Learning FourSquare API with Python

Introduction

In this lab, you will learn in details how to make calls to the Foursquare API for different purposes. You will learn how to construct a URL to send a request to the API to search for a specific type of venues, to explore a particular venue, to explore a Foursquare user, to explore a geographical location, and to get trending venues around a location. Also, you will learn how to use the visualization library, Folium, to visualize the results.

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Import necessary Libraries

In [1]:
```python
import requests # library to handle requests
import pandas as pd # library for data analysis
import numpy as np # library to handle data in a vectorized manner
import random # library for random number generation

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

# libraries for displaying images
from IPython.display import Image
from IPython.core.display import HTML

# tranforming json file into a pandas dataframe library
from pandas.io.json import json_normalize
#from pandas.json_normalize

# ! pip install folium==0.5.0
import folium # plotting library

print('Folium installed')
print('Libraries imported.')
```

```
Folium installed
Libraries imported.
```

Define Foursquare Credentials and Version

Make sure that you have created a Foursquare developer account and have your credentials handy

In [2]:
```python
CLIENT_ID = 'G5ETWK2SC3RW4O5O1EELGLJCOFWTL2WGQJ5WKKJFB5NZST3E' # your Foursquare ID
CLIENT_SECRET = 'F4LEZEDAKXLETOPUFPQCTMI15LIQL4J34L2EZGGUYGVOKF4C' # your Foursquare Secret
VERSION = '20180604'
LIMIT = 30
print('Your credentails:')
print('CLIENT_ID: ' + CLIENT_ID)
print('CLIENT_SECRET:' + CLIENT_SECRET)
```

```
Your credentails:
CLIENT_ID: G5ETWK2SC3RW4O5O1EELGLJCOFWTL2WGQJ5WKKJFB5NZST3E
CLIENT_SECRET:F4LEZEDAKXLETOPUFPQCTMI15LIQL4J34L2EZGGUYGVOKF4C
```

Let's again assume that you are staying at the Conrad hotel. So let's start by converting the Contrad Hotel's address to its latitude and longitude coordinates.

In order to define an instance of the geocoder, we need to define a user_agent. We will name our agent *foursquare_agent*, as shown below.

In [3]:
```python
address = '102 North End Ave, New York, NY'

geolocator = Nominatim(user_agent="foursquare_agent")
location = geolocator.geocode(address)
latitude = location.latitude
longitude = location.longitude
print(latitude, longitude)
```

```
40.7149555 -74.0153365
```

1. Search for a specific venue category

> `https://api.foursquare.com/v2/venues/`**search**`?client_id=`**CLIENT_ID**`&client_secret=`**CLIENT_SECRET**`&ll=`**LATITUDE**`,`**LONGITUDE**`&v=`**VERSION**`&query=`**QUERY**

Now, let's assume that it is lunch time, and you are craving Italian food. So, let's define a query to search for Italian food that is within 500 metres from the Conrad Hotel.

In [4]:
```python
search_query = 'Italian'
radius = 500
print(search_query + ' .... OK!')
```

```
Italian .... OK!
```

Define the corresponding URL

In [5]:
```python
url = 'https://api.foursquare.com/v2/venues/search?client_id={}&client_secret={}&ll={},{}&v={}&query={}&radius={}&limit={}'.format(CLIENT_ID, CLIENT_SECRET, latitude, longitude, VERSION, search_query, radiu
url
```

Out[5]:
```
'https://api.foursquare.com/v2/venues/search?client_id=G5ETWK2SC3RW4O5O1EELGLJCOFWTL2WGQJ5WKKJFB5NZST
3E&client_secret=F4LEZEDAKXLETOPUFPQCTMI15LIQL4J34L2EZGGUYGVOKF4C&ll=40.7149555,-74.0153365&v=20180604
&query=Italian&radius=500&limit=30'
```

Send the GET Request and examine the results

In [6]:
```python
results = requests.get(url).json()
results
```

Out[6]:

```
{'meta': {'code': 200, 'requestId': '5faf7876bea27a5fc6c9cbc4'},
 'response': {'venues': [{'id': '4fa862b3e4b0ebff2f749f06',
    'name': "Harry's Italian Pizza Bar",
    'location': {'address': '225 Murray St',
     'lat': 40.71521779064671,
     'lng': -74.01473940209351,
     'labeledLatLngs': [{'label': 'display',
       'lat': 40.71521779064671,
       'lng': -74.01473940209351},
      {'label': 'entrance', 'lat': 40.715361, 'lng': -74.014975}],
     'distance': 58,
     'postalCode': '10282',
     'cc': 'US',
     'city': 'New York',
     'state': 'NY',
     'country': 'United States',
     'formattedAddress': ['225 Murray St',
      'New York, NY 10282',
      'United States']},
    'categories': [{'id': '4bf58dd8d48988d1ca941735',
      'name': 'Pizza Place',
      'pluralName': 'Pizza Places',
      'shortName': 'Pizza',
      'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/pizza_',
       'suffix': '.png'},
      'primary': True}],
    'referralId': 'v-1605335158',
    'hasPerk': False},
   {'id': '4f3232e219836c91c7bfde94',
    'name': 'Conca Cucina Italian Restaurant',
    'location': {'address': '63 W Broadway',
     'lat': 40.71448400000006,
     'lng': -74.00980600000001,
     'labeledLatLngs': [{'label': 'display',
       'lat': 40.71448400000006,
       'lng': -74.00980600000001}],
     'distance': 469,
     'postalCode': '10007',
     'cc': 'US',
     'city': 'New York',
     'state': 'NY',
     'country': 'United States',
     'formattedAddress': ['63 W Broadway',
      'New York, NY 10007',
      'United States']},
    'categories': [{'id': '4d4b7105d754a06374d81259',
      'name': 'Food',
      'pluralName': 'Food',
      'shortName': 'Food',
      'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/default_',
       'suffix': '.png'},
      'primary': True}],
    'referralId': 'v-1605335158',
    'hasPerk': False},
   {'id': '3fd66200f964a520f4e41ee3',
    'name': 'Ecco',
    'location': {'address': '124 Chambers St',
     'crossStreet': 'btwn Church St & W Broadway',
     'lat': 40.71533713859952,
     'lng': -74.00884766217825,
     'labeledLatLngs': [{'label': 'display',
       'lat': 40.71533713859952,
       'lng': -74.00884766217825},
      {'label': 'entrance', 'lat': 40.715202, 'lng': -74.008779}],
     'distance': 549,
     'postalCode': '10007',
     'cc': 'US',
     'city': 'New York',
     'state': 'NY',
     'country': 'United States',
     'formattedAddress': ['124 Chambers St (btwn Church St & W Broadway)',
      'New York, NY 10007',
      'United States']},
    'categories': [{'id': '4bf58dd8d48988d110941735',
      'name': 'Italian Restaurant',
      'pluralName': 'Italian Restaurants',
      'shortName': 'Italian',
      'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/italian_',
       'suffix': '.png'},
      'primary': True}],
    'referralId': 'v-1605335158',
    'hasPerk': False}]}}
```


Get relevant part of JSON and transform it into a *pandas* dataframe

In [7]:
```python
# assign relevant part of JSON to venues
venues = results['response']['venues']

# tranform venues into a dataframe
dataframe = pd.json_normalize(venues)
dataframe.head()
```

Out[7]:

	id	name	categories	referralId	hasPerk	location.address	location.lat	location.lng	lo
0	4fa862b3e4b0ebff2f749f06	Harry's Italian Pizza Bar	[{'id': '4bf58dd8d48988d1ca941735', 'name': 'P...	v-1605335158	False	225 Murray St	40.715218	-74.014739	
1	4f3232e219836c91c7bfde94	Conca Cucina Italian Restaurant	[{'id': '4d4b7105d754a06374d81259', 'name': 'F...	v-1605335158	False	63 W Broadway	40.714484	-74.009806	
2	3fd66200f964a520f4e41ee3	Ecco	[{'id': '4bf58dd8d48988d110941735', 'name': 'I...	v-1605335158	False	124 Chambers St	40.715337	-74.008848	

Define information of interest and filter dataframe

In [8]:
```python
# keep only columns that include venue name, and anything that is associated with location
filtered_columns = ['name', 'categories'] + [col for col in dataframe.columns if col.startswith('locati
on.')] + ['id']
dataframe_filtered = dataframe.loc[:, filtered_columns]

# function that extracts the category of the venue
def get_category_type(row):
    try:
        categories_list = row['categories']
    except:
        categories_list = row['venue.categories']

    if len(categories_list) == 0:
        return None
    else:
        return categories_list[0]['name']

# filter the category for each row
dataframe_filtered['categories'] = dataframe_filtered.apply(get_category_type, axis=1)

# clean column names by keeping only last term
dataframe_filtered.columns = [column.split('.')[-1] for column in dataframe_filtered.columns]

dataframe_filtered
```

Out[8]:

	name	categories	address	lat	lng	labeledLatLngs	distance	postalCode	cc	city	state	country	formatt
0	Harry's Italian Pizza Bar	Pizza Place	225 Murray St	40.715218	-74.014739	[{'label': 'display', 'lat': 40.71521779064671...	58	10282	US	New York	NY	United States	[225 Ne 10
1	Conca Cucina Italian Restaurant	Food	63 W Broadway	40.714484	-74.009806	[{'label': 'display', 'lat': 40.71448400000000...	469	10007	US	New York	NY	United States	[63 W Ne 10
2	Ecco	Italian Restaurant	124 Chambers St	40.715337	-74.008848	[{'label': 'display', 'lat': 40.71533713859952...	549	10007	US	New York	NY	United States	[124 C (btwn C W B

Let's visualize the Italian restaurants that are nearby

In [9]:
```python
dataframe_filtered.name
```

Out[9]:
```
0          Harry's Italian Pizza Bar
1    Conca Cucina Italian Restaurant
2                               Ecco
Name: name, dtype: object
```

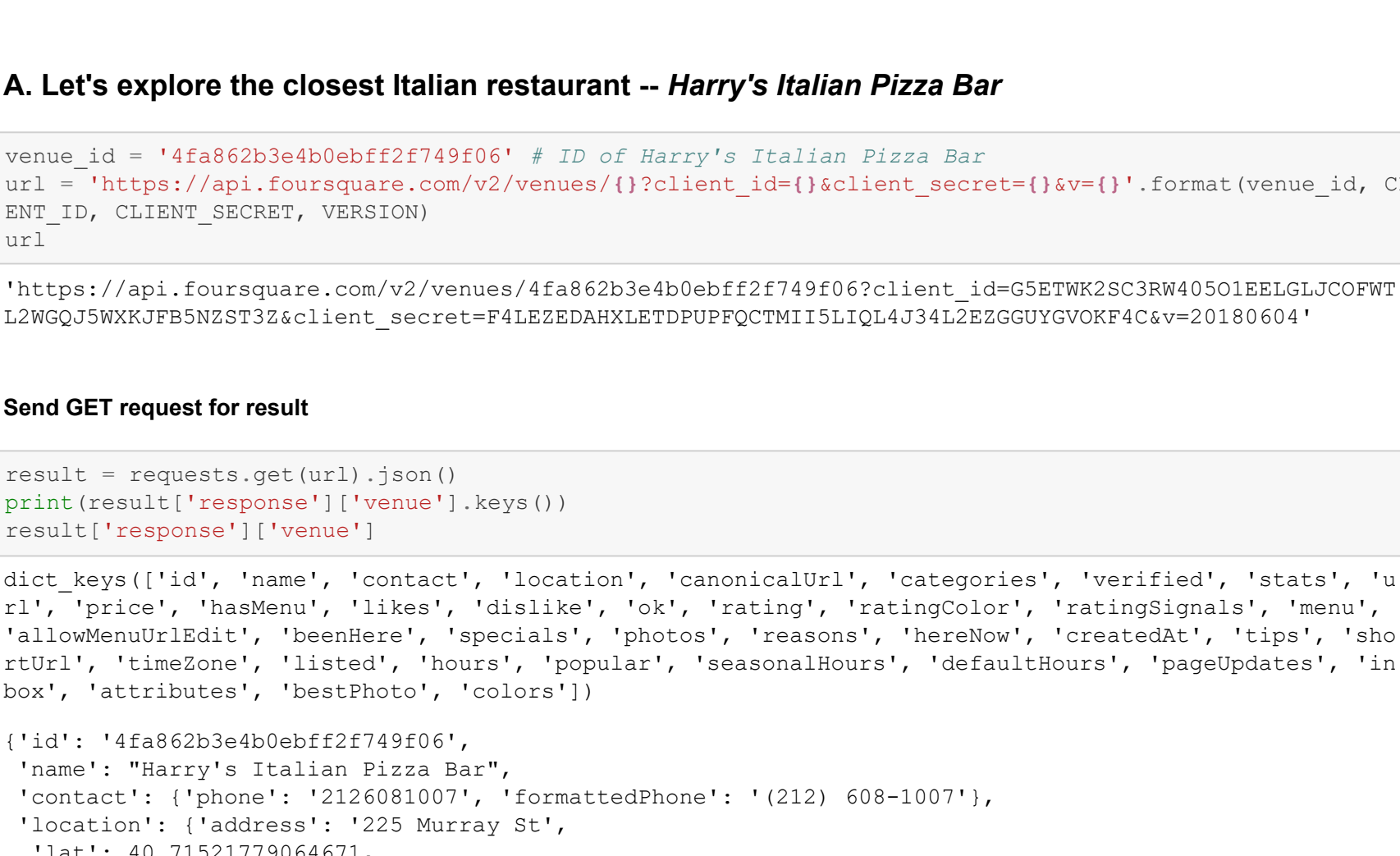
In [10]:
```python
venues_map = folium.Map(location=[latitude, longitude], zoom_start=13) # generate map centred around th
e Conrad Hotel

# add a red circle marker to represent the Conrad Hotel
folium.CircleMarker(
    [latitude, longitude],
    radius=10,
    color='red',
    popup='Conrad Hotel',
    fill = True,
    fill_color = 'red',
    fill_opacity = 0.6
).add_to(venues_map)

# add the Italian restaurants as blue circle markers
for lat, lng, label in zip(dataframe_filtered.lat, dataframe_filtered.lng, dataframe_filtered.categorie
s):
    folium.CircleMarker(
        [lat, lng],
        radius=5,
        color='blue',
        popup=label,
        fill = True,
        fill_color='blue',
        fill_opacity=0.6
    ).add_to(venues_map)

# display map
venues_map
```

Out[10]:



2. Explore a Given Venue

> `https://api.foursquare.com/v2/venues/`**VENUE_ID**`?client_id=`**CLIENT_ID**`&client_secret=`**CLIENT_SECRET**`&v=`**VERSION**

A. Let's explore the closest Italian restaurant -- *Harry's Italian Pizza Bar*

In [11]:
```python
venue_id = '4fa862b3e4b0ebff2f749f06' # ID of Harry's Italian Pizza Bar
url = 'https://api.foursquare.com/v2/venues/{}?client_id={}&client_secret={}&v={}'.format(venue_id, CLI
ENT_ID, CLIENT_SECRET, VERSION)
url
```

Out[11]:
```
'https://api.foursquare.com/v2/venues/4fa862b3e4b0ebff2f749f06?client_id=G5ETWK2SC3RW4O5O1EELGLJCOFWT
L2WGQJ5WKKJFB5NZST3E&client_secret=F4LEZEDAKXLETOPUFPQCTMI15LIQL4J34L2EZGGUYGVOKF4C&v=20180604'
```

Send GET request for result

In [12]:
```python
result = requests.get(url).json()
print(result['response']['venue'].keys())
result['response']['venue']
```


```
dict_keys(['id', 'name', 'contact', 'location', 'canonicalUrl', 'categories', 'verified', 'stats', 'u
rl', 'price', 'hasMenu', 'likes', 'dislike', 'ok', 'rating', 'ratingColor', 'ratingSignals', 'menu',
'allowMenuUrlEdit', 'beenHere', 'specials', 'photos', 'reasons', 'hereNow', 'createdAt', 'tips', 'sho
rtUrl', 'timeZone', 'listed', 'hours', 'popular', 'seasonalHours', 'defaultHours', 'pageUpdates', 'in
box', 'attributes', 'bestPhoto', 'colors'])
```



```
{'id': '4fa862b3e4b0ebff2f749f06',
 'name': "Harry's Italian Pizza Bar",
 'contact': {'phone': '2126081007', 'formattedPhone': '(212) 608-1007'},
 'location': {'address': '225 Murray St',
  'lat': 40.71521779064671,
  'lng': -74.01473940209351,
  'labeledLatLngs': [{'label': 'display',
    'lat': 40.71521779064671,
    'lng': -74.01473940209351},
   {'label': 'entrance', 'lat': 40.715361, 'lng': -74.014975}],
  'postalCode': '10282',
  'cc': 'US',
  'city': 'New York',
  'state': 'NY',
  'country': 'United States',
  'formattedAddress': ['225 Murray St',
   'New York, NY 10282',
   'United States']},
 'canonicalUrl': 'https://foursquare.com/v/harrys-italian-pizza-bar/4fa862b3e4b0ebff2f749f06',
 'categories': [{'id': '4bf58dd8d48988d1ca941735',
   'name': 'Pizza Place',
   'pluralName': 'Pizza Places',
   'shortName': 'Pizza',
   'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/pizza_',
    'suffix': '.png'},
   'primary': True},
  {'id': '4bf58dd8d48988d110941735',
   'name': 'Italian Restaurant',
   'pluralName': 'Italian Restaurants',
   'shortName': 'Italian',
   'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/italian_',
    'suffix': '.png'}}],
 'verified': False,
 'stats': {'tipCount': 56},
 'url': 'http://harrysitalian.com',
 'price': {'tier': 2, 'message': 'Moderate', 'currency': '$'},
 'hasMenu': True,
 'likes': {'count': 120,
  'groups': [{'type': 'others', 'count': 120, 'items': []}],
  'summary': '120 Likes'},
 'dislike': False,
 'ok': False,
 'rating': 6.9,
 'ratingColor': 'FFC800',
 'ratingSignals': 212,
 'menu': {'type': 'Menu',
  'label': 'Menu',
  'anchor': 'View Menu',
  'url': 'https://foursquare.com/v/harrys-italian-pizza-bar/4fa862b3e4b0ebff2f749f06/menu',
  'mobileUrl': 'https://foursquare.com/v/4fa862b3e4b0ebff2f749f06/device_menu'},
 'allowMenuUrlEdit': True,
 'beenHere': {'count': 0,
  'unconfirmedCount': 0,
  'marked': False,
  'lastCheckinExpiredAt': 0},
 'specials': {'count': 0, 'items': []},
 'photos': {'count': 146,
  'groups': [{'type': 'venue',
    'name': 'Venue photos',
    'count': 146,
    'items': [{'id': '4fad980de4b091b4626c3633',
      'createdAt': 1336776717,
      'source': {'name': 'Foursquare for Android',
       'url': 'https://foursquare.com/download/#/android'},
      'prefix': 'https://fastly.4sqi.net/img/general/',
      'suffix': '/ya1iQFI7pLjuIJp1PGDKlrZS3OJdHCF7tpILMmjv_2w.jpg',
      'width': 480,
      'height': 640,
      'user': {'isSanctioned': False, 'firstName': 'Leony', 'lastName': 'N'},
      'visibility': 'public'},
     {'id': '503139a5e4b0231f7a189592a',
      'createdAt': 1345401331,
      'source': {'name': 'Foursquare for iOS',
       'url': 'https://foursquare.com/download/#/iphone'},
      'prefix': 'https://fastly.4sqi.net/img/general/',
      'suffix': '/ca3NA7x2DlUVHDmmsWWx5ivjR0hoA1Phh0s2Ibowa86xHWxRA.jpg',
      'width': 720,
      'height': 540,
      'user': {'isSanctioned': False, 'firstName': 'Gregory', 'lastName': 'L'},
      'visibility': 'public'}]}]},
 'reasons': {'count': 1,
  'items': [{'summary': 'Lots of people like this place',
    'type': 'general',
    'reasonName': 'rawLikesReason'}]},
 'hereNow': {'count': 0, 'summary': 'Nobody here', 'groups': []},
 'createdAt': 1336436403,
 'tips': {'count': 56,
  'groups': [{'type': 'others',
    'name': 'All tips',
    'count': 56,
    'items': [{'id': '53d27909498e0523841340b6',
      'createdAt': 1406322473,
      'text': "Harry's Italian Pizza bar is known for it's amazing pizza, but did you know that the b
runches here are amazing too? Try the Nutella French toast and we know you'll be sold.",
      'type': 'user',
      'canonicalUrl': 'https://foursquare.com/item/53d27909498e0523841340b6',
      'lang': 'en',
      'likes': {'count': 4,
       'groups': [{'type': 'others',
         'count': 4,
         'items': [{'isSanctioned': False,
           'firstName': 'Diana',
           'lastName': 'M'},
          {'isSanctioned': False, 'firstName': 'Tim', 'lastName': 'S'},
          {'isSanctioned': False,
           'firstName': 'TenantKing.com',
           'type': 'page'}]}],
       'summary': '4 likes'},
      'logView': True,
      'agreeCount': 3,
      'disagreeCount': 0,
      'todo': {'count': 0},
      'user': {'isSanctioned': False,
       'firstName': 'TenantKing.com',
       'type': 'page'}},
     {'id': '53962e98498ecd43845cc813',
      'createdAt': 1402351256,
      'text': "I'm not sure if this place is one of the famous pizzerias in NYC but I loved their piz
za.",
      'type': 'user',
      'canonicalUrl': 'https://foursquare.com/item/53962e98498ecd43845cc813',
      'photo': {'id': '53962e9b498e5b83b5fb28e',
       'createdAt': 1402351260,
       'source': {'name': 'Foursquare for iOS',
        'url': 'https://foursquare.com/download/#/iphone'},
       'prefix': 'https://fastly.4sqi.net/img/general/',
       'suffix': '/7012699_DCcCtW8oRbhNv62E68gxtLnWn7IgRhapBr8vdnIQjYk.jpg',
       'width': 720,
       'height': 720,
       'visibility': 'public'},
      'photourl': 'https://fastly.4sqi.net/img/general/original/7012699_DCcCtW8oRbhNv62E68gxtLnWn7IgR
hapBr8vdnIQjYk.jpg',
      'lang': 'en',
      'likes': {'count': 2,
       'groups': [{'type': 'others',
         'count': 2,
         'items': [{'isSanctioned': False,
           'firstName': 'Hani',
           'lastName': 'A'},
          {'isSanctioned': False, 'firstName': 'Leena', 'lastName': 'R'}]}],
       'summary': '2 likes'},
      'logView': True,
      'agreeCount': 2,
      'disagreeCount': 0,
      'todo': {'count': 0},
      'user': {'isSanctioned': False, 'firstName': 'Hani', 'lastName': 'A'},
      'authorInteractionType': 'liked'}]}]},
 'shortUrl': 'http://4sq.com/JNblHV',
 'timeZone': 'America/New_York',
 'listed': {'count': 54,
  'groups': [{'type': 'others',
    'name': 'Lists from other people',
    'count': 54,
    'items': [{'id': '4fa32fd0e4b04193744746b1',
      'name': 'Manhattan Haunts',
      'description': '',
      'type': 'others',
      'user': {'isSanctioned': False, 'firstName': 'Becca', 'lastName': 'M'},
      'editable': False,
      'public': True,
      'collaborative': False,
      'url': '/becca_mcarthur/list/manhattan-haunts',
      'canonicalUrl': 'https://foursquare.com/becca_mcarthur/list/manhattan-haunts',
      'createdAt': 1336094672,
      'updatedAt': 1380845377,
      'photo': {'id': '4e8cc9461081e3b3544e12e5',
       'createdAt': 1317849414,
       'prefix': 'https://fastly.4sqi.net/img/general/',
       'suffix': '/0NLVU2HC1JF4DXIMKWUFW3QBUT31DC11EFNYYHMJG3NDWAPS.jpg',
       'width': 492,
       'height': 330,
       'user': {'isSanctioned': False,
        'firstName': 'Time Out New York',
        'type': 'page'},
       'visibility': 'public'},
      'followers': {'count': 22},
      'listItems': {'count': 187,
       'items': [{'id': 'v4fa862b3e4b0ebff2f749f06',
         'createdAt': 1342934485}]}},
     {'id': '4fae817be4b085f6b2a74d19',
      'name': 'USA NYC MAN FiDi',
      'description': 'Where to go for decent eats in the restaurant wasteland of Downtown NYC aka FiD
i, along with Tribeca & Battery Park City.',
      'type': 'others',
      'user': {'isSanctioned': False, 'firstName': 'Kino'},
      'editable': False,
      'public': True,
      'collaborative': False,
      'url': '/kinosfault/list/usa-nyc-man-fidi',
      'canonicalUrl': 'https://foursquare.com/kinosfault/list/usa-nyc-man-fidi',
      'createdAt': 1336836475,
      'updatedAt': 1556754919,
      'photo': {'id': '55984992498e13ba75e353bb',
       'createdAt': 1436043666,
       'prefix': 'https://fastly.4sqi.net/img/general/',
       'suffix': '/12113441_iOa6Uh-Xi8bhj2-gpzkkw8MKiAIs7RmOcz_RM7m8ink.jpg',
       'width': 540,
       'height': 960,
       'user': {'isSanctioned': False, 'firstName': 'Kino'},
       'visibility': 'public'},
      'followers': {'count': 20},
      'listItems': {'count': 273,
       'items': [{'id': 'v4fa862b3e4b0ebff2f749f06',
         'createdAt': 1373909433}]}},
     {'id': '4fddeff0e4b0e078037ac0d3',
      'name': 'NYC Resturants',
      'description': '',
      'type': 'others',
      'user': {'isSanctioned': False, 'firstName': 'Richard', 'lastName': 'R'},
      'editable': False,
      'public': True,
      'collaborative': True,
      'url': '/rickr7/list/nyc-resturants',
      'canonicalUrl': 'https://foursquare.com/rickr7/list/nyc-resturants',
      'createdAt': 1339944944,
      'updatedAt': 1605048837,
      'photo': {'id': '5072dd13e4b09145cdf782d1',
       'createdAt': 1349704979,
       'prefix': 'https://fastly.4sqi.net/img/general/',
       'suffix': '/208205_fGh2OuAZ9qJ4agbAA5wMVNOSIm9kNUlRtNwj1N-adqg.jpg',
       'width': 800,
       'height': 800,
       'user': {'isSanctioned': False, 'firstName': 'Thalia', 'lastName': 'K'},
       'visibility': 'public'},
      'followers': {'count': 12},
      'listItems': {'count': 187,
       'items': [{'id': 'v4fa862b3e4b0ebff2f749f06',
         'createdAt': 1581655865}]}},
     {'id': '5266c68a498e7c667807fe09',
      'name': 'Foodie Love in NY - 02',
      'description': '',
      'type': 'others',
      'user': {'isSanctioned': False, 'firstName': 'WiLL'},
      'editable': False,
      'public': True,
      'collaborative': False,
      'url': '/sweetiewill/list/foodie-love-in-ny--02',
      'canonicalUrl': 'https://foursquare.com/sweetiewill/list/foodie-love-in-ny--02',
      'createdAt': 1382467210,
      'updatedAt': 1391995585,
      'followers': {'count': 7},
      'listItems': {'count': 200,
       'items': [{'id': 'v4fa862b3e4b0ebff2f749f06',
         'createdAt': 1386809936}]}}]}]},
 'hours': {'status': 'Closed until 11:30 AM',
  'richStatus': {'entities': [], 'text': 'Closed until 11:30 AM'},
  'isOpen': False,
  'isLocalHoliday': False,
  'dayData': [],
  'timeframes': [{'days': 'Mon-Wed, Sun',
    'open': [{'renderedTime': '11:30 AM-11:00 PM'}],
    'segments': []},
   {'days': 'Thu-Sat',
    'includesToday': True,
    'open': [{'renderedTime': '11:30 AM-Midnight'}],
    'segments': []}]},
 'popular': {'isOpen': False,
  'isLocalHoliday': False,
  'timeframes': [{'days': 'Today',
    'includesToday': True,
    'open': [{'renderedTime': 'Noon-11:00 PM'}],
    'segments': []},
   {'days': 'Sun',
    'open': [{'renderedTime': 'Noon-3:00 PM'},
     {'renderedTime': '5:00 PM-8:00 PM'}],
    'segments': []},
   {'days': 'Mon',
    'open': [{'renderedTime': 'Noon-2:00 PM'},
     {'renderedTime': '6:00 PM-8:00 PM'}],
    'segments': []},
   {'days': 'Tue-Thu',
    'open': [{'renderedTime': 'Noon-2:00 PM'},
     {'renderedTime': '5:00 PM-10:00 PM'}],
    'segments': []},
   {'days': 'Fri',
    'open': [{'renderedTime': 'Noon-3:00 PM'},
     {'renderedTime': '5:00 PM-11:00 PM'}],
    'segments': []}]},
 'seasonalHours': [],
 'defaultHours': {'status': 'Closed until 11:30 AM',
  'richStatus': {'entities': [], 'text': 'Closed until 11:30 AM'},
  'isOpen': False,
  'isLocalHoliday': False,
  'dayData': [],
  'timeframes': [{'days': 'Mon-Wed, Sun',
    'open': [{'renderedTime': '11:30 AM-11:00 PM'}],
    'segments': []},
   {'days': 'Thu-Sat',
    'includesToday': True,
    'open': [{'renderedTime': '11:30 AM-Midnight'}],
    'segments': []}]},
 'pageUpdates': {'count': 0, 'items': []},
 'inbox': {'count': 0, 'items': []},
 'attributes': {'groups': [{'type': 'price',
    'name': 'Price',
    'summary': '$$',
    'count': 1,
    'items': [{'displayName': 'Price', 'displayValue': '$$', 'priceTier': 2}]},
   {'type': 'payments',
    'name': 'Credit Cards',
    'summary': 'Credit Cards',
    'count': 7,
    'items': [{'displayName': 'Credit Cards',
      'displayValue': 'Yes (incl. American Express)'}]},
   {'type': 'outdoorSeating',
    'name': 'Outdoor Seating',
    'summary': 'Outdoor Seating',
    'count': 1,
    'items': [{'displayName': 'Outdoor Seating', 'displayValue': 'Yes'}]},
   {'type': 'serves',
    'name': 'Menus',
    'summary': 'Happy Hour, Brunch & more',
    'count': 8,
    'items': [{'displayName': 'Brunch', 'displayValue': 'Brunch'},
     {'displayName': 'Lunch', 'displayValue': 'Lunch'},
     {'displayName': 'Dinner', 'displayValue': 'Dinner'},
     {'displayName': 'Happy Hour', 'displayValue': 'Happy Hour'}]},
   {'type': 'drinks',
    'name': 'Drinks',
    'summary': 'Beer, Wine & Cocktails',
    'count': 5,
    'items': [{'displayName': 'Beer', 'displayValue': 'Beer'},
     {'displayName': 'Wine', 'displayValue': 'Wine'},
     {'displayName': 'Cocktails', 'displayValue': 'Cocktails'}]}]},
 'bestPhoto': {'id': '4fad980de4b091b4626c3633',
  'createdAt': 1336776717,
  'source': {'name': 'Foursquare for Android',
   'url': 'https://foursquare.com/download/#/android'},
  'prefix': 'https://fastly.4sqi.net/img/general/',
  'suffix': '/ya1iQFI7pLjuIJp1PGDKlrZS3OJdHCF7tpILMmjv_2w.jpg',
  'width': 480,
  'height': 640,
  'visibility': 'public'},
 'colors': {'highlightColor': {'photoId': '4fad980de4b091b4626c3633',
   'value': -13619152},
  'highlightTextColor': {'photoId': '4fad980de4b091b4626c3633', 'value': -1},
  'algoVersion': 3}}
```


B. Get the venue's overall rating

In [13]:
```python
try:
    print(result['response']['venue']['rating'])
except:
    print('This venue has not been rated yet.')
```

```
6.9
```

That is not a very good rating. Let's check the rating of the second closest Italian restaurant.

In [14]:
```python
venue_id = '4f3232e219836c91c7bfde94' # ID of Conca Cucina Italian Restaurant
url = 'https://api.foursquare.com/v2/venues/{}?client_id={}&client_secret={}&v={}'.format(venue_id, CLI
ENT_ID, CLIENT_SECRET, VERSION)

result = requests.get(url).json()
try:
    print(result['response']['venue']['rating'])
except:
    print('This venue has not been rated yet.')
```

```
This venue has not been rated yet.
```

Since this restaurant has no ratings, let's check the third restaurant.

In [15]:
```python
venue_id = '3fd66200f964a520f4e41ee3' # ID of Ecco
url = 'https://api.foursquare.com/v2/venues/{}?client_id={}&client_secret={}&v={}'.format(venue_id, CLI
ENT_ID, CLIENT_SECRET, VERSION)

result = requests.get(url).json()
try:
    print(result['response']['venue']['rating'])
except:
    print('This venue has not been rated yet.')
```

```
7.3
```

Since this restaurant has a slightly better rating, let's explore it further.

C. Get the number of tips

In [16]:
```python
result['response']['venue']['tips']['count']
```

Out[16]:
```
19
```

D. Get the venue's tips

> `https://api.foursquare.com/v2/venues/`**VENUE_ID**`/tips?client_id=`**CLIENT_ID**`&client_secret=`**CLIENT_SECRET**`&v=`**VERSION**`&limit=`**LIMIT**

Create URL and send GET request. Make sure to set limit to get all tips

In [17]:
```python
## Ecco Tips
limit = 15 # set limit to be greater than or equal to the total number of tips
url = 'https://api.foursquare.com/v2/venues/{}/tips?client_id={}&client_secret={}&v={}&limit={}'.format
(venue_id, CLIENT_ID, CLIENT_SECRET, VERSION, limit)

results = requests.get(url).json()
results
```

Out[17]:

```
{'meta': {'code': 200, 'requestId': '5faf787912d8516a980ce760'},
 'response': {'tips': {'count': 19,
   'items': [{'id': '5ab1cb46c9a517174651d3fe',
     'createdAt': 1521601350,
     'text': 'A+ Italian food! Trust me on this: my mom’s side of the family is 100% Italian. I was b
orn and bred to know good pasta when I see it, and Ecco is one of my all-time NYC favorites',
     'type': 'user',
     'canonicalUrl': 'https://foursquare.com/item/5ab1cb46c9a517174651d3fe',
     'lang': 'en',
     'likes': {'count': 0, 'groups': []},
     'logView': True,
     'agreeCount': 5,
     'disagreeCount': 0,
     'todo': {'count': 0},
     'user': {'isSanctioned': False, 'firstName': 'Nick', 'lastName': 'E'},
     'authorInteractionType': 'liked'},
    {'id': '5cb7051b180b910039f90625',
     'createdAt': 1555498267,
     'text': 'Excellent food!! Osso bucco special one of the best I ever had! Lobster ravioli with po
rcini mushroomhomemade Italian cheesecake, tiramisu and napoleons...calamari fra diavolo was sautéed
not fried',
     'type': 'user',
     'canonicalUrl': 'https://foursquare.com/item/5cb7051b180b910039f90625',
     'lang': 'en',
     'likes': {'count': 0, 'groups': []},
     'logView': True,
     'agreeCount': 1,
     'disagreeCount': 0,
     'todo': {'count': 0},
     'user': {'isSanctioned': False, 'firstName': 'Lynn', 'lastName': 'B'},
     'authorInteractionType': 'liked'}]}}}
```


Get tips and list of associated features

```
tips = results['response']['tips']['items']

tip = results['response']['tips']['items'][0]
tip.keys()
```

Out[18]:
```
dict_keys(['id', 'createdAt', 'text', 'type', 'canonicalUrl', 'lang', 'likes', 'logView', 'agreeCount', 'disagreeCount', 'todo', 'user', 'authorInteractionType'])
```

Format column width and display all tips

In [19]:
```
pd.set_option('display.max_colwidth', None)

tips_df = pd.json_normalize(tips) # json normalize tips

# columns to keep
filtered_columns = ['text', 'agreeCount', 'disagreeCount', 'id', 'user.firstName', 'user.lastName']
tips_filtered = tips_df.loc[:, filtered_columns]

# display tips
tips_filtered.reindex()
```

Out[19]:

	text	agreeCount	disagreeCount	id	user.firstName	user.lastName
0	A+ Italian food! Trust me on this: my mom's side of the family is 100% Italian. I was born and bred to know good pasta when I see it, and Ecco is one of my all-time NYC favorites	5	0	5ab1cb46c9a517174651d3fe	Nick	E
1	Excellent food! Osso bucco special one of the best I ever had! Lobster ravioli with porcini mushroom/homemade Italian cheesecake, tiramisu and napoleons...calamari fra diavolo was sautéed not fried	1	0	5cb7051b180b910039f90625	Lynn	B

Now remember that because we are using a personal developer account, then we can access only 2 of the restaurant's tips, instead of all 15 tips.

3. Search a Foursquare User

> `https://api.foursquare.com/v2/users/` **USER_ID** `?`
> `client_id=` **CLIENT_ID** `&client_secret=` **CLIENT_SECRET** `&v=` **VERSION**

Define URL, send GET request and display features associated with user

In [20]:
```
idnumber = '484542633' # user ID with most agree counts and complete profile
ACCESS_TOKEN = 'HLOWVPEMS4FOWL4YO1AXES2U4QBUPQ2P1P9K4OQYNB0NTQZE'

url = 'https://api.foursquare.com/v2/users/{}/tips?client_id={}&client_secret={}&oauth_token={}&v={}'.format(idnumber, CLIENT_ID, CLIENT_SECRET, ACCESS_TOKEN, VERSION) # define URL

# send GET request
results = requests.get(url).json()
#user_data = results['response']['user']
user_data=results['response']['tips']['items'][0]['venue']['photos']['groups'][0]['items']#['items']
# display features associated with user
#user_data.keys()
#results
pd.set_option('display.max_colwidth', None)

users_df = pd.json_normalize(user_data)

# filter columns
filtered_columns = ['id','user.firstName','user.lastName']
tips_filtered = users_df.loc[:, filtered_columns]

# display user's tips
df=tips_filtered
df
#url
```

Out[20]:

	id	user.firstName	user.lastName
0	57099084498e6e5b94d5a312	Cesar	H. Gamboa
1	541e1d3b498e8e793290f7cd	Cesar	H. Gamboa
2	53cb1c82498ef31f2f2eba34	Marcs	Marquez Mejorada

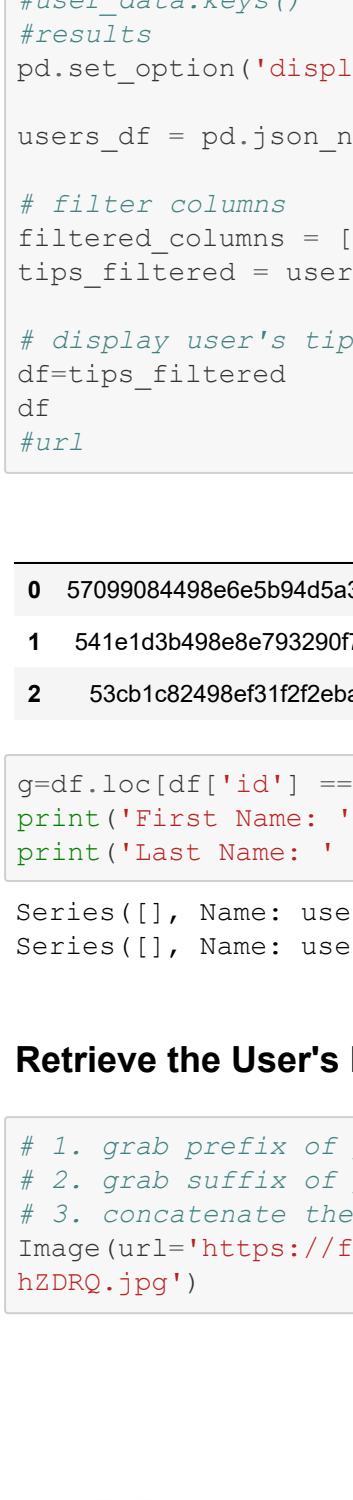
In [21]:
```
g=df.loc[df['id'] == '133773133']
print('First Name: ' + g['user.firstName'])
print('Last Name: ' + g['user.lastName'])
```

```
Series([], Name: user.firstName, dtype: object)
Series([], Name: user.lastName, dtype: object)
```

Retrieve the User's Profile Image

In [22]:
```
# 1. grab prefix of photo
# 2. grab suffix of photo
# 3. concatenate them using the image size
Image(url='https://fastly.4sqi.net/img/general/540x920/133773133_ODR5Au05ENkSyu3xxfV3VOfCa0idDfm9Q4n8YbhZDRQ.jpg')
```

Out[22]:



Wow! So it turns out that Nick is a very active Foursquare user, with more than 250 tips.

Get User's tips

In [23]:
```
# define tips URL
user_id='484542633'
url = 'https://api.foursquare.com/v2/users/{}/tips?client_id={}&client_secret={}&v={}&limit={}'.format(user_id, CLIENT_ID, CLIENT_SECRET, VERSION, limit)

# send GET request and get user's tips
results = requests.get(url).json()
tips = results['response']['tips']['items']

# format column width
pd.set_option('display.max_colwidth', None)

tips_df = pd.json_normalize(tips)

# filter columns
filtered_columns = ['text', 'agreeCount', 'disagreeCount', 'id']
tips_filtered = tips_df.loc[:, filtered_columns]

# display user's tips
tips_filtered
```

Out[23]:

	text	agreeCount	disagreeCount	id
0	They serve coffee!!!!!!	1	0	5accc98c0313204c9d7ec157
1	Quick, cheap lunch that tastes good! Way shorter line than Chipotle, too.	2	0	5acbec70a0215b732e264fe8
2	You're not a real New Yorker until you've shame-ordered Insomnia Cookies for delivery at 3am	1	0	5acbbd4eb1538e45373b07f5
3	Good for you yet still tasty! Clean green protein is my go-to after I hit the gym 💪	2	0	5acbbcda01235808d5d6dc75
4	Burger game strong 💪	1	0	5ab575fb6bdee65f759da8c1
5	Great burgers & fries! Also, this place is exactly what it's like when you go to a bar in the Southwest. Source: I'm from Arizona.	2	0	5ab5575d73fe2516ad8f363b
6	Açaí bowl + peanut butter + whey protein = 💪💪💪	1	0	5ab42db53c858d64af2688a4
7	Highly underrated and way less crowded than Central Park!	3	0	5ab42c396f706a29f53ad1a8
8	Get the açaí bowl with peanut butter after your work out and thank me later 👌	1	0	5ab42aca2a7ab6333652b266
9	When you want a burger, this should be the first thing that comes to mind. A+!	1	0	5ab42a28da5e5617d18e3a6a
10	Way less crowded than Central Park! People who live in the neighborhood rave about Carl Schurz Park.	3	0	5ab429db1ffe971b060083f5
11	The best Mexican food in the Murray Hill / Kips Bay area!	1	0	5ab3f53f8496ca57542d5549
12	Best coffee shop in the neighborhood!	1	0	5ab3f428da5e5617d17d1475
13	When there's nice weather, the rooftop at Tonic East is the best place to watch the game. Perfect for March Madness & NBA finals!	2	0	5ab3f3fedd70c572de886c9d
14	Rib game level 💯	1	0	5ab3f372da2e00604ca53924

Let's get the venue for the tip with the greatest number of agree counts

In [24]:
```
tip_id = '5ab5575d73fe2516ad8f363b' # tip id

# define URL
url = 'https://api.foursquare.com/v2/users/{}/tips?client_id={}&client_secret={}&v={}'.format(idnumber, CLIENT_ID, CLIENT_SECRET, VERSION) # define URL


# send GET Request and examine results
result = requests.get(url).json()
print(result['response']['tips']['items'][0]['venue']['name'])
print(result['response']['tips']['items'][0]['venue']['location'])
```

```
Tres Bar
{'lat': 20.17693758560229, 'lng': -98.04832423694748, 'labeledLatLngs': [{'label': 'display', 'lat': 20.17693758560229, 'lng': -98.04832423694748}], 'cc': 'MX', 'country': 'México', 'formattedAddress': ['México']}
```

4. Explore a location

> `https://api.foursquare.com/v2/venues/` **explore** `?`
> `client_id=` **CLIENT_ID** `&client_secret=` **CLIENT_SECRET** `&ll=` **LATITUDE** `,` **LONGITUDE** `&v=` **VERSION** `&limit=` **LIMIT**

So, you just finished your gourmet dish at Ecco, and are just curious about the popular spots around the restaurant. In order to explore the area, let's start by getting the latitude and longitude values of Ecco Restaurant.

In [25]:
```
latitude = 40.715337
longitude = -74.008848
```

Define URL

In [26]:
```
url = 'https://api.foursquare.com/v2/venues/explore?client_id={}&client_secret={}&ll={},{}&v={}&radius={}&limit={}'.format(CLIENT_ID, CLIENT_SECRET, latitude, longitude, VERSION, radius, LIMIT)
url
```

Out[26]:
```
'https://api.foursquare.com/v2/venues/explore?client_id=G5ETWK2SC3RW405O1EELGLJCOFWTL2WGQJ5WXKJFB5NZST3Z&client_secret=F4LEZEDAHXLETDPUPFQCTMII5LIQL4J34L2EZGGUYGVOKF4C&ll=40.715337,-74.008848&v=20180604&radius=500&limit=30'
```

Send GET request and examine results

In [27]:
```
import requests
```

In [28]:
```
results = requests.get(url).json()
'There are {} around Ecco restaurant.'.format(len(results['response']['groups'][0]['items']))
```

Out[28]:
```
'There are 30 around Ecco restaurant.'
```

Get relevant part of JSON

In [29]:
```
items = results['response']['groups'][0]['items']
items[0]
```

Out[29]:

```
{'reasons': {'count': 0,
  'items': [{'summary': 'This spot is popular',
    'type': 'general',
    'reasonName': 'globalInteractionReason'}]},
 'venue': {'id': '5d5f24ec09484500079aee00',
  'name': 'Los Tacos No. 1',
  'location': {'address': '136 Church St',
   'lat': 40.714267,
   'lng': -74.008756,
   'labeledLatLngs': [{'label': 'display',
     'lat': 40.714267,
     'lng': -74.008756}],
   'distance': 119,
   'postalCode': '10007',
   'cc': 'US',
   'city': 'New York',
   'state': 'NY',
   'country': 'United States',
   'formattedAddress': ['136 Church St',
    'New York, NY 10007',
    'United States']},
  'categories': [{'id': '4bf58dd8d48988d151941735',
    'name': 'Taco Place',
    'pluralName': 'Taco Places',
    'shortName': 'Tacos',
    'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/taco_',
     'suffix': '.png'},
    'primary': True}],
  'delivery': {'id': '2180700',
   'url': 'https://www.seamless.com/menu/los-tacos-no-1-tribeca-136-church-st-new-york/2180700?affiliate=1131&utm_source=foursquare-affiliate-network&utm_medium=affiliate&utm_campaign=1131&utm_content=2180700',
   'provider': {'name': 'seamless',
    'icon': {'prefix': 'https://fastly.4sqi.net/img/general/cap/',
     'sizes': [40, 50],
     'name': '/delivery_provider_seamless_20180129.png'}}},
  'photos': {'count': 0, 'groups': []}},
 'referralId': 'e-0-5d5f24ec09484500079aee00-0'}
```


Process JSON and convert it to a clean dataframe

In [30]:
```
dataframe = pd.json_normalize(items) # flatten JSON

# filter columns
filtered_columns = ['venue.name', 'venue.categories'] + [col for col in dataframe.columns if col.startswith('venue.location.')] + ['venue.id']
dataframe_filtered = dataframe.loc[:, filtered_columns]

# filter the category for each row
dataframe_filtered['venue.categories'] = dataframe_filtered.apply(get_category_type, axis=1)

# clean columns
dataframe_filtered.columns = [col.split('.')[-1] for col in dataframe_filtered.columns]

dataframe_filtered.head(10)
```

Out[30]:

	name	categories	address	lat	lng	labeledLatLngs	distance	postalCode	cc	city	state	country	formatte
0	Los Tacos No. 1	Taco Place	136 Church St	40.714267	-74.008756	[{'label': 'display', 'lat': 40.714267, 'lng': -74.008756}]	119	10007	US	New York	NY	United States	[136 Ne 100
1	Korin	Furniture / Home Store	57 Warren St	40.714824	-74.009404	[{'label': 'display', 'lat': 40.71482437714839, 'lng': -74.00940425461492}, {'label': 'entrance', 'lat': 40.714727, 'lng': -74.009399}]	73	10007	US	New York	NY	United States	[57 (Churc York, Un
2	Takahachi Bakery	Bakery	25 Murray St	40.713653	-74.008804	[{'label': 'display', 'lat': 40.713652845301894, 'lng': -74.0088038953017}, {'label': 'entrance', 'lat': 40.713716, 'lng': -74.008443}]	187	10007	US	New York	NY	United States	[25 M Churc York, Un
3	Juice Press	Vegetarian / Vegan Restaurant	83 Murray St	40.714788	-74.011132	[{'label': 'display', 'lat': 40.71478769908051, 'lng': -74.0111317502157}]	202	10007	US	New York	NY	United States	[83 (btwn St & W I Ne 100
4	Takahachi	Sushi Restaurant	145 Duane St	40.716526	-74.008101	[{'label': 'display', 'lat': 40.71652647412374, 'lng': -74.00810108466207}, {'label': 'entrance', 'lat': 40.716508, 'lng': -74.007989}]	146	10013	US	New York	NY	United States	[14 (btwn W & Churc York, Un
5	Chambers Street Wines	Wine Shop	148 Chambers St	40.715773	-74.009718	[{'label': 'display', 'lat': 40.715773063928374, 'lng': -74.00971823312332}, {'label': 'entrance', 'lat': 40.715696, 'lng': -74.00988}]	88	10007	US	New York	NY	United States	[148 Cl E Hudsc York, Un
6	Heyday	Spa	92 Reade St	40.715726	-74.007767	[{'label': 'display', 'lat': 40.715726, 'lng': -74.007767}, {'label': 'entrance', 'lat': 40.715654, 'lng': -74.00782}]	100	10013	US	New York	NY	United States	[92 Rea York, Un
7	Lekka Burger	Burger Joint	81 Warren St	40.715246	-74.010559	[{'label': 'display', 'lat': 40.715246, 'lng': -74.010559}]	144	10007	US	New York	NY	United States	[81 War Greenw Broac York, Un
8	Equinox Tribeca	Gym	54 Murray St	40.714099	-74.009686	[{'label': 'display', 'lat': 40.71409860726041, 'lng': -74.0096857179283}]	154	10007	US	New York	NY	United States	[54 Murr Broac York, Un
9	Nish Nūsh	Falafel Restaurant	88 Reade St	40.715537	-74.007725	[{'label': 'display', 'lat': 40.71553710116416, 'lng': -74.00772452925565}, {'label': 'entrance', 'lat': 40.715615, 'lng': -74.00773}]	97	10013	US	New York	NY	United States	[88 R Churc York, Un

Let's visualize these items on the map around our location

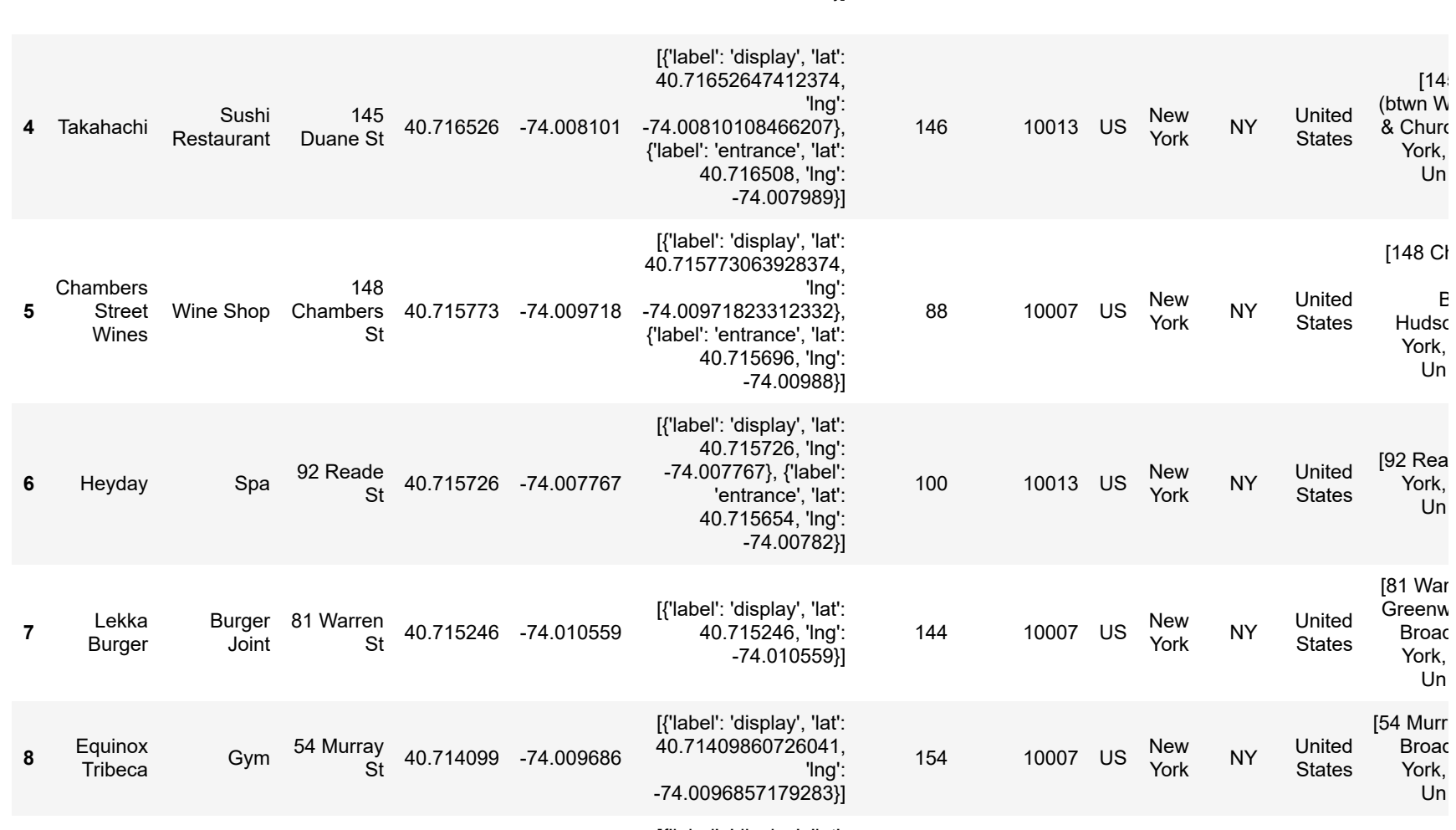
In [31]:
```
venues_map = folium.Map(location=[latitude, longitude], zoom_start=15) # generate map centred around Ecco

# add Ecco as a red circle mark
folium.CircleMarker(
    [latitude, longitude],
    radius=10,
    popup='Ecco',
    fill=True,
    color='red',
    fill_color='red',
    fill_opacity=0.6
    ).add_to(venues_map)

# add popular spots to the map as blue circle markers
for lat, lng, label in zip(dataframe_filtered.lat, dataframe_filtered.lng, dataframe_filtered.categories):
    folium.CircleMarker(
        [lat, lng],
        radius=5,
        popup=label,
        fill=True,
        color='blue',
        fill_color='blue',
        fill_opacity=0.6
        ).add_to(venues_map)

# display map
venues_map
```

Out[31]:



5. Explore Trending Venues

> `https://api.foursquare.com/v2/venues/` **trending** `?`
> `client_id=` **CLIENT_ID** `&client_secret=` **CLIENT_SECRET** `&ll=` **LATITUDE** `,` **LONGITUDE** `&v=` **VERSION**

Now, instead of simply exploring the area around Ecco, you are interested in knowing the venues that are trending at the time you are done with your lunch, meaning the places with the highest foot traffic. So let's do that and get the trending venues around Ecco.

In [32]:
```
# define URL
url = 'https://api.foursquare.com/v2/venues/trending?client_id={}&client_secret={}&ll={},{}&v={}'.format(CLIENT_ID, CLIENT_SECRET, latitude, longitude, VERSION)

# send GET request and get trending venues
results = requests.get(url).json()
results
```

Out[32]:
```
{'meta': {'code': 200, 'requestId': '5faf787de76a681dc85e7523'},
 'response': {'venues': []}}
```

Check if any venues are trending at this time

In [33]:
```
if len(results['response']['venues']) == 0:
    trending_venues_df = 'No trending venues are available at the moment!'

else:
    trending_venues = results['response']['venues']
    trending_venues_df = pd.json_normalize(trending_venues)

    # filter columns
    columns_filtered = ['name', 'categories'] + ['location.distance', 'location.city', 'location.postalCode', 'location.state', 'location.country', 'location.lat', 'location.lng']
    trending_venues_df = trending_venues_df.loc[:, columns_filtered]

    # filter the category for each row
    trending_venues_df['categories'] = trending_venues_df.apply(get_category_type, axis=1)
```

In [34]:
```
# display trending venues
trending_venues_df
```

Out[34]:
```
'No trending venues are available at the moment!'
```

Now, depending on when you run the above code, you might get different venues since the venues with the highest foot traffic are fetched live.

Visualize trending venues

In [35]:
```
if len(results['response']['venues']) == 0:
    venues_map = 'Cannot generate visual as no trending venues are available at the moment!'

else:
    venues_map = folium.Map(location=[latitude, longitude], zoom_start=15) # generate map centred around Ecco


    # add Ecco as a red circle mark
    folium.CircleMarker(
        [latitude, longitude],
        radius=10,
        popup='Ecco',
        fill=True,
        color='red',
        fill_color='red',
        fill_opacity=0.6
    ).add_to(venues_map)


    # add the trending venues as blue circle markers
    for lat, lng, label in zip(trending_venues_df['location.lat'], trending_venues_df['location.lng'], trending_venues_df['name']):
        folium.CircleMarker(
            [lat, lng],
            radius=5,
            poup=label,
            fill=True,
            color='blue',
            fill_color='blue',
            fill_opacity=0.6
        ).add_to(venues_map)
```

In [36]:
```
# display map
venues_map
```

Out[36]:
```
'Cannot generate visual as no trending venues are available at the moment!'
```

Thank you for completing this lab!

This notebook was created by [Alex Aklson](). I hope you found this lab interesting and educational. Feel free to contact me if you have any questions!

This notebook modified by Nayef Abou Tayoun ([https://www.linkedin.com/in/nayefaboutayoun/]())

This notebook is part of a course on **Coursera** called *Applied Data Science Capstone*. If you accessed this notebook outside the course, you can take this course online by clicking [here]().

In [ ]: