Zomato Dataset Exploratory Data Analysis

In [1]:
```
#importing required libraries
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
```

In [2]:
```
df = pd.read_csv(r"C://Users//Shivanand/Downloads//Zomatodataset//zomato.csv",encoding
```

In [3]:
```
df.head()
```

Out[3]:

	Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Locality Verbose	Longitude
0	6317637	Le Petit Souffle	162	Makati City	Third Floor, Century City Mall, Kalayaan Avenu...	Century City Mall, Poblacion, Makati City	Century City Mall, Poblacion, Makati City, Mak...	121.027535
1	6304287	Izakaya Kikufuji	162	Makati City	Little Tokyo, 2277 Chino Roces Avenue, Legaspi...	Little Tokyo, Legaspi Village, Makati City	Little Tokyo, Legaspi Village, Makati City, Ma...	121.014101
2	6300002	Heat - Edsa Shangri-La	162	Mandaluyong City	Edsa Shangri-La, 1 Garden Way, Ortigas, Mandal...	Edsa Shangri-La, Ortigas, Mandaluyong City	Edsa Shangri-La, Ortigas, Mandaluyong City, Ma...	121.056831
3	6318506	Ooma	162	Mandaluyong City	Third Floor, Mega Fashion Hall, SM Megamall, O...	SM Megamall, Ortigas, Mandaluyong City	SM Megamall, Ortigas, Mandaluyong City, Mandal...	121.056475
4	6314302	Sambo Kojin	162	Mandaluyong City	Third Floor, Mega Atrium, SM Megamall, Ortigas...	SM Megamall, Ortigas, Mandaluyong City	SM Megamall, Ortigas, Mandaluyong City, Mandal...	121.057508

5 rows × 21 columns

In [4]:
```
df.tail()
```

Out[4]:

	Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Locality Verbose	Longitu
9546	5915730	NamlÛ± Gurme	208	ÛÁstanbul	Kemanke ô Karamustafa Pa ôa Mahallesi, RÛ±htÛ±...	Karakí_y	Karakí_y, ÛÁstanbul	28.9773
9547	5908749	Ceviz AÛôacÛ±	208	ÛÁstanbul	Ko ôuyolu Mahallesi, Muhittin îístí_ndaÛô Cadd...	Ko ôuyolu	Ko ôuyolu, ÛÁstanbul	29.0412
9548	5915807	Huqqa	208	ÛÁstanbul	Kuruí_e ôme Mahallesi, Muallim Naci Caddesi, N...	Kuruí_e ôme	Kuruí_e ôme, ÛÁstanbul	29.0346
9549	5916112	A ô ôk Kahve	208	ÛÁstanbul	Kuruí_e ôme Mahallesi, Muallim Naci Caddesi, N...	Kuruí_e ôme	Kuruí_e ôme, ÛÁstanbul	29.0360
9550	5927402	Walter's Coffee Roastery	208	ÛÁstanbul	CafeaÛôa Mahallesi, BademaltÛ± Sokak, No 21/B,...	Moda	Moda, ÛÁstanbul	29.0260

5 rows × 21 columns

In [5]:
```
df.columns
```

Out[5]:
```
Index(['Restaurant ID', 'Restaurant Name', 'Country Code', 'City', 'Address',
       'Locality', 'Locality Verbose', 'Longitude', 'Latitude', 'Cuisines',
       'Average Cost for two', 'Currency', 'Has Table booking',
       'Has Online delivery', 'Is delivering now', 'Switch to order menu',
       'Price range', 'Aggregate rating', 'Rating color', 'Rating text',
       'Votes'],
      dtype='object')
```

In [6]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 9551 entries, 0 to 9550
Data columns (total 21 columns):
 #   Column                Non-Null Count  Dtype  
---  ------                --------------  -----  
 0   Restaurant ID         9551 non-null   int64  
 1   Restaurant Name       9551 non-null   object 
 2   Country Code          9551 non-null   int64  
 3   City                  9551 non-null   object 
 4   Address               9551 non-null   object 
 5   Locality              9551 non-null   object 
 6   Locality Verbose      9551 non-null   object 
 7   Longitude             9551 non-null   float64
 8   Latitude              9551 non-null   float64
```

```
 9   Cuisines              9542 non-null   object
 10  Average Cost for two  9551 non-null   int64
 11  Currency              9551 non-null   object
 12  Has Table booking     9551 non-null   object
 13  Has Online delivery   9551 non-null   object
 14  Is delivering now     9551 non-null   object
 15  Switch to order menu  9551 non-null   object
 16  Price range           9551 non-null   int64
 17  Aggregate rating      9551 non-null   float64
 18  Rating color          9551 non-null   object
 19  Rating text           9551 non-null   object
 20  Votes                 9551 non-null   int64
dtypes: float64(3), int64(5), object(13)
memory usage: 1.5+ MB
```

In [7]:
```
df.describe()
```

Out[7]:

	Restaurant ID	Country Code	Longitude	Latitude	Average Cost for two	Price range	Aggregate rating	
count	9.551000e+03	9551.000000	9551.000000	9551.000000	9551.000000	9551.000000	9551.000000	95
mean	9.051128e+06	18.365616	64.126574	25.854381	1199.210763	1.804837	2.666370	1
std	8.791521e+06	56.750546	41.467058	11.007935	16121.183073	0.905609	1.516378	4
min	5.300000e+01	1.000000	-157.948486	-41.330428	0.000000	1.000000	0.000000	
25%	3.019625e+05	1.000000	77.081343	28.478713	250.000000	1.000000	2.500000	
50%	6.004089e+06	1.000000	77.191964	28.570469	400.000000	2.000000	3.200000	
75%	1.835229e+07	1.000000	77.282006	28.642758	700.000000	2.000000	3.700000	1
max	1.850065e+07	216.000000	174.832089	55.976980	800000.000000	4.000000	4.900000	10

In [13]:
```
df.shape
```

Out[13]:
```
(9551, 21)
```

In [8]:
```
df.isnull().sum()
```

Out[8]:
```
Restaurant ID         0
Restaurant Name       0
Country Code          0
City                  0
Address               0
Locality              0
Locality Verbose      0
Longitude             0
Latitude              0
Cuisines              9
Average Cost for two  0
Currency              0
Has Table booking     0
Has Online delivery   0
Is delivering now     0
Switch to order menu  0
Price range           0
Aggregate rating      0
Rating color          0
```

```
Rating text           0
Votes                 0
dtype: int64
```

In [9]:
```
[features for features in df.columns if df[features].isnull().sum()>0]
```

Out[9]:
```
['Cuisines']
```

In [15]:
```
df_country=pd.read_excel(r"C:\Users\Shivanand\Downloads\Zomatodataset\Country-Code.xls
```

In [16]:
```
df_country.head()
```

Out[16]:

	Country Code	Country
0	1	India
1	14	Australia
2	30	Brazil
3	37	Canada
4	94	Indonesia

In [18]:
```
final_df = pd.merge(df,df_country,on='Country Code',how='left')
```

In [20]:
```
final_df.head(2)
```

Out[20]:

	Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Locality Verbose	Longitude	Latitude	
0	6317637	Le Petit Souffle	162	Makati City	Third Floor, Century City Mall, Kalayaan Avenu...	Century City Mall, Poblacion, Makati City	Century City Mall, Poblacion, Makati City, Mak...	121.027535	14.565443	Ja
1	6304287	Izakaya Kikufuji	162	Makati City	Little Tokyo, 2277 Chino Roces Avenue, Legaspi...	Little Tokyo, Legaspi Village, Makati City	Little Tokyo, Legaspi Village, Makati City, Ma...	121.014101	14.553708	J

2 rows × 22 columns

In [21]:
```
final_df.dtypes
```

Out[21]:
```
Restaurant ID         int64
Restaurant Name      object
Country Code          int64
City                 object
```

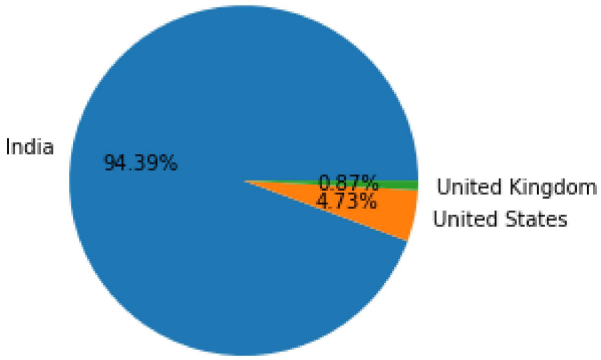
```
Address                 object
Locality                object
Locality Verbose        object
Longitude              float64
Latitude               float64
Cuisines                object
Average Cost for two     int64
Currency                object
Has Table booking       object
Has Online delivery     object
Is delivering now       object
Switch to order menu    object
Price range              int64
Aggregate rating       float64
Rating color            object
Rating text             object
Votes                    int64
Country                 object
dtype: object
```

In [23]:
```
country_names = final_df.Country.value_counts().index
```

In [26]:
```
country_val = final_df.Country.value_counts().values
```

In [32]:
```
plt.pie(country_val[:3],labels=country_names[:3],autopct="%1.2f%%")
```

Out[32]:
```
([<matplotlib.patches.Wedge at 0x195105fa1c0>,
  <matplotlib.patches.Wedge at 0x195105fa940>,
  <matplotlib.patches.Wedge at 0x195105fafd0>],
 [Text(-1.0829742700952103, 0.19278674827836725, 'India'),
  Text(1.077281715838356, -0.22240527134123297, 'United States'),
  Text(1.0995865153823035, -0.03015783794312073, 'United Kingdom')],
 [Text(-0.590713238233751, 0.10515640815183668, '94.39%'),
  Text(0.5876082086391032, -0.12131196618612707, '4.73%'),
  Text(0.5997744629358018, -0.01644972978715676, '0.87%')])
```



observation: Zomato maximum records or transaction are from india after that USA and then United kingdom

In [33]:
```
final_df.columns
```

Out[33]:
```
Index(['Restaurant ID', 'Restaurant Name', 'Country Code', 'City', 'Address',
       'Locality', 'Locality Verbose', 'Longitude', 'Latitude', 'Cuisines',
       'Average Cost for two', 'Currency', 'Has Table booking',
       'Has Online delivery', 'Is delivering now', 'Switch to order menu',
```

```
       'Price range', 'Aggregate rating', 'Rating color', 'Rating text',
       'Votes', 'Country'],
      dtype='object')
```

In [41]:
```
ratings=final_df.groupby(['Aggregate rating','Rating color','Rating text']).size().res
```

Observations

1. when Rating is between 4.5 to 4.9 ------> Excellent
2. when Rating is between 4.0 to 3.4 ------> Very good
3. when Rating is between 3.5 to 3.9 ------> Good
4. when Rating is between 3.0 to 3.4 ------> Average
5. when Rating is between 2.5 to 2.9 ------> Excellent
6. when Rating is between 1.8 to 2.4 ------> Poor
7. when Rating is between 0 ------> Not Rated

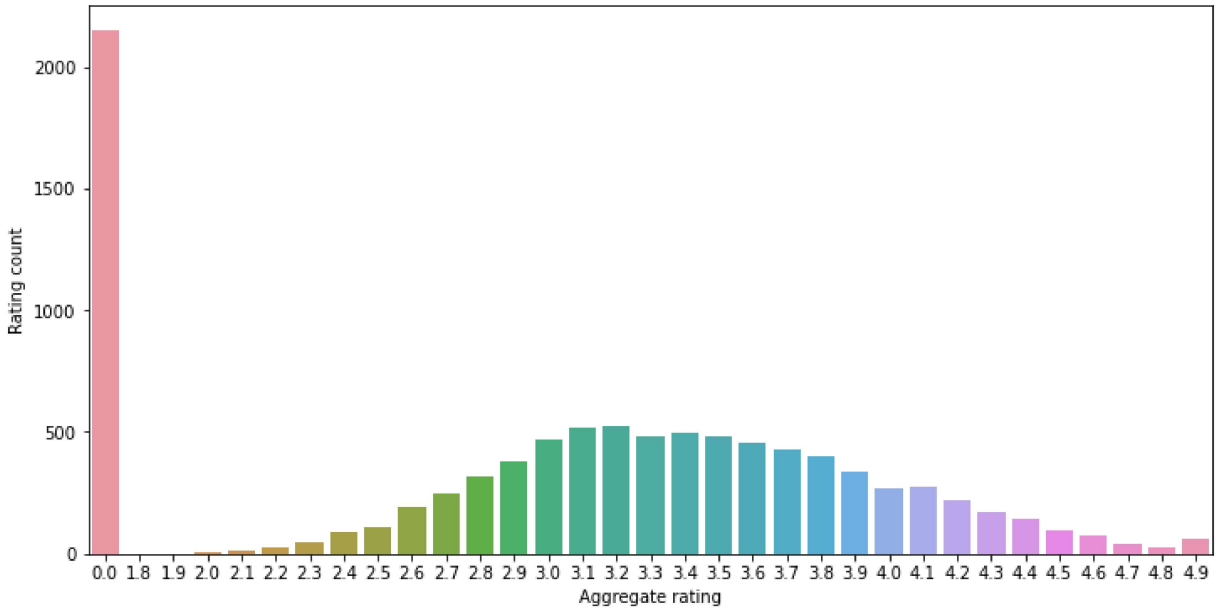
In [44]:
```
ratings.head()
```

Out[44]:

	Aggregate rating	Rating color	Rating text	Rating count
0	0.0	White	Not rated	2148
1	1.8	Red	Poor	1
2	1.9	Red	Poor	2
3	2.0	Red	Poor	7
4	2.1	Red	Poor	15

In [48]:
```
import matplotlib
matplotlib.rcParams['figure.figsize']=(12,6)
sns.barplot(x="Aggregate rating",y="Rating count",data=ratings)
```

Out[48]:
```
<AxesSubplot:xlabel='Aggregate rating', ylabel='Rating count'>
```

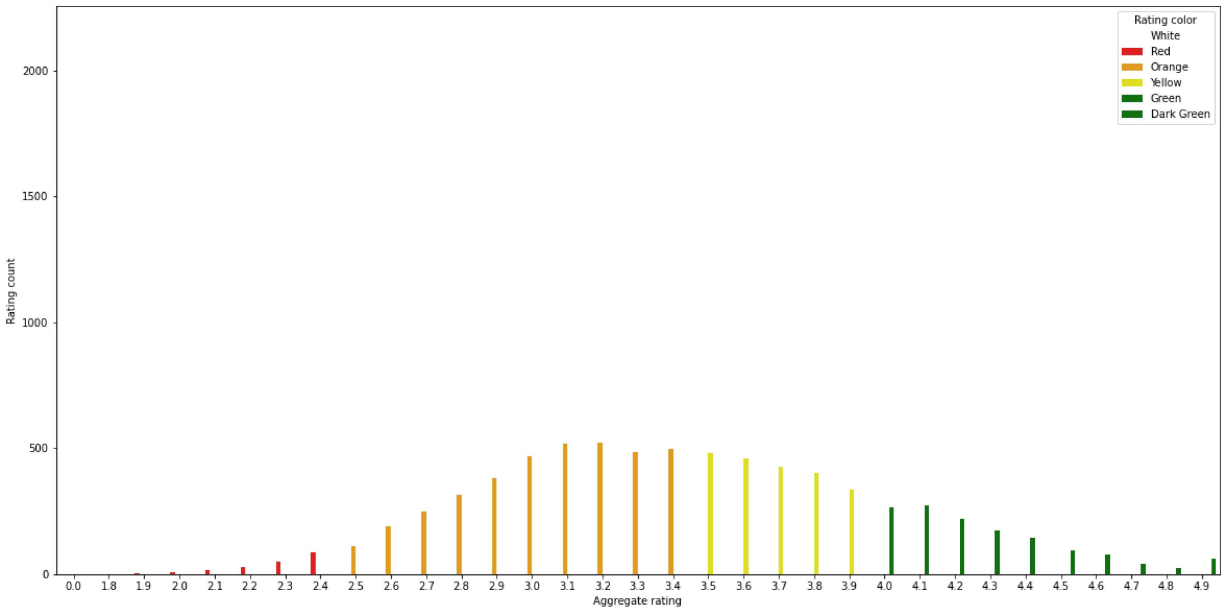


In [53]:

```
sns.barplot(x="Aggregate rating",y="Rating count",hue="Rating color",data=ratings,pale
```

Out[53]:

```
<AxesSubplot:xlabel='Aggregate rating', ylabel='Rating count'>
```



Observations:

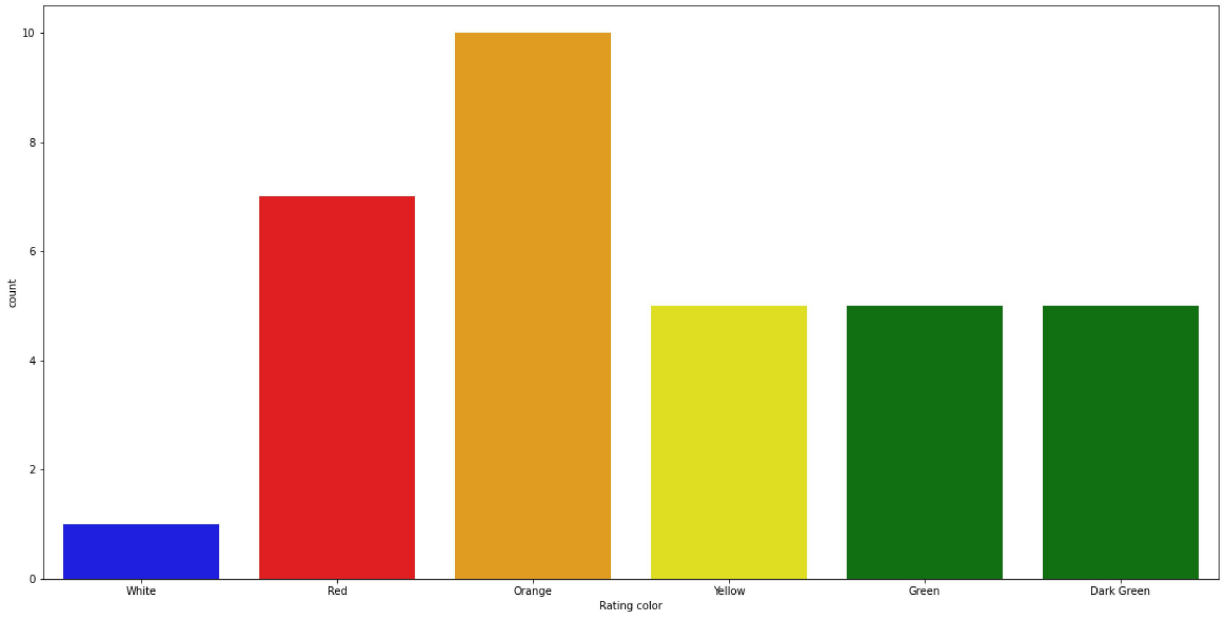
1. Not Rated count is very high
2. Maximum number of ratings 2.5 to 3.4

In [55]:

```
#count plot
sns.countplot(x="Rating color",data=ratings,palette=['blue','red','orange','yellow','g
```

Out[55]:

```
<AxesSubplot:xlabel='Rating color', ylabel='count'>
```



In [86]:

```
final_df.groupby(['Aggregate rating','Country']).size().reset_index().head()
```

Out[86]:

	Aggregate rating	Country	0
0	0.0	Brazil	5
1	0.0	India	2139

	Aggregate rating	Country	0
2	0.0	United Kingdom	1
3	0.0	United States	3
4	1.8	India	1

In [67]:
```
#country wise there currency.....

final_df.groupby(['Country','Currency']).size().reset_index()
```

Out[67]:

	Country	Currency	0
0	Australia	Dollar($)	24
1	Brazil	Brazilian Real(R$)	60
2	Canada	Dollar($)	4
3	India	Indian Rupees(Rs.)	8652
4	Indonesia	Indonesian Rupiah(IDR)	21
5	New Zealand	NewZealand($)	40
6	Phillipines	Botswana Pula(P)	22
7	Qatar	Qatari Rial(QR)	20
8	Singapore	Dollar($)	20
9	South Africa	Rand(R)	60
10	Sri Lanka	Sri Lankan Rupee(LKR)	20
11	Turkey	Turkish Lira(TL)	34
12	UAE	Emirati Diram(AED)	60
13	United Kingdom	Pounds(£)	80
14	United States	Dollar($)	434

In [88]:
```
#which country has online delivery and which has not.........

final_df.groupby(['Country','Has Online delivery']).size().reset_index()
```

Out[88]:

	Country	Has Online delivery	0
0	Australia	No	24
1	Brazil	No	60
2	Canada	No	4
3	India	No	6229
4	India	Yes	2423
5	Indonesia	No	21
6	New Zealand	No	40
7	Phillipines	No	22
8	Qatar	No	20

	Country	Has Online delivery	0
9	Singapore	No	20
10	South Africa	No	60
11	Sri Lanka	No	20
12	Turkey	No	34
13	UAE	No	32
14	UAE	Yes	28
15	United Kingdom	No	80
16	United States	No	434

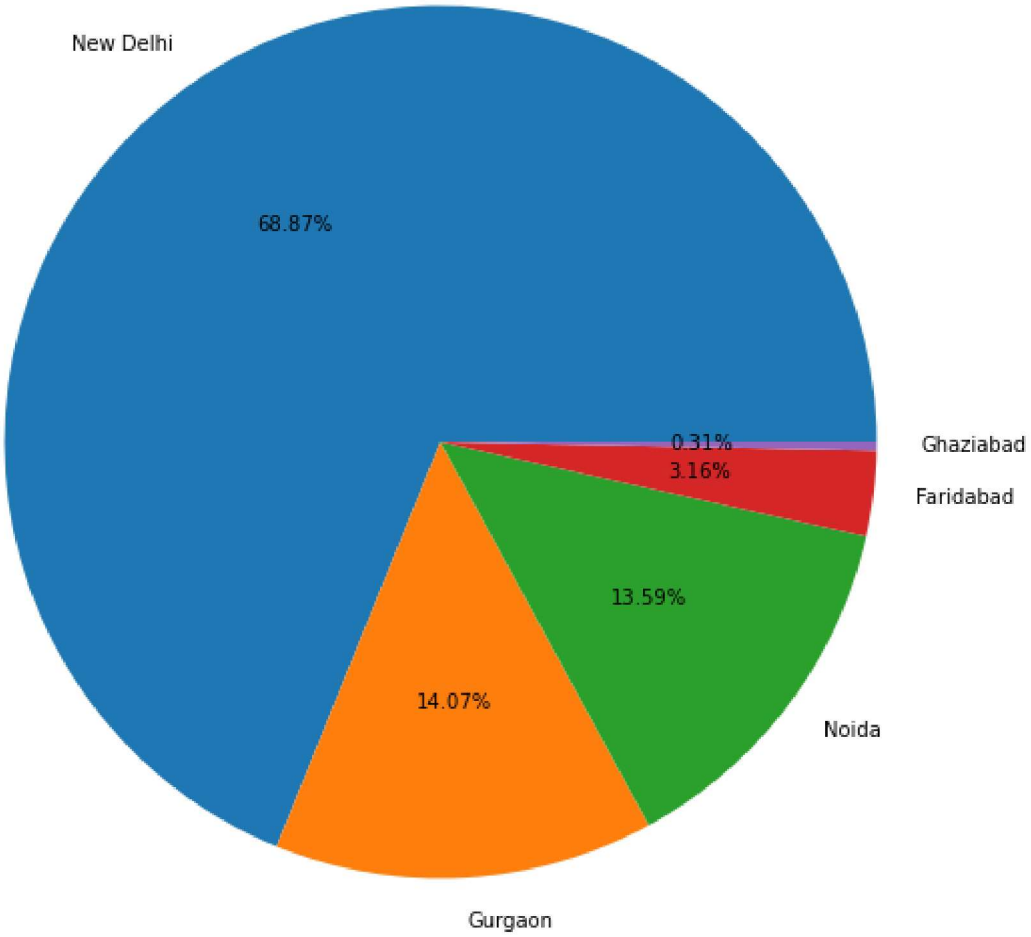
Observations :

1. Online Deliveries are available in India and UAE

In [89]:
```
City_names = final_df.City.value_counts().index
City_val = final_df.City.value_counts().values
```

In [92]:
```
plt.pie(City_val[:5],labels=City_names[:5],autopct="%1.2f%%")
```

Out[92]:
```
([<matplotlib.patches.Wedge at 0x1951344f040>,
  <matplotlib.patches.Wedge at 0x1951344f7c0>,
  <matplotlib.patches.Wedge at 0x1951344fee0>,
  <matplotlib.patches.Wedge at 0x1951345c640>,
  <matplotlib.patches.Wedge at 0x1951345cd60>],
 [Text(-0.6145352824185932, 0.9123301960708633, 'New Delhi'),
  Text(0.0623675251198054, -1.0982305276263407, 'Gurgaon'),
  Text(0.8789045225625368, -0.6614581167535246, 'Noida'),
  Text(1.0922218418223437, -0.13058119407559224, 'Faridabad'),
  Text(1.099946280005612, -0.010871113182029924, 'Ghaziabad')],
 [Text(-0.3352010631374145, 0.497634652402289, '68.87%'),
  Text(0.0340186500653484, -0.5990348332507311, '14.07%'),
  Text(0.47940246685229276, -0.36079533641101336, '13.59%'),
  Text(0.5957573682667329, -0.07122610585941394, '3.16%'),
  Text(0.5999706981848791, -0.005929698099289049, '0.31%')])
```


New Delhi
68.87%
0.31%
Ghaziabad
3.16%
Faridabad
13.59%
14.07%
Noida
Gurgaon

In [ ]: