

Capstone Project - The Battle of Neighbourhoods

June 19, 2021

1 Capstone Project — The Battle of Neighbourhoods

1.0.1 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.

<p>The official language of New Delhi and the one that is most widely spoken is Hindi. However Over last decades it is continuously grow because of the city's important role in government and

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 restaurant ? - Which is the best place to stay if I prefer Chinese Cuisine ? - What places are have best restaurant in New Delhi?

1.0.2 Data

For this project we need the following data :

New Delhi Restaurants data that contains list Locality, Restaurant name, Rating along with their latitude and longitude.

Data source : Zomato kaggle dataset

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 : Foursquare API

Description : By using this api we will get all the venues in each neighborhood.

1.0.3 Approach

- Collect the new delhi city data from Zomato kaggle dataset
- 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 restaurant to find the best places.
- Visualize the Ranking of neighborhoods using folium library(python)

```
[ ]: #pip install folium
```

```
[1]: import pandas as pd
import numpy as np
import requests # library to handle requests
from pandas.io.json import json_normalize # tranform 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
import folium # map rendering library
! pip install geocoder
import geocoder
```

usage: conda-script.py [-h] [-V] command ...

conda-script.py: error: unrecognized arguments: # uncomment this line if you haven't completed the Foursquare API lab

Collecting geocoder

Downloading geocoder-1.38.1-py2.py3-none-any.whl (98 kB)

Requirement already satisfied: future in

c:\users\anamika.sharma\anaconda3\lib\site-packages (from geocoder) (0.18.2)

Requirement already satisfied: requests in

c:\users\anamika.sharma\anaconda3\lib\site-packages (from geocoder) (2.25.1)

Collecting ratelim

Downloading ratelim-0.1.6-py2.py3-none-any.whl (4.0 kB)

Requirement already satisfied: six in

c:\users\anamika.sharma\anaconda3\lib\site-packages (from geocoder) (1.15.0)

Requirement already satisfied: click in

c:\users\anamika.sharma\anaconda3\lib\site-packages (from geocoder) (7.1.2)

Requirement already satisfied: decorator in

c:\users\anamika.sharma\anaconda3\lib\site-packages (from ratelim->geocoder) (5.0.6)

Requirement already satisfied: idna<3,>=2.5 in

c:\users\anamika.sharma\anaconda3\lib\site-packages (from requests->geocoder) (2.10)

Requirement already satisfied: certifi>=2017.4.17 in

```
c:\users\anamika.sharma\anaconda3\lib\site-packages (from requests->geocoder)
(2020.12.5)
Requirement already satisfied: urllib3<1.27,>=1.21.1 in
c:\users\anamika.sharma\anaconda3\lib\site-packages (from requests->geocoder)
(1.26.4)
Requirement already satisfied: chardet<5,>=3.0.2 in
c:\users\anamika.sharma\anaconda3\lib\site-packages (from requests->geocoder)
(4.0.0)
Installing collected packages: ratelim, geocoder
Successfully installed geocoder-1.38.1 ratelim-0.1.6
```

1.1 Read the zomato restaurant data from csv file

```
[2]: df = pd.read_csv('https://raw.githubusercontent.com/haanjiankur/
↳Capstone-Project---The-Battle-of-Neighborhoods/master/zomato.
↳csv',encoding='ISO-8859-1')
df.head()
```

```
[2]:
```

	Restaurant ID	Restaurant Name	Country Code	City \
0	6317637	Le Petit Souffle	162	Makati City
1	6304287	Izakaya Kikufuji	162	Makati City
2	6300002	Heat - Edsa Shangri-La	162	Mandaluyong City
3	6318506	Ooma	162	Mandaluyong City
4	6314302	Sambo Kojin	162	Mandaluyong City

	Address \
0	Third Floor, Century City Mall, Kalayaan Avenu...
1	Little Tokyo, 2277 Chino Roces Avenue, Legaspi...
2	Edsa Shangri-La, 1 Garden Way, Ortigas, Mandal...
3	Third Floor, Mega Fashion Hall, SM Megamall, O...
4	Third Floor, Mega Atrium, SM Megamall, Ortigas...

	Locality \
0	Century City Mall, Poblacion, Makati City
1	Little Tokyo, Legaspi Village, Makati City
2	Edsa Shangri-La, Ortigas, Mandaluyong City
3	SM Megamall, Ortigas, Mandaluyong City
4	SM Megamall, Ortigas, Mandaluyong City

	Locality Verbose	Longitude	Latitude \
0	Century City Mall, Poblacion, Makati City, Mak...	121.027535	14.565443
1	Little Tokyo, Legaspi Village, Makati City, Ma...	121.014101	14.553708
2	Edsa Shangri-La, Ortigas, Mandaluyong City, Ma...	121.056831	14.581404
3	SM Megamall, Ortigas, Mandaluyong City, Mandal...	121.056475	14.585318
4	SM Megamall, Ortigas, Mandaluyong City, Mandal...	121.057508	14.584450

	Cuisines ...	Currency	Has Table booking \
--	--------------	----------	---------------------

0	French, Japanese, Desserts	...	Botswana Pula(P)	Yes
1	Japanese	...	Botswana Pula(P)	Yes
2	Seafood, Asian, Filipino, Indian	...	Botswana Pula(P)	Yes
3	Japanese, Sushi	...	Botswana Pula(P)	No
4	Japanese, Korean	...	Botswana Pula(P)	Yes

	Has Online delivery	Is delivering now	Switch to order menu	Price range	\
0	No	No	No	3	
1	No	No	No	3	
2	No	No	No	4	
3	No	No	No	4	
4	No	No	No	4	

	Aggregate rating	Rating color	Rating text	Votes
0	4.8	Dark Green	Excellent	314
1	4.5	Dark Green	Excellent	591
2	4.4	Green	Very Good	270
3	4.9	Dark Green	Excellent	365
4	4.8	Dark Green	Excellent	229

[5 rows x 21 columns]

```
[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()
```

	Restaurant ID	Restaurant Name	Country Code	City	\
0	18287358	Food Cloud	1	New Delhi	
1	18216944	Burger.in	1	New Delhi	
2	313333	Days of the Raj	1	New Delhi	
3	18384127	Dilli Ka Dhaba	1	New Delhi	
4	582	Govardhan	1	New Delhi	

	Address	Locality	\
0	Aaya Nagar, New Delhi	Aaya Nagar	
1	84, Near Honda Showroom, Adchini, New Delhi	Adchini	
2	81/3, 1st Floor, Qutub Residency, Adchini, New...	Adchini	
3	66 A, Ground Floor, Sri Aurobindo Marg, Adchin...	Adchini	
4	84, Adjacent Hero Motor Bike Showroom, Main Me...	Adchini	

	Locality Verbose	Longitude	Latitude	\
0	Aaya Nagar, New Delhi	0.000000	0.000000	
1	Adchini, New Delhi	77.196923	28.535382	
2	Adchini, New Delhi	77.197475	28.535493	
3	Adchini, New Delhi	77.198033	28.537547	
4	Adchini, New Delhi	77.196924	28.535523	

	Cuisines	...	Currency	\
0	Cuisine Varies	...	Indian Rupees(Rs.)	
1	Fast Food	...	Indian Rupees(Rs.)	
2	North Indian, Seafood, Continental	...	Indian Rupees(Rs.)	
3	South Indian, North Indian	...	Indian Rupees(Rs.)	
4	South Indian, North Indian, Chinese	...	Indian Rupees(Rs.)	

	Has Table booking	Has Online delivery	Is delivering now	\
0	No	No	No	
1	No	Yes	No	
2	Yes	Yes	No	
3	No	No	No	
4	No	Yes	No	

	Switch to order menu	Price range	Aggregate rating	Rating color	\
0	No	2	0.0	White	
1	No	1	3.2	Orange	
2	No	3	3.4	Orange	
3	No	2	2.6	Orange	
4	No	2	3.4	Orange	

	Rating text	Votes
0	Not rated	2
1	Average	46
2	Average	45
3	Average	11
4	Average	238

[5 rows x 21 columns]

1.2 Data Cleaning

remove the unwanted columns and rows from dataset

```
[4]: df_Res= df_NDLS[df_NDLS.Longitude !=0.000000][['Restaurant_
↳Name','Locality','Longitude','Latitude','Cuisines','Aggregate_
↳rating','Rating text','Votes']]
```

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

```
[6]: df_Res.head()
```

```
[6]: Restaurant Name Locality Longitude Latitude \
1 Burger.in Adchini 77.196923 28.535382
2 Days of the Raj Adchini 77.197475 28.535493
3 Dilli Ka Dhaba Adchini 77.198033 28.537547
4 Govardhan Adchini 77.196924 28.535523
5 Mezbaan Grills Adchini 77.198122 28.538134
```

	Cuisines	Aggregate rating	Rating text	Votes
1	Fast Food	3.2	Average	46
2	North Indian, Seafood, Continental	3.4	Average	45
3	South Indian, North Indian	2.6	Average	11
4	South Indian, North Indian, Chinese	3.4	Average	238
5	Mughlai	3.1	Average	8

1.2.1 created map to show the restaurant cluters

```
[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
```

```
[7]: <folium.folium.Map at 0x2dc549168b0>
```

```
[8]: df_Res.head()
```

```
[8]: Restaurant Name Locality Longitude Latitude \
1 Burger.in Adchini 77.196923 28.535382
2 Days of the Raj Adchini 77.197475 28.535493
3 Dilli Ka Dhaba Adchini 77.198033 28.537547
4 Govardhan Adchini 77.196924 28.535523
5 Mezbaan Grills Adchini 77.198122 28.538134
```

	Cuisines	Aggregate rating	Rating text	Votes \
1	Fast Food	3.2	Average	46
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3	South Indian, North Indian	2.6	Average	11
4	South Indian, North Indian, Chinese	3.4	Average	238
5	Mughlai	3.1	Average	8

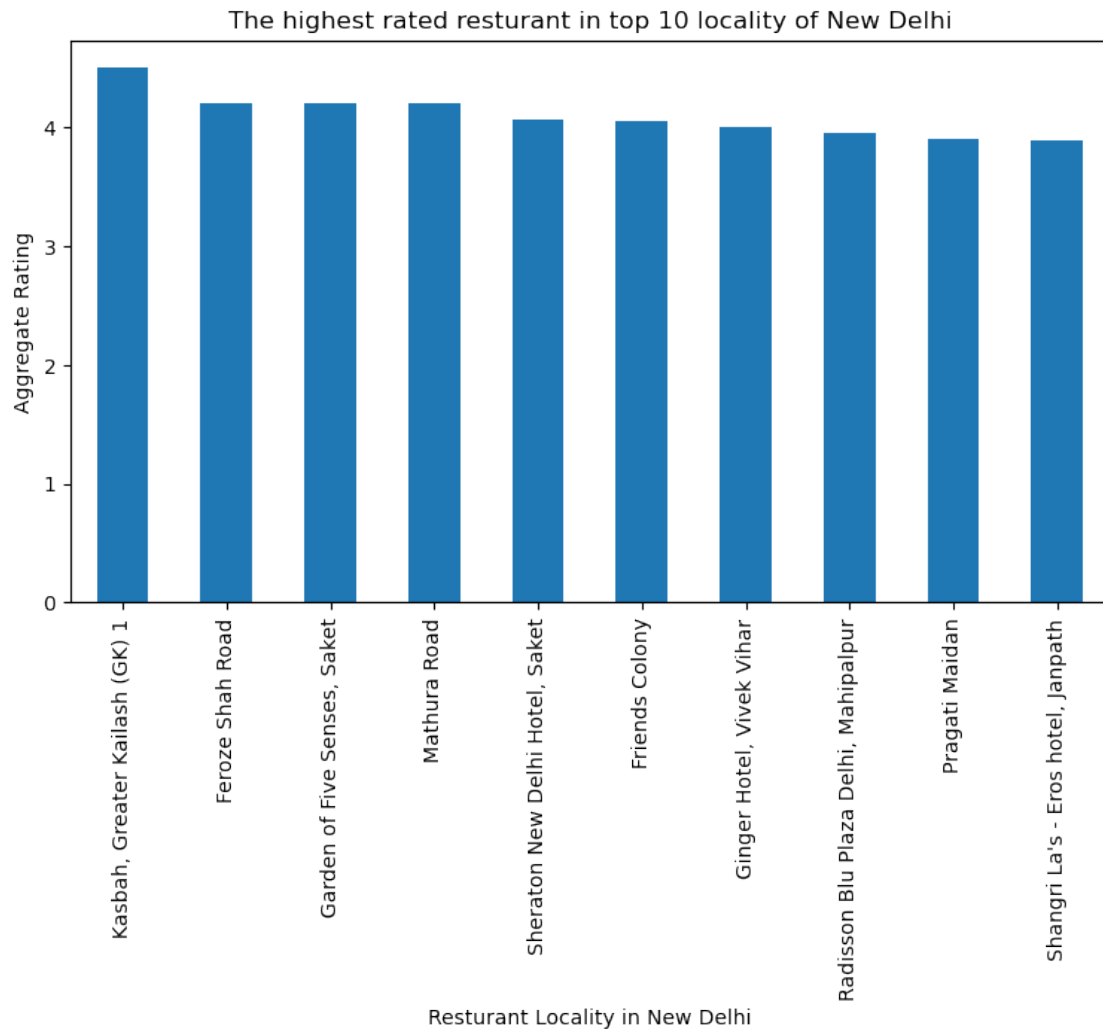
	Cluster
1	4
2	4
3	4
4	4
5	4

1.3 What places are have best restaurant in New Delhi?

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

#giving a bar plot
df_Res.groupby('Locality')['Aggregate rating'].mean().nlargest(10).
    ↪plot(kind='bar')

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



The best restarants are available in Kesbah, Greater Kailash area.

1.4 what places are have worst restaurants in New Delhi?

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

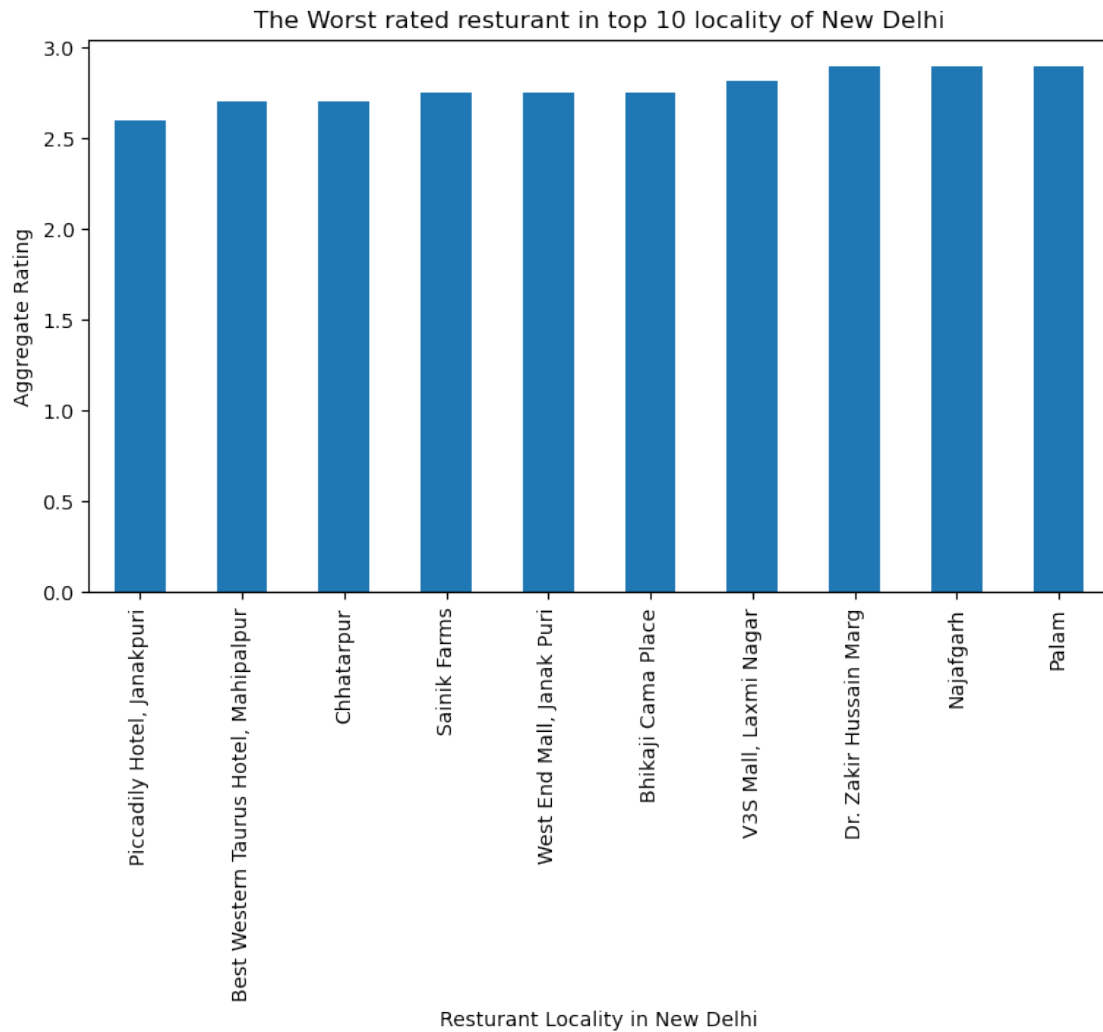
#giving a bar plot

df_Res.groupby('Locality')['Aggregate rating'].mean().nsmallest(10).
    plot(kind='bar')
```



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

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



The worst restarants are available in Piccadily Hotel, Janakpuri.

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

```
[11]: 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')
```

```

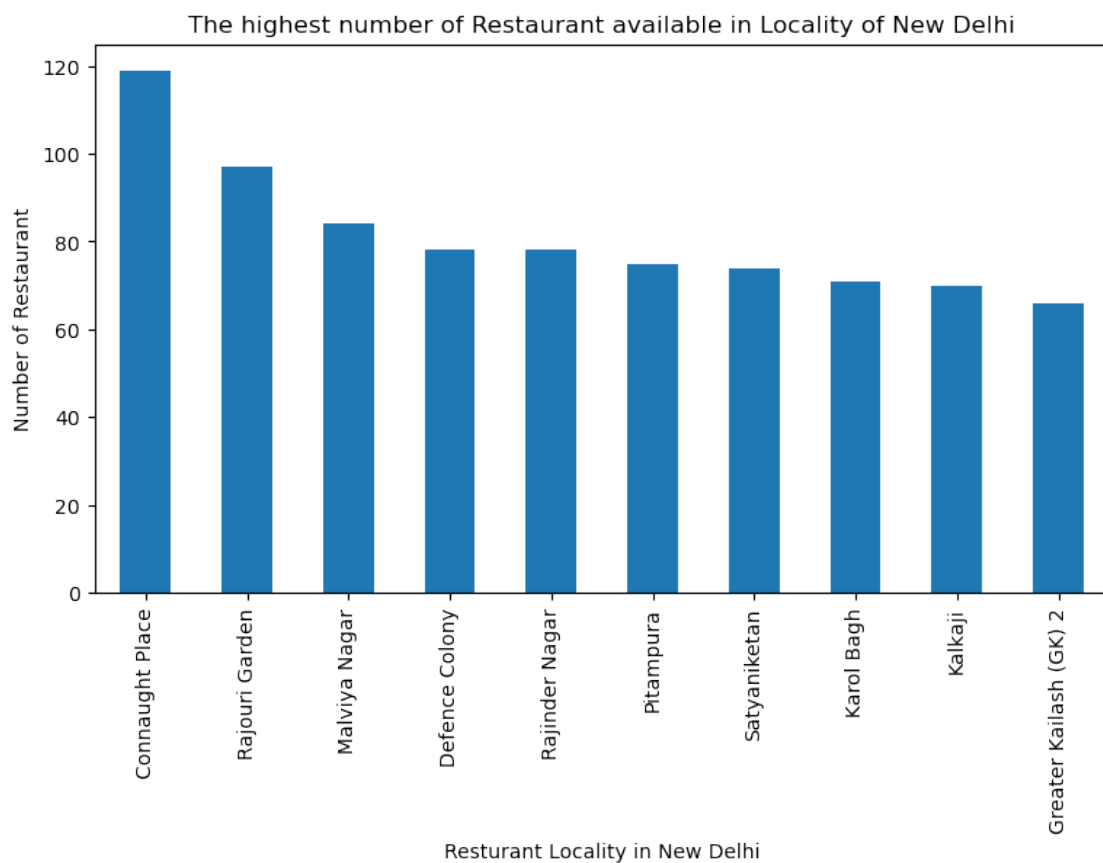
#On x-axis

#giving a bar plot
df_Res.groupby('Locality')['Restaurant Name'].count().nlargest(10).
    .plot(kind='bar')

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

#displays the plot
plt.show()

```



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

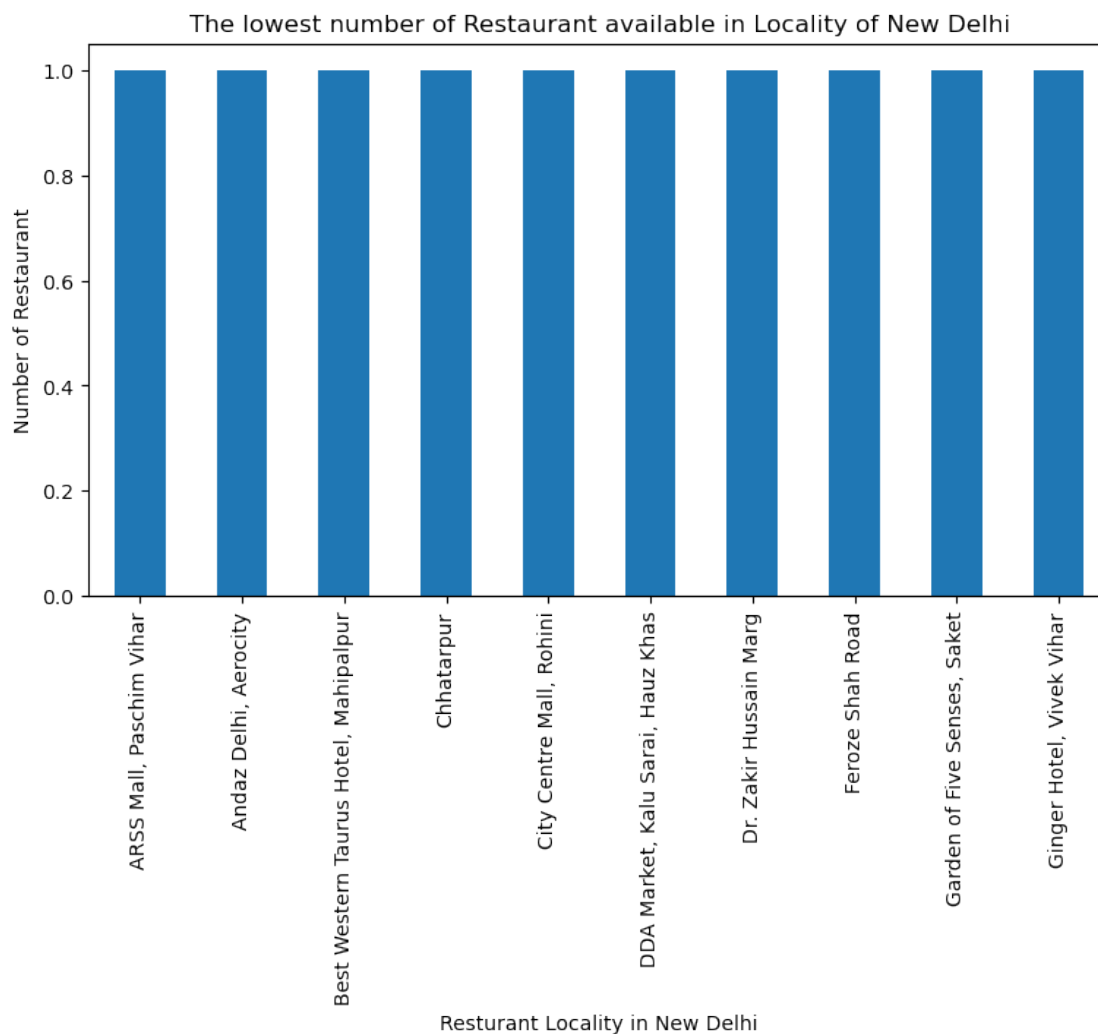
1.6 Which place are not suitable for edible person in New Delhi city?

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

#giving a bar plot
df_Res.groupby('Locality')['Restaurant Name'].count().nsmallest(10).
    ↪plot(kind='bar')

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

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



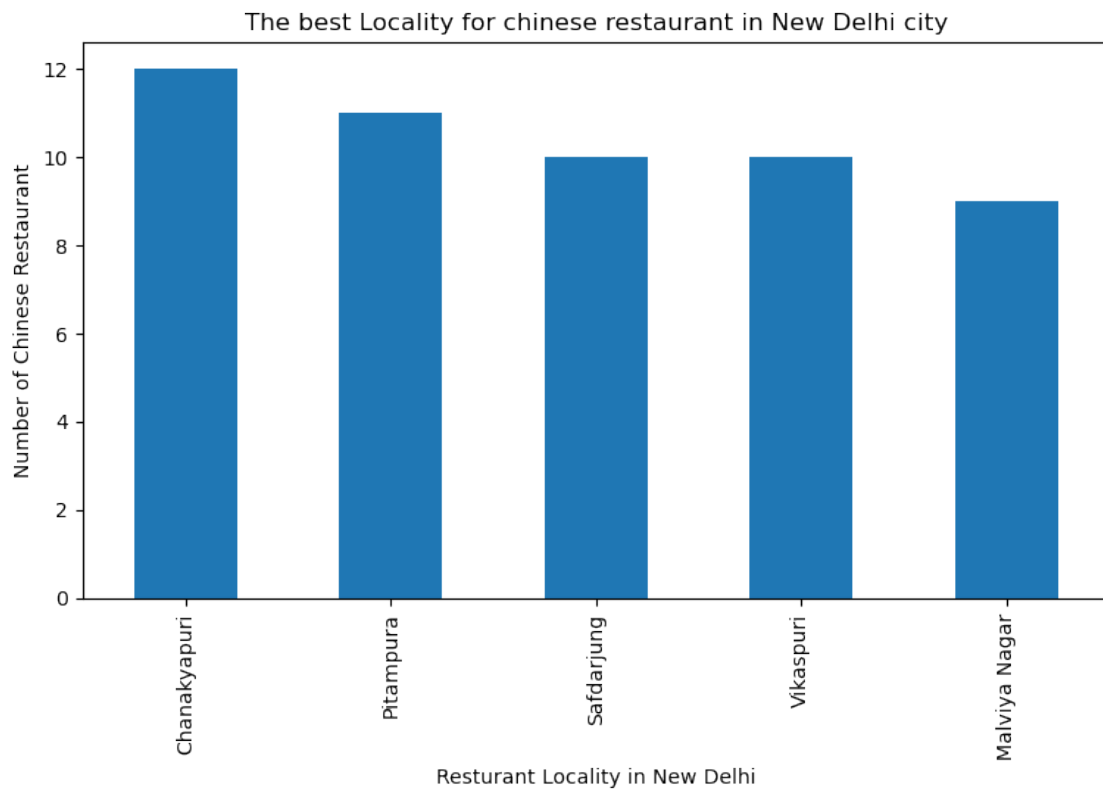
1.7 What are the best places for chinese restaurant in New Delhi city

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

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

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

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



Chanakyapuri is the best place for Chinese restaurant.

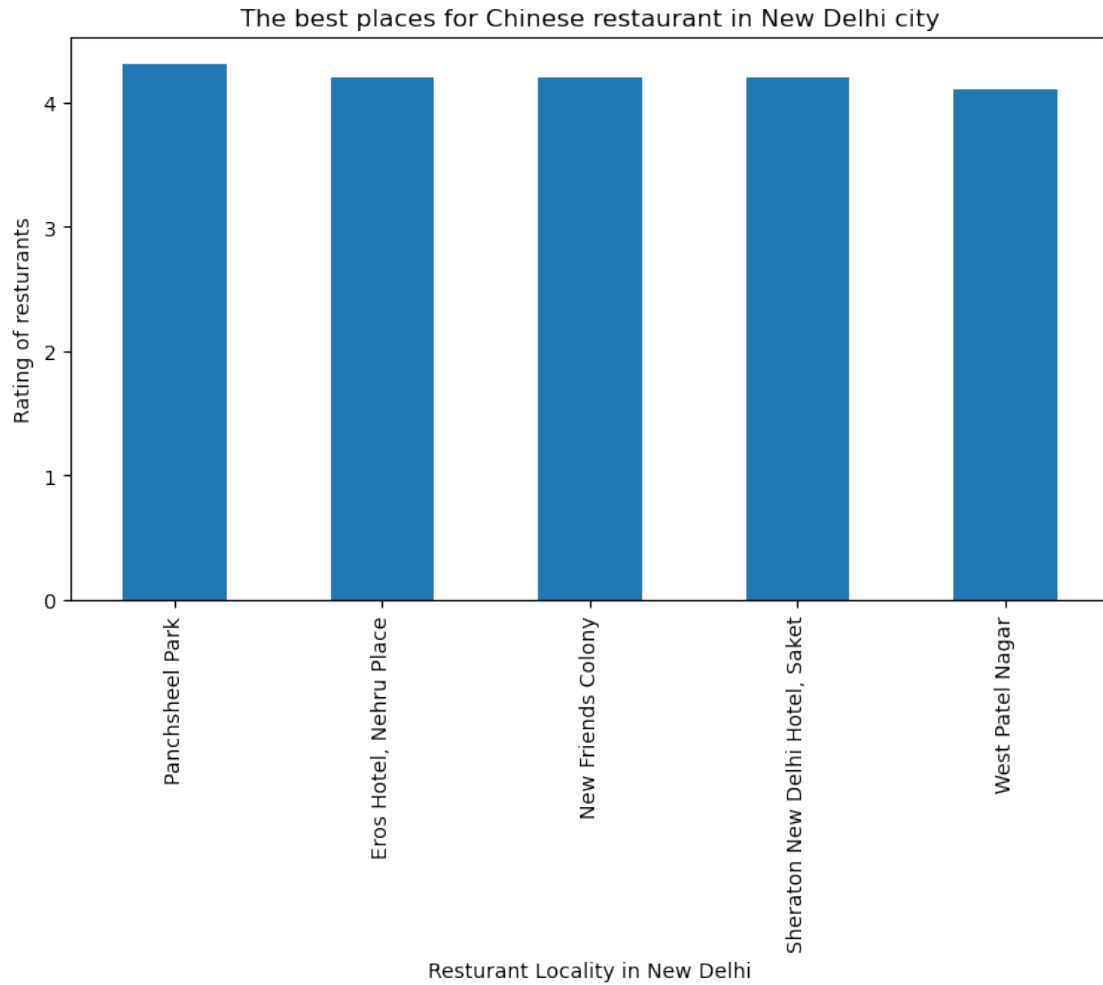
1.8 which places are the best chinese resturants in New Delhi?

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

#giving a bar plot
df_Res[df_Res['Cuisines'].str.startswith('Chinese')].
    ↳groupby('Locality')['Aggregate rating'].mean().nlargest(5).plot(kind='bar')

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

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



Panchsheel park is best Chinese resturants.

1.8.1 Data transformation

Based on Locality grouping the data

```
[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()
d_Cuisines = df_Res.groupby(['Locality'])['Cuisines'].agg(', '.join).
    ↪reset_index()
d_R = df_Res.groupby(['Locality'])['Rating text'].unique().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_R, on ='Locality').merge(d_V, on ='Locality')
```

```
[16]: df_final = df_final[df_final['Aggregate rating'] != 0.000000]
df_final.columns = ['Locality','Lat','Lng', 'No_of_Restaurant','Cusines',
↳'Agg_Rating','Comments' , 'No_of_Votes']
df_final.head()
```

```
[16]:
```

	Locality	Lat	Lng	No_of_Restaurant	\
0	ARSS Mall, Paschim Vihar	28.668945	77.101544	1	
1	Adchini	28.537063	77.197808	13	
2	Aditya Mega Mall, Karkardooma	28.656131	77.301266	4	
3	Aerocity	28.553076	77.104270	2	
4	Aggarwal City Mall, Pitampura	28.690020	77.134650	3	

	Cusines	Agg_Rating	\
0	North Indian, South Indian, Chinese, Mithai, F...	3.100000	
1	Fast Food, North Indian, Seafood, Continental,...	3.292308	
2	Finger Food, North Indian, Mughlai, Pizza, Fas...	3.275000	
3	Fast Food, Italian, Pizza, North Indian, Conti...	3.200000	
4	North Indian, Chinese, Street Food, Mithai, No...	3.033333	

	Comments	No_of_Votes
0	Average	117
1	Average, Good, Poor, Very Good	1560
2	Average, Good	434
3	Average	59
4	Average	126

```
[17]: df_final.shape
```

```
[17]: (240, 8)
```

1.9 Define Foursquare Credentials and Version

```
[19]: ## Define Foursquare Credentials and Version
CLIENT_ID = '20Q0ZHBFA51TIMEGH3FSFT5VFRASXIU3YGAHHMXNNQECIVTA' # Foursquare ID
CLIENT_SECRET = 'R5IYM2203NHGAD5FKP4RFCMHXHANGOGYTKBALODAP5GVZXGO' # Foursquare_
↳Secret
VERSION = '20180605' # Foursquare API version

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

Your credentails:

CLIENT_ID: 20Q0ZHBFA51TIMEGH3FSFT5VFRASXIU3YGAHHMXNNQECIVTA

CLIENT_SECRET:R5IYM2203NHGAD5FKP4RFCMHXHANGOGYTKBALODAP5GVZXGO

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

[20]: *## create a function to repeat the same process to all the Locality in New Delhi*

```
def getNearbyVenues(names, latitudes, longitudes, radius=500,LIMIT = 100):

    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)
```

1.11 find the venues in all New Delhi Locality

```
[21]: # 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
Piccadily 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 Surya 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

```
[22]: new_Delhi_venues.head()
```

```
[22]:
```

	Locality	Locality Latitude	Locality Longitude	\
0	ARSS Mall, Paschim Vihar	28.668945	77.101544	
1	ARSS Mall, Paschim Vihar	28.668945	77.101544	
2	ARSS Mall, Paschim Vihar	28.668945	77.101544	
3	ARSS Mall, Paschim Vihar	28.668945	77.101544	
4	ARSS Mall, Paschim Vihar	28.668945	77.101544	

	Venue	Venue Latitude	Venue Longitude	\
0	Subway	28.669999	77.102546	
1	Pizza Hut	28.670321	77.103853	
2	Café Coffee Day	28.670009	77.102480	
3	Baljeet's Amritsari Koolcha	28.665768	77.100481	
4	Little Chef	28.670000	77.101459	

	Venue Category
0	Sandwich Place
1	Pizza Place
2	Coffee Shop
3	Indian Restaurant
4	Chinese Restaurant

```
[23]: new_Delhi_venues.groupby('Locality').count()
```

```
[23]:
```

	Locality Latitude	Locality Longitude	Venue	\
Locality				
ARSS Mall, Paschim Vihar	9	9	9	
Adchini	4	4	4	
Aditya Mega Mall, Karkardooma	10	10	10	
Aerocity	7	7	7	
Aggarwal City Mall, Pitampura	5	5	5	
...	
West Gate Mall, Rajouri Garden	16	16	16	
West Patel Nagar	4	4	4	
Worldmark 1, Aerocity	26	26	26	
Yusuf Sarai	8	8	8	

ibis New Delhi, Aerocity	27	27	27
--------------------------	----	----	----

	Venue Latitude	Venue Longitude	\
Locality			
ARSS Mall, Paschim Vihar	9	9	
Adchini	4	4	
Aditya Mega Mall, Karkardooma	10	10	
Aerocity	7	7	
Aggarwal City Mall, Pitampura	5	5	
...	
West Gate Mall, Rajouri Garden	16	16	
West Patel Nagar	4	4	
Worldmark 1, Aerocity	26	26	
Yusuf Sarai	8	8	
ibis New Delhi, Aerocity	27	27	

	Venue Category
Locality	
ARSS Mall, Paschim Vihar	9
Adchini	4
Aditya Mega Mall, Karkardooma	10
Aerocity	7
Aggarwal City Mall, Pitampura	5
...	...
West Gate Mall, Rajouri Garden	16
West Patel Nagar	4
Worldmark 1, Aerocity	26
Yusuf Sarai	8
ibis New Delhi, Aerocity	27

[239 rows x 6 columns]

```
[24]: print('There are {} uniques categories.'.format(len(new_Delhi_venues['Venue_
      ↳Category'].unique())))
```

There are 203 uniques categories.

```
[25]: ## 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()

```

[25]:

	Locality	ATM	Accessories Store	Afghan Restaurant	\
0	ARSS Mall, Paschim Vihar	0	0	0	
1	ARSS Mall, Paschim Vihar	0	0	0	
2	ARSS Mall, Paschim Vihar	0	0	0	
3	ARSS Mall, Paschim Vihar	0	0	0	
4	ARSS Mall, Paschim Vihar	0	0	0	

	African Restaurant	Airport	Airport Lounge	Airport Service	\
0	0	0	0	0	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	

	Airport Terminal	American Restaurant	...	Tibetan Restaurant	\
0	0	0	...	0	
1	0	0	...	0	
2	0	0	...	0	
3	0	0	...	0	
4	0	0	...	0	

	Toy / Game Store	Trail	Train Station	Turkish Restaurant	\
0	0	0	0	0	
1	0	0	0	0	
2	0	0	0	0	
3	0	0	0	0	
4	0	0	0	0	

	Udupi Restaurant	Vegetarian / Vegan Restaurant	Vietnamese Restaurant	\
0	0	0	0	
1	0	0	0	
2	0	0	0	
3	0	0	0	
4	0	0	0	

	Whisky Bar	Wings Joint
0	0	0
1	0	0
2	0	0


```
3      0      0
4      0      0
```

[5 rows x 204 columns]

```
[26]: New_Delhi_grouped = new_Delhi_onehot.groupby('Locality').mean().reset_index()
New_Delhi_grouped
```

```
[26]:
```

	Locality	ATM	Accessories Store \
0	ARSS Mall, Paschim Vihar	0.111111	0.000000
1	Adchini	0.000000	0.000000
2	Aditya Mega Mall, Karkardooma	0.000000	0.000000
3	Aerocity	0.000000	0.000000
4	Aggarwal City Mall, Pitampura	0.000000	0.000000
..
234	West Gate Mall, Rajouri Garden	0.000000	0.000000
235	West Patel Nagar	0.000000	0.000000
236	Worldmark 1, Aerocity	0.000000	0.038462
237	Yusuf Sarai	0.000000	0.000000
238	ibis New Delhi, Aerocity	0.000000	0.000000

	Afghan Restaurant	African Restaurant	Airport	Airport Lounge \
0	0.0	0.0	0.0	0.000000
1	0.0	0.0	0.0	0.000000
2	0.0	0.0	0.0	0.000000
3	0.0	0.0	0.0	0.142857
4	0.0	0.0	0.0	0.000000
..
234	0.0	0.0	0.0	0.000000
235	0.0	0.0	0.0	0.000000
236	0.0	0.0	0.0	0.000000
237	0.0	0.0	0.0	0.000000
238	0.0	0.0	0.0	0.000000

	Airport Service	Airport Terminal	American Restaurant	...	\
0	0.0	0.000000	0.0000	...	
1	0.0	0.000000	0.0000	...	
2	0.0	0.000000	0.0000	...	
3	0.0	0.142857	0.0000	...	
4	0.0	0.000000	0.0000	...	
..	
234	0.0	0.000000	0.0625	...	
235	0.0	0.000000	0.0000	...	
236	0.0	0.000000	0.0000	...	
237	0.0	0.000000	0.0000	...	
238	0.0	0.000000	0.0000	...	

	Tibetan Restaurant	Toy / Game Store	Trail	Train Station	\
0	0.0	0.0	0.0	0.000000	
1	0.0	0.0	0.0	0.000000	
2	0.0	0.0	0.0	0.000000	
3	0.0	0.0	0.0	0.000000	
4	0.0	0.0	0.0	0.000000	
..	
234	0.0	0.0	0.0	0.000000	
235	0.0	0.0	0.0	0.000000	
236	0.0	0.0	0.0	0.038462	
237	0.0	0.0	0.0	0.000000	
238	0.0	0.0	0.0	0.037037	

	Turkish Restaurant	Udupi Restaurant	Vegetarian / Vegan Restaurant	\
0	0.0	0.0		0.0
1	0.0	0.0		0.0
2	0.0	0.0		0.0
3	0.0	0.0		0.0
4	0.0	0.0		0.0
..	
234	0.0	0.0		0.0
235	0.0	0.0		0.0
236	0.0	0.0		0.0
237	0.0	0.0		0.0
238	0.0	0.0		0.0

	Vietnamese Restaurant	Whisky Bar	Wings Joint
0	0.0	0.0	0.0
1	0.0	0.0	0.0
2	0.0	0.0	0.0
3	0.0	0.0	0.0
4	0.0	0.0	0.0
..
234	0.0	0.0	0.0
235	0.0	0.0	0.0
236	0.0	0.0	0.0
237	0.0	0.0	0.0
238	0.0	0.0	0.0

[239 rows x 204 columns]

```
[27]: New_Delhi_grouped.shape
```

```
[27]: (239, 204)
```

```
[28]: ## 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	0.22
1	ATM	0.11
2	Market	0.11
3	Coffee Shop	0.11
4	Chinese Restaurant	0.11

----Adchini----

	venue	freq
0	Indian Restaurant	0.50
1	Café	0.25
2	Pub	0.25
3	Motel	0.00
4	Movie Theater	0.00

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

	venue	freq
0	Pizza Place	0.2
1	Shopping Mall	0.2
2	Multiplex	0.2
3	Indian Restaurant	0.2
4	Hotel	0.1

----Aerocity----

	venue	freq
0	Hotel	0.29
1	Fast Food Restaurant	0.14
2	Rental Car Location	0.14
3	Airport Lounge	0.14

4 Coffee Shop 0.14

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

	venue	freq
0	Indian Restaurant	0.4
1	Multiplex	0.2
2	Donut Shop	0.2
3	Pizza Place	0.2
4	Irani Cafe	0.0

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

	venue	freq
0	Pizza Place	0.17
1	Sandwich Place	0.17
2	Bus Station	0.17
3	Multiplex	0.17
4	Gym / Fitness Center	0.17

----Alaknanda----

	venue	freq
0	Coffee Shop	0.25
1	Food & Drink Shop	0.25
2	Steakhouse	0.25
3	Market	0.25
4	ATM	0.00

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

	venue	freq
0	Coffee Shop	0.10
1	Shopping Mall	0.08
2	Asian Restaurant	0.08
3	Clothing Store	0.08
4	Chinese Restaurant	0.05

----Anand Lok----

	venue	freq
0	Café	0.18
1	Stadium	0.18
2	Dessert Shop	0.09
3	Golf Course	0.09
4	Hotel	0.09

----Anand Vihar----

	venue	freq
0	Café	0.50
1	Burger Joint	0.25
2	Burrito Place	0.25
3	ATM	0.00
4	Motel	0.00

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

	venue	freq
0	Hotel	0.43
1	Coffee Shop	0.09
2	Buffet	0.04
3	Bakery	0.04
4	Gym / Fitness Center	0.04

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

	venue	freq
0	Department Store	0.17
1	Comfort Food Restaurant	0.17
2	Fast Food Restaurant	0.17
3	Electronics Store	0.17
4	Malay Restaurant	0.17

----Asaf Ali Road----

	venue	freq
0	Indian Restaurant	0.2
1	Campground	0.2
2	Movie Theater	0.2
3	Hotel	0.2
4	Hostel	0.2

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

	venue	freq
0	Pizza Place	0.14
1	Market	0.14
2	Indian Restaurant	0.14
3	Smoke Shop	0.14
4	BBQ Joint	0.14

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

	venue	freq
0	Pizza Place	0.17

1	Indian Restaurant	0.17
2	South Indian Restaurant	0.17
3	Coffee Shop	0.17
4	Sandwich Place	0.17

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

	venue	freq
0	Fast Food Restaurant	0.33
1	Pizza Place	0.33
2	South Indian Restaurant	0.33
3	ATM	0.00
4	Motel	0.00

----Barakhamba Road----

	venue	freq
0	Indian Restaurant	0.17
1	Theater	0.11
2	Bakery	0.11
3	Hotel	0.11
4	Café	0.11

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

	venue	freq
0	Café	0.19
1	Pizza Place	0.14
2	Coffee Shop	0.10
3	Restaurant	0.10
4	Chinese Restaurant	0.10

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

	venue	freq
0	Pizza Place	0.17
1	Indian Restaurant	0.17
2	South Indian Restaurant	0.17
3	Coffee Shop	0.17
4	Sandwich Place	0.17

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

	venue	freq
0	Hotel	0.54
1	Indian Restaurant	0.08
2	Hotel Bar	0.08
3	Buffet	0.08

4 Bed & Breakfast 0.08

----Bhikaji Cama Place----

	venue	freq
0	Hotel	0.18
1	Bakery	0.09
2	Chinese Restaurant	0.09
3	Asian Restaurant	0.09
4	Lounge	0.09

----Chanakyapuri----

	venue	freq
0	African Restaurant	0.17
1	Concert Hall	0.17
2	Park	0.17
3	Trail	0.17
4	Garden	0.17

----Chander Nagar----

	venue	freq
0	Pizza Place	0.5
1	Gym	0.5
2	Monument / Landmark	0.0
3	Mosque	0.0
4	Motel	0.0

----Chandni Chowk----

	venue	freq
0	Indian Restaurant	0.31
1	Snack Place	0.19
2	Market	0.12
3	Dessert Shop	0.12
4	Smoke Shop	0.06

----Chawri Bazar----

	venue	freq
0	Hardware Store	0.17
1	Indian Restaurant	0.17
2	Paper / Office Supplies Store	0.17
3	Light Rail Station	0.17
4	Mosque	0.17

----Chhatarpur----

	venue	freq
0	Luggage Store	0.17
1	Indian Restaurant	0.17
2	Hotel	0.17
3	Japanese Restaurant	0.17
4	Donut Shop	0.17

----Chittaranjan Park----

	venue	freq
0	Market	0.50
1	Beer Garden	0.25
2	Hookah Bar	0.25
3	ATM	0.00
4	National Park	0.00

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

	venue	freq
0	Department Store	0.22
1	Indian Restaurant	0.11
2	Light Rail Station	0.11
3	Multiplex	0.11
4	Gym	0.11

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

	venue	freq
0	Indian Restaurant	0.16
1	Café	0.16
2	Fast Food Restaurant	0.12
3	Dessert Shop	0.08
4	Shopping Mall	0.04

----Civil Lines----

	venue	freq
0	Smoke Shop	0.2
1	Coffee Shop	0.2
2	Burger Joint	0.2
3	Light Rail Station	0.2
4	Chinese Restaurant	0.2

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

	venue	freq
0	Café	0.13

1	Middle Eastern Restaurant	0.09
2	Fast Food Restaurant	0.09
3	Hotel	0.09
4	Italian Restaurant	0.04

----Connaught Place----

	venue	freq
0	Indian Restaurant	0.16
1	Café	0.11
2	Chinese Restaurant	0.06
3	Bar	0.06
4	Asian Restaurant	0.03

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

	venue	freq
0	Pharmacy	0.2
1	Food Court	0.2
2	Clothing Store	0.2
3	Business Service	0.2
4	Restaurant	0.2

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

	venue	freq
0	Indian Restaurant	0.4
1	Pizza Place	0.2
2	Hotel	0.2
3	Shopping Mall	0.2
4	Music Venue	0.0

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

	venue	freq
0	Shopping Mall	0.12
1	Hotel	0.12
2	Clothing Store	0.12
3	Asian Restaurant	0.12
4	Theme Park	0.12

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

	venue	freq
0	Hotel	0.38
1	Indian Restaurant	0.08
2	American Restaurant	0.08
3	Department Store	0.08

4 Restaurant 0.08

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

	venue	freq
0	Fast Food Restaurant	0.21
1	Indian Restaurant	0.14
2	Coffee Shop	0.14
3	Arts & Crafts Store	0.07
4	Diner	0.07

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

	venue	freq
0	Playground	0.17
1	Coffee Shop	0.17
2	Metro Station	0.17
3	Chinese Restaurant	0.17
4	Event Space	0.17

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

	venue	freq
0	Shopping Mall	0.33
1	Gym / Fitness Center	0.17
2	Convenience Store	0.17
3	Vegetarian / Vegan Restaurant	0.17
4	Multiplex	0.17

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

	venue	freq
0	Coffee Shop	0.11
1	Shopping Mall	0.08
2	Asian Restaurant	0.08
3	Clothing Store	0.08
4	Japanese Restaurant	0.05

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

	venue	freq
0	Indian Restaurant	0.15
1	Clothing Store	0.08
2	Lounge	0.08
3	Café	0.06
4	Chinese Restaurant	0.06

----DLF Promenade Mall, Vasant Kunj----

	venue	freq
0	Coffee Shop	0.11
1	Shopping Mall	0.08
2	Asian Restaurant	0.08
3	Clothing Store	0.08
4	Japanese Restaurant	0.05

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

	venue	freq
0	Indian Restaurant	0.33
1	Fast Food Restaurant	0.22
2	Pizza Place	0.11
3	Dessert Shop	0.11
4	Restaurant	0.11

----Daryaganj----

	venue	freq
0	Indian Restaurant	0.31
1	Hotel	0.15
2	Hostel	0.15
3	Restaurant	0.15
4	Movie Theater	0.08

----Defence Colony----

	venue	freq
0	Indian Restaurant	0.20
1	Italian Restaurant	0.13
2	Burger Joint	0.07
3	Café	0.07
4	Bar	0.07

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

	venue	freq
0	Restaurant	0.18
1	Café	0.18
2	Pizza Place	0.09
3	Light Rail Station	0.09
4	Snack Place	0.09

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

	venue	freq
0	Train Station	0.25

1	Northeast Indian Restaurant	0.25
2	Market	0.25
3	Restaurant	0.25
4	ATM	0.00

----Dilshad Garden----

	venue	freq
0	Indian Restaurant	0.50
1	Gym	0.25
2	Café	0.25
3	Mosque	0.00
4	Movie Theater	0.00

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

	venue	freq
0	Fast Food Restaurant	0.12
1	Indian Restaurant	0.12
2	Sandwich Place	0.12
3	Shopping Mall	0.06
4	Gym / Fitness Center	0.06

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

	venue	freq
0	Indian Restaurant	0.25
1	Golf Course	0.17
2	Italian Restaurant	0.17
3	North Indian Restaurant	0.08
4	Snack Place	0.08

----East Patel Nagar----

	venue	freq
0	Pizza Place	0.21
1	Metro Station	0.07
2	Donut Shop	0.07
3	Convenience Store	0.07
4	Coffee Shop	0.07

----East of Kailash----

	venue	freq
0	Indie Movie Theater	0.12
1	Hot Dog Joint	0.12
2	Playground	0.12
3	Coffee Shop	0.12

4 Fast Food Restaurant 0.12

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

	venue	freq
0	Coffee Shop	0.08
1	Fast Food Restaurant	0.08
2	Electronics Store	0.04
3	Multiplex	0.04
4	Sandwich Place	0.04

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

	venue	freq
0	Fast Food Restaurant	0.12
1	Coffee Shop	0.08
2	Plaza	0.04
3	Bar	0.04
4	Sandwich Place	0.04

----Essex Farms----

	venue	freq
0	Playground	0.33
1	Metro Station	0.33
2	Event Space	0.33
3	ATM	0.00
4	National Park	0.00

----Feroze Shah Road----

	venue	freq
0	Indian Restaurant	1.0
1	National Park	0.0
2	Mosque	0.0
3	Motel	0.0
4	Movie Theater	0.0

----Friends Colony----

	venue	freq
0	Hotel	0.33
1	Café	0.17
2	Sculpture Garden	0.17
3	Neighborhood	0.17
4	Gym	0.17

----GTB Nagar----

	venue	freq
0	Pizza Place	0.5
1	Food Truck	0.5
2	National Park	0.0
3	Motel	0.0
4	Movie Theater	0.0

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

	venue	freq
0	Coffee Shop	0.29
1	Garden	0.14
2	Italian Restaurant	0.14
3	Pub	0.14
4	Asian Restaurant	0.14

----Geeta Colony----

	venue	freq
0	Burger Joint	1.0
1	ATM	0.0
2	National Park	0.0
3	Motel	0.0
4	Movie Theater	0.0

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

	venue	freq
0	Hotel	0.29
1	Indian Restaurant	0.14
2	BBQ Joint	0.14
3	Café	0.14
4	Bank	0.14

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

	venue	freq
0	Ice Cream Shop	0.17
1	Bakery	0.17
2	Food Court	0.17
3	Food & Drink Shop	0.17
4	Indian Restaurant	0.17

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

	venue	freq
0	Café	0.11

1	Market	0.11
2	Hotel	0.11
3	Ice Cream Shop	0.05
4	Hostel	0.05

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

	venue	freq
0	Asian Restaurant	0.11
1	Café	0.08
2	Ice Cream Shop	0.06
3	Indian Restaurant	0.06
4	Hotel	0.06

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

	venue	freq
0	Café	0.18
1	Bakery	0.18
2	Restaurant	0.18
3	Chinese Restaurant	0.09
4	Sandwich Place	0.09

----Green Park----

	venue	freq
0	Indian Restaurant	0.21
1	Coffee Shop	0.12
2	Pizza Place	0.08
3	Chinese Restaurant	0.08
4	Asian Restaurant	0.04

----Gujranwala Town----

	venue	freq
0	Indian Restaurant	0.25
1	Bakery	0.25
2	Shopping Mall	0.25
3	Snack Place	0.25
4	Irani Cafe	0.00

----Hauz Khas----

	venue	freq
0	Indian Restaurant	0.13
1	Coffee Shop	0.13
2	Chinese Restaurant	0.13
3	Fast Food Restaurant	0.07

4 Bar 0.07

----Hauz Khas Village----

	venue	freq
0	Indian Restaurant	0.10
1	Café	0.10
2	Italian Restaurant	0.08
3	Lounge	0.06
4	Mediterranean Restaurant	0.06

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

	venue	freq
0	Hotel	0.43
1	Coffee Shop	0.07
2	Japanese Restaurant	0.04
3	Hotel Bar	0.04
4	Gym	0.04

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

	venue	freq
0	Hotel	0.29
1	Restaurant	0.12
2	Arcade	0.06
3	Market	0.06
4	Bakery	0.06

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

	venue	freq
0	Indian Restaurant	0.29
1	Soccer Stadium	0.14
2	Movie Theater	0.14
3	Hotel	0.14
4	Hostel	0.14

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

	venue	freq
0	Park	0.14
1	Hotel	0.14
2	Spa	0.14
3	Light Rail Station	0.14
4	Multiplex	0.14

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

	venue	freq
0	Pizza Place	0.23
1	Metro Station	0.08
2	Donut Shop	0.08
3	Convenience Store	0.08
4	Coffee Shop	0.08

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

	venue	freq
0	Hotel	0.17
1	Indian Restaurant	0.13
2	Italian Restaurant	0.07
3	Restaurant	0.07
4	Spa	0.07

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

	venue	freq
0	Hotel	0.18
1	Bakery	0.09
2	Chinese Restaurant	0.09
3	Asian Restaurant	0.09
4	Lounge	0.09

----INA----

	venue	freq
0	Dim Sum Restaurant	0.17
1	Train Station	0.17
2	Spa	0.17
3	Northeast Indian Restaurant	0.17
4	Light Rail Station	0.17

----IP Extension----

	venue	freq
0	Indian Restaurant	0.2
1	Market	0.1
2	Pizza Place	0.1
3	Food	0.1
4	Café	0.1

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

	venue	freq
0	Indian Restaurant	0.12

1	Hotel	0.12
2	Café	0.09
3	Chinese Restaurant	0.06
4	North Indian Restaurant	0.03

----ITO----

	venue	freq
0	Performing Arts Venue	0.12
1	Art Museum	0.12
2	Café	0.12
3	Historic Site	0.12
4	Clothing Store	0.12

----India Gate----

	venue	freq
0	Rest Area	0.25
1	Music Venue	0.25
2	Government Building	0.25
3	National Park	0.25
4	Mosque	0.00

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

	venue	freq
0	Café	0.20
1	Pizza Place	0.13
2	Restaurant	0.13
3	BBQ Joint	0.07
4	Italian Restaurant	0.07

----JNU----

	venue	freq
0	Indian Restaurant	0.25
1	Clothing Store	0.25
2	Scenic Lookout	0.25
3	Shopping Mall	0.25
4	Paper / Office Supplies Store	0.00

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

	venue	freq
0	Hotel	0.40
1	Coffee Shop	0.08
2	Buffet	0.04
3	Shopping Mall	0.04

4 Bed & Breakfast 0.04

----Jail Road----

	venue	freq
0	Pizza Place	0.2
1	Bakery	0.2
2	Food Court	0.2
3	Indian Restaurant	0.2
4	Indian Sweet Shop	0.2

----Jama Masjid----

	venue	freq
0	Indian Restaurant	0.43
1	Mosque	0.14
2	Frozen Yogurt Shop	0.14
3	Metro Station	0.14
4	Flea Market	0.14

----Janakpuri----

	venue	freq
0	Café	0.4
1	Park	0.2
2	Bakery	0.2
3	Gym	0.2
4	ATM	0.0

----Jangpura----

	venue	freq
0	Snack Place	0.2
1	Flea Market	0.2
2	Sandwich Place	0.2
3	BBQ Joint	0.2
4	Fast Food Restaurant	0.2

----Janpath----

	venue	freq
0	Indian Restaurant	0.13
1	Italian Restaurant	0.08
2	Café	0.08
3	Lounge	0.08
4	Coffee Shop	0.08

----Jasola----

	venue	freq
0	Pizza Place	0.25
1	Soccer Stadium	0.25
2	Sandwich Place	0.25
3	Café	0.25
4	Moroccan Restaurant	0.00

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

	venue	freq
0	Pizza Place	0.20
1	Fast Food Restaurant	0.13
2	Hotel	0.07
3	Donut Shop	0.07
4	Convenience Store	0.07

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

	venue	freq
0	Café	0.19
1	Pizza Place	0.14
2	Coffee Shop	0.10
3	Restaurant	0.10
4	Chinese Restaurant	0.10

----Jor Bagh----

	venue	freq
0	Indian Restaurant	0.25
1	Metro Station	0.25
2	Bakery	0.25
3	Record Shop	0.25
4	National Park	0.00

----Kailash Colony----

	venue	freq
0	Hotel	0.15
1	Italian Restaurant	0.08
2	Dessert Shop	0.08
3	Flea Market	0.08
4	Restaurant	0.08

----Kalkaji----

	venue	freq
0	Fast Food Restaurant	0.2

1	Market	0.2
2	Indian Restaurant	0.1
3	Hotel	0.1
4	Pizza Place	0.1

----Kamla Nagar----

	venue	freq
0	Breakfast Spot	0.14
1	Indian Restaurant	0.14
2	Fast Food Restaurant	0.14
3	Chinese Restaurant	0.10
4	Coffee Shop	0.10

----Kapashera----

	venue	freq
0	Music Store	0.4
1	Convenience Store	0.2
2	Food Truck	0.2
3	Food Court	0.2
4	ATM	0.0

----Karampura----

	venue	freq
0	Indian Restaurant	0.25
1	Vegetarian / Vegan Restaurant	0.25
2	Fried Chicken Joint	0.25
3	Moving Target	0.25
4	Music Venue	0.00

----Karkardooma----

	venue	freq
0	Indian Restaurant	0.25
1	Pizza Place	0.25
2	Food Truck	0.25
3	Train Station	0.25
4	National Park	0.00

----Karol Bagh----

	venue	freq
0	Indian Restaurant	0.23
1	Fast Food Restaurant	0.23
2	Snack Place	0.08
3	Hotel	0.08

4 Coffee Shop 0.08

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

	venue	freq
0	Café	0.21
1	Indian Restaurant	0.16
2	Lounge	0.11
3	Nightclub	0.11
4	Bakery	0.05

----Kashmiri Gate----

	venue	freq
0	Pizza Place	0.17
1	Fast Food Restaurant	0.17
2	Bus Station	0.17
3	American Restaurant	0.17
4	Metro Station	0.17

----Khan Market----

	venue	freq
0	Café	0.18
1	Indian Restaurant	0.08
2	Coffee Shop	0.08
3	Asian Restaurant	0.08
4	Chinese Restaurant	0.05

----Kirti Nagar----

	venue	freq
0	Pizza Place	0.25
1	Convenience Store	0.25
2	Spa	0.25
3	Fish & Chips Shop	0.25
4	National Park	0.00

----Krishna Nagar----

	venue	freq
0	Pizza Place	0.50
1	Park	0.25
2	Accessories Store	0.25
3	Indian Sweet Shop	0.00
4	Indie Movie Theater	0.00

----Lado Sarai----

	venue	freq
0	Shopping Mall	0.2
1	Furniture / Home Store	0.2
2	Golf Course	0.2
3	Nightclub	0.2
4	BBQ Joint	0.2

----Lajpat Nagar 1----

	venue	freq
0	Cocktail Bar	0.12
1	Cosmetics Shop	0.12
2	Market	0.12
3	Asian Restaurant	0.12
4	Coffee Shop	0.12

----Lajpat Nagar 2----

	venue	freq
0	Pizza Place	0.17
1	Café	0.11
2	Fast Food Restaurant	0.11
3	Arcade	0.06
4	Neighborhood	0.06

----Lajpat Nagar 4----

	venue	freq
0	Café	0.25
1	Indian Restaurant	0.17
2	Hotel	0.08
3	Restaurant	0.08
4	Market	0.08

----Lawrence Road----

	venue	freq
0	Indian Restaurant	0.2
1	Department Store	0.2
2	Basketball Court	0.2
3	Light Rail Station	0.2
4	Café	0.2

----Laxmi Nagar----

	venue	freq
0	Pizza Place	0.2

1	Arcade	0.2
2	Grocery Store	0.2
3	Chinese Restaurant	0.2
4	Indian Restaurant	0.2

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

	venue	freq
0	Hotel	0.33
1	Indian Restaurant	0.13
2	Restaurant	0.13
3	Spa	0.07
4	Cocktail Bar	0.07

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

	venue	freq
0	Hotel	0.40
1	Coffee Shop	0.08
2	Buffet	0.04
3	Shopping Mall	0.04
4	Bed & Breakfast	0.04

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

	venue	freq
0	Indian Restaurant	0.33
1	Bakery	0.17
2	Fast Food Restaurant	0.17
3	Soccer Stadium	0.17
4	Pizza Place	0.17

----Lodhi Colony----

	venue	freq
0	Indian Restaurant	0.23
1	Shopping Mall	0.08
2	Sandwich Place	0.08
3	Café	0.08
4	Restaurant	0.08

----Lodhi Road----

	venue	freq
0	Italian Restaurant	0.07
1	Asian Restaurant	0.07
2	Performing Arts Venue	0.07
3	Pedestrian Plaza	0.07

4 Event Space 0.07

----MG Road----

	venue	freq
0	Indian Restaurant	0.33
1	Art Museum	0.33
2	Furniture / Home Store	0.33
3	Performing Arts Venue	0.00
4	National Park	0.00

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

	venue	freq
0	Indian Restaurant	0.14
1	Clothing Store	0.08
2	Lounge	0.08
3	Chinese Restaurant	0.06
4	Donut Shop	0.06

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

	venue	freq
0	Indian Restaurant	0.33
1	Restaurant	0.33
2	Hotel	0.17
3	Road	0.17
4	Music Venue	0.00

----Mahipalpur----

	venue	freq
0	Hotel	0.31
1	Indian Restaurant	0.08
2	Bed & Breakfast	0.08
3	Shoe Store	0.08
4	Thai Restaurant	0.08

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

	venue	freq
0	Indian Restaurant	0.50
1	Hotel	0.25
2	Smoke Shop	0.25
3	Music Venue	0.00
4	Moroccan Restaurant	0.00

----Majnu ka Tila----

	venue	freq
0	Asian Restaurant	0.33
1	Bus Station	0.11
2	Hotel	0.11
3	Tibetan Restaurant	0.11
4	Café	0.11

----Malviya Nagar----

	venue	freq
0	Coffee Shop	0.18
1	Seafood Restaurant	0.09
2	Pizza Place	0.09
3	Chinese Restaurant	0.09
4	Donut Shop	0.09

----Mandi House----

	venue	freq
0	Theater	0.20
1	Bakery	0.13
2	Indian Restaurant	0.13
3	Café	0.13
4	Art Gallery	0.13

----Mathura Road----

	venue	freq
0	Indian Sweet Shop	0.5
1	Breakfast Spot	0.5
2	ATM	0.0
3	National Park	0.0
4	Motel	0.0

----Mayapuri Phase 2----

	venue	freq
0	Garden	0.33
1	Food Truck	0.33
2	Restaurant	0.33
3	Music Venue	0.00
4	Motel	0.00

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

	venue	freq
0	Indian Restaurant	0.33

1	Gym / Fitness Center	0.33
2	Pizza Place	0.33
3	Indie Movie Theater	0.00
4	Irani Cafe	0.00

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

	venue	freq
0	Ice Cream Shop	0.2
1	Café	0.2
2	Sandwich Place	0.2
3	Juice Bar	0.2
4	Wings Joint	0.2

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

	venue	freq
0	Hotel	0.33
1	Light Rail Station	0.33
2	Health & Beauty Service	0.33
3	ATM	0.00
4	Neighborhood	0.00

----Mehrauli----

	venue	freq
0	Thai Restaurant	0.2
1	Bar	0.2
2	Lounge	0.1
3	Whisky Bar	0.1
4	Monument / Landmark	0.1

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

	venue	freq
0	Pizza Place	0.2
1	Theme Park	0.2
2	Fast Food Restaurant	0.2
3	Asian Restaurant	0.2
4	Shopping Mall	0.2

----Model Town 1----

	venue	freq
0	Convenience Store	0.25
1	Playground	0.25
2	Pool Hall	0.25
3	Food Truck	0.25

4 ATM 0.00

----Model Town 2----

	venue	freq
0	Pizza Place	0.17
1	Donut Shop	0.17
2	Bank	0.17
3	Restaurant	0.17
4	Coffee Shop	0.17

----Model Town 3----

	venue	freq
0	ATM	0.5
1	Park	0.5
2	National Park	0.0
3	Mosque	0.0
4	Motel	0.0

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

	venue	freq
0	Metro Station	0.17
1	Shopping Mall	0.08
2	Fast Food Restaurant	0.08
3	Fried Chicken Joint	0.08
4	Cafeteria	0.08

----Moti Bagh----

	venue	freq
0	Pizza Place	0.25
1	South Indian Restaurant	0.25
2	Café	0.25
3	Department Store	0.25
4	Italian Restaurant	0.00

----Moti Nagar----

	venue	freq
0	Fried Chicken Joint	0.25
1	Multiplex	0.25
2	Metro Station	0.25
3	Flea Market	0.25
4	ATM	0.00

----Mukherjee Nagar----

	venue	freq
0	Ice Cream Shop	0.25
1	Indie Movie Theater	0.25
2	Bakery	0.25
3	Chinese Restaurant	0.25
4	Neighborhood	0.00

----Munirka----

	venue	freq
0	Pizza Place	0.12
1	Bakery	0.12
2	Furniture / Home Store	0.12
3	Department Store	0.12
4	Playground	0.12

----Najafgarh----

	venue	freq
0	ATM	0.2
1	Discount Store	0.2
2	Food & Drink Shop	0.2
3	Electronics Store	0.2
4	Rental Service	0.2

----Naraina----

	venue	freq
0	Pizza Place	0.25
1	Snack Place	0.25
2	Café	0.25
3	Indian Restaurant	0.25
4	Vegetarian / Vegan Restaurant	0.00

----Nehru Place----

	venue	freq
0	Fast Food Restaurant	0.08
1	Coffee Shop	0.08
2	Japanese Restaurant	0.04
3	Frozen Yogurt Shop	0.04
4	Gym	0.04

----Netaji Subhash Place----

	venue	freq
0	Fast Food Restaurant	0.21

1	Indian Restaurant	0.14
2	Coffee Shop	0.14
3	Arts & Crafts Store	0.07
4	Diner	0.07

----New Friends Colony----

	venue	freq
0	Café	0.17
1	Fast Food Restaurant	0.11
2	Pizza Place	0.06
3	Sandwich Place	0.06
4	Indian Restaurant	0.06

----Nizamuddin----

	venue	freq
0	Indian Restaurant	0.2
1	Garden	0.2
2	Historic Site	0.1
3	Park	0.1
4	Mughlai Restaurant	0.1

----Okhla Phase 1----

	venue	freq
0	Cosmetics Shop	0.5
1	Spa	0.5
2	Monument / Landmark	0.0
3	Mosque	0.0
4	Motel	0.0

----Okhla Phase 2----

	venue	freq
0	Mobile Phone Shop	1.0
1	ATM	0.0
2	National Park	0.0
3	Motel	0.0
4	Movie Theater	0.0

----PVR Anupam Complex----

	venue	freq
0	Pizza Place	0.2
1	Café	0.2
2	Multiplex	0.2
3	Coffee Shop	0.2

4 Middle Eastern Restaurant 0.2

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

	venue	freq
0	Coffee Shop	0.12
1	Clothing Store	0.12
2	Restaurant	0.12
3	Multiplex	0.12
4	Italian Restaurant	0.06

----Paharganj----

	venue	freq
0	Hotel	0.42
1	Indian Restaurant	0.11
2	Restaurant	0.06
3	Hostel	0.06
4	Breakfast Spot	0.03

----Palam----

	venue	freq
0	IT Services	0.5
1	Bar	0.5
2	ATM	0.0
3	National Park	0.0
4	Motel	0.0

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

	venue	freq
0	Dessert Shop	0.2
1	Campground	0.2
2	Golf Course	0.2
3	Bakery	0.2
4	Sake Bar	0.2

----Panchsheel Park----

	venue	freq
0	Pizza Place	0.2
1	American Restaurant	0.2
2	Bar	0.2
3	Event Space	0.2
4	Gaming Cafe	0.2

----Pandara Road Market----

	venue	freq
0	Indian Restaurant	0.27
1	Smoke Shop	0.13
2	Ice Cream Shop	0.07
3	Restaurant	0.07
4	Cafeteria	0.07

----Pandav Nagar----

	venue	freq
0	Dessert Shop	0.22
1	Park	0.11
2	Bus Station	0.11
3	Food & Drink Shop	0.11
4	Metro Station	0.11

----Paschim Vihar----

	venue	freq
0	Pizza Place	0.12
1	Indian Restaurant	0.12
2	Garden	0.12
3	Multicuisine Indian Restaurant	0.12
4	Sandwich Place	0.12

----Patparganj----

	venue	freq
0	Indian Restaurant	0.25
1	Pizza Place	0.12
2	Market	0.12
3	Café	0.12
4	Shopping Mall	0.12

----Piccadily Hotel, Janakpuri----

	venue	freq
0	Chinese Restaurant	0.16
1	Indian Restaurant	0.11
2	Sandwich Place	0.11
3	Fast Food Restaurant	0.11
4	Music Store	0.05

----Pitampura----

	venue	freq
0	Gym	0.25

1	Ice Cream Shop	0.12
2	Fast Food Restaurant	0.12
3	Snack Place	0.12
4	Mobile Phone Shop	0.12

----Pragati Maidan----

	venue	freq
0	Pool	0.25
1	Historic Site	0.12
2	Museum	0.12
3	Café	0.12
4	Art Museum	0.12

----Prashant Vihar----

	venue	freq
0	Indian Restaurant	0.6
1	Pizza Place	0.4
2	Whisky Bar	0.0
3	Monument / Landmark	0.0
4	Mosque	0.0

----Preet Vihar----

	venue	freq
0	Ice Cream Shop	0.17
1	Arcade	0.17
2	Pizza Place	0.17
3	BBQ Joint	0.17
4	Chinese Restaurant	0.17

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

	venue	freq
0	Café	0.5
1	Hotel	0.5
2	ATM	0.0
3	Motel	0.0
4	Movie Theater	0.0

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

	venue	freq
0	Hotel	0.42
1	Coffee Shop	0.08
2	Lounge	0.04
3	Buffet	0.04

4 Shopping Mall 0.04

----Punjabi Bagh----

	venue	freq
0	Garden Center	0.25
1	Convenience Store	0.25
2	Donut Shop	0.25
3	Coffee Shop	0.25
4	Neighborhood	0.00

----Qutab Institutional Area----

	venue	freq
0	Indian Restaurant	0.25
1	Restaurant	0.25
2	Hotel	0.12
3	Food Truck	0.12
4	Modern European Restaurant	0.12

----R K Puram----

	venue	freq
0	Asian Restaurant	0.17
1	Park	0.17
2	Comfort Food Restaurant	0.17
3	Coffee Shop	0.17
4	Café	0.17

----Race Course----

	venue	freq
0	Racetrack	0.25
1	History Museum	0.25
2	Lighting Store	0.25
3	Gym / Fitness Center	0.25
4	ATM	0.00

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

	venue	freq
0	Hotel	0.38
1	Thai Restaurant	0.12
2	Indian Restaurant	0.12
3	Plaza	0.12
4	American Restaurant	0.12

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

	venue	freq
0	Hotel	0.33
1	Indian Restaurant	0.17
2	Fast Food Restaurant	0.17
3	Food Truck	0.17
4	Coffee Shop	0.17

----Rajendra Place----

	venue	freq
0	Pizza Place	0.22
1	Hotel	0.11
2	Coffee Shop	0.11
3	Fast Food Restaurant	0.11
4	Breakfast Spot	0.11

----Rajinder Nagar----

	venue	freq
0	Pizza Place	0.14
1	Gym / Fitness Center	0.14
2	Sandwich Place	0.14
3	Food & Drink Shop	0.14
4	Bakery	0.14

----Rajouri Garden----

	venue	freq
0	Bakery	0.33
1	Market	0.17
2	Indian Restaurant	0.17
3	Diner	0.17
4	BBQ Joint	0.17

----Rohini----

	venue	freq
0	Indian Restaurant	0.25
1	Department Store	0.25
2	Light Rail Station	0.25
3	Fast Food Restaurant	0.25
4	Neighborhood	0.00

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

	venue	freq
0	Hotel	0.42

1	Coffee Shop	0.08
2	Italian Restaurant	0.04
3	Hotel Bar	0.04
4	Bakery	0.04

----SDA----

	venue	freq
0	Café	0.18
1	Market	0.09
2	Sandwich Place	0.09
3	Chinese Restaurant	0.09
4	Asian Restaurant	0.09

----Safdarjung----

	venue	freq
0	Indian Restaurant	0.11
1	Dessert Shop	0.11
2	Jazz Club	0.11
3	American Restaurant	0.11
4	Coffee Shop	0.11

----Sainik Farms----

	venue	freq
0	Asian Restaurant	0.4
1	Indian Restaurant	0.2
2	Pub	0.2
3	Bakery	0.2
4	Neighborhood	0.0

----Saket----

	venue	freq
0	Café	0.2
1	Pub	0.1
2	Multiplex	0.1
3	Mexican Restaurant	0.1
4	Coffee Shop	0.1

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

	venue	freq
0	Multiplex	0.15
1	Coffee Shop	0.15
2	Shopping Mall	0.08
3	Comfort Food Restaurant	0.08

4 Café 0.08

----Sarita Vihar----

	venue	freq
0	Café	0.50
1	Deli / Bodega	0.25
2	Food & Drink Shop	0.25
3	ATM	0.00
4	Movie Theater	0.00

----Sarojini Nagar----

	venue	freq
0	Fast Food Restaurant	0.4
1	Indian Restaurant	0.2
2	Snack Place	0.2
3	Pizza Place	0.2
4	Music Venue	0.0

----Satyaniketan----

	venue	freq
0	Deli / Bodega	0.17
1	Bistro	0.17
2	Plaza	0.17
3	Snack Place	0.17
4	Salad Place	0.17

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

	venue	freq
0	Train Station	0.5
1	Light Rail Station	0.5
2	ATM	0.0
3	Neighborhood	0.0
4	Motel	0.0

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

	venue	freq
0	Indian Restaurant	0.15
1	Clothing Store	0.07
2	Lounge	0.07
3	Café	0.07
4	Chinese Restaurant	0.06

----Shahdara----

	venue	freq
0	ATM	0.25
1	Park	0.25
2	Mobile Phone Shop	0.25
3	Chocolate Shop	0.25
4	National Park	0.00

----Shahpur Jat----

	venue	freq
0	Indian Restaurant	0.29
1	Australian Restaurant	0.14
2	Shoe Store	0.14
3	Comedy Club	0.14
4	Stadium	0.14

----Shakarpur----

	venue	freq
0	Shopping Mall	0.17
1	Gym	0.17
2	Diner	0.17
3	Snack Place	0.17
4	Coffee Shop	0.17

----Shalimar Bagh----

	venue	freq
0	Pizza Place	0.17
1	Gym / Fitness Center	0.17
2	Convenience Store	0.17
3	Hotel	0.17
4	Coffee Shop	0.17

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

	venue	freq
0	Hotel	0.19
1	Indian Restaurant	0.15
2	Restaurant	0.07
3	Italian Restaurant	0.07
4	Spa	0.07

----Shanti Niketan Marg----

	venue	freq
0	Café	0.2

1	Pizza Place	0.2
2	Convenience Store	0.2
3	Gourmet Shop	0.2
4	Bakery	0.2

-----Sheikh Sarai-----

	venue	freq
0	Thai Restaurant	0.43
1	Whisky Bar	0.14
2	Italian Restaurant	0.14
3	Historic Site	0.14
4	Café	0.14

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

	venue	freq
0	Indian Restaurant	0.16
1	Clothing Store	0.09
2	Donut Shop	0.07
3	Hotel	0.07
4	Bakery	0.05

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

	venue	freq
0	Coffee Shop	0.25
1	Indian Restaurant	0.17
2	Pizza Place	0.17
3	Fast Food Restaurant	0.08
4	Clothing Store	0.08

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

	venue	freq
0	Coffee Shop	0.18
1	Market	0.12
2	Pizza Place	0.12
3	Indian Restaurant	0.12
4	Boutique	0.06

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

	venue	freq
0	Indian Restaurant	0.14
1	Clothing Store	0.08
2	Café	0.08
3	Lounge	0.08

4 Donut Shop 0.06

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

	venue	freq
0	Fast Food Restaurant	0.12
1	Indian Restaurant	0.12
2	Breakfast Spot	0.12
3	Chinese Restaurant	0.08
4	Pizza Place	0.08

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

	venue	freq
0	Hotel	0.29
1	Department Store	0.12
2	Restaurant	0.12
3	Asian Restaurant	0.06
4	Indian Restaurant	0.06

----Subhash Nagar----

	venue	freq
0	Park	0.25
1	Sculpture Garden	0.25
2	Multiplex	0.25
3	Gym	0.25
4	ATM	0.00

----Sunder Nagar----

	venue	freq
0	Indian Restaurant	0.23
1	Italian Restaurant	0.15
2	Hotel	0.15
3	Café	0.08
4	Convenience Store	0.08

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

	venue	freq
0	Coffee Shop	0.23
1	Café	0.23
2	Airport Service	0.15
3	Burger Joint	0.08
4	Airport	0.08

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

	venue	freq
0	Indian Restaurant	0.21
1	Café	0.17
2	Fast Food Restaurant	0.12
3	Dessert Shop	0.08
4	Diner	0.04

----Tagore Garden----

	venue	freq
0	Ice Cream Shop	0.1
1	BBQ Joint	0.1
2	Market	0.1
3	Garden	0.1
4	Food Truck	0.1

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

	venue	freq
0	Café	0.17
1	Indian Restaurant	0.07
2	Coffee Shop	0.07
3	Asian Restaurant	0.07
4	Chinese Restaurant	0.05

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

	venue	freq
0	Indian Restaurant	0.24
1	Nightclub	0.18
2	Lounge	0.06
3	Coffee Shop	0.06
4	Café	0.06

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

	venue	freq
0	Hotel	0.2
1	Breakfast Spot	0.1
2	Chinese Restaurant	0.1
3	Clothing Store	0.1
4	North Indian Restaurant	0.1

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

	venue	freq
0	Coffee Shop	0.12

1	Bar	0.08
2	Clothing Store	0.08
3	ATM	0.04
4	Indian Restaurant	0.04

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

	venue	freq
0	Indian Restaurant	0.15
1	Hotel	0.12
2	Italian Restaurant	0.09
3	Café	0.09
4	Lounge	0.09

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

	venue	freq
0	Café	0.14
1	Fast Food Restaurant	0.10
2	Middle Eastern Restaurant	0.10
3	Hotel	0.10
4	Lounge	0.05

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

	venue	freq
0	Indian Restaurant	0.33
1	Bakery	0.33
2	Hotel Bar	0.17
3	Asian Restaurant	0.17
4	ATM	0.00

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

	venue	freq
0	Shopping Mall	0.4
1	Indian Restaurant	0.2
2	Hotel	0.2
3	Café	0.2
4	National Park	0.0

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

	venue	freq
0	Indian Restaurant	0.18
1	Train Station	0.09
2	Breakfast Spot	0.09
3	Cocktail Bar	0.09

4 Northeast Indian Restaurant 0.09

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

	venue	freq
0	Indian Restaurant	0.13
1	Hotel	0.13
2	Chinese Restaurant	0.13
3	Convenience Store	0.07
4	Restaurant	0.07

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

	venue	freq
0	Hotel	0.19
1	Coffee Shop	0.07
2	Indian Restaurant	0.07
3	Italian Restaurant	0.07
4	Mediterranean Restaurant	0.07

----The Surya New Delhi, New Friends Colony----

	venue	freq
0	Café	0.13
1	Middle Eastern Restaurant	0.09
2	Fast Food Restaurant	0.09
3	Hotel	0.09
4	Italian Restaurant	0.04

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

	venue	freq
0	Hotel Bar	0.4
1	Indian Restaurant	0.2
2	Japanese Restaurant	0.2
3	Restaurant	0.2
4	National Park	0.0

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

	venue	freq
0	Indian Restaurant	0.12
1	Hotel	0.12
2	Café	0.09
3	Chinese Restaurant	0.06
4	North Indian Restaurant	0.03

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

	venue	freq
0	Hotel	0.75
1	Indian Restaurant	0.25
2	National Park	0.00
3	Mosque	0.00
4	Motel	0.00

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

	venue	freq
0	Indian Restaurant	0.18
1	Comedy Club	0.09
2	Restaurant	0.09
3	Stadium	0.09
4	Bar	0.09

----Tilak Nagar----

	venue	freq
0	Fast Food Restaurant	0.4
1	Indian Restaurant	0.2
2	Light Rail Station	0.2
3	North Indian Restaurant	0.2
4	National Park	0.0

----Tughlakabad Institutional Area----

	venue	freq
0	Hotel	0.2
1	Steakhouse	0.2
2	Restaurant	0.2
3	Chinese Restaurant	0.2
4	Market	0.2

----Uday Park----

	venue	freq
0	Pizza Place	0.14
1	Fast Food Restaurant	0.14
2	Music Venue	0.14
3	Metro Station	0.14
4	Market	0.14

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

	venue	freq
0	Indian Restaurant	0.25

1	Shopping Mall	0.12
2	Pizza Place	0.12
3	Sandwich Place	0.12
4	Light Rail Station	0.12

----Uttam Nagar----

	venue	freq
0	Indian Restaurant	0.50
1	ATM	0.25
2	Accessories Store	0.25
3	Vietnamese Restaurant	0.00
4	Molecular Gastronomy Restaurant	0.00

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

	venue	freq
0	Fast Food Restaurant	0.12
1	Gift Shop	0.12
2	Playground	0.06
3	Mediterranean Restaurant	0.06
4	Dessert Shop	0.06

----Vasant Kunj----

	venue	freq
0	Dessert Shop	0.12
1	Pizza Place	0.12
2	Vegetarian / Vegan Restaurant	0.12
3	Sandwich Place	0.12
4	Spa	0.12

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

	venue	freq
0	Pizza Place	0.1
1	Sandwich Place	0.1
2	Bank	0.1
3	Bar	0.1
4	Café	0.1

----Vasant Vihar----

	venue	freq
0	Café	0.18
1	Fast Food Restaurant	0.09
2	Coffee Shop	0.09
3	Chinese Restaurant	0.09

4 Restaurant 0.09

----Vasundhara Enclave----

	venue	freq
0	Shopping Mall	1.0
1	National Park	0.0
2	Mosque	0.0
3	Motel	0.0
4	Movie Theater	0.0

----Vijay Nagar----

	venue	freq
0	Café	0.17
1	Chinese Restaurant	0.08
2	Coffee Shop	0.08
3	Pizza Place	0.08
4	Italian Restaurant	0.08

----Vikas Marg----

	venue	freq
0	Café	0.25
1	Snack Place	0.12
2	Burger Joint	0.12
3	Park	0.12
4	Burrito Place	0.12

----Vikaspuri----

	venue	freq
0	Fast Food Restaurant	0.50
1	Indian Restaurant	0.25
2	Pizza Place	0.25
3	Indie Movie Theater	0.00
4	Irani Cafe	0.00

----Vivek Vihar----

	venue	freq
0	Juice Bar	0.29
1	ATM	0.14
2	Department Store	0.14
3	Bed & Breakfast	0.14
4	Café	0.14

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

	venue	freq
0	Chinese Restaurant	0.15
1	Indian Restaurant	0.10
2	Sandwich Place	0.10
3	Fast Food Restaurant	0.10
4	Music Store	0.05

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

	venue	freq
0	Fast Food Restaurant	0.19
1	Indian Restaurant	0.12
2	Café	0.12
3	Snack Place	0.06
4	Light Rail Station	0.06

----West Patel Nagar----

	venue	freq
0	Pizza Place	0.25
1	Metro Station	0.25
2	Juice Bar	0.25
3	Indian Restaurant	0.25
4	Vegetarian / Vegan Restaurant	0.00

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

	venue	freq
0	Hotel	0.38
1	Coffee Shop	0.08
2	Japanese Restaurant	0.04
3	Hotel Bar	0.04
4	Gym	0.04

----Yusuf Sarai----

	venue	freq
0	Indian Restaurant	0.25
1	Korean Restaurant	0.12
2	Park	0.12
3	Coffee Shop	0.12
4	Asian Restaurant	0.12

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

	venue	freq
0	Hotel	0.44

```

1      Coffee Shop  0.07
2          Buffet  0.04
3      Shopping Mall  0.04
4      Bed & Breakfast  0.04

```

```

[29]: ## 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]

```

```

[30]: ## 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

```

```

[30]:

```

	Locality	1st Most Common Venue	\
0	ARSS Mall, Paschim Vihar	Indian Restaurant	
1	Adchini	Indian Restaurant	
2	Aditya Mega Mall, Karkardooma	Pizza Place	
3	Aerocity	Hotel	
4	Aggarwal City Mall, Pitampura	Indian Restaurant	
..	

234	West Gate Mall, Rajouri Garden	Fast Food Restaurant
235	West Patel Nagar	Pizza Place
236	Worldmark 1, Aerocity	Hotel
237	Yusuf Sarai	Indian Restaurant
238	ibis New Delhi, Aerocity	Hotel

	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue \
0	ATM	Market	Coffee Shop
1	Café	Pub	Motel
2	Shopping Mall	Multiplex	Indian Restaurant
3	Fast Food Restaurant	Rental Car Location	Airport Lounge
4	Multiplex	Donut Shop	Pizza Place
..
234	Indian Restaurant	Café	Snack Place
235	Metro Station	Juice Bar	Indian Restaurant
236	Coffee Shop	Japanese Restaurant	Hotel Bar
237	Korean Restaurant	Park	Coffee Shop
238	Coffee Shop	Buffet	Shopping Mall

	5th Most Common Venue	6th Most Common Venue \
0	Chinese Restaurant	Sandwich Place
1	Movie Theater	Moving Target
2	Hotel	Café
3	Coffee Shop	Airport Terminal
4	Irani Cafe	Nightclub
..
234	Light Rail Station	Lounge
235	Vegetarian / Vegan Restaurant	Performing Arts Venue
236	Gym	Gym / Fitness Center
237	Asian Restaurant	Ice Cream Shop
238	Bed & Breakfast	Gym

	7th Most Common Venue	8th Most Common Venue \
0	Multicuisine Indian Restaurant	Pizza Place
1	Mughlai Restaurant	Multicuisine Indian Restaurant
2	Italian Restaurant	Movie Theater
3	Music Store	Neighborhood
4	Moving Target	Mughlai Restaurant
..
234	Garden	Multiplex
235	Moroccan Restaurant	Mosque
236	Bakery	Punjabi Restaurant
237	Japanese Restaurant	Jazz Club
238	Gym / Fitness Center	Bakery

	9th Most Common Venue	10th Most Common Venue
0	Korean Restaurant	Jazz Club

```

1           Multiplex           Museum
2           Moving Target       Mughlai Restaurant
3           National Park       Music Venue
4   Multicuisine Indian Restaurant   Indie Movie Theater
..           ...           ...
234          Restaurant       Shoe Store
235           Motel       Movie Theater
236          Lounge       Shopping Mall
237   Northeast Indian Restaurant   Multicuisine Indian Restaurant
238           Punjabi Restaurant       Lounge

```

[239 rows x 11 columns]

```

[31]: ## 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

```

[31]: (239,)

```

[33]: # add clustering labels
      New_Delhi_merged = df_final.head(239)
      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()

```

<ipython-input-33-31180001c6d6>: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: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy

```

      New_Delhi_merged['Cluster Labels'] = kmeans.labels_

```

[33]:

	Locality	Lat	Lng	No_of_Restaurant	\
0	ARSS Mall, Paschim Vihar	28.668945	77.101544	1	
1	Adchini	28.537063	77.197808	13	
2	Aditya Mega Mall, Karkardooma	28.656131	77.301266	4	
3	Aerocity	28.553076	77.104270	2	
4	Aggarwal City Mall, Pitampura	28.690020	77.134650	3	

	Cusines	Agg_Rating	\
0	North Indian, South Indian, Chinese, Mithai, F...	3.100000	
1	Fast Food, North Indian, Seafood, Continental,...	3.292308	
2	Finger Food, North Indian, Mughlai, Pizza, Fas...	3.275000	
3	Fast Food, Italian, Pizza, North Indian, Conti...	3.200000	
4	North Indian, Chinese, Street Food, Mithai, No...	3.033333	

	Comments	No_of_Votes	Cluster Labels	\
0	Average	117	0	
1	Average, Good, Poor, Very Good	1560	3	
2	Average, Good	434	0	
3	Average	59	4	
4	Average	126	3	

	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	\
0	Indian Restaurant	ATM	Market	
1	Indian Restaurant	Café	Pub	
2	Pizza Place	Shopping Mall	Multiplex	
3	Hotel	Fast Food Restaurant	Rental Car Location	
4	Indian Restaurant	Multiplex	Donut Shop	

	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	\
0	Coffee Shop	Chinese Restaurant	Sandwich Place	
1	Motel	Movie Theater	Moving Target	
2	Indian Restaurant	Hotel	Café	
3	Airport Lounge	Coffee Shop	Airport Terminal	
4	Pizza Place	Irani Cafe	Nightclub	

	7th Most Common Venue	8th Most Common Venue	\
0	Multicuisine Indian Restaurant	Pizza Place	
1	Mughlai Restaurant	Multicuisine Indian Restaurant	
2	Italian Restaurant	Movie Theater	
3	Music Store	Neighborhood	
4	Moving Target	Mughlai Restaurant	

	9th Most Common Venue	10th Most Common Venue
0	Korean Restaurant	Jazz Club
1	Multiplex	Museum
2	Moving Target	Mughlai Restaurant
3	National Park	Music Venue

```
[34]: # 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
```

```
[34]: <folium.folium.Map at 0x2dc5978d7c0>
```

```
[35]: ## Examine Clusters

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

```
[35]:
```

	Lat	Agg_Rating	Comments	No_of_Votes	\
0	28.668945	3.100000	Average	117	
2	28.656131	3.275000	Average, Good	434	
6	28.527088	3.117391	Average, Good, Poor	1012	
7	28.541298	3.425000	Average, Good, Very Good	2460	
11	28.562580	3.750000	Average, Good, Very Good	875	
..	
224	28.636921	2.819231	Average, Good, Poor	2265	
228	28.596073	3.052941	Average, Good	305	
233	28.695096	3.050000	Average	86	

234	28.630044	2.750000	Average, Poor	238
237	28.550257	3.220000	Average, Good	77

	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	\
0	0	Indian Restaurant	ATM	
2	0	Pizza Place	Shopping Mall	
6	0	Coffee Shop	Food & Drink Shop	
7	0	Coffee Shop	Shopping Mall	
11	0	Department Store	Comfort Food Restaurant	
..	
224	0	Fast Food Restaurant	Gift Shop	
228	0	Shopping Mall	National Park	
233	0	NaN	NaN	
234	0	Chinese Restaurant	Indian Restaurant	
237	0	Hotel	Coffee Shop	

	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	\
0	Market	Coffee Shop	Chinese Restaurant	
2	Multiplex	Indian Restaurant	Hotel	
6	Steakhouse	Market	ATM	
7	Asian Restaurant	Clothing Store	Chinese Restaurant	
11	Fast Food Restaurant	Electronics Store	Malay Restaurant	
..	
224	Playground	Mediterranean Restaurant	Dessert Shop	
228	Mosque	Motel	Movie Theater	
233	NaN	NaN	NaN	
234	Sandwich Place	Fast Food Restaurant	Music Store	
237	Japanese Restaurant	Hotel Bar	Gym	

	6th Most Common Venue	7th Most Common Venue	\
0	Sandwich Place	Multicuisine Indian Restaurant	
2	Café	Italian Restaurant	
6	National Park	Movie Theater	
7	Bar	Fast Food Restaurant	
11	Japanese Restaurant	Pedestrian Plaza	
..	
224	Office	Food & Drink Shop	
228	Moving Target	Mughlai Restaurant	
233	NaN	NaN	
234	Gym / Fitness Center	Metro Station	
237	Gym / Fitness Center	Bakery	

	8th Most Common Venue	9th Most Common Venue	\
0	Pizza Place	Korean Restaurant	
2	Movie Theater	Moving Target	
6	Moving Target	Mughlai Restaurant	
7	Café	Japanese Restaurant	

```

11          Mughlai Restaurant  Multicuisine Indian Restaurant
..          ...
224          Chinese Restaurant          Food Court
228  Multicuisine Indian Restaurant          Multiplex
233          NaN          NaN
234          BBQ Joint          Coffee Shop
237          Punjabi Restaurant          Lounge

          10th Most Common Venue
0          Jazz Club
2          Mughlai Restaurant
6  Multicuisine Indian Restaurant
7          Multiplex
11         Multiplex
..          ...
224          Café
228          Museum
233          NaN
234          Restaurant
237         Shopping Mall

```

[124 rows x 15 columns]

```

[36]: ## Examine Clusters

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

```

```

[36]:      Lat  Agg_Rating      Comments \
8    28.555599    3.800000    Average, Very Good
9    28.659870    3.281481    Average, Good
17   28.557846    3.220000    Average, Good, Poor
21   28.589797    3.085714    Average, Good, Poor
28   28.650254    3.166667    Average, Good
30   28.561898    3.100000    Average, Good
45   28.696802    3.296296    Average, Excellent, Good, Poor, Very Good
58   28.514237    4.200000    Very Good
64   28.538014    3.475000    Average, Good
79   28.631930    3.300000    Average, Good
81   28.536611    3.380000    Average, Excellent
86   28.624632    3.315217    Average, Excellent, Good, Poor, Very Good
89   28.539003    3.150000    Average, Good, Poor
91   28.556503    3.400000    Average, Good
100  28.556869    4.500000    Excellent
102  28.600492    3.802326    Average, Excellent, Good, Very Good
108  28.563827    3.800000    Good, Very Good

```

109	28.689561	3.311111	Average, Very Good
121	28.702381	3.100000	Average
122	28.535807	3.417857	Average, Good, Poor, Very Good
127	28.619410	3.134615	Average, Good, Poor
129	28.523047	2.925000	Average
135	28.579641	3.180000	Average, Good
140	28.627959	3.004167	Average
143	28.564494	3.140625	Average, Good, Very Good
147	28.523307	3.430769	Average, Good, Poor, Very Good
159	28.613748	3.900000	Average, Excellent
166	28.569093	3.175000	Average, Good, Poor, Very Good
171	28.639604	3.056410	Average, Good, Poor, Very Good
175	28.546931	3.223077	Average, Good
176	28.562460	3.269231	Average, Good, Poor, Very Good
178	28.520095	3.256250	Average, Good, Poor, Very Good
180	28.534499	3.000000	Average, Good, Poor
182	28.587918	3.541892	Average, Excellent, Good, Poor, Very Good
190	28.577107	3.100000	Average
191	28.522279	3.100000	Average
200	28.564288	3.200000	Average
203	28.601187	3.633333	Average, Good
208	28.562469	2.971429	Average, Good, Poor
214	28.561105	3.425000	Average, Good
221	28.560593	3.733333	Average, Good, Very Good
226	28.525054	3.322222	Average, Good
227	28.559704	3.278261	Average, Good, Very Good
229	28.692519	3.606452	Average, Excellent, Good, Very Good
230	28.658041	3.400000	Average
232	28.667344	3.077273	Average, Good, Poor

	No_of_Votes	Cluster Labels	1st Most Common Venue \
8	2411	1	Café
9	1309	1	Café
17	1875	1	Café
21	1617	1	African Restaurant
28	1217	1	Indian Restaurant
30	1514	1	Café
45	19479	1	Restaurant
58	1561	1	Coffee Shop
64	369	1	Café
79	168	1	Performing Arts Venue
81	883	1	Café
86	4011	1	Café
89	893	1	Pizza Place
91	346	1	Café
100	524	1	Café
102	28463	1	Café

108	1092	1	Café
109	903	1	Indian Restaurant
121	36	1	Asian Restaurant
122	12088	1	Coffee Shop
127	1648	1	Ice Cream Shop
129	26	1	Thai Restaurant
135	202	1	Pizza Place
140	326	1	Pizza Place
143	1548	1	Café
147	2412	1	Pizza Place
159	2313	1	Pool
166	2772	1	Asian Restaurant
171	5168	1	Pizza Place
175	606	1	Café
176	8739	1	Indian Restaurant
178	3917	1	Café
180	173	1	Café
182	16386	1	Deli / Bodega
190	114	1	Café
191	14	1	Thai Restaurant
200	6	1	Coffee Shop
203	1018	1	Café
208	486	1	Café
214	246	1	Café
221	615	1	Pizza Place
226	1940	1	Pizza Place
227	1043	1	Café
229	12271	1	Café
230	19	1	Café
232	939	1	Juice Bar

	2nd Most Common Venue	3rd Most Common Venue \
8	Stadium	Dessert Shop
9	Burger Joint	Burrito Place
17	Pizza Place	Coffee Shop
21	Concert Hall	Park
28	Café	Fast Food Restaurant
30	Middle Eastern Restaurant	Fast Food Restaurant
45	Café	Pizza Place
58	Garden	Italian Restaurant
64	Bakery	Restaurant
79	Art Museum	Café
81	Pizza Place	Restaurant
86	Park	Bakery
89	Soccer Stadium	Sandwich Place
91	Pizza Place	Coffee Shop
100	Indian Restaurant	Lounge

102	Indian Restaurant	Coffee Shop
108	Indian Restaurant	Hotel
109	Department Store	Basketball Court
121	Bus Station	Hotel
122	Seafood Restaurant	Pizza Place
127	Café	Sandwich Place
129	Bar	Lounge
135	South Indian Restaurant	Café
140	Snack Place	Café
143	Fast Food Restaurant	Pizza Place
147	Café	Multiplex
159	Historic Site	Museum
166	Park	Comfort Food Restaurant
171	Gym / Fitness Center	Sandwich Place
175	Market	Sandwich Place
176	Dessert Shop	Jazz Club
178	Pub	Multiplex
180	Deli / Bodega	Food & Drink Shop
182	Bistro	Plaza
190	Pizza Place	Convenience Store
191	Whisky Bar	Italian Restaurant
200	Café	Airport Service
203	Indian Restaurant	Coffee Shop
208	Fast Food Restaurant	Middle Eastern Restaurant
214	Middle Eastern Restaurant	Fast Food Restaurant
221	Fast Food Restaurant	Music Venue
226	Sandwich Place	Bank
227	Fast Food Restaurant	Coffee Shop
229	Chinese Restaurant	Coffee Shop
230	Snack Place	Burger Joint
232	ATM	Department Store

	4th Most Common Venue	5th Most Common Venue \
8	Golf Course	Hotel
9	ATM	Motel
17	Restaurant	Chinese Restaurant
21	Trail	Garden
28	Dessert Shop	Shopping Mall
30	Hotel	Italian Restaurant
45	Light Rail Station	Snack Place
58	Pub	Asian Restaurant
64	Chinese Restaurant	Sandwich Place
79	Historic Site	Clothing Store
81	BBQ Joint	Italian Restaurant
86	Gym	ATM
89	Café	Moroccan Restaurant
91	Restaurant	Chinese Restaurant

100	Nightclub	Bakery
102	Asian Restaurant	Chinese Restaurant
108	Restaurant	Market
109	Light Rail Station	Café
121	Tibetan Restaurant	Café
122	Chinese Restaurant	Donut Shop
127	Juice Bar	Wings Joint
129	Whisky Bar	Monument / Landmark
135	Department Store	Italian Restaurant
140	Indian Restaurant	Vegetarian / Vegan Restaurant
143	Sandwich Place	Indian Restaurant
147	Coffee Shop	Middle Eastern Restaurant
159	Café	Art Museum
166	Coffee Shop	Café
171	Food & Drink Shop	Bakery
175	Chinese Restaurant	Asian Restaurant
176	American Restaurant	Coffee Shop
178	Mexican Restaurant	Coffee Shop
180	ATM	Movie Theater
182	Snack Place	Salad Place
190	Gourmet Shop	Bakery
191	Historic Site	Café
200	Burger Joint	Airport
203	Asian Restaurant	Chinese Restaurant
208	Hotel	Lounge
214	Hotel	Italian Restaurant
221	Metro Station	Market
226	Bar	Café
227	Chinese Restaurant	Restaurant
229	Pizza Place	Italian Restaurant
230	Park	Burrito Place
232	Bed & Breakfast	Café

	6th Most Common Venue	7th Most Common Venue \
8	Other Great Outdoors	Coffee Shop
9	Moving Target	Mughlai Restaurant
17	Fast Food Restaurant	Middle Eastern Restaurant
21	Café	ATM
28	Middle Eastern Restaurant	Pizza Place
30	Pharmacy	Pizza Place
45	Chinese Restaurant	Coffee Shop
58	Café	Neighborhood
64	Trail	Food Court
79	Fast Food Restaurant	Udupi Restaurant
81	Park	French Restaurant
86	Motel	Movie Theater
89	Motel	Movie Theater

91	Fast Food Restaurant	Middle Eastern Restaurant
100	Mediterranean Restaurant	Gym / Fitness Center
102	Restaurant	Bar
108	Coffee Shop	Fast Food Restaurant
109	ATM	Neighborhood
121	Coffee Shop	Restaurant
122	Café	Sandwich Place
127	Airport Lounge	Mosque
129	Italian Restaurant	Historic Site
135	Japanese Restaurant	Moving Target
140	Monument / Landmark	Mosque
143	Hotel	Lounge
147	Movie Theater	Moving Target
159	Hockey Arena	History Museum
166	Restaurant	Nightclub
171	Café	Market
175	Coffee Shop	Tea Room
176	Greek Restaurant	Café
178	Light Rail Station	Fast Food Restaurant
180	Moving Target	Mughlai Restaurant
182	Café	ATM
190	ATM	Moving Target
191	ATM	National Park
200	Airport Lounge	Airport Terminal
203	Restaurant	Bar
208	Movie Theater	Diner
214	Pharmacy	Pizza Place
221	Café	Park
226	Fast Food Restaurant	Spa
227	Ice Cream Shop	Asian Restaurant
229	Pet Store	Tea Room
230	Bus Station	Art Gallery
232	Athletics & Sports	Pedestrian Plaza

	8th Most Common Venue	9th Most Common Venue \
8	Music Venue	Metro Station
9	Multicuisine Indian Restaurant	Multiplex
17	Pub	Movie Theater
21	National Park	Movie Theater
28	Clothing Store	Music Venue
30	Plaza	Coffee Shop
45	Fast Food Restaurant	Italian Restaurant
58	Movie Theater	Moving Target
64	BBQ Joint	ATM
79	Plaza	Paper / Office Supplies Store
81	Sandwich Place	Food Court
86	Moving Target	Mughlai Restaurant

89	Moving Target	Mughlai Restaurant
91	Pub	Movie Theater
100	Clothing Store	Market
102	Portuguese Restaurant	Metro Station
108	Dessert Shop	Indie Movie Theater
109	Moving Target	Mughlai Restaurant
121	ATM	National Park
122	Hotel	Gym
127	Movie Theater	Moving Target
129	Café	Museum
135	Mughlai Restaurant	Multicuisine Indian Restaurant
140	Motel	Movie Theater
143	Grocery Store	Movie Theater
147	Mughlai Restaurant	Multicuisine Indian Restaurant
159	Neighborhood	Movie Theater
166	Mughlai Restaurant	Multicuisine Indian Restaurant
171	Other Great Outdoors	Park
175	Beer Garden	Breakfast Spot
176	Mexican Restaurant	Restaurant
178	Indian Restaurant	Pizza Place
180	Multicuisine Indian Restaurant	Multiplex
182	Music Venue	Movie Theater
190	Mughlai Restaurant	Multicuisine Indian Restaurant
191	Motel	Movie Theater
200	Sandwich Place	Music Store
203	Golf Course	Mexican Restaurant
208	Grocery Store	Chinese Restaurant
214	Plaza	Coffee Shop
221	Other Nightlife	Pedestrian Plaza
226	Vegetarian / Vegan Restaurant	Dessert Shop
227	Pizza Place	Pub
229	Snack Place	Cheese Shop
230	ATM	National Park
232	Park	Pharmacy

10th Most Common Venue

8	ATM
9	Museum
17	Cocktail Bar
21	Moving Target
28	Restaurant
30	Chinese Restaurant
45	Other Nightlife
58	Mughlai Restaurant
64	Moving Target
79	National Park
81	Bakery

```

86 Multicuisine Indian Restaurant
89 Multicuisine Indian Restaurant
91 Cocktail Bar
100 Pool
102 Eastern European Restaurant
108 Performing Arts Venue
109 Multicuisine Indian Restaurant
121 Moving Target
122 Miscellaneous Shop
127 Mughlai Restaurant
129 Music Store
135 Multiplex
140 Moving Target
143 Diner
147 Museum
159 Moving Target
166 Multiplex
171 Moving Target
175 Indian Restaurant
176 Neighborhood
178 Museum
180 Museum
182 Moving Target
190 Multiplex
191 Moving Target
200 National Park
203 Eastern European Restaurant
208 Thai Restaurant
214 Chinese Restaurant
221 Moving Target
226 Chinese Restaurant
227 Cocktail Bar
229 Restaurant
230 Mughlai Restaurant
232 Mughlai Restaurant

```

```

[37]: ## Examine Clusters

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

```

```

[37]:      Lat  Agg_Rating      Comments  No_of_Votes  \
5    28.700516    3.040000    Average, Good, Poor        594
15   28.691136    3.390909    Average, Good, Very Good      485
22   28.654105    3.085714          Average           80
50   28.645084    3.235000    Average, Good, Poor, Very Good    2578

```

57	28.699837	3.376471	Average, Good, Very Good	2460
73	28.643037	3.000000	Average	7
90	28.642755	3.450000	Average, Good	322
101	28.667644	3.300000	Average	132
103	28.652501	3.080000	Average, Good, Poor	2196
104	28.656263	3.097619	Average, Good	965
107	28.569394	3.252381	Average, Good	1525
130	28.724100	3.133333	Average	325
132	28.706295	3.256000	Average, Good, Very Good	1717
152	28.544464	3.525000	Average, Very Good	231
161	28.639872	3.134483	Average, Good, Poor	1481
170	28.643757	3.575000	Average, Good	2879
181	28.571849	3.316667	Average, Good	472
188	28.707685	3.168182	Average, Good, Very Good	1668
225	28.524070	3.686364	Average, Good, Very Good	4001
231	28.637492	3.062264	Average, Good, Poor	1253

	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	\
5	2	Pizza Place	Sandwich Place	
15	2	Fast Food Restaurant	Pizza Place	
22	2	Pizza Place	Gym	
50	2	Pizza Place	Metro Station	
57	2	Pizza Place	Food Truck	
73	2	Pizza Place	Metro Station	
90	2	Pizza Place	Fast Food Restaurant	
101	2	Pizza Place	Fast Food Restaurant	
103	2	Pizza Place	Convenience Store	
104	2	Pizza Place	Park	
107	2	Pizza Place	Café	
130	2	Pizza Place	Theme Park	
132	2	Pizza Place	Donut Shop	
152	2	Pizza Place	American Restaurant	
161	2	Ice Cream Shop	Arcade	
170	2	Pizza Place	Hotel	
181	2	Fast Food Restaurant	Indian Restaurant	
188	2	Pizza Place	Gym / Fitness Center	
225	2	Dessert Shop	Pizza Place	
231	2	Fast Food Restaurant	Indian Restaurant	

	3rd Most Common Venue	4th Most Common Venue	\
5	Bus Station	Multiplex	
15	South Indian Restaurant	ATM	
22	Monument / Landmark	Mosque	
50	Donut Shop	Convenience Store	
57	National Park	Motel	
73	Donut Shop	Convenience Store	
90	Hotel	Donut Shop	

101	Bus Station	American Restaurant
103	Spa	Fish & Chips Shop
104	Accessories Store	Indian Sweet Shop
107	Fast Food Restaurant	Arcade
130	Fast Food Restaurant	Asian Restaurant
132	Bank	Restaurant
152	Bar	Event Space
161	Pizza Place	BBQ Joint
170	Coffee Shop	Fast Food Restaurant
181	Snack Place	Pizza Place
188	Convenience Store	Hotel
225	Vegetarian / Vegan Restaurant	Sandwich Place
231	Pizza Place	Indie Movie Theater

	5th Most Common Venue	6th Most Common Venue \
5	Gym / Fitness Center	Fast Food Restaurant
15	Motel	Movie Theater
22	Motel	Movie Theater
50	Coffee Shop	Fast Food Restaurant
57	Movie Theater	Moving Target
73	Coffee Shop	Fast Food Restaurant
90	Convenience Store	Coffee Shop
101	Metro Station	Historic Site
103	National Park	Movie Theater
104	Indie Movie Theater	Motel
107	Neighborhood	Restaurant
130	Shopping Mall	Music Venue
132	Coffee Shop	Fast Food Restaurant
152	Gaming Cafe	Park
161	Chinese Restaurant	Fast Food Restaurant
170	Breakfast Spot	Bar
181	Music Venue	Mosque
188	Coffee Shop	Bakery
225	Spa	Bar
231	Irani Cafe	Movie Theater

	7th Most Common Venue	8th Most Common Venue \
5	Music Venue	Movie Theater
15	Moving Target	Mughlai Restaurant
22	Moving Target	Mughlai Restaurant
50	Chinese Restaurant	Café
57	Mughlai Restaurant	Multicuisine Indian Restaurant
73	Café	Bar
90	Café	Bar
101	Moving Target	Mughlai Restaurant
103	Moving Target	Mughlai Restaurant
104	Movie Theater	Moving Target

107	Sporting Goods Shop	Market
130	Mosque	Motel
132	Paper / Office Supplies Store	National Park
152	Paper / Office Supplies Store	Movie Theater
161	Paper / Office Supplies Store	Other Nightlife
170	Light Rail Station	Indian Restaurant
181	Motel	Movie Theater
188	Moving Target	Mughlai Restaurant
225	Fast Food Restaurant	Chinese Restaurant
231	Moving Target	Mughlai Restaurant
	9th Most Common Venue	10th Most Common Venue
5	Moving Target	Mughlai Restaurant
15	Multicuisine Indian Restaurant	Multiplex
22	Multicuisine Indian Restaurant	Multiplex
50	Bar	Ice Cream Shop
57	Multiplex	Museum
73	Ice Cream Shop	Indian Restaurant
90	Ice Cream Shop	Smoke Shop
101	Multicuisine Indian Restaurant	Multiplex
103	Multicuisine Indian Restaurant	Multiplex
104	Mughlai Restaurant	Multicuisine Indian Restaurant
107	Coffee Shop	Chinese Restaurant
130	Movie Theater	Moving Target
132	Moving Target	Mughlai Restaurant
152	Moving Target	Mughlai Restaurant
161	Pet Store	Moving Target
170	Korean Restaurant	North Indian Restaurant
181	Moving Target	Mughlai Restaurant
188	Multicuisine Indian Restaurant	Multiplex
225	National Park	Moving Target
231	Multicuisine Indian Restaurant	Multiplex

```
[38]: ## Examine Clusters

## Cluster 4
New_Delhi_merged.loc[New_Delhi_merged['Cluster Labels'] ==3 , New_Delhi_merged.
↪columns[[1] + list(range(5, New_Delhi_merged.shape[1]))]]
```

[38]:	Lat	Agg_Rating	Comments \
1	28.537063	3.292308	Average, Good, Poor, Very Good
4	28.690020	3.033333	Average
23	28.656414	3.358182	Average, Good, Very Good
33	28.657388	3.320000	Average, Good
42	28.576161	2.983333	Average, Good, Poor
43	28.643320	3.287500	Average, Good, Poor, Very Good
47	28.681582	3.046875	Average, Good, Poor

55	28.617102	4.200000	Very Good
71	28.641003	3.650000	Average, Good
85	28.648885	3.561111	Average, Good, Very Good
92	28.584294	3.100000	Average
97	28.662972	3.533333	Average, Very Good
98	28.651527	3.490909	Average, Good, Very Good
113	28.541242	2.984615	Average
116	28.486576	2.950000	Average
118	28.646549	3.200000	Average
120	28.673708	3.133333	Average
126	28.602860	2.973214	Average, Good, Poor
153	28.608055	3.860000	Average, Good, Very Good
156	28.630734	3.185714	Average, Good
160	28.712975	3.066667	Average
165	28.539464	2.900000	Average
186	28.548922	3.715385	Average, Excellent, Good, Poor, Very Good
209	28.631362	3.537500	Average, Good
223	28.619954	2.905714	Average, Poor
235	28.652978	3.500000	Good

	No_of_Votes	Cluster Labels	1st Most Common Venue \
1	1560	3	Indian Restaurant
4	126	3	Indian Restaurant
23	6668	3	Indian Restaurant
33	636	3	Indian Restaurant
42	542	3	Indian Restaurant
43	2570	3	Indian Restaurant
47	1224	3	Indian Restaurant
55	3010	3	Indian Restaurant
71	367	3	Indian Restaurant
85	7411	3	Indian Restaurant
92	35	3	Indian Restaurant
97	293	3	Indian Restaurant
98	3222	3	Indian Restaurant
113	817	3	Indian Restaurant
116	8	3	Indian Restaurant
118	20	3	Indian Restaurant
120	113	3	Indian Restaurant
126	1831	3	Indian Restaurant
153	7978	3	Indian Restaurant
156	244	3	Indian Restaurant
160	121	3	Indian Restaurant
165	14	3	Indian Restaurant
186	2882	3	Indian Restaurant
209	1666	3	Indian Restaurant
223	242	3	Indian Restaurant
235	178	3	Fast Food Restaurant

	2nd Most Common Venue	3rd Most Common Venue \
1	Café	Pub
4	Multiplex	Donut Shop
23	Snack Place	Market
33	Pizza Place	Hotel
42	Fast Food Restaurant	Pizza Place
43	Hotel	Hostel
47	Gym	Café
55	National Park	Mosque
71	Soccer Stadium	Movie Theater
85	Mosque	Frozen Yogurt Shop
92	Metro Station	Bakery
97	Vegetarian / Vegan Restaurant	Fried Chicken Joint
98	Pizza Place	Food Truck
113	Bakery	Fast Food Restaurant
116	Art Museum	Furniture / Home Store
118	Restaurant	Hotel
120	Hotel	Smoke Shop
126	Gym / Fitness Center	Pizza Place
153	Smoke Shop	Ice Cream Shop
156	Pizza Place	Market
160	Pizza Place	Whisky Bar
165	Restaurant	Hotel
186	Australian Restaurant	Shoe Store
209	Bakery	Hotel Bar
223	ATM	Accessories Store
235	Indian Restaurant	Café

	4th Most Common Venue	5th Most Common Venue \
1	Motel	Movie Theater
4	Pizza Place	Irani Cafe
23	Dessert Shop	Smoke Shop
33	Shopping Mall	Music Venue
42	Dessert Shop	Restaurant
43	Restaurant	Movie Theater
47	Mosque	Movie Theater
55	Motel	Movie Theater
71	Hotel	Hostel
85	Metro Station	Flea Market
92	Record Shop	National Park
97	Moving Target	Music Venue
98	Train Station	National Park
113	Soccer Stadium	Pizza Place
116	Performing Arts Venue	National Park
118	Road	Music Venue
120	Music Venue	Moroccan Restaurant

126	Indie Movie Theater	Irani Cafe
153	Restaurant	Cafeteria
156	Café	Shopping Mall
160	Monument / Landmark	Mosque
165	Food Truck	Modern European Restaurant
186	Comedy Club	Stadium
209	Asian Restaurant	ATM
223	Vietnamese Restaurant	Molecular Gastronomy Restaurant
235	Snack Place	Light Rail Station

	6th Most Common Venue	7th Most Common Venue \
1	Moving Target	Mughlai Restaurant
4	Nightclub	Moving Target
23	Train Station	Paper / Office Supplies Store
33	Mosque	Motel
42	Market	Moving Target
43	Road	Asian Restaurant
47	Moving Target	Mughlai Restaurant
55	Moving Target	Mughlai Restaurant
71	Road	Music Venue
85	Music Venue	Movie Theater
92	Motel	Movie Theater
97	Mosque	Motel
98	Motel	Movie Theater
113	Japanese Restaurant	Neighborhood
116	Motel	Movie Theater
118	Motel	Movie Theater
120	Mosque	Motel
126	Motel	Movie Theater
153	Art Gallery	Snack Place
156	Gift Shop	Dessert Shop
160	Motel	Movie Theater
165	Moroccan Restaurant	Japanese Restaurant
186	Bar	ATM
209	National Park	Motel
223	Moroccan Restaurant	Mosque
235	Lounge	Garden

	8th Most Common Venue	9th Most Common Venue \
1	Multicuisine Indian Restaurant	Multiplex
4	Mughlai Restaurant	Multicuisine Indian Restaurant
23	Restaurant	Music Venue
33	Movie Theater	Moving Target
42	Mughlai Restaurant	Multicuisine Indian Restaurant
43	ATM	Music Venue
47	Multicuisine Indian Restaurant	Multiplex
55	Multicuisine Indian Restaurant	Multiplex

71	Motel	Moving Target
85	Moving Target	Mughlai Restaurant
92	Moving Target	Mughlai Restaurant
97	Movie Theater	Mughlai Restaurant
98	Moving Target	Mughlai Restaurant
113	Moving Target	Mughlai Restaurant
116	Moving Target	Mughlai Restaurant
118	Moving Target	Mughlai Restaurant
120	Movie Theater	Moving Target
126	Moving Target	Mughlai Restaurant
153	Chinese Restaurant	Playground
156	Juice Bar	Nightclub
160	Moving Target	Mughlai Restaurant
165	Neighborhood	Irani Cafe
186	Movie Theater	Moving Target
209	Movie Theater	Moving Target
223	Motel	Movie Theater
235	Multiplex	Restaurant

10th Most Common Venue

1	Museum
4	Indie Movie Theater
23	Motel
33	Mughlai Restaurant
42	Multiplex
43	Motel
47	Museum
55	Museum
71	Mughlai Restaurant
85	Multicuisine Indian Restaurant
92	Multicuisine Indian Restaurant
97	Multicuisine Indian Restaurant
98	Multicuisine Indian Restaurant
113	Multicuisine Indian Restaurant
116	Multicuisine Indian Restaurant
118	Multicuisine Indian Restaurant
120	Mughlai Restaurant
126	Multicuisine Indian Restaurant
153	Vegetarian / Vegan Restaurant
156	Mughlai Restaurant
160	Multicuisine Indian Restaurant
165	Mughlai Restaurant
186	Mughlai Restaurant
209	Mughlai Restaurant
223	Moving Target
235	Shoe Store

```
[39]: ## Examine Clusters

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

```
[39]:
```

	Lat	Agg_Rating	Comments	No_of_Votes	\
3	28.553076	3.200000	Average	59	
10	28.554807	3.000000	Average	4	
19	28.548827	2.700000	Average	9	
35	28.590297	3.350000	Average, Good	127	
56	28.570246	4.050000	Average, Excellent	1949	
60	28.665829	4.000000	Very Good	756	
69	28.550327	3.300000	Average	30	
70	28.590654	3.550000	Average, Good	302	
83	28.552895	3.300000	Average	15	
111	28.618772	3.666667	Average, Good, Very Good	725	
112	28.552036	3.500000	Good	26	
119	28.545033	2.960000	Average, Good	259	
128	28.608252	2.945000	Average, Good	406	
149	28.642910	2.996552	Average, Good, Poor, Very Good	2850	
162	28.725814	3.050000	Average	50	
163	28.552711	3.100000	Average	7	
168	28.543814	3.950000	Average, Excellent, Good, Very Good	1225	
169	28.667261	3.200000	Average	76	
174	28.550802	3.250000	Average, Good	34	
197	28.592724	2.985714	Average	560	
217	28.535183	3.066667	Average	37	
236	28.648177	3.675000	Average, Good, Very Good	876	
238	28.559928	3.075000	Average, Good	923	

	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	\
3	4	Hotel	Fast Food Restaurant	
10	4	Hotel	Coffee Shop	
19	4	Hotel	Indian Restaurant	
35	4	Hotel	Indian Restaurant	
56	4	Hotel	Café	
60	4	Hotel	Indian Restaurant	
69	4	Hotel	Coffee Shop	
70	4	Hotel	Restaurant	
83	4	Hotel	Coffee Shop	
111	4	Hotel	Indian Restaurant	
112	4	Hotel	Coffee Shop	
119	4	Hotel	Indian Restaurant	
128	4	Hotel	Light Rail Station	
149	4	Hotel	Indian Restaurant	
162	4	Café	Hotel	

163	4	Hotel	Coffee Shop
168	4	Hotel	Thai Restaurant
169	4	Hotel	Indian Restaurant
174	4	Hotel	Coffee Shop
197	4	Hotel	Department Store
217	4	Hotel	Indian Restaurant
236	4	Pizza Place	Metro Station
238	4	Indian Restaurant	Korean Restaurant

	3rd Most Common Venue	4th Most Common Venue \
3	Rental Car Location	Airport Lounge
10	Buffet	Bakery
19	Hotel Bar	Buffet
35	American Restaurant	Department Store
56	Sculpture Garden	Neighborhood
60	BBQ Joint	Café
69	Japanese Restaurant	Hotel Bar
70	Arcade	Market
83	Buffet	Shopping Mall
111	Restaurant	Spa
112	Buffet	Shopping Mall
119	Bed & Breakfast	Shoe Store
128	Health & Beauty Service	ATM
149	Restaurant	Hostel
162	ATM	Motel
163	Lounge	Buffet
168	Indian Restaurant	Plaza
169	Fast Food Restaurant	Food Truck
174	Italian Restaurant	Hotel Bar
197	Restaurant	Asian Restaurant
217	National Park	Mosque
236	Juice Bar	Indian Restaurant
238	Park	Coffee Shop

	5th Most Common Venue	6th Most Common Venue \
3	Coffee Shop	Airport Terminal
10	Gym / Fitness Center	Bed & Breakfast
19	Bed & Breakfast	Shoe Store
35	Restaurant	Liquor Store
56	Gym	ATM
60	Bank	Asian Restaurant
69	Gym	Gym / Fitness Center
70	Bakery	Liquor Store
83	Bed & Breakfast	Gym
111	Cocktail Bar	Coffee Shop
112	Bed & Breakfast	Gym
119	Thai Restaurant	Spa

128	Neighborhood	Motel
149	Breakfast Spot	Fast Food Restaurant
162	Movie Theater	Moving Target
163	Shopping Mall	Bed & Breakfast
168	American Restaurant	Spa
169	Coffee Shop	Movie Theater
174	Bakery	Punjabi Restaurant
197	Indian Restaurant	Market
217	Motel	Movie Theater
236	Vegetarian / Vegan Restaurant	Performing Arts Venue
238	Asian Restaurant	Ice Cream Shop

	7th Most Common Venue	8th Most Common Venue \
3	Music Store	Neighborhood
10	Punjabi Restaurant	Lounge
19	Accessories Store	Paper / Office Supplies Store
35	Asian Restaurant	Arcade
56	Motel	Movie Theater
60	Movie Theater	Moving Target
69	Bakery	Punjabi Restaurant
70	Asian Restaurant	Light Rail Station
83	Gym / Fitness Center	Bakery
111	Lounge	Hotel Pool
112	Gym / Fitness Center	Bakery
119	American Restaurant	Plaza
128	Movie Theater	Moving Target
149	Motel	Café
162	Mughlai Restaurant	Multicuisine Indian Restaurant
163	Gym	Gym / Fitness Center
168	National Park	Motel
169	Moving Target	Mughlai Restaurant
174	Lounge	Bed & Breakfast
197	Bakery	American Restaurant
217	Moving Target	Mughlai Restaurant
236	Moroccan Restaurant	Mosque
238	Japanese Restaurant	Jazz Club

	9th Most Common Venue	10th Most Common Venue
3	National Park	Music Venue
10	Gym	Multicuisine Indian Restaurant
19	Park	Pedestrian Plaza
35	Pizza Place	Juice Bar
56	Moving Target	Mughlai Restaurant
60	Mughlai Restaurant	Multicuisine Indian Restaurant
69	Lounge	Shopping Mall
70	Pizza Place	American Restaurant
83	Punjabi Restaurant	Lounge

111	Italian Restaurant	Paper / Office Supplies Store
112	Punjabi Restaurant	Lounge
119	Hotel Bar	Accessories Store
128	Mughlai Restaurant	Multicuisine Indian Restaurant
149	Snack Place	Chinese Restaurant
162	Multiplex	Museum
163	Bakery	Punjabi Restaurant
168	Movie Theater	Moving Target
169	Multicuisine Indian Restaurant	Multiplex
174	Gym	Train Station
197	Arcade	Light Rail Station
217	Multicuisine Indian Restaurant	Multiplex
236	Motel	Movie Theater
238	Northeast Indian Restaurant	Multicuisine Indian Restaurant

1.11.1 Conclusion

- Chanakyapuri, Pitampura, Safdarjung are some of the best neighborhoods for Chinese cuisine.
- Panchsheel park, Nehru place have the best Chinese Restaurant.
- 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.

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