Capstone Project - The Battle of Neighborhoods (Week 1)

Data Description

In this project, city which is analyzed is London. The data acquired for this project is a combination of data from 2 sources.

Firstly, list of stations and their geographical coordinates is scraped from Wikipedia.

https://wiki.openstreetmap.org/wiki/List_of_London_Underground_stations

There are 53 metro stations in London. We will essentially need a dataset that the metro stations' name in London as well as the latitude and longitude coordinates of each station.

	Name	Latitude	Longitude
0	Acton Town	51.502500	-0.278126
1	Acton Central	51.50883531	-0.263033174
2	Acton Central	51.50856013	-0.262879534
3	Aldgate	51.51394	-0.07537
4	Aldgate East	51.51514	-0.07178

The category id will be derived from the Foursquare API. There are 9 venue categories.

```
Arts & Entertainment (4d4b7104d754a06370d81259)
College & University (4d4b7105d754a06372d81259)
Event (4d4b7105d754a06373d81259)
Food (4d4b7105d754a06374d81259)
Nightlife Spot (4d4b7105d754a06376d81259)
Outdoors & Recreation (4d4b7105d754a06377d81259)
Professional & Other Places (4d4b7105d754a06375d81259)
Residence (4e67e38e036454776db1fb3a)
Shop & Service (4d4b7105d754a06378d81259)
Travel & Transport (4d4b7105d754a06379d81259)
```

The metro stations' geographical coordinates data will be utilized as input for the Foursquare API, that will be leveraged to provision venues information for each station and to explore the metro stations' surroundings with the radius **1000 meter** for each station from their given latitude and longitude information.

```
def get_venues_count(lat,long, radius, categoryId):
    explore_url = 'https://api.foursquare.com/v2/venues/explore?client_id={}&client_secret={}&v={}&ll={},{}&radius={}&
            CLIENT_ID,
            CLIENT_SECRET,
            VERSION,
            lat,
            long,
            radius,
            categoryId)
    # make the GET request
    return requests.get(explore_url).json()['response']['totalResults']
```

The full CSV will merge the stations' name, geographical coordinates, and a number of each venue categories in each station. The CSV is the following figure below.

	Name	Latitude	Longitude	Arts & Entertainment	College & University	Event	Food	Nightlife Spot	Outdoors & Recreation	Professional & Other Places	Residence	Shop & Service	Travel & Transport
0	Acton Town	51.502500	-0.278126	3	3	0	33	15	18	51	4	28	13
1	Acton Central	51.50883531	-0.263033174	4	4	0	26	12	17	0	3	31	9
2	Acton Central	51.50856013	-0.262879534	4	4	0	26	12	17	29	3	32	9
3	Aldgate	51.51394	-0.07537	36	61	2	185	145	107	74	20	69	94
4	Aldgate East	51.51514	-0.07178	38	62	1	183	144	103	67	22	81	94