

Comcast Telecom Consumer Complaints

Q1) Import data into R environment

Ans) The code for importing the data into R environment is mention below:

```
print("Comcast Telecom Consumer Complaints")
```

```
com_data<-read.csv("C:/Users/shiva/Desktop/Shivani/SimpliLearn/Data Science with  
R/Comcast.csv")
```

```
print(com_data)
```

```
View(com_data)
```

```
str(com_data)
```

```
summary(com_data)
```

The output of importing the data in R is attached below:

The screenshot shows the RGui interface with two windows open. The left window is the R Console, displaying a list of consumer complaints with columns for ID, Date, Time, Customer Type, Complaint Type, and Location. The right window is the Script Editor, showing the R code used to import the data. The code includes `print` statements for the file name, reading the CSV file into `com_data`, and printing the data.

```
RGui (64-bit)
File Edit View Misc Packages Windows Help
File Edit View Misc Packages Windows Help
R Console
print("Comcast Telecom Consumer Complaints")
com_data<-read.csv("C:/Users/shiva/Desktop/Shivani/SimpliLearn/Data Science with
R/Comcast.csv")
print(com_data)
View(com_data)
str(com_data)
summary(com_data)

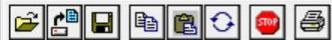
Customer Care Call")
Internet")

Customer Complaint,match = 'network',ignore.case)
Customer Complaint,match = 'internet',ignore.case)
Customer Complaint,match = 'bill',ignore.case)
Customer Complaint,match = 'email',ignore.case)
Customer Complaint,match = 'charge',ignore.case)

_email_tickets] <- "Email"
_email_tickets] <- "Network"
_email_tickets] <- "Billing"
_email_tickets] <- "Email"
```

RGui (64-bit)

File Edit View Misc Packages Windows Help



R Console

```
2201      Georgia  30188 Closed          No
2202      Georgia  30189 Closed          No
2203      Georgia  30188 Open           Yes
2204      Georgia  30188 Solved         No
2205      Georgia  30188 Solved         No
2206      Georgia  30188 Solved         No
2207      Georgia  30188 Solved         No
2208      Georgia  30188 Solved         No
2209      Georgia  30188 Pending        No
2210      Illinois 60482 Solved         No
2211      New Jersey 8562 Closed        No
2212      Michigan 49509 Closed        No
2213      Michigan 49509 Closed        No
2214      Pennsylvania 17401 Closed      No
2215      Pennsylvania 17403 Solved      No
2216      Pennsylvania 17403 Solved      No
2217      Pennsylvania 17404 Solved      Yes
2218      Pennsylvania 17370 Closed      No
2219      Illinois 60560 Open           Yes
2220      Florida 32466 Closed        No
2221      Michigan 48197 Solved        No
2222      Michigan 48197 Solved        No
2223      Michigan 48197 Solved        No
2224      Michigan 48198 Open           Yes
```

> |

<

```
com_data$ComplaintType[email_tickets] <- "Email"
<
```



RGui (64-bit) - [Data: com_data]

File

| Ticket | CustomerComplaint | Date | Time | ReceivedVia | City | State |
|--------|--|------------|-------------|--------------------|-------------|--------------|
| 1 | 250635 Comcast Cable Internet Speeds | 22-04-2015 | 3:53:50 PM | Customer Care Call | Abingdon | Maryland |
| 2 | 223441 Payment disappear - service got disconnected | 04-08-2015 | 10:22:56 AM | Internet | Acworth | Georgia |
| 3 | 242732 Speed and Service | 18-04-2015 | 9:55:47 AM | Internet | Acworth | Georgia |
| 4 | 277946 Comcast Imposed a New Usage Cap of 300GB that pun | 05-07-2015 | 11:59:31 AM | Internet | Acworth | Georgia |
| 5 | 307175 Comcast not working and no service to boot | 26-05-2015 | 1:25:26 PM | Internet | Acworth | Georgia |
| 6 | 338519 ISP Charging for arbitrary data limits with overa | 06-12-2015 | 9:59:40 PM | Internet | Acworth | Georgia |
| 7 | 361148 Throttling service and unreasonable data caps | 24-06-2015 | 10:13:55 AM | Customer Care Call | Acworth | Georgia |
| 8 | 359752 Comcast refuses to help troubleshoot and correct > | 23-06-2015 | 6:56:14 PM | Internet | Adrian | Michigan |
| 9 | 318072 Comcast extended outages | 06-01-2015 | 11:46:30 PM | Customer Care Call | Alameda | California |
| 10 | 371214 Comcast Raising Prices and Not Being Available To> | 28-06-2015 | 6:46:31 PM | Customer Care Call | Alameda | California |
| 11 | 255938 Billing after service was asked to be disconnected | 24-04-2015 | 4:40:36 PM | Internet | Albuquerque | New Mexico |
| 12 | 276409 YAHOO FAILURE TO RESTORE EMAIL SEARCH FEATURE | 05-06-2015 | 3:09:49 PM | Customer Care Call | Albuquerque | New Mexico |
| 13 | 339282 Comcast Violating Open Internet Rules by Blocking> | 13-06-2015 | 4:03:18 PM | Internet | Albuquerque | New Mexico |
| 14 | 360178 Internet speed | 23-06-2015 | 9:23:23 PM | Internet | Albuquerque | New Mexico |
| 15 | 376268 Internet Disconnects Every Night | 30-06-2015 | 10:30:02 PM | Customer Care Call | Albuquerque | New Mexico |
| 16 | 370137 Internet complain | 27-06-2015 | 3:25:03 PM | Customer Care Call | Albuquerque | New Mexico |
| 17 | 363655 Internet Availability and Speed | 24-06-2015 | 11:47:33 PM | Customer Care Call | Alexandria | Indiana |
| 18 | 238694 Comcast owes me \$65 and claims I need to return e> | 16-04-2015 | 10:04:57 AM | Internet | Alexandria | Virginia |
| 19 | 230876 Horrible Internet Service | 04-11-2015 | 7:48:05 PM | Customer Care Call | Alexandria | Virginia |
| 20 | 318725 Failure to provide services that I am billed for. | 06-02-2015 | 1:03:52 PM | Customer Care Call | Alexandria | Virginia |
| 21 | 327657 Internet out all the time but they have a monopoly | 06-07-2015 | 8:55:43 PM | Customer Care Call | Alexandria | Virginia |
| 22 | 328742 horrible cable service and customer service | 06-08-2015 | 3:18:58 PM | Internet | Alexandria | Virginia |
| 23 | 328165 Speed | 06-08-2015 | 12:03:37 PM | Customer Care Call | Alexandria | Virginia |
| 24 | 370538 Comcast monopoly bundling practices | 27-06-2015 | 9:04:34 PM | Internet | Alexandria | Virginia |
| 25 | 370363 COMCAST! | 27-06-2015 | 6:37:29 PM | Internet | Alexandria | Virginia |
| 26 | 270163 bait and switch | 05-02-2015 | 3:55:24 PM | Internet | Algonquin | Illinois |
| 27 | 355976 Comcast Customer Service | 22-06-2015 | 2:10:39 PM | Internet | Aliquippa | Pennsylvania |



RGui (64-bit) - [Data: com_data]

File

| Ticket | CustomerComplaint | Date | Time | ReceivedVia | City | State |
|--------|--|------------|-------------|--------------------|-------------|--------------|
| 2198 | 360169 Comcast cramming services I didn't ask for to rai> | 23-06-2015 | 9:12:42 PM | Internet | Woodinville | Washington |
| 2199 | 359056 Comcast over charge | 23-06-2015 | 3:47:53 PM | Customer Care Call | Woodinville | Washington |
| 2200 | 302816 charged for no sevice | 22-05-2015 | 7:17:11 AM | Customer Care Call | Woodridge | Illinois |
| 2201 | 245857 Comcast Xfinity Internet Data Caps | 20-04-2015 | 7:19:07 PM | Internet | Woodstock | Georgia |
| 2202 | 259691 Miss Represented and over charged now | 27-04-2015 | 4:59:36 PM | Customer Care Call | Woodstock | Georgia |
| 2203 | 305166 comcast data cap | 24-05-2015 | 12:34:08 AM | Customer Care Call | Woodstock | Georgia |
| 2204 | 329247 Inconsistent and Intermittent Internet Connectivit> | 06-08-2015 | 6:17:50 PM | Internet | Woodstock | Georgia |
| 2205 | 350920 Comcast will not refund or reimburse significant > | 19-06-2015 | 11:11:27 AM | Internet | Woodstock | Georgia |
| 2206 | 357824 Lied to about install costs | 23-06-2015 | 11:26:08 AM | Customer Care Call | Woodstock | Georgia |
| 2207 | 360908 Issues with Comcast billing and equipment | 24-06-2015 | 8:00:17 AM | Internet | Woodstock | Georgia |
| 2208 | 363934 Comcast Internet | 25-06-2015 | 9:00:09 AM | Internet | Woodstock | Georgia |
| 2209 | 374570 comcast cap | 30-06-2015 | 12:42:45 PM | Customer Care Call | Woodstock | Georgia |
| 2210 | 279410 False Advertising/Bait and switch | 05-07-2015 | 9:47:36 PM | Customer Care Call | Worth | Illinois |
| 2211 | 228198 comcast customer service, and billing issues | 04-10-2015 | 10:15:03 AM | Customer Care Call | Wrightstown | New Jersey |
| 2212 | 221763 Comcast | 04-07-2015 | 1:49:52 PM | Internet | Wyoming | Michigan |
| 2213 | 326963 Internet Services | 06-06-2015 | 4:01:16 PM | Internet | Wyoming | Michigan |
| 2214 | 256002 i had sent out a check payment comcast | 24-04-2015 | 5:05:36 PM | Internet | York | Pennsylvania |
| 2215 | 310847 Comcast Internet Service quality | 28-05-2015 | 8:56:14 AM | Internet | York | Pennsylvania |
| 2216 | 360946 Comcast unfair pricing | 24-06-2015 | 8:32:24 AM | Customer Care Call | York | Pennsylvania |
| 2217 | 363852 High Internet & Cable Bill | 25-06-2015 | 7:17:21 AM | Customer Care Call | York | Pennsylvania |
| 2218 | 254488 problems with internet service | 24-04-2015 | 5:05:25 AM | Internet | York Haven | Pennsylvania |
| 2219 | 338192 Speed throttling, speeds not at promised output | 06-12-2015 | 6:35:59 PM | Customer Care Call | Yorkville | Illinois |
| 2220 | 213550 Service Availability | 04-02-2015 | 9:13:18 AM | Customer Care Call | Youngstown | Florida |
| 2221 | 318775 Comcast Monthly Billing for Returned Modem | 06-02-2015 | 1:24:39 PM | Customer Care Call | Ypsilanti | Michigan |
| 2222 | 331188 complaint about comcast | 06-09-2015 | 5:28:41 PM | Internet | Ypsilanti | Michigan |
| 2223 | 360489 Extremely unsatisfied Comcast customer | 23-06-2015 | 11:13:30 PM | Customer Care Call | Ypsilanti | Michigan |
| 2224 | 363614 Comcast, Ypsilanti MI Internet Speed | 24-06-2015 | 10:28:33 PM | Customer Care Call | Ypsilanti | Michigan |



The screenshot shows the RGui (64-bit) interface. The R Console pane displays the following R code and its output:

```
> View(com_data)
> summary(com_data)
   Ticket      CustomerComplaint      Date          Time
  Length:2224    Length:2224    Length:2224    Length:2224
  Class :character  Class :character  Class :character  Class :character
  Mode  :character  Mode  :character  Mode  :character  Mode  :character

ReceivedVia      City          State        Zip.code
Length:2224    Length:2224    Length:2224    Min.   : 1075
Class :character  Class :character  Class :character  1st Qu.:30057
Mode  :character  Mode  :character  Mode  :character  Median  :37211
                           Mean   :47994
                           3rd Qu.:77059
                           Max.  :99223

Status      Filing.on.Behalf.of.Someone
Length:2224    Length:2224
Class :character  Class :character
Mode  :character  Mode  :character
```

The Environment pane on the right shows the following R code:

```
#1
print("Com")
com_data<-

print(com_
View(com_c
str(com_d
com_data$C
summary(cc
com_data%>
com_data%>
filter(com
filter(com

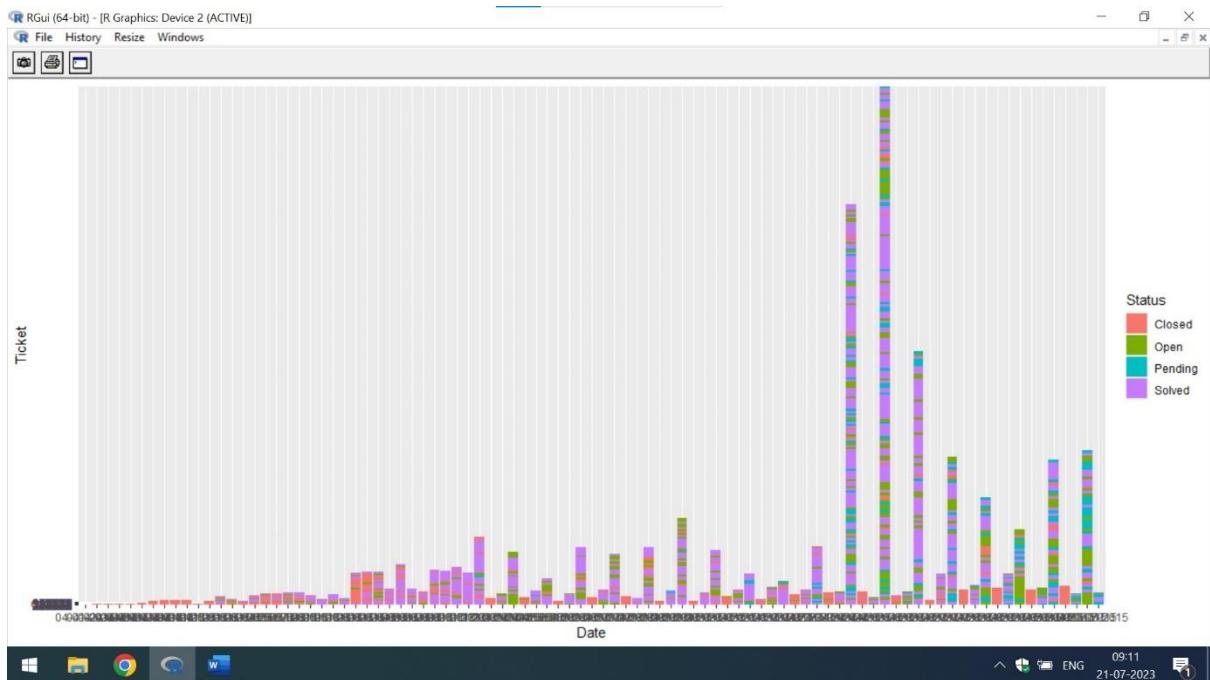
# Complain
network_t
internet_t
billing_t
email_tic
charges_t

com_data$C
com_data$C
com_data$C
com_data$C
<
```

The above mentioned screenshots represents the customer complaints of various cities of States in tabular format

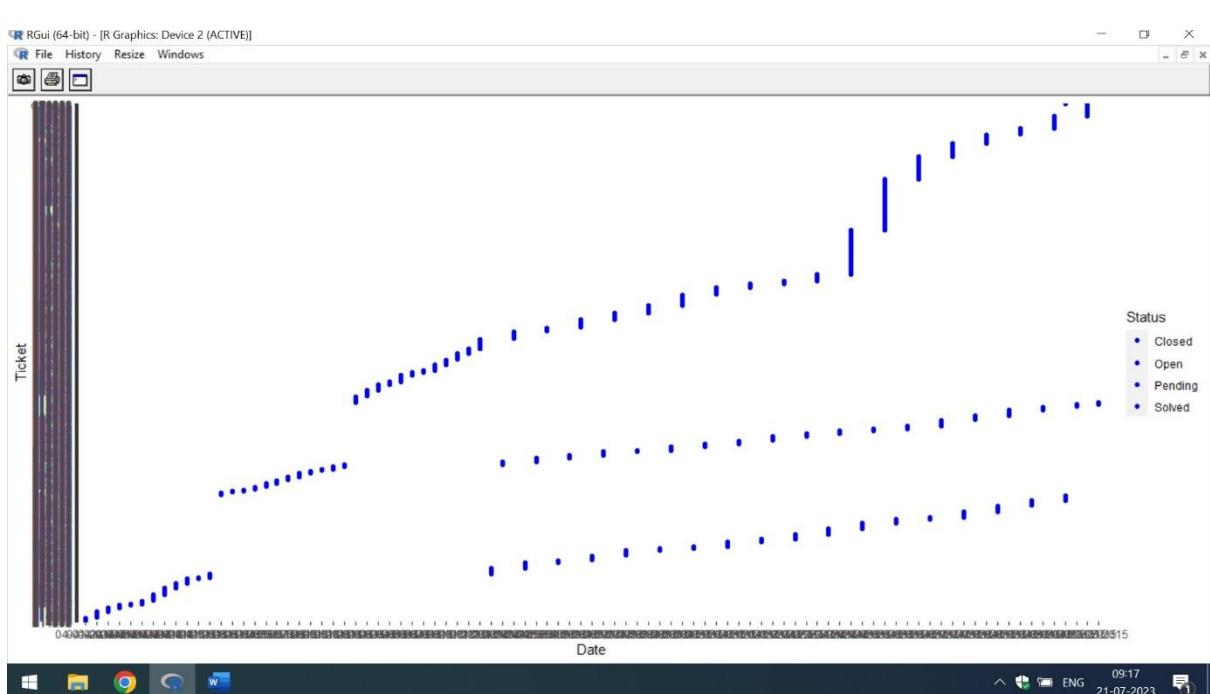
Q2) Provide the trend chart for the number of complaints at monthly and daily granularity levels.

Ans) For trend chart,I am using the concept of Ggplot. In Ggplot, the data column is placed on x-axis and tickets column is placed on y-axis



The screenshot represents that number of solved cases are increasing to a particular point, and then gets decreased

The below mentioned is the line chart view of status of various ticket for various dates



Q3) Provide a table of frequency of complain types

Ans) The code of frequency of complain types is mention below:

```
print("Comcast Telecom Consumer Complaints")  
com_data<-read.csv("C:/Users/shiva/Desktop/Shivani/SimpliLearn/Data Science with  
R/Comcast.csv")  
  
print(com_data)  
View(com_data)  
str(com_data)  
com_data$CustomerComplaint  
summary(com_data)  
com_data%>%select(2,5)  
com_data%>%select(2)  
filter(com_data,ReceivedVia=="Customer Care Call")  
filter(com_data,ReceivedVia=="Internet")  
  
# Complaint Type Processing  
network_tickets<- contains(com_data$CustomerComplaint,match = 'network',ignore.case =  
T)  
internet_tickets<- contains(com_data$CustomerComplaint,match = 'internet',ignore.case = T)  
billing_tickets<- contains(com_data$CustomerComplaint,match = 'bill',ignore.case = T)  
email_tickets<- contains(com_data$CustomerComplaint,match = 'email',ignore.case = T)  
charges_ticket<- contains(com_data$CustomerComplaint,match = 'charge',ignore.case = T)  
  
com_data$ComplaintType[internet_tickets]<- "Internet"  
com_data$ComplaintType[network_tickets]<- "Network"  
com_data$ComplaintType[billing_tickets]<- "Billing"  
com_data$ComplaintType[email_tickets]<- "Email"  
com_data$ComplaintType[charges_ticket]<- "Charges"  
  
com_data$ComplaintType[-c(internet_tickets,network_tickets,  
billing_tickets,charges_ticket,email_tickets)]<- "Others"
```

```
table(com_data$ComplaintType)
```

In the above code, I am categorizing the complains in Internet, Network, Billing, Email and Charges Section. The screenshots of the complains received via Internet and CustomerCare call are mentioned below:

RGui (64-bit) - [Data: comp]

The screenshot shows a table titled "CustomerComplaint" with two columns: "CustomerComplaint" and "ReceivedVia". The table contains 28 rows of data, each representing a customer complaint. The "ReceivedVia" column indicates whether the complaint was made via "Customer Care Call" or "Internet". The complaints are listed sequentially from 1 to 28.

| CustomerComplaint | ReceivedVia |
|--|--------------------|
| 1 Comcast Cable Internet Speeds | Customer Care Call |
| 2 Payment disappear - service got disconnected | Internet |
| 3 Speed and Service | Internet |
| 4 Comcast Imposed a New Usage Cap of 300GB that pun> | Internet |
| 5 Comcast not working and no service to boot | Internet |
| 6 ISF Charging for arbitrary data limits with overa> | Internet |
| 7 Throttling service and unreasonable data caps | Customer Care Call |
| 8 Comcast refuses to help troubleshoot and correct > | Internet |
| 9 Comcast extended outages | Customer Care Call |
| 10 Comcast Raising Prices and Not Being Available To> | Customer Care Call |
| 11 Billing after service was asked to be disconnected | Internet |
| 12 YAHOO FAILURE TO RESTORE EMAIL SEARCH FEATURE | Customer Care Call |
| 13 Comcast Violating Open Internet Rules by Blocking> | Internet |
| 14 Internet speed | Internet |
| 15 Internet Disconnects Every Night | Customer Care Call |
| 16 Internet complaint | Customer Care Call |
| 17 Internet Availability and Speed | Customer Care Call |
| 18 Comcast owes me \$65 and claims I need to return e> | Internet |
| 19 Horrible Internet Service | Customer Care Call |
| 20 Failure to provide services that I am billed for. | Customer Care Call |
| 21 Internet out all the time but they have a monopoly | Customer Care Call |
| 22 horrible cable service and customer service | Internet |
| 23 Speed | Customer Care Call |
| 24 Comcast monopoly bundling practices | Internet |
| 25 COMCAST! | Internet |
| 26 bait and switch | Internet |
| 27 Comcast Customer Service | Internet |
| 28 Apartment Management's Exclusivity Contract with > | Customer Care Call |

Windows taskbar icons: File Explorer, Mail, Task View, Google Chrome, File History. System tray: ENG, 10:18, 21-07-2023.

RGui (64-bit) - [Data: comp]

The screenshot shows a table titled "CustomerComplaint" with two columns: "CustomerComplaint" and "ReceivedVia". The table contains 224 rows of data, each representing a customer complaint. The "ReceivedVia" column indicates whether the complaint was made via "Customer Care Call" or "Internet". The complaints are listed sequentially from 2197 to 224.

| CustomerComplaint | ReceivedVia |
|---|--------------------|
| 2197 Terrible internet service from Comcast | Customer Care Call |
| 2198 Comcast cramming services I didn't ask for to rai> | Internet |
| 2199 Comcast over charge | Customer Care Call |
| 2200 charged for no sevice | Customer Care Call |
| 2201 Comcast Xfinity Internet Data Caps | Internet |
| 2202 Miss Represented and over charged now | Customer Care Call |
| 2203 comcast data cap | Customer Care Call |
| 2204 Inconsistent and Intermittent Internet Connectiviti> | Internet |
| 2205 Comcast will not refund or reimburse significant > | Internet |
| 2206 Lied to about install costs | Customer Care Call |
| 2207 Issues with Comcast billing and equipment | Internet |
| 2208 Comcast Internet | Internet |
| 2209 comcast cap | Customer Care Call |
| 2210 False Advertising/Bait and switch | Customer Care Call |
| 2211 comcast customer service, and billing issues | Customer Care Call |
| 2212 Comcast | Internet |
| 2213 Internet Services | Internet |
| 2214 i had sent out a check payment comcast | Internet |
| 2215 Comcast Internet Service quality | Internet |
| 2216 Comcast unfair pricing | Customer Care Call |
| 2217 High Internet & Cable Bill | Customer Care Call |
| 2218 problems with internet service | Internet |
| 2219 Speed throttling, speeds not at promised output | Customer Care Call |
| 2220 Service Availability | Customer Care Call |
| 2221 Comcast Monthly Billing for Returned Modem | Customer Care Call |
| 2222 complaint about comcast | Internet |
| 2223 Extremely unsatisfied Comcast customer | Customer Care Call |
| 2224 Comcast, Ypsilanti MI Internet Speed | Customer Care Call |

Windows taskbar icons: File Explorer, Mail, Task View, Google Chrome, File History. System tray: ENG, 10:18, 21-07-2023.

RGui (64-bit) - [R Console]

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927 Comcast bill and service disclosure
928 Comcast harassment
929 Complaint regarding billing practices
930 Complaint against Comcast for provisioning of Internet Service at Residential Address
931 Comcast's unfair pricing
932 needed tech support
933 Speed Misrepresentation
934 Deceptive sales practices
935 Internet issues and Customer Service issues
936 Failure of service from Comcast
937 Internet speeds less than what we are paying for after canceling cable tv service
938 Comcast repeatedly failing to install Internet service
939 Slow Internet
940 Fraudulent Billing
941 Data Usage Meter
942 Comcast Data Usage Meter
943 Comcast Data usage plan limit
944 BAD SERVICE/ PLEASE HELP
945 Multiple Unauthorized and Unwanted Credit Checks
946 Comcast Cable Billing Fraud
947 DSL
948 Contract
949 Comcast over charging
950 Access issues have returned
951 email service
952 Comcast Internet Complaint
953 Comcast service agreement
954 Comcast 300GB CAP
955 Cap complaints
956 Price Plans
957 Pricing discrimination/ monopolistic behavior in an oligopolistic market
958 Billing
959 Comcast Service and Customer Service
960 Comcast Internet Service
961 FCC.gov website for complaints

RGui (64-bit) - [R Console]

File Edit View Misc Packages Windows Help

| 1086 | Minnesota | 55118 | Solved | No |
|------|---------------|-------|---------|-----|
| 1087 | Utah | 64119 | Solved | No |
| 1088 | Colorado | 80021 | Solved | No |
| 1089 | Maryland | 21158 | Open | No |
| 1090 | Florida | 33327 | Closed | No |
| 1091 | Illinois | 26104 | Solved | No |
| 1092 | Illinois | 60189 | Closed | No |
| 1093 | Illinois | 60090 | Solved | No |
| 1094 | Michigan | 48191 | Closed | No |
| 1095 | Delaware | 19808 | Solved | No |
| 1096 | Georgia | 30680 | Pending | No |
| 1097 | New Hampshire | 3087 | Solved | No |
| 1098 | Colorado | 80550 | Solved | No |
| 1099 | Illinois | 60093 | Closed | No |
| 1100 | Virginia | 24293 | Closed | Yes |
| 1101 | Massachusetts | 1801 | Solved | No |
| 1102 | Virginia | 22191 | Closed | No |
| 1103 | Virginia | 22191 | Closed | No |
| 1104 | Virginia | 22191 | Open | No |
| 1105 | Washington | 58077 | Solved | No |
| 1106 | Illinois | 60517 | Closed | No |
| 1107 | Georgia | 30189 | Closed | No |
| 1108 | Georgia | 30188 | Open | Yes |
| 1109 | Georgia | 30188 | Solved | No |
| 1110 | Georgia | 30188 | Pending | No |
| 1111 | Illinois | 60482 | Solved | No |
| 1112 | New Jersey | 8562 | Closed | No |
| 1113 | Pennsylvania | 17403 | Solved | No |
| 1114 | Pennsylvania | 17404 | Solved | Yes |
| 1115 | Illinois | 60560 | Open | Yes |
| 1116 | Florida | 32466 | Closed | No |
| 1117 | Michigan | 48197 | Solved | No |
| 1118 | Michigan | 48197 | Solved | No |
| 1119 | Michigan | 48198 | Open | Yes |

```
RGui (64-bit) - [R Console]
File Edit View Misc Packages Windows Help
Comcast Re-Escalation of Case # ESL01877347 ~ ORR
Comcast No Show's
Internet Connectivity
Comcast/Xfinity Internet Data Cap
threat of shutting off service of phone, internet and TV
Improper modems
Comcast blocking HBO GO on Playstation
Comcast run around
Comcast billing past disconnection time
Comcast will not allow me to cancel my internet service.
Comcast Internet Service
Complaint against Comcast
Internet Speed
Comcast Service
Internet Essentials
Comcast Data Caps
continue to be scared by comcast
Complaint against Comcast Corporation
Internet much slower than advertised
Cheating in Bundle Service Pricing
Deceptive Business Practices by Comcast
comcast
Comcast Monopoly and Abuse
Comcast Billing
Comcast data cap
Denial of service
very low wireless speed not working well
internet service from comcast
Data Usage Cap
Data overage charges
Speed
xfinity customer service
Slow internet / Over Charged Billing

10:21 21-07-2023
```

```
RGui (64-bit) - [R Console]
File Edit View Misc Packages Windows Help
1072 Iowa 50263 Solved No
1073 Florida 33414 Solved No
1074 Florida 33414 Solved No
1075 Florida 33414 Solved No
1076 Florida 33414 Open No
1077 New Jersey 8086 Solved No
1078 Connecticut 6110 Closed No
1079 Indiana 47906 Closed No
1080 Louisiana 71291 Pending No
1081 Florida 33401 Closed No
1082 Massachusetts 1085 Open No
1083 Illinois 60559 Solved No
1084 Pennsylvania 15090 Pending No
1085 Tennessee 37188 Open No
1086 New Jersey 8046 Closed No
1087 Delaware 19805 Closed Yes
1088 Delaware 19803 Closed No
1089 Delaware 19805 Solved No
1090 Delaware 19802 Pending No
1091 Massachusetts 1887 Solved No
1092 California 55492 Solved No
1093 Maryland 21797 Solved No
1094 Washington 58077 Solved No
1095 Georgia 30188 Closed No
1096 Georgia 30188 Solved No
1097 Georgia 30188 Solved No
1098 Georgia 30188 Solved No
1099 Georgia 30188 Solved No
1100 Michigan 49509 Closed No
1101 Michigan 49509 Closed No
1102 Pennsylvania 17401 Closed No
1103 Pennsylvania 17403 Solved No
1104 Pennsylvania 17370 Closed No
1105 Michigan 48197 Solved No

> |
```

```

RGui (64-bit)
File Edit View Misc Packages Windows Help
R R Console
> network_tickets<- contains(com_data$CustomerComplaint,match = 'network',ignore.case=TRUE)
> network_tickets<- contains(com_data$CustomerComplaint,match = 'network',ignore.case=FALSE)
> internet_tickets<- contains(com_data$CustomerComplaint,match = 'internet',ignore.case=TRUE)
> internet_tickets<- contains(com_data$CustomerComplaint,match = 'internet',ignore.case=FALSE)
> billing_tickets<- contains(com_data$CustomerComplaint,match = 'bill',ignore.case=TRUE)
> email_tickets<- contains(com_data$CustomerComplaint,match = 'email',ignore.case=TRUE)
> charges_ticket<- contains(com_data$CustomerComplaint,match = 'charge',ignore.case=TRUE)
>
> com_data$ComplaintType[internet_tickets]<- "Internet"
> com_data$ComplaintType[network_tickets]<- "Network"
> com_data$ComplaintType[billing_tickets]<- "Billing"
> com_data$ComplaintType[email_tickets]<- "Email"
> com_data$ComplaintType[charges_ticket]<- "Charges"
>
> com_data$ComplaintType[-c(internet_tickets, network_tickets,
+                                billing_tickets, charges_ticket, email_tickets)]<- "Other"
>
> table(com_data$ComplaintType)

Billing    Charges     Email Internet Network   Others
      363        139       16     472        1     1233
> |
```

From the above mentioned screenshots,it is clear that most of the complaints are of Internet Category of Customer Complaint Section

Q4) Which complaint types are maximum i.e., around internet, network issues, or across any other domains.

Ans) The below attached is the code in R which represents the list of complaints Received via Customer Care Call and Internet

```

print("Comcast Telecom Consumer Complaints")

com_data<-read.csv("C:/Users/shiva/Desktop/Shivani/SimpliLearn/Data Science with
R/Comcast.csv")
```

```

print(com_data)

comp<-com_data%>%select(2,5)

View(comp)

filter(com_data,ReceivedVia=="Customer Care Call")

filter(com_data,ReceivedVia=="Internet")
```

```

county<-table(com_data$CustomerComplaint,com_data$ReceivedVia)

barplot(county,col="blue")
```

```
newtrends <-ggplot(data=com_data,aes(x=ReceivedVia,
y=CustomerComplaint,fill=Status))+geom_bar(stat="identity")
```

newtrends

The below attached is the output of the Number of Complaints Received via Internet and Customer Care Calls

| CustomerComplaint | ReceivedVia |
|--|--------------------|
| 1 Comcast Cable Internet Speeds | Customer Care Call |
| 2 Payment disappear - service got disconnected | Internet |
| 3 Speed and Service | Internet |
| 4 Comcast Imposed a New Usage Cap of 300GB that pun> | Internet |
| 5 Comcast not working and no service to boot | Internet |
| 6 ISP Charging for arbitrary data limits with overa> | Internet |
| 7 Throttling service and unreasonable data caps | Customer Care Call |
| 8 Comcast refuses to help troubleshoot and correct > | Internet |
| 9 Comcast extended outages | Customer Care Call |
| 10 Comcast Raising Prices and Not Being Available To> | Customer Care Call |
| 11 Billing after service was asked to be disconnected | Internet |
| 12 YAHOO FAILURE TO RESTORE EMAIL SEARCH FEATURE | Customer Care Call |
| 13 Comcast Violating Open Internet Rules by Blocking> | Internet |
| 14 Internet speed | Internet |
| 15 Internet Disconnects Every Night | Customer Care Call |
| 16 Internet complaint | Customer Care Call |
| 17 Internet Availability and Speed | Customer Care Call |
| 18 Comcast owes me \$65 and claims I need to return e> | Internet |
| 19 Horrible Internet Service | Customer Care Call |
| 20 Failure to provide services that I am billed for. | Customer Care Call |
| 21 Internet out all the time but they have a monopoly | Customer Care Call |
| 22 horrible cable service and customer service | Internet |
| 23 Speed | Customer Care Call |
| 24 Comcast monopoly bundling practices | Internet |
| 25 COMCAST! | Internet |
| 26 bait and switch | Internet |
| 27 Comcast Customer Service | Internet |
| 28 Apartment Management's Exclusivity Contract with > | Customer Care Call |

| CustomerComplaint | ReceivedVia |
|---|--------------------|
| 2197 Terrible internet service from Comcast | Customer Care Call |
| 2198 Comcast cramming services I didn't ask for to rai> | Internet |
| 2199 Comcast over charge | Customer Care Call |
| 2200 charged for no sevice | Customer Care Call |
| 2201 Comcast Xfinity Internet Data Caps | Internet |
| 2202 Miss Represented and over charged now | Customer Care Call |
| 2203 comcast data cap | Customer Care Call |
| 2204 Inconsistent and Intermittent Internet Connectiviti> | Internet |
| 2205 Comcast will not refund or reimburse significant > | Internet |
| 2206 Lied about install costs | Customer Care Call |
| 2207 Issues with Comcast billing and equipment | Internet |
| 2208 Comcast Internet | Internet |
| 2209 comcast cap | Customer Care Call |
| 2210 False Advertising/Bait and switch | Customer Care Call |
| 2211 comcast customer service, and billing issues | Customer Care Call |
| 2212 Comcast | Internet |
| 2213 Internet Services | Internet |
| 2214 i had sent out a check payment comcast | Internet |
| 2215 Comcast Internet Service quality | Internet |
| 2216 Comcast unfair pricing | Customer Care Call |
| 2217 High Internet & Cable Bill | Customer Care Call |
| 2218 problems with internet service | Internet |
| 2219 Speed throttling, speeds not at promised output | Customer Care Call |
| 2220 Service Availability | Customer Care Call |
| 2221 Comcast Monthly Billing for Returned Modem | Customer Care Call |
| 2222 complaint about comcast | Internet |
| 2223 Extremely unsatisfied Comcast customer | Customer Care Call |
| 2224 Comcast, Ypsilanti MI Internet Speed | Customer Care Call |

The number of complains Received via Customer Care Call are as follows:

```
RGui (64-bit) - [R Console]
File Edit View Misc Packages Windows Help

Comcast bill and service disclosure
Comcast harassment
Complaint regarding billing practices
Complaint against Comcast for provisioning of Internet Service or Residential Address
Comcast's unfair pricing
needed tech support
Speed Misrepresentation
Deceptive sales practices
Internet issues and Customer Service issues
Failure of service from Comcast
Internet speeds less than what we are paying for after canceling cable tv service
Comcast repeatedly failing to install Internet service
Slow Internet
Fraudulent Billing
Data Usage Meter
Comcast Data Usage Meter
Comcast Data usage plan limit
BAD SERVICE/ PLEASE HELP
Multiple Unauthorized and Unwarranted Credit Checks
Comcast Cable Billing Fraud
DSL
Contract
Comcast over charging
Access issues have returned
email service
Comcast Internet Complaint
Comcast service agreement
Comcast 300GB CAP
Cap complaints
Price Plans
Pricing discrimination/ monopolistic behavior in an oligopolistic market
Billing
Comcast Service and Customer Service
Comcast Internet Service
FCC.gov website for complaints

11:21 ENG 21-07-2023 2
```

```
RGui (64-bit) - [R Console]
File Edit View Misc Packages Windows Help

1086      Minnesota   55118 Solved      No
1087      Utah        84119 Solved      No
1088      Colorado    80021 Solved      No
1089      Maryland    21158 Open       No
1090      Florida     33327 Closed      No
1091      Illinois   26104 Solved      No
1092      Illinois   60189 Closed      No
1093      Illinois   60090 Solved      No
1094      Michigan    48191 Closed      No
1095      Delaware   19808 Solved      No
1096      Georgia    30680 Pending     No
1097      New Hampshire 3087 Solved      No
1098      Colorado    80550 Solved      No
1099      Illinois   60093 Closed      No
1100      Virginia   24293 Closed      Yes
1101      Massachusetts 1801 Solved      No
1102      Virginia   22191 Closed      No
1103      Virginia   22191 Closed      No
1104      Virginia   22191 Open       No
1105      Washington  58077 Solved      No
1106      Illinois   60517 Closed      No
1107      Georgia    30189 Closed      No
1108      Georgia    30188 Open       Yes
1109      Georgia    30188 Solved      No
1110      Georgia    30188 Pending     No
1111      Illinois   60482 Solved      No
1112      New Jersey  8562 Closed      No
1113      Pennsylvania 17403 Solved      No
1114      Pennsylvania 17404 Solved      Yes
1115      Illinois   60560 Open       Yes
1116      Florida    32466 Closed      No
1117      Michigan   48197 Solved      No
1118      Michigan   48197 Solved      No
1119      Michigan   48198 Open       Yes

> |
```

The number of Complains Received via Internet are as follows:

The screenshot shows the RGui interface with a data frame titled 'complaints' displayed in the console window. The data frame contains 1105 rows of information, each representing a complaint. The columns include a numerical ID, state, and several categorical variables like 'Solved', 'Pending', and 'Others'. The 'Solved' column has values 'Yes' and 'No'. The 'Pending' column has values 'Open' and 'Closed'. The 'Others' column has values '1085', '1086', '1087', etc. The 'State' column lists various US states such as Iowa, Florida, New Jersey, Connecticut, Indiana, Louisiana, Massachusetts, Illinois, Pennsylvania, Tennessee, New Jersey, Delaware, Georgia, Massachusetts, California, Maryland, Washington, Georgia, Michigan, Pennsylvania, and Michigan.

```

RGui (64-bit) - [R Console]
File Edit View Misc Packages Windows Help

1072      Iowa  50263 Solved      No
1073    Florida  33414 Solved      No
1074    Florida  33414 Solved      No
1075    Florida  33414 Solved      No
1076    Florida  33414 Open       No
1077  New Jersey  8086 Solved      No
1078  Connecticut  6110 Closed      No
1079    Indiana  47906 Closed      No
1080   Louisiana  71291 Pending      No
1081    Florida  33401 Closed      No
1082  Massachusetts  1085 Open       No
1083    Illinois  60559 Solved      No
1084  Pennsylvania  15090 Pending      No
1085  Tennessee  37188 Open       No
1086  New Jersey  8046 Closed      No
1087    Delaware  19805 Closed      Yes
1088    Delaware  19803 Closed      No
1089    Delaware  19805 Solved      No
1090    Delaware  19802 Pending      No
1091  Massachusetts  1887 Solved      No
1092    California  95492 Solved      No
1093    Maryland  21797 Solved      No
1094  Washington  58077 Solved      No
1095    Georgia  30188 Closed      No
1096    Georgia  30188 Solved      No
1097    Georgia  30188 Solved      No
1098    Georgia  30188 Solved      No
1099    Georgia  30188 Solved      No
1100    Michigan  49509 Closed      No
1101    Michigan  49509 Closed      No
1102  Pennsylvania  17401 Closed      No
1103  Pennsylvania  17403 Solved      No
1104  Pennsylvania  17370 Closed      No
1105    Michigan  48197 Solved      No
> |


```

The number of Complaints Received via Customer Care Call are 1119 while the number of complaints Received via Internet are 1105. Hence, one can conclude that number of complaints Received via Customer Care Call are maximum.

The screenshot shows the RGui interface with the R console window active. The user has run several lines of R code to filter complaints by type and create a summary table. The code includes filtering for 'network', 'internet', 'bill', 'email', and 'charge' types, and then combining them into a single table. The resulting table shows the count of complaints for each category: Billing (363), Charges (139), Email (16), Internet (472), Network (1), and Others (1233).

```

RGui (64-bit)
File Edit View Misc Packages Windows Help

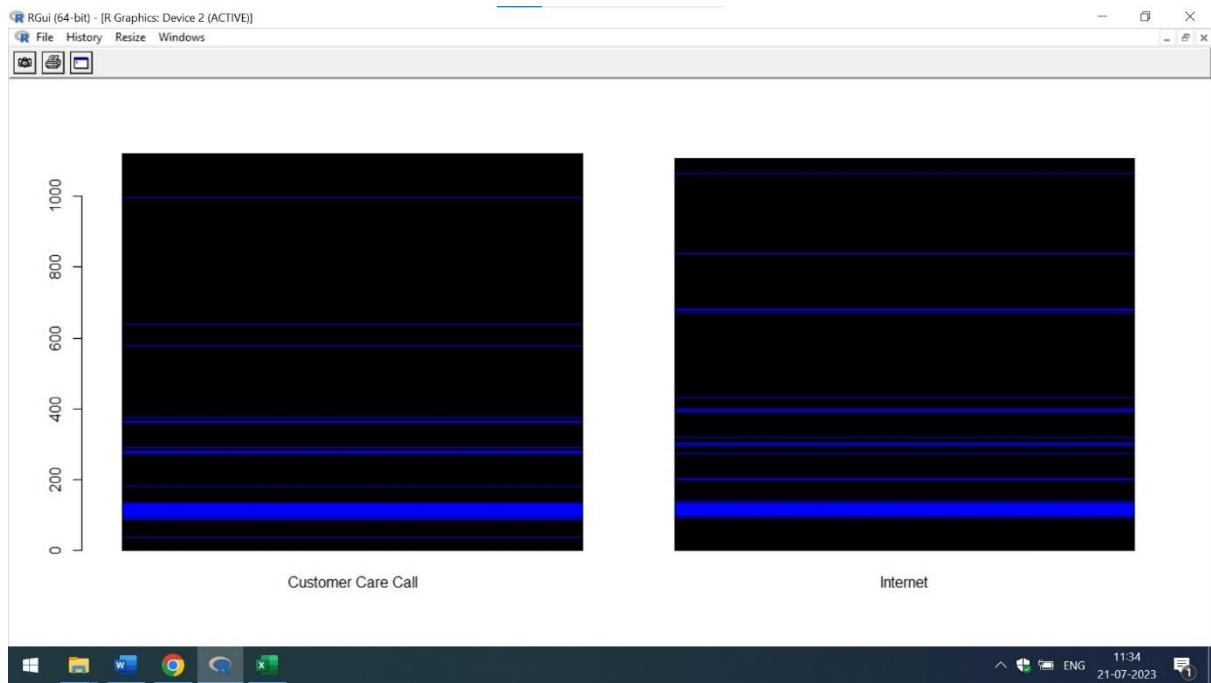
R Gui (64-bit) - [R Console]
File Edit View Misc Packages Windows Help

> network_tickets<- contains(com_data$CustomerComplaint,match = 'network',ignore.case=TRUE)
> network_tickets<- contains(com_data$CustomerComplaint,match = 'network',ignore.case=FALSE)
> internet_tickets<- contains(com_data$CustomerComplaint,match = 'internet',ignore.case=TRUE)
> internet_tickets<- contains(com_data$CustomerComplaint,match = 'internet',ignore.case=FALSE)
> billing_tickets<- contains(com_data$CustomerComplaint,match = 'bill',ignore.case=TRUE)
> billing_tickets<- contains(com_data$CustomerComplaint,match = 'bill',ignore.case=FALSE)
> email_tickets<- contains(com_data$CustomerComplaint,match = 'email',ignore.case=TRUE)
> email_tickets<- contains(com_data$CustomerComplaint,match = 'email',ignore.case=FALSE)
> charges_ticket<- contains(com_data$CustomerComplaint,match = 'charge',ignore.case=TRUE)
> charges_ticket<- contains(com_data$CustomerComplaint,match = 'charge',ignore.case=FALSE)
>
> com_data$ComplaintType[internet_tickets]<- "Internet"
> com_data$ComplaintType[network_tickets]<- "Network"
> com_data$ComplaintType[billing_tickets]<- "Billing"
> com_data$ComplaintType[email_tickets]<- "Email"
> com_data$ComplaintType[charges_ticket]<- "Charges"
>
> com_data$ComplaintType[-c(internet_tickets,network_tickets,
+                                billing_tickets,charges_ticket,email_tickets)]<- "Others"
>
> table(com_data$ComplaintType)


| Complaint Type | Count |
|----------------|-------|
| Internet       | 472   |
| Network        | 1     |
| Billing        | 363   |
| Email          | 16    |
| Charges        | 139   |
| Others         | 1233  |

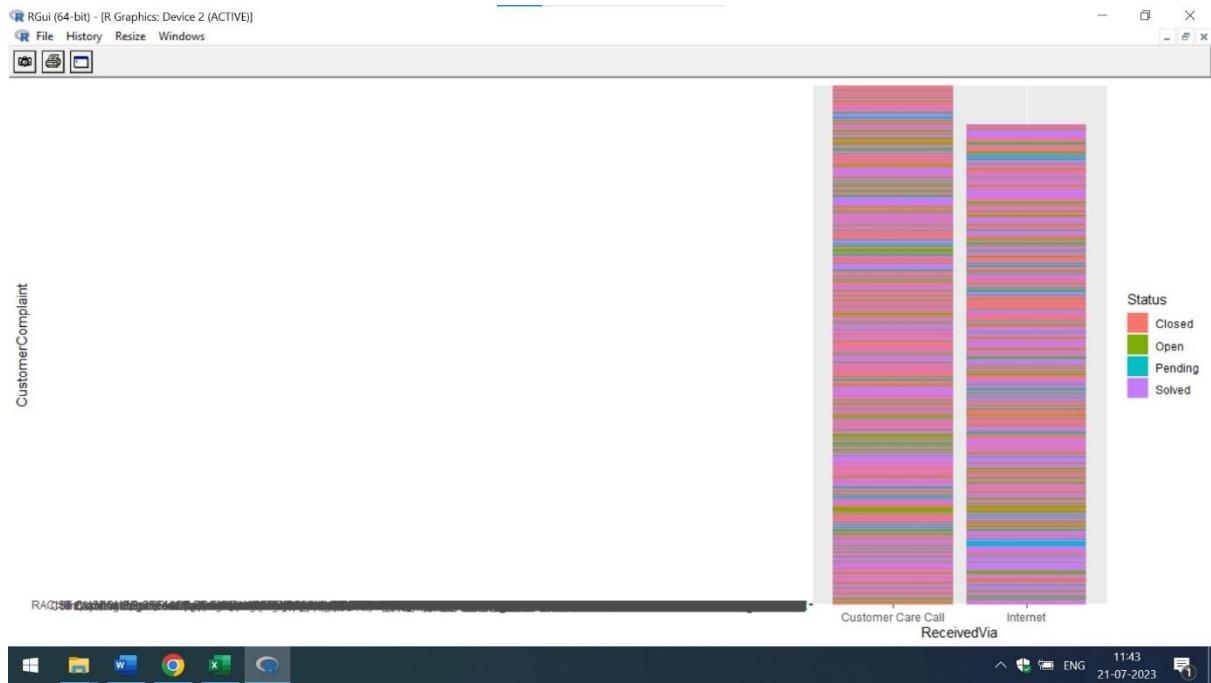

```

The above mentioned Screenshot represents that the Internet Complaints of the Customer Complaint Section are the maximum. Therefore, **Internet Complaints Received via Customer Care calls are maximum in number**



The above mention barplot also represents that Complains Received via Customer Care Call are slightly more than the Internet

It is also clear from the ggplot view that most of the complains are received via Customer Call



Q5) 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.

Ans) The new categorical variables of open complaints and closed complaints has been created. The customercomplains table give a brief idea of various customer complaints of several tickets. The below attached is the code in R

```
print("Comcast Telecom Consumer Complaints")
com_data<-read.csv("C:/Users/shiva/Desktop/Shivani/SimpliLearn/Data Science with
R/Comcast.csv")

print(com_data)
View(com_data)
com_data%>%select(9)

open_complaints<- (com_data>Status == "Open"|com_data>Status == "Pending")
closed_complaints<-(com_data>Status == "Closed" | com_data>Status == "Solved")
customer_complains<-
transform(com_data, customerstatus=ifelse(Status=="Open","Open",ifelse(Status=="Pending",
"Closed",ifelse(Status=="Solved","Closed","Closedbutnotsolved"))))

print(customer_complains)
View(customer_complains)
```

The below mention screenshot represents the tabular format of the customer complains and status allocation of Comcast Data

RGui (64-bit) - [Data: customer_complains]

File

| | Status | Filing.on.Behalf.of.Someone | customerstatus |
|----|---------|-----------------------------|--------------------|
| 1 | Closed | No | Closedbutnotsolved |
| 2 | Closed | No | Closedbutnotsolved |
| 3 | Closed | Yes | Closedbutnotsolved |
| 4 | Open | Yes | Open |
| 5 | Solved | No | Closed |
| 6 | Solved | No | Closed |
| 7 | Pending | No | Closed |
| 8 | Solved | No | Closed |
| 9 | Closed | No | Closedbutnotsolved |
| 10 | Open | Yes | Open |
| 11 | Closed | No | Closedbutnotsolved |
| 12 | Closed | No | Closedbutnotsolved |
| 13 | Open | Yes | Open |
| 14 | Solved | No | Closed |
| 15 | Solved | No | Closed |
| 16 | Pending | No | Closed |
| 17 | Solved | No | Closed |
| 18 | Closed | No | Closedbutnotsolved |
| 19 | Closed | No | Closedbutnotsolved |
| 20 | Closed | No | Closedbutnotsolved |
| 21 | Solved | No | Closed |
| 22 | Solved | No | Closed |
| 23 | Solved | No | Closed |
| 24 | Open | No | Open |
| 25 | Solved | No | Closed |
| 26 | Open | Yes | Open |
| 27 | Open | No | Open |

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RGui (64-bit) - [Data: customer_complains]

File

| | Status | Filing.on.Behalf.of.Someone | customerstatus |
|------|---------|-----------------------------|--------------------|
| 2198 | Solved | No | Closed |
| 2199 | Solved | No | Closed |
| 2200 | Closed | No | Closedbutnotsolved |
| 2201 | Closed | No | Closedbutnotsolved |
| 2202 | Closed | No | Closedbutnotsolved |
| 2203 | Open | Yes | Open |
| 2204 | Solved | No | Closed |
| 2205 | Solved | No | Closed |
| 2206 | Solved | No | Closed |
| 2207 | Solved | No | Closed |
| 2208 | Solved | No | Closed |
| 2209 | Pending | No | Closed |
| 2210 | Solved | No | Closed |
| 2211 | Closed | No | Closedbutnotsolved |
| 2212 | Closed | No | Closedbutnotsolved |
| 2213 | Closed | No | Closedbutnotsolved |
| 2214 | Closed | No | Closedbutnotsolved |
| 2215 | Solved | No | Closed |
| 2216 | Solved | No | Closed |
| 2217 | Solved | Yes | Closed |
| 2218 | Closed | No | Closedbutnotsolved |
| 2219 | Open | Yes | Open |
| 2220 | Closed | No | Closedbutnotsolved |
| 2221 | Solved | No | Closed |
| 2222 | Solved | No | Closed |
| 2223 | Solved | No | Closed |
| 2224 | Open | Yes | Open |

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In the above mention screenshot, there is a separate column of customerstatus which shows that

Open Cases-> are described as Open

Pending Cases->are described as Closed

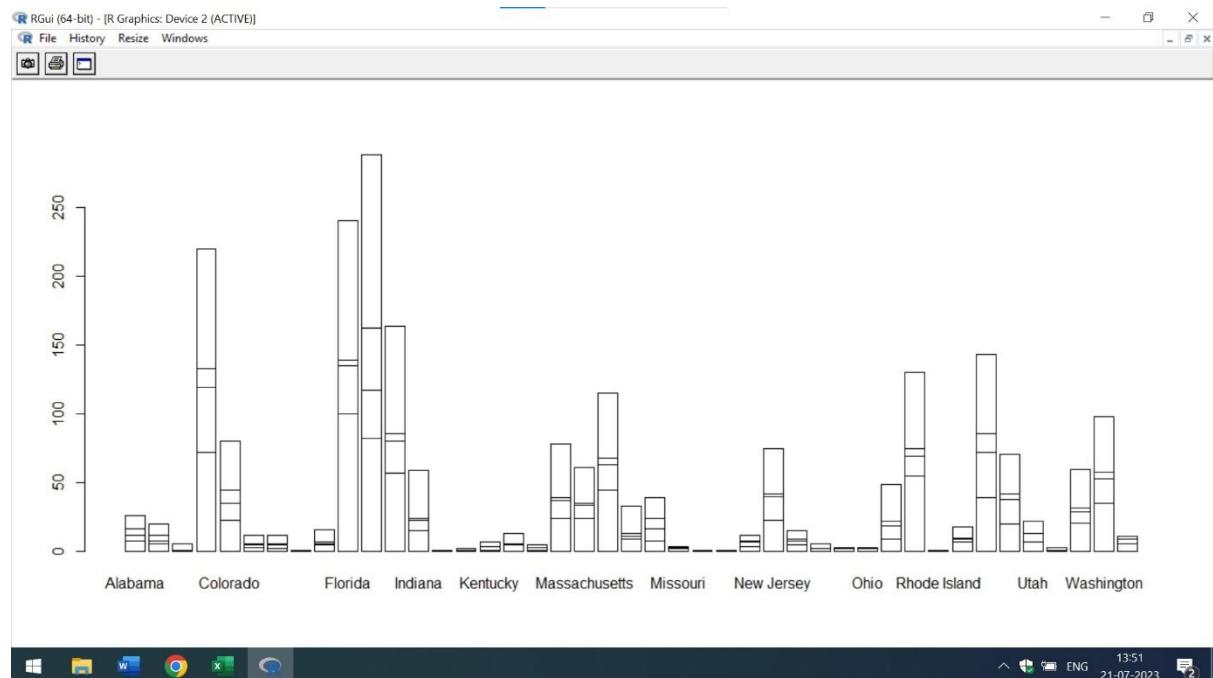
Solved Cases->are described as Closed

Q6) 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

Ans) The state wise view of complaints in a stacked bar chart is mention below:



From the above mention graph,it is clear that Florida is the state with highest number of complaints

However,if I use filter then Georgia is the state which has the maximum customer complains

The below mention is the code in R for the state wise complains

```
print("Comcast Telecom Consumer Complaints")
com_data<-read.csv("C:/Users/shiva/Desktop/Shivani/SimpliLearn/Data Science with
R/Comcast.csv")
```

```
print(com_data)
View(com_data)
t<-com_data%>%select(2,7,9)
View(t)
filter(t,State=="Alabama") # 26 complains
filter(t,State=="Arizona") # 20
```

```
filter(t,State=="Arkansas") #6
filter(t,State=="California") # 220
filter(t,State=="Colorado") #80
filter(t,State=="Connecticut") #12
filter(t,State=="Delaware") #12
filter(t,State=="District Of Columbia")#16
filter(t,State=="Florida") #240
filter(t,State=="Georgia") #288
filter(t,State=="Indiana")# 59 complains
filter(t,State=="Kentucky") # 7
filter(t,State=="Massachusetts") # 61 complains
filter(t,State=="Missouri") #4
filter(t,State=="New Jersey") #75
filter(t,State=="Ohio") #3
filter(t,State=="South Carolina") #18
filter(t,State=="Vermont") # 3
counts<-table(com_data$Status,com_data$State)
barplot(counts)
perf<-ggplot(data=com_data, aes(x=State, y=Status,fill=Status))+geom_bar(stat="identity")
perf
```

The below attached is the screenshots for the Number of Complains of Florida and Georgia

R Gui (64-bit)

File Edit View Misc Packages Windows Help

R Console

```
218 Florida Solved
219 Florida Closed
220 Florida Solved
221 Florida Solved
222 Florida Solved
223 Florida Solved
224 Florida Solved
225 Florida Solved
226 Florida Solved
227 Florida Open
228 Florida Open
229 Florida Solved
230 Florida Solved [REDACTED]
231 Florida Solved
232 Florida Solved
233 Florida Solved
234 Florida Open
235 Florida Closed
236 Florida Solved
237 Florida Closed
238 Florida Solved
239 Florida Closed
240 Florida Closed
There were 43 warnings (use warnings() to see them)
> |
```

R - R Editor

```
"") # 26 complains
") # 20
") # 6
nia") # 220
o") #80
icut") #12
e") #12
t Of Columbia")#16
") #240
") #288
")# 59 complains
y") # 7
ussetts") # 61 comp
i") #4
sey") #75
#3
Carolina") #18
") # 3
status,com_data$Sta
data, aes(x=State,
```

#3-2

The screenshot shows the RGui (64-bit) interface. The R Console pane displays the following R code and its output:

```
265 Georgia Open
266 Georgia Solved
267 Georgia Pending
268 Georgia Closed
269 Georgia Closed
270 Georgia Closed
271 Georgia Solved
272 Georgia Closed
273 Georgia Solved
274 Georgia Pending
275 Georgia Closed
276 Georgia Pending
277 Georgia Solved
278 Georgia Solved
279 Georgia Pending
280 Georgia Closed
281 Georgia Closed
282 Georgia Open [REDACTED]
283 Georgia Solved
284 Georgia Solved
285 Georgia Solved
286 Georgia Solved
287 Georgia Solved
288 Georgia Pending
> |
```

The R Editor pane shows a partially visible R script named 'com.R' with code related to complaints.

Hence, one can conclude that Florida and Georgia are the two states with Maximum complains. Georgia has the maximum complains ie 288 and Florida has 240

The state which has the highest number of Unresolved complains is Georgia

The below attached is the code of Percentage of Unresolve cases in Georgia

```
print("Comcast Telecom Consumer Complaints")
```

```
com_data<-read.csv("C:/Users/shiva/Desktop/Shivani/SimpliLearn/Data Science with  
R/Comcast.csv")
```

```
print(com_data)
```

```
s<-com_data%>%select(7,9)
```

```
View(s)
```

```
thestate<-filter(s,Status=="Open" | Status=="Pending")
```

```
View(thestate)
```

```
thecases<-filter(thestate,State=="Georgia")
```

```
View(thecases)
```

```
totals<-filter(t,State=="Georgia") #288
```

```
print(totals)
```

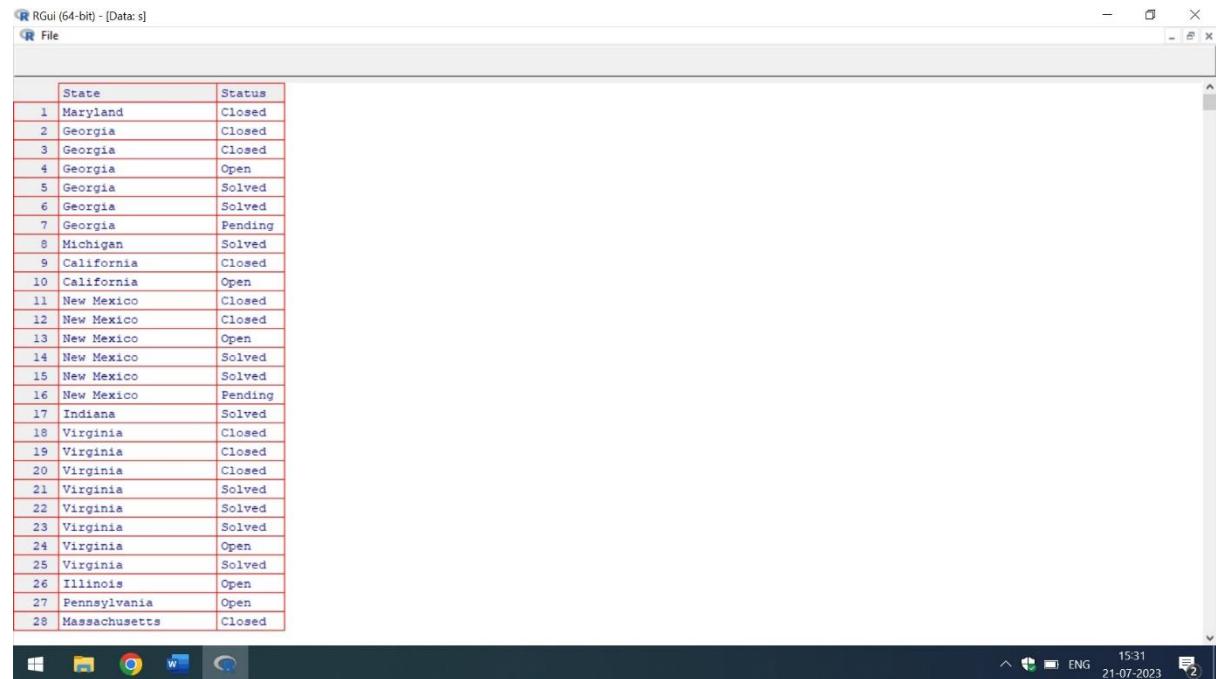
```
# Percentage Analysis
```

```
a=80
```

```
b=288
```

```
c=a/b
```

```
print(c)
```



| | State | Status |
|----|---------------|---------|
| 1 | Maryland | Closed |
| 2 | Georgia | Closed |
| 3 | Georgia | Closed |
| 4 | Georgia | Open |
| 5 | Georgia | Solved |
| 6 | Georgia | Solved |
| 7 | Georgia | Pending |
| 8 | Michigan | Solved |
| 9 | California | Closed |
| 10 | California | Open |
| 11 | New Mexico | Closed |
| 12 | New Mexico | Closed |
| 13 | New Mexico | Open |
| 14 | New Mexico | Solved |
| 15 | New Mexico | Solved |
| 16 | New Mexico | Pending |
| 17 | Indiana | Solved |
| 18 | Virginia | Closed |
| 19 | Virginia | Closed |
| 20 | Virginia | Closed |
| 21 | Virginia | Solved |
| 22 | Virginia | Solved |
| 23 | Virginia | Solved |
| 24 | Virginia | Open |
| 25 | Virginia | Solved |
| 26 | Illinois | Open |
| 27 | Pennsylvania | Open |
| 28 | Massachusetts | Closed |

RGui (64-bit) - [Data.s]

File

| | State | Status |
|----|---------------|---------|
| 30 | Oregon | Pending |
| 31 | Georgia | Closed |
| 32 | Georgia | Solved |
| 33 | Georgia | Solved |
| 34 | Georgia | Solved |
| 35 | Georgia | Solved |
| 36 | Georgia | Solved |
| 37 | Georgia | Closed |
| 38 | Texas | Solved |
| 39 | Pennsylvania | Open |
| 40 | Pennsylvania | Open |
| 41 | Massachusetts | Open |
| 42 | New Hampshire | Open |
| 43 | Minnesota | Solved |
| 44 | California | Closed |
| 45 | California | Closed |
| 46 | Michigan | Closed |
| 47 | Michigan | Closed |
| 48 | Michigan | Solved |
| 49 | Michigan | Solved |
| 50 | Michigan | Solved |
| 51 | Maryland | Solved |
| 52 | Pennsylvania | Solved |
| 53 | Minnesota | Solved |
| 54 | California | Solved |
| 55 | Tennessee | Solved |
| 56 | California | Closed |
| 57 | Virginia | Closed |

Windows Taskbar: File Explorer, Google Chrome, Microsoft Word, Microsoft Outlook, 15:32, ENG, 21-07-2023, 2 notifications

RGui (64-bit) - [Data.s]

File

| | State | Status |
|------|--------------|---------|
| 2197 | Virginia | Open |
| 2198 | Washington | Solved |
| 2199 | Washington | Solved |
| 2200 | Illinois | Closed |
| 2201 | Georgia | Closed |
| 2202 | Georgia | Closed |
| 2203 | Georgia | Open |
| 2204 | Georgia | Solved |
| 2205 | Georgia | Solved |
| 2206 | Georgia | Solved |
| 2207 | Georgia | Solved |
| 2208 | Georgia | Solved |
| 2209 | Georgia | Pending |
| 2210 | Illinois | Solved |
| 2211 | New Jersey | Closed |
| 2212 | Michigan | Closed |
| 2213 | Michigan | Closed |
| 2214 | Pennsylvania | Closed |
| 2215 | Pennsylvania | Solved |
| 2216 | Pennsylvania | Solved |
| 2217 | Pennsylvania | Solved |
| 2218 | Pennsylvania | Closed |
| 2219 | Illinois | Open |
| 2220 | Florida | Closed |
| 2221 | Michigan | Solved |
| 2222 | Michigan | Solved |
| 2223 | Michigan | Solved |
| 2224 | Michigan | Open |

Windows Taskbar: File Explorer, Google Chrome, Microsoft Word, Microsoft Outlook, 15:32, ENG, 21-07-2023, 2 notifications

From the above mentioned screenshots, it is clear that Georgia has highest number of cases.

RGui (64-bit) - [Data: thecases]

File

| | State | Status |
|----|---------|---------|
| 53 | Georgia | Pending |
| 54 | Georgia | Pending |
| 55 | Georgia | Open |
| 56 | Georgia | Open |
| 57 | Georgia | Open |
| 58 | Georgia | Pending |
| 59 | Georgia | Open |
| 60 | Georgia | Pending |
| 61 | Georgia | Pending |
| 62 | Georgia | Open |
| 63 | Georgia | Pending |
| 64 | Georgia | Pending |
| 65 | Georgia | Open |
| 66 | Georgia | Open |
| 67 | Georgia | Pending |
| 68 | Georgia | Open |
| 69 | Georgia | Pending |
| 70 | Georgia | Open |
| 71 | Georgia | Pending |
| 72 | Georgia | Pending |
| 73 | Georgia | Pending |
| 74 | Georgia | Open |
| 75 | Georgia | Pending |
| 76 | Georgia | Pending |
| 77 | Georgia | Pending |
| 78 | Georgia | Pending |
| 79 | Georgia | Open |
| 80 | Georgia | Pending |

Windows Start button Google Chrome File Explorer Task View 15:37 ENG 21-07-2023

R Gui (64-bit)

File Edit Packages Windows Help



R Console

```
265 Georgia    Open
266 Georgia   Solved
267 Georgia Pending
268 Georgia Closed
269 Georgia Closed
270 Georgia Closed
271 Georgia Solved
272 Georgia Closed
273 Georgia Solved
274 Georgia Pending
275 Georgia Closed
276 Georgia Pending
277 Georgia Solved
278 Georgia Solved
279 Georgia Pending
280 Georgia Closed
281 Georgia Closed
282 Georgia    Open
283 Georgia Solved
284 Georgia Solved
285 Georgia Solved
286 Georgia Solved
287 Georgia Solved
288 Georgia Pending
> |
```

```
C:\Users\s
newtrends
```

```
#5-3
print("Cor
com_data<.

print(com_
s<-com_dat
View(s)
thestate<.
View(thes
thecases<
View(thec
totals<-f
print(tot

# Percenta
a=80
b=288
c=a/b
print(c)
```



The screenshot shows the RStudio interface. The R Console pane contains the following R code:

```
> a=80
> b=288 # Total Number of Closed,Open and Pending Complains of Georgia
> c=a/b
> print(c) # Percentage of unresolved complains
[1] 0.2777778
>
```

The Environment pane shows a file named "newtrends" with the following code:

```
#5-3

print("Com
com_data<-i

print(com_
s<-com_
View(s)
thestate<-i
View(thesta
thecases<-i
View(thecas
totals<-fi
print(total

# Percentage
a=80 # Total
b=288 # Total
c=a/b
print(c) #
```

The state Georgia has total 80 cases which are in open or in pending

However, Total Number of Cases(Solved+Closed+Pending) of Georgia is 288

Hence,Percentage of unresolved complains of Georgia State is

a=80 # Total Number of Open and Pending Complains of Georgia

b=288 # Total Number of Closed,Open and Pending Complains of Georgia

c=a/b

```
print(c) # Percentage of unresolved complains
```

Hence, The Percentage of unresolved complains is around 28%

Q7) Provide the percentage of complaints resolved till date, which were received through the Internet and customer care calls.

Ans) For analysis of complains resolved till date, I am considering only the solved entry of Status Column

The below attached is the code in R which shows total percentage of complaints resolved till date through the Internet and customer care calls.

```
print("Comcast Telecom Consumer Complaints")  
com_data<-read.csv("C:/Users/shiva/Desktop/Shivani/SimpliLearn/Data Science with  
R/Comcast.csv")  
  
print(com_data)  
View(com_data)  
filter(com_data,ReceivedVia=="Customer Care Call")#1119  
filter(com_data,ReceivedVia=="Internet") #1105  
  
  
  
  
filter(com_data,ReceivedVia=="Customer Care Call" & Status=="Solved") #477  
filter(com_data,ReceivedVia=="Internet" & Status=="Solved") #496  
  
  
  
  
customercare=477/1119  
print(customercare)  
  
  
internet=496/1105  
print(internet)
```

RGui (64-bit)

File Edit Packages Windows Help



R Console

| | | | | |
|------|---------------|-------|---------|-----|
| 1096 | Georgia | 30680 | Pending | No |
| 1097 | New Hampshire | 3087 | Solved | No |
| 1098 | Colorado | 80550 | Solved | No |
| 1099 | Illinois | 60093 | Closed | No |
| 1100 | Virginia | 24293 | Closed | Yes |
| 1101 | Massachusetts | 1801 | Solved | No |
| 1102 | Virginia | 22191 | Closed | No |
| 1103 | Virginia | 22191 | Closed | No |
| 1104 | Virginia | 22191 | Open | No |
| 1105 | Washington | 98077 | Solved | No |
| 1106 | Illinois | 60517 | Closed | No |
| 1107 | Georgia | 30189 | Closed | No |
| 1108 | Georgia | 30188 | Open | Yes |
| 1109 | Georgia | 30188 | Solved | No |
| 1110 | Georgia | 30188 | Pending | No |
| 1111 | Illinois | 60482 | Solved | No |
| 1112 | New Jersey | 8562 | Closed | No |
| 1113 | Pennsylvania | 17403 | Solved | No |
| 1114 | Pennsylvania | 17404 | Solved | Yes |
| 1115 | Illinois | 60560 | Open | Yes |
| 1116 | Florida | 32466 | Closed | No |
| 1117 | Michigan | 48197 | Solved | No |
| 1118 | Michigan | 48197 | Solved | No |
| 1119 | Michigan | 48198 | Open | Yes |

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#7

```
print("Comc  
com_data<-r  
print(com_d  
View(com_da  
filter(com_<  
filter(com_<  
  
filter(com_<  
filter(com_<  
  
customercar  
print(custo  
  
internet=49  
print(intern
```



The above mentioned screenshot represents the total Data Received by Customer Care Call which has both open,solved,closed and pending cases. The count is 1119

RGui (64-bit)

File Edit Packages Windows Help

[Icons]

R Console

| 1082 | Massachusetts | 1085 | Open | No | |
|------|---------------|-------|---------|-----|----|
| 1083 | Illinois | 60559 | Solved | No | |
| 1084 | Pennsylvania | 15090 | Pending | No | |
| 1085 | Tennessee | 37188 | Open | No | # |
| 1086 | New Jersey | 8046 | Closed | No | p1 |
| 1087 | Delaware | 19805 | Closed | Yes | cc |
| 1088 | Delaware | 19803 | Closed | No | p1 |
| 1089 | Delaware | 19805 | Solved | No | Vi |
| 1090 | Delaware | 19802 | Pending | No | fi |
| 1091 | Massachusetts | 1887 | Solved | No | fi |
| 1092 | California | 95492 | Solved | No | fi |
| 1093 | Maryland | 21797 | Solved | No | fi |
| 1094 | Washington | 98077 | Solved | No | fi |
| 1095 | Georgia | 30188 | Closed | No | fi |
| 1096 | Georgia | 30188 | Solved | No | fi |
| 1097 | Georgia | 30188 | Solved | No | ir |
| 1098 | Georgia | 30188 | Solved | No | p1 |
| 1099 | Georgia | 30188 | Solved | No | |
| 1100 | Michigan | 49509 | Closed | No | |
| 1101 | Michigan | 49509 | Closed | No | |
| 1102 | Pennsylvania | 17401 | Closed | No | |
| 1103 | Pennsylvania | 17403 | Solved | No | |
| 1104 | Pennsylvania | 17370 | Closed | No | |
| 1105 | Michigan | 48197 | Solved | No | |

> |

Windows Taskbar icons: File Explorer, Google Chrome, Task View, Word.

The above mentioned screenshot represents the total Data Received by Internet which has both open,solved,closed and pending cases. The count is 1105

R Gui (64-bit)

File Edit Packages Windows Help

R Console

| 454 | District Of Columbia | 20026 | Solved | No |
|-----|----------------------|-------|--------|-----|
| 455 | District Of Columbia | 20009 | Solved | No |
| 456 | Connecticut | 6704 | Solved | No |
| 457 | Pennsylvania | 19382 | Solved | No |
| 458 | Louisiana | 71292 | Solved | No |
| 459 | Louisiana | 71291 | Solved | No |
| 460 | Florida | 33411 | Solved | No |
| 461 | Florida | 33407 | Solved | No |
| 462 | Minnesota | 55118 | Solved | No |
| 463 | Utah | 84119 | Solved | No |
| 464 | Colorado | 80021 | Solved | No |
| 465 | Illinois | 26104 | Solved | No |
| 466 | Illinois | 60090 | Solved | No |
| 467 | Delaware | 19808 | Solved | No |
| 468 | New Hampshire | 3087 | Solved | No |
| 469 | Colorado | 80550 | Solved | No |
| 470 | Massachusetts | 1801 | Solved | No |
| 471 | Washington | 98077 | Solved | No |
| 472 | Georgia | 30188 | Solved | No |
| 473 | Illinois | 60482 | Solved | No |
| 474 | Pennsylvania | 17403 | Solved | No |
| 475 | Pennsylvania | 17404 | Solved | Yes |
| 476 | Michigan | 48197 | Solved | No |
| 477 | Michigan | 48197 | Solved | No |

> |

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#7

```
print("Comcast Telecom Co")
com_data<-read.csv("C:/Us
print(com_data)
View(com_data)
filter(com_data,ReceivedV
filter(com_data,ReceivedV

filter(com_data,ReceivedV
filter(com_data,ReceivedV

customercare=477/1119
print(customercare)

internet=496/1105
print(internet)
```

Windows Taskbar:

- Windows Start button
- File Explorer icon
- Google Chrome icon
- Task View icon
- File icon

The total number of solved cases via Customer Care call is 477

R GUI (64-bit)

File Edit Packages Windows Help



R Console

| 473 | District Of Columbia | 20037 | Solved | No |
|-----|----------------------|-------|--------|-----|
| 474 | District Of Columbia | 20036 | Solved | No |
| 475 | Michigan | 48095 | Solved | No |
| 476 | District Of Columbia | 20020 | Solved | No |
| 477 | Connecticut | 6708 | Solved | Yes |
| 478 | Michigan | 48328 | Solved | No |
| 479 | Illinois | 60084 | Solved | No |
| 480 | Iowa | 50263 | Solved | No |
| 481 | Florida | 33414 | Solved | No |
| 482 | Florida | 33414 | Solved | No |
| 483 | Florida | 33414 | Solved | No |
| 484 | New Jersey | 8086 | Solved | No |
| 485 | Illinois | 60559 | Solved | No |
| 486 | Delaware | 19805 | Solved | No |
| 487 | Massachusetts | 1887 | Solved | No |
| 488 | California | 95492 | Solved | No |
| 489 | Maryland | 21797 | Solved | No |
| 490 | Washington | 98077 | Solved | No |
| 491 | Georgia | 30188 | Solved | No |
| 492 | Georgia | 30188 | Solved | No |
| 493 | Georgia | 30188 | Solved | No |
| 494 | Georgia | 30188 | Solved | No |
| 495 | Pennsylvania | 17403 | Solved | No |
| 496 | Michigan | 48197 | Solved | No |

```
#7  
  
print("Comcast Tel  
com_data<-read.csv  
  
print(com_data)  
View(com_data)  
filter(com_data,Re  
filter(com_data,Re  
  
filter(com_data,Re  
filter(com_data,Re  
  
customercare=477/1  
print(customercare  
  
internet=496/1105  
print(internet)
```

The total number of solved cases via Internet is 496

The number of solved cases of customer care calls is 42.6 %

R Gui (64-bit)

File Edit Packages Windows Help

R Console

```
> customercare=477/1119
> print(customercare)
[1] 0.4262735
> |
```

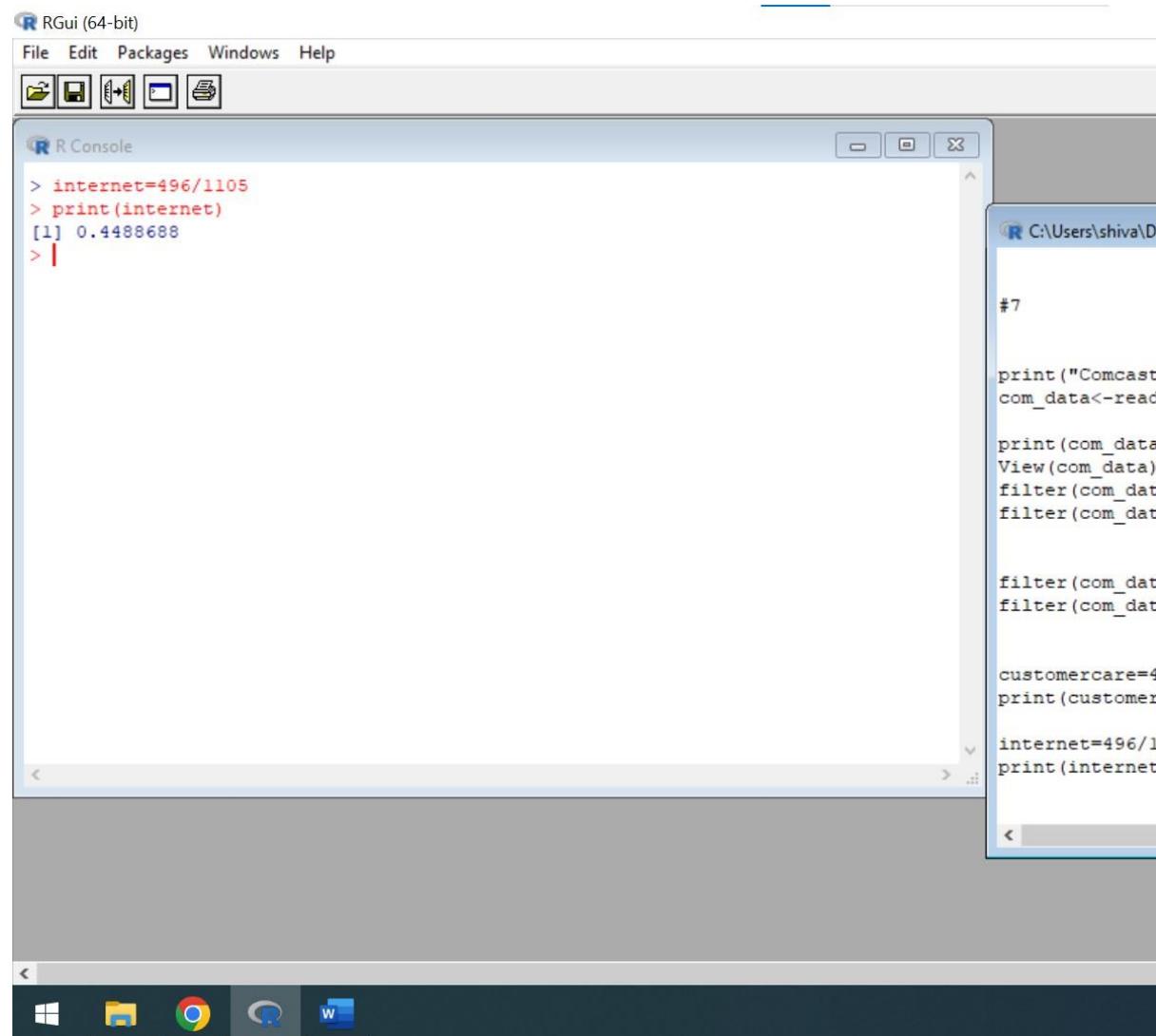
#7

```
print("Com
com_data<-
print(com_
View(com_d
filter(com_
filter(com_
filter(com_
filter(com_
customerca
print(cust
internet=4
print(inte
```

Windows Taskbar:

- Windows Start button
- File Explorer icon
- Google Chrome icon
- RGui icon
- Word icon

The number of solved cases via Internet is 44.8%



R Gui (64-bit)

File Edit Packages Windows Help

R Console

```
> internet=496/1105
> print(internet)
[1] 0.4488688
> |
```

C:\Users\shiva\D

```
#7

print("Comcast
com_data<-read
print(com_data
View(com_data)
filter(com_dat
filter(com_dat

filter(com_dat
filter(com_dat

customercare=4
print(customer

internet=496/1
print(internet
```

Windows Taskbar:

- Windows Start button
- File Explorer icon
- Google Chrome icon
- Task View icon
- Word icon

