

# Capstone Project — The Battle of Neighbourhoods

## Introduction

New Delhi is the capital city of India. It is a part of the city of Delhi's 11 districts. The city itself has a population of 257,803. However, the much larger metro area has a population that exceeds 26 million.

New Delhi are used interchangeably to refer to the National Capital Territory of Delhi (NCT), these are two distinct entities, with New Delhi forming a small part of Delhi. The National Capital Region is a much larger entity comprising the entire NCT along with adjoining districts in neighboring states.

The official language of New Delhi and the one that is most widely spoken is Hindi. However, English is also spoken as a formal language within businesses and government agencies. Over last decades it is continuously grow because of the city's important role in government and commercial business.

With it's diverse culture , comes diverse food items. There are many restaurants in New Delhi City, each belonging to different categories like Chinese , Italian , French etc. So as part of this project , we will list and visualise all major parts of New Delhi City .

## Questions that can be asked using the above mentioned datasets

- What is best location in New Delhi City for Chinese Cuisine ?
- Which areas have large number of Chinese Restaurant Market ?
- Which all areas have less number of resturant ?
- Which is the best place to stay if I prefer Chinese Cuisine ?
- What places are have best restaurant in New Delhi?

## Data

For this project we need the following data :

- New Delhi Restaurants data that contains list Locality, Resturant name,Rating along with their latitude and longitude.
  - Data source : [Zomato kaggel dataset](https://www.kaggle.com/shrutimehta/zomato-restaurants-data) (<https://www.kaggle.com/shrutimehta/zomato-restaurants-data>)
  - Description : This data set contains the required information. And we will use this data set to explore various locality of new delhi city.
- Nearby places in each locality of new delhi city.
  - Data source : [Fousquare API](https://developer.foursquare.com/) (<https://developer.foursquare.com/>)
  - Description : By using this api we will get all the venues in each neighborhood.

## Approach

- Collect the new delhi city data from [Zomato kaggel dataset  
\(https://www.kaggle.com/shrutimehta/zomato-restaurants-data\)](https://www.kaggle.com/shrutimehta/zomato-restaurants-data)
- Using FourSquare API we will find all venues for each neighborhood.
- Filter out all venues that are nearby by locality.
- Using aggregative rating for each resturant to find the best places.
- Visualize the Ranking of neighborhoods using folium library(python)

In [1]:

```
import pandas as pd
import numpy as np
import requests # Library to handle requests
from pandas.io.json import json_normalize # transform JSON file into a pandas dataframe
# Matplotlib and associated plotting modules
import matplotlib.cm as cm
import matplotlib.colors as colors
# import k-means from clustering stage
from sklearn.cluster import KMeans

!conda install -c conda-forge folium=0.5.0 --yes # uncomment this line if you haven't completed the Foursquare API lab
import folium # map rendering library
! pip install geocoder
import geocoder
```

Solving environment: done

## Package Plan ##

environment location: /opt/conda/envs/Python36

added / updated specs:

- folium=0.5.0

The following packages will be downloaded:

package	build			
certifi-2020.6.20	py36h9f0ad1d_0	151 KB	conda-forge	
folium-0.5.0	py_0	45 KB	conda-forge	
python_abi-3.6	1_cp36m	4 KB	conda-forge	
ca-certificates-2020.6.20	hecd079_0	145 KB	conda-forge	
vincent-0.4.4	py_1	28 KB	conda-forge	
branca-0.4.1	py_0	26 KB	conda-forge	
openssl-1.1.1g	h516909a_0	2.1 MB	conda-forge	
altair-4.1.0	py_1	614 KB	conda-forge	
<hr/>				
	Total:	3.1 MB		

The following NEW packages will be INSTALLED:

altair:	4.1.0-py_1	conda-forge
branca:	0.4.1-py_0	conda-forge
folium:	0.5.0-py_0	conda-forge
python_abi:	3.6-1_cp36m	conda-forge
vincent:	0.4.4-py_1	conda-forge

The following packages will be UPDATED:

ca-certificates:	2020.1.1-0	--> 2020.6.20-hecd079_0
certifi:	2020.4.5.1-py36_0	--> 2020.6.20-py36h9f0ad1d_0
openssl:	1.1.1g-h7b6447c_0	--> 1.1.1g-h516909a_0
conda-forge		

#### Downloading and Extracting Packages

certifi-2020.6.20	151 KB	#####
100%		
folium-0.5.0	45 KB	#####
100%		
python_abi-3.6	4 KB	#####
100%		
ca-certificates-2020	145 KB	#####
100%		
vincent-0.4.4	28 KB	#####

```
100%
branca-0.4.1      | 26 KB     | #####|#####
100%
openssl-1.1.1g    | 2.1 MB     | #####|#####
100%
altair-4.1.0      | 614 KB     | #####|#####
100%
Preparing transaction: done
Verifying transaction: done
Executing transaction: done
Collecting geocoder
  Downloading https://files.pythonhosted.org/packages/4f/6b/13166c909ad2f2d76b929a4227c952630ebaf0d729f6317eb09cbceccbab/geocoder-1.38.1-py2.py3-none-any.whl (98kB)
[██████████] 102kB 5.9MB/s ta 0:00:011
Collecting ratelim (from geocoder)
  Downloading https://files.pythonhosted.org/packages/f2/98/7e6d147fd16a10a5f821db6e25f192265d6ecca3d82957a4fdd592cad49c/ratelim-0.1.6-py2.py3-none-any.whl
Requirement already satisfied: six in /opt/conda/envs/Python36/lib/python3.6/site-packages (from geocoder) (1.12.0)
Requirement already satisfied: requests in /opt/conda/envs/Python36/lib/python3.6/site-packages (from geocoder) (2.21.0)
Requirement already satisfied: click in /opt/conda/envs/Python36/lib/python3.6/site-packages (from geocoder) (7.0)
Requirement already satisfied: future in /opt/conda/envs/Python36/lib/python3.6/site-packages (from geocoder) (0.17.1)
Requirement already satisfied: decorator in /opt/conda/envs/Python36/lib/python3.6/site-packages (from ratelim->geocoder) (4.3.2)
Requirement already satisfied: chardet<3.1.0,>=3.0.2 in /opt/conda/envs/Python36/lib/python3.6/site-packages (from requests->geocoder) (3.0.4)
Requirement already satisfied: certifi>=2017.4.17 in /opt/conda/envs/Python36/lib/python3.6/site-packages (from requests->geocoder) (2020.6.20)
Requirement already satisfied: urllib3<1.25,>=1.21.1 in /opt/conda/envs/Python36/lib/python3.6/site-packages (from requests->geocoder) (1.24.1)
Requirement already satisfied: idna<2.9,>=2.5 in /opt/conda/envs/Python36/lib/python3.6/site-packages (from requests->geocoder) (2.8)
Installing collected packages: ratelim, geocoder
Successfully installed geocoder-1.38.1 ratelim-0.1.6
```

## Read the zomato resturant data from csv file

In [2]:

```
df = pd.read_csv('https://raw.githubusercontent.com/nidhi-hub/coursera_capstone/master/zomato.csv',encoding='ISO-8859-1')
df.head()
```

Out[2]:

	Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Locality Verbose	Lon
0	6317637	Le Petit Souffle	162	Makati City	Third Floor, Century City Mall, Kalayaan Avenue...	Century City Mall, Poblacion, Makati City	Century City Mall, Poblacion, Makati City, Mak...	121.0
1	6304287	Izakaya Kikufuji	162	Makati City	Little Tokyo, 2277 Chino Roces Avenue, Legaspi...	Little Tokyo, Legaspi Village, Makati City	Little Tokyo, Legaspi Village, Makati City, Ma...	121.0
2	6300002	Heat - Edsa Shangri-La	162	Mandaluyong City	Edsa Shangri-La, 1 Garden Way, Ortigas, Mandal...	Edsa Shangri-La, Ortigas, Mandaluyong City	Edsa Shangri-La, Ortigas, Mandaluyong City, Ma...	121.0
3	6318506	Ooma	162	Mandaluyong City	Third Floor, Mega Fashion Hall, SM Megamall, O...	SM Megamall, Ortigas, Mandaluyong City	SM Megamall, Ortigas, Mandaluyong City, Mandal...	121.0
4	6314302	Sambo Kojin	162	Mandaluyong City	Third Floor, Mega Atrium, SM Megamall, Ortigas...	SM Megamall, Ortigas, Mandaluyong City	SM Megamall, Ortigas, Mandaluyong City, Mandal...	121.0

5 rows × 21 columns

In [3]:

```
df_india = df[df['Country Code'] == 1]
df_NDLS = df_india[df_india['City'] == 'New Delhi']
df_NDLS.reset_index(drop=True, inplace=True)
df_NDLS.head()
```

Out[3]:

	Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Locality Verbose	Longitude	Latitude
0	18287358	Food Cloud	1	New Delhi	Aaya Nagar, New Delhi	Aaya Nagar	Aaya Nagar, New Delhi	0.000000	0.000000
1	18216944	Burger.in	1	New Delhi	84, Near Honda Showroom, Adchini, New Delhi	Adchini	Adchini, New Delhi	77.196923	28.53538
2	313333	Days of the Raj	1	New Delhi	81/3, 1st Floor, Qutub Residency, Adchini, New...	Adchini	Adchini, New Delhi	77.197475	28.53549
3	18384127	Dilli Ka Dhaba	1	New Delhi	66 A, Ground Floor, Sri Aurobindo Marg, Adchini...	Adchini	Adchini, New Delhi	77.198033	28.53754
4	582	Govardhan	1	New Delhi	84, Adjacent Hero Motor Bike Showroom, Main Me...	Adchini	Adchini, New Delhi	77.196924	28.53552

5 rows × 21 columns

## Data Cleaning

remove the unwanted columns and rows from dataset

In [4]:

```
df_Res= df_NDLS[df_NDLS.Longitude !=0.000000][['Restaurant Name','Locality','Longitude','Latitude','Cuisines','Aggregate rating','Rating text','Votes','Average Cost for two','Has Online delivery', 'Rating color','Rating text']]
```

In [5]:

```
df_Res = df_Res[df_Res['Aggregate rating'] !=0.0]
```

In [6]:

df\_Res.head()

Out[6]:

	Restaurant Name	Locality	Longitude	Latitude	Cuisines	Aggregate rating	Rating text	Votes	Average Cost fw
1	Burger.in	Adchini	77.196923	28.535382	Fast Food	3.2	Average	46	35
2	Days of the Raj	Adchini	77.197475	28.535493	North Indian, Seafood, Continental	3.4	Average	45	150
3	Dilli Ka Dhaba	Adchini	77.198033	28.537547	South Indian, North Indian	2.6	Average	11	50
4	Govardhan	Adchini	77.196924	28.535523	South Indian, North Indian, Chinese	3.4	Average	238	50
5	Mezbaan Grills	Adchini	77.198122	28.538134	Mughlai	3.1	Average	8	40

**created map to show the restaurant clusters**

In [7]:

```
New_Delhi_Rest = folium.Map(location=[28.52, 77.25], zoom_start=12)

X = df_Res['Latitude']
Y = df_Res['Longitude']
Z = np.stack((X, Y), axis=1)

kmeans = KMeans(n_clusters=5, random_state=0).fit(Z)

clusters = kmeans.labels_
colors = ['red', 'green', 'blue', 'yellow', 'orange']
df_Res ['Cluster'] = clusters

for latitude, longitude, Locality, cluster in zip(df_Res['Latitude'], df_Res['Longitude'], df_Res['Locality'], df_Res['Cluster']):
    label = folium.Popup(Locality, parse_html=True)
    folium.CircleMarker(
        [latitude, longitude],
        radius=5,
        popup=label,
        color='black',
        fill=True,
        fill_color=colors[cluster],
        fill_opacity=0.7).add_to(New_Delhi_Rest)

New_Delhi_Rest
```

Out[7]:

Make this Notebook Trusted to load map: File -> Trust Notebook

In [8]:

df\_Res.head()

Out[8]:

	Restaurant Name	Locality	Longitude	Latitude	Cuisines	Aggregate rating	Rating text	Votes	Average Cost fw
1	Burger.in	Adchini	77.196923	28.535382	Fast Food	3.2	Average	46	35
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5	Mezbaan Grills	Adchini	77.198122	28.538134	Mughlai	3.1	Average	8	40

**What places are have best restaurant in New Delhi?**

In [66]:

```

import matplotlib.pyplot as plt
import matplotlib.cm as cm

from matplotlib.colors import ListedColormap, LinearSegmentedColormap
viridis = cm.get_cmap('viridis', 12)
print(viridis)
plt.figure(figsize=(7,3), dpi = 100)
# title
plt.title('The highest rated restaurant in top 10 locality of New Delhi')
#On x-axis
colors = cm.RdYlGn
#giving a bar plot
color=['orange', 'red', 'green', 'blue', 'cyan','crimson','magenta','yellow', 'black']

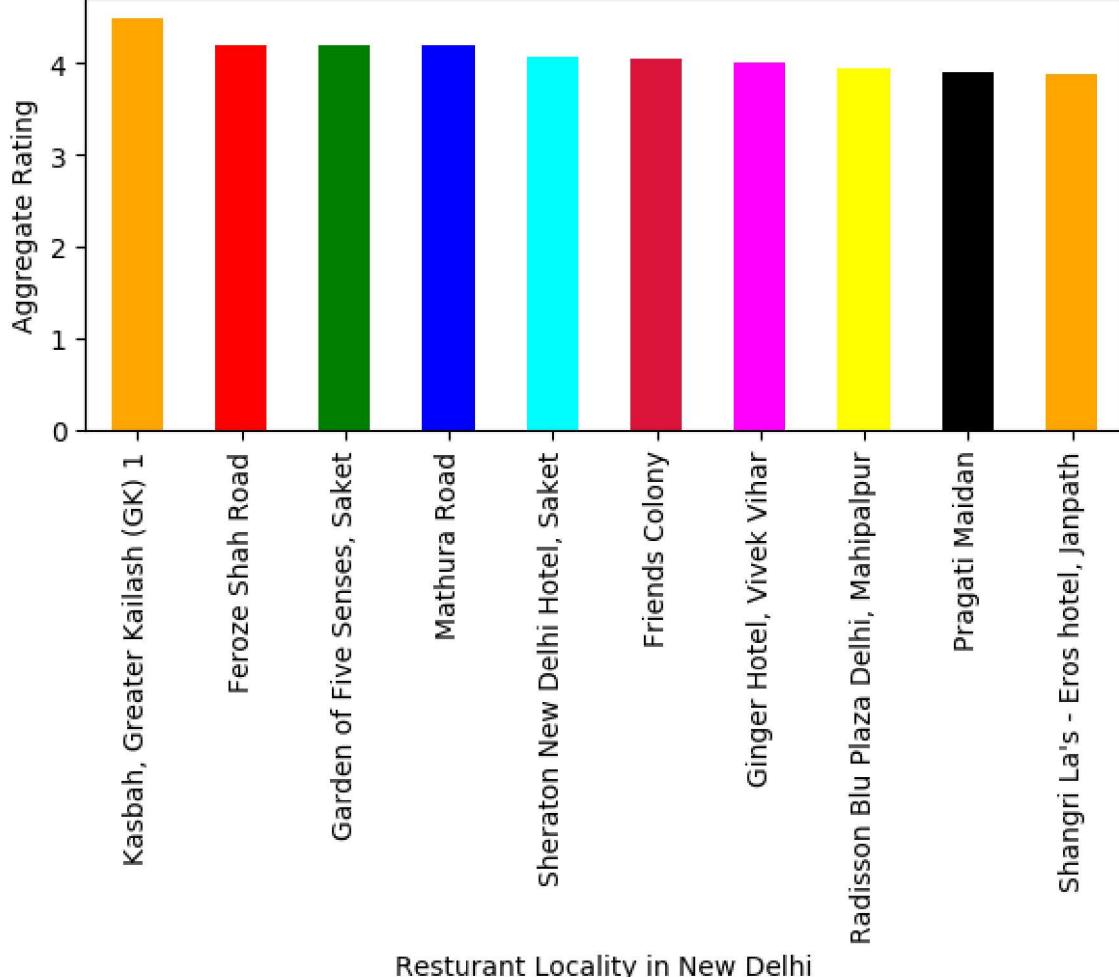
df_Res.groupby('Locality')['Aggregate rating'].mean().nlargest(10).plot(kind='bar',color=color)

plt.xlabel('Restaurant Locality in New Delhi')
#On y-axis
plt.ylabel('Aggregate Rating')
#displays the plot
plt.show()

```

&lt;matplotlib.colors.ListedColormap object at 0x7f30abb7fe10&gt;

The highest rated restaurant in top 10 locality of New Delhi



The best restaurants are available in **Kesbah, Greater Kailash area.**

## what places are have worst restaurants in New Delhi?

In [57]:

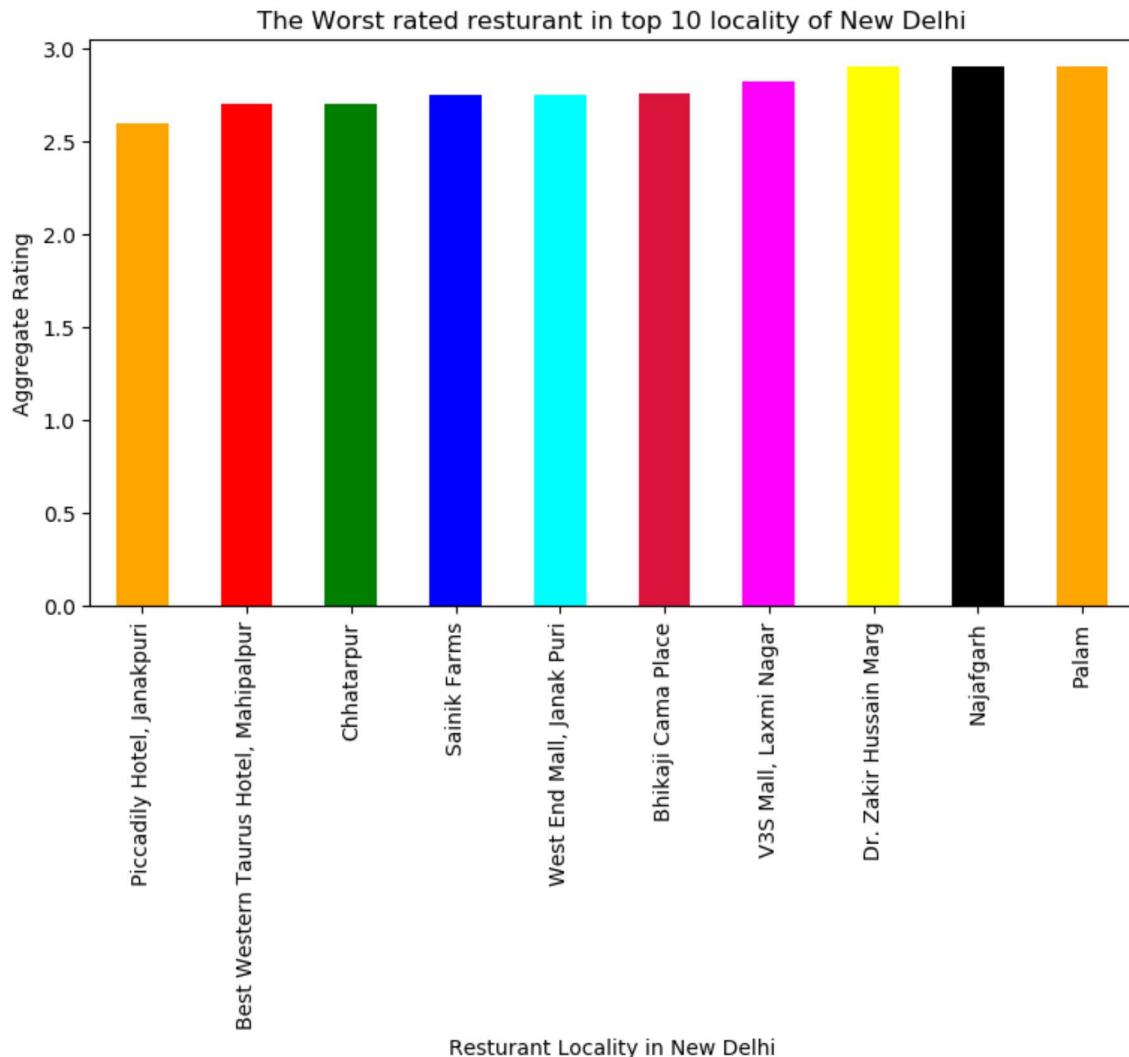
```
import matplotlib.pyplot as plt
plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('The Worst rated restaurant in top 10 locality of New Delhi')
#On x-axis

#giving a bar plot

# Specify this list of colors as the `color` option to `plot`.
color=['orange', 'red', 'green', 'blue', 'cyan','crimson','magenta','yellow', 'black']
df_Res.groupby('Locality')['Aggregate rating'].mean().nlargest(10).plot(kind='bar',color=color)

plt.xlabel('Restaurant Locality in New Delhi')
#On y-axis
plt.ylabel('Aggregate Rating')

#displays the plot
plt.show()
```



The worst restaurants are available in **Piccadilly Hotel, Janakpuri**.

## Which place are suitable for edible person in New Delhi city?

In [61]:

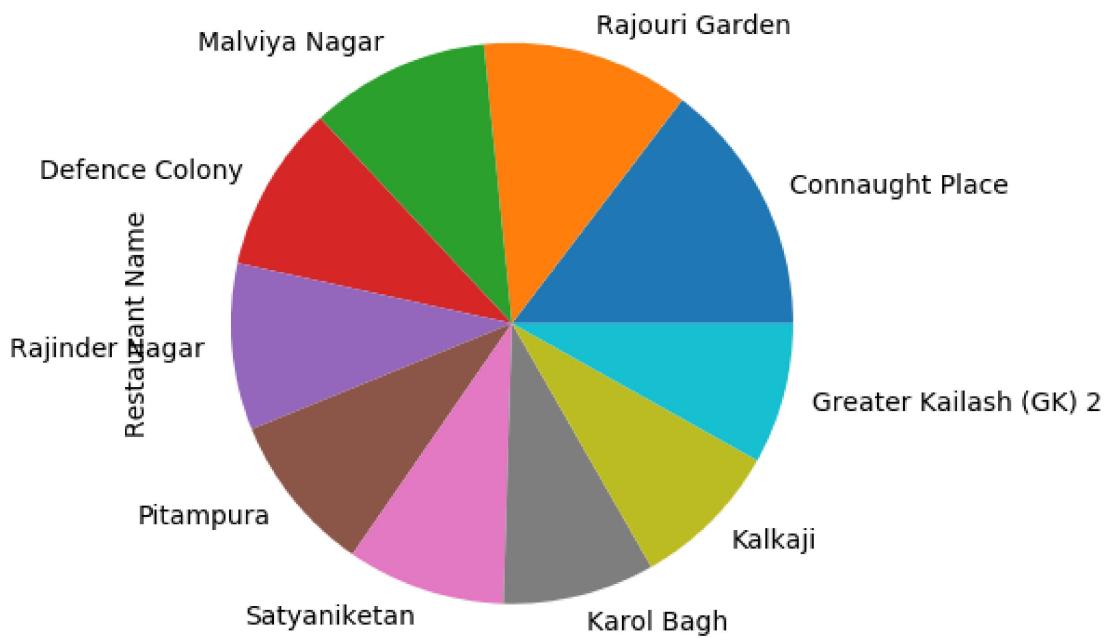
```
import matplotlib.pyplot as plt
plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('The highest number of Restaurant available in Locality of New Delhi')
#On x-axis

#giving a bar plot
color=['orange', 'red', 'green', 'blue', 'cyan','crimson','magenta','yellow', 'black']
df_Res.groupby('Locality')['Restaurant Name'].count().nlargest(10).plot(kind='pie')

#plt.xlabel('Restaurant Locality in New Delhi')
#On y-axis
#plt.ylabel('Number of Restaurant')

#displays the plot
plt.show()
```

The highest number of Restaurant available in Locality of New Delhi



**Connaught Place** is the best places for edible person to stay there.

## Which place are not suitable for edible person in New Delhi city?

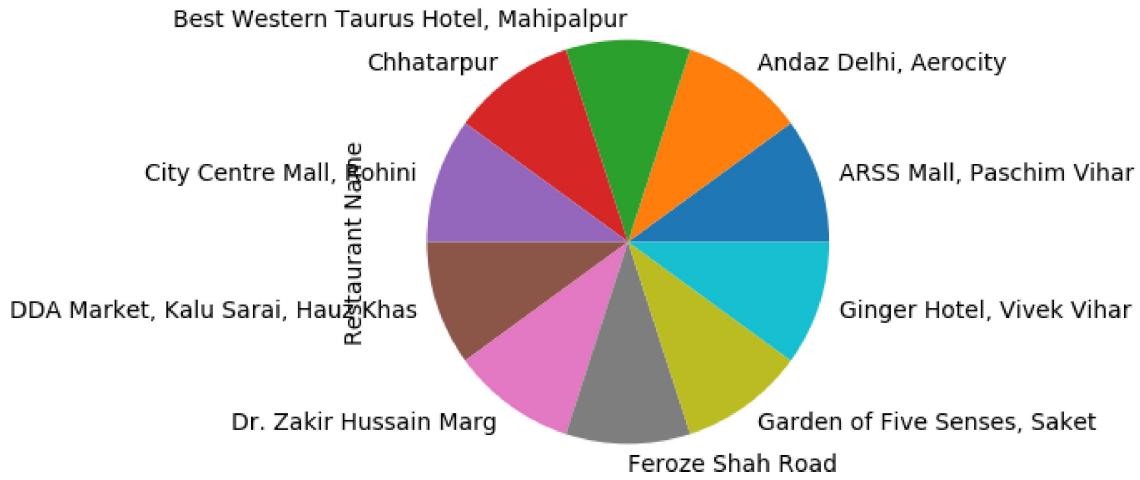
In [74]:

```
import matplotlib.pyplot as plt
plt.figure(figsize=(9,4), dpi = 100)
# title
plt.title('The lowest number of Restaurant available in Locality of New Delhi')
#On x-axis
color=['orange', 'red', 'green', 'blue', 'cyan','crimson','magenta','yellow', 'black']
#giving a bar plot
df_Res.groupby('Locality')['Restaurant Name'].count().nsmallest(10).plot(kind='pie')

#plt.xlabel('Restaurant Locality in New Delhi')
#On y-axis
#plt.ylabel('Number of Restaurant')

#displays the plot
plt.show()
```

The lowest number of Restaurant available in Locality of New Delhi



**Paschim Vihar** is the worst places for edible person to stay there.

**What are the best places for continental restaurant in New Delhi city**

In [63]:

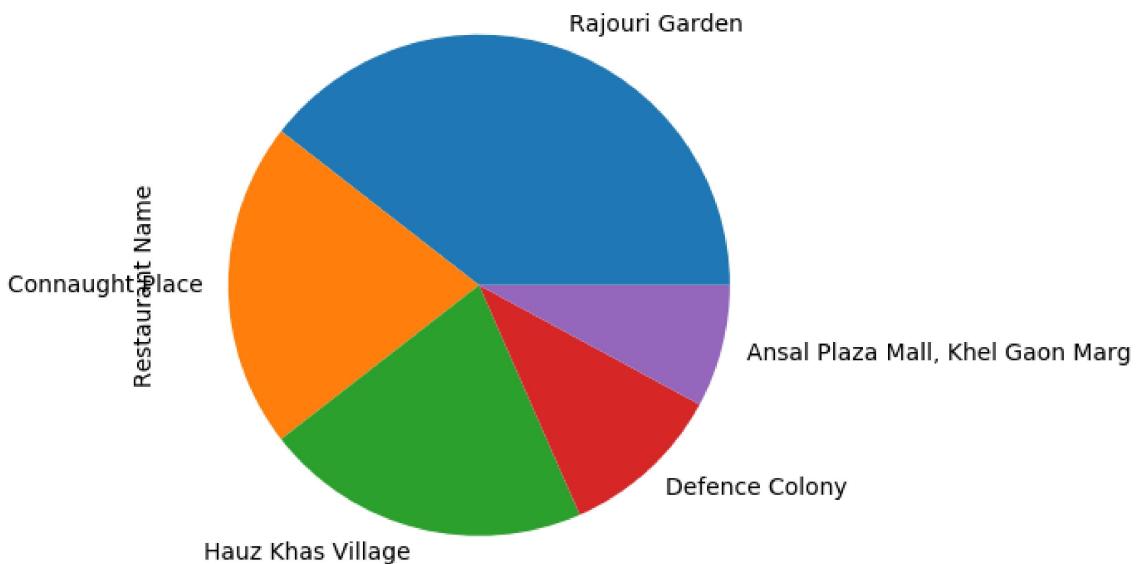
```
import matplotlib.pyplot as plt
plt.figure(figsize=(9,5), dpi = 100)
# title
plt.title('The best Locality for Continental restaurant in New Delhi city')
#On x-axis

#giving a bar plot
df_Res[df_Res['Cuisines'].str.startswith('Continental')].groupby('Locality')['Restaurant Name'].count().nlargest(5).plot(kind='pie')

#plt.xlabel('Restaurant Locality in New Delhi')
#On y-axis
#plt.ylabel('Number of Continental Restaurant')

#displays the plot
plt.show()
```

The best Locality for Continental restaurant in New Delhi city



**Rajouri Garden** is the best place for Continental restaurant.

**which places are the best continental restaurants in New Delhi?**

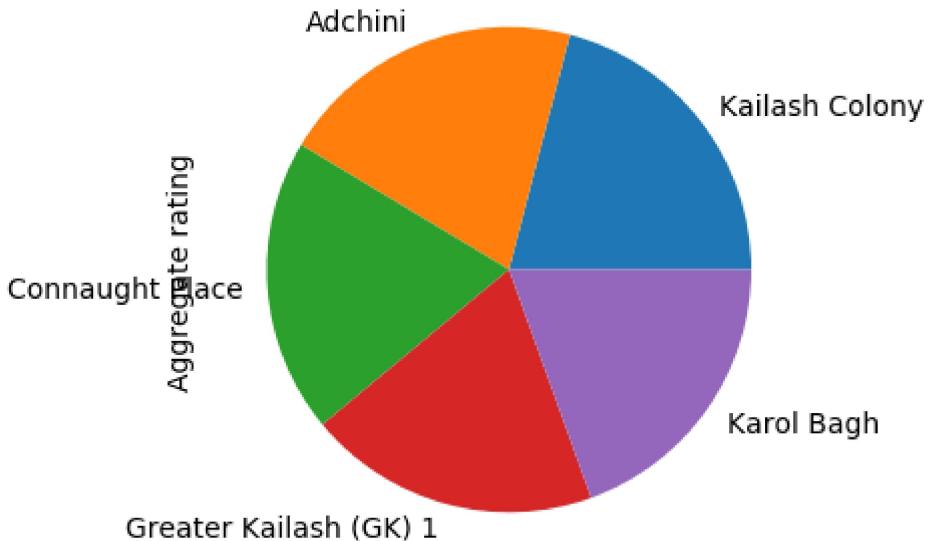
In [71]:

```
import matplotlib.pyplot as plt
plt.figure(figsize=(9,4), dpi = 100)
# title
plt.title('The best places for Continental restaurant in New Delhi city')
#On x-axis
color=['orange', 'red', 'green', 'blue', 'cyan','crimson']
#giving a bar plot
df_Res[df_Res['Cuisines'].str.startswith('Continental')].groupby('Locality')[['Aggregate rating']].mean().nlargest(5).plot(kind='pie')

#plt.xlabel('Restaurant Locality in New Delhi')
#On y-axis
#plt.ylabel('Rating of restaurants')

#displays the plot
plt.show()
```

The best places for Continental restaurant in New Delhi city



**Kailash Colony** has best Continental restaurants.

## Data transformation

Based on Locality grouping the data

In [15]:

```
df_Res_Loc = df_Res.groupby('Locality').count()['Restaurant Name'].to_frame()
df_Res_rating= df_Res.groupby('Locality')['Aggregate rating'].mean().to_frame()
df_price=df_Res.groupby('Locality')[["Average Cost for two"]].mean().to_frame()
d_Cuisines = df_Res.groupby(['Locality'])['Cuisines'].agg(', '.join).reset_index()
d_R = df_Res.groupby(['Locality'])['Rating text'].agg(', '.join).reset_index()
d_V = df_Res.groupby(['Locality'])['Votes'].sum().to_frame()
d_Lat = df_Res.groupby('Locality').mean()['Latitude'].to_frame()
d_Lng = df_Res.groupby('Locality').mean()['Longitude'].to_frame()
df_final = pd.merge(d_Lat,d_Lng, on='Locality').merge(df_Res_Loc, on='Locality').merge(d_Cuisines, on='Locality').merge(df_Res_rating, on='Locality').merge(d_V, on='Locality').merge(df_price, on='Locality')
```

In [16]:

```
df_final = df_final[df_final['Aggregate rating'] != 0]
df_final.columns =[ 'Locality', 'Lat', 'Lng', 'No_of_Restaurant', 'Cusines', 'Agg_Rating', 'No_of_Votes', 'Average price for two']
df_final.head()
```

Out[16]:

	Locality	Lat	Lng	No_of_Restaurant	Cusines	Agg_Rating	No_of_Votes	Average price for two
0	ARSS Mall, Paschim Vihar	28.668945	77.101544	1	North Indian, South Indian, Chinese, Mithai, F...	3.100000		
1	Adchini	28.537063	77.197808	13	Fast Food, North Indian, Seafood, Continental,...	3.292308	1	
2	Aditya Mega Mall, Karkardooma	28.656131	77.301266	4	Finger Food, North Indian, Mughlai, Pizza, Fas...	3.275000		
3	Aerocity	28.553077	77.104270	2	Fast Food, Italian, Pizza, North Indian, Conti...	3.200000		
4	Aggarwal City Mall, Pitampura	28.690020	77.134650	3	North Indian, Chinese, Street Food, Mithai, No...	3.033333		

In [17]:

df\_final.shape

Out[17]:

(240, 8)

## Define Foursquare Credentials and Version

In [18]:

```
## Define Foursquare Credentials and Version
CLIENT_ID = 'LC02HYMMQ12SHZQD4UOMMOW04SDU04AX4CEZGZ0QUAYMC1R2' # Foursquare ID
CLIENT_SECRET = 'FJ1YYHQIKOGG415ENQMBMAAOVPLQOW2T4FKJHVSIFMTMZ1B' # Foursquare Secret
VERSION = '20200621' # Foursquare API version

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

Your credentails:

```
CLIENT_ID: LC02HYMMQ12SHZQD4UOMMOW04SDU04AX4CEZGZ0QUAYMC1R2
CLIENT_SECRET:FJ1YYHQIKOGG415ENQMBMAAOVPLQOW2T4FKJHVSIFMTMZ1B
```

**create a function to repeat the same process to all the Locality in New Delhi**

In [19]:

```
## create a function to repeat the same process to all the Locality in New Delhi

def getNearbyVenues(names, latitudes, longitudes, radius=500,LIMIT = 500):

    venues_list=[]
    for name, lat, lng in zip(names, latitudes, longitudes):
        print(name)

        # create the API request URL
        url = 'https://api.foursquare.com/v2/venues/explore?&client_id={}&client_secret'\
        +'={}&v={}&ll={},{}&radius={}&limit={}'.format(
            CLIENT_ID,
            CLIENT_SECRET,
            VERSION,
            lat,
            lng,
            radius,
            LIMIT)

        # make the GET request
        results = requests.get(url).json()["response"]["groups"][0]["items"]

        # return only relevant information for each nearby venue
        venues_list.append([(name,
                            lat,
                            lng,
                            v['venue']['name'],
                            v['venue']['location']['lat'],
                            v['venue']['location']['lng'],
                            v['venue']['categories'][0]['name']) for v in results])

    nearby_venues = pd.DataFrame([item for venue_list in venues_list for item in venue_list])
    nearby_venues.columns = ['Locality',
                            'Locality Latitude',
                            'Locality Longitude',
                            'Venue',
                            'Venue Latitude',
                            'Venue Longitude',
                            'Venue Category']

    return(nearby_venues)
```

## find the venues in all New Delhi Locality

In [ ]:

In [20]:

```
# find the venues in all New Delhi Locality
new_Delhi_venues = getNearbyVenues(names=df_final['Locality'],
                                     latitudes=df_final['Lat'],
                                     longitudes=df_final['Lng']
                                    )
```

ARSS Mall, Paschim Vihar  
Adchini  
Aditya Mega Mall, Karkardooma  
Aerocity  
Aggarwal City Mall, Pitampura  
Aggarwal City Plaza, Rohini  
Alaknanda  
Ambience Mall, Vasant Kunj  
Anand Lok  
Anand Vihar  
Andaz Delhi, Aerocity  
Ansal Plaza Mall, Khel Gaon Marg  
Asaf Ali Road  
Ashok Vihar Phase 1  
Ashok Vihar Phase 2  
Ashok Vihar Phase 3  
Barakhamba Road  
Basant Lok Market, Vasant Vihar  
Bellagio, Ashok Vihar Phase 2  
Best Western Taurus Hotel, Mahipalpur  
Bhikaji Cama Place  
Chanakyapuri  
Chander Nagar  
Chandni Chowk  
Chawri Bazar  
Chhatarpur  
Chittaranjan Park  
City Centre Mall, Rohini  
City Square Mall, Rajouri Garden  
Civil Lines  
Community Centre, New Friends Colony  
Connaught Place  
Crescent Square Mall, Rohini  
Cross River Mall, Karkardooma  
Crowne Plaza Hotel, Rohini  
Crowne Plaza, Mayur Vihar Phase 1  
D Mall, Netaji Subhash Place  
DDA Market, Kalu Sarai, Hauz Khas  
DLF City Centre Mall, Shalimar Bagh  
DLF Emporio Mall, Vasant Kunj  
DLF Place Mall, Saket  
DLF Promenade Mall, Vasant Kunj  
DLF South Square, Sarojini Nagar  
Daryaganj  
Defence Colony  
Delhi University-GTB Nagar  
Dilli Haat, INA  
Dilshad Garden  
District Centre, Janakpuri  
Dr. Zakir Hussain Marg  
East Patel Nagar  
East of Kailash  
Epicuria Food Mall, Nehru Place  
Eros Hotel, Nehru Place  
Essex Farms  
Feroze Shah Road  
Friends Colony  
GTB Nagar  
Garden of Five Senses, Saket  
Geeta Colony  
Ginger Hotel, Vivek Vihar

Gourmet Hub, Pashim Vihar  
Greater Kailash (GK) 1  
Greater Kailash (GK) 2  
Greater Kailash (GK) 3  
Green Park  
Gujranwala Town  
Hauz Khas  
Hauz Khas Village  
Holiday Inn, Aerocity  
Holiday Inn, Mayur Vihar  
Hotel Broadway, Daryaganj  
Hotel City Park, Pitampura  
Hotel Regent Grand, Karol Bagh  
Hotel The Royal Plaza, Janpath  
Hyatt Regency, Bhikaji Cama Place  
INA  
IP Extension  
ITC Maurya, Chanakyapuri  
ITO  
India Gate  
JMD Kohinoor Mall, Greater Kailash  
JNU  
JW Marriott New Delhi  
Jail Road  
Jama Masjid  
Janakpuri  
Jangpura  
Janpath  
Jasola  
Jaypee Siddharth, Rajendra Place  
Jaypee Vasant Continental, Vasant Vihar  
Jor Bagh  
Kailash Colony  
Kalkaji  
Kamla Nagar  
Kapashera  
Karampura  
Karkardooma  
Karol Bagh  
Kasbah, Greater Kailash (GK) 1  
Kashmiri Gate  
Khan Market  
Kirti Nagar  
Krishna Nagar  
Lado Sarai  
Lajpat Nagar 1  
Lajpat Nagar 2  
Lajpat Nagar 4  
Lawrence Road  
Laxmi Nagar  
Le Meridien, Janpath  
Lemon Tree Premier, Aerocity  
Living Style Mall, Jasola  
Lodhi Colony  
Lodhi Road  
MG Road  
MGF Metropolitan Mall, Saket  
MGM Club, Daryaganj  
Mahipalpur  
Maidens Hotel, Civil Lines  
Majnu ka Tila

Malviya Nagar  
Mandi House  
Mathura Road  
Mayapuri Phase 2  
Mayur Vihar Phase 1  
Mayur Vihar Phase 2  
Mayur Vihar Phase 3  
Mehrauli  
Metro Walk Mall, Rohini  
Model Town 1  
Model Town 2  
Model Town 3  
Moments Mall, Kirti Nagar  
Moti Bagh  
Moti Nagar  
Mukherjee Nagar  
Munirka  
Najafgarh  
Naraina  
Nehru Place  
Netaji Subhash Place  
New Friends Colony  
Nizamuddin  
Okhla Phase 1  
Okhla Phase 2  
PVR Anupam Complex  
Pacific Mall, Tagore Garden  
Paharganj  
Palam  
Palate of Delhi, Chanakyapuri  
Panchsheel Park  
Pandara Road Market  
Pandav Nagar  
Paschim Vihar  
Patparganj  
Piccadilly Hotel, Janakpuri  
Pitampura  
Pragati Maidan  
Prashant Vihar  
Preet Vihar  
Premier Inn, Shalimar Bagh  
Pride Plaza Hotel, Aerocity  
Punjabi Bagh  
Qutab Institutional Area  
R K Puram  
Race Course  
Radisson Blu Plaza Delhi, Mahipalpur  
Radisson Blu, Paschim Vihar  
Rajendra Place  
Rajinder Nagar  
Rajouri Garden  
Rohini  
Roseate House, Aerocity  
SDA  
Safdarjung  
Sainik Farms  
Saket  
Sangam Courtyard, RK Puram  
Sarita Vihar  
Sarojini Nagar  
Satyaniketan

Sector 15, Dwarka  
Select Citywalk Mall, Saket  
Shahdara  
Shahpur Jat  
Shakarpur  
Shalimar Bagh  
Shangri La's - Eros hotel, Janpath  
Shanti Niketan Marg  
Sheikh Sarai  
Sheraton New Delhi Hotel, Saket  
South Extension 1  
South Extension 2  
Southern Park Mall, Saket  
Spark Mall, Kamla Nagar  
Star City Mall, Mayur Vihar Phase 1  
Subhash Nagar  
Sunder Nagar  
T3 Domestic Arrival, Aerocity  
TDI Mall, Rajouri Garden  
Tagore Garden  
Taj Vivanta, Khan Market  
The Ashok, Chanakyapuri  
The Claridges, Aurangzeb Road  
The Grand New Delhi, Vasant Kunj  
The Imperial, Janpath  
The India Mall, New Friends Colony  
The Lalit New Delhi, Barakhamba Road  
The Leela Ambience Convention Hotel  
The Leela Palace, Chanakyapuri  
The Lodhi, Lodhi Road  
The Park, Connaught Place  
The Suryaa New Delhi, New Friends Colony  
The Taj Mahal Hotel, Mansingh Road  
The Taj Palace Hotel, Chanakyapuri  
The Uppal, Aerocity  
The Village Restaurant Complex, Khel Gaon Marg  
Tilak Nagar  
Tughlakabad Institutional Area  
Uday Park  
Unity One Mall, Janakpuri  
Uttam Nagar  
V3S Mall, Laxmi Nagar  
Vasant Kunj  
Vasant Square Mall, Vasant Kunj  
Vasant Vihar  
Vasundhara Enclave  
Vijay Nagar  
Vikas Marg  
Vikaspuri  
Vivek Vihar  
Wazirpur  
West End Mall, Janak Puri  
West Gate Mall, Rajouri Garden  
West Patel Nagar  
Worldmark 1, Aerocity  
Yusuf Sarai  
ibis New Delhi, Aerocity

In [21]:

new\_Delhi\_venues.head()

Out[21]:

	Locality	Locality Latitude	Locality Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	ARSS Mall, Paschim Vihar	28.668945	77.101544	Subway	28.669999	77.102546	Sandwich Place
1	ARSS Mall, Paschim Vihar	28.668945	77.101544	Baljeet's Amritsari Koolcha	28.665768	77.100481	Indian Restaurant
2	ARSS Mall, Paschim Vihar	28.668945	77.101544	Pizza Hut	28.670321	77.103853	Pizza Place
3	ARSS Mall, Paschim Vihar	28.668945	77.101544	Café Coffee Day	28.670009	77.102480	Coffee Shop
4	ARSS Mall, Paschim Vihar	28.668945	77.101544	Little Chef	28.670000	77.101459	Chinese Restaurant

In [22]:

```
new_Delhi_venues.groupby('Locality').count()
```

Out[22]:

	Locality Latitude	Locality Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Locality						
<b>ARSS Mall, Paschim Vihar</b>	9	9	9	9	9	9
<b>Adchini</b>	6	6	6	6	6	6
<b>Aditya Mega Mall, Karkardooma</b>	10	10	10	10	10	10
<b>Aerocity</b>	7	7	7	7	7	7
<b>Aggarwal City Mall, Pitampura</b>	5	5	5	5	5	5
<b>Aggarwal City Plaza, Rohini</b>	6	6	6	6	6	6
<b>Alaknanda</b>	4	4	4	4	4	4
<b>Ambience Mall, Vasant Kunj</b>	46	46	46	46	46	46
<b>Anand Lok</b>	11	11	11	11	11	11
<b>Anand Vihar</b>	5	5	5	5	5	5
<b>Andaz Delhi, Aerocity</b>	28	28	28	28	28	28
<b>Ansals Plaza Mall, Khel Gaon Marg</b>	4	4	4	4	4	4
<b>Asaf Ali Road</b>	6	6	6	6	6	6
<b>Ashok Vihar Phase 1</b>	7	7	7	7	7	7
<b>Ashok Vihar Phase 2</b>	7	7	7	7	7	7
<b>Ashok Vihar Phase 3</b>	5	5	5	5	5	5
<b>Barakhamba Road</b>	15	15	15	15	15	15
<b>Basant Lok Market, Vasant Vihar</b>	28	28	28	28	28	28
<b>Bellagio, Ashok Vihar Phase 2</b>	7	7	7	7	7	7
<b>Best Western Taurus Hotel, Mahipalpur</b>	11	11	11	11	11	11
<b>Bhikaji Cama Place</b>	12	12	12	12	12	12
<b>Chanakyapuri</b>	6	6	6	6	6	6
<b>Chander Nagar</b>	3	3	3	3	3	3
<b>Chandni Chowk</b>	18	18	18	18	18	18
<b>Chawri Bazar</b>	6	6	6	6	6	6
<b>Chhatarpur</b>	5	5	5	5	5	5
<b>Chittaranjan Park</b>	4	4	4	4	4	4
<b>City Centre Mall, Rohini</b>	10	10	10	10	10	10
<b>City Square Mall, Rajouri Garden</b>	24	24	24	24	24	24
<b>Civil Lines</b>	5	5	5	5	5	5
...	...	...	...	...	...	...
<b>The Lalit New Delhi, Barakhamba Road</b>	6	6	6	6	6	6

Locality	Locality Latitude	Locality Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
<b>Locality</b>						
<b>The Leela Ambience Convention Hotel</b>	6	6	6	6	6	6
<b>The Leela Palace, Chanakyapuri</b>	12	12	12	12	12	12
<b>The Lodhi, Lodhi Road</b>	14	14	14	14	14	14
<b>The Park, Connaught Place</b>	26	26	26	26	26	26
<b>The Suryaa New Delhi, New Friends Colony</b>	22	22	22	22	22	22
<b>The Taj Mahal Hotel, Mansingh Road</b>	6	6	6	6	6	6
<b>The Taj Palace Hotel, Chanakyapuri</b>	34	34	34	34	34	34
<b>The Uppal, Aerocity</b>	4	4	4	4	4	4
<b>The Village Restaurant Complex, Khel Gaon Marg</b>	13	13	13	13	13	13
<b>Tilak Nagar</b>	4	4	4	4	4	4
<b>Tughlakabad Institutional Area</b>	6	6	6	6	6	6
<b>Uday Park</b>	6	6	6	6	6	6
<b>Unity One Mall, Janakpuri</b>	5	5	5	5	5	5
<b>Uttam Nagar</b>	3	3	3	3	3	3
<b>V3S Mall, Laxmi Nagar</b>	12	12	12	12	12	12
<b>Vasant Kunj</b>	7	7	7	7	7	7
<b>Vasant Square Mall, Vasant Kunj</b>	9	9	9	9	9	9
<b>Vasant Vihar</b>	29	29	29	29	29	29
<b>Vasundhara Enclave</b>	1	1	1	1	1	1
<b>Vijay Nagar</b>	12	12	12	12	12	12
<b>Vikas Marg</b>	4	4	4	4	4	4
<b>Vikaspuri</b>	3	3	3	3	3	3
<b>Vivek Vihar</b>	4	4	4	4	4	4
<b>West End Mall, Janak Puri</b>	12	12	12	12	12	12
<b>West Gate Mall, Rajouri Garden</b>	17	17	17	17	17	17
<b>West Patel Nagar</b>	6	6	6	6	6	6
<b>Worldmark 1, Aerocity</b>	32	32	32	32	32	32
<b>Yusuf Sarai</b>	12	12	12	12	12	12
<b>ibis New Delhi, Aerocity</b>	31	31	31	31	31	31

238 rows × 6 columns

In [23]:

```
print('There are {} uniques categories.'.format(len(new_Delhi_venues['Venue Category'].unique())))

```

There are 207 uniques categories.

In [24]:

```
## Analyze Each Locality

# one hot encoding
new_Delhi_onehot = pd.get_dummies(new_Delhi_venues[['Venue Category']], prefix="", prefix_sep="")

# add Locality column back to dataframe
new_Delhi_onehot['Locality'] = new_Delhi_venues['Locality']

# move Locality column to the first column
column_list = new_Delhi_onehot.columns.tolist()
column_number = int(column_list.index('Locality'))
column_list = [column_list[column_number]] + column_list[:column_number] + column_list[column_number+1:]
new_Delhi_onehot = new_Delhi_onehot[column_list]

new_Delhi_onehot.head()
```

Out[24]:

	Locality	ATM	Accessories Store	Afghan Restaurant	African Restaurant	Airport	Airport Lounge	Airport Service	Airport Terminal	
0	ARSS Mall, Paschim Vihar	0	0	0	0	0	0	0	0	
1	ARSS Mall, Paschim Vihar	0	0	0	0	0	0	0	0	
2	ARSS Mall, Paschim Vihar	0	0	0	0	0	0	0	0	
3	ARSS Mall, Paschim Vihar	0	0	0	0	0	0	0	0	
4	ARSS Mall, Paschim Vihar	0	0	0	0	0	0	0	0	

5 rows × 208 columns

In [25]:

```
New_Delhi_grouped = new_Delhi_onehot.groupby('Locality').sum().reset_index()
New_Delhi_grouped
```

Out[25]:

	Locality	ATM	Accessories Store	Afghan Restaurant	African Restaurant	Airport	Airport Lounge	Airport Service	Ai Terr
0	ARSS Mall, Paschim Vihar	1	0	0	0	0	0	0	0
1	Adchini	0	0	0	0	0	0	0	0
2	Aditya Mega Mall, Karkardooma	0	0	0	0	0	0	0	0
3	Aerocity	0	0	0	0	0	1	0	0
4	Aggarwal City Mall, Pitampura	0	0	0	0	0	0	0	0
5	Aggarwal City Plaza, Rohini	0	0	0	0	0	0	0	0
6	Alaknanda	0	0	0	0	0	0	0	0
7	Ambience Mall, Vasant Kunj	0	0	0	0	0	0	0	0
8	Anand Lok	0	0	0	0	0	0	0	0
9	Anand Vihar	0	0	0	0	0	0	0	0
10	Andaz Delhi, Aerocity	0	0	0	0	0	0	0	0
11	Ansal Plaza Mall, Khel Gaon Marg	0	0	0	0	0	0	0	0
12	Asaf Ali Road	0	0	0	0	0	0	0	0
13	Ashok Vihar Phase 1	0	0	0	0	0	0	0	0
14	Ashok Vihar Phase 2	0	0	0	0	0	0	0	0
15	Ashok Vihar Phase 3	0	0	0	0	0	0	0	0
16	Barakhamba Road	0	0	0	0	0	0	0	0
17	Basant Lok Market, Vasant Vihar	0	0	0	0	0	0	0	0
18	Bellagio, Ashok Vihar Phase 2	0	0	0	0	0	0	0	0
19	Best Western Taurus Hotel, Mahipalpur	0	1	0	0	0	0	0	0
20	Bhikaji Cama Place	0	0	0	0	0	0	0	0
21	Chanakyapuri	0	0	0	1	0	0	0	0
22	Chander Nagar	0	0	0	0	0	0	0	0

	Locality	ATM	Accessories Store	Afghan Restaurant	African Restaurant	Airport	Airport Lounge	Airport Service	Ai Terr
23	Chandni Chowk	0	0	0	0	0	0	0	0
24	Chawri Bazar	0	0	0	0	0	0	0	0
25	Chhatarpur	0	0	0	0	0	0	0	0
26	Chittaranjan Park	0	0	0	0	0	0	0	0
27	City Centre Mall, Rohini	0	0	0	0	0	0	0	0
28	City Square Mall, Rajouri Garden	0	0	0	0	0	0	0	0
29	Civil Lines	0	0	0	0	0	0	0	0
...	...	...	...	...	...	...	...	...	...
208	The Lalit New Delhi, Barakhamba Road	0	0	0	0	0	0	0	0
209	The Leela Ambience Convention Hotel	0	0	0	0	0	0	0	0
210	The Leela Palace, Chanakyapuri	0	0	0	0	0	0	0	0
211	The Lodhi, Lodhi Road	0	0	0	0	0	0	0	0
212	The Park, Connaught Place	0	0	0	0	0	0	0	0
213	The Suryaa New Delhi, New Friends Colony	0	0	0	0	0	0	0	0
214	The Taj Mahal Hotel, Mansingh Road	0	0	0	0	0	0	0	0
215	The Taj Palace Hotel, Chanakyapuri	0	0	0	0	0	0	0	0
216	The Uppal, Aerocity	0	0	0	0	0	0	0	0
217	The Village Restaurant Complex, Khel Gaon Marg	0	0	0	0	0	0	0	0
218	Tilak Nagar	0	0	0	0	0	0	0	0
219	Tughlakabad Institutional Area	0	0	0	0	0	0	0	0
220	Uday Park	0	0	0	0	0	0	0	0

	Locality	ATM	Accessories Store	Afghan Restaurant	African Restaurant	Airport	Airport Lounge	Airport Service	Ai Terr
221	Unity One Mall, Janakpuri	0	0	0	0	0	0	0	0
222	Uttam Nagar	1	0	0	0	0	0	0	0
223	V3S Mall, Laxmi Nagar	0	0	0	0	0	0	0	0
224	Vasant Kunj	0	0	0	0	0	0	0	0
225	Vasant Square Mall, Vasant Kunj	0	0	0	0	0	0	0	0
226	Vasant Vihar	0	0	0	0	0	0	0	0
227	Vasundhara Enclave	0	0	0	0	0	0	0	0
228	Vijay Nagar	0	0	0	0	0	0	0	0
229	Vikas Marg	0	0	0	0	0	0	0	0
230	Vikaspuri	0	0	0	0	0	0	0	0
231	Vivek Vihar	0	0	0	0	0	0	0	0
232	West End Mall, Janak Puri	0	0	0	0	0	0	0	0
233	West Gate Mall, Rajouri Garden	0	0	0	0	0	0	0	0
234	West Patel Nagar	0	0	0	0	0	0	0	0
235	Worldmark 1, Aerocity	0	1	0	0	0	0	0	0
236	Yusuf Sarai	0	0	0	0	0	0	0	0
237	ibis New Delhi, Aerocity	0	0	0	0	0	0	0	0

238 rows × 208 columns

In [26]:

New\_Delhi\_grouped.shape

Out[26]:

(238, 208)

In [27]:

```
## print each Locality along with the top 5 most common venues

num_top_venues = 5

for hood in New_Delhi_grouped['Locality']:
    print("----"+hood+"----")
    temp = New_Delhi_grouped[New_Delhi_grouped['Locality'] == hood].T.reset_index()
    temp.columns = ['venue', 'freq']
    temp = temp.iloc[1:]
    temp['freq'] = temp['freq'].astype(float)
    temp = temp.round({'freq': 2})
    print(temp.sort_values('freq', ascending=False).reset_index(drop=True).head(num_top_venues))
    print('\n')
```

## ----ARSS Mall, Paschim Vihar----

	venue	freq
0	Indian Restaurant	2.0
1	ATM	1.0
2	Coffee Shop	1.0
3	Sandwich Place	1.0
4	Multicuisine Indian Restaurant	1.0

## ----Adchini----

	venue	freq
0	Café	2.0
1	Indian Restaurant	2.0
2	Pub	1.0
3	Restaurant	1.0
4	ATM	0.0

## ----Aditya Mega Mall, Karkardooma----

	venue	freq
0	Pizza Place	2.0
1	Shopping Mall	2.0
2	Multiplex	2.0
3	Indian Restaurant	2.0
4	Hotel	1.0

## ----Aerocity----

	venue	freq
0	Hotel	2.0
1	Fast Food Restaurant	1.0
2	Airport Lounge	1.0
3	Rental Car Location	1.0
4	Airport Terminal	1.0

## ----Aggarwal City Mall, Pitampura----

	venue	freq
0	Department Store	1.0
1	Indian Restaurant	1.0
2	Business Service	1.0
3	Chinese Restaurant	1.0
4	Pizza Place	1.0

## ----Aggarwal City Plaza, Rohini----

	venue	freq
0	Pizza Place	1.0
1	Multiplex	1.0
2	Bus Station	1.0
3	Gym / Fitness Center	1.0
4	Sandwich Place	1.0

## ----Alaknanda----

	venue	freq
0	Steakhouse	1.0
1	Coffee Shop	1.0
2	New American Restaurant	1.0
3	Market	1.0
4	ATM	0.0

## ----Ambience Mall, Vasant Kunj----

	venue	freq
0	Coffee Shop	4.0
1	Italian Restaurant	3.0
2	Shopping Mall	3.0
3	Café	3.0
4	Asian Restaurant	3.0

## ----Anand Lok----

	venue	freq
0	Stadium	2.0
1	Café	2.0
2	Dessert Shop	1.0
3	Coffee Shop	1.0
4	Golf Course	1.0

## ----Anand Vihar----

	venue	freq
0	Café	2.0
1	Convenience Store	1.0
2	Burger Joint	1.0
3	Burrito Place	1.0
4	ATM	0.0

## ----Andaz Delhi, Aerocity----

	venue	freq
0	Hotel	9.0
1	Spa	3.0
2	Restaurant	2.0
3	Coffee Shop	2.0
4	Shopping Mall	1.0

## ----Ansal Plaza Mall, Khel Gaon Marg----

	venue	freq
0	Department Store	1.0
1	Fast Food Restaurant	1.0
2	Karaoke Bar	1.0
3	Performing Arts Venue	1.0
4	Multiplex	0.0

## ----Asaf Ali Road----

	venue	freq
0	Hostel	2.0
1	Asian Restaurant	1.0
2	Indian Restaurant	1.0
3	Hotel	1.0
4	Movie Theater	1.0

## ----Ashok Vihar Phase 1----

	venue	freq
0	Dessert Shop	1.0
1	Indian Restaurant	1.0
2	BBQ Joint	1.0

3	Snack Place	1.0
4	Market	1.0

----Ashok Vihar Phase 2----

	venue	freq
0	South Indian Restaurant	1.0
1	Indian Restaurant	1.0
2	Pizza Place	1.0
3	Sandwich Place	1.0
4	Coffee Shop	1.0

----Ashok Vihar Phase 3----

	venue	freq
0	Gym / Fitness Center	2.0
1	Pizza Place	1.0
2	Fast Food Restaurant	1.0
3	South Indian Restaurant	1.0
4	Karaoke Bar	0.0

----Barakhamba Road----

	venue	freq
0	Indian Restaurant	3.0
1	Theater	2.0
2	Hotel	2.0
3	Café	2.0
4	Bakery	2.0

----Basant Lok Market, Vasant Vihar----

	venue	freq
0	Café	4.0
1	Chinese Restaurant	2.0
2	Fast Food Restaurant	2.0
3	Pizza Place	2.0
4	Restaurant	2.0

----Bellagio, Ashok Vihar Phase 2----

	venue	freq
0	South Indian Restaurant	1.0
1	Indian Restaurant	1.0
2	Pizza Place	1.0
3	Sandwich Place	1.0
4	Coffee Shop	1.0

----Best Western Taurus Hotel, Mahipalpur----

	venue	freq
0	Hotel	5.0
1	Italian Restaurant	1.0
2	Accessories Store	1.0
3	Shoe Store	1.0
4	Indian Restaurant	1.0

----Bhikaji Cama Place----

	venue	freq
0	Hotel	3.0

1	Lounge	2.0
2	Breakfast Spot	1.0
3	Asian Restaurant	1.0
4	Gym / Fitness Center	1.0

## ----Chanakyapuri----

	venue	freq
0	Pool	1.0
1	Café	1.0
2	African Restaurant	1.0
3	Park	1.0
4	Clothing Store	1.0

## ----Chander Nagar----

	venue	freq
0	Pizza Place	1.0
1	Gym	1.0
2	Fast Food Restaurant	1.0
3	Performing Arts Venue	0.0
4	Nightlife Spot	0.0

## ----Chandni Chowk----

	venue	freq
0	Indian Restaurant	6.0
1	Snack Place	3.0
2	Dessert Shop	2.0
3	Market	2.0
4	Train Station	1.0

## ----Chawri Bazar----

	venue	freq
0	Fast Food Restaurant	1.0
1	Indian Restaurant	1.0
2	Paper / Office Supplies Store	1.0
3	Light Rail Station	1.0
4	Snack Place	1.0

## ----Chhatarpur----

	venue	freq
0	Japanese Restaurant	1.0
1	Indian Restaurant	1.0
2	Donut Shop	1.0
3	Hotel	1.0
4	Luggage Store	1.0

## ----Chittaranjan Park----

	venue	freq
0	Market	2.0
1	Beer Garden	1.0
2	Park	1.0
3	ATM	0.0
4	Nightlife Spot	0.0

## ----City Centre Mall, Rohini----

	venue	freq
0	Shopping Mall	3.0
1	Department Store	2.0
2	Multiplex	1.0
3	Indian Restaurant	1.0
4	Gym	1.0

----City Square Mall, Rajouri Garden----

	venue	freq
0	Fast Food Restaurant	4.0
1	Café	3.0
2	Indian Restaurant	3.0
3	Shopping Mall	2.0
4	Dessert Shop	1.0

----Civil Lines----

	venue	freq
0	Chinese Restaurant	1.0
1	Light Rail Station	1.0
2	Burger Joint	1.0
3	Coffee Shop	1.0
4	Smoke Shop	1.0

----Community Centre, New Friends Colony----

	venue	freq
0	Café	3.0
1	Middle Eastern Restaurant	2.0
2	Hotel	2.0
3	Sandwich Place	1.0
4	Nightclub	1.0

----Connaught Place----

	venue	freq
0	Indian Restaurant	10.0
1	Café	6.0
2	Bar	6.0
3	Chinese Restaurant	5.0
4	Coffee Shop	3.0

----Crescent Square Mall, Rohini----

	venue	freq
0	Pharmacy	1.0
1	American Restaurant	1.0
2	Clothing Store	1.0
3	Athletics & Sports	1.0
4	ATM	0.0

----Cross River Mall, Karkardooma----

	venue	freq
0	Pizza Place	1.0
1	Burger Joint	1.0
2	Indian Restaurant	1.0
3	Burrito Place	1.0
4	Hotel	1.0

## ----Crowne Plaza Hotel, Rohini----

	venue	freq
0	Shopping Mall	1.0
1	Light Rail Station	1.0
2	Hotel	1.0
3	Clothing Store	1.0
4	Theme Park	1.0

## ----Crowne Plaza, Mayur Vihar Phase 1----

	venue	freq
0	Hotel	5.0
1	Department Store	1.0
2	Liquor Store	1.0
3	Restaurant	1.0
4	Asian Restaurant	1.0

## ----D Mall, Netaji Subhash Place----

	venue	freq
0	Fast Food Restaurant	4.0
1	Indian Restaurant	3.0
2	Coffee Shop	2.0
3	Shopping Mall	2.0
4	Sandwich Place	1.0

## ----DDA Market, Kalu Sarai, Hauz Khas----

	venue	freq
0	Coffee Shop	1.0
1	Nightclub	1.0
2	Event Space	1.0
3	Chinese Restaurant	1.0
4	Metro Station	1.0

## ----DLF City Centre Mall, Shalimar Bagh----

	venue	freq
0	Shopping Mall	1.0
1	Convenience Store	1.0
2	Multiplex	1.0
3	Vegetarian / Vegan Restaurant	1.0
4	Gym / Fitness Center	1.0

## ----DLF Emporio Mall, Vasant Kunj----

	venue	freq
0	Coffee Shop	4.0
1	Italian Restaurant	3.0
2	Shopping Mall	3.0
3	Café	3.0
4	Asian Restaurant	3.0

## ----DLF Place Mall, Saket----

	venue	freq
0	Indian Restaurant	10.0
1	Lounge	5.0
2	Clothing Store	5.0
3	Chinese Restaurant	5.0

4	Café	5.0
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----DLF Promenade Mall, Vasant Kunj----

	venue	freq
0	Coffee Shop	4.0
1	Italian Restaurant	3.0
2	Shopping Mall	3.0
3	Café	3.0
4	Asian Restaurant	3.0

----DLF South Square, Sarojini Nagar----

	venue	freq
0	Women's Store	2.0
1	Indian Restaurant	2.0
2	Fast Food Restaurant	2.0
3	Restaurant	1.0
4	Market	1.0

----Daryaganj----

	venue	freq
0	Indian Restaurant	4.0
1	Hotel	2.0
2	Restaurant	2.0
3	Hostel	2.0
4	Asian Restaurant	1.0

----Defence Colony----

	venue	freq
0	Italian Restaurant	3.0
1	Indian Restaurant	3.0
2	Bakery	2.0
3	South Indian Restaurant	1.0
4	Coffee Shop	1.0

----Delhi University-GTB Nagar----

	venue	freq
0	Restaurant	2.0
1	Café	2.0
2	Italian Restaurant	1.0
3	Pizza Place	1.0
4	Light Rail Station	1.0

----Dilli Haat, INA----

	venue	freq
0	Market	1.0
1	Restaurant	1.0
2	Indian Restaurant	1.0
3	Train Station	1.0
4	Mughlai Restaurant	0.0

----Dilshad Garden----

	venue	freq
0	Indian Restaurant	1.0
1	Bank	1.0

2	Gym	1.0
3	Market	1.0
4	ATM	0.0

----District Centre, Janakpuri----

	venue	freq
0	Indian Restaurant	2.0
1	Pizza Place	1.0
2	Fast Food Restaurant	1.0
3	BBQ Joint	1.0
4	Restaurant	1.0

----Dr. Zakir Hussain Marg----

	venue	freq
0	Indian Restaurant	3.0
1	Italian Restaurant	2.0
2	Golf Course	2.0
3	North Indian Restaurant	1.0
4	Gaming Cafe	1.0

----East Patel Nagar----

	venue	freq
0	Chinese Restaurant	2.0
1	Pizza Place	2.0
2	Fast Food Restaurant	1.0
3	Bar	1.0
4	Café	1.0

----East of Kailash----

	venue	freq
0	Department Store	1.0
1	Vegetarian / Vegan Restaurant	1.0
2	Temple	1.0
3	Hot Dog Joint	1.0
4	Coffee Shop	1.0

----Epicuria Food Mall, Nehru Place----

	venue	freq
0	Fast Food Restaurant	2.0
1	Coffee Shop	2.0
2	Electronics Store	1.0
3	Food	1.0
4	Nightclub	1.0

----Eros Hotel, Nehru Place----

	venue	freq
0	Fast Food Restaurant	3.0
1	Coffee Shop	2.0
2	Pizza Place	1.0
3	Food	1.0
4	Café	1.0

----Essex Farms----

	venue	freq
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0	Metro Station	1.0
1	Coffee Shop	1.0
2	Nightclub	1.0
3	Event Space	1.0
4	ATM	0.0

----Feroze Shah Road----

	venue	freq
0	Indian Restaurant	1.0
1	ATM	0.0
2	Noodle House	0.0
3	Mughlai Restaurant	0.0
4	Multicuisine Indian Restaurant	0.0

----Friends Colony----

	venue	freq
0	Hotel	2.0
1	Sculpture Garden	1.0
2	Gym	1.0
3	Neighborhood	1.0
4	Café	1.0

----GTB Nagar----

	venue	freq
0	Bike Rental / Bike Share	1.0
1	Pizza Place	1.0
2	Food Truck	1.0
3	Mughlai Restaurant	0.0
4	Multicuisine Indian Restaurant	0.0

----Garden of Five Senses, Saket----

	venue	freq
0	Coffee Shop	2.0
1	Asian Restaurant	1.0
2	Italian Restaurant	1.0
3	Café	1.0
4	Garden	1.0

----Geeta Colony----

	venue	freq
0	Burger Joint	1.0
1	ATM	0.0
2	Pizza Place	0.0
3	Mughlai Restaurant	0.0
4	Multicuisine Indian Restaurant	0.0

----Ginger Hotel, Vivek Vihar----

	venue	freq
0	Hotel	2.0
1	Asian Restaurant	1.0
2	Indian Restaurant	1.0
3	Café	1.0
4	BBQ Joint	1.0

## ----Gourmet Hub, Pashim Vihar----

	venue	freq
0	Pizza Place	1.0
1	Indian Restaurant	1.0
2	Ice Cream Shop	1.0
3	Food & Drink Shop	1.0
4	Bakery	1.0

## ----Greater Kailash (GK) 1----

	venue	freq
0	Market	2.0
1	Café	2.0
2	Indian Restaurant	2.0
3	Ice Cream Shop	1.0
4	Clothing Store	1.0

## ----Greater Kailash (GK) 2----

	venue	freq
0	Asian Restaurant	5.0
1	Indian Restaurant	4.0
2	Sandwich Place	3.0
3	Chinese Restaurant	3.0
4	Restaurant	3.0

## ----Greater Kailash (GK) 3----

	venue	freq
0	Restaurant	2.0
1	Café	2.0
2	Ice Cream Shop	2.0
3	Trail	1.0
4	Food Court	1.0

## ----Green Park----

	venue	freq
0	Indian Restaurant	5.0
1	Coffee Shop	4.0
2	Fast Food Restaurant	2.0
3	Donut Shop	2.0
4	Pizza Place	2.0

## ----Gujranwala Town----

	venue	freq
0	Snack Place	1.0
1	Shopping Mall	1.0
2	Indian Restaurant	1.0
3	Bakery	1.0
4	Nightlife Spot	0.0

## ----Hauz Khas----

	venue	freq
0	Dessert Shop	3.0
1	Coffee Shop	3.0
2	Bar	2.0
3	Indian Restaurant	2.0
4	Fast Food Restaurant	2.0

## ----Hauz Khas Village----

	venue	freq
0	Indian Restaurant	5.0
1	Café	5.0
2	Restaurant	4.0
3	Bar	3.0
4	American Restaurant	2.0

## ----Holiday Inn, Aerocity----

	venue	freq
0	Hotel	10.0
1	Spa	3.0
2	Coffee Shop	2.0
3	Restaurant	2.0
4	Bed & Breakfast	2.0

## ----Holiday Inn, Mayur Vihar----

	venue	freq
0	Hotel	5.0
1	Restaurant	2.0
2	Department Store	1.0
3	American Restaurant	1.0
4	Bakery	1.0

## ----Hotel Broadway, Daryaganj----

	venue	freq
0	Indian Restaurant	2.0
1	Hostel	2.0
2	Movie Theater	1.0
3	Hotel	1.0
4	Soccer Stadium	1.0

## ----Hotel City Park, Pitampura----

	venue	freq
0	Indian Restaurant	1.0
1	Park	1.0
2	Coffee Shop	1.0
3	Hotel	1.0
4	Bakery	1.0

## ----Hotel Regent Grand, Karol Bagh----

	venue	freq
0	Pizza Place	2.0
1	Donut Shop	1.0
2	Fast Food Restaurant	1.0
3	Bar	1.0
4	Café	1.0

## ----Hotel The Royal Plaza, Janpath----

	venue	freq
0	Hotel	6.0
1	Indian Restaurant	4.0
2	Spa	2.0

3	Restaurant	2.0
4	Italian Restaurant	2.0

----Hyatt Regency, Bhikaji Cama Place----

	venue	freq
0	Hotel	3.0
1	Lounge	2.0
2	Breakfast Spot	1.0
3	Asian Restaurant	1.0
4	Gym / Fitness Center	1.0

----INA----

	venue	freq
0	Light Rail Station	1.0
1	Dim Sum Restaurant	1.0
2	Indian Restaurant	1.0
3	Spa	1.0
4	Market	1.0

----IP Extension----

	venue	freq
0	Indian Restaurant	2.0
1	Pizza Place	1.0
2	Market	1.0
3	Food	1.0
4	Café	1.0

----ITC Maurya, Chanakyapuri----

	venue	freq
0	Hotel	4.0
1	Indian Restaurant	4.0
2	Café	3.0
3	Chinese Restaurant	2.0
4	Lounge	1.0

----ITO----

	venue	freq
0	Plaza	1.0
1	Udupi Restaurant	1.0
2	Historic Site	1.0
3	Clothing Store	1.0
4	Art Museum	1.0

----India Gate----

	venue	freq
0	ATM	1.0
1	Music Venue	1.0
2	Government Building	1.0
3	Rest Area	1.0
4	Chinese Restaurant	1.0

----JMD Kohinoor Mall, Greater Kailash----

	venue	freq
0	Restaurant	3.0

1	Ice Cream Shop	3.0
2	Pizza Place	2.0
3	Chinese Restaurant	2.0
4	Café	2.0

----JNU----

	venue	freq
0	Shopping Mall	1.0
1	Indian Restaurant	1.0
2	Scenic Lookout	1.0
3	Café	1.0
4	ATM	0.0

----JW Marriott New Delhi----

	venue	freq
0	Hotel	9.0
1	Spa	3.0
2	Restaurant	2.0
3	Coffee Shop	2.0
4	Punjabi Restaurant	1.0

----Jail Road----

	venue	freq
0	Indian Restaurant	2.0
1	Pizza Place	1.0
2	Fried Chicken Joint	1.0
3	Indian Sweet Shop	1.0
4	Ice Cream Shop	1.0

----Jama Masjid----

	venue	freq
0	Indian Restaurant	3.0
1	Metro Station	1.0
2	Mosque	1.0
3	Flea Market	1.0
4	Snack Place	1.0

----Janakpuri----

	venue	freq
0	Café	2.0
1	Park	1.0
2	Gym	1.0
3	Bakery	1.0
4	ATM	0.0

----Jangpura----

	venue	freq
0	Sandwich Place	2.0
1	BBQ Joint	1.0
2	Fast Food Restaurant	1.0
3	Chinese Restaurant	1.0
4	Flea Market	1.0

----Janpath----

	venue	freq
0	Indian Restaurant	5.0
1	Italian Restaurant	3.0
2	Coffee Shop	3.0
3	Lounge	2.0
4	Fast Food Restaurant	2.0

----Jasola----

	venue	freq
0	Pizza Place	1.0
1	Café	1.0
2	Breakfast Spot	1.0
3	Soccer Stadium	1.0
4	Mughlai Restaurant	0.0

----Jaypee Siddharth, Rajendra Place----

	venue	freq
0	Fast Food Restaurant	2.0
1	Pizza Place	2.0
2	Donut Shop	1.0
3	Bar	1.0
4	Bed & Breakfast	1.0

----Jaypee Vasant Continental, Vasant Vihar----

	venue	freq
0	Café	4.0
1	Chinese Restaurant	2.0
2	Fast Food Restaurant	2.0
3	Pizza Place	2.0
4	Restaurant	2.0

----Jor Bagh----

	venue	freq
0	Metro Station	1.0
1	Indian Restaurant	1.0
2	Record Shop	1.0
3	Bakery	1.0
4	Flower Shop	1.0

----Kailash Colony----

	venue	freq
0	Light Rail Station	2.0
1	Department Store	2.0
2	Bar	2.0
3	Hotel	2.0
4	Dessert Shop	1.0

----Kalkaji----

	venue	freq
0	Fast Food Restaurant	2.0
1	Market	2.0
2	Dessert Shop	1.0
3	Bank	1.0
4	Sandwich Place	1.0

## ----Kamla Nagar----

	venue	freq
0	Fast Food Restaurant	3.0
1	Breakfast Spot	3.0
2	Indian Restaurant	3.0
3	Chinese Restaurant	2.0
4	Coffee Shop	2.0

## ----Kapashera----

	venue	freq
0	ATM	1.0
1	Convenience Store	1.0
2	Food Truck	1.0
3	Andhra Restaurant	1.0
4	Food Court	1.0

## ----Karampura----

	venue	freq
0	Moving Target	1.0
1	Indian Restaurant	1.0
2	Fried Chicken Joint	1.0
3	Vegetarian / Vegan Restaurant	1.0
4	Nightlife Spot	0.0

## ----Karkardooma----

	venue	freq
0	Pizza Place	1.0
1	Food Truck	1.0
2	Train Station	1.0
3	Nightlife Spot	0.0
4	Mughlai Restaurant	0.0

## ----Karol Bagh----

	venue	freq
0	Indian Restaurant	4.0
1	Fast Food Restaurant	3.0
2	Pizza Place	1.0
3	Food & Drink Shop	1.0
4	Bakery	1.0

## ----Kasbah, Greater Kailash (GK) 1----

	venue	freq
0	Café	4.0
1	Indian Restaurant	3.0
2	Furniture / Home Store	1.0
3	Clothing Store	1.0
4	Gym / Fitness Center	1.0

## ----Kashmiri Gate----

	venue	freq
0	Metro Station	1.0
1	Pizza Place	1.0
2	American Restaurant	1.0
3	Bus Station	1.0

4 Fast Food Restaurant 1.0

----Khan Market----

	venue	freq
0	Café	8.0
1	Coffee Shop	4.0
2	Bar	3.0
3	Chinese Restaurant	3.0
4	Asian Restaurant	3.0

----Kirti Nagar----

	venue	freq
0	Pizza Place	2.0
1	Convenience Store	1.0
2	Fish & Chips Shop	1.0
3	Dessert Shop	1.0
4	Pet Store	0.0

----Krishna Nagar----

	venue	freq
0	Pizza Place	2.0
1	Fast Food Restaurant	1.0
2	Pet Store	0.0
3	Performing Arts Venue	0.0
4	Mughlai Restaurant	0.0

----Lado Sarai----

	venue	freq
0	Shopping Mall	2.0
1	Nightclub	1.0
2	Furniture / Home Store	1.0
3	Golf Course	1.0
4	BBQ Joint	1.0

----Lajpat Nagar 1----

	venue	freq
0	Cocktail Bar	1.0
1	Music Store	1.0
2	Fast Food Restaurant	1.0
3	Neighborhood	1.0
4	Indian Restaurant	1.0

----Lajpat Nagar 2----

	venue	freq
0	Pizza Place	3.0
1	Donut Shop	2.0
2	Indian Restaurant	2.0
3	Café	2.0
4	Fast Food Restaurant	2.0

----Lajpat Nagar 4----

	venue	freq
0	Café	2.0
1	Market	2.0

2	Movie Theater	1.0
3	Indian Restaurant	1.0
4	Fast Food Restaurant	1.0

----Lawrence Road----

	venue	freq
0	Moving Target	1.0
1	Department Store	1.0
2	Basketball Court	1.0
3	Light Rail Station	1.0
4	Noodle House	0.0

----Laxmi Nagar----

	venue	freq
0	Pizza Place	1.0
1	Multiplex	1.0
2	Grocery Store	1.0
3	Arcade	1.0
4	Noodle House	0.0

----Le Meridien, Janpath----

	venue	freq
0	Hotel	5.0
1	Indian Restaurant	3.0
2	Restaurant	2.0
3	Spa	2.0
4	Italian Restaurant	1.0

----Lemon Tree Premier, Aerocity----

	venue	freq
0	Hotel	9.0
1	Spa	3.0
2	Restaurant	2.0
3	Coffee Shop	2.0
4	Punjabi Restaurant	1.0

----Living Style Mall, Jasola----

	venue	freq
0	Indian Restaurant	2.0
1	Pizza Place	1.0
2	Bakery	1.0
3	Fast Food Restaurant	1.0
4	Soccer Stadium	1.0

----Lodhi Colony----

	venue	freq
0	Indian Restaurant	2.0
1	Shopping Mall	1.0
2	English Restaurant	1.0
3	Restaurant	1.0
4	Flea Market	1.0

----Lodhi Road----

	venue	freq
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0	Indian Restaurant	2.0
1	Diner	1.0
2	Asian Restaurant	1.0
3	Café	1.0
4	Food Court	1.0

## ----MG Road----

	venue	freq
0	Furniture / Home Store	1.0
1	Indian Restaurant	1.0
2	Art Museum	1.0
3	ATM	0.0
4	Noodle House	0.0

## ----MGF Metropolitan Mall, Saket----

	venue	freq
0	Indian Restaurant	9.0
1	Lounge	5.0
2	Clothing Store	5.0
3	Chinese Restaurant	5.0
4	Bar	5.0

## ----MGM Club, Daryaganj----

	venue	freq
0	Indian Restaurant	2.0
1	Restaurant	2.0
2	Road	1.0
3	Hotel	1.0
4	ATM	0.0

## ----Mahipalpur----

	venue	freq
0	Hotel	4.0
1	Thai Restaurant	1.0
2	Indian Restaurant	1.0
3	Bed & Breakfast	1.0
4	Hotel Bar	1.0

## ----Maidens Hotel, Civil Lines----

	venue	freq
0	Asian Restaurant	1.0
1	Chinese Restaurant	1.0
2	Convenience Store	1.0
3	Indian Restaurant	1.0
4	Hotel	1.0

## ----Majnu ka Tila----

	venue	freq
0	Asian Restaurant	3.0
1	Bus Station	1.0
2	Café	1.0
3	Coffee Shop	1.0
4	Hotel	1.0

## ----Malviya Nagar----

	venue	freq
0	Coffee Shop	2.0
1	Donut Shop	1.0
2	Pizza Place	1.0
3	Gym	1.0
4	Café	1.0

## ----Mandi House----

	venue	freq
0	Theater	3.0
1	Café	2.0
2	Indian Restaurant	2.0
3	Bakery	2.0
4	Art Gallery	2.0

## ----Mathura Road----

	venue	freq
0	Indian Sweet Shop	1.0
1	Breakfast Spot	1.0
2	Light Rail Station	1.0
3	ATM	0.0
4	Noodle House	0.0

## ----Mayapuri Phase 2----

	venue	freq
0	Garden	1.0
1	Restaurant	1.0
2	Nightlife Spot	0.0
3	Moving Target	0.0
4	Mughlai Restaurant	0.0

## ----Mayur Vihar Phase 1----

	venue	freq
0	Bistro	1.0
1	Pizza Place	1.0
2	Indian Restaurant	1.0
3	Gym / Fitness Center	1.0
4	Nightlife Spot	0.0

## ----Mayur Vihar Phase 2----

	venue	freq
0	Wings Joint	1.0
1	Juice Bar	1.0
2	Ice Cream Shop	1.0
3	Sandwich Place	1.0
4	Café	1.0

## ----Mayur Vihar Phase 3----

	venue	freq
0	Hotel	1.0
1	ATM	0.0
2	Noodle House	0.0
3	Mughlai Restaurant	0.0
4	Multicuisine Indian Restaurant	0.0

----Mehrauli----

	venue	freq
0	Thai Restaurant	3.0
1	Bar	2.0
2	Historic Site	2.0
3	Lounge	1.0
4	Monument / Landmark	1.0

----Metro Walk Mall, Rohini----

	venue	freq
0	Pizza Place	1.0
1	Fast Food Restaurant	1.0
2	Shopping Mall	1.0
3	Theme Park	1.0
4	Asian Restaurant	1.0

----Model Town 1----

	venue	freq
0	Convenience Store	1.0
1	Lake	1.0
2	Light Rail Station	1.0
3	Food Truck	1.0
4	ATM	0.0

----Model Town 2----

	venue	freq
0	Fast Food Restaurant	1.0
1	Donut Shop	1.0
2	Chinese Restaurant	1.0
3	Coffee Shop	1.0
4	Pizza Place	1.0

----Model Town 3----

	venue	freq
0	Indian Restaurant	1.0
1	Park	1.0
2	Chinese Restaurant	1.0
3	ATM	0.0
4	Noodle House	0.0

----Moments Mall, Kirti Nagar----

	venue	freq
0	Department Store	1.0
1	Metro Station	1.0
2	Fast Food Restaurant	1.0
3	Clothing Store	1.0
4	Café	1.0

----Moti Bagh----

	venue	freq
0	South Indian Restaurant	1.0
1	Department Store	1.0
2	Café	1.0

3	Pizza Place	1.0
4	Karaoke Bar	0.0

----Moti Nagar----

	venue	freq
0	Fried Chicken Joint	1.0
1	Ice Cream Shop	1.0
2	ATM	0.0
3	Noodle House	0.0
4	Multicuisine Indian Restaurant	0.0

----Mukherjee Nagar----

	venue	freq
0	Gym	1.0
1	Bakery	1.0
2	BBQ Joint	1.0
3	ATM	0.0
4	Movie Theater	0.0

----Munirka----

	venue	freq
0	Indian Restaurant	2.0
1	Playground	1.0
2	Department Store	1.0
3	Pizza Place	1.0
4	Bank	1.0

----Najafgarh----

	venue	freq
0	Discount Store	1.0
1	Electronics Store	1.0
2	Clothing Store	1.0
3	Food & Drink Shop	1.0
4	ATM	0.0

----Naraina----

	venue	freq
0	Café	2.0
1	Indian Restaurant	2.0
2	ATM	0.0
3	Multicuisine Indian Restaurant	0.0
4	Multiplex	0.0

----Nehru Place----

	venue	freq
0	Fast Food Restaurant	2.0
1	Coffee Shop	2.0
2	Electronics Store	1.0
3	Food	1.0
4	Nightclub	1.0

----Netaji Subhash Place----

	venue	freq
0	Fast Food Restaurant	4.0

1	Indian Restaurant	3.0
2	Coffee Shop	2.0
3	Shopping Mall	2.0
4	Sandwich Place	1.0

----New Friends Colony----

	venue	freq
0	Café	3.0
1	Fast Food Restaurant	1.0
2	Lounge	1.0
3	Grocery Store	1.0
4	Sandwich Place	1.0

----Nizamuddin----

	venue	freq
0	Indian Restaurant	2.0
1	Garden	1.0
2	Historic Site	1.0
3	Pizza Place	1.0
4	Park	1.0

----Okhla Phase 1----

	venue	freq
0	Cosmetics Shop	1.0
1	Electronics Store	1.0
2	North Indian Restaurant	0.0
3	Multicuisine Indian Restaurant	0.0
4	Multiplex	0.0

----Okhla Phase 2----

	venue	freq
0	Gift Shop	1.0
1	Sporting Goods Shop	1.0
2	Indian Restaurant	1.0
3	Hotel	1.0
4	ATM	0.0

----PVR Anupam Complex----

	venue	freq
0	Pizza Place	1.0
1	Café	1.0
2	Multiplex	1.0
3	Electronics Store	1.0
4	Lounge	1.0

----Pacific Mall, Tagore Garden----

	venue	freq
0	Multiplex	2.0
1	Fast Food Restaurant	2.0
2	Donut Shop	2.0
3	Restaurant	2.0
4	Shopping Mall	2.0

----Paharganj----

	venue	freq
0	Hotel	15.0
1	Indian Restaurant	4.0
2	Restaurant	3.0
3	Hostel	2.0
4	Café	2.0

----Palate of Delhi, Chanakyapuri----

	venue	freq
0	Campground	1.0
1	Golf Course	1.0
2	Bakery	1.0
3	Chinese Restaurant	1.0
4	North Indian Restaurant	0.0

----Panchsheel Park----

	venue	freq
0	Pizza Place	1.0
1	American Restaurant	1.0
2	Event Space	1.0
3	Business Service	1.0
4	Noodle House	0.0

----Pandara Road Market----

	venue	freq
0	Indian Restaurant	6.0
1	Smoke Shop	2.0
2	Ice Cream Shop	2.0
3	Playground	1.0
4	Park	1.0

----Pandav Nagar----

	venue	freq
0	Dessert Shop	2.0
1	Moving Target	1.0
2	Convenience Store	1.0
3	Park	1.0
4	Food & Drink Shop	1.0

----Paschim Vihar----

	venue	freq
0	Garden	1.0
1	Coffee Shop	1.0
2	Sandwich Place	1.0
3	Multicuisine Indian Restaurant	1.0
4	Market	1.0

----Patparganj----

	venue	freq
0	Indian Restaurant	2.0
1	Pizza Place	1.0
2	Market	1.0
3	Dessert Shop	1.0
4	Gift Shop	1.0

## ----Piccadilly Hotel, Janakpuri----

	venue	freq
0	Indian Restaurant	2.0
1	Pizza Place	1.0
2	Chinese Restaurant	1.0
3	Metro Station	1.0
4	Fast Food Restaurant	1.0

## ----Pitampura----

	venue	freq
0	Market	1.0
1	Indian Restaurant	1.0
2	Light Rail Station	1.0
3	Snack Place	1.0
4	Noodle House	0.0

## ----Pragati Maidan----

	venue	freq
0	Pool	2.0
1	Hockey Arena	1.0
2	Museum	1.0
3	Café	1.0
4	Art Museum	1.0

## ----Prashant Vihar----

	venue	freq
0	Indian Restaurant	3.0
1	Pizza Place	2.0
2	Airport	1.0
3	Multiplex	1.0
4	Noodle House	0.0

## ----Preet Vihar----

	venue	freq
0	Chinese Restaurant	1.0
1	Pizza Place	1.0
2	Ice Cream Shop	1.0
3	Arcade	1.0
4	Fast Food Restaurant	1.0

## ----Premier Inn, Shalimar Bagh----

	venue	freq
0	Café	1.0
1	Hotel	1.0
2	ATM	0.0
3	Multicuisine Indian Restaurant	0.0
4	Multiplex	0.0

## ----Pride Plaza Hotel, Aerocity----

	venue	freq
0	Hotel	9.0
1	Spa	3.0
2	Coffee Shop	2.0
3	Restaurant	2.0

4 Gastropub 1.0

----Punjabi Bagh----

	venue	freq
0	Hookah Bar	1.0
1	Donut Shop	1.0
2	Convenience Store	1.0
3	Garden Center	1.0
4	Fast Food Restaurant	1.0

----Qutab Institutional Area----

	venue	freq
0	Restaurant	2.0
1	Indian Restaurant	2.0
2	Moroccan Restaurant	1.0
3	Food Truck	1.0
4	Modern European Restaurant	1.0

----R K Puram----

	venue	freq
0	Asian Restaurant	1.0
1	Park	1.0
2	Café	1.0
3	Restaurant	1.0
4	Coffee Shop	1.0

----Race Course----

	venue	freq
0	Women's Store	1.0
1	Racetrack	1.0
2	Gym / Fitness Center	1.0
3	Business Service	1.0
4	History Museum	1.0

----Radisson Blu Plaza Delhi, Mahipalpur----

	venue	freq
0	Thai Restaurant	1.0
1	Spa	1.0
2	Indian Restaurant	1.0
3	American Restaurant	1.0
4	Hotel	1.0

----Radisson Blu, Paschim Vihar----

	venue	freq
0	Hotel	2.0
1	Indian Restaurant	1.0
2	Food Truck	1.0
3	Coffee Shop	1.0
4	Fast Food Restaurant	1.0

----Rajendra Place----

	venue	freq
0	Pizza Place	2.0
1	Fast Food Restaurant	2.0

2	Bakery	1.0
3	Hotel	1.0
4	Multicuisine Indian Restaurant	1.0

## ----Rajinder Nagar----

	venue	freq
0	Pizza Place	1.0
1	Food & Drink Shop	1.0
2	Market	1.0
3	Bakery	1.0
4	Gym / Fitness Center	1.0

## ----Rajouri Garden----

	venue	freq
0	Indian Restaurant	2.0
1	Diner	1.0
2	BBQ Joint	1.0
3	Pub	1.0
4	Market	1.0

## ----Rohini----

	venue	freq
0	Department Store	1.0
1	Indian Restaurant	1.0
2	Light Rail Station	1.0
3	Fast Food Restaurant	1.0
4	North Indian Restaurant	0.0

## ----Roseate House, Aerocity----

	venue	freq
0	Hotel	9.0
1	Spa	3.0
2	Restaurant	2.0
3	Coffee Shop	2.0
4	Punjabi Restaurant	1.0

## ----SDA----

	venue	freq
0	Café	3.0
1	Market	1.0
2	Sandwich Place	1.0
3	Asian Restaurant	1.0
4	Coffee Shop	1.0

## ----Safdarjung----

	venue	freq
0	Indian Restaurant	2.0
1	Jazz Club	1.0
2	Mexican Restaurant	1.0
3	Café	1.0
4	Coffee Shop	1.0

## ----Sainik Farms----

	venue	freq
--	-------	------

0	Asian Restaurant	2.0
1	Diner	1.0
2	Pub	1.0
3	Bakery	1.0
4	Mediterranean Restaurant	1.0

## ----Saket----

	venue	freq
0	Café	3.0
1	Pizza Place	2.0
2	Lounge	1.0
3	Falafel Restaurant	1.0
4	Mexican Restaurant	1.0

## ----Sangam Courtyard, RK Puram----

	venue	freq
0	Multiplex	2.0
1	Coffee Shop	2.0
2	Park	1.0
3	Shopping Mall	1.0
4	Café	1.0

## ----Sarita Vihar----

	venue	freq
0	Café	2.0
1	Ice Cream Shop	1.0
2	Park	1.0
3	ATM	0.0
4	Multicuisine Indian Restaurant	0.0

## ----Sarojini Nagar----

	venue	freq
0	Fast Food Restaurant	2.0
1	Pizza Place	1.0
2	Snack Place	1.0
3	Nightlife Spot	0.0
4	Mughlai Restaurant	0.0

## ----Satyaniketan----

	venue	freq
0	Café	2.0
1	Deli / Bodega	1.0
2	Snack Place	1.0
3	Plaza	1.0
4	Salad Place	1.0

## ----Sector 15, Dwarka----

	venue	freq
0	Light Rail Station	1.0
1	Train Station	1.0
2	ATM	0.0
3	Noodle House	0.0
4	Mughlai Restaurant	0.0

----Select Citywalk Mall, Saket----

	venue	freq
0	Indian Restaurant	10.0
1	Lounge	5.0
2	Clothing Store	5.0
3	Chinese Restaurant	5.0
4	Café	5.0

----Shahdara----

	venue	freq
0	Park	1.0
1	Mobile Phone Shop	1.0
2	Chocolate Shop	1.0
3	ATM	0.0
4	Noodle House	0.0

----Shahpur Jat----

	venue	freq
0	Bar	2.0
1	Chinese Restaurant	1.0
2	Furniture / Home Store	1.0
3	Stadium	1.0
4	Indian Restaurant	1.0

----Shakarpur----

	venue	freq
0	Diner	1.0
1	Shopping Mall	1.0
2	Light Rail Station	1.0
3	Coffee Shop	1.0
4	Gym	1.0

----Shalimar Bagh----

	venue	freq
0	Pizza Place	1.0
1	Convenience Store	1.0
2	Coffee Shop	1.0
3	Hotel	1.0
4	Gym / Fitness Center	1.0

----Shangri La's - Eros hotel, Janpath----

	venue	freq
0	Hotel	6.0
1	Indian Restaurant	4.0
2	Spa	2.0
3	Restaurant	2.0
4	Italian Restaurant	2.0

----Shanti Niketan Marg----

	venue	freq
0	Pizza Place	1.0
1	Café	1.0
2	Convenience Store	1.0
3	Gourmet Shop	1.0
4	Multicuisine Indian Restaurant	0.0

## ----Sheikh Sarai----

	venue	freq
0	Thai Restaurant	3.0
1	Italian Restaurant	1.0
2	Whisky Bar	1.0
3	Café	1.0
4	Historic Site	1.0

## ----Sheraton New Delhi Hotel, Saket----

	venue	freq
0	Indian Restaurant	8.0
1	Clothing Store	5.0
2	Bar	4.0
3	Café	3.0
4	Lounge	3.0

## ----South Extension 1----

	venue	freq
0	Coffee Shop	3.0
1	Pizza Place	2.0
2	Indian Restaurant	2.0
3	Clothing Store	1.0
4	Market	1.0

## ----South Extension 2----

	venue	freq
0	Coffee Shop	3.0
1	Clothing Store	2.0
2	Pizza Place	2.0
3	Indian Restaurant	2.0
4	Market	2.0

## ----Southern Park Mall, Saket----

	venue	freq
0	Indian Restaurant	9.0
1	Lounge	5.0
2	Clothing Store	5.0
3	Chinese Restaurant	5.0
4	Bar	5.0

## ----Spark Mall, Kamla Nagar----

	venue	freq
0	Fast Food Restaurant	3.0
1	Indian Restaurant	3.0
2	Breakfast Spot	3.0
3	Donut Shop	2.0
4	Pizza Place	2.0

## ----Star City Mall, Mayur Vihar Phase 1----

	venue	freq
0	Hotel	5.0
1	Department Store	2.0
2	Restaurant	2.0

3	Market	1.0
4	American Restaurant	1.0

----Subhash Nagar----

	venue	freq
0	Multiplex	1.0
1	Park	1.0
2	Sculpture Garden	1.0
3	Fast Food Restaurant	1.0
4	ATM	0.0

----Sunder Nagar----

	venue	freq
0	Indian Restaurant	3.0
1	Italian Restaurant	2.0
2	Hotel	2.0
3	North Indian Restaurant	1.0
4	Snack Place	1.0

----T3 Domestic Arrival, Aerocity----

	venue	freq
0	Coffee Shop	3.0
1	Airport Terminal	2.0
2	Pub	1.0
3	Food Court	1.0
4	Café	1.0

----TDI Mall, Rajouri Garden----

	venue	freq
0	Fast Food Restaurant	4.0
1	Café	4.0
2	Indian Restaurant	4.0
3	Restaurant	2.0
4	Shopping Mall	2.0

----Tagore Garden----

	venue	freq
0	Pizza Place	1.0
1	Train Station	1.0
2	Food Truck	1.0
3	Gym	1.0
4	BBQ Joint	1.0

----Taj Vivanta, Khan Market----

	venue	freq
0	Café	8.0
1	Coffee Shop	4.0
2	Asian Restaurant	3.0
3	Chinese Restaurant	3.0
4	Bar	3.0

----The Ashok, Chanakyapuri----

	venue	freq
0	Indian Restaurant	3.0

1	Nightclub	3.0
2	Mediterranean Restaurant	1.0
3	Smoke Shop	1.0
4	Bus Station	1.0

----The Claridges, Aurangzeb Road----

	venue	freq
0	Hotel	2.0
1	Smoke Shop	1.0
2	Hotel Bar	1.0
3	Chinese Restaurant	1.0
4	History Museum	1.0

----The Grand New Delhi, Vasant Kunj----

	venue	freq
0	Coffee Shop	3.0
1	Fast Food Restaurant	2.0
2	Clothing Store	2.0
3	Movie Theater	1.0
4	Mexican Restaurant	1.0

----The Imperial, Janpath----

	venue	freq
0	Hotel	5.0
1	Indian Restaurant	4.0
2	Italian Restaurant	3.0
3	Lounge	2.0
4	Café	2.0

----The India Mall, New Friends Colony----

	venue	freq
0	Café	3.0
1	Hotel	2.0
2	Middle Eastern Restaurant	2.0
3	Diner	1.0
4	Sandwich Place	1.0

----The Lalit New Delhi, Barakhamba Road----

	venue	freq
0	Indian Restaurant	2.0
1	Bakery	2.0
2	Asian Restaurant	1.0
3	Hotel Bar	1.0
4	North Indian Restaurant	0.0

----The Leela Ambience Convention Hotel----

	venue	freq
0	Café	2.0
1	Burger Joint	1.0
2	Burrito Place	1.0
3	Gym	1.0
4	Hotel	1.0

----The Leela Palace, Chanakyapuri----

	venue	freq
0	Indian Restaurant	2.0
1	Japanese Restaurant	1.0
2	Hotel	1.0
3	Pool	1.0
4	Northeast Indian Restaurant	1.0

----The Lodhi, Lodhi Road----

	venue	freq
0	Indian Restaurant	2.0
1	Chinese Restaurant	2.0
2	Pizza Place	1.0
3	Convenience Store	1.0
4	BBQ Joint	1.0

----The Park, Connaught Place----

	venue	freq
0	Hotel	6.0
1	Italian Restaurant	2.0
2	Mediterranean Restaurant	2.0
3	Snack Place	1.0
4	Fast Food Restaurant	1.0

----The Suryaa New Delhi, New Friends Colony----

	venue	freq
0	Café	3.0
1	Middle Eastern Restaurant	2.0
2	Hotel	2.0
3	Sandwich Place	1.0
4	Nightclub	1.0

----The Taj Mahal Hotel, Mansingh Road----

	venue	freq
0	Chinese Restaurant	1.0
1	Japanese Restaurant	1.0
2	Pool	1.0
3	Indian Restaurant	1.0
4	Hotel Bar	1.0

----The Taj Palace Hotel, Chanakyapuri----

	venue	freq
0	Hotel	4.0
1	Indian Restaurant	4.0
2	Café	3.0
3	Chinese Restaurant	2.0
4	Lounge	1.0

----The Uppal, Aerocity----

	venue	freq
0	Hotel	3.0
1	Indian Restaurant	1.0
2	ATM	0.0
3	Noodle House	0.0
4	Mughlai Restaurant	0.0

## ----The Village Restaurant Complex, Khel Gaon Marg----

	venue	freq
0	Bar	2.0
1	Karaoke Bar	1.0
2	Hotel	1.0
3	Furniture / Home Store	1.0
4	Stadium	1.0

## ----Tilak Nagar----

	venue	freq
0	Fast Food Restaurant	2.0
1	Indian Restaurant	1.0
2	Clothing Store	1.0
3	ATM	0.0
4	North Indian Restaurant	0.0

## ----Tughlakabad Institutional Area----

	venue	freq
0	Chinese Restaurant	1.0
1	Steakhouse	1.0
2	Bar	1.0
3	Hotel	1.0
4	Market	1.0

## ----Uday Park----

	venue	freq
0	Pizza Place	1.0
1	Metro Station	1.0
2	Park	1.0
3	Music Venue	1.0
4	Market	1.0

## ----Unity One Mall, Janakpuri----

	venue	freq
0	Pizza Place	1.0
1	Coffee Shop	1.0
2	Hotel	1.0
3	Sandwich Place	1.0
4	Chinese Restaurant	1.0

## ----Uttam Nagar----

	venue	freq
0	ATM	1.0
1	Indian Restaurant	1.0
2	Mobile Phone Shop	1.0
3	Noodle House	0.0
4	Mughlai Restaurant	0.0

## ----V3S Mall, Laxmi Nagar----

	venue	freq
0	Gift Shop	2.0
1	Arcade	1.0
2	Pizza Place	1.0
3	Grocery Store	1.0

4                   Café    1.0

## ----Vasant Kunj----

	venue	freq
0	Dessert Shop	1.0
1	Vegetarian / Vegan Restaurant	1.0
2	Pizza Place	1.0
3	Spa	1.0
4	Bar	1.0

## ----Vasant Square Mall, Vasant Kunj----

	venue	freq
0	Chinese Restaurant	1.0
1	Dessert Shop	1.0
2	Pizza Place	1.0
3	Spa	1.0
4	Vegetarian / Vegan Restaurant	1.0

## ----Vasant Vihar----

	venue	freq
0	Café	3.0
1	Restaurant	2.0
2	Coffee Shop	2.0
3	Chinese Restaurant	2.0
4	Fast Food Restaurant	2.0

## ----Vasundhara Enclave----

	venue	freq
0	Café	1.0
1	Pizza Place	0.0
2	Mughlai Restaurant	0.0
3	Multicuisine Indian Restaurant	0.0
4	Multiplex	0.0

## ----Vijay Nagar----

	venue	freq
0	Café	2.0
1	Fast Food Restaurant	1.0
2	Bakery	1.0
3	Cheese Shop	1.0
4	Chinese Restaurant	1.0

## ----Vikas Marg----

	venue	freq
0	Convenience Store	1.0
1	Burger Joint	1.0
2	Burrito Place	1.0
3	Café	1.0
4	ATM	0.0

## ----Vikaspuri----

	venue	freq
0	Pizza Place	1.0
1	Fast Food Restaurant	1.0

2	Ice Cream Shop	1.0
3	Multicuisine Indian Restaurant	0.0
4	Multiplex	0.0

----Vivek Vihar----

	venue	freq
0	Juice Bar	2.0
1	Athletics & Sports	1.0
2	Bed & Breakfast	1.0
3	ATM	0.0
4	Multicuisine Indian Restaurant	0.0

----West End Mall, Janak Puri----

	venue	freq
0	Indian Restaurant	2.0
1	Pizza Place	1.0
2	Fast Food Restaurant	1.0
3	BBQ Joint	1.0
4	Restaurant	1.0

----West Gate Mall, Rajouri Garden----

	venue	freq
0	Café	3.0
1	Fast Food Restaurant	3.0
2	Shopping Mall	2.0
3	Restaurant	2.0
4	Indian Restaurant	2.0

----West Patel Nagar----

	venue	freq
0	Pharmacy	1.0
1	Pizza Place	1.0
2	Indian Restaurant	1.0
3	Hotel	1.0
4	Chinese Restaurant	1.0

----Worldmark 1, Aerocity----

	venue	freq
0	Hotel	9.0
1	Spa	3.0
2	Coffee Shop	2.0
3	Restaurant	2.0
4	Bed & Breakfast	2.0

----Yusuf Sarai----

	venue	freq
0	Coffee Shop	2.0
1	Indian Restaurant	2.0
2	Bar	1.0
3	Asian Restaurant	1.0
4	Hotel	1.0

----ibis New Delhi, Aerocity----

	venue	freq
--	-------	------

```
0          Hotel   10.0
1            Spa    3.0
2      Restaurant   2.0
3  Coffee Shop   2.0
4  Punjabi Restaurant   1.0
```

In [28]:

```
## put that into a pandas dataframe
## First, write a function to sort the venues in descending order.

def return_most_common_venues(row, num_top_venues):
    row_categories = row.iloc[1:]
    row_categories_sorted = row_categories.sort_values(ascending=False)

    return row_categories_sorted.index.values[0:num_top_venues]
```

In [29]:

```
## create the new dataframe and display the top 10 venues for each Locality.

num_top_venues = 10

indicators = ['st', 'nd', 'rd']

# create columns according to number of top venues
columns = ['Locality']
for ind in np.arange(num_top_venues):
    try:
        columns.append('{}{} Most Common Venue'.format(ind+1, indicators[ind]))
    except:
        columns.append('{}th Most Common Venue'.format(ind+1))

# create a new dataframe
Locality_venues_sorted = pd.DataFrame(columns=columns)
Locality_venues_sorted['Locality'] = New_Delhi_grouped['Locality']

for ind in np.arange(New_Delhi_grouped.shape[0]):
    Locality_venues_sorted.iloc[ind, 1:] = return_most_common_venues(New_Delhi_grouped.
iloc[ind, :], num_top_venues)

Locality_venues_sorted
```

Out[29]:

	Locality	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Common \
0	ARSS Mall, Paschim Vihar	Indian Restaurant	ATM	Pizza Place	Multicuisine Indian Restaurant	Coffee Shop	Ch Resta
1	Adchini	Indian Restaurant	Café	Pub	Restaurant	Dim Sum Restaurant	
2	Aditya Mega Mall, Karkardooma	Indian Restaurant	Pizza Place	Multiplex	Shopping Mall	Hotel	
3	Aerocity	Hotel	Airport Lounge	Coffee Shop	Airport Terminal	Fast Food Restaurant	Rent Lo
4	Aggarwal City Mall, Pitampura	Department Store	Indian Restaurant	Pizza Place	Chinese Restaurant	Business Service	F Resta
5	Aggarwal City Plaza, Rohini	Gym / Fitness Center	Pizza Place	Multiplex	Sandwich Place	Bus Station	Fast Resta
6	Alaknanda	New American Restaurant	Coffee Shop	Steakhouse	Market	Women's Store	F Resta
7	Ambience Mall, Vasant Kunj	Coffee Shop	Shopping Mall	Clothing Store	Italian Restaurant	Fast Food Restaurant	Resta
8	Anand Lok	Café	Stadium	Dessert Shop	Hotel	Coffee Shop	Other Out
9	Anand Vihar	Café	Burrito Place	Burger Joint	Convenience Store	Diner	Dis
10	Andaz Delhi, Aerocity	Hotel	Spa	Coffee Shop	Restaurant	Hotel Pool	Resta
11	Ansals Plaza Mall, Khel Gaon Marg	Performing Arts Venue	Department Store	Karaoke Bar	Fast Food Restaurant	Women's Store	F Resta
12	Asaf Ali Road	Hostel	Movie Theater	Indian Restaurant	Hotel	Asian Restaurant	F Resta
13	Ashok Vihar Phase 1	Snack Place	Dessert Shop	BBQ Joint	Market	Smoke Shop	Pizza
14	Ashok Vihar Phase 2	Indian Restaurant	Department Store	Pizza Place	South Indian Restaurant	Coffee Shop	San
15	Ashok Vihar Phase 3	Gym / Fitness Center	Pizza Place	South Indian Restaurant	Fast Food Restaurant	Women's Store	Food
16	Barakhamba Road	Indian Restaurant	Bakery	Hotel	Theater	Café	A
17	Basant Lok Market, Vasant Vihar	Café	Chinese Restaurant	Fast Food Restaurant	Restaurant	Pizza Place	Coffee
18	Bellagio, Ashok Vihar Phase 2	Indian Restaurant	Department Store	Pizza Place	South Indian Restaurant	Coffee Shop	San

	Locality	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Common Venue
19	Best Western Taurus Hotel, Mahipalpur	Hotel	Indian Restaurant	Accessories Store	Italian Restaurant	Shoe Store	Hot
20	Bhikaji Cama Place	Hotel	Lounge	Asian Restaurant	Bakery	Café	Gym / F C
21	Chanakyapuri	Park	African Restaurant	Garden	Pool	Clothing Store	
22	Chander Nagar	Pizza Place	Gym	Fast Food Restaurant	Frozen Yogurt Shop	French Restaurant	Food
23	Chandni Chowk	Indian Restaurant	Snack Place	Market	Dessert Shop	Smoke Shop	Paper / Su
24	Chawri Bazar	Indian Restaurant	Paper / Office Supplies Store	Fast Food Restaurant	Light Rail Station	Hardware Store	Snack
25	Chhatarpur	Indian Restaurant	Hotel	Donut Shop	Luggage Store	Japanese Restaurant	Dessert
26	Chittaranjan Park	Market	Beer Garden	Park	Women's Store	Fried Chicken Joint	F Rest
27	City Centre Mall, Rohini	Shopping Mall	Department Store	Indian Restaurant	Gym	Multiplex	
28	City Square Mall, Rajouri Garden	Fast Food Restaurant	Indian Restaurant	Café	Shopping Mall	American Restaurant	Mu
29	Civil Lines	Coffee Shop	Burger Joint	Light Rail Station	Chinese Restaurant	Smoke Shop	Wo
...	...	...	...	...	...	...	...
208	The Lalit New Delhi, Barakhamba Road	Indian Restaurant	Bakery	Asian Restaurant	Hotel Bar	Women's Store	Fried Cr
209	The Leela Ambience Convention Hotel	Café	Burger Joint	Hotel	Burrito Place	Gym	Wo
210	The Leela Palace, Chanakyapuri	Indian Restaurant	Northeast Indian Restaurant	French Restaurant	Spa	Pool	Cockta
211	The Lodhi, Lodhi Road	Chinese Restaurant	Indian Restaurant	Shop & Service	Pizza Place	BBQ Joint	
212	The Park, Connaught Place	Hotel	Mediterranean Restaurant	Italian Restaurant	Chinese Restaurant	Spa	South Rest
213	The Suryaa New Delhi, New Friends Colony	Café	Hotel	Middle Eastern Restaurant	Coffee Shop	Fast Food Restaurant	Lo
214	The Taj Mahal Hotel, Mansingh Road	Indian Restaurant	Restaurant	Japanese Restaurant	Hotel Bar	Pool	Cr Rest

	Locality	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Common Venue
215	The Taj Palace Hotel, Chanakyapuri	Hotel	Indian Restaurant	Café	Chinese Restaurant	Hotel Pool	Mediterranean Restaurant
216	The Uppal, Aerocity	Hotel	Indian Restaurant	Women's Store	Event Space	French Restaurant	Food
217	The Village Restaurant Complex, Khel Gaon Marg	Bar	Stadium	Chinese Restaurant	Furniture / Home Store	Australian Restaurant	Athletic
218	Tilak Nagar	Fast Food Restaurant	Indian Restaurant	Clothing Store	Women's Store	Event Space	French Restaurant
219	Tughlakabad Institutional Area	Restaurant	Hotel	Bar	Chinese Restaurant	Steakhouse	Italian
220	Uday Park	Café	Pizza Place	Park	Metro Station	Music Venue	Italian
221	Unity One Mall, Janakpuri	Pizza Place	Hotel	Coffee Shop	Chinese Restaurant	Sandwich Place	World
222	Uttam Nagar	ATM	Indian Restaurant	Mobile Phone Shop	Falafel Restaurant	Fried Chicken Joint	French Restaurant
223	V3S Mall, Laxmi Nagar	Gift Shop	Café	Clothing Store	Bakery	Fast Food Restaurant	Mediterranean Restaurant
224	Vasant Kunj	Fast Food Restaurant	Dessert Shop	Pizza Place	Vegetarian / Vegan Restaurant	Spa	
225	Vasant Square Mall, Vasant Kunj	Café	Chinese Restaurant	Dessert Shop	Vegetarian / Vegan Restaurant	Pizza Place	Fast Restaurant
226	Vasant Vihar	Café	Fast Food Restaurant	Restaurant	Coffee Shop	Chinese Restaurant	
227	Vasundhara Enclave	Café	Women's Store	Falafel Restaurant	Fried Chicken Joint	French Restaurant	Food
228	Vijay Nagar	Café	Pet Store	Coffee Shop	Fast Food Restaurant	Cheese Shop	Cafe Restaurant
229	Vikas Marg	Convenience Store	Burrito Place	Burger Joint	Café	Diner	Dis
230	Vikaspuri	Pizza Place	Ice Cream Shop	Fast Food Restaurant	Event Space	French Restaurant	Food
231	Vivek Vihar	Juice Bar	Bed & Breakfast	Athletics & Sports	Women's Store	Fish & Chips Shop	Frozen
232	West End Mall, Janak Puri	Indian Restaurant	Metro Station	Chinese Restaurant	Restaurant	Hotel	Pizza
233	West Gate Mall, Rajouri Garden	Café	Fast Food Restaurant	Restaurant	Shopping Mall	Indian Restaurant	Snack

	Locality	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Common \
234	West Patel Nagar	Pharmacy	Chinese Restaurant	Hotel	Fast Food Restaurant	Pizza Place	Resta
235	Worldmark 1, Aerocity	Hotel	Spa	Coffee Shop	Restaurant	Bed & Breakfast	Hot
236	Yusuf Sarai	Indian Restaurant	Coffee Shop	Hotel	Bar	Chinese Restaurant	K Resta
237	ibis New Delhi, Aerocity	Hotel	Spa	Coffee Shop	Restaurant	Hotel Bar	Resta

238 rows × 11 columns

In [30]:

```
## Cluster Locality
## Run k-means to cluster the Locality into 5 clusters.

# set number of clusters
kclusters = 5

New_Delhi_clustering = New_Delhi_grouped.drop('Locality', 1)

# run k-means clustering
kmeans = KMeans(n_clusters=kclusters, random_state=0).fit(New_Delhi_clustering)

# check cluster Labels generated for each row in the dataframe
kmeans.labels_[0:10]
kmeans.labels_.shape
```

Out[30]:

(238,)

In [31]:

```
# add clustering Labels
New_Delhi_merged = df_final.head(238)
New_Delhi_merged['Cluster Labels'] = kmeans.labels_

# merge New_Delhi_grouped with df_Chinese to add latitude/longitude for each Locality
New_Delhi_merged = New_Delhi_merged.join(Locality_venues_sorted.set_index('Locality'),
on='Locality')

New_Delhi_merged.head()
```

/opt/conda/envs/Python36/lib/python3.6/site-packages/ipykernel/\_main\_.py:3: SettingWithCopyWarning:  
A value is trying to be set on a copy of a slice from a DataFrame.  
Try using .loc[row\_indexer,col\_indexer] = value instead

See the caveats in the documentation: <http://pandas.pydata.org/pandas-docs/stable/indexing.html#indexing-view-versus-copy>

```
app.launch_new_instance()
```

Out[31]:

	Locality	Lat	Lng	No_of_Restaurant	Cusines	Agg_Rating	No_of_Ve...
0	ARSS Mall, Paschim Vihar	28.668945	77.101544	1	North Indian, South Indian, Chinese, Mithai, F...	3.100000	
1	Adchini	28.537063	77.197808	13	Fast Food, North Indian, Seafood, Continental,...	3.292308	1
2	Aditya Mega Mall, Karkardooma	28.656131	77.301266	4	Finger Food, North Indian, Mughlai, Pizza, Fas...	3.275000	
3	Aerocity	28.553077	77.104270	2	Fast Food, Italian, Pizza, North Indian, Conti...	3.200000	
4	Aggarwal City Mall, Pitampura	28.690020	77.134650	3	North Indian, Chinese, Street Food, Mithai, No...	3.033333	

In [32]:

```
# create final map
map_clusters = folium.Map(location=[latitude, longitude], zoom_start=10)

# set color scheme for the clusters
x = np.arange(kclusters)
ys = [i+x+(i*x)**2 for i in range(kclusters)]
colors_array = cm.rainbow(np.linspace(0, 1, len(ys)))
rainbow = [colors.rgb2hex(i) for i in colors_array]
colors = ['red', 'green', 'blue', 'yellow', 'orange']

# add markers to the map
markers_colors = []
for lat, lon, poi, cluster in zip(New_Delhi_merged['Lat'], New_Delhi_merged['Lng'], New_Delhi_merged['Locality'], New_Delhi_merged['Cluster Labels']):
    label = folium.Popup(str(poi) + ' Cluster ' + str(cluster), parse_html=True)
    folium.CircleMarker(
        [lat, lon],
        radius=5,
        popup=label,
        color='black',
        fill=True,
        fill_color=colors[cluster],
        fill_opacity=0.7).add_to(map_clusters)

map_clusters
```

Out[32]:

Make this Notebook Trusted to load map: File -> Trust Notebook

In [33]:

```
## Examine Clusters  
## Cluster 1  
New_Delhi_merged.loc[New_Delhi_merged['Cluster Labels'] == 0, New_Delhi_merged.columns[[0] + list(range(5, New_Delhi_merged.shape[1]))]]
```

Out[33]:

	Locality	Agg_Rating	No_of_Votes	Average price for two	Cluster Labels	1st Most Common Venue	2nd Most Common Venue
0	ARSS Mall, Paschim Vihar	3.100000	117	500.000000	0	Indian Restaurant	ATM
1	Adchini	3.292308	1560	823.076923	0	Indian Restaurant	Café
2	Aditya Mega Mall, Karkardooma	3.275000	434	775.000000	0	Indian Restaurant	Pizza Place
3	Aerocity	3.200000	59	725.000000	0	Hotel	Airport Lounge
4	Aggarwal City Mall, Pitampura	3.033333	126	900.000000	0	Department Store	Indian Restaurant
5	Aggarwal City Plaza, Rohini	3.040000	594	620.000000	0	Gym / Fitness Center	Pizza Place
6	Alaknanda	3.117391	1012	445.652174	0	New American Restaurant	Coffee Shop
8	Anand Lok	3.800000	2411	925.000000	0	Café	Stadium
9	Anand Vihar	3.281481	1309	403.703704	0	Café	Burrito Place
11	Ansal Plaza Mall, Khel Gaon Marg	3.750000	875	1450.000000	0	Performing Arts Venue	Department Store
12	Asaf Ali Road	3.050000	17	425.000000	0	Hostel	Movie Theater
13	Ashok Vihar Phase 1	3.090000	971	412.500000	0	Snack Place	Dessert Shop
14	Ashok Vihar Phase 2	3.378571	2343	767.857143	0	Indian Restaurant	Department Store
15	Ashok Vihar Phase 3	3.390909	485	500.000000	0	Gym / Fitness Center	Pizza Place
16	Barakhamba Road	3.208333	1779	516.666667	0	Indian Restaurant	Bakery
18	Bellagio, Ashok Vihar Phase 2	3.300000	415	1200.000000	0	Indian Restaurant	Department Store
20	Bhikaji Cama Place	2.755556	339	594.444444	0	Hotel	Lounge
21	Chanakyapuri	3.085714	1617	692.857143	0	Park	African Restaurant
22	Chander Nagar	3.085714	80	350.000000	0	Pizza Place	Gym

	Locality	Agg_Rating	No_of_Votes	Average price for two	Cluster Labels	1st Most Common Venue	2nd Most Common Venue
24	Chawri Bazar	3.800000	1410	162.500000	0	Indian Restaurant	Paper / Office Supplies Store
25	Chhatarpur	2.700000	23	500.000000	0	Indian Restaurant	Hotel
26	Chittaranjan Park	3.130303	2578	428.787879	0	Market	Beer Garden
27	City Centre Mall, Rohini	3.400000	134	1200.000000	0	Shopping Mall	Department Store
29	Civil Lines	3.300000	769	706.250000	0	Coffee Shop	Burger Joint
32	Crescent Square Mall, Rohini	3.150000	494	937.500000	0	Pharmacy	Clothing Store
33	Cross River Mall, Karkardooma	3.320000	636	730.000000	0	Café	Indian Restaurant
34	Crowne Plaza Hotel, Rohini	3.600000	119	1750.000000	0	Hotel	Clothing Store
37	DDA Market, Kalu Sarai, Hauz Khas	3.000000	4	150.000000	0	Event Space	Nightclub
38	DLF City Centre Mall, Shalimar Bagh	3.225000	168	450.000000	0	Convenience Store	Vegetarian / Vegan Restaurant
42	DLF South Square, Sarojini Nagar	2.983333	542	616.666667	0	Women's Store	Fast Food Restaurant
...	...	...	...	...	...	...	...
190	Shanti Niketan Marg	3.100000	114	575.000000	0	Convenience Store	Gourmet Shop
197	Star City Mall, Mayur Vihar Phase 1	2.985714	560	885.714286	0	Hotel	Department Store
198	Subhash Nagar	3.023529	185	302.941176	0	Park	Sculpture Garden
199	Sunder Nagar	3.700000	964	1341.666667	0	Indian Restaurant	Italian Restaurant
201	TDI Mall, Rajouri Garden	3.500000	479	766.666667	0	Café	Indian Restaurant
203	Taj Vivanta, Khan Market	3.633333	1018	2900.000000	0	Café	Coffee Shop
204	The Ashok, Chanakyapuri	3.533333	902	2350.000000	0	Indian Restaurant	Nightclub

	Locality	Agg_Rating	No_of_Votes	Average price for two	Cluster Labels	1st Most Common Venue	2nd Most Common Venue
208	The India Mall, New Friends Colony	2.971429	486	635.714286	0	Café	Hotel
209	The Lalit New Delhi, Barakhamba Road	3.537500	1666	3637.500000	0	Indian Restaurant	Bakery
210	The Leela Ambience Convention Hotel	3.775000	460	3087.500000	0	Café	Burger Joint
211	The Leela Palace, Chanakyapuri	3.780000	709	4000.000000	0	Indian Restaurant	Northeast Indian Restaurant
214	The Suryaa New Delhi, New Friends Colony	3.425000	246	2700.000000	0	Café	Hotel
216	The Taj Palace Hotel, Chanakyapuri	3.800000	287	3875.000000	0	Hotel	Indian Restaurant
217	The Uppal, Aerocity	3.066667	37	2000.000000	0	Hotel	Indian Restaurant
218	The Village Restaurant Complex, Khel Gaon Marg	3.833333	1133	1933.333333	0	Bar	Stadium
219	Tilak Nagar	3.048148	290	272.222222	0	Fast Food Restaurant	Indian Restaurant
220	Tughlakabad Institutional Area	3.700000	281	800.000000	0	Restaurant	Hotel
221	Uday Park	3.733333	615	650.000000	0	Café	Pizza Place
222	Unity One Mall, Janakpuri	3.260000	239	470.000000	0	Pizza Place	Hotel
223	Uttam Nagar	2.905714	242	282.857143	0	ATM	Indian Restaurant
224	V3S Mall, Laxmi Nagar	2.819231	2265	630.769231	0	Gift Shop	Café
225	Vasant Kunj	3.686364	4001	895.454545	0	Fast Food Restaurant	Dessert Shop
227	Vasant Vihar	3.278261	1043	632.608696	0	Café	Fast Food Restaurant
228	Vasundhara Enclave	3.052941	305	338.235294	0	Café	Women's Store
229	Vijay Nagar	3.606452	12271	488.709677	0	Café	Pet Store

	Locality	Agg_Rating	No_of_Votes	Average price for two	Cluster Labels	1st Most Common Venue	2nd Most Common Venue
230	Vikas Marg	3.400000	19	300.000000	0	Convenience Store	Burrito Place
231	Vikaspuri	3.062264	1253	402.830189	0	Pizza Place	Ice Cream Shop
232	Vivek Vihar	3.077273	939	411.363636	0	Juice Bar	Bed & Breakfast
234	West End Mall, Janak Puri	2.750000	238	425.000000	0	Indian Restaurant	Metro Station
236	West Patel Nagar	3.675000	876	425.000000	0	Pharmacy	Chinese Restaurant

171 rows × 15 columns

In [34]:

```
## Examine Clusters
```

```
## Cluster 2
```

```
New_Delhi_merged.loc[New_Delhi_merged['Cluster Labels'] == 1, New_Delhi_merged.columns[[0] + list(range(5, New_Delhi_merged.shape[1]))]]
```

Out[34]:

	Locality	Agg_Rating	No_of_Votes	Average price for two	Cluster Labels	1st Most Common Venue	2nd Most Common Venue
19	Best Western Taurus Hotel, Mahipalpur	2.700000	9	1500.000000	1	Hotel	Indian Restaurant
35	Crowne Plaza, Mayur Vihar Phase 1	3.350000	127	2500.000000	1	Hotel	Indian Restaurant
43	Daryaganj	3.287500	2570	470.833333	1	Indian Restaurant	Hotel
70	Holiday Inn, Mayur Vihar	3.550000	302	1900.000000	1	Hotel	Restaurant
74	Hotel The Royal Plaza, Janpath	3.416667	475	2750.000000	1	Hotel	Indian Restaurant
78	ITC Maurya, Chanakyapuri	3.733333	3121	3533.333333	1	Hotel	Indian Restaurant
111	Le Meridien, Janpath	3.666667	725	3500.000000	1	Hotel	Indian Restaurant
119	Mahipalpur	2.960000	259	578.000000	1	Hotel	Shoe Store
188	Shalimar Bagh	3.168182	1668	354.545455	1	Convenience Store	Pizza Place
196	Spark Mall, Kamla Nagar	3.320000	286	530.000000	1	Indian Restaurant	Fast Food Restaurant
206	The Grand New Delhi, Vasant Kunj	3.450000	242	2925.000000	1	Coffee Shop	Fast Food Restaurant
212	The Lodhi, Lodhi Road	3.350000	189	1700.000000	1	Chinese Restaurant	Indian Restaurant
215	The Taj Mahal Hotel, Mansingh Road	3.785714	1976	4671.428571	1	Indian Restaurant	Restaurant

In [35]:

```
## Examine Clusters

## Cluster 3
New_Delhi_merged.loc[New_Delhi_merged['Cluster Labels'] == 2, New_Delhi_merged.columns[[0] + list(range(5, New_Delhi_merged.shape[1]))]]
```

Out[35]:

	Locality	Agg_Rating	No_of_Votes	Average price for two	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd I Com Ven
31	Connaught Place	3.779832	128107	1197.058824	2	Indian Restaurant	Café	
40	DLF Place Mall, Saket	3.700000	5920	937.500000	2	Indian Restaurant	Lounge	Clothes
117	MGF Metropolitan Mall, Saket	3.640000	1945	1620.000000	2	Indian Restaurant	Lounge	Clothes
183	Sector 15, Dwarka	3.100000	9	300.000000	2	Train Station	Light Rail Station	Worship
191	Sheikh Sarai	3.100000	14	350.000000	2	Thai Restaurant	Café	Wine
194	South Extension 2	3.303125	2411	618.750000	2	Coffee Shop	Clothing Store	Mobile

In [36]:

```
## Examine Clusters
```

```
## Cluster 4
```

```
New_Delhi_merged.loc[New_Delhi_merged['Cluster Labels'] ==3 , New_Delhi_merged.columns[[0] + list(range(5, New_Delhi_merged.shape[1]))]]
```

Out[36]:

	Locality	Agg_Rating	No_of_Votes	Average price for two	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Co
10	Andaz Delhi, Aerocity	3.000000	4	1500.000000	3	Hotel	Spa	
69	Holiday Inn, Aerocity	3.300000	30	1000.000000	3	Hotel	Spa	
83	JW Marriott New Delhi	3.300000	15	4500.000000	3	Hotel	Spa	
112	Lemon Tree Premier, Aerocity	3.500000	26	1000.000000	3	Hotel	Spa	
149	Paharganj	2.996552	2850	571.551724	3	Hotel	Indian Restaurant	Rest
162	Premier Inn, Shalimar Bagh	3.050000	50	2100.000000	3	Café	Hotel	
173	Rohini	3.352083	4514	494.791667	3	Indian Restaurant	Department Store	Lig
235	West Gate Mall, Rajouri Garden	3.500000	178	1500.000000	3	Café	Fast Food Restaurant	Rest
237	Worldmark 1, Aerocity	3.220000	77	570.000000	3	Hotel	Spa	

In [37]:

```
## Examine Clusters  
## Cluster 5  
New_Delhi_merged.loc[New_Delhi_merged['Cluster Labels'] == 4, New_Delhi_merged.columns[[0] + list(range(5, New_Delhi_merged.shape[1]))]]
```

Out[37]:

	Locality	Agg_Rating	No_of_Votes	Average price for two	Cluster Labels	1st Most Common Venue	2nd Most Common Venue
7	Ambience Mall, Vasant Kunj	3.425000	2460	983.333333	4	Coffee Shop	Shopping Mall
17	Basant Lok Market, Vasant Vihar	3.220000	1875	900.000000	4	Café	Chinese Restaurant
23	Chandni Chowk	3.358182	6668	278.181818	4	Indian Restaurant	Snack Place
28	City Square Mall, Rajouri Garden	3.166667	1217	1583.333333	4	Fast Food Restaurant	Indian Restaurant
30	Community Centre, New Friends Colony	3.100000	1514	682.352941	4	Café	Hotel
36	D Mall, Netaji Subhash Place	3.480000	948	690.000000	4	Fast Food Restaurant	Indian Restaurant
39	DLF Emporio Mall, Vasant Kunj	3.650000	201	1550.000000	4	Coffee Shop	Shopping Mall
41	DLF Promenade Mall, Vasant Kunj	3.761538	1946	573.076923	4	Coffee Shop	Shopping Mall
44	Defence Colony	3.496154	15579	789.102564	4	Italian Restaurant	Indian Restaurant
52	Epicuria Food Mall, Nehru Place	3.505000	7446	957.500000	4	Fast Food Restaurant	Coffee Shop
53	Eros Hotel, Nehru Place	3.720000	352	2990.000000	4	Fast Food Restaurant	Coffee Shop
62	Greater Kailash (GK) 1	3.701562	10511	885.937500	4	Café	Market
63	Greater Kailash (GK) 2	3.553030	13894	912.878788	4	Asian Restaurant	Indian Restaurant
65	Green Park	3.272414	5243	808.620690	4	Indian Restaurant	Coffee Shop
67	Hauz Khas	3.251786	5479	543.750000	4	Dessert Shop	Coffee Shop
68	Hauz Khas Village	3.845833	32573	1402.083333	4	Café	Indian Restaurant

	Locality	Agg_Rating	No_of_Votes	Average price for two	Cluster Labels	1st Most Common Venue	2nd Most Common Venue
81	JMD Kohinoor Mall, Greater Kailash	3.380000	883	620.000000	4	Ice Cream Shop	Restaurant
88	Janpath	3.587500	9119	1064.062500	4	Indian Restaurant	Coffee Shop
91	Jaypee Vasant Continental, Vasant Vihar	3.400000	346	2300.000000	4	Café	Chinese Restaurant
95	Kamla Nagar	3.453448	5267	454.310345	4	Breakfast Spot	Indian Restaurant
99	Karol Bagh	3.238028	7282	525.352113	4	Indian Restaurant	Fast Food Restaurant
100	Kasbah, Greater Kailash (GK) 1	4.500000	524	2000.000000	4	Café	Indian Restaurant
102	Khan Market	3.802326	28463	1276.744186	4	Café	Coffee Shop
107	Lajpat Nagar 2	3.252381	1525	564.285714	4	Pizza Place	Coffee Shop
141	Nehru Place	3.196000	2715	714.000000	4	Fast Food Restaurant	Coffee Shop
142	Netaji Subhash Place	3.519149	7642	602.127660	4	Fast Food Restaurant	Indian Restaurant
143	New Friends Colony	3.140625	1548	635.937500	4	Café	Indian Restaurant
148	Pacific Mall, Tagore Garden	3.195652	2177	615.217391	4	Shopping Mall	Multiplex
152	Panchsheel Park	3.525000	231	637.500000	4	Event Space	Pizza Place
192	Sheraton New Delhi Hotel, Saket	4.066667	802	3333.333333	4	Indian Restaurant	Clothing Store
193	South Extension 1	3.133333	988	605.555556	4	Coffee Shop	Indian Restaurant
195	Southern Park Mall, Saket	3.450000	396	1850.000000	4	Indian Restaurant	Lounge
200	T3 Domestic Arrival, Aerocity	3.200000	6	400.000000	4	Coffee Shop	Airport Terminal
202	Tagore Garden	3.280952	1624	502.380952	4	Garden	Train Station

	Locality	Agg_Rating	No_of_Votes	Average price for two	Cluster Labels	1st Most Common Venue	2nd Most Common Venue
205	The Claridges, Aurangzeb Road	3.714286	1733	3500.000000	4	Hotel	Smoke Shop
207	The Imperial, Janpath	3.600000	843	3933.333333	4	Hotel	Indian Restaurant
213	The Park, Connaught Place	3.466667	1141	3666.666667	4	Hotel	Mediterranean Restaurant
226	Vasant Square Mall, Vasant Kunj	3.322222	1940	661.111111	4	Café	Chinese Restaurant
233	Wazirpur	3.050000	86	275.000000	4	NaN	NaN

## Conclusion

- The best restaurants are available in **Kesbah, Greater Kailash area.**
- The worst restaurants are available in **Piccadilly Hotel, Janakpuri**
- **Connaught Place** is the best places for edible person to stay there.
- **Paschim Vihar** is the worst places for edible person to stay there.
- **Rajouri Garden** is the best place for Continental restaurants.
- **Kailash Colony** has some of best Continental restaurants.
- **Connaught place, Rajouri garden, Malviya nagar** are the best places for edible person.
- **Greater kailash, Feroze shah road, Saket** have best restaurants in New Delhi. ##### Cluster 1: It is most recommended for Indian Restaurants. ##### Cluster 2: It is most recommended for Hotels and nightclub. ##### Cluster 3 and Cluster 5: It is most recommended for Fast food. ##### Cluster 4: It is most recommended for the cafe and pizza.

In [ ]: