**Tutorial for collecting POIs through Google Places API**

Reference:

* Tutorial from Gotrained Python Tutorials <https://python.gotrained.com/google-places-api-extracting-location-data-reviews/>
* Tutorial from Jianshu <https://www.jianshu.com/p/76f058d3373f>

Step:

* Get API from Google Cloud Platform
* Google Places API
* Create Fishnet
* Create Python script

1. Get API from Google Cloud Platform
   * Google Cloud Console
   * Create a new project
   * Choose APIs&Services/Library
   * Enable Places API
   * Create credentials (choose API key)
   * Set the restrictions
2. Google Search for Places API

Document for Google Places API can be found [here](https://developers.google.com/places/web-service/search).

Google Places APIs allow users to query for place information on a variety of categories (See list below). There are two ways to search for places: proximity and text string. The APIs are **Nearby Search requests** and **Text Search requests.**

**Nearby Search requests** allows to search for places within a specific area through supplying keywords or specifying the type of place.

A Nearby Search request is an HTTP URL of the following form:

*https://maps.googleapis.com/maps/api/place/nearbysearch/output?parameters*

where output may be either of the following values:

* json indicates output in JavaScript Object Notation(JSON)
* xml indicates output as XML

\*All parameters are separated using the ampersand (&) character

\*Required parameters

* key — Your application's API key. This key identifies your application. See Get a key for more information.
* location — The latitude/longitude around which to retrieve place information. This must be specified as latitude,longitude.
* radius — Defines the distance (in meters) within which to return place results. The maximum allowed radius is 50 000 meters. Note that radius must not be included if rankby=distance (described under Optional parameters below) is specified.
* If rankby=distance (described under Optional parameters below) is specified, then one or more of keyword, name, or type is required.

\*Optional parameters

* type — Restricts the results to places matching the specified type. Only one type may be specified
* pagetoken — Returns the next 20 results from a previously run search. Setting a pagetoken parameter will execute a search with the same parameters used previously — all parameters other than pagetoken will be ignored.

Few key things about Nearby Search Request:

* Maximum places per day from one account is 150000 POIs (according to second reference)
* Result returned from Google are up to 20 each page.
* When the number of result is more than 20, *next\_page\_token* will be given in the former page

\*Types of place

* accounting
* airport
* amusement\_park
* aquarium
* art\_gallery
* atm
* bakery
* bank
* bar
* beauty\_salon
* bicycle\_store
* book\_store
* bowling\_alley
* bus\_station
* cafe
* campground
* car\_dealer
* car\_rental
* car\_repair
* car\_wash
* casino
* cemetery
* church
* city\_hall
* clothing\_store
* convenience\_store
* courthouse
* dentist
* department\_store
* doctor
* electrician
* electronics\_store
* embassy
* fire\_station
* florist
* funeral\_home
* furniture\_store
* gas\_station
* gym
* hair\_care
* hardware\_store
* hindu\_temple
* home\_goods\_store
* hospital
* insurance\_agency
* jewelry\_store
* laundry
* lawyer
* library
* liquor\_store
* local\_government\_office
* locksmith
* lodging
* meal\_delivery
* meal\_takeaway
* mosque
* movie\_rental
* movie\_theater
* moving\_company
* museum
* night\_club
* painter
* park
* parking
* pet\_store
* pharmacy
* physiotherapist
* plumber
* police
* post\_office
* real\_estate\_agency
* restaurant
* roofing\_contractor
* rv\_park
* school
* shoe\_store
* shopping\_mall
* spa
* stadium
* storage
* store
* subway\_station
* supermarket
* synagogue
* taxi\_stand
* train\_station
* transit\_station
* travel\_agency
* veterinary\_care
* zoo

1. Google Place Details API

Place details: to get the complete details we have to use another API endpoint.

There is 3 categories for the fields parameter:

**Basic**: address\_component, adr\_address, alt\_id, formatted\_address, geometry, icon, id, name, permanently\_closed, photo, place\_id, plus\_code, scope, type, url, utc\_offset, vicinity

**Contact**: formatted\_phone\_number, international\_phone\_number, opening\_hours, website

**Atmosphere**: price\_level, rating, review

1. Create fishnet on ArcGIS

-output the point shapefile of fishnet

Take London for example, the coordinates of London center is