The Battle of Neighbourhoods

Introduction

People often move from country to country or between cities for work meetings, where they don't know much about the neighbourhoods of that particular city. So, they may struggle to find the perfect hotel near their work place. Hence this problem is solved by gathering the data of city and make the clusters of all the hotels. So that when user will put the location of his work place he will get recommendation of all the hotels near that location which are present in the same cluster.

This model is targeted for the people who move among countries and cities for work. Hence CEOs, Managers or everyone who has to move between cities and countries for work are the ones who would care about this problem.

Data

We will use Geopy to get the Latitude and Longitude values of the cities and user workplace. Then to get the data about hotels and its name and distance all the other things we will be using Foursquare. We will request foursquare for hotel data which will be returned in Json file. Then information will be extracted from that json file to DataFrame which will be further be used in clustering process.

Above map show us the data Hotel data of New York city obtained from Foursquare. above data is obtained in the form of json file. json file is shown below

```
In [112]: data
```


```
Out[112]: {'meta': {'code': 200, 'requestId': '5d3351ac787dba0038452462'},
           'response': {'venues': [{'id': '49efcc88f964a52006691fe3',
              'name': 'Smyth Hotel',
              'contact': {},
              'location': {'address': '85 W Broadway',
               'crossStreet': 'Chambers St',
               'lat': 40.7151439,
               'lng': -74.0091826,
               'labeledLatLngs': [{'label': 'display',
                 'lat': 40.7151439,
                 'lng': -74.0091826}],
               'distance': 379,
               'postalCode': '10007',
               'cc': 'US',
               'city': 'New York',
               'state': 'NY',
               'country': 'United States',
               'formattedAddress': ['85 W Broadway (Chambers St)',
                'New York, NY 10007',
                'United States']}
```


Now to process this data we have to convert this json file into more structured form. So we converted it to DataFrame as shown below

```
df.head()
```

	Name	Distance	Lat	Lng	City	Address
0	Smyth Hotel	379	40.715144	-74.009183	New York	85 W Broadway
1	The Roxy Hotel	740	40.719341	-74.005044	New York	2 Avenue of the Americas
2	Four Seasons Hotel New York Downtown	284	40.712612	-74.009380	New York	27 Barclay St
3	Soho Grand Hotel	1036	40.721942	-74.004217	New York	310 W Broadway
4	Hotel 50 Bowery NYC	856	40.715936	-73.996789	New York	50 Bowery

Above is the DataFrame obtained from json file. it is cleaned and columns are named accordingly for further processing.