

Comcast Telecom Consumer Complaints

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Simplilearn Post Graduate Program - Data Science - In Partnership With Purdue University

Project Report - Comcast Telecom Consumer Complaints

Organization: Simplilearn - Purdue University Batch: PGP DS Mar 2022 COHORT 2 Course: PG-DS - Data Science with Python Project: Comcast Telecom Consumer Complaints Programming Language: Python Submitted by: Lavkush Singh

0.0.1 Dataset Description

Dataset has the following fields:

- **Ticket #:** Ticket number assigned to each complaint
- **Customer Complaint:** Description of complaint
- **Date:** Date of complaint
- **Time:** Time of complaint
- **Received Via:** Mode of communication of the complaint
- **City:** Customer city
- **State:** Customer state
- **Zipcode:** Customer zip
- **Status:** Status of complaint
- **Filing on behalf of someone:** Yes - Filed on behalf, No - Self

0.0.2 Problem Statement

Comcast is an American global telecommunication company. The firm has been providing terrible customer service. The existing database will serve as a repository of public customer complaints filed against Comcast. Analysis to be performed to pin down what is wrong with Comcast's customer service.

```
[1]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import spacy
import en_core_web_sm
from slugify import Slugify, slugify
import re
```

```
from wordcloud import WordCloud
import collections
from nltk.stem import SnowballStemmer
```

0.0.3 Task 1: Import data into Python environment.

```
[2]: comcast_data = pd.read_csv("Dataset/Comcast_telecom_complaints_data.csv")
```

```
[3]: comcast_data.head()
```

```
[3]:
```

	Ticket #	Customer Complaint	Date	\
0	250635	Comcast Cable Internet Speeds	22-04-15	
1	223441	Payment disappear - service got disconnected	04-08-15	
2	242732	Speed and Service	18-04-15	
3	277946	Comcast Imposed a New Usage Cap of 300GB that ...	05-07-15	
4	307175	Comcast not working and no service to boot	26-05-15	

	Date_month_year	Time	Received Via	City	State	\
0	22-Apr-15	3:53:50 PM	Customer Care Call	Abingdon	Maryland	
1	04-Aug-15	10:22:56 AM	Internet	Acworth	Georgia	
2	18-Apr-15	9:55:47 AM	Internet	Acworth	Georgia	
3	05-Jul-15	11:59:35 AM	Internet	Acworth	Georgia	
4	26-May-15	1:25:26 PM	Internet	Acworth	Georgia	

	Zip code	Status	Filing on Behalf of Someone
0	21009	Closed	No
1	30102	Closed	No
2	30101	Closed	Yes
3	30101	Open	Yes
4	30101	Solved	No

```
[4]: comcast_data.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 2224 entries, 0 to 2223
Data columns (total 11 columns):
#   Column                Non-Null Count  Dtype
---  -
0   Ticket #              2224 non-null  object
1   Customer Complaint    2224 non-null  object
2   Date                  2224 non-null  object
3   Date_month_year       2224 non-null  object
4   Time                  2224 non-null  object
5   Received Via          2224 non-null  object
6   City                  2224 non-null  object
7   State                 2224 non-null  object
```

```

8   Zip code                2224 non-null   int64
9   Status                  2224 non-null   object
10  Filing on Behalf of Someone 2224 non-null   object
dtypes: int64(1), object(10)
memory usage: 191.2+ KB

```

```
[5]: comcast_data.duplicated().sum()
```

```
[5]: 0
```

Analysis Summary:

- Dataset is csv file, with 10 variables and 2224 observations
- There are no duplicate observations
- There are no null data points in any of the variables
- Except 'Zip code' variable which is an 'integer' datatype, all the rest of the variables are of 'object' datatype

Task 1.1: Exploring the Dataset

```
[6]: comcast_data.columns
```

```
[6]: Index(['Ticket #', 'Customer Complaint', 'Date', 'Date_month_year', 'Time',
         'Received Via', 'City', 'State', 'Zip code', 'Status',
         'Filing on Behalf of Someone'],
         dtype='object')
```

```
[7]: comcast_data['Received Via'].unique()
```

```
[7]: array(['Customer Care Call', 'Internet'], dtype=object)
```

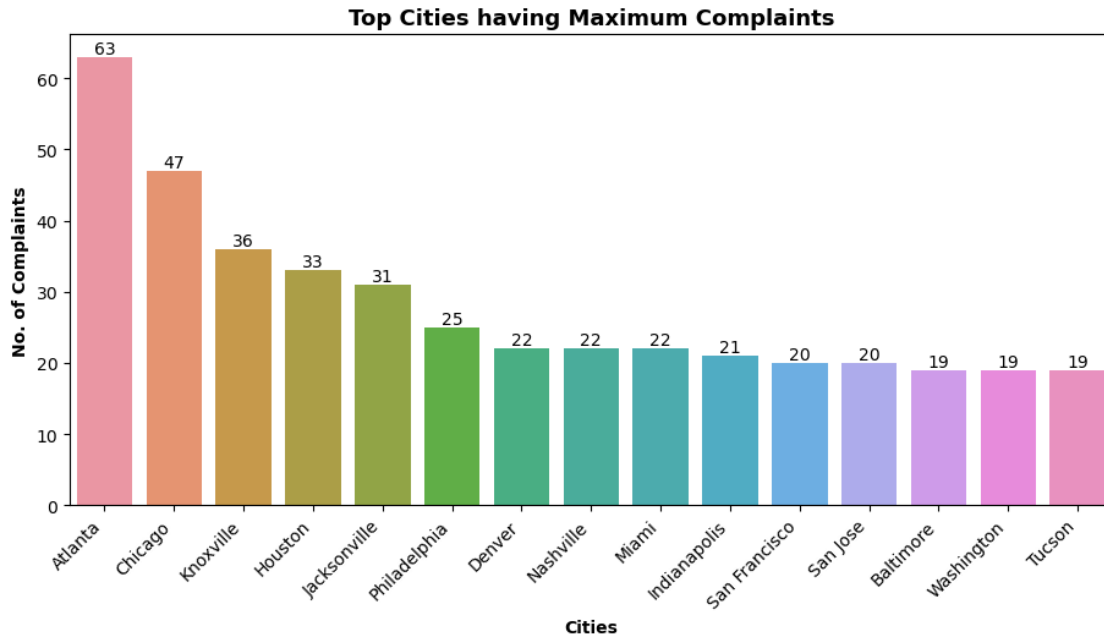
```
[8]: comcast_data['Received Via'].value_counts()
```

```
[8]: Customer Care Call    1119
     Internet              1105
     Name: Received Via, dtype: int64
```

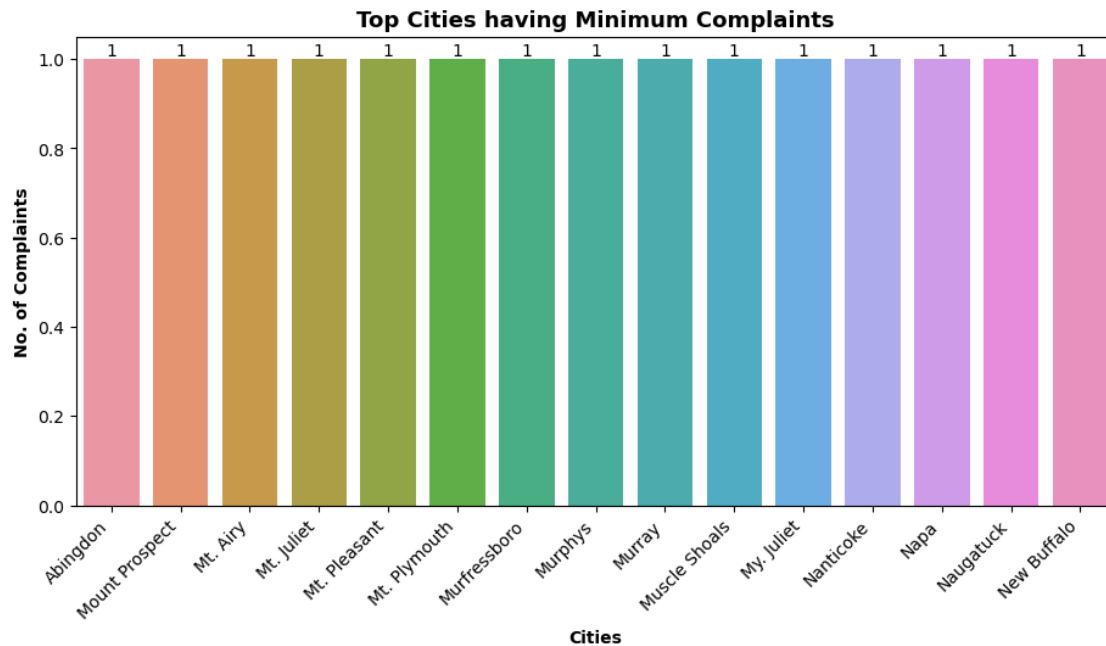
```
[9]: top_15_city_max_complains = comcast_data['City'].value_counts()[:15]
     top_15_city_min_complains = comcast_data['City'].value_counts(ascending =
     ↪ True)[:15]
```

```
[10]: plt.figure(figsize=(11,5))
      ax = sns.barplot(x = top_15_city_max_complains.index, y =
      ↪ top_15_city_max_complains.values)
      ax.bar_label(ax.containers[0])
      plt.xticks(rotation=45, ha='right')
```

```
plt.title('Top Cities having Maximum Complaints', fontsize = 13,
↪fontweight="bold")
plt.xlabel('Cities', fontweight="bold")
plt.ylabel('No. of Complaints', fontweight="bold");
```

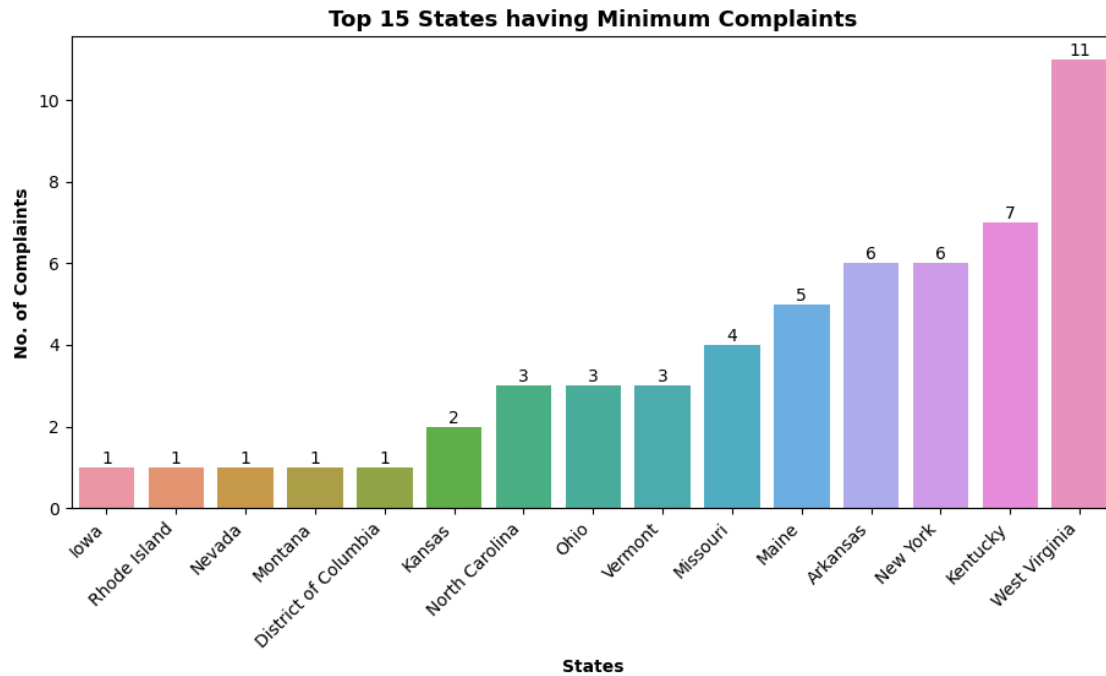


```
[11]: plt.figure(figsize=(11,5))
ax = sns.barplot(x = top_15_city_min_complains.index, y =
↪top_15_city_min_complains.values)
ax.bar_label(ax.containers[0])
plt.xticks(rotation=45, ha='right')
plt.title('Top Cities having Minimum Complaints', fontsize = 13,
↪fontweight="bold")
plt.xlabel('Cities', fontweight="bold")
plt.ylabel('No. of Complaints', fontweight="bold");
```

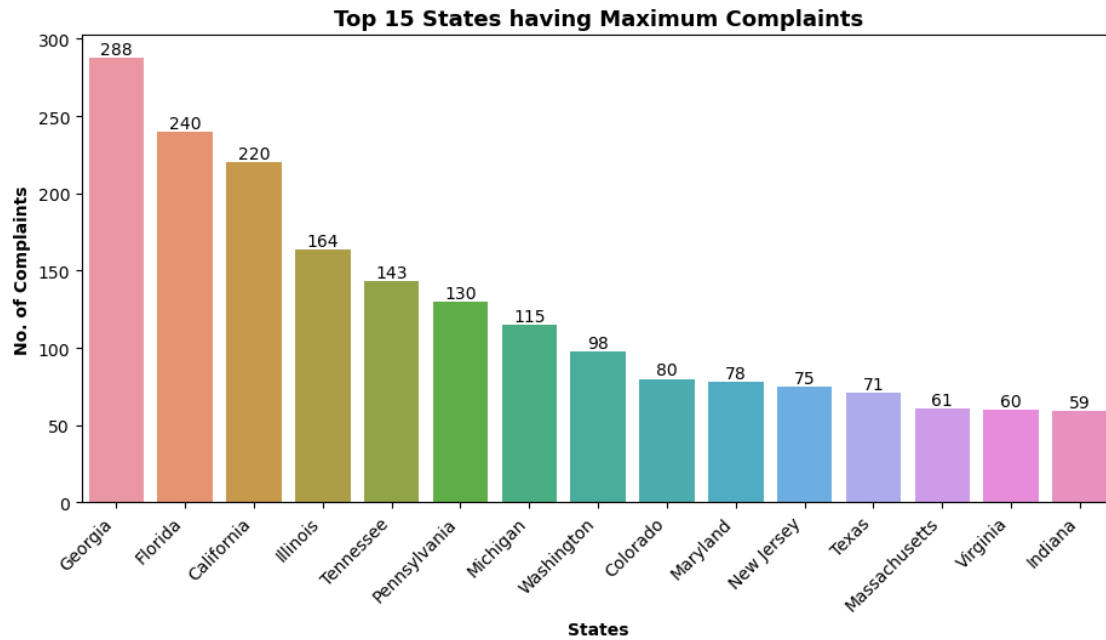


```
[12]: top_15_state_max_complains = comcast_data['State'].value_counts()[:15]
top_15_state_min_complains = comcast_data['State'].value_counts(ascending =
↳ True)[:15]
```

```
[13]: plt.figure(figsize=(11,5))
ax = sns.barplot(x = top_15_state_min_complains.index, y =
↳ top_15_state_min_complains.values)
ax.bar_label(ax.containers[0])
plt.xticks(rotation=45, ha='right')
plt.title('Top 15 States having Minimum Complaints', fontsize = 13,
↳ fontweight="bold")
plt.xlabel('States', fontweight="bold")
plt.ylabel('No. of Complaints', fontweight="bold");
```



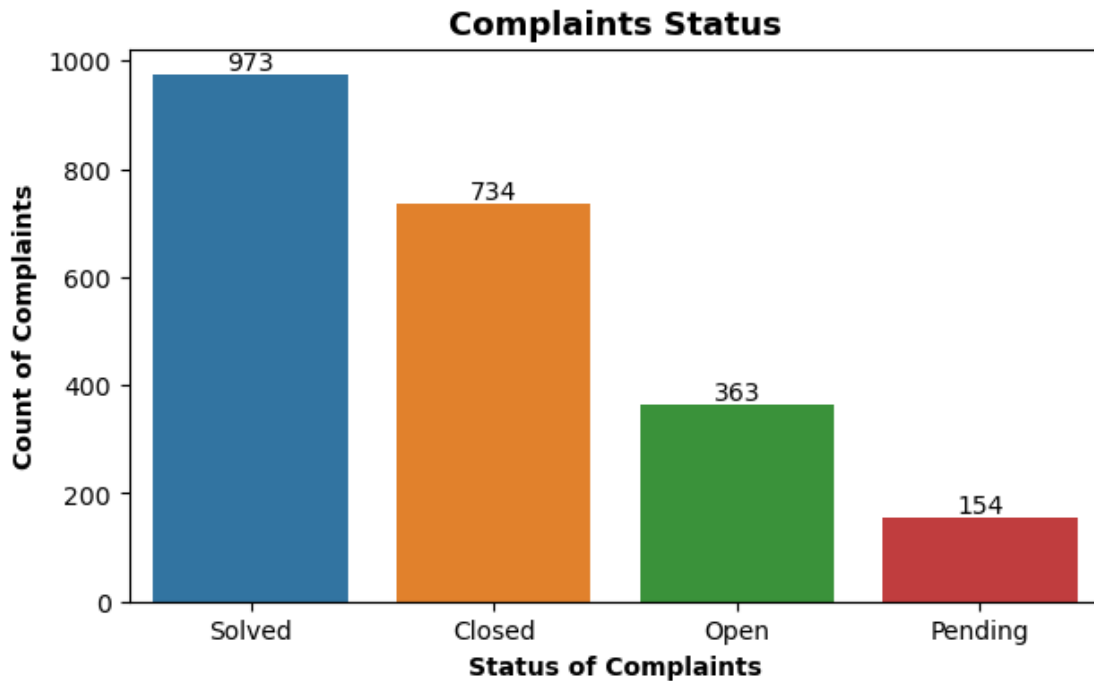
```
[14]: plt.figure(figsize=(11,5))
ax = sns.barplot(x = top_15_state_max_complains.index, y =
    ↳ top_15_state_max_complains.values)
ax.bar_label(ax.containers[0])
plt.xticks(rotation=45, ha='right')
plt.title('Top 15 States having Maximum Complaints', fontsize = 13,
    ↳ fontweight="bold")
plt.xlabel('States', fontweight="bold")
plt.ylabel('No. of Complaints', fontweight="bold");
```



```
[15]: comcast_data['Zip code'].nunique()
```

```
[15]: 1543
```

```
[16]: plt.figure(figsize=(7,4))
ax = sns.barplot(x = comcast_data['Status'].value_counts().index, y =
    ↳comcast_data['Status'].value_counts().values)
ax.bar_label(ax.containers[0])
plt.title('Complaints Status', fontsize = 13, fontweight="bold")
plt.xlabel('Status of Complaints', fontweight="bold")
plt.ylabel('Count of Complaints', fontweight="bold");
```



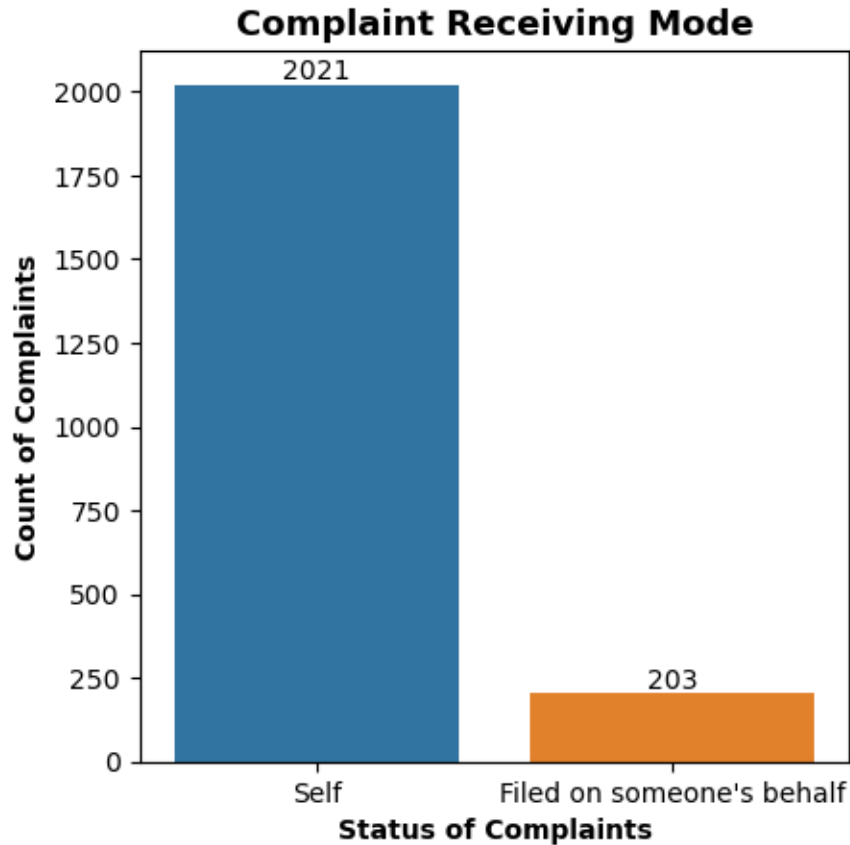
```
[17]: compaint_received_by = comcast_data['Filing on Behalf of Someone'].
      ↪value_counts()
      compaint_received_by
```

```
[17]: No      2021
      Yes      203
      Name: Filing on Behalf of Someone, dtype: int64
```

```
[18]: compaint_received_by.index = ['Self', 'Filed on someone\'s behalf']
      compaint_received_by
```

```
[18]: Self      2021
      Filed on someone's behalf      203
      Name: Filing on Behalf of Someone, dtype: int64
```

```
[19]: ax = sns.barplot(x = compaint_received_by.index, y = compaint_received_by.
      ↪values)
      ax.set_box_aspect(2/len(ax.patches)) #change 10 to modify the y/x axis ratio
      ax.bar_label(ax.containers[0])
      plt.title('Complaint Receiving Mode', fontsize = 13, fontweight="bold")
      plt.xlabel('Status of Complaints', fontweight="bold")
      plt.ylabel('Count of Complaints', fontweight="bold");
```

Analysis Summary:

- 'Ticket #' is an unique ticket identifier for each observation
- 'Customer Complaint' is description of the complaint
- 'Date' and 'Date_month_year' is same columns, having the date of compaint. Therefore, 'Date' is dropped.
- 'Received Via' variable reveals the mode via which the complaint was received. It was observed that there were two modes through which complaint was received, i.e. 'Customer Care Call', 'Internet', and both the modes have been used by people almost equally to get the complaint raised.
- Top cities was examined for 'City' variable, getting highest and lowest number of complaints.
- 'Atlanta', 'Chicago', 'Knoxville' were the top 3 cities having maximum complaints of 63, 47 and 36 respectively. Detailed top 15 cities bar chart is present in the jupyter notebook.
- There were lot of cities having only 1 complaint from them, therefore it was difficult to determine the bottom 3 lowest complaint cities. Hence, 'State' variable was used to categorise the number of complaints further.
- 'Georgia', 'Florida', 'California', 'Illinois', 'Tennessee' are the top 5 states having maximum complaints, with 228, 240, 220, 164 and 143 respectively.
- 'Iowa', 'Rhode Island', 'Nevada', 'Montana', 'District of Columbia' are the top 5 states having minimum complaints, of just 1 complaint each.

- 'Zip code' variable conveys the same information as that of cities and states, and has high cardinality, therefore was dropped.
- 'Status' lets us know the current ticket count along with their state of progress. It was observed that large number of complaints were in 'closed' and 'resolved' category, where as lower number of complaints are in 'open' and 'pending' state.
- About 91% of the complains were filed by the people facing the problem and rest about 9% complaints were filed on behalf of someone.

0.0.4 Task 2: Provide the trend chart for the number of complaints at monthly and daily granularity levels.

```
[20]: comcast_data.head(3)
```

```
[20]:
```

	Ticket #	Customer Complaint	Date \
0	250635	Comcast Cable Internet Speeds	22-04-15
1	223441	Payment disappear - service got disconnected	04-08-15
2	242732	Speed and Service	18-04-15

	Date_month_year	Time	Received Via	City	State \
0	22-Apr-15	3:53:50 PM	Customer Care Call	Abingdon	Maryland
1	04-Aug-15	10:22:56 AM	Internet	Acworth	Georgia
2	18-Apr-15	9:55:47 AM	Internet	Acworth	Georgia

	Zip code	Status	Filing on Behalf of Someone
0	21009	Closed	No
1	30102	Closed	No
2	30101	Closed	Yes

```
[21]: comcast_data.columns
```

```
[21]: Index(['Ticket #', 'Customer Complaint', 'Date', 'Date_month_year', 'Time',
        'Received Via', 'City', 'State', 'Zip code', 'Status',
        'Filing on Behalf of Someone'],
        dtype='object')
```

```
[22]: comcast_data = comcast_data.drop(['Ticket #', 'Date', 'Zip code'], axis = 1)
```

```
[23]: comcast_data['Date_month_year'] = pd.
        ↳to_datetime(comcast_data['Date_month_year'])
```

```
[24]: comcast_data.head(3)
```

```
[24]:
```

	Customer Complaint	Date_month_year	Time \
0	Comcast Cable Internet Speeds	2015-04-22	3:53:50 PM
1	Payment disappear - service got disconnected	2015-08-04	10:22:56 AM
2	Speed and Service	2015-04-18	9:55:47 AM

	Received Via	City	State	Status	Filing on Behalf of Someone
0	Customer Care Call	Abingdon	Maryland	Closed	No
1	Internet	Acworth	Georgia	Closed	No
2	Internet	Acworth	Georgia	Closed	Yes

```
[25]: comcast_data['Day'] = comcast_data['Date_month_year'].dt.day
      comcast_data['Month'] = comcast_data['Date_month_year'].dt.month_name()
      comcast_data['Month_num'] = comcast_data['Date_month_year'].dt.month
      comcast_data['Year'] = comcast_data['Date_month_year'].dt.year
      comcast_data['Quarter'] = comcast_data['Date_month_year'].dt.quarter
```

```
[26]: comcast_data = comcast_data.drop(['Date_month_year'], axis = 1)
```

```
[27]: comcast_data.head(3)
```

```
[27]:
```

	Customer Complaint	Time \
0	Comcast Cable Internet Speeds	3:53:50 PM
1	Payment disappear - service got disconnected	10:22:56 AM
2	Speed and Service	9:55:47 AM

	Received Via	City	State	Status	Filing on Behalf of Someone \
0	Customer Care Call	Abingdon	Maryland	Closed	No
1	Internet	Acworth	Georgia	Closed	No
2	Internet	Acworth	Georgia	Closed	Yes

	Day	Month	Month_num	Year	Quarter
0	22	April	4	2015	2
1	4	August	8	2015	3
2	18	April	4	2015	2

```
[28]: day_wise_tickets_count = comcast_data.groupby(['Day']).count()['Customer_↵
      ↪Complaint']
      day_wise_tickets_count.head()
```

```
[28]: Day
4      206
5      131
6      272
13      68
14      54
Name: Customer Complaint, dtype: int64
```

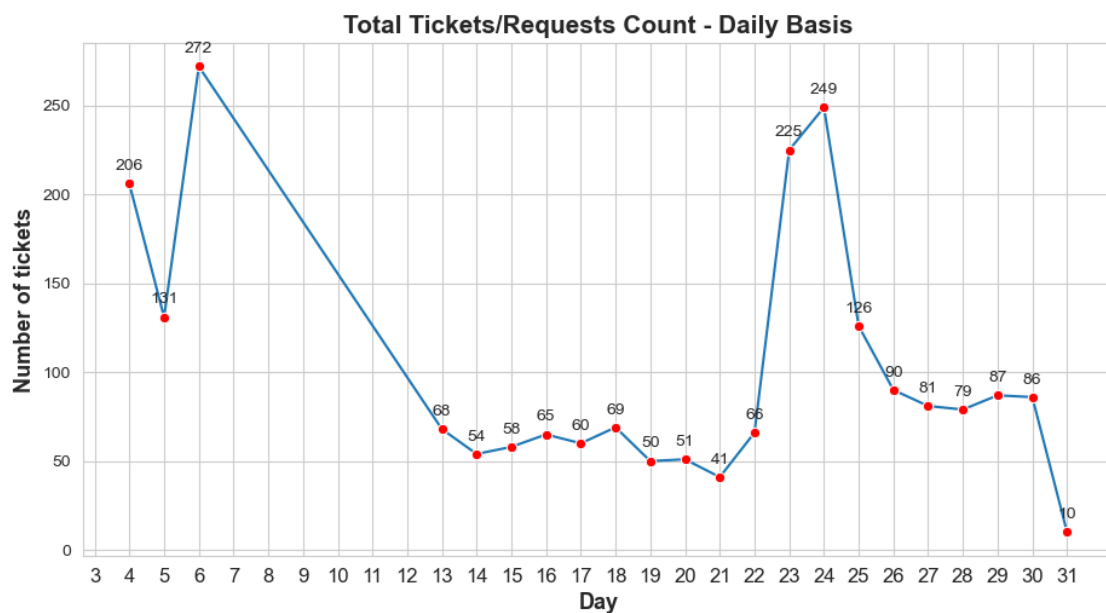
Trend Chart at Daily Granularity Level

```
[29]: plt.figure(figsize=(11,5.5))
sns.set_style("whitegrid")

ax = sns.lineplot(x = day_wise_tickets_count.index, y = day_wise_tickets_count.
    ↪values, marker='o', mfc = 'red')

for xval,yval in zip(day_wise_tickets_count.index, day_wise_tickets_count.
    ↪values):
    ax.annotate(f'{yval}',
                xy=(xval,yval),
                xytext=(0, 6),
                textcoords='offset points',
                ha='center', va='bottom')

plt.xticks(ticks=range(3, 32, 1), fontsize=12)
plt.title('Total Tickets/Requests Count - Daily Basis', fontsize=15,
    ↪fontweight="bold")
plt.ylabel('Number of tickets', fontsize=13, fontweight="bold")
plt.xlabel('Day', fontsize=13, fontweight="bold");
```



```
[30]: month_wise_tickets_count = comcast_data.groupby(['Month_num', 'Month']).
    ↪count()['Customer Complaint']
month_wise_tickets_count = month_wise_tickets_count.reset_index(level = 0, drop
    ↪= True)
month_wise_tickets_count.head()
```

```
[30]: Month
      January      55
      February     59
      March        45
      April       375
      May        317
      Name: Customer Complaint, dtype: int64
```

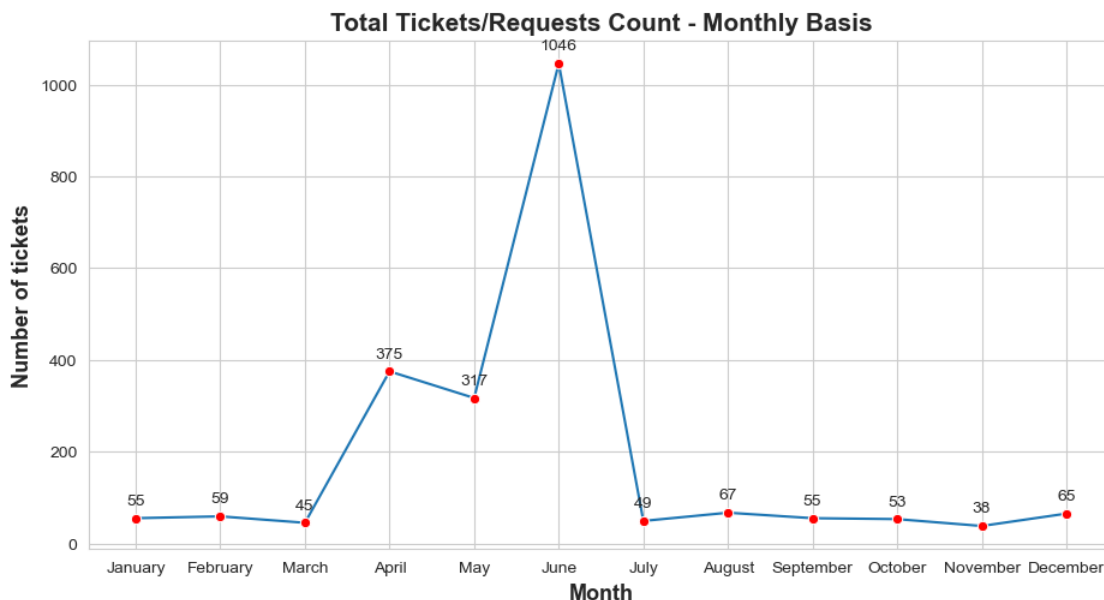
Trend Chart at Monthly Granularity Level

```
[31]: plt.figure(figsize=(11,5.5))
      sns.set_style("whitegrid")

      ax = sns.lineplot(x = month_wise_tickets_count.index, y =
      ↪month_wise_tickets_count.values, marker='o', mfc = 'red')

      for xval,yval in zip(month_wise_tickets_count.index, month_wise_tickets_count.
      ↪values):
          ax.annotate(f'{yval}',
                      xy=(xval,yval),
                      xytext=(0, 6),
                      textcoords='offset points',
                      ha='center', va='bottom')

      plt.title('Total Tickets/Requests Count - Monthly Basis', fontsize=15,
      ↪fontweight="bold")
      plt.ylabel('Number of tickets', fontsize=13, fontweight="bold")
      plt.xlabel('Month', fontsize=13, fontweight="bold");
```



Analysis Summary

- Trend chart at **daily** granularity level indicates that 06th, 23rd and 24th are the dates where we have the highest number of complaints in the bin, 'Open' and 'Resolved' inclusive
- Trend chart at **monthly** granularity level indicates that June Month has abrupt increase in the ticket count, followed by April and May month, 'Open' and 'Resolved' inclusive.

0.0.5 Task 3: Provide a table with the frequency of complaint types.

```
[32]: comcast_data.head(2)
```

```
[32]:
```

		Customer Complaint	Time \
0		Comcast Cable Internet Speeds	3:53:50 PM
1		Payment disappear - service got disconnected	10:22:56 AM

	Received Via	City	State	Status	Filing on Behalf of Someone \
0	Customer Care Call	Abingdon	Maryland	Closed	No
1	Internet	Acworth	Georgia	Closed	No

	Day	Month	Month_num	Year	Quarter
0	22	April	4	2015	2
1	4	August	8	2015	3

```
[33]: def preprocessing(sentence):

    nlp = spacy.load('en_core_web_sm')

    #print(f' Recieved string: {sentence}')
    sentence = re.sub(r"https?://[A-Za-z0-9/./-]+", ' ', sentence) # Remove URLs
    #print(f' URLs removed: {sentence}')
    custom_slugify = Slugify(to_lower = True,
                             separator = ' ',
                             safe_chars = '@')

    sentence = custom_slugify(sentence)
    #print(f' Slugified: {sentence}')
    sentence = sentence.lower()
    sentence = re.sub(r"@[A-Za-z0-9]+", ' ', sentence) # removing twitter_
↳username
    #print(f' Twitter Username removed : {sentence}')
    sentence = re.sub(r"[0-9]+[A-Za-z]+", ' ', sentence) # removing strings_
↳starting with numbers in the string
    #print(f' Number starting strings removed : {sentence}')
```

```

sentence = re.sub(r"[0-9]+", '', sentence) # removing numbers in the string
#print(f' Numbers removed : {sentence}')
sentence = re.sub(r'((\w)\2{2,})', '', sentence)
#print(f' Repeated words removed : {sentence}')

tokens = [token.text for token in nlp(sentence) if not (token.is_stop
                                                         or token.is_punct
                                                         or token.is_space
                                                         or len(token) == 1)]

tokens = ' '.join(tokens)
tokens = [tok.lemma_ for tok in nlp(tokens)]
return tokens

```

```
[34]: comcast_data['Customer Complaint'].head(3).apply(lambda x: preprocessing(x))
```

```

[34]: 0          [comcast, cable, internet, speed]
      1    [payment, disappear, service, got, disconnect]
      2                [speed, service]
      Name: Customer Complaint, dtype: object

```

```
[35]: list_of_complaint_types = comcast_data['Customer Complaint'].apply(lambda x:
    ↪preprocessing(x))
```

```
[36]: list_of_complaint_types[:15]
```

```

[36]: 0          [comcast, cable, internet, speed]
      1    [payment, disappear, service, got, disconnect]
      2                [speed, service]
      3    [comcast, impose, new, usage, cap, punish, str...
      4          [comcast, working, service, boot]
      5    [isp, charge, arbitrary, datum, limit, overage...
      6          [throttle, service, unreasonable, datum, cap]
      7    [comcast, refuse, help, troubleshoot, correct,...
      8          [comcast, extend, outage]
      9          [comcast, raise, price, available, ask]
     10          [billing, service, ask, disconnect]
     11    [yahoo, failure, restore, email, search, feature]
     12    [comcast, violate, open, internet, rule, block...
     13                [internet, speed]
     14          [internet, disconnect, night]
      Name: Customer Complaint, dtype: object

```

```
[37]: words_for_wordcloud = ' '.join(list_of_complaint_types.sum())
      words_for_wordcloud
```

```

[37]: 'comcast cable internet speed payment disappear service got disconnect speed
      service comcast impose new usage cap punish stream comcast working service boot

```

isp charge arbitrary datum limit overage fee throttle service unreasonable datum
cap comcast refuse help troubleshoot correct service comcast extend outage
comcast raise price available ask billing service ask disconnect yahoo failure
restore email search feature comcast violate open internet rule block hbo access
sony console internet speed internet disconnect night internet complaint
internet availability speed comcast owe claim need return equipment horrible
internet service failure provide service bill internet time monopoly horrible
cable service customer service speed comcast monopoly bundle practice comcast
bait switch comcast customer service apartment management exclusivity contract
comcast unable reach comcast agent internet billing issue wifi internet work
comcast datum cap comcast internet datum cap xfinity movers edge program comcast
data internet usage comcast refund credit comcast service comcast internet
billing servie issue comcast block directv signal pmts slow internet speed get
pay internet comcast bandwidth evening drop promise business isp dishonest speed
deceptive sale change bill etc comcast billing dispute comcast comcast billing
service issue cable price rise service issue hbo playstation internet
connectivity email issue monopoly complaint xfinity comcast comcast credit
cancellation receive year comcast false promise comcast block udp port issue
comcast comcast refuse schedule future service stoppage comcast overbille
comcast failure provide service refusal void contract spotty comcast service
service despite willingness pay issue xfinity comcast cable modem rent internet
access comcast xfinity speed issue fraudulent claim report collection agency
comcast data cap money like comcast data cap speed service comcast monopolistic
practice datum cap comcast data cap trial comcast billing problem comcast need
competition comcast service billing issue incorrect bill legality datum cap
datum cap comcast add service decline comcast mislead overage policy cable
service telephone connect complete comcast data cap comcast will not cancel
service datum cap comcast disconnect service date comcast data cap comcast
unbelievable treatment denial comcast business phone internet service dental
practice comcast terrible service business force bank account information
suspend service reason feel like commit corporate theft comcast discontinuation
service issue comcast customer service comcast comcast bandwidth data cap
atlanta ga comcast will not quit charge modem rental comcast download cap
horrible comcast customer service datum cap bad customer service disconnection
service comcast data usage charge comcast refuse service address comcast let
discuss bill service representative comcast billing fraud comcast tv internet
hookup service day comcast billing comcast internet comcast speed integrity
datum cap comcast atlanta datum cap comcast atlanta datum cap comcast poor
customer service overage data plan comcast comcast bill comcast data cap unfair
billing practice comcast datum cap comcast refuse honor internet rate speed
acceptable internet additional charge comcast internet cable service comcast
deceptive advertising overage charge comcast datum cap comcast xfinity slamming
comcast support unable provide accurate information comcast data usage limit
repeat erroneous modem rental charge xfinity pricing comcast monopoly internet
connection upload download speed internet availability comcast mb speed
throttling complaint comcast comcast comcast xfinity monopolistic billing
practice internet throttling datum usage overage double billing change service

bandwidth cap excessive comcast datum limit unable cancel xfinity home security
comcast try setup stuff nt order terrible waiting time incorrect price new
customer comcast throttle internet internet pricing misc charge comcast data cap
comcast throttles internet throttle force bundle internet service catv comcast
internet failure deliver service comcast hbo ps app comcast refusal recognize
write notice termination service rate termination fee comcast internet cable
charge double cable bill repeat comcast billing issue unauthorized comcast
username setup service turn retaliation complaint comcast disclose internet
speed pay bill online internet speed disclosure bill internet speed disclose
intermittent service comcast billing practice monopoly consistently slow
throttle internet speed pay high speed internet comcast consistently get slow
service comcast monopoly package cost money service hide fee drop internet
connection comcast high speed internet monopoly comcast cable maryland billing
dispute poor customer service comcast change contract comcast throttle xfinity
wifi access internet cable internet service slow intermittent comcast account
week long issue speed help comcast datum usage cap maine comcast shady business
practice comcast cable comcast pricing comcast complaint cable comcast charge
comcast internet need deceptive practice comcast fraud complaint cr comcast
problem voip phone working day comcast double billing download speed slow dial
pay mbps comcast billing error comcast internet technical support comcast block
hbogo ps residentail broadband datum cap comcast monthly charge increase notice
comcast internet low income family comcast internet low income family comcast
service customer service representative poor internet connection drop connection
installation new modem comcast billing bank fee refund reque comcast unfair
charge wrongful billing billing problem service refusal lower advertise speed
comcast major complaint time customer aggravate health issue connect service
charge lie comcast keep change bill time give new reason ad craigslist scam sell
product own comcast internet comcast billing discontinuation service complaint
comcast comcast data cap comcast issue comcast charge fee disclosing increase
bill incorrect charge fix suspect throttling constant disruption internet
service comcast unfair billing practice incorrect billing service comcast
comcast reduce internet speed getting charge rental fee modem deal comcast
xfinity billing billing awful service comcast bad practice billing equipment
provide comcast speed issue technical support failure supply proper internet
service comcast disconnect account reason notice bad service drop call support
modem rental fee comcast issue galore monopolistic behavior bait switch pricing
hbo comcast comcast slow internet slow internet speed comcast billing pratice
comcast overbille add numerous hide charge unfair billing practice comcast hbo
block amazon fire tv comcast outage poor service comcast agreement false
contract repersentation extremely low speed help comcast throttle download speed
broadband interruption low internet speed incorrect billing comcast diversified
consultant comcast bill mos service unable unwilling provide comcast blocks hbo
ps comcast data usage charge comcast bandwidth billing issue comcast internet
speed comcast slow internet service comcast slow internet comcast internet
freeze comcast change account plan say time lack service comcast comcast comcast
credit service outage unauthorized billing billing overcharge internet phone
comcast throttle internet double billing comcast billing charge internet

continue overcharge home security forgery fraud day degraded service internet
bill high pay comcast service fee disclose service instal comcast service poor
customer service bill service receive comcast disrupt internet service comcast
billing speed issue bundle service advertise proce comcast policy internet
throttling unfair billing practice cocmast billing issue comcast service not
work datum limit price competitive comcast billing practice unfair comcast slow
internet internet service xfinity false advertisement comcast constantly low
speed miscommunication billing error respond complaint comcast hbo application
sony product resolve problem comcast slow speed entire connection comcast
possibly throttle internet comcast suck issue comcast service billing etc
internet tv billing difficulty cancel service move comcast incompetence lie
robbery comcast force bundle silently raise bill internet slowdown comcast price
comcast fail fulfill request internet service hide product installation fee
month comcast fix problem fcc complaint comcast xfinity provide false
information comcast internet comcast internet service issue comcast xfinity
charge internet availability comcast usage cap comcast data usage cap datum cap
extortion method comcast internet service service billing discrepencie service
termination hurdle billing datum usage bait switch unfulfilled incentive
internet speed comcast will not refund charge comcast internet debacle price
performance manipulation comcast isp complaint comcast comcast internet speed
comcast complaint datum cap comcast unwilling resolve data usage issue comcast
unwilling resolve data usage issue comcast data cap comcast data usage meter
comcast internet datum cap lie comcast promise month fee charge fee comcast
cable connection street underwater structure high west coast service issue
comcast comcast refuse uphold contract year phone internet comcast business
internet expensive home internet comcast internet usage cap comcast poor service
comcast corporation datum cap comcast throttle internet service billing service
issue unethical charge comcast data cap comcast wrongfully autodrafte final bill
adjust comcast internet comcast data cap internet speed throttle complex
situation prevent bundle discount drive service price comcast internet price
speed comcast overcharge reimbursement ve recieve constant internet issue
xfinity xfinity comcast comcast hard inquiry comcast jamming signal comcast lie
terrible customer service process comcast hbo ps run comcast service customer
service issue comcast pricing scam comcast disconnect comcast throttle speed
datum cap close captioning online video comcast problem remove discount complain
unauthorized charge complaint comcast comcast internet connection cheat wireless
signal issue frequent connection drop comcast rip not quiet anymore billing
dispute complaint comcast comcast internet speed advertise comcast sony
playstation device comcast wifi issue comcast internet comcast comcast give poor
quality customer service comcast tech comcast internet horrible service charge
tech installation apply not slow internet billing poor customer service
complaint service comcast outage comcast internet connection speed comcast cable
internet comcast service month comcast comcast remove charge year comcast charge
service render price inflation monopoly comcast double charge internet service
month unfair billing practice comcast billing monopoly service trick upgrade
comcast unfair business practice internet speed slow faulty service false
advertisement comcast start charge lease fee equipment enable automatic bill

payment comcast xfinity service manipulation unsatisfactory speed disorganized
service comcast billing service unfair billing practice xfinity price pay
xfinity order status comcast violate open internet rule bill customer service
comcast double billing processing credit comcast internet speed comcast lie
deception comcast billing comcast internet cable phone outage internet
connection outage comcast throttle internet speed comcast xfinity overage charge
assistance service outage comcast comcast billing charge authorize comcast
xfinity comcast internet comcast xfinity xfinity comcast tether connection
xfinity comcast close schedule appt say open service issue comcast internet
outage comcast additional usage comcast datum cap comcast billing practice poor
customer service internet speed fraudulencnt collection claim comcast comcast
centurylink fail wissler ranch colorado community try cancel lie change service
xfinity throttle apple tv bitrate comcast termination fee unresolved issue warn
price increase comcast unfair billing comcast overbille overcharge comcast
service complaint charge bill unknowingly billing internet phone pricing bad
speed competition billing match service comcast bundle service charge equipment
not comcast misrepresent service area charge attempt use comcast xfinity comcast
deliver service slow internet speed comcast comcast service nonsensical raise
internet bill comcast service billing comcast runaround cruel illegal practice
comcast throttle speed transfer service comcast agent lie service upgrade
customer service representative lie rate promotion comcast service corvallis
unexplained billing comcast xfinity internet lack availability comcast bill
problem unfair billing practice comcast datum cap comcast internet unbelievably
slow comcast refuse refund rental fee error comcast issue cable internet
packaging unfair price comcast internet speed reliability cable internet
monopoly deceit data cap comcast xfinity home security service comcast bait
switch comcast data cap atlanta ga cap datum usage datum cap datum usage extort
sign multi year contract comcast selectively enforce datum cap comcast usage cap
comcast internet service bad quality ping spike packet loss comcast complaint
comcast phone internet billing issue comcast xfinity charge rental fee
personally own modem horrific billing comcast xfinity overcharge internet
internet cap comcast money grab datum cap comcast internet service provider
fraudulent charge comcast comcast data cap compliant billing charge credit
comcast data cap limit lack competition anti competition business billing
practice deceptive billing practice billing complaint comcast unfair billing
practice comcast property access right entry internet speed robber barron
billing practice fradualent claim xfinity comcast hbogo ps comcast failure
respond user communication xfinitty tv exfinity alarm internet speed price
bundle comcast internet illegal charge possible internet speed throttle comcast
internet provider slow speed inaccurate billing comcast internet pricing billing
contract issue relate datum cap comcast data billing datum cap comcast comcast
comcast prolong internet outage tardy response comcast internet improper billing
comcast deceptive sale tactic misrepresentation term consumer fraud sell price
advise price high mislead communication comcast chat agent help fee comcast
cable company florida mislead advertising comcast unfair billing practice
comcast unfair comcast bill comcast service comcast internet speed extremely
slow comcast internet service billing problem comcast speed billing comcast

refusal cancel service false contract claim terrible service rip comcast
extremely slow internet speed horrible support promise package deny hbo
playstation comcast secretly raise bill service agree lie technician fee
internet slow internet speed drop signal borderline comcast service exterior
line replacement bill customer comcast complaint unfairly bill internet price
comcast throttle speed stream video consistently slow internet speed internet
speed close pay bill service slow internet bill modem rental year comcast refuse
refund caveat emptor mislead information give contract cancellation fee
unauthorized change internet service demand service internet demand service
unfair charge substandard service comcast automatic payment outage unfair
practice fraudulent practice comcast service comcast billing practice comcast
comcast mistreatment slow connection speed wifi comcast speed low disconnection
comcast service denial refund overpayment comcast data cap comcast unfair
billing comcast slow service comcast internet comcast internet issue business
class service dns web hosting fraudulent account comcast internet service
complaint billing issue comcast poor service throttle comcast refuse fix billing
virus cause datum usage cap system protect av broadband service provide poor
service comcast gb cap comcast datum cap slow speed poor service billing service
comcast indiana comcast trial put cap gb month internet usage comcast datum cap
comcast data cap code injection comcast billing service comcast flat fee
contract misrepresentation comcast internet problem comcast internet billing
comcast xfinity triple play billing issue comcast comcast internet comcast
outage bay area comcast east windsor nj complaint terrible comcast service
complaint comcast incredibly bad service datum cap internet service speed
comcast xfinity price gouging senior misrepresentation billing constant non
response pass operator supervisor inability resolve help numerous lie tell
comcast chronic lie comcast internet service comcast break month contract
increase bill unfair billing practice installation charge comcast charge bundle
pkg comcast xfinity data allowance pricing day close account fraudulent billing
comcast comcast fail switch system new location shut current location comcast
slam issue stop broadband bandwidth cap comcast internet emeryville throttle
speed price concern palmer road enfield nh internet pricing overprice low
quality service bundle service comcast customer service billing complaint
comcast throttle lack service service complaint lack service service complaint
comcast fraudulent marketing billing internet unreliable service past year
comcast double internet fee warning frequent disconnect billing issue comcast
unfair billing practice comcast deceptive sell billing lack service second
expand complaint comcast complaint internet speed comcast billing issue comcast
chicago il internet day comcast comcast price gouging unable renew ip address
comcast comcast comcast issue comcast service home comcast xfinity comcast
billing service issue poor service datum cap comcast internet billing comcast
fluctuate price recur comcast service issue long wait non service multiple
billing dcompetitive issue comcast fraudulent billing comcast service internet
expensive charge service provide pay wifi work isp datum cap internet connection
speed issue comcast internet comcast provide online content cable box internet
cap lack reasonable infrastructure close town comcast throttle speed comcast
comcast throttle internet un able access email address relocate new address

internet speed issue comcast picture freeze issue watch tv systemic failure
comcast comcast xfinity comcast internet lack communication response billing
issue comcast knowingly bill horrible unacceptable service comcast comcast
overcharge deceptive trade comcast demand payment cancellation internet xfinity
promise pay join comcast issue internet provider datum threshold comcast cable
comcast data cap comcast datum cap comcast comcast data cap routine outage speed
promise comcast business keep move day trouble appointment day comcast cable
company comcast billing lack hbo availability sony devices xfinity subscription
overcharge month month straight raise rate unfair comcast billing comcast
fraudulently get contract sign wife comcast charge unrelated charge ridiculous
charge complaint comcast arbitrary price increase comcast billing complaint
internet speed deterioration internet speed wireless connection internet
intermittent internet deceptive trade improper billing non resolution issue lose
email bill comcast xfinity poor service fraudulent billing collection monthly
datum cap comcast datum charge inability access internet comcast pay upgrade
take place bill issue internet disability comcast price receive advertised speed
xfinity internet speed comcast billing nightly service interruption netflix slow
comcast will not service address access email service xfinity comcast service
unclear policy month datum cap comcast xfinity pay high speed service comcast
xfinity pay high speed service overage charge comcast internet cable deal
comcast bundle billing comcast internet speed quality service price internet
bundle tv consistent speed connectivity internet comcast ignore make attempt
correct problem datum cap unfair billing practice comcast bundle price wrongful
billing repeat december comcast charge invalid fee will not reimburse comcast
xfinity service comcast bundle somewhat threaten phone call data cap overage
internet virus pop scam claim comcast intermittent internet connection raise
bill tell low month agreement comcast comcast internet comcast issue comcast
customer service loss internet speed throttle internet essential low income
family hearsts magazine contest scam comcast comcast comcast internet service
comcast bundle comcast fraud comcast surprise increase charge internet problem
comcast rrefund owe overcharge charge speed provide comcast deception comcast
slow internet speed datum cap comcast billing complaint frequent interruption
comcast overbille throttle comcast xfinity internet day call spend hour comcast
phone comcast slamming overcharge speed receive advertise comcast throttle speed
comcast billing fraudulent billing comcast comcast throttle throttle internet
access speed comcast comcast overcharge internet service year receive refund
service comcast day unfair deceptive trade practice comcast bill internet usage
comcast data cap billing issue comcast billing practice high payment comcast
support comcast internet cable contact phone chat comcast usage datum plan
comcast data usage cap limit cable charge comcast datum cap comcast data usage
cap comcast keep charge limit internet say unlimited datum overage charge
internet continue service interruption cause loss business comcast block service
fake charge billing issue service issue comcast charge fee warning comcast
service level side contract comcast fraudulent charge comcast data useage cap
charge comcast cable unauthorized charge comcast cable unauthorized charge
comcast fraudulent pricing practice comcast competition comcast earthlink speed
throttling charge double speed throttle comcast rate hike internet speed comcast

xfinity internet cable alarm phone internet cable alarm comcast service
overcharge internet phone billing internet connection comcast internet price
high comcast comcast refuse service address overcharge promo end hang up lie
bill higher lie deception comcast refuse refund deposit accord initial term
comcast datum cap datum cap comcast contract problem intermittent service
comcast overcharge comcast monthly bill deceptive business practice service
protection plan bill error unreliable service billing threat horrible internet
speed pay comcast service failure incomplete billing cycle internet system
reliability faulty bill profit comcast overcharge unnecessary charge throttle
comcast bill internet service instal bill new account issue comcast high price
throttle speed comcast predatory pricing force purchase cable comcast billing
speed pricing comcast internet slow monthly bill internet service expensive
throttle comcast internet service complaint poor quality service multiple
disconnection prior disconnect date payment got disconnect multiple time comcast
lie mislead comcast xfinity internet connection available comcast service issue
comcast bundle useless service charge comcast fail deliver service advertise
comcast will not honor discount bill higher agree poor customer service terrible
internet speed price way high comcast bundle promotion bait switch comcast
internet service large increase improper billing promtion yr comcast refuse
install internet text facebook comcast customer xfinity com low internet speed
complaint comcast xfinity houston texas bill false advertising comcast charge
service fee customer customer not cause issue comcast unable touch power cancel
service comcast datum cap anti consumer hbogo ps throttle speed peak hour
customer service lie extra fee xfinity data cap comcast service charge
activation kit send need add service request increase fee notification renew
contract permission consent ongoing issue bill supervisor issue fix comcast
comcast failure provide adequate service assess unjustified late fee unable
fully use service high bill comcast comcast indianapolis scam comcast billing
comcast customer care racism comcast customer care racism internet service hbo
nt load time comcast customer service agent lie offer switch comcast technical
customer service billing problem comcast xfinity internet gouging pricing
problem promise comcast business service email account getting charge modem
rental buy month ago comcast billing internet service provider comcast harass
return equipment return comcast service throttle continue call comcast
installation comcast xfinity internet throttle comcast service connection issue
increase bill bad service unfair trade practice comcast virtually service
october recur billing discrepancy modem comcast data usage robbing false
advertising overcharging xfinity internet overcharge excessive bill internet
fraud comcast internet provider jacksonville florida internet service change
comcast business comcast residential access onlinebille account pay bill account
info change authorization continue issue internet deal customer service comcast
comcast service billing comcast speed issue evening comcast apply credit close
comcast complaint monopoly fraudulent broadband speedtest result comcast refuse
serve address customer service nightmare commercial property damage non working
service comcast issue internet service comcast cable tv complaint comcast
comcast comcast hassle comcast fraud comcast customer service comcast internet
service customer service horrible loss internet connection internat essential

lack service mislead promise comcast service comcast internet complaint comcast
service work comcast charge ridiculous price comcast internet service comcast
internet performance comcast internet claim mbps internet mbps customer service
representative hang repeatedly long term billing issue rude customer service
cause depression trauma comcast incorrect confusing billing datum cap monthly
price installation request new subdivision jesup ga comcast grievance comcast
exfinity customer service error lie waste time comcast exfinity customer service
error lie waste time comcast bad rude customer service billing dispute comcast
cable lie suffering loss cyber bull comcast service comcast business service
complaint comcast mail issue comcast slam fee fraudulent charge comcast billing
monopoly comcast billing cause issue business practice customer treatment
xfinity provide service portion neighborhood comcast customer service billing
service receive speed promise charge high internet bill go cable bundle
significant quality loss customer service unfair billing practice service issue
xfinity throttle connection service day credit comcast home business service fc
consult llc charge modem return year ago comcast data cap comcast pricing bundle
model monopolize extortion area comcast force pay rate low speed speed lower
advertise comcast data cap datum cap comcast online access availability wireless
internet access hbo playstation comcast frequent service outage comcast internet
ongoing continue internet service outage internet problem billing service comcast
block hbo sony playstation device nd internal miscommunication continue slowness
week continue slowness week continue slowness week comcast constant manipulation
bill false advertising bait switch false advertisement pay service comcast
internet comcast internet tv false information false price comcast data cap
interference free market inhome service visit charge problem outside apartment
comcast internet cable tv package comcast internet overage charge unauthorized
charge comcast bill datum cap comcast comcast high speed internet fraudulent
charge credit report comcast datum cap comcast datum cap comcast datum cap
comcast home datum usage cap unable obtain residential service bandwidth cap
local monopoly comcast datum plan comcast isp oio violation comcast data cap
comcast internet refusal prorate service receive comcast datum cap datum soft cap
charge comcast comcast speed cap misinformation comcast excessive overage
comcast datum cap home internet service comcast comcast monthly datum usage cap
comcast datum limit overage charge comcast datum use cap datum cap service
customer service provide comcast datum usage force datum cap comcast cost unfair
billing practice request transfer mail account comcast comcast data cap
complaint comcast infinity complaint service provide comcast xfinity problem
comcast service provide promise email account remove internet billing fraud
comcast comcast internet availability student billing comcast internet comcast
internet billing inability service power outage comcast monopoly hurt business
comcast billing internet speed advertise underhanded sale technique comcast
internet internet phone billing service fraudulent billing practice receive
network speed advertise internet speed service comcast honor agreement falsify
unreturned equipment fee slow comcast internet comcast deliver advertised speed
comcast support issue inappropriate billing comcast internet offer comcast las
cruce new mexico unfair billing practice comcast stockholder response xfinity
cable internet repackaging scam constant loss account xfinity slow internet

comcast poor customer service degraded service datum cap comcast internet
billing discrepancy misrepresentation package price comcast cancellation comcast
datum limit comcast data cap lack service speed comcast violation merger term
online advertise price honor phone comcast inflate undetermined increase rate
local comcast fee internet service block view website bait switch unfair pricing
unresponsive call customer service wifi hotspot comcast billing comcast promise
credit supervisor bait switch datum cap datum cap comcast data cap cheat
customer comcast bundle service xfinity unable correct issue lose connection
comcast monopolistic billing practice gb monthly allowance comcast data cap
internet comcast datum threshold customer service customer service price loss
electronic poor customer service faulty grounding ongoing comcast internet
outage unfair internet price comcast internet dropping comcast problem
overcharge underperforming service throttle comcast comcast unfair billing
practice comcast billing shut service comcastcomcas comcast cable fraudulent
billing practice comcast service interrupt internet contract issue comcast
billing xfinity bogus modem charge comcast poor customer service internet
availability comcast service internet service phone service xfinity internet
speed billing error comcast billing issue internet throttle unfair billing
practice internet throttle unfair billing practice comcast false advertising
speed slow advertise increase price internet comcast comcast internet slowness
internet video throttling comcast xfinity ridiculous inconsistent billing
comcast inflate data meter usage comcast billing fraud comcast incorrect billing
issue happen multiple occasion account repeat issue comcast billing customer
service comcast data cap unfair pricing practice comcast customer service
comcast business internet provide service new location terminate contract
despite multiple attempt datum cap discourage commerce comcast internet
atrocious comcast internet speed comcast cancellation issue internet
availability comcast give ring charge comcast charge comcast internet billing
problem disrespectful customer service agent bill fluctuation comcast internet
price keep change comcast continuous modem rental charge comcast throttle
internet customer service billing complaint month data cap trial year comcast
data usage cap comcast datum cap comcast datum limit comcast refuse honor plan
sale rep offer comcast data cap impose notice comcast charge data comcast
xfinity comcast business internet comcast data cap comcast charge overcharge
internet billing comcast data cap comcast billing practice comcast billing
service issue intermittent poor service inconsistent poor internet performance
internet performance latency bandwidth substantially pay week comcast endless
problem internet connection deliberately slow comcast customer service technical
service inferiority comcast cable outage service disconnect request overcharge
overpaid result comcast service infinity comcast datacap comcast internet speed
comcast internet service complaint comcast uverse horrible service comcast
internet internet waste time money billing issue force pay home security service
inactive bundled internet service comcast datum cap comcast comcast data cap
limit invalid service invalid service comcast datum cap stop datum cap comcast
lack communication poor customer service comcast data cap comcast overpricing
comcast rate comcast data cap comcast refuse honor agree price promotion comcast
slow unfair billing practice poor customer service comcast comcast turn business

account party collection legitimately cancel contract term comcast billing
account closed pay comcast deceive upgrade request comcast service issue comcast
internet telephone tv service receive internet harrasse phone call internet
service comcast complaint comcast terrible comcast internet poor service charge
cable modem rental own year monthly charge modem comcast service comcast service
comcast exaggerate bill lack responsibility appointment disrespect consumer
exaggerate bill lack responsibility appointment disrespect consumer failure
connect service comcast cancel account problem comcast xfinity internet service
pay mbps comcast receive mbps comcast internet billing comcast internet slow
comcast new signup billing bait switch billing lack internet speed comcast poor
customer service commitment new fcc internet rule slow system unfair pricing
poor service comcast xfinity internet cable billing comcast comcast charge item
want ask internet throttling comcast new service ridiculously inept close speed
tell add incorrect charge bill hope notice second complaint comcast honor
marketing material comcast commit bait switch fraud bad customer service
resolution comcast comcast billing issue pay high speed internet receive low
speed unwilling provide refund charge rent modem internet connectivity issue
comcast raise bill twice warn comcast charge connection comcast business honor
sign contract transfer service comcast nightmare charge erroneous fee bill need
help plea discriminatory tiered pricing traffic limitation comcast comcast thief
low internet quality false advertisement comcast target block content slow
internet monopoly area datum cap datum cap comcast usage limit comcast bill late
payment disconnect error internet service spam failure resolve internet outage
comcast internet service able use comcast account issue customer service
complaint comcast internet ad website comcast awful lie corrupt internet
freezing unannounced service outage cause weather comcast data cap bullcrap
receive bill account suppose cancel comcast comcast refuse run line comcast
unreliable speed service internet service internet service internet service
comcast slow speed lie price billing issue unfair comcast billing practice
comcast charge monthly fee equipment rental equipment comcast refuse credit
erroneous overcharge deceptive promotional rate comcast data cap comcast
installation date june comcast refuse provide continue service promise
advertised writing require deposit open account comcast cap comcast data comcast
internet resolve false charge refusal credit commercial burn datum comcast
comcast internet complaint charge internet comcast data policy lie comcast
xfinity customer service billing comcast data cap throttle bandwidth comcast
billing comcast service comcast data overage charge dishonest billing practice
dishonest billing practice lie comcast comcast lower internet speed constant
basis comcast lie customer phone internet package pricing information comcast
san francisco fraudulent charge poor service speed internet close claim comcast
take account info billing reason code excess billing fraud imo unreliable
internet service comcast catch lie bill bait switch product offering internet
blast service comcast charge modem rental modem return year ago comcast internet
comcast bundle availability complaint comcast connection issue unauthorized
change charge availabilty datum allowance comcast billing issue comcast data
usage deceptive practice comcast datum cap comcast limit access datum datum cap
comcast attempt circumvent net neutrality policy comcast data cap comcast

downgrade service notification comcast internet comcast datum cap currently
uncompetitive nashville market comcast responsive multiple request service
comcast steal comcast horrible service intermittent drop service overage charge
comcast refund comcast speed advertise comcast data cap comcast internet lose
internet service low wifi issue internet speed comcast internet complaint
internet problem comcast service problem month charge fixng issue horrible
customer service help lie supervisor comcast false advertising comcast business
internet comcast lie pricing installation comcast unfair pricing tactic
overcharge comcast monopoly comcast cheat overcharge comcast business phone
internet contract disagreement unable cancel comcast service mislead information
contract lead unresolved early term fee comcast issue internet comcast failure
service comcast throttle internet connection billing service issue day service
appointment comcast not show comcast fix home infinity day call internet outage
high speed internet awful rude nasty customer service behavior year failure
deliver business internet service pay comcast fail bad customer service team
negative outlook customer comcast comcast xfinity internet problem improper
billing internet slow spotty service business class internet bundle cable
internet comcast dishonest marketing scheme sell service receive internet speed
home shopping network email comcast internet speed comcast charge internet speed
lower order ask comcast fix internet connection home comcast scam comcast
service billing issue speed throttling bill damn high comcast data usage cap
comcast internet datum cap comcast service billing issue illegal charge comcast
comcast inconsistent low speed overprice bad customer service unable cancel poor
internet service microsoft limit service unethical behavior comcast request
credit check deposit unfair bundle comcast year packet loss downtime comcast run
comcast cablevision florida comcast poor quality service unauthorized charge
comcast xfinity cancellation fee comcast billing speed data cap overage comcast
datum cap kill internet lie comcast datum cap olive branch ms comcast datum cap
comcast internet data cap segregation inconsistent internet service comcast
fraudulent billing practice unwilling resolve situation bill slow internet
internet tv problem day internet go disconnect support call internet service
billing force customer pay incorrect bill fix comcast billing pricing practice
comcast terrible service bait switch service monetary gain comcast xfinity
internet performance outrageous internet bill adjustment comcast comcast cable
phone internet complaint comcast data usage additional fee internet usage tv
billing complaint comcast abysmal customer service approve merger time warner
comcast business internet service day billing problem comcast internet billing
comcast billing comcast comcast billing datum usage limit data cap limitation
comcast service rep miss appointment miss important family gathering wait worker
unfair billing throttle internet comcast phone internet tv erroneous charge
comcast bill deceptive false contract business comcast service poor service
inaccurate billing comcast nightmare comcast internet bait switch service
assistance comcast terrible service comcast high speed internet work comcast
billing customer service failure cancel service unable return equipment unable
return equipment slow internet speed comcast keep hiking bill reason
questionable internet slowdown comcast advertise internet price honor data cap
problem comcast internet overage charge surprise datum cap comcast price

increase fix price plan internet price went offer low price deal cable tv
comcast comcast metro fiber comcast terrible experience comcast promotion end
month meter bandwidth data meter comcast data cap speed comcast xfinity larger
withdrawal automatic payment bill inability add service internet service comcast
customer service theft inconsistency comcast terrible comcast experience end
sight comcast xfinity customer service comcast block hbo sony platform bundle
comcast block hbo playstation cancel comcast internet service billing cancel
terrible service internet connectivity speed bad internet speed comcast comcast
billing issue comcast refuse recognize sex marriage comcast wifi service
terrible internet quality comcast billing service unfair billing comcast comcast
complaint internet service provider billing increase like speed price offer
comcast stop cap comcast quote price bill poor internet quality comcast terrible
experience resolution comcast terrible experience resolution comcast throttle
connection speed comcast comcast fraudulent billing charge unfair pricing
comcast unfair billing pricing practice slow internet speed comcast throttle
connection internet phone cable service comcast bundle internet tv service
deceptive sale practice comcast price inflation comcast comcast slow internet
speed bill payment comcast service comcast provide service bad internet billing
service issue comcast billing increase charge service fixing problem internet
work home terrible customer service comcast internet work expensive service cap
comcast email service comcast deceptive billing practice broadband internet
service comcast blocks hbogo sony ps ps devices communication problem comcast
unfair billing policy bundle bull unwarranted charge comcast internet outage
internet service attitude cust svc rep internet service comcast mislead cost
business comcast comcast billing comcast miss appointment internet phone service
comcast bill primary service secondary comcast deceptive billing comcast
internet comcast internet datum cap comcast block hbo content stream billing
issue comcast monopoly internet bait switch comcast deceptive business class
billing billing internet cable service comcast theft lie horrible service
deception invalid service charge comcast billing complaint comcast xfinity
blast internet comcast comcast bandwidth availability datum limit comcast
excessive billing unable comcast provide broadband loss connection internet time
day way promotion end comcast connect cancel service raise price unfairly
comcast ve pay unnecessary speed know comcast internet bill increase comcast
bait switch comcast comcast shut notice internet tv cable splitter consent
customer comcast mail comcast complaint service billing comcast overcharge
internet charge comcast comcast datum cap comcast data usage cap datum cap
monthly fee comcast monopoly calvert county maryland comcast speed comcast
internet billing comcast corporation comcast comcast xfinity customer service
intermittent expensive connection slow internet speed promise pay internet
connectivity loss latency speed comcast throttle comcast data cap end run net
neutrality comcast internet disconnection non working service internet pricing
competition comcast complaint comcast throttle playstation block hbo comcast
xfinity unethical business practice comcast block hbo playstation system comcast
downright awful service provider comcast screw comcast speed matching block
phone number comcast tinternet service provider complaint high speed internet
complaint comcast hide fee unauthorized charge issue service payment comcast

billing dispute wireless service comcast service inadequacy internet speed
internet tv bundle service comcast set unacceptable business internet service
comcast poor speed reliability possible speed throttle comcast xfinity richmond
va comcast speed throttle comcast end promotion contract early direct customer
resolve dispute person office shady internet billing practice comcast comcast
internet comcast comcast comcast data cap internet service week hbo ps unfair
charge datum cap internet download comcast speed comcast charge billing issue
comcast internet service comcast billing service issue internet customer service
problem comcast lack consistent service interne speed comcast comcast order
service agree billing dispute comcast net comcast take day solve internet issue
failure provide imstallation rockville maryland internet slow predatory billing
comcast comcast xfinity barely work speed suck email transfer problem cram
charge phone internet bill throttle internet speed comcast billing problem
comcast charge notification internet availability comcast internet usage cap
comcast service billing issue internet outage comcast internet horrible customer
service comcast customer service awful manipulative billing issue comcast
advertise wifi internet speed provide false advertisment comcast internet slow
pay bad practice billing comcast refusal rectify comcast cable availability
datum usage comcast billing dispute complain comcast email telephone home
service false service misinform comcast xfinity comcast block hbogo playstation
console comcast internet online streaming false information give set service
comcast speed throttle internet possible throttle throttle disconnection
internet offer rescind internet throttling comcast comcast crook comcast price
increase line advertisement comcast internet service intermittant phone internet
comcast etf charge charge technician fee comcast internet service availabilty
internet unauthorized year contract comcast unwanted email opt option waive
reoccure charge difficulty internet speed comcast monopolistic billing
uncompetitive pricing comcast internet service comcast force contract comcast
repeat installation issue comcast internet service ecobill discount horrible
customer service comcast comcast internet comcast comcast xfinity poor internet
connection speed poor customer service pay internet comcast billing service
provide comcast illegally introduce service fee notice customer consent comcast
change package want pay comcast throttle deliver internet service comcast refuse
low bill prevoius agreement bill deceitful practice comcast unfair billing
practice engage comcast xfinity comcast overcharge despite regular call agree
price unclear quote speed price comcast billing practice internet issue comcast
internet speed awful internet charge incorrect price false billing postal mail
ticket comcast xfinity charge consumer troubleshooting fix problem recent hack
email account comcast billing internet service termination unnecessary charge
comcast technician visit racist customer service manager sonia employee adriana
comcast location edgewater blvd foster city fraudulent use credit card credit
card information report comcast problem comcast billing complaint postal mail
ticket double billing refund issue price increase comcast unfair product bundle
comcast refund deposit cancel internet comcast artificially inflate price
internet service extremely slow internet aid comcast throttle drastic reduction
speed comcast fraud comcast forces rep visit go promise comcast deny provide
offer service cable internet unavailable unfair pricing raise pricing charge

permission concern comcast internet modem billing practice unfair fee slow internet speed comcast change bill price consent false claim internet speed tier poor interent connection equipment failure slow speed comcast false misleading sale practice mislead sale practice advertising comcast sell package know nt work proceed charge attempt tack fee mistake comcast bill way high slow speed comcast block hbo access playstation comcast xfinity data cap atlanta ga comcast datum cap comcast ignore request cancel service instead add product bill increase monthly cost charge high speed internet service render internet unreliable price internet service close account comcast inflate internet pricing expensive internet service average speed comcast pricing practice price lie charge service will not deliver comcast throttles santa cruz claim comcast misrepresenting speeds santa cruz comcast wrong advertise speed misrepresent internet speed charge internet speed equipment deliver huge number lie comcast comcast internet tv poor internet reception overcharge shitty service comcast bait switch comcast issue throttle connection peak time comcast price manipulation charge internet service bogus extremely slow comcast internet connection try fix come datum overage internet service disconnect accidentally comcast personnel poor service intenet advertise rate versus customer service phone quote comcast xfinity comcast customer service billing service issue bill customer service issue outrageous billing cost datum cap falsify plan rate charge comcast data cap bait switch service unable change service comcast bill service disclosure comcast harassment complaint billing practice complaint comcast provision internet service ar residential address install go bad comcast unfair pricing need tech suport speed misrepresentation fraudulent advertising deceptive sale practice comcast trespassing internet issue customer service issue complaint comcat charge equipment comcast aware order xfinity charge money account comcast failure service comcast failure service comcast comcast internet speed pay cancel cable tv service comcast continue bill cancel month ago billing internet service issue comcast seattle wa comcast repeatedly fail install internet service slow internet speed comcast egregious billing technique comcast unfair billing practice slow internet slow routing drop packet comcast escalation case esl orr comcast show fraudulent billing internet connectivity datum usage meter comcast data usage meter comcast xfinity internet data cap threat shut service phone internet tv comcast data usage plan limit bad service help improper modem comcast block hbo playstation comcast run multiple unauthorized unwarranted credit check comcast cable billing fraud comcast billing past disconnection time comcast allow cancel internet service dsl contract comcast charge access issue return comcast internet service email sdervice complaint comcast internet speed comcast internet complaint comcast service agreement comcast service comcast cap internet essential cap complaint comcast datum cap continue scared comcast price plan complaint comcast corporation price discrimination monopolistic behavior oligopolistic market internet slow advertise cheat bundle service pricing deceptive business practice comcast comcast comcast monopoly abuse comcast billing billing comcast billing account issue comcast rate comcast service customer service comcast data cap comcast internet service fcc gov website complaint comcast billing complaint denial service internet help south lyon mi internet help south lyon mi low

wireless speed work internet service comcast comcast datum usage cap charge
datum actually charge datum actually datum overage charge poor internet speed
billing issue fraudulent billing erroneous billing overbilling xfinity customer
service internet price comcast throttle high speed internet slow internet charge
billing internet available comcast technician intervention change plan comcast
xfinity monopoly abuse comcast billing support practice extremely poor customer
service internet service comcast comcast cable internet comcast comcast comcast
account availabilty comcast internet service unfair billing practice comcast
xfinity unfair billing practice incorrect billing non rent equipment pay hi
speed internet mbps comcast internet charge price partial service poor quality
service break promise monthly rate confusion poor customer support billing
complaint comcast digital phone internet service comcast xfinity internet
service not cancel internet sunday internet speed comcast hbo ps charge service
receive comcast billing issue internet speed advertise bandwidth available
advertised comcast xfinity deceptive billing practice xfinity account excessive
early termination fee immediately year service comcast complaint comcast force
purchase cable tv want internet instal work comcast xfinity billing issue
xfinity security system billing overcharge issue comcast internet speed cut half
notification internet access datum cap comcast data cap complaint bad internet
speed access billing practice fraud billing email service comcast service
quality internet service complaint comcast xfinity comcast unfair pricing high
speed internet access internet throttle internet service day pay service month
recieving service internet outage comcast data cap continuous internet problem
billing comcast comcast refuse fix connectivity issue comcast charge high quoted
phone mislead deceptive sale internet service comcast refund discontinue service
billing comcast service pricing bill service order recieve xfinity comcast
throttles bandwidth way contract level comcast data usage limit atlanta comcast
datum cap comcast internet recent fine possibly predatory monopolistic pricing
outrageous comcast charge price fix monopolistic behavior customer service bill
identity pay mbps good poor service xfinity comcast practice bill comcast cable
complaint comcast intermittent internet unreliable connection unreliable
connection comcast awful comcast billing tallahassee comcast rate high
competition day delay cancel service agreement unfair billing practice internet
speed comcast internet issue xfinity issue bill loss signal time day slow
connectivity issue television internet poor service pay unusable service scam
concern ham license register book comcast bill double notice comcast complaint
comcast bar hbogo streaming purchase device choose ps internet service comcast
charge violation contract comcast add service know comcast will not pay refund
datum cap broadband internet comcast say credit issue regular bill comcast pay
comcast service complaint complaint comcast comcast complaint comcast
inaccurately measure bandwidth consumption datum cap lack option tucson az poor
internet service comcast change paper bill ecobill consent internet overage
charge improper billing service datum cap datum cap comcast unlimited internet
access recently limited month deceptive advertising comcast data cap meter datum
cap comcast data meter cap comcast service billing datum limit tucson comcast
data cap internet service datum cap home internet datum cap comcast falsely
claim service provide neighborhood datum usage cap comcast xfinity comcast

monopoly comcast data usage plan trial comcast slow internet speed intentionally
xfinity datum cap comcast datum cap throttle increase monthly fee year contract
installation fee comcast issue not resolve datum cap shitty comcast shitty
comcast service terrible pricing viable option unfair billing practice service
pay cable line inability service transfer poor service service access service
speed consistently speed pay comcast throttle internet slow internet comcast
internet service incorrect billing comcast xfinity comcast fraudulent charge
unfair billing practice complaint comcast comcast bill internet cable phone
service monopolist power comcast service area comcast xfinity communication
internet comcast non existent customer service terrible internet connection slow
download upload speed repeatedly promise installation arrive notify comcast
internet internet speed wacko unresolved comcast fraudulent billing comcast
internet service comcast email access internet service lose signal comcast bill
horrible customer service bad service comcast service hung person attempt
technician inexplicable disconnection subsequent mishandling comcast billing
issue comcast internet service billing complaint credit bill change service
request internet speed false sale offer incorrect disclosure pay get comcast
mislead hsi customer throttle comcast internet service billing unfair
monopolistic billing practice comcast xfinity comcast internet broadband
internet malfeasance comcast comcast speed low mb pay mb will not figure lack
isp choice failure provide service billing slow internet speed monopoly mean
high price mediocre service internet speed complaint resolution help thank
comcast charge consumer comcast slow netflix comcast excessive charge cancel
service fraudulent service comcast refusal service comcast complaint cyber tele
marketing complaint comcast ask interstructure fee deceptive trade practice
false advertising bait switch billing issue failure appointment lie sell bill
short term service misrepresentation internet speed comcast home security system
comcast transfer service complaint ask speak supervisor day week comcast give
wrong information accuse people increase equipment price contract say price stay
year unauthorized charge account comcast comcast charge router unreturned
equipment internet usage overage egregious fee cram false internet promotion
speed complaint comcast data cap overage fee comcast commit extortion comcast
overbille comcast business internet monthly bill increase service decrease
promise speed comcast datum cap cable isp comcast youtube throttle comcast
xfinity internet speed comcast help help comcast fail schedule appointment
comcast sale people reflect say bill slow internet service internet provider
slow internet comcast comcast cram payment xfinity comcast cable throttle
internet billing continue month terminate service datum usage cap comcast charge
comcast xfinity internet service comcast monopolistic billing practice comcast
outage unfair pricing unreasonable billing xfinity corporate bullying breach
contract fed comcast terrible internet service comcast comcast cram service not
ask raise bill comcast charge charge seervice comcast xfinity internet datum cap
miss represent charge comcast data cap inconsistent intermittent internet
connectivity comcast refund reimburse significant overcharge admit lie install
cost issue comcast billing equipment comcast internet comcast cap false
advertising bait switch comcast customer service billing issue comcast internet
service send check payment comcast comcast internet service quality comcast


```
( 'cap', 188),
( 'charg', 146),
( 'datum', 127),
( 'issu', 124),
( 'xfiniti', 104),
( 'price', 103),
( 'custom', 97),
( 'data', 92),
( 'practic', 82),
( 'complaint', 80),
( 'thrott1', 74),
( 'slow', 66),
( 'unfair', 61),
( 'cabl', 56),
( 'connect', 50),
( 'usag', 47),
( 'fee', 46),
( 'poor', 45),
( 'pay', 40),
( 'advertis', 38)]
```

```
[43]: complaint_category = ['internet', 'service', 'data', 'bill']
```

```
[44]: def complaint_categorizer(text, categories):
        for category in categories:
            if category in text.lower():
                return category
        return "others"
```

```
[45]: comcast_data['Complaint Category'] = comcast_data['Customer Complaint'].
        ↪apply(lambda x: complaint_categorizer(x, complaint_category))
```

```
[46]: comcast_data[['Customer Complaint', 'Complaint Category']].head()
```

```
[46]:
```

	Customer Complaint	Complaint Category
0	Comcast Cable Internet Speeds	internet
1	Payment disappear - service got disconnected	service
2	Speed and Service	service
3	Comcast Imposed a New Usage Cap of 300GB that ...	others
4	Comcast not working and no service to boot	service

```
[47]: complaint_categs = comcast_data['Complaint Category'].value_counts()
        complaint_categs
```

```
[47]: others      880
        internet   532
        service    353
```

```
bill          257
data          202
Name: Complaint Category, dtype: int64
```

```
[48]: complaint_categs_percent = round((complaint_categs/comcast_data.shape[0])*100,2)
      complaint_categs_percent
```

```
[48]: others          39.57
      internet       23.92
      service        15.87
      bill           11.56
      data            9.08
      Name: Complaint Category, dtype: float64
```

```
[49]: fig, ax = plt.subplots(figsize=[12,4])

      labels = complaint_categs.index
      data = complaint_categs.values

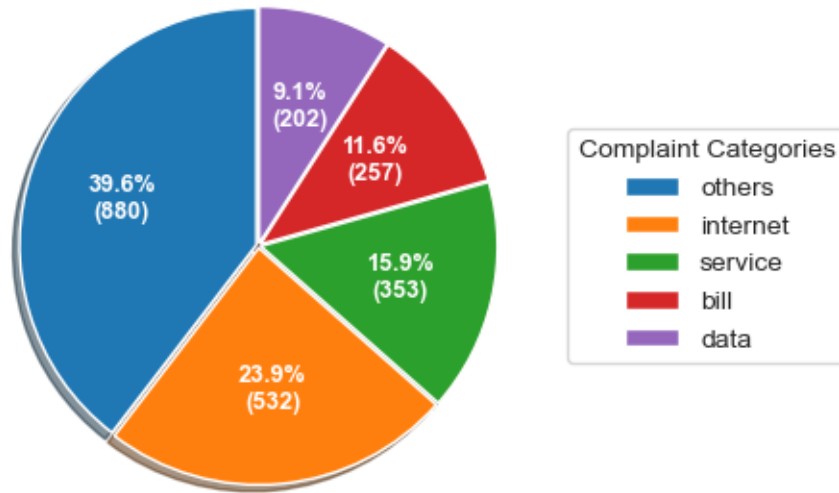
      def func(pct, allvals):
          absolute = int(np.round(pct/100.*np.sum(allvals)))
          return f"{pct:.1f}%\n({absolute:d})"

      wedges, texts, autopcts = ax.pie(x= data,
                                       autopct=lambda pct: func(pct, data),
                                       explode=[0.01]*len(complaint_categs_percent),
                                       shadow=True,
                                       startangle = 90
                                       )

      # Adding legend
      ax.legend(wedges, labels,
                title = "Complaint Categories",
                loc = "center left",
                bbox_to_anchor =(1, 0, 0.5, 1))

      plt.setp(autopcts, **{'color':'white', 'weight':'bold', 'fontsize':9})
      plt.title("Complaint Categories Distribution", fontsize=14, fontweight="bold");
```

Complaint Categories Distribution



```
[50]: comcast_data[comcast_data['Complaint Category'] == 'others'][['Customer_ID',
    ↳Complaint', 'Complaint Category']].head(20)
```

```
[50]:
```

	Customer	Complaint	Complaint Category
3	Comcast	Imposed a New Usage Cap of 300GB that ...	others
8		Comcast extended outages	others
9	Comcast	Raising Prices and Not Being Available...	others
11	YAHOO	FAILURE TO RESTORE EMAIL SEARCH FEATURE	others
17	Comcast	owes me \$65 and claims I need to retur...	others
22		Speed	others
23	Comcast	monopoly bundling practices	others
24		COMCAST!	others
25		bait and switch	others
27	Apartment Management's	Exclusivity Contract wi...	others
32		XFINITY Movers Edge program	others
34	Comcast	not refunding my credit	others
35	Comcast		others
37	Comcast		others
39	Comcast	blocking DirecTv signals	others
40		pmts	others
43	Comcast	bandwidth every evening drops to 10% o...	others
44		isp dishonest about speeds	others
47	Comcast		others
49		Cable prices rising	others

Analysis Summary

- Wordcloud was made out of all the complaint description after cleaning (basically after removing stopwords, and reducing the words to its roots).
- It was observed that there are wide ranges of complaints from the users, primarily around comcast, internet, service, billing, charges, speed etc.
- A pie chart was plotted by identifying 5 most common keyword for the complaint type (the 5th category was 'others')
- 23.9% complaints were about 'internet', 15.9% about 'services', 11.6% was about 'billing related', 9.1% was about 'data' and rest 39.6% was clubbed in 'others' category.
- Few records of 'others' complaint category was also viewed to understand why exactly the 'others' category has the highest number of complaints.

0.0.6 Task 4: Create a new categorical variable with value as Open and Closed.

- Open & Pending is to be categorized as **Open** and Closed & Solved is to be categorized as **Closed**.

```
[51]: comcast_data.head(3)
```

```
[51]:
```

	Customer Complaint	Time \
0	Comcast Cable Internet Speeds	3:53:50 PM
1	Payment disappear - service got disconnected	10:22:56 AM
2	Speed and Service	9:55:47 AM

	Received Via	City	State	Status	Filing on Behalf of Someone \
0	Customer Care Call	Abingdon	Maryland	Closed	No
1	Internet	Acworth	Georgia	Closed	No
2	Internet	Acworth	Georgia	Closed	Yes

	Day	Month	Month_num	Year	Quarter	Complaint	Category
0	22	April	4	2015	2	internet	
1	4	August	8	2015	3	service	
2	18	April	4	2015	2	service	

```
[52]: def assign_ticket_state(ticket_status):
        ticket_status = str(ticket_status).strip().lower()
        if (ticket_status == 'open') | (ticket_status == 'pending'):
            return 'Open'
        elif (ticket_status == 'closed') | (ticket_status == 'solved'):
            return 'Closed'
        else:
            return 'Undefined'
```

```
[53]: comcast_data['Ticket_State'] = comcast_data['Status'].apply(lambda x:
        ↪assign_ticket_state(x))
```

```
[54]: comcast_data.head(3)
```

```
[54]:
```

	Customer Complaint	Time \
0	Comcast Cable Internet Speeds	3:53:50 PM
1	Payment disappear - service got disconnected	10:22:56 AM
2	Speed and Service	9:55:47 AM

	Received Via	City	State	Status	Filing on Behalf of Someone \
0	Customer Care Call	Abingdon	Maryland	Closed	No
1	Internet	Acworth	Georgia	Closed	No
2	Internet	Acworth	Georgia	Closed	Yes

	Day	Month	Month_num	Year	Quarter	Complaint	Category	Ticket_State
0	22	April	4	2015	2	internet	Closed	
1	4	August	8	2015	3	service	Closed	
2	18	April	4	2015	2	service	Closed	

```
[55]: comcast_data['Ticket_State'].value_counts()
```

```
[55]: Closed      1707
      Open        517
      Name: Ticket_State, dtype: int64
```

Analysis Summary

- The complaint "state" of open and pending was combined into "Open" state and "closed" & "resolved" were combined into "Closed" state
- It was found that the total count of "Open" state is 517 where as "Closed" state is 1707, out of the total complaint 2224.

0.0.7 Task 5: Provide state wise status of complaints in a stacked bar chart. Use the categorized variable from Q3.

Provide insights on: - Which state has the maximum complaints - Which state has the highest percentage of unresolved complaints

```
[56]: comcast_data.columns
```

```
[56]: Index(['Customer Complaint', 'Time', 'Received Via', 'City', 'State', 'Status',
        'Filing on Behalf of Someone', 'Day', 'Month', 'Month_num', 'Year',
        'Quarter', 'Complaint Category', 'Ticket_State'],
        dtype='object')
```

```
[57]: comcast_data[['Customer Complaint', 'State', 'Quarter', 'Status',
        ↪ 'Ticket_State']].head()
```

```
[57]:
```

	Customer Complaint	State	Quarter \
0	Comcast Cable Internet Speeds	Maryland	2
1	Payment disappear - service got disconnected	Georgia	3
2	Speed and Service	Georgia	2
3	Comcast Imposed a New Usage Cap of 300GB that ...	Georgia	3
4	Comcast not working and no service to boot	Georgia	2

	Status	Ticket_State
0	Closed	Closed
1	Closed	Closed
2	Closed	Closed
3	Open	Open
4	Solved	Closed

```
[58]: state_wise_ticket_status = comcast_data[['Quarter', 'Customer Complaint',
↪ 'State', 'Ticket_State']].groupby(
↪
↪ ['Quarter', 'State', 'Ticket_State']).count()['Customer Complaint']
state_wise_ticket_status = pd.DataFrame(state_wise_ticket_status)
state_wise_ticket_status.head(6)
```

```
[58]:
```

	Quarter	State	Ticket_State	Customer Complaint
1	Alabama	Closed	1	
	California	Closed	14	
		Open	3	
	Colorado	Closed	4	
		Open	1	
	Delaware	Open	1	

```
[59]: state_wise_ticket_status = state_wise_ticket_status.unstack().
↪ reset_index(drop=False)
state_wise_ticket_status.head()
```

```
[59]:
```

	Ticket_State	Quarter	State	Customer Complaint
				Closed Open
0		1	Alabama	1.0 NaN
1		1	California	14.0 3.0
2		1	Colorado	4.0 1.0
3		1	Delaware	NaN 1.0
4		1	District Of Columbia	2.0 NaN

```
[60]: state_wise_ticket_status.columns = state_wise_ticket_status.columns.
↪ droplevel(1) # Dropping the multi-index
state_wise_ticket_status.columns = ['Quarter', 'State', 'Closed', 'Open']
state_wise_ticket_status.head()
```

```
[60]:
```

	Quarter	State	Closed	Open
0	1	Alabama	1.0	NaN
1	1	California	14.0	3.0
2	1	Colorado	4.0	1.0
3	1	Delaware	NaN	1.0
4	1	District Of Columbia	2.0	NaN

```
[61]: state_wise_ticket_status.isna().sum()
```

```
[61]: Quarter    0
State          0
Closed         1
Open          55
dtype: int64
```

```
[62]: state_wise_ticket_status = state_wise_ticket_status.fillna(0)
state_wise_ticket_status = state_wise_ticket_status.astype({'Closed': 'int64',
↳ 'Open': 'int64'})
state_wise_ticket_status = state_wise_ticket_status.set_index('State')
state_wise_ticket_status.head()
```

```
[62]:
```

	Quarter	Closed	Open
State			
Alabama	1	1	0
California	1	14	3
Colorado	1	4	1
Delaware	1	0	1
District Of Columbia	1	2	0

```
[63]: state_wise_ticket_status_Q1 =
↳ state_wise_ticket_status[state_wise_ticket_status['Quarter'] == 1]
state_wise_ticket_status_Q2 =
↳ state_wise_ticket_status[state_wise_ticket_status['Quarter'] == 2]
state_wise_ticket_status_Q3 =
↳ state_wise_ticket_status[state_wise_ticket_status['Quarter'] == 3]
state_wise_ticket_status_Q4 =
↳ state_wise_ticket_status[state_wise_ticket_status['Quarter'] == 4]
```

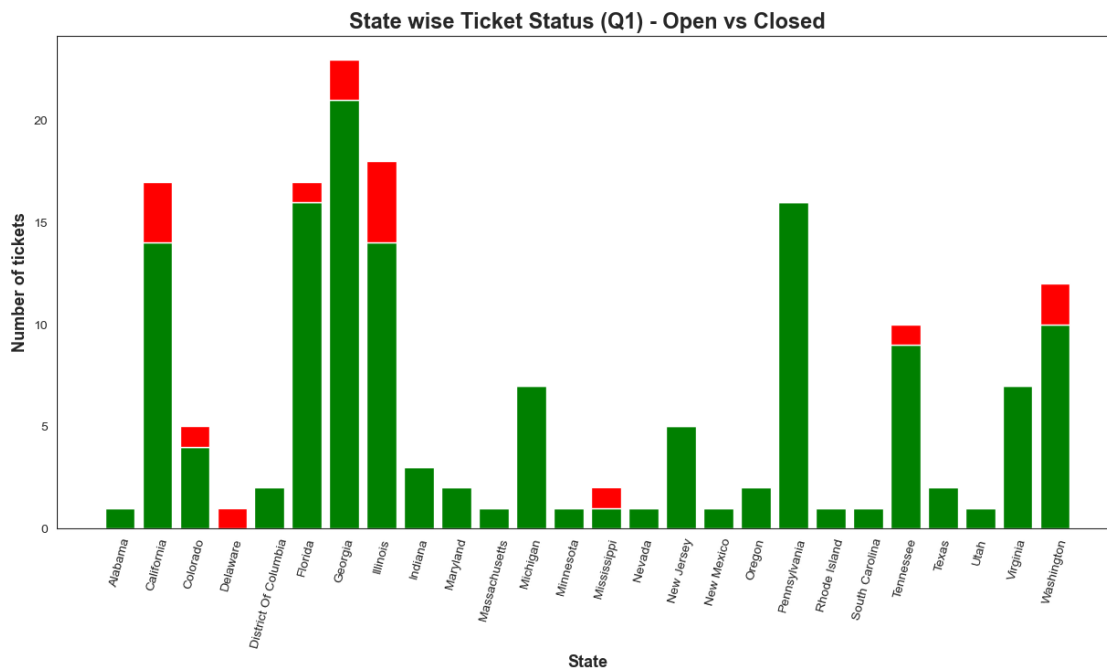
```
[64]: print(f"Quarter 1 has {state_wise_ticket_status_Q1.shape[0]} entries of states
↳ with open/closed tickets.")
print(f"Quarter 2 has {state_wise_ticket_status_Q2.shape[0]} entries of states
↳ with open/closed tickets.")
print(f"Quarter 3 has {state_wise_ticket_status_Q3.shape[0]} entries of states
↳ with open/closed tickets.")
print(f"Quarter 4 has {state_wise_ticket_status_Q4.shape[0]} entries of states
↳ with open/closed tickets.")
```

Quarter 1 has 26 entries of states with open/closed tickets.
 Quarter 2 has 41 entries of states with open/closed tickets.
 Quarter 3 has 27 entries of states with open/closed tickets.
 Quarter 4 has 23 entries of states with open/closed tickets.

```
[65]: sns.set_style('white')
plt.figure(figsize=(15,7))

plt.bar(state_wise_ticket_status_Q1.index,
        state_wise_ticket_status_Q1['Closed'].values,
        color='g')
plt.bar(state_wise_ticket_status_Q1.index,
        state_wise_ticket_status_Q1['Open'].values,
        bottom=state_wise_ticket_status_Q1['Closed'],
        color='r')

plt.xticks(rotation = 75)
plt.title('State wise Ticket Status (Q1) - Open vs Closed', fontsize=17,
        fontweight="bold")
plt.ylabel('Number of tickets', fontsize=13, fontweight="bold")
plt.xlabel('State', fontsize=13, fontweight="bold");
```



```
[66]: state_wise_ticket_status_1 = state_wise_ticket_status_Q2.iloc[:20, :]
state_wise_ticket_status_2 = state_wise_ticket_status_Q2.iloc[20:, :]
```



```

[67]: sns.set_style('white')
fig, axs = plt.subplots(2, 1, figsize=(15, 15))

axs[0].bar(state_wise_ticket_status_1.index,
           state_wise_ticket_status_1['Closed'].values,
           color='g')
axs[0].bar(state_wise_ticket_status_1.index,
           state_wise_ticket_status_1['Open'].values,
           bottom=state_wise_ticket_status_1['Closed'],
           color='r')
axs[0].set_ylabel('Number of tickets', fontsize=13, fontweight="bold")
axs[0].tick_params(axis='x', labelrotation = 75, labelsiz = 15)

axs[1].bar(state_wise_ticket_status_2.index,
           state_wise_ticket_status_2['Closed'].values,
           color='g')
axs[1].bar(state_wise_ticket_status_2.index,
           state_wise_ticket_status_2['Open'].values,
           bottom=state_wise_ticket_status_2['Closed'],
           color='r')
axs[1].set_ylabel('Number of tickets', fontsize=13, fontweight="bold")
axs[1].tick_params(axis='x', labelrotation = 75, labelsiz = 15)

fig.suptitle('State wise Ticket Status (Q2) - Open vs Closed', fontsize=30,
             fontweight="bold")
fig.tight_layout();

```

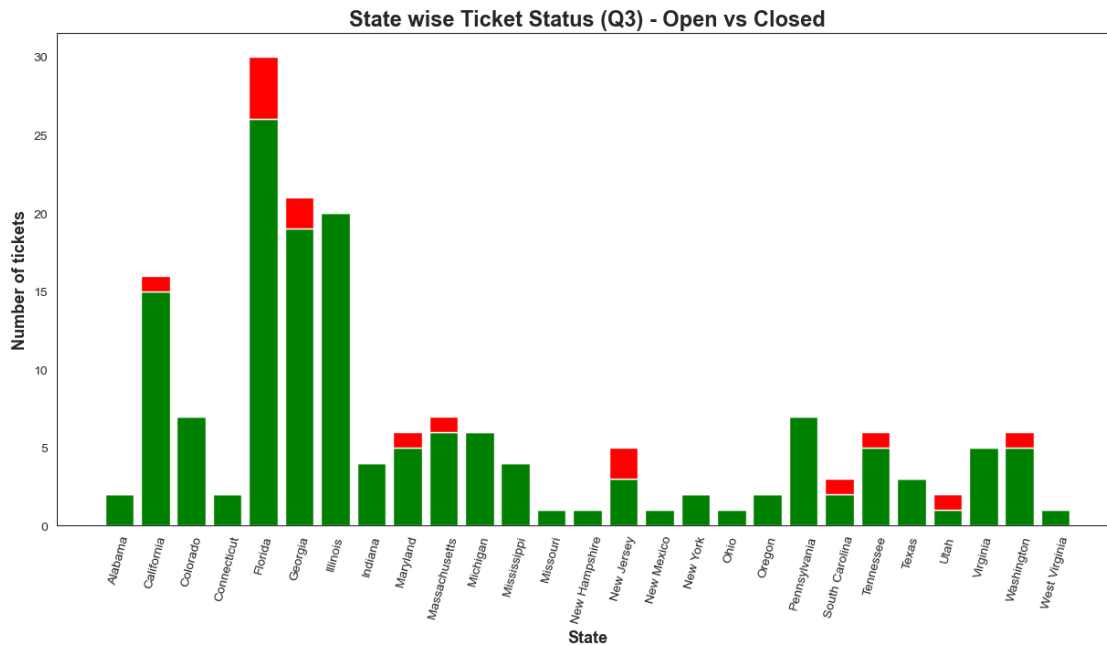


```
[68]: sns.set_style('white')
plt.figure(figsize=(15,7))

plt.bar(state_wise_ticket_status_Q3.index,
        state_wise_ticket_status_Q3['Closed'].values,
        color='g')
plt.bar(state_wise_ticket_status_Q3.index,
        state_wise_ticket_status_Q3['Open'].values,
        bottom=state_wise_ticket_status_Q3['Closed'],
        color='r')

plt.xticks(rotation = 75)
```

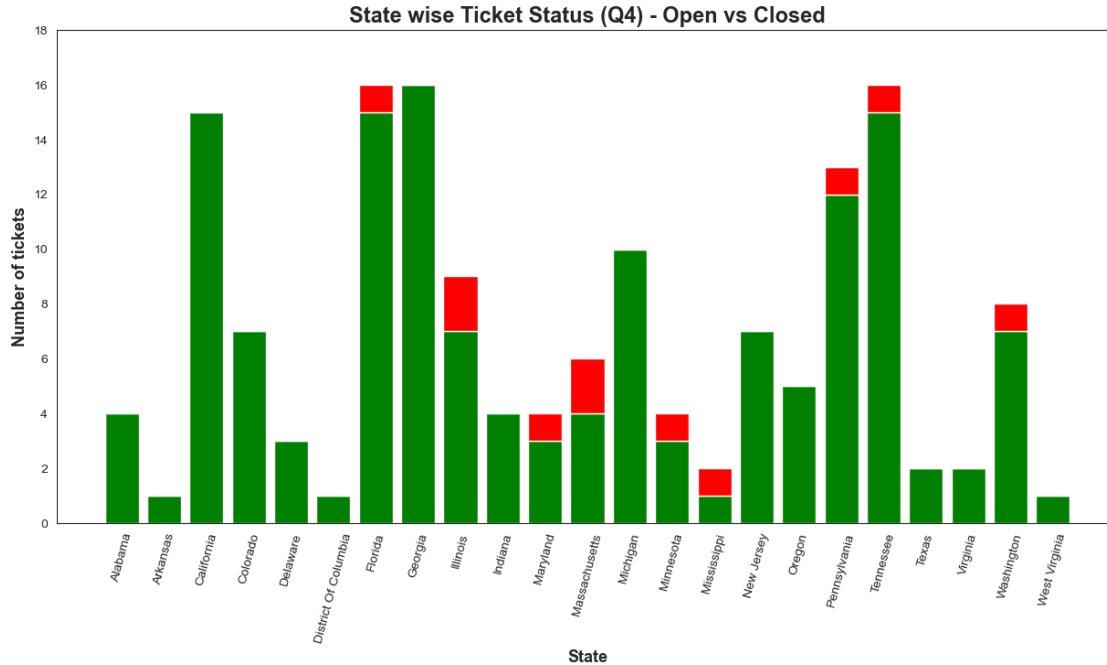
```
plt.title('State wise Ticket Status (Q3) - Open vs Closed', fontsize=17,
↪fontweight="bold")
plt.ylabel('Number of tickets', fontsize=13, fontweight="bold")
plt.xlabel('State', fontsize=13, fontweight="bold");
```



```
[69]: sns.set_style('white')
plt.figure(figsize=(15,7))

plt.bar(state_wise_ticket_status_Q4.index,
        state_wise_ticket_status_Q4['Closed'].values,
        color='g')
plt.bar(state_wise_ticket_status_Q4.index,
        state_wise_ticket_status_Q4['Open'].values,
        bottom=state_wise_ticket_status_Q4['Closed'],
        color='r')

plt.xticks(rotation = 75)
plt.yticks(np.arange(0, 20, step=2))
plt.title('State wise Ticket Status (Q4) - Open vs Closed', fontsize=17,
↪fontweight="bold")
plt.ylabel('Number of tickets', fontsize=13, fontweight="bold")
plt.xlabel('State', fontsize=13, fontweight="bold");
```



```
[70]: comcast_data.head()
```

```
[70]:
```

	Customer Complaint	Time \
0	Comcast Cable Internet Speeds	3:53:50 PM
1	Payment disappear - service got disconnected	10:22:56 AM
2	Speed and Service	9:55:47 AM
3	Comcast Imposed a New Usage Cap of 300GB that ...	11:59:35 AM
4	Comcast not working and no service to boot	1:25:26 PM

	Received Via	City	State	Status	Filing on Behalf of Someone \
0	Customer Care Call	Abingdon	Maryland	Closed	No
1	Internet	Acworth	Georgia	Closed	No
2	Internet	Acworth	Georgia	Closed	Yes
3	Internet	Acworth	Georgia	Open	Yes
4	Internet	Acworth	Georgia	Solved	No

	Day	Month	Month_num	Year	Quarter	Complaint	Category	Ticket_State
0	22	April	4	2015	2	internet	internet	Closed
1	4	August	8	2015	3	service	service	Closed
2	18	April	4	2015	2	service	service	Closed
3	5	July	7	2015	3	others	others	Open
4	26	May	5	2015	2	service	service	Closed

```
[71]: comcast_data.columns
```

```
[71]: Index(['Customer Complaint', 'Time', 'Received Via', 'City', 'State', 'Status',
        'Filing on Behalf of Someone', 'Day', 'Month', 'Month_num', 'Year',
        'Quarter', 'Complaint Category', 'Ticket_State'],
        dtype='object')
```

```
[72]: overall_ticket_statewise = comcast_data[['Customer_
        ↳Complaint', 'State', 'Ticket_State']].groupby(
        ['State',
        ↳'Ticket_State']).count()['Customer Complaint']
overall_ticket_statewise
```

```
[72]: State      Ticket_State
Alabama      Closed      17
           Open         9
Arizona      Closed      14
           Open         6
Arkansas     Closed       6
           ..
Virginia     Open        11
Washington   Closed      75
           Open        23
West Virginia Closed       8
           Open         3
Name: Customer Complaint, Length: 77, dtype: int64
```

```
[73]: overall_ticket_statewise = overall_ticket_statewise.unstack().
        ↳reset_index(drop=False)
overall_ticket_statewise.head()
```

```
[73]: Ticket_State      State  Closed  Open
0      Alabama      17.0    9.0
1      Arizona      14.0    6.0
2      Arkansas      6.0   NaN
3      California    159.0   61.0
4      Colorado     58.0   22.0
```

```
[74]: overall_ticket_statewise = overall_ticket_statewise.rename_axis(None, axis=1)
overall_ticket_statewise = overall_ticket_statewise.fillna(0)
overall_ticket_statewise = overall_ticket_statewise.astype({'Closed': 'int64',
        ↳'Open': 'int64'})
```

```
[75]: overall_ticket_statewise.head()
```

```
[75]: State  Closed  Open
0  Alabama    17     9
1  Arizona    14     6
2  Arkansas     6     0
```

3	California	159	61
4	Colorado	58	22

```
[76]: max_index = overall_ticket_statewise.iloc[:, 1:].sum(axis = 1).idxmax()
print(f"State '{overall_ticket_statewise.loc[max_index, 'State']}' has maximum
↪number of complaints.")
```

State 'Georgia' has maximum number of complaints.

```
[77]: overall_ticket_statewise.loc[[10],]
```

```
[77]:      State  Closed  Open
10  Georgia      208    80
```

```
[78]: max_unresolved_state =
↪overall_ticket_statewise[overall_ticket_statewise['Open'] ==
↪overall_ticket_statewise['Open'].max()]
max_unresolved_state
```

```
[78]:      State  Closed  Open
10  Georgia      208    80
```

```
[79]: print(f"State '{max_unresolved_state['State'].values}' has maximum number of
↪complaints.")
```

State '['Georgia']' has maximum number of complaints.

```
[80]: overall_ticket_statewise.loc[max_index]
```

```
[80]: State      Georgia
Closed      208
Open        80
Name: 10, dtype: object
```

```
[81]: top_6_states_max_unresolved = overall_ticket_statewise.sort_values(by = 'Open',
↪ascending=False).head(6)
top_6_states_max_unresolved
```

```
[81]:      State  Closed  Open
10  Georgia      208    80
3   California    159    61
36  Tennessee      96    47
9   Florida      201    39
11  Illinois      135    29
41  Washington      75    23
```

```
[82]: top_6_states_max_unresolved['Open_percent'] =
    ↪(round(top_6_states_max_unresolved['Open']/
    ↪top_6_states_max_unresolved['Open'].sum(),2))*100
```

```
[83]: top_6_states_max_unresolved
```

```
[83]:
```

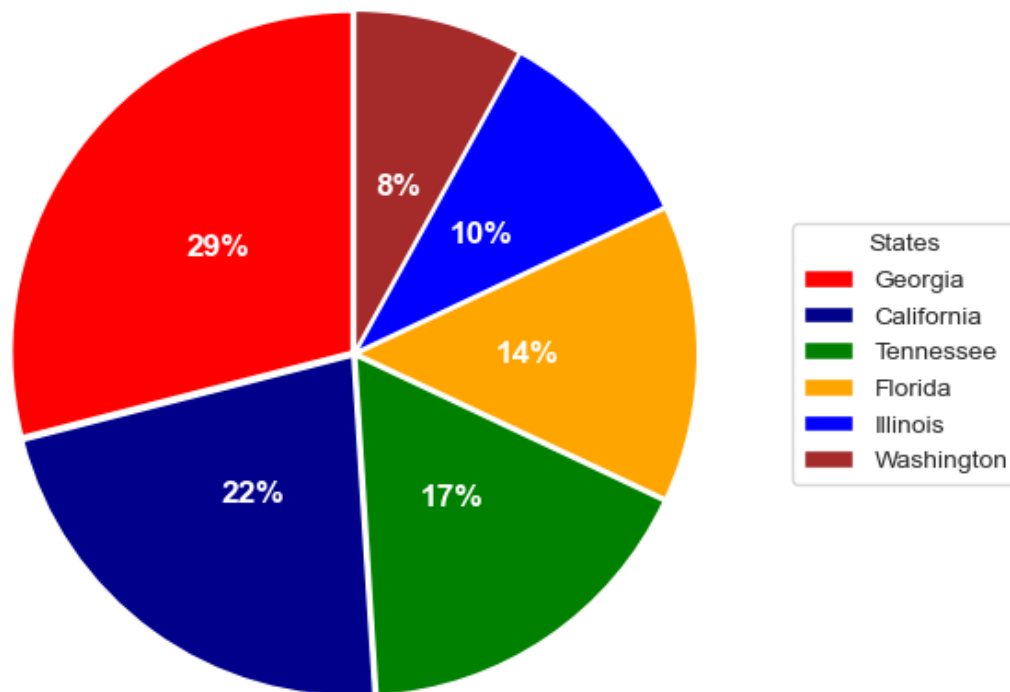
	State	Closed	Open	Open_percent
10	Georgia	208	80	29.0
3	California	159	61	22.0
36	Tennessee	96	47	17.0
9	Florida	201	39	14.0
11	Illinois	135	29	10.0
41	Washington	75	23	8.0

```
[85]: fig, ax = plt.subplots(figsize=[9,6])
labels = top_6_states_max_unresolved.index
wedges, texts, autopcts = ax.pie(x= top_6_states_max_unresolved['Open_percent'].
    ↪values,
                                autopct="%1.0f%%",
                                explode=[0.01]*len(top_6_states_max_unresolved),
                                #labels=labels,
                                pctdistance=0.5,
                                #shadow=True,
                                colors = ['Red', 'darkblue', 'Green', 'Orange', 'Blue',
    ↪'Brown'],
                                startangle = 90)

# Adding legend
ax.legend(wedges, top_6_states_max_unresolved['State'].values,
          title = "States",
          loc = "center left",
          bbox_to_anchor =(1, 0, 0.5, 1))

plt.setp(autopcts, **{'color':'white', 'weight':'bold', 'fontsize':12.5})
plt.title("Max. unresolved Complaints percentage by State", fontsize=14,
    ↪fontweight="bold");
```

Max. unresolved Complaints percentage by State



Analysis Summary

- State wise stacked bar chart is provided per quarter.
- Quarter 2 has the maximum complains, as April, May and June are the highest contributors.
- State "Georgia" has the highest complaints, in both, 'Open' (Unresolved) and 'Closed' (Resolved) state.
- Top 6 states having highest complaints is provided as pie chart

0.0.8 Task 6: Provide the percentage of complaints resolved till date, which were received through the Internet and customer care calls.

```
[86]: comcast_data.head(3)
```

```
[86]:
```

	Customer Complaint	Time \
0	Comcast Cable Internet Speeds	3:53:50 PM
1	Payment disappear - service got disconnected	10:22:56 AM
2	Speed and Service	9:55:47 AM

	Received Via	City	State	Status	Filing on Behalf of Someone \
0	Customer Care Call	Abingdon	Maryland	Closed	No
1	Internet	Acworth	Georgia	Closed	No
2	Internet	Acworth	Georgia	Closed	Yes

	Day	Month	Month_num	Year	Quarter	Complaint	Category	Ticket_State
0	22	April	4	2015	2		internet	Closed
1	4	August	8	2015	3		service	Closed
2	18	April	4	2015	2		service	Closed

```
[87]: comcast_data['Received Via'].value_counts()
```

```
[87]: Customer Care Call    1119
      Internet             1105
      Name: Received Via, dtype: int64
```

```
[88]: comcast_data['Ticket_State'].value_counts()
```

```
[88]: Closed    1707
      Open      517
      Name: Ticket_State, dtype: int64
```

```
[90]: ticket_state_percent = ((comcast_data['Ticket_State'].value_counts()/
      ↪comcast_data.shape[0])*100).round(2)
      ticket_state_percent
```

```
[90]: Closed    76.75
      Open      23.25
      Name: Ticket_State, dtype: float64
```

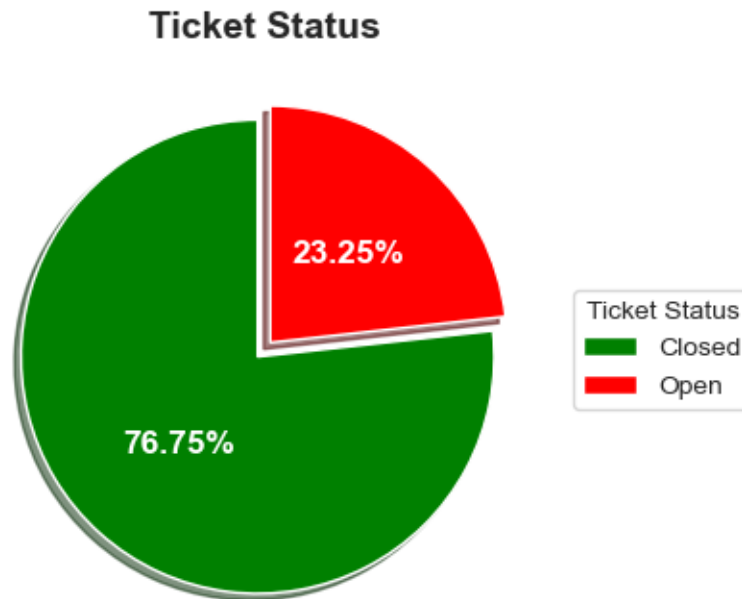
```
[91]: fig, ax = plt.subplots(figsize=[12,4])

      labels = ticket_state_percent.index

      wedges, texts, autopcts = ax.pie(x= ticket_state_percent,
      autopct="%1.2f%%",
      explode=[0.04]*len(ticket_state_percent),
      pctdistance=0.5,
      shadow=True,
      colors = ['Green', 'Red'],
      startangle = 90)

      # Adding legend
      ax.legend(wedges, labels,
      title = "Ticket Status",
      loc = "center left",
      bbox_to_anchor =(1, 0, 0.5, 1))
```

```
plt.setp autopcts, **{'color':'white', 'weight':'bold', 'fontsize':12.5})
plt.title("Ticket Status", fontsize=14, fontweight="bold");
```



Analysis Summary

- There are only two modes with which the complaints were recieved, "Customer Care Call" and "Internet", and both these has almost equal contribution
- There are 23.25% of the ticket unresolved and 76.75% complaints resolved till date. Refer pie chart above.

0.0.9 Final Analysis

- Looking at the number of complaints per state, it looks like the densely populated states or the states having higher population are having more complaints than lower complaint contributor states. Therefore, we cannot comment if the complaints were actually evenly distributed. In other words, we don't know if majority of the Comcast customers were facing the issue.
- There data shows that there are more number of complaints in closed state than the ones in open state. This does not indicate that the Comcast were not addressing the issues. However, we do not have sufficient data to comment about the SLA and no. of days taken to resolve the issue.
- There are primarily few prominent categories of the complaints which were around internet, service, billing related and data. Most of the complaints were identified in "Others" Category.

- Closer inspection to others category suggested that the users did not provide adequate description on the complaint types. For example, there are instances where users create complaints using a single keyword "Comcast" and sometimes even unrelated words were used just to fill in the description. It is advisable to Comcast that they use some pre-defined categories as option to customers along with the description to help them isolate the problem in efficient way.
- However, no substantial evidences are present which can help us analyze on how the complaint tickets were handled, for example we don't know the date and time of the complaints when acknowledged, when the resolution was provided and if the customer was satisfied with the resolution.
- Trend chart at monthly granularity level indicates that June Month has abrupt increase in the ticket count. One reason could be poor staffing of the Comcast Company. It is very likely that we do not have adequate number of engineers, particularly on Q2, which caused significant number of complaints to flow in. This should be investigated further.

End of the Project