Finding neighborhood to start a Mexican restaurant in Manhattan,NY.

Business Problem

A entrepreneur wants to open an Mexican Restaurant in Manhattan,New York. The success of any restaurant depends on multiple factors like location, menu, interior, consistency in taste and many other. Entrepreneur approached us to help him to find a perfect location which is economic and profitable to them.

Solution

- Using New York neighborhood data and Foursquare API we could find the neighborhood details.
- I plan to find neighborhood where there is a good Mexican restaurant and get the details of neighborhood using data analysis. Then need to find neighborhood with less Mexican restaurants.
- Using K Mean Clustering, cluster those restaurants into groups.

Data

- NewYork City data from https://cocl.us/new_york_dataset¶

Download the NewYork City data from https://cocl.us/new_york_dataset

Save it as 'newyorkgeo.json'

In [2]:
```
with open('newyorkgeo.json') as json_data:
    newyorkCity_data = json.load(json_data)
newyorkCity_data
```

Out[2]:
```
{'type': 'FeatureCollection',
 'totalFeatures': 306,
 'features': [{'type': 'Feature',
   'id': 'nyu_2451_34572.1',
   'geometry': {'type': 'Point',
    'coordinates': [-73.84720052054902, 40.89470517661]},
   'geometry_name': 'geom',
   'properties': {'name': 'Wakefield',
    'stacked': 1,
    'annoline1': 'Wakefield',
    'annoline2': None,
    'annoline3': None,
    'annoangle': 0.0,
    'borough': 'Bronx',
    'bbox': [-73.84720052054902,
     40.89470517661,
     -73.84720052054902,
     40.89470517661]}},
  {'type': 'Feature',
```

- Using geopy package we could get,Geo location like latitude and longitude of each location

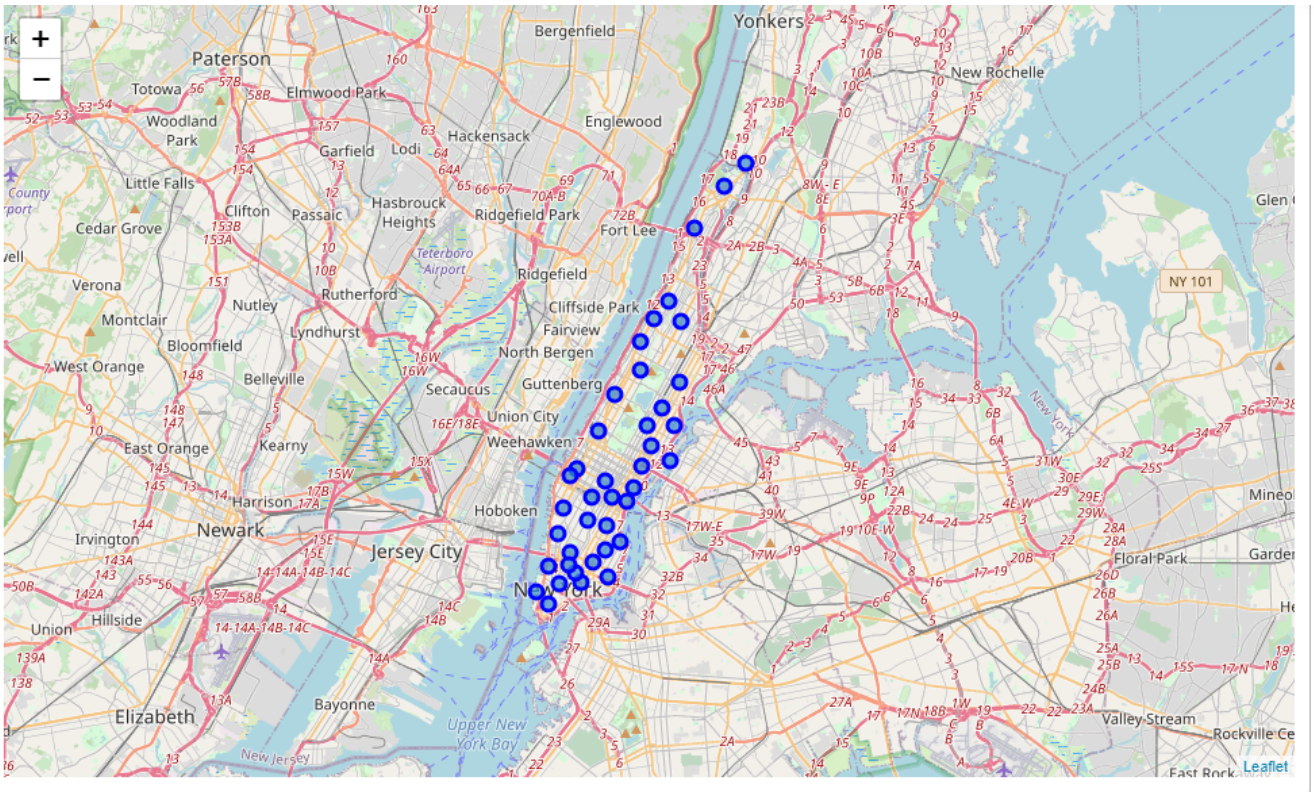
creating a map of Manhattan using latitude and longitude values

In [7]:

```
map_manhattan = folium.Map(location=[latitude, longitude], zoom_start=11)

# add markers to map
for lat, lng, label in zip(manhattan_data['Latitude'], manhattan_data['Longitude'], manhattan_data['Neighborhood']):
    label = folium.Popup(label, parse_html=True)
    folium.CircleMarker(
        [lat, lng],
        radius=5,
        popup=label,
        color='blue',
        fill=True,
        fill_color='#3186cc',
        fill_opacity=0.7,
        parse_html=False).add_to(map_manhattan)

map_manhattan
```



- From foursquare API we get
    1. Restaurant names
    2. Id
    3. Location

The retrieval of the location, name and category about the various venues in Manhattan was collected through the Foursquare explore API. To obtain the data, it was required to make an account where it would provide a ‘Secret Key’ as well as a ‘Client ID’ which would allow me to pull any data.

	Neighborhood	Id	Name	Latitude	Longitude	Category
0	Marble Hill	5bd90c33a35dce002c1e26fc	Taqueria Sinaloense	40.874574	-73.910687	Mexican Restaurant
1	Marble Hill	590e5d2ce96d0c61de2dcf1d	Cocina Chente	40.886235	-73.907108	Mexican Restaurant
2	Marble Hill	5217dd2811d2d06ccafb77d3	Estrellita Poblana V	40.879687	-73.906257	Mexican Restaurant
3	Marble Hill	4ce81d330f196dcb5d2b43ae	Picante Picante Mexican Restaurant	40.878252	-73.902936	Mexican Restaurant
4	Marble Hill	5407a176498ee25dcaf36cf0	Mi Lindo San Miguelito	40.880023	-73.906488	Mexican Restaurant
5	Marble Hill	59fbb1cd1bc7043d43ffbf64	Guacamole	40.874511	-73.910708	Mexican Restaurant
6	Marble Hill	4babf8b4f964a5207dda3ae3	New Fresco Tortillas	40.885753	-73.910390	Mexican Restaurant
7	Marble Hill	5830ff3044587f7beb2271cc	Guacamole	40.869659	-73.916736	Mexican Restaurant
8	Marble Hill	5696a649498ee06e2efbbbd3	sazon de lupita	40.870069	-73.903562	Taco Place
9	Marble Hill	5b06e46035811b00393375b1	Amor Eterno	40.880898	-73.908693	Mexican Restaurant

Methodology

- Using NewYork neighborhood data and Foursquare API we found the neighborhood details.
- Used K Means clustering to group the same type of neighborhoods.
- Found the places of same neighborhood as of Mexican Restaurants,more economic and less in number.

Discussion

Utilizing more features from Foursquare API we could find its ratings and the menus they provide.

Conclusion

Finally, we found best neighborhoods to start a new Mexican restaurant in Manhattan, NewYork.