Battle of Neighborhoods Coding section.

In [1]:

```
#Importing all required packages.
!conda install -c conda-forge folium
import folium
import pandas as pd
import requests
from geopy.geocoders import Nominatim
```

```
Solving environment: done

## Package Plan ##

  environment location: /opt/conda/envs/DSX-Python35

  added / updated specs:
    - folium


The following packages will be downloaded:

    package                    |            build
    ---------------------------|-----------------
    vincent-0.4.4              |             py_1          28 KB  conda-forge
    folium-0.9.0               |             py_0          59 KB  conda-forge
    ca-certificates-2019.3.9   |       hecc5488_0         146 KB  conda-forge
    openssl-1.0.2r             |       h14c3975_0         3.1 MB  conda-forge
    branca-0.3.1               |             py_0          25 KB  conda-forge
    certifi-2018.8.24          |        py35_1001         139 KB  conda-forge
    altair-2.2.2               |           py35_1         462 KB  conda-forge
    ------------------------------------------------------------
                                           Total:         4.0 MB

The following NEW packages will be INSTALLED:

    altair:          2.2.2-py35_1      conda-forge
    branca:          0.3.1-py_0        conda-forge
    folium:          0.9.0-py_0        conda-forge
    vincent:         0.4.4-py_1        conda-forge

The following packages will be UPDATED:

    ca-certificates: 2019.1.23-0                  --> 2019.3.9-hecc5488_0 conda-forge
    certifi:         2018.8.24-py35_1             --> 2018.8.24-py35_1001 conda-forge
    openssl:         1.0.2r-h7b6447c_0            --> 1.0.2r-h14c3975_0   conda-forge


Downloading and Extracting Packages
vincent-0.4.4        | 28 KB     | ##################################### | 100%
folium-0.9.0         | 59 KB     | ##################################### | 100%
ca-certificates-2019 | 146 KB    | ##################################### | 100%
openssl-1.0.2r       | 3.1 MB    | ##################################### | 100%
branca-0.3.1         | 25 KB     | ##################################### | 100%
certifi-2018.8.24    | 139 KB    | ##################################### | 100%
altair-2.2.2         | 462 KB    | ##################################### | 100%
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
```

I have uploaded rent dataset on my github account, let's display the rent data. The rent amount are in US dollars for July 2017.

In [2]:

```
git =
'https://raw.githubusercontent.com/SMawri/IBM_Capstone_BattleofNeighborhood/master/SFRent_Dataset_r
```

```
sv'
sfran_Data = pd.read_csv(git)
sfran_Data
```

Out[2]:

	Neighborhood	City	State	2018-07
0	Hayes Valley	San Francisco	CA	3030
1	Van Ness - Civic Center	San Francisco	CA	2977
2	Tenderloin	San Francisco	CA	2977
3	Downtown	San Francisco	CA	3040
4	Western Addition	San Francisco	CA	2989
5	Marina	San Francisco	CA	2948
6	Russian Hill	San Francisco	CA	2954
7	Lower Pacific Heights	San Francisco	CA	2963
8	Nob Hill	San Francisco	CA	3050
9	Pacific Heights	San Francisco	CA	2973
10	Noe Valley	San Francisco	CA	2818
11	Stonestown	San Francisco	CA	2640
12	Merced Heights	San Francisco	CA	2640
13	Lakeside	San Francisco	CA	2640
14	North of Panhandle	San Francisco	CA	3048
15	Alamo Square	San Francisco	CA	3048
16	Telegraph Hill	San Francisco	CA	3055
17	North Beach	San Francisco	CA	3055
18	Anza Vista	San Francisco	CA	3099
19	Glen Park	San Francisco	CA	2967
20	Forest Knolls	San Francisco	CA	3005
21	Sunnyside	San Francisco	CA	3039
22	Financial District	San Francisco	CA	3472
23	Mission Dolores Park	San Francisco	CA	3389
24	Twin Peaks	San Francisco	CA	3154
25	South of Market	San Francisco	CA	3490
26	Potrero Hill	San Francisco	CA	3490
27	Lone Mountain	San Francisco	CA	3283
28	Golden Gate Park	San Francisco	CA	3283
29	Yerba Buena Gardens	San Francisco	CA	3563
30	Presidio Heights	San Francisco	CA	3484
31	Lake Street	San Francisco	CA	3484
32	Jordan Park	San Francisco	CA	3484
33	Richmond District	San Francisco	CA	3484
34	South Beach	San Francisco	CA	3646
35	Mission Bay	San Francisco	CA	3711

I could retrieve only 36 Neighborhoods data of San Francisco. Now for further analysis we need co-ordinates of each neighborhood.

In [3]:

```
#creating a dataframe for storing co-ordinates details
```

```
#creating a dataframe for storing co-ordinates details.
coordinates = pd.DataFrame(columns=['Latitude','Longitude'])

# Using 'for loop' to get pass each Neighborhood name and get co-ordinates details through geocodi
ng.
for row,neighborhood in sfran_Data.iterrows():
    address = neighborhood['Neighborhood'] + ',' + neighborhood['City'] + ',' + neighborhood['State
']
    try:
        geolocator = Nominatim(user_agent="my-application")
        location = geolocator.geocode(address)
        latitude = location.latitude
        longitude = location.longitude
        # appending latitude and longitude values on coordiantes dataframe.
        coordinates = coordinates.append({'Latitude':latitude,'Longitude':longitude},ignore_index=T
rue)
    except:
        print(address)


coordinates
```

```
Merced Heights,San Francisco,CA
```

Out[3]:

	Latitude	Longitude
0	37.776685	-122.422936
1	37.775190	-122.419266
2	37.784249	-122.413993
3	37.787514	-122.407159
4	37.779559	-122.429810
5	37.799793	-122.435205
6	37.797707	-122.414971
7	37.785767	-122.438904
8	37.793262	-122.415249
9	37.792717	-122.435644
10	37.751591	-122.432081
11	37.727285	-122.474905
12	37.730754	-122.475428
13	37.778408	-122.442599
14	37.776357	-122.434694
15	37.802730	-122.405851
16	37.801175	-122.409002
17	37.780836	-122.443149
18	37.733104	-122.433805
19	38.015201	-122.688597
20	37.779281	-122.419236
21	37.793647	-122.398938
22	37.759720	-122.427132
23	37.754640	-122.446480
24	37.780893	-122.400952
25	37.756583	-122.399137
26	37.779096	-122.451916
27	37.769368	-122.482184

	Latitude	Longitude
28	37.784650	-122.402345
29	37.788751	-122.453027
30	37.785705	-122.486230
31	37.784652	-122.456638
32	37.780643	-122.472596
33	37.779814	-122.391150
34	37.770774	-122.391171

Now we can shrink our sfran_Data dataframe to only Neighborhood and rent information, then add both with co-ordinates.

In [4]:

```
#Let's now take only Neighorhood and rent data for further testing.
sfran_Data= sfran_Data[['Neighborhood','2018-07']]

# Adding the sfran_Data and coordinates in one new dataframe.
sf_Neighborhood = sfran_Data.join(coordinates, how='outer')
sf_Neighborhood
```

Out[4]:

	Neighborhood	2018-07	Latitude	Longitude
0	Hayes Valley	3030	37.776685	-122.422936
1	Van Ness - Civic Center	2977	37.775190	-122.419266
2	Tenderloin	2977	37.784249	-122.413993
3	Downtown	3040	37.787514	-122.407159
4	Western Addition	2989	37.779559	-122.429810
5	Marina	2948	37.799793	-122.435205
6	Russian Hill	2954	37.797707	-122.414971
7	Lower Pacific Heights	2963	37.785767	-122.438904
8	Nob Hill	3050	37.793262	-122.415249
9	Pacific Heights	2973	37.792717	-122.435644
10	Noe Valley	2818	37.751591	-122.432081
11	Stonestown	2640	37.727285	-122.474905
12	Merced Heights	2640	37.730754	-122.475428
13	Lakeside	2640	37.778408	-122.442599
14	North of Panhandle	3048	37.776357	-122.434694
15	Alamo Square	3048	37.802730	-122.405851
16	Telegraph Hill	3055	37.801175	-122.409002
17	North Beach	3055	37.780836	-122.443149
18	Anza Vista	3099	37.733104	-122.433805
19	Glen Park	2967	38.015201	-122.688597
20	Forest Knolls	3005	37.779281	-122.419236
21	Sunnyside	3039	37.793647	-122.398938
22	Financial District	3472	37.759720	-122.427132
23	Mission Dolores Park	3389	37.754640	-122.446480
24	Twin Peaks	3154	37.780893	-122.400952
25	South of Market	3490	37.756583	-122.399137
26	Potrero Hill	3490	37.779096	-122.451916
27	Lone Mountain	3283	37.769368	-122.482184

	Neighborhood	2018-07	Latitude	Longitude
27	Lone Mountain	[illegible]	[illegible]	[illegible]
28	Golden Gate Park	3283	37.784650	-122.402345
29	Yerba Buena Gardens	3563	37.788751	-122.453027
30	Presidio Heights	3484	37.785705	-122.486230
31	Lake Street	3484	37.784652	-122.456638
32	Jordan Park	3484	37.780643	-122.472596
33	Richmond District	3484	37.779814	-122.391150
34	South Beach	3646	37.770774	-122.391171
35	Mission Bay	3711	NaN	NaN

Now let's calculate rentScore and RatingScore from our formaula i.e finalScore = (rentScore)0.6+(ratingScore)0.4

First to calculate the rentSCore formula is (maxrentofN-currentrentofN)/(maxrentofN-minrentofN). Maximum and minimum values can be retrieved using max and min built in functions.

In [5]:

```
# Max value in '2018-07'
maxrentofN = max(sf_Neighborhood['2018-07'])
print('Max rent value of SF Neighborhood is $',maxrentofN)
minrentofN = min(sf_Neighborhood['2018-07'])
print('Min rent value SF Neighborhood is $',minrentofN)
```

```
Max rent value of SF Neighborhood is $ 3711
Min rent value SF Neighborhood is $ 2640
```

In [6]:

```
#create a new dataframe to store rent score.
rent_Score = pd.DataFrame(columns=['RentScore'])
for index, Neighborhood in sf_Neighborhood.iterrows():
    currentrentofN = Neighborhood['2018-07']
    rentscore =  (maxrentofN-currentrentofN)/(maxrentofN-minrentofN)
    rent_Score = rent_Score.append({'RentScore' : rentscore},ignore_index = True)

rent_Score
```

Out[6]:

	RentScore
0	0.635854
1	0.685341
2	0.685341
3	0.626517
4	0.674136
5	0.712418
6	0.706816
7	0.698413
8	0.617180
9	0.689076
10	0.833800
11	1.000000
12	1.000000
13	1.000000
14	0.619048

	RentScore
15	0.619048
16	0.612512
17	0.612512
18	0.571429
19	0.694678
20	0.659197
21	0.627451
22	0.223156
23	0.300654
24	0.520075
25	0.206349
26	0.206349
27	0.399627
28	0.399627
29	0.138189
30	0.211951
31	0.211951
32	0.211951
33	0.211951
34	0.060691
35	0.000000

In [7]:

```
#adding rent score information in sf_Neighborhood dataframe.
sf_Neighborhood = sf_Neighborhood.join(rent_Score, how='outer')
sf_Neighborhood
```

Out[7]:

	Neighborhood	2018-07	Latitude	Longitude	RentScore
0	Hayes Valley	3030	37.776685	-122.422936	0.635854
1	Van Ness - Civic Center	2977	37.775190	-122.419266	0.685341
2	Tenderloin	2977	37.784249	-122.413993	0.685341
3	Downtown	3040	37.787514	-122.407159	0.626517
4	Western Addition	2989	37.779559	-122.429810	0.674136
5	Marina	2948	37.799793	-122.435205	0.712418
6	Russian Hill	2954	37.797707	-122.414971	0.706816
7	Lower Pacific Heights	2963	37.785767	-122.438904	0.698413
8	Nob Hill	3050	37.793262	-122.415249	0.617180
9	Pacific Heights	2973	37.792717	-122.435644	0.689076
10	Noe Valley	2818	37.751591	-122.432081	0.833800
11	Stonestown	2640	37.727285	-122.474905	1.000000
12	Merced Heights	2640	37.730754	-122.475428	1.000000
13	Lakeside	2640	37.778408	-122.442599	1.000000
14	North of Panhandle	3048	37.776357	-122.434694	0.619048
15	Alamo Square	3048	37.802730	-122.405851	0.619048
16	Telegraph Hill	3055	37.801175	-122.409002	0.612512

	Neighborhood	2018-07	Latitude	Longitude	RentScore
17	North Beach	3055	37.780836	-122.443149	0.612512
18	Anza Vista	3099	37.733104	-122.433805	0.571429
19	Glen Park	2967	38.015201	-122.688597	0.694678
20	Forest Knolls	3005	37.779281	-122.419236	0.659197
21	Sunnyside	3039	37.793647	-122.398938	0.627451
22	Financial District	3472	37.759720	-122.427132	0.223156
23	Mission Dolores Park	3389	37.754640	-122.446480	0.300654
24	Twin Peaks	3154	37.780893	-122.400952	0.520075
25	South of Market	3490	37.756583	-122.399137	0.206349
26	Potrero Hill	3490	37.779096	-122.451916	0.206349
27	Lone Mountain	3283	37.769368	-122.482184	0.399627
28	Golden Gate Park	3283	37.784650	-122.402345	0.399627
29	Yerba Buena Gardens	3563	37.788751	-122.453027	0.138189
30	Presidio Heights	3484	37.785705	-122.486230	0.211951
31	Lake Street	3484	37.784652	-122.456638	0.211951
32	Jordan Park	3484	37.780643	-122.472596	0.211951
33	Richmond District	3484	37.779814	-122.391150	0.211951
34	South Beach	3646	37.770774	-122.391171	0.060691
35	Mission Bay	3711	NaN	NaN	0.000000

Now let's calculate the second part of the formula i.e ratingScore, In our project we need only Indian restaurant data, so let's use categoryid in search endpoint url.

In [78]:

```
CLIENT_ID = 'ESTY50L0GN1VMZBYKARCR3T3WCQAMXJ4MJO0G2BVHYOSNYYZ' # your Foursquare ID
CLIENT_SECRET = 'LQE1PWQ1QB2CCQJYG1IYXAVMXNHRZIOFMRHO3JYURZRRJRDP' # your Foursquare Secret
VERSION = '20180605' # Foursquare API version

print('Your credentails:')
print('CLIENT_ID: ' + CLIENT_ID)
print('CLIENT_SECRET:' + CLIENT_SECRET)
```

```
Your credentails:
CLIENT_ID: ESTY50L0GN1VMZBYKARCR3T3WCQAMXJ4MJO0G2BVHYOSNYYZ
CLIENT_SECRET:LQE1PWQ1QB2CCQJYG1IYXAVMXNHRZIOFMRHO3JYURZRRJRDP
```

In [79]:

```
sf_Neighborhood = sf_Neighborhood[sf_Neighborhood.Neighborhood != 'Mission Bay']
sf_Neighborhood
```

Out[79]:

	Neighborhood	2018-07	Latitude	Longitude	RentScore
0	Hayes Valley	3030	37.776685	-122.422936	0.635854
1	Van Ness - Civic Center	2977	37.775190	-122.419266	0.685341
2	Tenderloin	2977	37.784249	-122.413993	0.685341
3	Downtown	3040	37.787514	-122.407159	0.626517
4	Western Addition	2989	37.779559	-122.429810	0.674136
5	Marina	2948	37.799793	-122.435205	0.712418
6	Russian Hill	2954	37.797707	-122.414971	0.706816
7	Lower Pacific Heights	2963	37.785767	-122.438904	0.698413

	Neighborhood	2018-07	Latitude	Longitude	RentScore
7	Lower Pacific Heights	[illegible]	[illegible]	[illegible]	[illegible]
8	Nob Hill	3050	37.793262	-122.415249	0.617180
9	Pacific Heights	2973	37.792717	-122.435644	0.689076
10	Noe Valley	2818	37.751591	-122.432081	0.833800
11	Stonestown	2640	37.727285	-122.474905	1.000000
12	Merced Heights	2640	37.730754	-122.475428	1.000000
13	Lakeside	2640	37.778408	-122.442599	1.000000
14	North of Panhandle	3048	37.776357	-122.434694	0.619048
15	Alamo Square	3048	37.802730	-122.405851	0.619048
16	Telegraph Hill	3055	37.801175	-122.409002	0.612512
17	North Beach	3055	37.780836	-122.443149	0.612512
18	Anza Vista	3099	37.733104	-122.433805	0.571429
19	Glen Park	2967	38.015201	-122.688597	0.694678
20	Forest Knolls	3005	37.779281	-122.419236	0.659197
21	Sunnyside	3039	37.793647	-122.398938	0.627451
22	Financial District	3472	37.759720	-122.427132	0.223156
23	Mission Dolores Park	3389	37.754640	-122.446480	0.300654
24	Twin Peaks	3154	37.780893	-122.400952	0.520075
25	South of Market	3490	37.756583	-122.399137	0.206349
26	Potrero Hill	3490	37.779096	-122.451916	0.206349
27	Lone Mountain	3283	37.769368	-122.482184	0.399627
28	Golden Gate Park	3283	37.784650	-122.402345	0.399627
29	Yerba Buena Gardens	3563	37.788751	-122.453027	0.138189
30	Presidio Heights	3484	37.785705	-122.486230	0.211951
31	Lake Street	3484	37.784652	-122.456638	0.211951
32	Jordan Park	3484	37.780643	-122.472596	0.211951
33	Richmond District	3484	37.779814	-122.391150	0.211951
34	South Beach	3646	37.770774	-122.391171	0.060691

In [62]:

```
# Indian restaurant categoryid of foursquare
categoryId= '4bf58dd8d48988d10f941735'
# url willl search in 500 meters radius of latitude and longitude.
radius=500
api_endpoint = 'https://api.foursquare.com/'
#used below url to cache the request made to foursquare api
api_endpoint = 'http://cladiusfernando-eval-test.apigee.net/foursquare/'

#dataframe to save venue information.
venue_Details = pd.DataFrame(columns=['VenueNeighborhoodName','VenueName','VenueRating'])
#dataframe to save count of good rating information.
goodRating =pd.DataFrame(columns=['Neighborhood','GoodRatingRestaurant'])

# 'for loop' to get venue information search endpoint
for row,neighborhood in sf_Neighborhood.iterrows():
    venue_NeighborhoodName = neighborhood['Neighborhood']
    lat = neighborhood['Latitude']
    long = neighborhood['Longitude']
    url = '{}v2/venues/search?&client_id={}&client_secret={}&v={}&ll={},{}&radius={}&categoryId={}
'.format(
    api_endpoint,
    CLIENT_ID,
    CLIENT_SECRET,
    VERSION,
    lat,
    long,
    radius,
    categoryId)

    venues = requests.get(url).json()['response']['venues']
    goodrating = 0
    for venue in venues:
        venuen = venue['name']          #retrieving venue name neighborhood-wise
        VENUE_ID = venue['id']          #retrieving venue id neighborhood-wise
        url2 = '{}v2/venues/{}?client_id={}&client_secret={}&v={}'.format(
        api_endpoint,
        VENUE_ID,
        CLIENT_ID,
        CLIENT_SECRET,
        VERSION
        )
        ven = requests.get(url2).json()['response']['venue']

         #if statement to get rating values for each venue.
        rating = 0
        if 'rating' in ven:
            rating = ven['rating']
            venue_Details = venue_Details.append({'VenueNeighborhoodName': venue_NeighborhoodName,'
VenueName' : venuen, 'VenueRating': rating}, ignore_index = True)

            #if statement to get good restaurant count neighborhood-wise.
            if rating >= 7.0:
                goodrating = goodrating+1
    #appending values in goodrating dataframe
    goodRating =goodRating.append({'Neighborhood': venue_NeighborhoodName , 'GoodRatingRestaurant'
: goodrating}, ignore_index = True)

goodRating
```

Out[62]:

```
[{'categories': [{'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/indian_',
     'suffix': '.png'},
    'id': '4bf58dd8d48988d10f941735',
    'name': 'Indian Restaurant',
    'pluralName': 'Indian Restaurants',
    'primary': True,
    'shortName': 'Indian'}],
  'delivery': {'id': '698727',
   'provider': {'icon': {'name': '/delivery_provider_grubhub_20180129.png',
     'prefix': 'https://fastly.4sqi.net/img/general/cap/',
     'sizes': [40, 50]},
    'name': 'grubhub'},
   'url': 'https://www.grubhub.com/restaurant/spice-of-america-1655-market-st-san-
francisco/698727?affiliate=1131&utm_source=foursquare-affiliate-
network&utm_medium=affiliate&utm_campaign=1131&utm_content=698727'},
  'hasPerk': False,
  'id': '5a7d3d92f193c02a48c51dea',
  'location': {'address': '1655 Market St',
   'cc': 'US',
   'city': 'San Francisco',
   'country': 'United States',
   'distance': 403,
   'formattedAddress': ['1655 Market St',
    'San Francisco, CA 94103',
    'United States'],
   'labeledLatLngs': [{'label': 'display',
     'lat': 37.773279925031815,
     'lng': -122.42136508226395}],
   'lat': 37.773279925031815,
   'lng': -122.42136508226395,
   'postalCode': '94103',
   'state': 'CA'},
  'name': 'Spice of America',
  'referralId': 'v-1558347590'},
 {'categories': [{'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/indian_',
     'suffix': '.png'},
    'id': '4bf58dd8d48988d10f941735',
    'name': 'Indian Restaurant',
    'pluralName': 'Indian Restaurants',
    'primary': True,
    'shortName': 'Indian'}],
  'hasPerk': False,
   'id': '5823e2297c74e13e29ba6ec2',
   'location': {'address': '525 Van Ness Ave',
    'cc': 'US',
    'city': 'San Francisco',
    'country': 'United States',
    'crossStreet': 'Redwood street',
    'distance': 492,
    'formattedAddress': ['525 Van Ness Ave (Redwood street)',
     'San Francisco, CA 94103',
     'United States'],
    'labeledLatLngs': [{'label': 'display',
      'lat': 37.78053745589946,
      'lng': -122.4201880772763}],
    'lat': 37.78053745589946,
    'lng': -122.4201880772763,
    'neighborhood': 'Civic Center',
    'postalCode': '94103',
    'state': 'CA'},
   'name': 'August 1 Five',
   'referralId': 'v-1558347590',
   'venuePage': {'id': '389769588'}},
  {'categories': [{'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/indian_',
      'suffix': '.png'},
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```

Below are the table name with venue names and it's rating according to each neighborhood

In [88]:

```
venue_Details
```

Second to calculate the RatingScore formula is (maxgoodrest-currentrestofN)/(maxgoodrest-mingoodrest)

In [84]:

```
maxgoodrest = max(sf_Neighborhood['GoodRatingRestaurant'])
print('Maximum good restaurant count',maxgoodrest)
mingoodrest = min(sf_Neighborhood['GoodRatingRestaurant'])
print('Minimum good restaurant count',mingoodrest)

rating_Score = pd.DataFrame(columns=['RatingScore'])
for index, Neighborhood in sf_Neighborhood.iterrows():
    currentrentofN = Neighborhood['GoodRatingRestaurant']
    ratingScore =   (maxgoodrest-currentrentofN)/(maxgoodrest-mingoodrest)
    rating_Score = rating_Score.append({'RatingScore' : ratingScore},ignore_index = True)

sf_Neighborhood = sf_Neighborhood.join(rating_Score, how='outer')
sf_Neighborhood
```

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```

Now we have rent score and rating score, so let's calculate Final Score to decide which are suitable neighborhoods for new Indian Restaurant.

In [86]:

```
final_Score = pd.DataFrame(columns=['FinalScore'])
for index, Neighborhood in sf_Neighborhood.iterrows():
    rentScore = Neighborhood['RentScore']
    ratingScore = Neighborhood['RatingScore']
    finalScore = (rentScore)*0.6+(ratingScore)*0.4
    final_Score = final_Score.append({'FinalScore' : finalScore},ignore_index = True)

sf_Neighborhood = sf_Neighborhood.join(final_Score, how='outer')
sf_Neighborhood
```

Below is the tanle with the list of suitable neighborhoods in San Francisco for opening a new Indian restaurant.

In [87]:

```
Results = sf_Neighborhood[(sf_Neighborhood['FinalScore'] >= 0.8)].sort_values('FinalScore',
ascending=False)
Results
```

Folium and choropleth maps cant be seen on github properly if published from watson, so below is the link where I had added the images on my github project folder. Imagelink:https://github.com/SMawri/IBM_Capstone_BattleofNeighb