

## Week 6 Lab Assignment Goals

- Understand how to call Web APIs in Python
- Specifically, use the Google Places APIs

### Step 0 : Create a GitHub repository

- Go to <https://classroom.github.com/assignment-invitations/aaaa518eaf2ddac48b6765562d6b062c>
- Accept the assignment invite and clone the assignment repository onto your machine
- Open a Terminal window or command prompt and 'cd' to the cloned directory

### Step 1 : Get a Google Places API key

- Go to [https://developers.google.com/places/web-service/get-api-key#get\\_an\\_api\\_key](https://developers.google.com/places/web-service/get-api-key#get_an_api_key)
- Click the 'Get a Key' button
- Enter a project name (e.g. 'My API Project'), accept the Terms of Service, and click 'Create and Enable API'
- You should get a prompt saying 'You're all set!' containing **your API key**. **Copy and save your API key somewhere, we will need it throughout today's lab.**

### Step 2 : The Google Places API

- The Google Places Web API is a Web Service. To see the services it offers, visit the documentation [here](#).
- For example, we can use the [Query Autocomplete](#) service to find places that most closely match a given query string
- To see potential places that match the string 'North Quad', add your API key to the end of this URL and open it in your browser:  
<https://maps.googleapis.com/maps/api/place/queryautocomplete/json?input=north+quad&key=>
- You will see a large JSON response
- Paste the JSON response [here](#) and click 'Viewer' to visualize its tree structure
- Notice that the JSON response contains
  - Predictions: a list of Places that match the string 'North Quad'
  - Status: indicates whether your request was successful
- Note that every Place contains a *place\_id* and *description*

### Step 3 : Call the Query Autocomplete service using Python

- We can also do all of the above in Python!
- Open example.py from the assignment folder
- Paste your API key in line 10
- Run example.py to see its results
- Examine example.py to understand how:
  - The urllib module calls the Query Autocomplete service
  - The json module parses the response

#### Step 4 : Find the latitude and longitude of North Quad

- Create a new file lab6.py in the folder you created for this week's assignment
- Write a function to print the latitude and longitude of the North Quad that we are in
  - Hint 1: Use the [Place Details service](#)
  - Hint 2: You will need the *place\_id* returned by the Query Autocomplete service
  - Hint 3: Your code will look pretty similar to example.py, except for the printing step
- We get latitude = 42.280738 and longitude = -83.7401718

#### Step 5 : Find restaurants near North Quad

- Write a function to find restaurants within 500 meters from North Quad.
- For each restaurant, print its name and rating
  - Hint 1: Use the [Nearby Search](#) service
  - Hint 2: You will need the latitude and longitude from step 4
- We get the following results:

Buffalo Wild Wings	3.8
Ashley's	4.1
Sava's	4.2
The Original Cottage Inn	4.2
Chipotle Mexican Grill	4.1
Mani Osteria and Bar	4.5
Taste of India	4
Madras Masala Restaurant	4.1
Noodles & Company	3.8
Angelo's	4.2
Jimmy John's	3.5
Subway	3.9
Bar Louie	3.5
Panera Bread	3.6
Ahmo's Gyros & Deli	3.5
Isalita	4.2
Red Hawk Bar & Grill	3.8
Silvio's Organic Ristorante e Pizzeria	3.5
Mama Satto Sushi restaurant	3.5
Tomukun Noodle Bar	4.4

#### Step 6: Make the display interactive!

- Modify step 5 to write a new function that asks the user whether to sort the restaurants by *rating* or by *price*
- Depending on user input, display sorted results
  - Hint 1: create a dictionary for the restaurants from step 5
  - Hint 2: use lambdas to sort results (search stackoverflow)
  - Hint 3: not all restaurants include a *price\_level*. Assume 0.0 in that case.
- Here are our results, sorted by **price** (ascending):

```
Red Hawk Bar & Grill
The Original Cottage Inn
Sava's
Isalita
Mama Satto Sushi restaurant
Bar Louie
```

Chipotle Mexican Grill  
Ahmo's Gyros & Deli  
Buffalo Wild Wings  
Noodles & Company  
Subway  
Jimmy John's  
Panera Bread  
Mani Osteria and Bar  
Tomukun Noodle Bar  
Ashley's  
Madras Masala Restaurant  
Angelo's  
Silvio's Organic Ristorante e Pizzeria  
Taste of India

- Here are our results, sorted by **rating (ascending)**:

Silvio's Organic Ristorante e Pizzeria  
Jimmy John's  
Ahmo's Gyros & Deli  
Bar Louie  
Mama Satto Sushi restaurant  
Panera Bread  
Buffalo Wild Wings  
Red Hawk Bar & Grill  
Noodles & Company  
Subway  
Taste of India  
Madras Masala Restaurant  
Chipotle Mexican Grill  
Ashley's  
Angelo's  
Sava's  
Isalita  
The Original Cottage Inn  
Tomukun Noodle Bar  
Mani Osteria and Bar

## Step 7 : Commit code to GitHub

- Commit and push all your code to GitHub