zip_data

November 23, 2021

[1]:
```
import pandas as pd
import numpy as np
df = pd.read_csv('../ref/US_long_lat_to_zip.csv', dtype=str)
```

[2]:
```
df.head()
```

[2]:

	ZIP	LAT	LNG
0	00601	18.180555	-66.749961
1	00602	18.361945	-67.175597
2	00603	18.455183	-67.119887
3	00606	18.158345	-66.932911
4	00610	18.295366	-67.125135

[13]:
```
def find_zip(lat, lon):
    best_zip = None
    best_zip_distance = None
    for index, row in df.iterrows():
        x1 = float(row['LAT'])
        y1 = float(row['LNG'])
        x_dif = (lat - x1)**2
        y_diff = (lon - y1)**2
        distance = np.sqrt(x_dif + y_diff)
        if not best_zip_distance or distance < best_zip_distance:
            best_zip_distance = distance
            best_zip = row['ZIP']
    return best_zip
```

[14]:
```
lat = 33.219253
lon = -97.129956
print(find_zip(lat, lon))
```

```
76201
```

[41]:
```
import requests
from requests.auth import HTTPBasicAuth

def get_population(lat, lon):
```

```
    request_url = "https://service.zipapi.us/population/zipcode/{zip}/?
↪X-API-KEY={key}&fields=male_population,female_population"
    local_zip = find_zip(lat, lon)
    key = '426151a147801b8aa34933bbd2c75abc'
    submit_url = request_url.format(zip=local_zip, key=key)
    usr = 'zacharyobrien2@my.unt.edu'
    pas = 'ft2x8A!XmuY@XA6hk9xD*nsw'
    r = requests.get(submit_url,auth=HTTPBasicAuth(usr, pas))
    return local_zip, r.json()['data']['population']
```

[42]:
```
zip, pop_data = get_population(lat, lon)
print(zip)
print(pop_data)
```

```
76201
27107
76201
```

[43]:
```
from uszipcode import SearchEngine
search = SearchEngine(simple_zipcode=True) # set simple_zipcode=False to use␣
↪rich info database
zipcode = search.by_zipcode(zip)
```

```
Start downloading data for simple zipcode database, total size 9MB ...
  1 MB finished ...
  2 MB finished ...
  3 MB finished ...
  4 MB finished ...
  5 MB finished ...
  6 MB finished ...
  7 MB finished ...
  8 MB finished ...
  9 MB finished ...
  10 MB finished ...
  Complete!
```

[45]:
```
zipcode.keys()
```

[45]:
```
['zipcode',
 'zipcode_type',
 'major_city',
 'post_office_city',
 'common_city_list',
 'county',
 'state',
 'lat',
 'lng',
 'timezone',
```

```
'radius_in_miles',
'area_code_list',
'population',
'population_density',
'land_area_in_sqmi',
'water_area_in_sqmi',
'housing_units',
'occupied_housing_units',
'median_home_value',
'median_household_income',
'bounds_west',
'bounds_east',
'bounds_north',
'bounds_south']
```