID          Name  Likes  Rating  Tips
0  4badf1f4f964a5209d743be3  Starbucks (17    8.3    96    (ستاربكس
( 141 / 252 ) processed
                          ID                      Name  Likes  Rating  Tips
0  4d7cf69534f7721e2af6ce25  Al Sultan Bakeries & Market    8    7.5     1
( 142 / 252 ) processed
                          ID          Name  Likes  Rating  Tips
0  586a83210037eb4944feae62  Seven Hotpot     8    8.1     2
( 143 / 252 ) processed
                          ID                       Name  Likes  Rating  Tips
0  5aa55e37772fbc53118ec974  Grand Millenium Club Lounge    8    8.0     1
( 144 / 252 ) processed
                          ID Name  Likes  Rating  Tips
0  50854152e4b07ddb62fab032  H&M    24    8.4     0
( 145 / 252 ) processed
                          ID         Name  Likes  Rating  Tips
0  5076fb50e4b0510906711dd2  Porters Pub    81    7.7    22
( 146 / 252 ) processed
                          ID          Name  Likes  Rating  Tips
0  53997a76498e709d5ee604fa  Just fresh (9    7.7    38    (جست فرش
( 147 / 252 ) processed
                          ID                 Name  Likes  Rating  \
0  508fb80ee4b0784a931e058a  Virgin Megastore 8.0    25    فيرجن ميجاستور

   Tips
0     4
```

```
( 148 / 252 ) processed
                     ID              Name   Likes  Rating  Tips
0  4d91d96ed7b1236a28133938  Baskin-Robbins     11     8.0     4
( 149 / 252 ) processed
                     ID  Name  Likes  Rating  Tips
0  51913280498e31f5ebc56846  Paul     78     8.0    25
( 150 / 252 ) processed
                     ID         Name  Likes  Rating  Tips
0  4dd66178c65bee535a96e389  Porto Bello     13     7.6     8
( 151 / 252 ) processed
                     ID                       Name  Likes  Rating  Tips
0  51408f5ae4b060128b8acdab  Qwaider Al Nabulsi Sweets     15     7.7     1
( 152 / 252 ) processed
                     ID                   Name  Likes  Rating  Tips
0  5052fd49e4b0a133017ec711  Najd Palace Restaurant     97     8.4    39
( 153 / 252 ) processed
                     ID                                        Name  \
0  54b14509498e7a329fffcb9c  Galito's Flamed Grilled Chicken Restaurant

   Likes  Rating  Tips
0     14     7.6     3
( 154 / 252 ) processed
                     ID              Name  Likes  Rating  Tips
0  4b77f3f3f964a520f3af2ee3  Al Wahda Mall (140     7.8     996  (الوحدة مول)
( 155 / 252 ) processed
                     ID        Name  Likes  Rating  Tips
0  51b32304498e6345b7a66c16  Pappa Roti     32     7.8    13
( 156 / 252 ) processed
                     ID                  Name  Likes  Rating  \
0  521b939511d26cfb10df95ed  Golden Dallah (8.5     23  (الدلة الذهبية)

   Tips
0     7
( 157 / 252 ) processed
                     ID                 Name  Likes  Rating  Tips
0  4f6d6329e4b0a6b7717053d1  Lebanon Flower Bakery     11     7.1     0
( 158 / 252 ) processed
                     ID      Name  Likes  Rating  Tips
0  57f1f039498e8000ddc9f10e  Mandolin     14     8.2     6
( 159 / 252 ) processed
                     ID              Name  Likes  Rating  Tips
0  52fbb00e11d29f74ef4c2f32  Gudee Pizza & Café    106     7.7    51
( 160 / 252 ) processed
```

```
                          ID                        Name  Likes  \
0  581f78ef5d0a1a25cafb55f1  Marriott Hotel Downtown, Abu Dhabi     31

   Rating  Tips
0     8.2     9
( 161 / 252 ) processed
                          ID           Name  Likes  Rating  Tips
0  5661bbc9498eb2bfac6bd9ec  Ortego's Deli      5     7.3     3
( 162 / 252 ) processed
                          ID         Name  Likes  Rating  Tips
0  54ab6f4e498e2a14b40b0a47  Galito's (7      7.4     15  جاليتوز)
( 163 / 252 ) processed
                          ID                 Name  Likes  Rating  Tips
0  503f488be4b05b14135623a8  Papparoti Coffee Shop     58     7.1    11
( 164 / 252 ) processed
                          ID       Name  Likes  Rating  Tips
0  5183c05a498e392dee78dcea  Maven Spa      4     7.7     7
( 165 / 252 ) processed
                          ID                        Name  Likes  Rating  Tips
0  4d5e431d196ba0930e76ff55  Al Shater Hassan Restaurant     19     7.9     7
( 166 / 252 ) processed
                          ID                    Name  Likes  Rating  Tips
0  5be29f47c58ed7002c1addaf  Stella's Sweet Boutique      5     8.1     3
( 167 / 252 ) processed
                          ID                 Name  Likes  Rating  Tips
0  516265c4e4b06671e80fa449  Russo's Al Wahda Mall      5     7.3     7
( 168 / 252 ) processed
                          ID              Name  Likes  Rating  Tips
0  4ff095ece4b0a36f6f405188  Mohala & Karak (26    8.0     48  محلا وكرك)
( 169 / 252 ) processed
                          ID                          Name  Likes  Rating  \
0  509e7ff2e4b0bbf7765f4807  Bath & Body Works - Al Wahda Mall     11     7.6

   Tips
0     2
( 170 / 252 ) processed
                          ID              Name  Likes  Rating  Tips
0  4e2a9e9a52b1b8f1985823b9  Sadaf Restourant     10     7.6     4
( 171 / 252 ) processed
                          ID                                          Name  \
0  520fa0d511d21d65bcd161af  Golden Dallah Traditional Cuisine Restaurant

   Likes  Rating  Tips
```

```
0      6     7.9      3
( 172 / 252 ) processed
                      ID     Name  Likes  Rating  Tips
0  4c2f430816adc928792fbd9c  Yogoday    5     7.5     2
( 173 / 252 ) processed
                      ID      Name  Likes  Rating  Tips
0  4db3d62f93a017099dcd16c9  Magrudy's    11     7.5     5
( 174 / 252 ) processed
                      ID                                    Name  Likes  Rating  \
0  512a3c31e4b0c51f9dd03870  Sofra Istanbul (7.4     145  سفرة اسطنبول)

   Tips
0    65
( 175 / 252 ) processed
                      ID     Name  Likes  Rating  Tips
0  4bd05d1aa8b3a59315af635f  BiteRite    12     7.4     4
( 176 / 252 ) processed
                      ID                     Name  Likes  Rating  Tips
0  55c1ed54498e82bef7ee1850  Corniche Beach, Abu Dhabi     9     7.4     0
( 177 / 252 ) processed
                      ID      Name  Likes  Rating  Tips
0  4d6fcb3a3a6cf04d50ef6479  Mono Cafe    24     7.4     5
( 178 / 252 ) processed
                      ID            Name  Likes  Rating  Tips
0  4d5f2fe15b276dcbf6a304c6  Al Saada Bakery    7     7.3     5
( 179 / 252 ) processed
                      ID     Name  Likes  Rating  Tips
0  589af2dde0adac5d4e6838bc  Jollibee    16     7.8     4
( 180 / 252 ) processed
                      ID                          Name  Likes  Rating  \
0  59457732e2da1964628d355c  Hanaya Cafe For Speciality Coffee     43     8.1

   Tips
0    18
( 181 / 252 ) processed
                      ID                 Name  Likes  Rating  Tips
0  515859a5e4b0dc04788efd98  Grand Millenium Gym     10     7.1     0
( 182 / 252 ) processed
                      ID     Name  Likes  Rating  Tips
0  4cd5331bb2a4370461537c44  Hardees    15     7.8     4
( 183 / 252 ) processed
                      ID               Name  Likes  Rating  Tips
0  4e996d25f5b9a9af67b8286f  Qwaider Al Nabulsi     8     7.2     3
```

```
( 184 / 252 ) processed
                        ID                           Name  Likes  Rating  Tips
0  4df8c8b6d4c02ad73419a38e  Al Wahda All Day Dining      5     7.1      2
( 185 / 252 ) processed
                        ID        Name  Likes  Rating  Tips
0  525a96fd498e7bd517a1268b  Chocolala      9     7.6      2
( 186 / 252 ) processed
                        ID            Name  Likes  Rating  Tips
0  4d39dfa6ad8860fc15971252  Al Falah Plaza 2    7.2     23   الفلاح بلازا
( 187 / 252 ) processed
                        ID        Name  Likes  Rating  Tips
0  4bf17371674f20a1a99304ae  Fuddruckers     64     7.2     32
( 188 / 252 ) processed
                        ID                   Name  Likes  Rating  Tips
0  5b607e9818d43b002c26143d  Saeed Speciality Cafe     16     7.9      5
( 189 / 252 ) processed
                        ID                   Name  Likes  Rating  Tips
0  4f97ce81e4b03f3dd04fc9d4  Jumeirah Etihad Tower      8     7.6      3
( 190 / 252 ) processed
                        ID              Name  Likes  Rating  Tips
0  517a72df498e0b521773facd  Al Wahda Cinema 33    7.3    126   سينما الوحدة
( 191 / 252 ) processed
                        ID            Name  Likes  Rating  Tips
0  4df0989eb0fbfee72f3f3e84  McDonald's (3    7.1     21   (ماكدونالدز)
( 192 / 252 ) processed
                        ID        Name  Likes  Rating  Tips
0  5172c732e4b07dfc32e448f1  Olive Garden    103     7.2     51
( 193 / 252 ) processed
                        ID        Name  Likes  Rating  Tips
0  4e6e4be745dd293273d0671a  Forty Fruity     12     7.2      2
( 194 / 252 ) processed
                        ID      Name  Likes  Rating  Tips
0  4cde35a0f8cdb1f7fae58912  Al Khabya      7     7.3      4
( 195 / 252 ) processed
                        ID            Name  Likes  Rating  Tips
0  4dae00466e81e2dffdbeaf19  Corniche Bakery     19     7.6      2
( 196 / 252 ) processed
                        ID             Name  Likes  Rating  Tips
0  51a39865498e796164540700  Papa John's Pizza     18     7.0      9
( 197 / 252 ) processed
                        ID            Name  Likes  Rating  Tips
0  4d344b102e56236a58782db4  Muallim Hasan 7    7.5     21   معلم حسن
( 198 / 252 ) processed
```

```
                            ID                                Name  Likes  \
0  4d80858c551ea1cdef761bc5  Inner Mongolia Xiao Wei Yang Hotpot     47


   Rating  Tips
0     7.7    16
```
(199 / 252) processed
```
                            ID          Name  Likes  Rating  Tips
0  51658dc0e4b0181093632c5e  Tim Hortons     22     7.1    13
```
(200 / 252) processed
```
                            ID         Name  Likes  Rating  Tips
0  50fac158e4b09cad1be9b967  Gold's Gym     61     7.2    16
```
(201 / 252) processed
```
                            ID           Name  Likes  Rating  Tips
0  574b2105cd1031dbbc320c58  Off The Hook     23     7.4     3
```
(202 / 252) processed
```
                            ID  \
0  50e5c1b7e4b0e34ae01bdef8


                                           Name  Likes  Rating  Tips
0  Al Nahyan Stadium / 5       6.8     14   ...استاد آل نهيان (ملعب آل نه
```
(203 / 252) processed
```
                            ID                 Name  Likes  Rating  Tips
0  4d2851c277a2a1cd0c1b61b7  Al Karak King / 4      7.1    11   ملك الكرك
```
(204 / 252) processed
```
                            ID                   Name  Likes  Rating  Tips
0  517ae9aa498ea18ae91cc316  Nasar Restaurant 1      7.0     7   مطعم ناصر
```
(205 / 252) processed
```
                            ID          Name  Likes  Rating  Tips
0  5328a52d498e19b6016aa870  Vox Cinema      7     7.0     0
```
(206 / 252) processed
```
                            ID          Name  Likes  Rating  Tips
0  4e5c8a41fa76f39e1cb6a3c3  Le Chocola      6     6.7     0
```
(207 / 252) processed
```
                            ID            Name  Likes  Rating  Tips
0  4cffb3141ebe6dcb45f38291  Chicken Tikka     11     6.9     6
```
(208 / 252) processed
```
                            ID                           Name  Likes  Rating  Tips
0  509793d2e4b055b34e06e772  1       6.6      6   مخابز السعادة - شارع الدفاع
```
(209 / 252) processed
```
                            ID              Name  Likes  Rating  Tips
0  50a7a338e4b0497d75ca4626  T.G.I. Friday's     41     6.5    22
```
(210 / 252) processed
```
                            ID                  Name  Likes  Rating  Tips
```

```
0   4e301abb45ddcf0f5c8921d2   Seven Star Coffe Shop        21        6.8        9
( 211 / 252 ) processed
                          ID   \
0   4e0ee31918a8bf9784d1a45c


                                                Name   Likes   Rating   Tips
0   Al Karnak Refreshments & Cafe (5        6.7        4      مقهى و مرطبات ا...
( 212 / 252 ) processed
                          ID              Name   Likes   Rating   Tips
0   4e7f03d9e5e876478d3c6ad9   Centro Al Manhal        37        6.6        8
( 213 / 252 ) processed
                          ID           Name   Likes   Rating   Tips
0   5989eef6e7a2376e18b70600   Wake Up Cafe        15        6.6        4
( 214 / 252 ) processed
                          ID          Name   Likes   Rating   Tips
0   4b6adec3f964a5206ce42be3   Texas Chicken        9        6.4        4
( 215 / 252 ) processed
                          ID             Name   Likes   Rating   Tips
0   51a61efe498e464b7de7fbd1   بلاليط Balalit        9        6.4        4
( 216 / 252 ) processed
                          ID                     Name   Likes   Rating   Tips
0   4d5c212e9ac9a0930b3e6d94   Al Rawda Arjaan by Rotana        11        6.4        1
( 217 / 252 ) processed
                          ID                      Name   Likes   Rating   Tips
0   511667ace4b02a04b5bce366   Burjeel Hospital - Pharmacy        5        6.3        1
( 218 / 252 ) processed
                          ID             Name   Likes   Rating   Tips
0   5484c10e498e70cd7c781f7a   Shawarma Counter        13        6.1        3
( 219 / 252 ) processed
                          ID              Name   Likes   Rating   Tips
0   537a3ac2498eac001ecdc166   Cafe Bateel (6        6.4        4      (كافيه باتيل)
( 220 / 252 ) processed
                          ID                Name   Likes   Rating   Tips
0   4ff2ce2dd86c0d2b8f702779   c.taste Restaurant        3        6.3        4
( 221 / 252 ) processed
                          ID          Name   Likes   Rating   Tips
0   5087eed2e4b097b4d918c8f8   Gloria Jeans        16        6.1        6
( 222 / 252 ) processed
                          ID          Name   Likes   Rating   Tips
0   4e6c9375d4c09a17a5a6ac80   KFC   1        6.1        5      دجاج كنتاكي
( 223 / 252 ) processed
                          ID             Name   Likes   Rating   Tips
0   4ebfcce6be7b04923c6e2992   Greenhouse, Airport Road        5        6.1        0
```

```
( 224 / 252 ) processed
                        ID           Name   Likes   Rating   Tips
0  4d4ef1818af6721e1d8a1588   Al Ghala Cafe       6      6.2       1
( 225 / 252 ) processed
                        ID           Name   Likes   Rating   Tips
0  5cf2c505588e36002c11b264   Blink Coffee        5      6.2       4
( 226 / 252 ) processed
                        ID              Name   Likes   Rating   Tips
0  5242e1ff11d2581767777bcc   Luck 7 Coffee Shop     6      5.9       0
( 227 / 252 ) processed
                        ID     Name   Likes   Rating   Tips
0  50e553e8e4b0c88a534499c8   Pandora      3      5.6       3
( 228 / 252 ) processed
Empty DataFrame
Columns: [ID, Name, Likes, Rating, Tips]
Index: []
No data available for id= 50c76739e4b0f02263d923b2
( 229 / 252 ) processed
                        ID      Name   Likes   Rating   Tips
0  58c02e7e30ecc66fc54f0a2c   Tasha's     138      9.1      37
( 230 / 252 ) processed
                        ID    Name   Likes   Rating   Tips
0  58b0423e7ff1e40eb70dcae7   Switch     47      8.6      10
( 231 / 252 ) processed
                        ID              Name   Likes   Rating   Tips
0  5b7ed544e57ca60039ad82c5   % Arabica Al Bateen     32      8.2       8
( 232 / 252 ) processed
                        ID               Name   Likes   Rating   Tips
0  5bd8b0d3446ea6002c611443   The Abu Dhabi EDITION    16      9.1       7
( 233 / 252 ) processed
                        ID                      Name   Likes   Rating   Tips
0  58da02e0e9233e2550db9dcc   Waterlemon Restaurant & Cafe    11      7.9       2
( 234 / 252 ) processed
                        ID                 Name   Likes   Rating   Tips
0  51b97c3450190069f2ee83b7   Shish Shawerma Al Bateen    28      7.6       6
( 235 / 252 ) processed
                        ID           Name   Likes   Rating   Tips
0  58f25fe94acb19754b02d8a3   Camel Station      38      7.6      14
( 236 / 252 ) processed
                        ID            Name   Likes   Rating   Tips
0  54e821d8498e8a6e3579fceb   Marasy (8      7.7      43    مراسي)
( 237 / 252 ) processed
                        ID           Name   Likes   Rating   Tips
```

```
0  53ff53b9498ef90189445fe5    Art House Cafe      32      7.6      7
( 238 / 252 ) processed
                            ID            Name   Likes   Rating   Tips
0  54081c4d498ecf0baa24e608    Caribou Coffee       6      7.3      0
( 239 / 252 ) processed
                            ID            Name   Likes   Rating   Tips
0  5868aa8c0393cc3f5aef9eff    The Coffee Club     35      7.4      7
( 240 / 252 ) processed
                            ID              Name   Likes   Rating   Tips
0  4c99fdb178ffa0932f4f6875    Aesthetic Polyclinic    22      7.6      2
( 241 / 252 ) processed
                            ID          Name   Likes   Rating   Tips
0  52484c0511d2fdaaa1459949    0     6.6      6   مجلس البطين
( 242 / 252 ) processed
                            ID                  Name   Likes   Rating   Tips
0  525431c811d273d74110a7e6    Etihad Modern Art Gallery       6      7.2      3
( 243 / 252 ) processed
                            ID         Name   Likes   Rating   Tips
0  4d2d552efeaaa1cde2cee790    The Lounge       6      6.8      4
( 244 / 252 ) processed
                            ID                 Name   Likes   Rating   Tips
0  4bea43a661aca593bf9b8300    Oriental Spa & Fitness       5      6.3      3
( 245 / 252 ) processed
                            ID                  Name   Likes   Rating   Tips
0  4d594298296d5481630657b1    Baskin Robbins   3      6.1      8   باسكن روبنز
( 246 / 252 ) processed
                            ID                 Name   Likes   Rating   Tips
0  4d184671bb488cfa7697b3d4    McDonald's (10     5.9      14   ماكدونالدز)
( 247 / 252 ) processed
                            ID                                     Name  \
0  4d15ec0981cea35d9995ddec    Royal Spanish Center Lasik, Eyes, Cosmetic

     Likes   Rating   Tips
0       5      6.0      2
( 248 / 252 ) processed
```

```
        ---------------------------------------------------------------------------
        KeyError                                  Traceback (most recent call last)
        <ipython-input-52-55adb74fc76f> in <module>
              9
             10     try:
        ---> 11         venue_details=get_venue_details(VenueID)
             12         print(venue_details)
             13         id,name,likes,rating,tips=venue_details.values.tolist()[0]

        <ipython-input-51-cfd01de455a2> in get_venue_details(venue_id)
             14     # get all the data
             15     results = requests.get(url).json()
        ---> 16     venue_data=results['response']['venue']
             17     venue_details=[]
             18     try:

        KeyError: 'venue'
```

Writing the ALbateen venues details (Once)to file to conserve on API calls to FOURSQUARE

```
In [98]: #albateen_venue_det.to_csv('albateen_venues_details.csv', index=False)
```

In [44]:
```python
albateen_venue_det=pd.read_csv('albateen_venues_details.csv')
del albateen_venue_det['SchoolLatitude']
del albateen_venue_det['SchoolLongitude']
del albateen_venue_det['Venue']
del albateen_venue_det['Naighberhood']
del albateen_venue_det['VenueCategory']
albateen_venue_det.head(5)
```

Out[44]:

	School	VenueID	VenueLatitude	VenueLongitude	Likes	Rating	Tips	Neighborhood	VenueName
0	Sheikh Zayed Private Academy for Girls	4cebe003678aa09391f4faea	24.468989	54.346904	18	8.5	4	Al Bateen	Al Afiya Bath & Saloon
1	Sheikh Zayed Private Academy for Girls	53ff53b9498ef90189445fe5	24.460580	54.348782	32	7.6	7	Al Bateen	Art House Cafe
2	Sheikh Zayed Private Academy for Girls	593db4fb1c0b3415effa643c	24.472018	54.347444	9	8.6	4	Al Bateen	Qasmieh Al Fawal
3	Sheikh Zayed Private Academy for Girls	50042c06e4b000091039f966	24.469276	54.349370	28	7.5	9	Al Bateen	The Living Room Cafe
4	Sheikh Zayed Private Academy for Girls	5ce051d8b9ac38002c742988	24.458170	54.356326	12	8.6	6	Al Bateen	Cartel Coffee Roasters

In [54]:
```python
albateen_venue_det.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 252 entries, 0 to 251
Data columns (total 9 columns):
 #   Column          Non-Null Count   Dtype
---  ------          --------------   -----
 0   School          252 non-null     object
 1   VenueID         252 non-null     object
 2   VenueLatitude   252 non-null     float64
 3   VenueLongitude  252 non-null     float64
 4   Likes           252 non-null     int64
 5   Rating          252 non-null     float64
 6   Tips            252 non-null     int64
 7   Neighborhood    252 non-null     object
 8   VenueName       252 non-null     object
dtypes: float64(3), int64(2), object(4)
memory usage: 17.8+ KB
```

Convert objects Likes and Tips to floats too be able to calculate average values.

```
In [55]: albateen_venue_det['Likes']=albateen_venue_det['Likes'].astype('float64')
         albateen_venue_det['Tips']=albateen_venue_det['Tips'].astype('float64')
```

```
In [56]: albateen_venue_det.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 252 entries, 0 to 251
Data columns (total 9 columns):
 #   Column         Non-Null Count  Dtype
---  ------         --------------  -----
 0   School         252 non-null    object
 1   VenueID        252 non-null    object
 2   VenueLatitude  252 non-null    float64
 3   VenueLongitude 252 non-null    float64
 4   Likes          252 non-null    float64
 5   Rating         252 non-null    float64
 6   Tips           252 non-null    float64
 7   Neighborhood   252 non-null    object
 8   VenueName      252 non-null    object
dtypes: float64(5), object(4)
memory usage: 17.8+ KB
```

Venue with the highest Likes

In [57]: #The venue with the Highest Likes
         albateen_venue_det.iloc[albateen_venue_det['Likes'].idxmax()]

Out[57]: School   Al Muna Academy - Aldar Academies
         VenueID   4b77f3f3f964a520f3af2ee3
         VenueLatitude   24.4704
         VenueLongitude   54.373
         Likes   996
         Rating   7.8
         Tips   140
         Neighborhood   Al Bateen
         VenueName   Al Wahda Mall (الوحدة مول)
         Name: 154, dtype: object

Venue with the highest Rating

In [58]: #The venue with the Highest Rating
         albateen_venue_det.iloc[albateen_venue_det['Rating'].idxmax()]

Out[58]: School   Japanese Private School
         VenueID   58c02e7e30ecc66fc54f0a2c
         VenueLatitude   24.4529
         VenueLongitude   54.3397
         Likes   138
         Rating   9.1
         Tips   37
         Neighborhood   Al Bateen
         VenueName   Tasha's
         Name: 229, dtype: object

Venue with the highest Tips

In [59]:
```python
#The venue with the Highets Tips
albateen_venue_det.iloc[albateen_venue_det['Tips'].idxmax()]
```

Out[59]:
```
School              Al Muna Academy - Aldar Academies
VenueID                      4b77f3f3f964a520f3af2ee3
VenueLatitude                                 24.4704
VenueLongitude                                 54.373
Likes                                             996
Rating                                            7.8
Tips                                              140
Neighborhood                                Al Bateen
VenueName              Al Wahda Mall (الوحدة مول)
Name: 154, dtype: object
```

In [60]:
```python
ALbateen_venues_Rating=albateen_venue_det.groupby('School',as_index=False).mean()[['School','Rating']]
ALbateen_venues_Rating.columns=['School','Average Rating']
```

The Schools ordered by cummulatively the highest averae ratings for near by venues

In [61]:
```python
ALbateen_venues_Rating.sort_values(['Average Rating'],ascending=False).head(10)
```

Out[61]:

	School	Average Rating
0	Al Muna Academy - Aldar Academies	7.270000
3	Sheikh Zayed Private Academy for Girls	6.693750
2	Japanese Private School	6.365217
1	American Community School	5.786420

In [45]:
```python
#Getting the latitude and logtude for schools in alabteen naighbergood
df_albateen_school_merged = albateen_venue_det
df_albateen_school_merged = df_albateen_school_merged.join(df_abdhbi_school.set_index('School'), on='School')
```

In [63]: `df_albateen_school_merged.head(5)`

Out[63]:

	School	VenueID	VenueLatitude	VenueLongitude	Likes	Rating	Tips	Neighborhood	VenueName	Address	Cu
0	Sheikh Zayed Private Academy for Girls	4cebe003678aa09391f4faea	24.468989	54.346904	18.0	8.5	4.0	Al Bateen	Al Afiya Bath & Saloon	Al Bateen	A
1	Sheikh Zayed Private Academy for Girls	53ff53b9498ef90189445fe5	24.460580	54.348782	32.0	7.6	7.0	Al Bateen	Art House Cafe	Al Bateen	A
2	Sheikh Zayed Private Academy for Girls	593db4fb1c0b3415effa643c	24.472018	54.347444	9.0	8.6	4.0	Al Bateen	Qasmieh Al Fawal	Al Bateen	A
3	Sheikh Zayed Private Academy for Girls	50042c06e4b000091039f966	24.469276	54.349370	28.0	7.5	9.0	Al Bateen	The Living Room Cafe	Al Bateen	A
4	Sheikh Zayed Private Academy for Girls	5ce051d8b9ac38002c742988	24.458170	54.356326	12.0	8.6	6.0	Al Bateen	Cartel Coffee Roasters	Al Bateen	A

Showing albateen venues near by schools with rating Outstanding / Very Good in ALbateen Locality

- Red Markers --> Schools
- Blue Markers --> Near by venues

In [48]:
```python
# Add Schools markers to map "Loclities"
map_AbuDhabi = folium.Map(location=[latitude_x, longitude_y], zoom_start=14)
for lat, lng, school in zip(df_albateen_school_merged['Latitude'],
                            df_albateen_school_merged['Longitude'],
                            df_albateen_school_merged['School']):
    label_text = school
    label = folium.Popup(label_text, parse_html=True)
    #print(label)
    folium.CircleMarker(
        [lat, lng],
        radius=10,
        popup=label,
        color='red',
        fill_color='#3186cc',
        fill_opacity=0.5,
        parse_html=False).add_to(map_AbuDhabi)


# Add Venue markers to map "Loclities"
for lat, lng, venuename in zip(albateen_venue_det['VenueLatitude'],
                               albateen_venue_det['VenueLongitude'],
                               albateen_venue_det['VenueName']):
    label_text = venuename
    label = folium.Popup(label_text, parse_html=True)
    #print(label_text,lat,lng)
    folium.CircleMarker(
        [lat, lng],
        radius=5,
        popup=label,
        color='blue',
        fill_color='#3186cc',
        fill_opacity=0.5,
        parse_html=False).add_to(map_AbuDhabi)
map_AbuDhabi
```

Out[48]: