In [128…
```python
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

In [191…
```python
df_country=pd.read_excel(r"C:\Users\Thamil\Downloads\Zomato\Zomato\Country-Code.xlsx")
df_country.head(3)
```

Out[191…

	Country Code	Country
0	1	India
1	14	Australia
2	30	Brazil

In [192…
```python
df_zomato = pd.read_csv(r"C:\Users\Thamil\Downloads\Zomato\Zomato\zomato.csv",encoding='latin1')
df_zomato.head(2)
```

Out[192…

	Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Locality Verbose	Longitude	Latitude	Cuisines	...	Currency	Has Table booking	Has Online delivery	Is delivering now	Switch to order menu	Price range	Aggregate rating	Rating color	Rating text	Votes
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	French, Japanese, Desserts	...	Botswana Pula(P)	Yes	No	No	No	3	4.8	Dark Green	Excellent	314
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	Japanese	...	Botswana Pula(P)	Yes	No	No	No	3	4.5	Dark Green	Excellent	591

2 rows × 21 columns

In [193…
```python
df_zomato.shape
```

Out[193…
```
(9551, 21)
```

In [194…
```python
df_zomato.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 [195…
```python
df_zomato.describe()
```

Out[195…

	Restaurant ID	Country Code	Longitude	Latitude	Average Cost for two	Price range	Aggregate rating	Votes
count	9.551000e+03	9551.000000	9551.000000	9551.000000	9551.000000	9551.000000	9551.000000	9551.000000
mean	9.051128e+06	18.365616	64.126574	25.854381	1199.210763	1.804837	2.666370	156.909748
std	8.791521e+06	56.750546	41.467058	11.007935	16121.183073	0.905609	1.516378	430.169145
min	5.300000e+01	1.000000	-157.948486	-41.330428	0.000000	1.000000	0.000000	0.000000
25%	3.019625e+05	1.000000	77.081343	28.478713	250.000000	1.000000	2.500000	5.000000
50%	6.004089e+06	1.000000	77.191964	28.570469	400.000000	2.000000	3.200000	31.000000
75%	1.835229e+07	1.000000	77.282006	28.642758	700.000000	2.000000	3.700000	131.000000
max	1.850065e+07	216.000000	174.832089	55.976980	800000.000000	4.000000	4.900000	10934.000000

In [196…
```python
df_zomato.isnull().sum()
```

Out[196…
```
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 [197…
```python
df_zomato['Cuisines'].isnull().sum()
```

Out[197…
```
9
```

In [198…
```python
df_zomato.columns
```

Out[198…
```
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 [199…
```python
df_zomato.rename({'Average Cost for two' : 'Avg_cost',
                  'Has Table booking':'Table_booking',
                  'Has Online delivery':'Online_delivery',
                  'Aggregate rating':'Aggregate_Rating',
                  'Rating color':'Rating_schema',
                  'Rating text':'Rating'}, axis=1, inplace=True)
```

In [200…
```python
df_zomato.columns
```

Out[200…
```
Index(['Restaurant ID', 'Restaurant Name', 'Country Code', 'City', 'Address',
       'Locality', 'Locality Verbose', 'Longitude', 'Latitude', 'Cuisines',
       'Avg_cost', 'Currency', 'Table_booking', 'Online_delivery',
       'Is delivering now', 'Switch to order menu', 'Price range',
       'Aggregate_Rating', 'Rating_schema', 'Rating', 'Votes'],
      dtype='object')
```

In [201…
```python
df_zomato.drop(columns=['Restaurant ID','Address','Locality Verbose','Locality Verbose'],axis=1,inplace=True)
```

In [202…
```python
df_zomato.shape
```

Out[202…
```
(9551, 18)
```

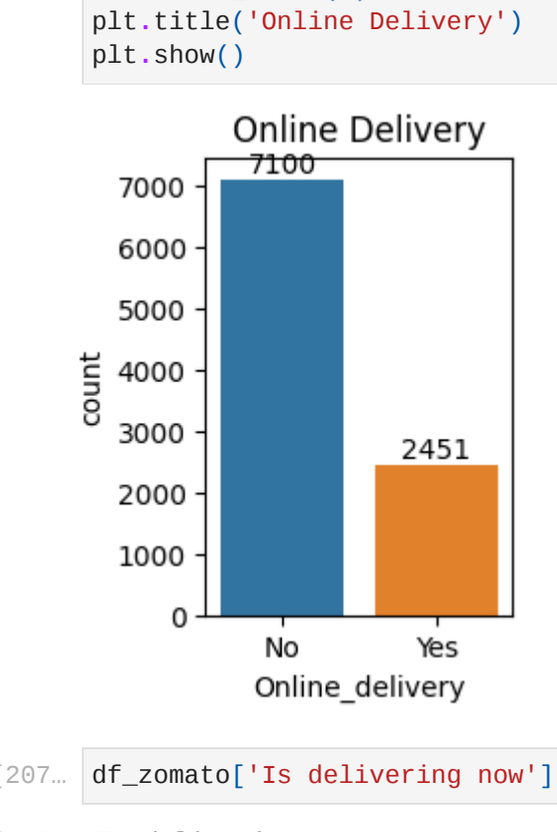
In [203…
```python
df_zomato['Table_booking'].value_counts()
```

Out[203…
```
Table_booking
No     8393
Yes    1158
Name: count, dtype: int64
```

In [205…
```python
df_zomato['Online_delivery'].value_counts()
```

Out[205…
```
Online_delivery
No     7100
Yes    2451
Name: count, dtype: int64
```

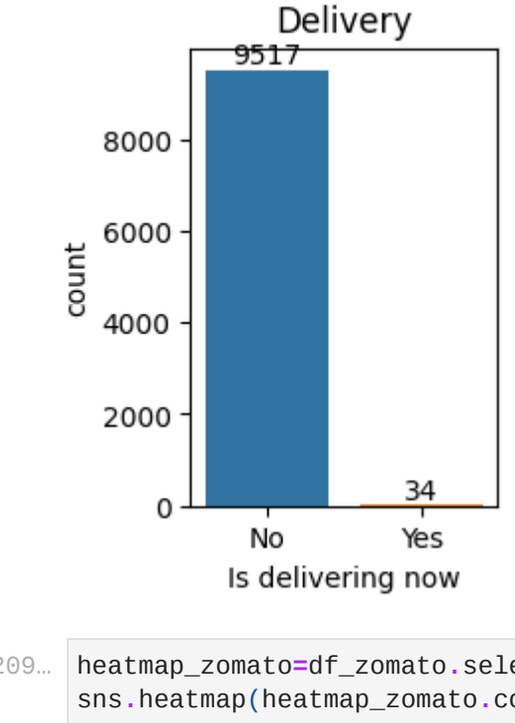
In [206…
```python
plt.figure(figsize=(2,3))
a=sns.countplot(df_zomato,x=df_zomato['Online_delivery'])
for i in a.containers:
    a.bar_label(i)
plt.title('Online Delivery')
plt.show()
```



In [207…
```python
df_zomato['Is delivering now'].value_counts()
```

Out[207…
```
Is delivering now
No     9517
Yes      34
Name: count, dtype: int64
```

In [208…
```python
plt.figure(figsize=(2,3))
a=sns.countplot(df_zomato,x=df['Is delivering now'])
for i in a.containers:
    a.bar_label(i)
plt.title('Delivery')
plt.show()
```



In [209…
```python
heatmap_zomato=df_zomato.select_dtypes(include=['number'])
sns.heatmap(heatmap_zomato.corr(),
            annot=True,
            linewidths=2)
```

Out[209…
```
<Axes: >
```

In [210…
```python
subset_df=df_zomato[['Aggregate_Rating', 'Rating_schema', 'Rating', 'Votes']]
subset_df
```

Out[210…

	Aggregate_Rating	Rating_schema	Rating	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
...	...	...	...	...
9546	4.1	Green	Very Good	788
9547	4.2	Green	Very Good	1034
9548	3.7	Yellow	Good	661
9549	4.0	Green	Very Good	901
9550	4.0	Green	Very Good	591

9551 rows × 4 columns

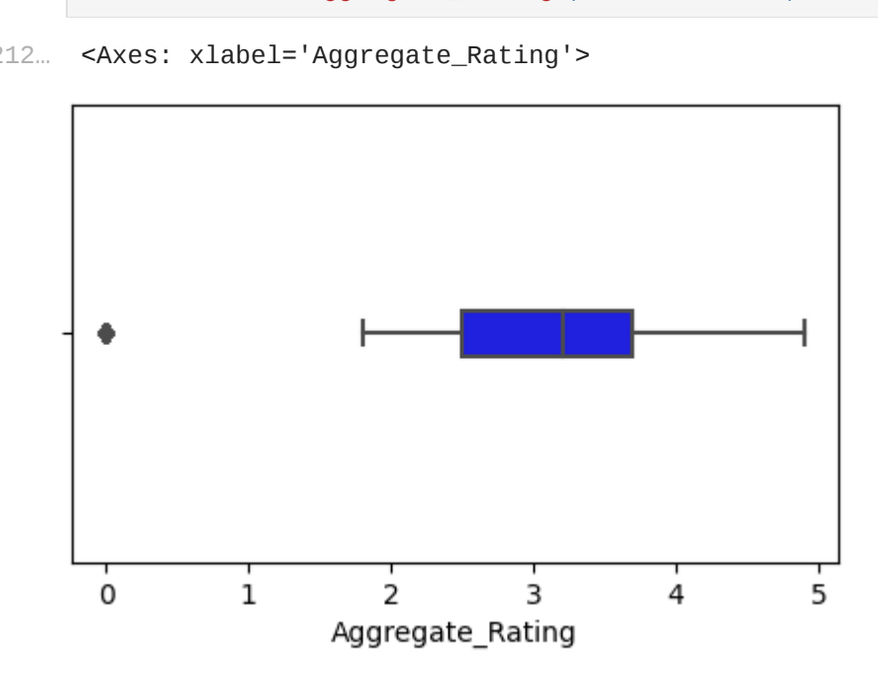
In [211…
```python
Rating=subset_df.groupby('Rating_schema').agg({'Aggregate_Rating':'min', 'Rating':'max'})
Rating
```

Out[211…

Rating_schema	Aggregate_Rating	Rating
Dark Green	4.5	Excellent
Green	4.0	Very Good
Orange	2.5	Average
Red	1.8	Poor
White	0.0	Not rated
Yellow	3.5	Good

In [212…
```python
plt.figure(figsize=(5,3))
sns.boxplot(data=df_zomato,
            x='Aggregate_Rating', color='blue', width=0.1)
```

Out[212…
```
<Axes: xlabel='Aggregate_Rating'>
```



In [213…
```python
join_df=pd.merge(left=df_zomato,
           right=df_country,
           left_on='Country Code',
           right_on='Country Code',
           how='inner')
```

In [214…
```python
join_df.head(3)
```

Out[214…

	Restaurant Name	Country Code	City	Locality	Longitude	Latitude	Cuisines	Avg_cost	Currency	Table_booking	Online_delivery	Is delivering now	Switch to order menu	Price range	Aggregate_Rating	Rating_schema	Rating	Votes	Country
0	Le Petit Souffle	162	Makati City	Century City Mall, Poblacion, Makati City	121.027535	14.565443	French, Japanese, Desserts	1100	Botswana Pula(P)	Yes	No	No	No	3	4.8	Dark Green	Excellent	314	Phillipines
1	Izakaya Kikufuji	162	Makati City	Little Tokyo, Legaspi Village, Makati City	121.014101	14.553708	Japanese	1200	Botswana Pula(P)	Yes	No	No	No	3	4.5	Dark Green	Excellent	591	Phillipines
2	Heat - Edsa Shangri-La	162	Mandaluyong City	Edsa Shangri-La, Ortigas, Mandaluyong City	121.056831	14.581404	Seafood, Asian, Filipino, Indian	4000	Botswana Pula(P)	Yes	No	No	No	4	4.4	Green	Very Good	270	Phillipines

In [216…
```python
df_country.head(3)
```

Out[216…

	Country Code	Country
0	1	India
1	14	Australia
2	30	Brazil

In [217…
```python
join_df.shape
```

Out[217…
```
(9551, 19)
```

In [244…
```python
currency_df=join_df.loc[:,['Country','Currency']]
currency_df.value_counts()
```

Out[244…
```
Country         Currency
India           Indian Rupees(Rs.)        8652
United States   Dollar($)                  434
United Kingdom  Pounds(£)                   80
Brazil          Brazilian Real(R$)          60
South Africa    Rand(R)                     60
UAE             Emirati Diram(AED)          60
New Zealand     NewZealand($)               40
Turkey          Turkish Lira(TL)            34
Australia       Dollar($)                   24
Phillipines     Botswana Pula(P)            22
Indonesia       Indonesian Rupiah(IDR)      21
Qatar           Qatari Rial(QR)             20
Singapore       Dollar($)                   20
Sri Lanka       Sri Lankan Rupee(LKR)       20
Canada          Dollar($)                    4
Name: count, dtype: int64
```

In [245…
```python
C_names=join_df.Country.value_counts().index
C_names
```

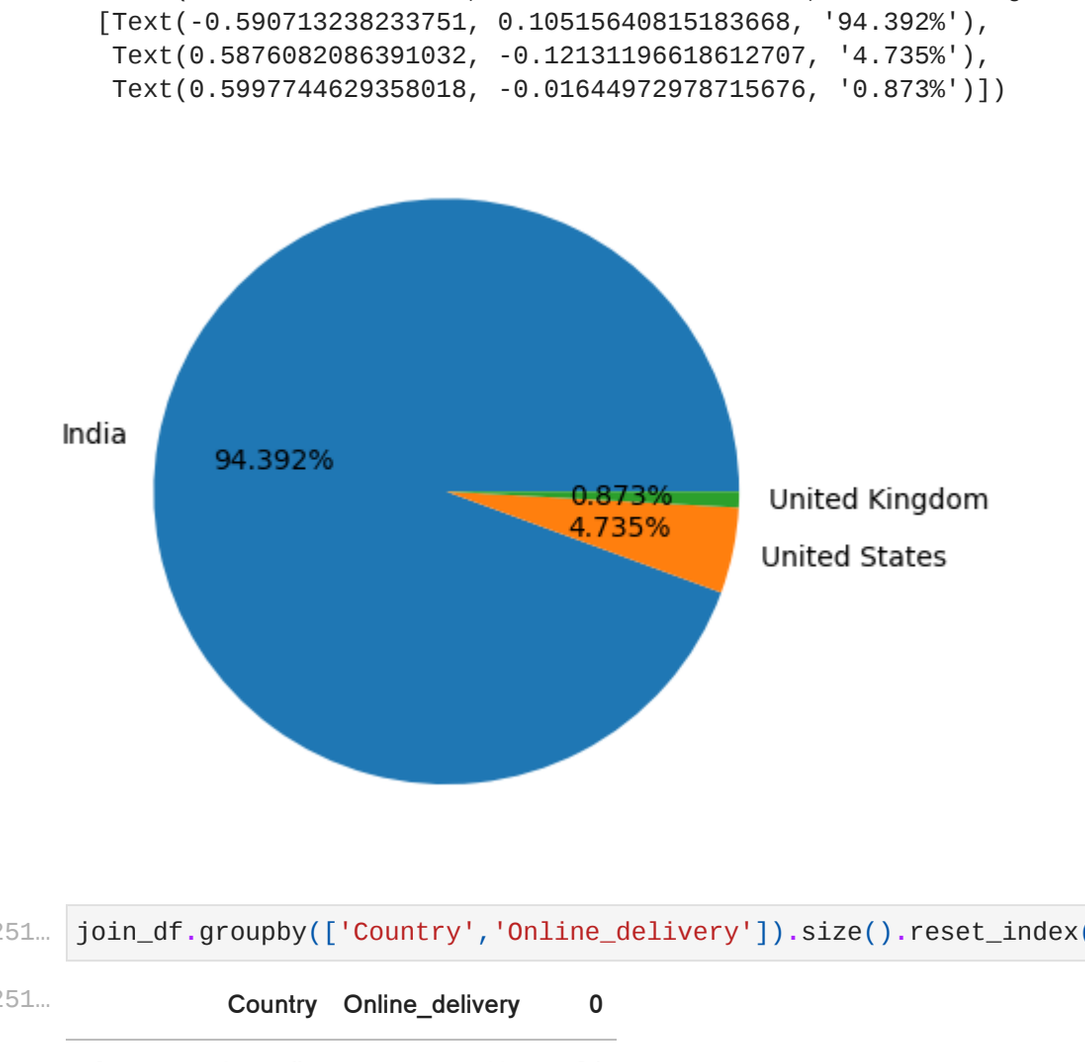
Out[245…
```
Index(['India', 'United States', 'United Kingdom', 'Brazil', 'UAE',
       'South Africa', 'New Zealand', 'Turkey', 'Australia', 'Phillipines',
       'Indonesia', 'Singapore', 'Qatar', 'Sri Lanka', 'Canada'],
      dtype='object', name='Country')
```

In [247…
```python
C_value=join_df.Country.value_counts().values
C_value
```

Out[247…
```
array([8652,  434,   80,   60,   60,   60,   40,   34,   24,   22,   21,
         20,   20,   20,    4], dtype=int64)
```

In [250…
```python
plt.pie(C_value[:3],labels=C_names[:3],autopct='%1.3f%%')
```

Out[250…
```
([<matplotlib.patches.Wedge at 0x245a3549d50>,
  <matplotlib.patches.Wedge at 0x245a354b290>,
  <matplotlib.patches.Wedge at 0x245a3564a90>],
 [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, '94.392%'),
  Text(0.5876082086391032, -0.12131196618612707, '4.735%'),
  Text(0.5997744629358018, -0.01644972978715676, '0.873%')])
```

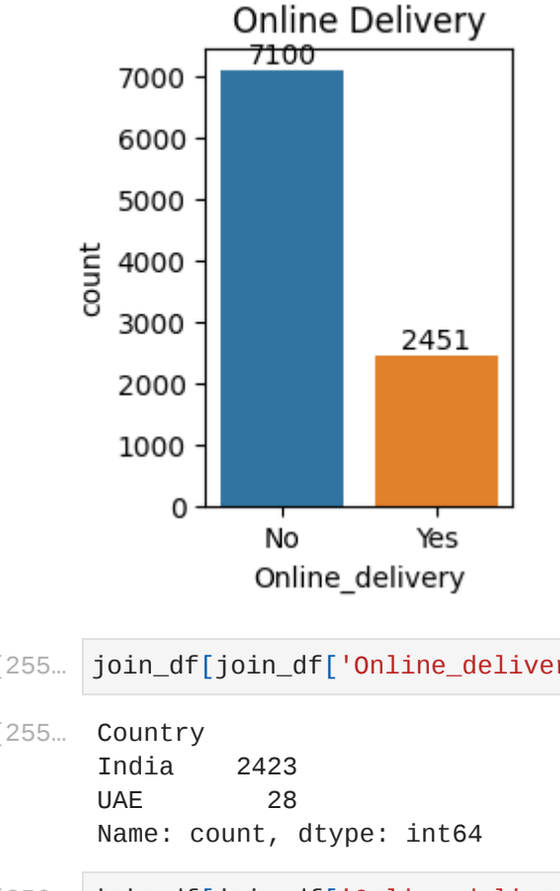


In [251…
```python
join_df.groupby(['Country','Online_delivery']).size().reset_index()
```

Out[251…

	Country	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
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

In [252…
```python
plt.figure(figsize=(2,3))
a=sns.countplot(df_zomato,x=df_zomato['Online_delivery'])
for i in a.containers:
    a.bar_label(i)
plt.title('Online Delivery')
plt.show()
```



In [255…
```python
join_df[join_df['Online_delivery']=='Yes'].Country.value_counts()
```

Out[255…
```
Country
India    2423
UAE        28
Name: count, dtype: int64
```

In [256…
```python
join_df[join_df['Online_delivery']=='No'].Country.value_counts()
```

Out[256…
```
Country
India             6229
United States      434
United Kingdom      80
Brazil              60
South Africa        60
New Zealand         40
Turkey              34
UAE                 32
Australia           24
Phillipines         22
Indonesia           21
Singapore           20
Qatar               20
Sri Lanka           20
Canada               4
Name: count, dtype: int64
```

In [263…
```python
Indian_cities=join_df[join_df['Country']=='India']
Indian_cities.head(3)
```

Out[263…

	Restaurant Name	Country Code	City	Locality	Longitude	Latitude	Cuisines	Avg_cost	Currency	Table_booking	Online_delivery	Is delivering now	Switch to order menu	Price range	Aggregate_Rating	Rating_schema	Rating	Votes	Country
624	Jahanpanah	1	Agra	Agra Cantt	78.011544	27.161661	North Indian, Mughlai	850	Indian Rupees(Rs.)	No	No	No	No	3	3.9	Yellow	Good	140	India
625	Rangrezz Restaurant	1	Agra	Agra Cantt	0.000000	0.000000	North Indian, Mughlai	700	Indian Rupees(Rs.)	No	No	No	No	2	3.5	Yellow	Good	71	India
626	Time2Eat - Mama Chicken	1	Agra	Agra Cantt	78.011608	27.160832	North Indian	500	Indian Rupees(Rs.)	No	No	No	No	2	3.6	Yellow	Good	94	India

In [279…
```python
join_df.groupby('Country')['Avg_cost'].mean().sort_values(ascending=False)
```

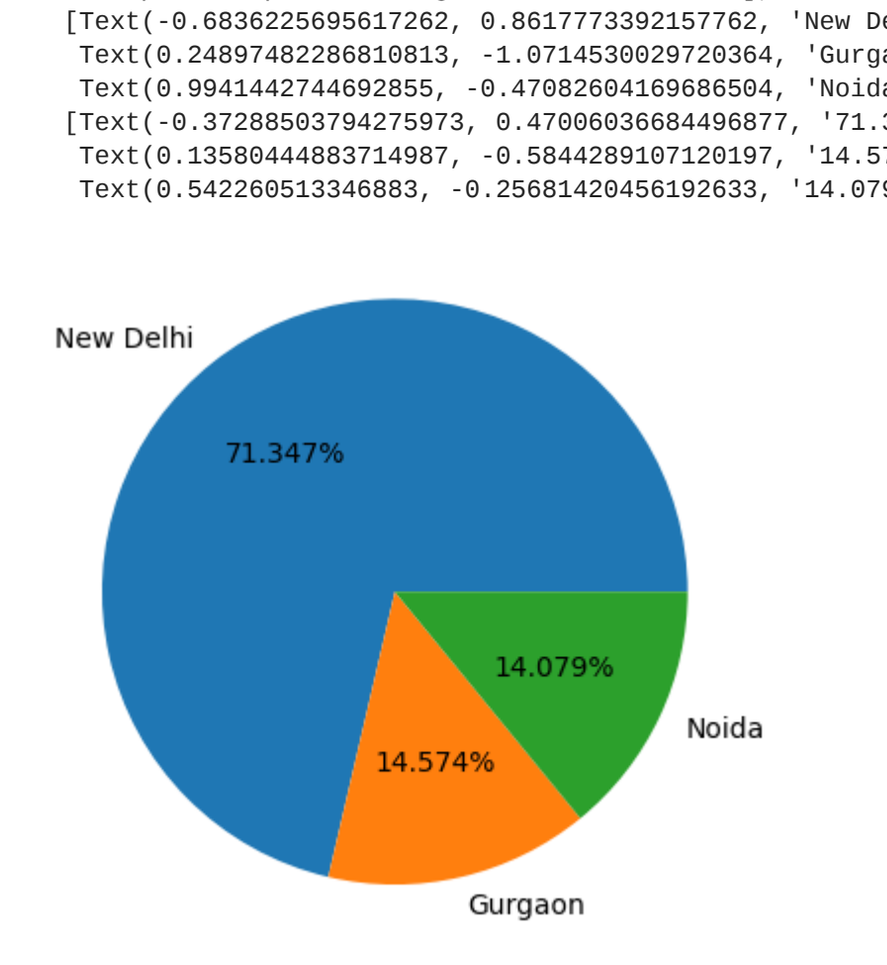
Out[279…
```
Country
Indonesia         281190.476190
Sri Lanka           2375.000000
Phillipines         1606.818182
India                623.370319
South Africa         419.733333
Qatar                223.750000
UAE                  166.416667
Singapore            155.750000
Brazil               134.666667
Turkey                84.852941
New Zealand           69.750000
United Kingdom        47.812500
Canada                36.250000
United States         26.152074
Australia             24.083333
Name: Avg_cost, dtype: float64
```

In [265…
```python
city_count=Indian_cities['City'].value_counts()
city_count[:5]
```

Out[265…
```
City
New Delhi    5473
Gurgaon      1118
Noida        1080
Faridabad     251
Ghaziabad      25
Name: count, dtype: int64
```

In [267…
```python
plt.pie(city_count.values[:3],labels=city_count.index[:3],autopct='%1.3f%%')
```

Out[267…
```
([<matplotlib.patches.Wedge at 0x245a35cfe90>,
  <matplotlib.patches.Wedge at 0x245a35cc3d0>,
  <matplotlib.patches.Wedge at 0x245a35da390>],
 [Text(-0.6836225695617262, 0.8617773392157762, 'New Delhi'),
  Text(0.2489748228681813, -1.0714530029720364, 'Gurgaon'),
  Text(0.9941442744692855, -0.47082604169686504, 'Noida')],
 [Text(-0.37288503794275973, 0.47006036684496877, '71.347%'),
  Text(0.13580444883714987, -0.5844289107120197, '14.574%'),
  Text(0.542260513346883, -0.25681420456192633, '14.079%')])
```



In [ ]: