### Identify the shape of the dataset

```
#Identify the shape of the dataset
df.shape
```

```
(364558, 53)
```

### Identify variables with null values

```
#Identify variables with null values
df.isnull().sum()
```

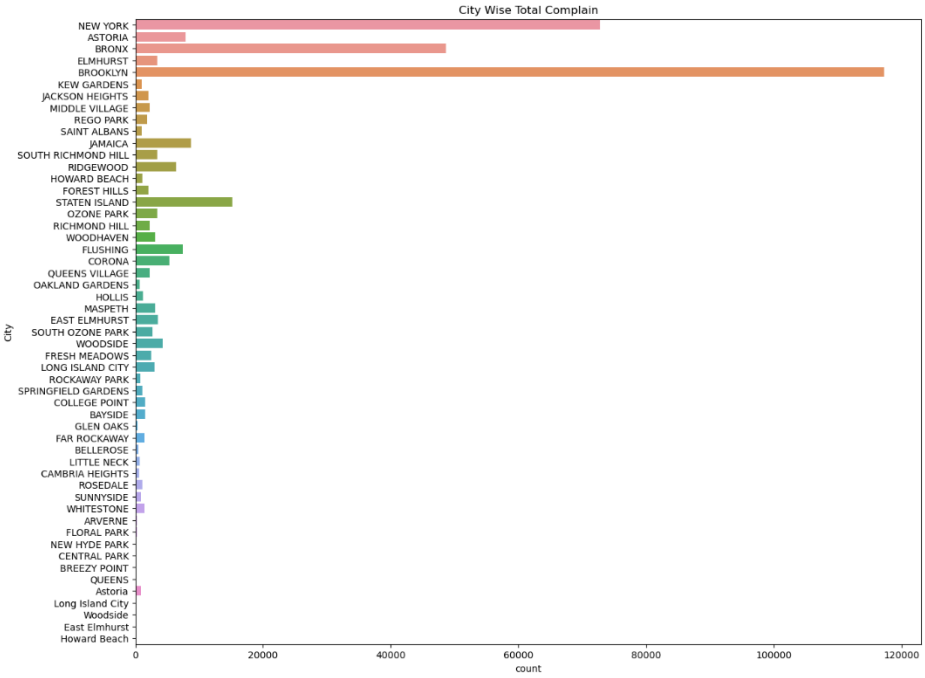
```
Unique Key                         0
Created Date                       0
Closed Date                     2381
Agency                             0
Agency Name                        0
Complaint Type                     0
Descriptor                      6501
Location Type                    133
Incident Zip                    2998
Incident Address               51699
Street Name                    51699
Cross Street 1                 57188
Cross Street 2                 57805
Intersection Street 1         313438
Intersection Street 2         314046
Address Type                    3252
City                            2997
Landmark                      364183
Facility Type                   2389
Status                             0
Due Date                           3
Resolution Description             0
Resolution Action Updated Date  2402
```

### Utilize missing value treatment

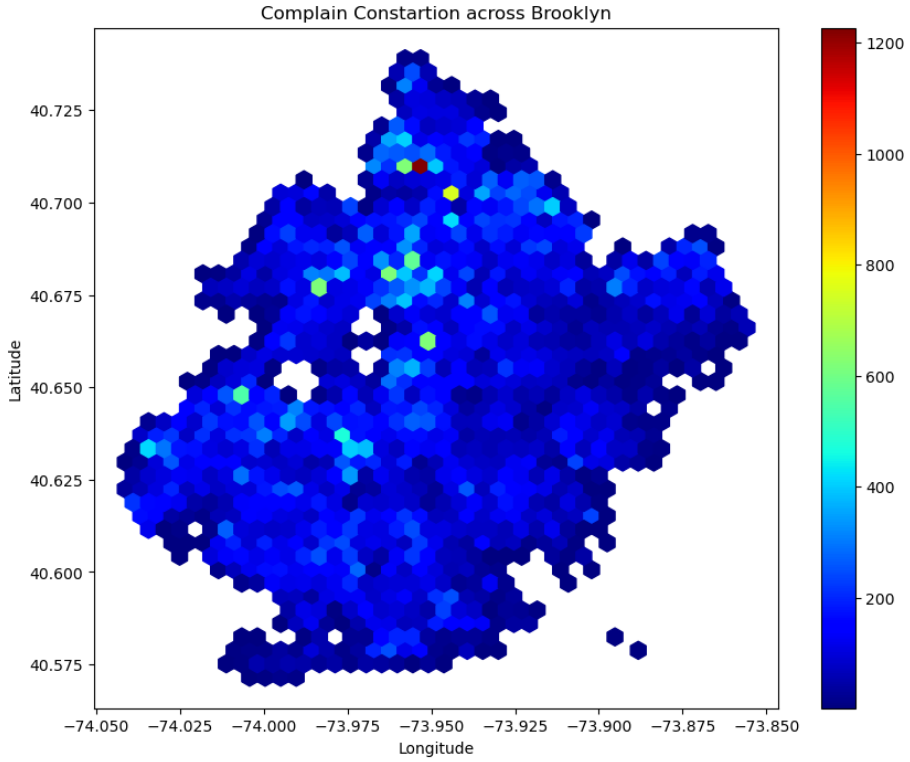
```
df.dropna(inplace=True)
df.isnull().sum()/len(df)*100
```

```
Unique Key                 0.0
Created Date               0.0
Closed Date                0.0
Agency                     0.0
Complaint Type             0.0
Descriptor                 0.0
Location Type              0.0
Incident Zip               0.0
City                       0.0
Status                     0.0
Resolution Description     0.0
Borough                    0.0
Latitude                   0.0
Longitude                  0.0
Location                   0.0
dtype: float64
```

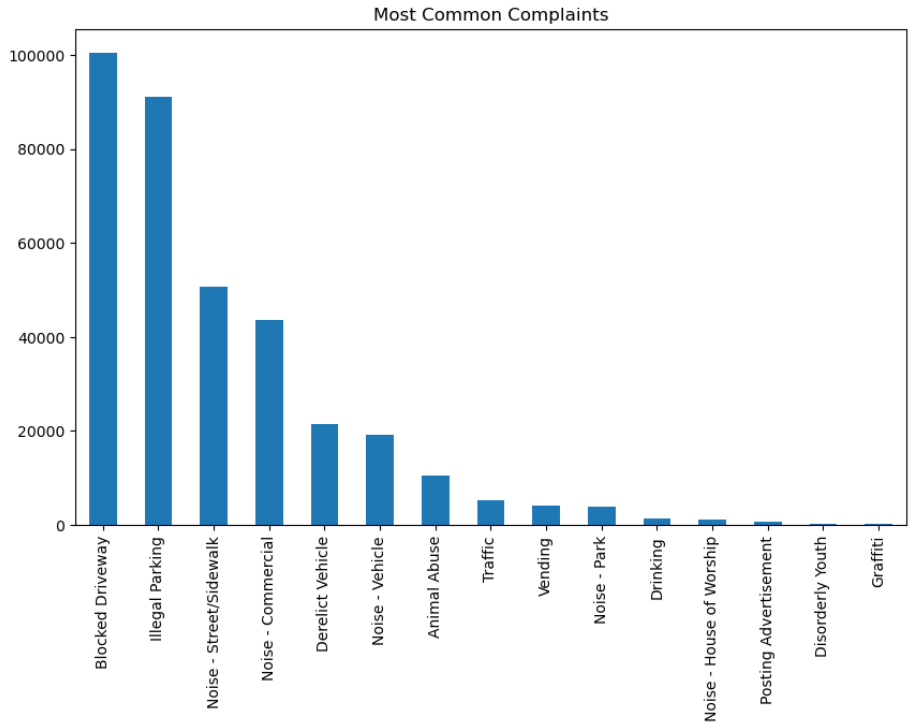
## Draw a frequency plot for city-wise complaints




## Draw scatter and hexbin plots for complaint concentration across Brooklyn




## Plot a bar graph of count vs. complaint types




## Find the top 10 types of complaints

```
df['Complaint Type'].value_counts().sort_values(ascending=False)[:10]
```

```
Blocked Driveway           100455
Illegal Parking             91057
Noise - Street/Sidewalk     50791
Noise - Commercial          43623
Derelict Vehicle            21419
Noise - Vehicle             19122
Animal Abuse                10500
Traffic                      5161
Vending                      4162
Noise - Park                 3994
Name: Complaint Type, dtype: int64
```

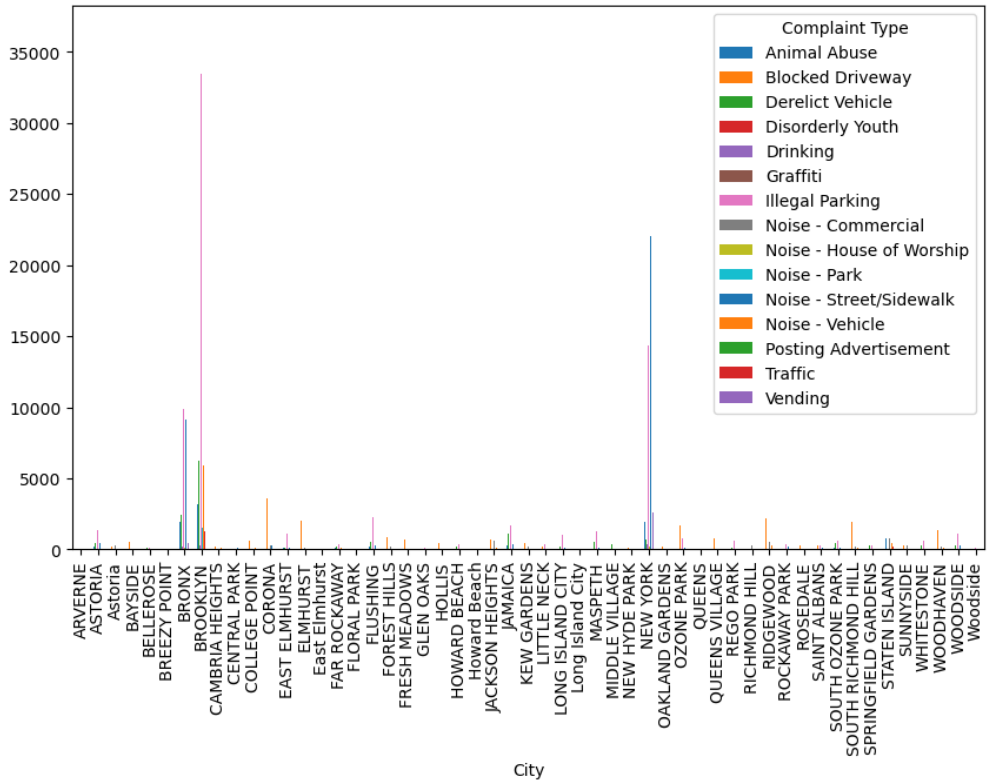
## Display the types of complaints in each city in a separate dataset

```
df2=df.groupby(['City','Complaint Type']).size().unstack().fillna(0)
```

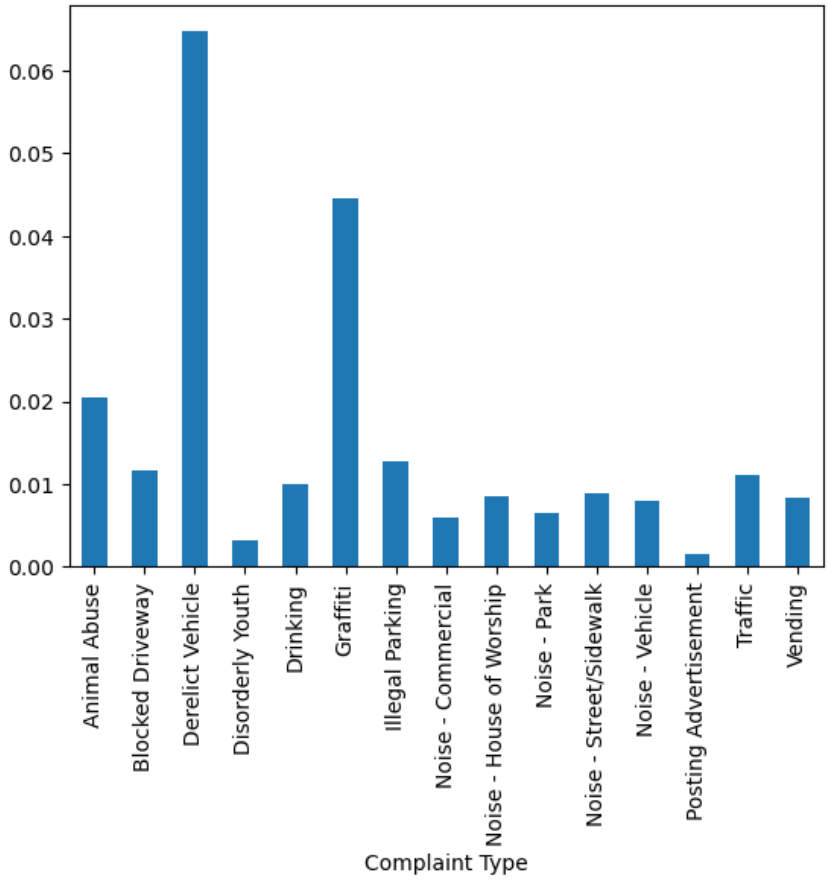
```
df2
```

| Complaint Type<br>City | Animal Abuse | Blocked Driveway | Derelict Vehicle | Disorderly Youth | Drinking | Graffiti | Illegal Parking | Noise - Commercial | Noise - House of Worship | Noise - Park | Noise - Street/Sidewalk | Noise - Vehicle | Posting Advertisement | Traf |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ARVERNE | 46.0 | 50.0 | 32.0 | 2.0 | 1.0 | 1.0 | 62.0 | 2.0 | 14.0 | 2.0 | 29.0 | 9.0 | 0.0 | 1 |
| ASTORIA | 170.0 | 3436.0 | 426.0 | 5.0 | 43.0 | 4.0 | 1337.0 | 1640.0 | 21.0 | 64.0 | 408.0 | 236.0 | 3.0 | 60 |
| Astoria | 0.0 | 159.0 | 14.0 | 0.0 | 0.0 | 0.0 | 277.0 | 310.0 | 0.0 | 0.0 | 145.0 | 0.0 | 0.0 | 0 |
| BAYSIDE | 53.0 | 513.0 | 231.0 | 2.0 | 1.0 | 3.0 | 635.0 | 47.0 | 3.0 | 3.0 | 17.0 | 24.0 | 0.0 | 9 |
| BELLEROSE | 15.0 | 138.0 | 120.0 | 2.0 | 1.0 | 0.0 | 131.0 | 38.0 | 1.0 | 1.0 | 13.0 | 11.0 | 1.0 | 9 |
| BREEZY POINT | 2.0 | 3.0 | 3.0 | 0.0 | 1.0 | 0.0 | 16.0 | 4.0 | 0.0 | 0.0 | 1.0 | 1.0 | 0.0 | 0 |
| BRONX | 1966.0 | 17048.0 | 2398.0 | 66.0 | 205.0 | 15.0 | 9853.0 | 2941.0 | 90.0 | 523.0 | 9118.0 | 3544.0 | 17.0 | 425 |
| BROOKLYN | 3185.0 | 36414.0 | 6242.0 | 79.0 | 291.0 | 60.0 | 33446.0 | 13847.0 | 387.0 | 1557.0 | 13943.0 | 5932.0 | 58.0 | 1253 |

## Visualize the major types of complaints in each city




## Check if the average response time across various types of complaints


0.06
0.05
0.04
0.03
0.02
0.01
0.00
Animal Abuse
Blocked Driveway
Derelict Vehicle
Disorderly Youth
Drinking
Graffiti
Illegal Parking
Noise - Commercial
Noise - House of Worship
Noise - Park
Noise - Street/Sidewalk
Noise - Vehicle
Posting Advertisement
Traffic
Vending
Complaint Type