

Project Customer Service Requests Analysis

```
In [2]: %matplotlib inline
import sys
import numpy as np
import pandas as pd

import matplotlib.pyplot as plt
from matplotlib import style
import seaborn as sns

In [3]: service311 = pd.read_csv ('311_Service_Requests_from_2010_to_Present.csv')

C:\ProgramData\Anaconda3\lib\site-packages\IPythonCore\interactiveshell.py:3049: DtypeWarning: Columns (48,49) have mixed types. Specify dtype option on import or set low_memory=False
interactivity=interactivity, compiler=compiler, result=result)

In [4]: service311.head()
```

```
In [8]: service311['Complaint Type'].unique()

Out[8]: array(['Noise - Street/Sidewalk', 'Blocked Driveway', 'Illegal Parking',
       'Derelict Vehicle', 'Noise - Commercial',
       'Noise - House of Worship', 'Posting Advertisement',
       'Noise - Vehicle', 'Animal Abuse', 'Vending', 'Traffic',
       'Drinking', 'Bike/Roller/Skate Chronic', 'Panhandling',
       'Noise - Park', 'Homeless Encampment', 'Urinating in Public',
       'Graffiti', 'Disorderly Youth', 'Illegal Fireworks',
       'Ferry Complaint', 'Agency Issues', 'Squeegee', 'Animal in a Park'],
      dtype=object)

In [10]: service311['Descriptor'].unique()

Out[10]: array(['Loud Music/Party', 'No Access', 'Commercial Overnight Parking',
       'Blocked Sidewalk', 'Posted Parking Sign Violation',
       'Blocked Hydrant', 'Valid License Plate', 'Partial Access',
       'Unauthorized Bus Layover', 'Double Parked Blocking Vehicle',
       'Double Parked Blocking Traffic', 'Vehicle', 'Loud Talking',
       'Barging/Founding', 'Car/Truck Music', 'Torture',
       'In Prohibited Area', 'Congestion/Gridlock', 'Neglected',
       'Car/Truck Horn', 'In Public', 'Other (complaint details)', nan,
       'No Shelter', 'Truck Route Violation', 'Unlicensed',
       'Overnight Commercial Storage', 'Engine Idling',
       'After Hours - Licensed Est.', 'Detached Trailer',
       'Underage - Licensed Est.', 'Chronic Stoplight Violation',
       'Loud Television', 'Chained', 'Building', 'In Car',
       'Bollie Bouncer Reuse/Abuse', 'Chronic Squealing',
```

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In [5]: service311.shape
Out[5]: (380698, 22)
```

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In [6]: service311.columns
Out[6]: Index(['Unique Key', 'Created Date', 'Closed Date', 'Agency', 'Agency Name', 'Complaint Type', 'Descriptor', 'Location Type', 'Incident Zip', 'Incident Address', '...', 'Bridge Highway Name', 'Bridge Highway Direction', 'Road Ramp', 'Bridge Highway Segment', 'Garage Lot Name', 'Ferry Direction', 'Ferry Terminal Name', 'Latitude', 'Longitude', 'Loc'], dtype='object')
```

```
In [8]: service311['Complaint Type'].unique()
Out[8]: array(['Noise - Street/Sidewalk', 'Blocked Driveway', 'Illegal Parking', 'Derelict Vehicle', 'Noise - Commercial', 'Noise - House of Worship', 'Posting Advertisement', 'Noise - Vehicle', 'Animal Abuse', 'Vending', 'Traffic', 'Drinking', 'Bike/Roller/Skate Chronic', 'Panhandling', 'Noise - Park', 'Homeless Encampment', 'Urinating in Public', 'Graffiti', 'Disorderly Youth', 'Illegal Fireworks', 'Ferry Complaint', 'Agency Issues', 'Squeegee', 'Animal in a Park'], dtype=object)
```

```
In [10]: service311['Descriptor'].unique()
Out[10]: array(['Noise Music/Party', 'No Access', 'Commercial Overnight Parking', 'Blocked Sidewalk', 'Posted Parking Sign Violation', 'Blocked Hydrant', 'With License Plate', 'Partial Access', 'Unauthorized Bus Loyer', 'Double Parked Blocking Vehicle', 'Double Parked Blocking Traffic', 'Vehicle', 'Loud Talking', 'Banging/Pounding', 'Car/Truck Music', 'Tortured', 'In Prohibited Area', 'Congestion/Gridlock', 'Neglected', 'Car/Truck Horn', 'In Public', 'Other (complaint details)', 'nan', 'No Shelter', 'Truck Route Violation', 'Unlicensed', 'Overnight Commercial Storage', 'Engine Idling', 'After Hours - Licensed Est', 'Detached Trailer', 'Underage - Licensed Est', 'Chronic Stoplight Violation', 'Loud Television', 'Chained', 'Building', 'In Car', 'Police Report Requested', 'Chronic Speeding', 'Playing in Unsuitable Place', 'Drag Racing', 'Police Report Not Requested', 'Nuisance/Traunt', 'Homeless Issue', 'Language Access Complaint', 'Disruptive Passenger', 'Animal Waste'], dtype=object)
```

```
In [11]: complaintType = pd.DataFrame({'count': service311.groupby(['Complaint Type','City']).size()}).reset_index()
complaintType
```

| Out[11]: | Complaint Type | City | count |
|----------------------|----------------|---------------------|-------|
| 0 | Animal Abuse | ARVERNE | 38 |
| 1 | Animal Abuse | ASTORIA | 125 |
| 2 | Animal Abuse | BAYSIDE | 37 |
| 3 | Animal Abuse | BELLEROSE | 7 |
| 4 | Animal Abuse | BREEZY POINT | 2 |
| 5 | Animal Abuse | BRONX | 1415 |
| 6 | Animal Abuse | BROOKLYN | 2394 |
| 7 | Animal Abuse | CAMBRIA HEIGHTS | 11 |
| 8 | Animal Abuse | COLLEGE POINT | 28 |
| 9 | Animal Abuse | CORONA | 61 |
| 10 | Animal Abuse | EAST ELMHURST | 59 |
| 11 | Animal Abuse | ELMHURST | 38 |
| 12 | Animal Abuse | FAR ROCKAWAY | 89 |
| 13 | Animal Abuse | FLORAL PARK | 2 |
| 14 | Animal Abuse | FLUSHING | 143 |
| 15 | Animal Abuse | FOREST HILLS | 45 |
| 16 | Animal Abuse | FRESH MEADOWS | 45 |
| 17 | Animal Abuse | GLEN OAKS | 5 |
| 18 | Animal Abuse | HOLLIS | 33 |
| 19 | Animal Abuse | HOWARD BEACH | 31 |
| 20 | Animal Abuse | JACKSON HEIGHTS | 42 |
| 21 | Animal Abuse | JAMAICA | 229 |
| 22 | Animal Abuse | KEW GARDENS | 19 |
| 23 | Animal Abuse | LITTLE NECK | 15 |
| 24 | Animal Abuse | LONG ISLAND CITY | 30 |
| 25 | Animal Abuse | MASPETH | 36 |
| 26 | Animal Abuse | MIDDLE VILLAGE | 22 |
| 27 | Animal Abuse | NEW HYDE PARK | 1 |
| 28 | Animal Abuse | NEW YORK | 1525 |
| 29 | Animal Abuse | OAKLAND GARDENS | 19 |
| ... | ... | ... | ... |
| 734 | Vending | ELMHURST | 21 |
| 735 | Vending | FAR ROCKAWAY | 9 |
| 736 | Vending | FLUSHING | 33 |
| 737 | Vending | FOREST HILLS | 10 |
| 738 | Vending | FRESH MEADOWS | 1 |
| 739 | Vending | GLEN OAKS | 18 |
| 740 | Vending | HOWARD BEACH | 5 |
| 741 | Vending | JACKSON HEIGHTS | 78 |
| 742 | Vending | JAMAICA | 20 |
| 743 | Vending | KEW GARDENS | 1 |
| 744 | Vending | LONG ISLAND CITY | 30 |
| 745 | Vending | MASPETH | 6 |
| 746 | Vending | NEW YORK | 239 |
| 747 | Vending | OAKLAND GARDENS | 2 |
| 748 | Vending | OZONE PARK | 1 |
| 749 | Vending | QUEENS VILLAGE | 2 |
| 750 | Vending | REGO PARK | 3 |
| 751 | Vending | RICHMOND HILL | 13 |
| 752 | Vending | RIDGEWOOD | 8 |
| 753 | Vending | ROCKAWAY PARK | 2 |
| 754 | Vending | ROSEDALE | 16 |
| 755 | Vending | SAINT ALBANS | 2 |
| 756 | Vending | SOUTH OZONE PARK | 5 |
| 757 | Vending | SOUTH RICHMOND HILL | 24 |
| 758 | Vending | SPRINGFIELD GARDENS | 1 |
| 759 | Vending | STATEN ISLAND | 25 |
| 760 | Vending | SUNNYSIDE | 15 |
| 761 | Vending | WHITESTONE | 1 |
| 762 | Vending | WOODHAVEN | 6 |
| 763 | Vending | WOODSIDE | 15 |
| 764 rows × 3 columns | | | |

```
In [12]: service311.groupby(['Borough','Complaint Type','Descriptor']).size()
```

| | | | |
|-------------|--------------------------|--------------------------------|------|
| | Disorderly Youth | Nuisance/Traunt | 7 |
| | Drinking | Playing in Unsuitable Place | 56 |
| | | After Hours - Licensed Est | 10 |
| | | In Public | 142 |
| | | Underage - Licensed Est | 36 |
| | Graffiti | Police Report Not Requested | 1 |
| | | Police Report Requested | 8 |
| | Illegal Parking | Blocked Hydrant | 1413 |
| | | Blocked Sidewalk | 1206 |
| | | Commercial Overnight Parking | 1151 |
| | | Detached Trailer | 73 |
| | | Double Parked Blocking Traffic | 593 |
| | | Double Parked Blocking Vehicle | 830 |
| | | Overnight Commercial Storage | 202 |
| | | Posted Parking Sign Violation | 2342 |
| | | Unauthorized Bus Loyer | 49 |
| | Noise - Commercial | Banging/Pounding | 162 |
| | | Car/Truck Horn | 28 |
| | | Car/Truck Music | 90 |
| | | Loud Music/Party | 1490 |
| | | Loud Talking | 662 |
| | | ... | ... |
| Unspecified | Drinking | Underage - Licensed Est | 1 |
| | Ferry Complaint | Disruptive Passenger | 1 |
| | | Homeless Issue | 1 |
| | Illegal Parking | Blocked Hydrant | 222 |
| | | Blocked Sidewalk | 167 |
| | | Commercial Overnight Parking | 260 |
| | | Detached Trailer | 3 |
| | | Double Parked Blocking Traffic | 122 |
| | | Double Parked Blocking Vehicle | 3 |
| | | Overnight Commercial Storage | 2 |
| | | Posted Parking Sign Violation | 229 |
| | | Unauthorized Bus Loyer | 32 |
| | Noise - Commercial | Banging/Pounding | 67 |
| | | Car/Truck Horn | 14 |
| | | Car/Truck Music | 17 |
| | | Loud Music/Party | 215 |
| | | Loud Talking | 53 |
| | Noise - House of Worship | Loud Music/Party | 1 |
| | | Loud Talking | 1 |
| | Noise - Park | Loud Music/Party | 21 |
| | | Loud Talking | 5 |
| | Noise - Street/Sidewalk | Loud Music/Party | 416 |
| | | Loud Talking | 173 |
| | Noise - Vehicle | Car/Truck Horn | 5 |
| | | Car/Truck Music | 38 |
| | | Engine Idling | 11 |
| | Posting Advertisement | Vehicle | 1 |
| | Traffic | Truck Route Violation | 1 |
| | Vending | In Prohibited Area | 2 |
| | | Unlicensed | 5 |

Length: 288, dtype: int64

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In [ ]:
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```
In [9]: import datetime
```

```
In [13]: df = pd.read_csv("311_Service_Requests_from_2010_to_Present.csv", parse_dates=["Created Date", "Closed Date"])
```

```
In [14]: df["Request_Closing_Time"] = df["Closed Date"] - df["Created Date"]
```

```
In [22]: #Have a look at the status of tickets
df["Status"].value_counts().plot(kind='bar', alpha=0.6, figsize=(7,7))
plt.show()
```

