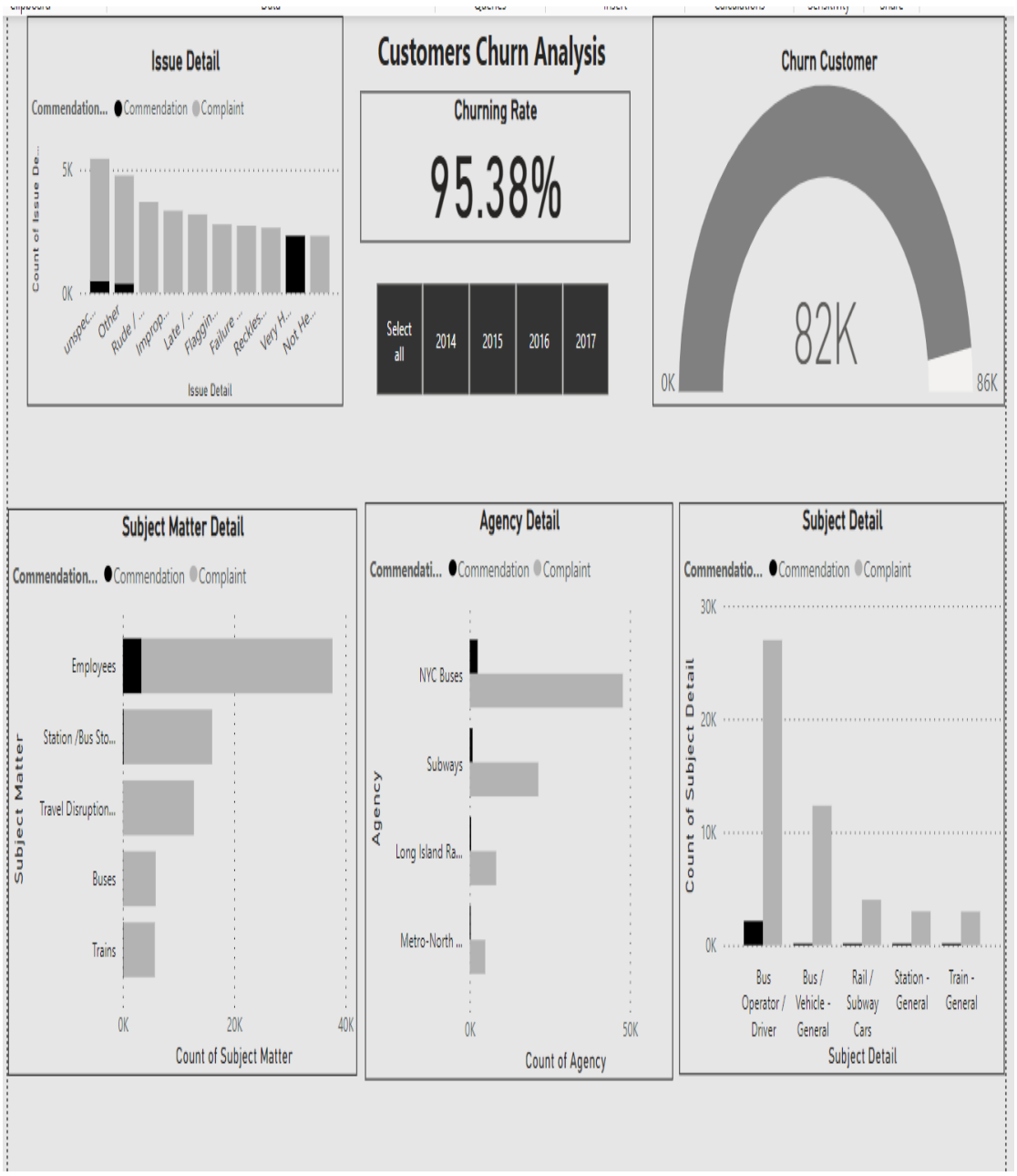
Churn Analytics

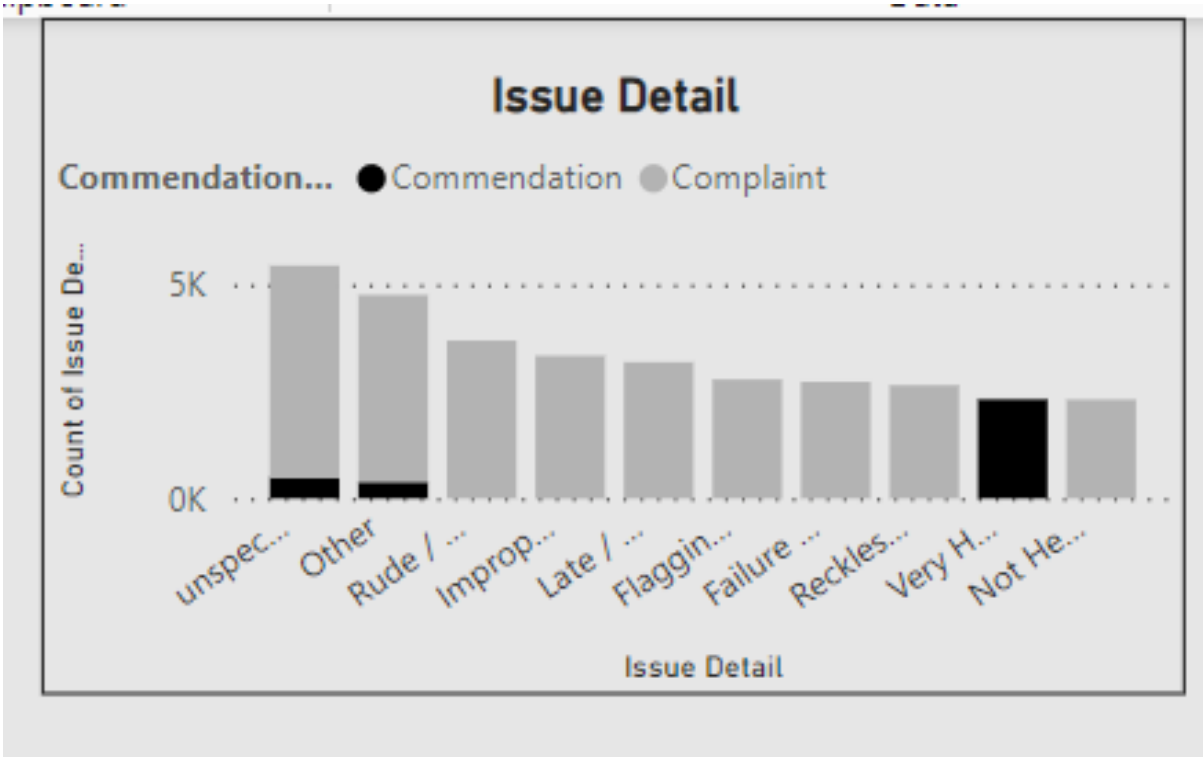
Wireframe

Rashika Singhal

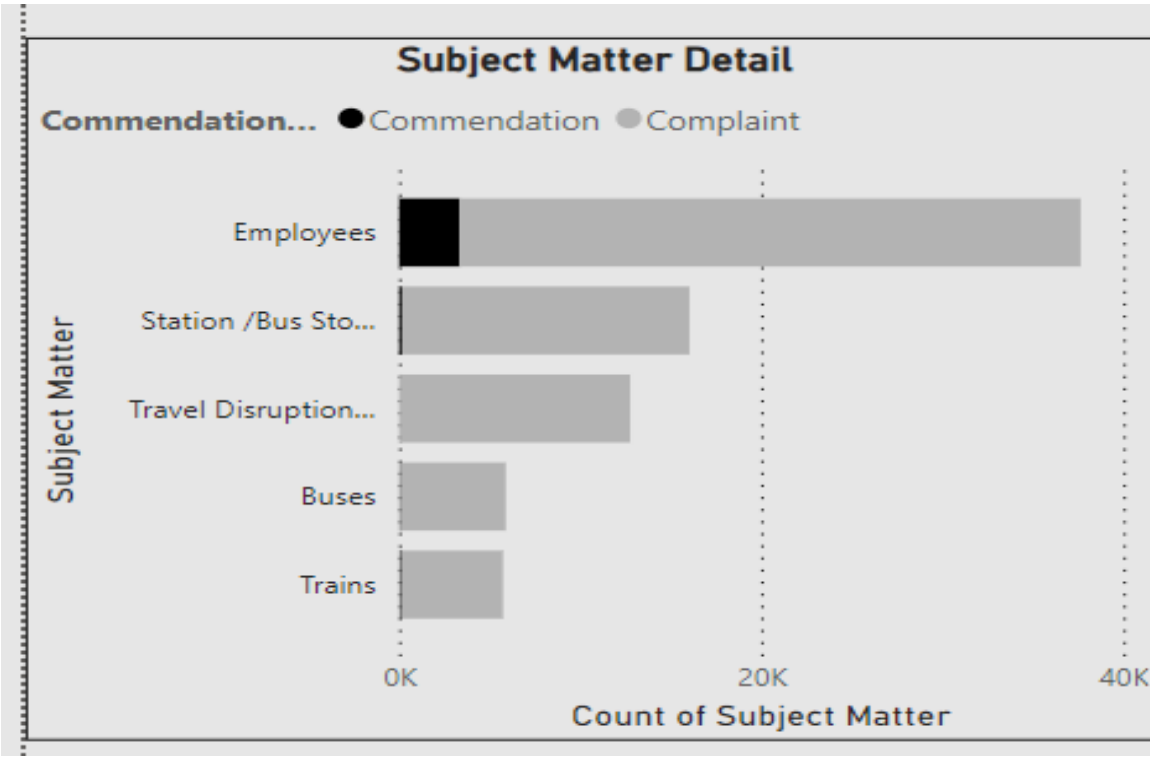
Dashboard


Issue Detail
Commendation... Commendation Complaint
Count of Issue De...
5K
0K
unspec...
Other
Rude / ...
Improp...
Late / ...
Flaggin...
Failure ...
Reckles...
Very H...
Not He...
Issue Detail
Customers Churn Analysis
Churning Rate
95.38%
Select all
2014
2015
2016
2017
Churn Customer
82K
0K
86K
Subject Matter Detail
Commendation... Commendation Complaint
Subject Matter
Employees
Station /Bus Sto...
Travel Disruption...
Buses
Trains
0K
20K
40K
Count of Subject Matter
Agency Detail
Commendati... Commendation Complaint
Agency
NYC Buses
Subways
Long Island Ra...
Metro-North ...
0K
50K
Count of Agency
Subject Detail
Commendatio... Commendation Complaint
30K
20K
10K
0K
Count of Subject Detail
Bus Operator / Driver
Bus / Vehicle - General
Rail / Subway Cars
Station - General
Train - General
Subject Detail

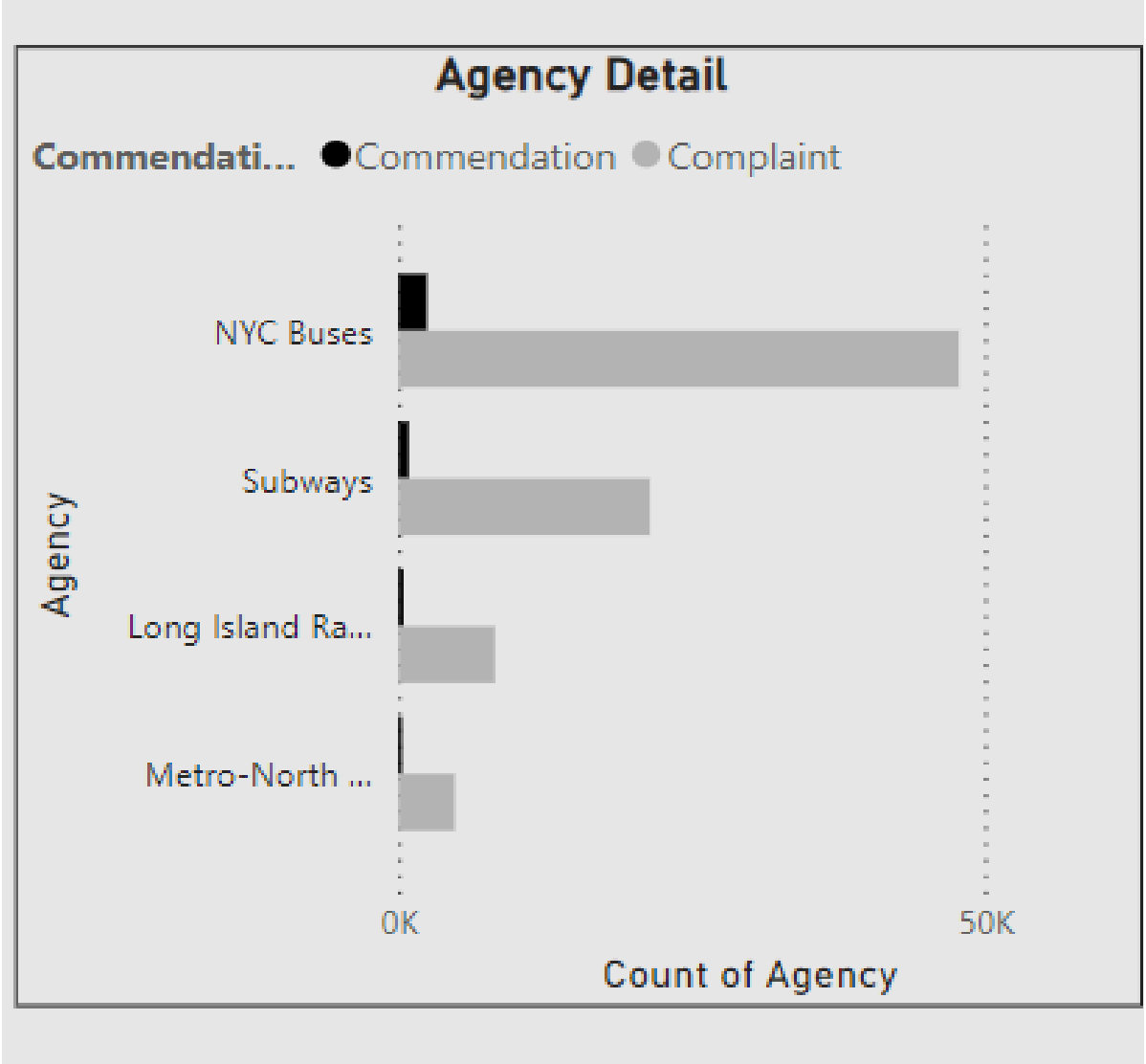
Issue Detail :



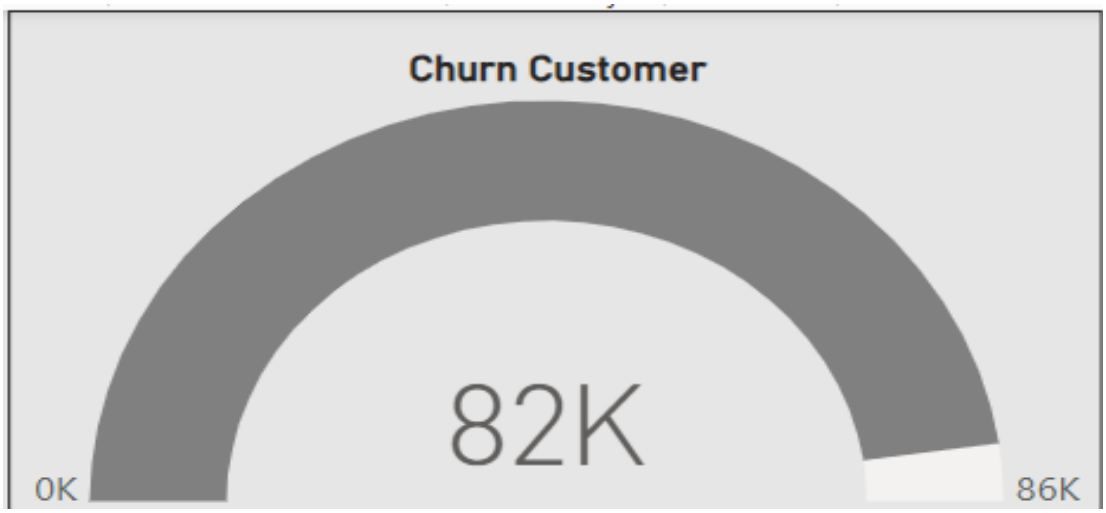
Subject Matter Detail :



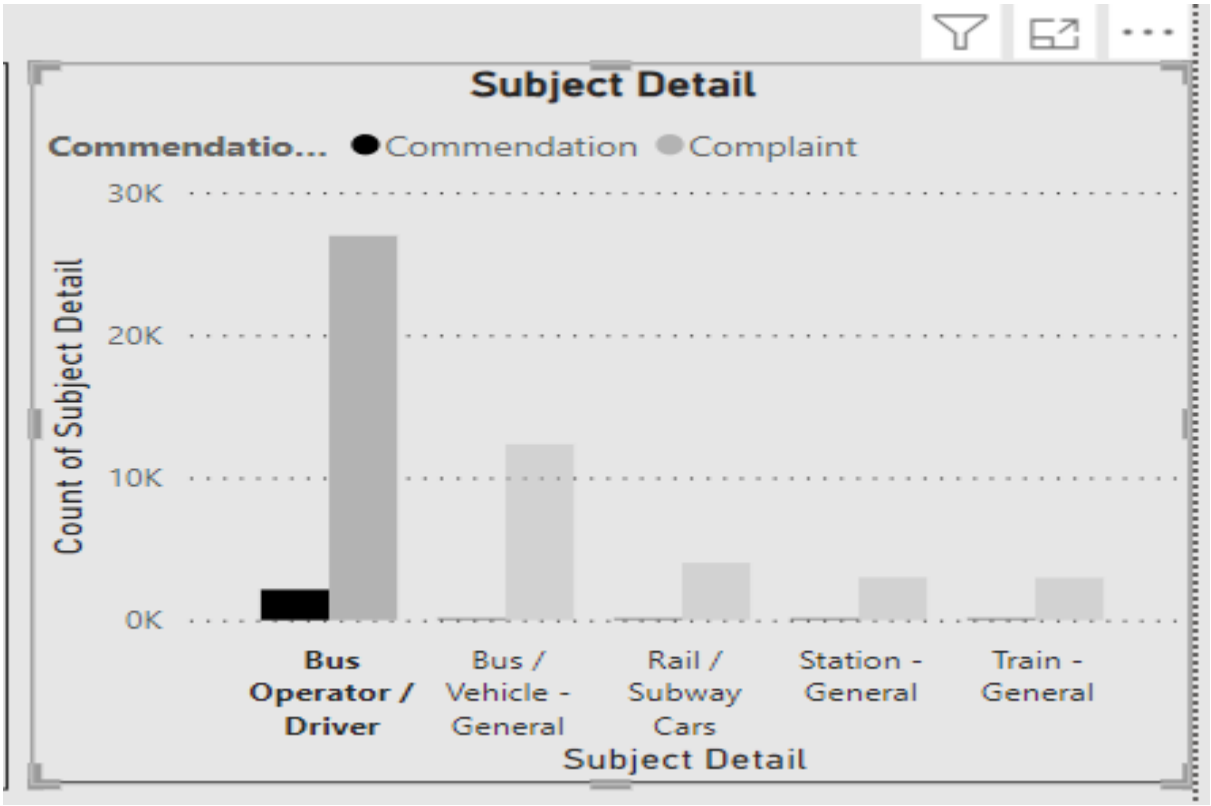
Agency Detail :



Different Metrics :



Subject Detail :



Jupyter Notebook:

```
import pandas as pd
```

```
df=pd.read_csv(r"C:\Users\omsin\OneDrive\Documents\mta-customer-feedback-data-beginning_project-2014-1.csv")
```

REPLACE MISSING VALUES IN ISSUE DETAIL WITH UNSPECIFIED

```
df.fillna({'Issue Detail':'unspecified'},inplace=True)
```

```
df.head(5)
```

	Agency	Commendation or Complaint	Subject Matter	Subject Detail	Issue Detail	Year	Quarter	Branch/Line/Route
0	Long Island Rail Road	Commendation	Employees	CSR - Ambassador	Very Helpful/Friendly	2015	2	No Value
1	Long Island Rail Road	Commendation	Employees	CSR - Ambassador	Very Helpful/Friendly	2015	2	Port Jefferson
2	Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	unspecified	2015	1	No Value
3	Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Other	2015	2	Far Rockaway
4	Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Very Helpful / Friendly	2015	2	No Value

```
df['Issue Detail'].value_counts().get('unspecified',0)
```

```
np.int64(10134)
```

DROP DUPLICATES

[33]:
```
df=df.drop_duplicates()
```

[34]:
```
df
```

[34]:

	Agency	Commendation or Complaint	Subject Matter	Subject Detail	Issue Detail	Year	Quarter	Branch/Line/Route
0	Long Island Rail Road	Commendation	Employees	CSR - Ambassador	Very Helpful/Friendly	2015	2	No Value
1	Long Island Rail Road	Commendation	Employees	CSR - Ambassador	Very Helpful/Friendly	2015	2	Port Jefferson
2	Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	unspecified	2015	1	No Value
3	Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Other	2015	2	Far Rockaway
4	Long Island Rail Road	Commendation	Employees	CSR - Customer Service Office	Very Helpful / Friendly	2015	2	No Value

1.COUNT OF RETAINED CUSTOMER(COMMENDATION) ¶

[35]:
```
retained_customr_count=df[df['Commendation or Complaint']=='Commendation'].shape[0]
```

[36]:
```
print(f"Retained_Customer_Count:{retained_customr_count}")
```

```
Retained_Customer_Count:3984
```

2.CHURN RATE OF CUSTOMER

[37]:
```
churned_customer_count=df[df['Commendation or Complaint']=='Complaint'].shape[0]
```

[38]:
```
total_customer=df.shape[0]
```

[39]:
```
churn_rate=round((churned_customer_count / total_customer)*100,2)
```

[40]:
```
print(f'CHURN RATE : {churn_rate}%')
```

```
CHURN RATE : 95.38%
```

3.COUNT OF CHURNED CUSTOMERS(COMPLAINT)

[41]:
```
print(f'CHURNED CUSTOMER COUNT:{churned_customer_count}')
```

```
CHURNED CUSTOMER COUNT:82231
```

4.AGENCY WITH MOST COMPLAINTS

```
[42]: agency_complaints=df[df['Commendation or Complaint']=='Complaint'].groupby('Agency').size().reset_index(name='agency count').sort_values(by='agency coun
```

```
[43]: agency_complaints
```

[43]:

	Agency	agency count
2	NYC Buses	47781
3	Subways	21401
0	Long Island Rail Road	8231
1	Metro-North Railroad	4818

5. COMMON SUBJECT MATTERS(COMPLAINT)

```
44]: subject_matter_complaints=df[df['Commendation or Complaint']=='Complaint'].groupby('Subject Matter').size().reset_index(name='count of customer').sort_va
```

```
45]: subject_matter_complaints
```

45]:

	Subject Matter	count of customer
4	Employees	34314
12	Station /Bus Stop /Facility /Structure	15876
15	Travel Disruption / Trip Problem	12704
0	Buses	5795
14	Trains	5613
13	Telephone / Website / Mobile Apps	2258
8	Policies, Rules & Regulations	2111
11	Schedules / Reservations	1376
7	MetroCard/Tickets/E-Zpass & Tolls	1346
3	Customer	668
6	MTA Agency Cars / Trucks	101
2	Construction / Capital Projects	35
9	Public Hearing	17
10	Reasonable Modification	9
5	Ferry Service - Hudson River	7
1	Complaint	1

6. Common Subject Details (Complaint)

[46]:
```
Subject_Details_Complaint=df[df['Commendation or Complaint']=='Complaint'].groupby('Subject Detail').size().reset_index(name='subject_details').so
```

[47]:
```
Subject_Details_Complaint
```

[47]:

	Subject Detail	subject_details
17	Bus Operator / Driver	26957
15	Bus / Vehicle - General	12335
93	Rail / Subway Cars	4015
112	Station - General	2994
125	Train - General	2974
...	...	...
40	Equal Employment Opportunity	1
24	Call Ahead Service	1
12	Bikes-Per-Car Restrictions	1
33	Deferred Toll Payment	1
96	Resident Discount - Other	1

139 rows × 2 columns

7. Common Issue Details (Complaint)

48]:
```
Issue_Details_Complaint=df[df['Commendation or Complaint']=='Complaint'].groupby('Issue Detail').size().reset_index(name='issue').sort_values(by='issue',
```

49]:
```
Issue_Details_Complaint
```

49]:

	Issue Detail	issue
217	unspecified	4963
142	Other	4372
162	Rude / Inappropriate Language	3689
89	Improper Function/Needs Repair/Damaged	3329
103	Late / Delay	3185
...	...	...
132	Not Seen/Not Available	1
177	Ticket / Permit Suspended	1
197	Trip Cancelled	1
200	User Friendly	1
216	other	1

218 rows × 2 columns

8. Year-wise Trend of Customers

[50]:
```
Year_wise_Trend=df.groupby('Year').size().reset_index(name='year').sort_values(by='year',ascending=False)
```

[51]:
```
Year_wise_Trend
```

[51]:

	Year	year
1	2015	35455
2	2016	28302
0	2014	12956
3	2017	9502

9. Quarter-wise Trend of Churned Customers (Complaint)

[52]:
```
quarter_wise_churned_complaint=df[df['Commendation or Complaint']=='Complaint'].groupby('Quarter').size().reset_index(name='quartely_complaint').sort_val
```

[53]:
```
quarter_wise_churned_complaint
```

[53]:

	Quarter	quartely_complaint
2	3	23814
3	4	23705
1	2	18176
0	1	16536

[54]:
```
df.to_csv('C:/Users/omsin/OneDrive/Documents/df.csv', index=False)
```