

# Comcast Telecom Consumer Complaints. by Thato

## Tladi

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## COMCAST TELECOMM CONSUMER COMPLAINS

### Project Description

Comcast is an American global telecommunication company. The firm has been providing terrible customer service. They continue to fall short despite repeated promises to improve. Only last month (October 2016) the authority fined them a \$2.3 million, after receiving over 1000 consumer complains.

The existing database will serve as a repository of public customer complains filed against Comcast. It will help to pin down what is wrong with Comcast's customer service.

Data = 2015

Ticket = Ticket number assigned to each complain Customer.Complaint: Description of complain Date: Date of complain Time: Time of complain Received Via: Mode of communication of the complain City Customer State Customer state Zipcodes Customer zip Status: Status of complain Filing on behalf of someone Analysis Task

- Import data into R environment.
- Provide the trend chart for the number of complains at monthly and daily granularity levels.
- Provide a table with the frequency of complain types.

Which complain types are maximum i.e., around internet, network issues, or across any other domains. - 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. - Provide state wise status of complains in a stacked bar chart. Use the categorized variable from Q3. Provide insights on:

Which state has the maximum complains Which state has the highest percentage of unresolved complains - Provide the percentage of complains resolved till date, which were received through the internet and customer care calls.

### 1. IMPORTING DATA INTO R ENVIRONMENT

```
#load required library
library(readxl)

#load the data
Data <- read_csv("C:/Users/GOEINE/Desktop/Comcast Telecom Complaints data.csv")

#view the data
View(Data)

#checking the data head
head(data,5)

## Ticket.. Customer.Complaint Date Time
## 1 250635 Comcast Cable Internet Speeds
## 2 223441 Payment disapper - service got disconnected
## 3 242732 Speed and Service
## 4 277946 Comcast Imposed a New Usage Cap of 300GB that punishes streaming.
## 5 307175 Comcast not working and no service to boot
## 6 338519 ISP Charging for arbitrary data limits with overage fees
## 7 Date Time Received.Via City State Zip.code Status
## 1 22-04-2015 3:53:50 PM Customer Care Call Abingdon Maryland 21809 Closed
## 2 4/8/2015 9:55:47 AM Internet Acworth Georgia 30101 Closed
## 3 18-04-2015 9:55:47 AM Internet Acworth Georgia 30101 Closed
## 4 5/7/2015 11:59:35 AM Internet Acworth Georgia 30101 Open
## 5 26-05-2015 1:25:26 PM Internet Acworth Georgia 30101 Solved
## Filling.on.Behalf.of.Someone
## 1 No
## 2 No
## 3 Yes
## 4 Yes
## 5 No

#checking the dataset tail
tail(data,5)

## Ticket.. Customer.Complaint Date Time
## 2220 233550 Service Availability 4/7/2015 9:15:58 AM
## 2221 318775 Comcast Monthly Billing for Returned Modem 6/2/2015 1:24:39 PM
## 2222 331188 complaint about comcast 6/9/2015 5:28:41 PM
## 2223 308489 Extremely unsatisfied Comcast customer 23-06-2015 11:12:30 PM
## 2224 363654 Comcast, vpsilanti MI Internet Speed 24-06-2015 10:28:33 PM
## Received.Via City State Zip.code Status
## 2220 Customer Care Call Youngtown Florida 32406 Closed
## 2221 Customer Care Call Vpsilanti Michigan 48197 Solved
## 2222 Internet Vpsilanti Michigan 48197 Solved
## 2223 Customer Care Call Vpsilanti Michigan 48197 Solved
## 2224 Customer Care Call Vpsilanti Michigan 48198 Open
## Filling.on.Behalf.of.Someone
## 2220 No
## 2221 No
## 2222 No
## 2223 No
## 2224 Yes

#checking the structure of the dataset.
str(data)

## $ Ticket.. 2224 obs. of 10 variables:
## $ Ticket.. : chr "250635" "223441" "242732" "277946" ...
## $ Customer.Complaint : chr "Comcast Cable Internet Speeds" "Payment disapper - service got disconnec" "Speed and Service" "Comcast Imposed a New Usage Cap of 300GB that punishes streaming." ...
## $ Date : chr "22-04-2015" "4/8/2015" "18-04-2015" "5/7/2015" ...
## $ Time : chr "3:53:50 PM" "10:22:56 AM" "9:55:47 AM" "11:59:35 AM" ...
## $ Received.Via : chr "Customer Care Call" "Internet" "Internet" "Internet" ...
## $ City : chr "Abingdon" "Acworth" "Acworth" "Acworth" ...
## $ State : chr "Maryland" "Georgia" "Georgia" "Georgia" ...
## $ Zip.code : int 21009 30102 30101 30101 30101 30101 49221 94502 94501 ...
## $ Status : chr "Closed" "Closed" "Closed" "Open" ...
## $ Filling.on.Behalf.of.Someone: chr "No" "No" "Yes" "Yes" ...
```

### DATA CLEANING

```
#CLEANING The Data Into Single Format
#use lubridate library to format the Date Column
library(lubridate)

##
## Attaching package: 'lubridate'

## The following objects are masked from 'package:base':
##
## date, intersect, setdiff, union

l1<-parse_date_time(x = data$Date,
  orders = c("d" = "Y", "d" = "Y", "m/d/Y"),
  locale = Sys.getlocale("LC_TIME"))

data2<-Data
data2$date <- l1
#Dates Loaded In the Same Format in the new Dataframe
#str(data2$date)

#Extracting Month Column and Converting to The labels.
data2$Month <- format(as.Date(data2$date), "%m")
data2$Month<- month abbrev[as.integer(data2$Month)]
head(data2)

## Ticket.. Customer.Complaint Date Time
## 1 250635 Comcast Cable Internet Speeds
## 2 223441 Payment disapper - service got disconnected
## 3 242732 Speed and Service
## 4 277946 Comcast Imposed a New Usage Cap of 300GB that punishes streaming.
## 5 307175 Comcast not working and no service to boot
## 6 338519 ISP Charging for arbitrary data limits with overage fees
## 7 Date Time Received.Via City State Zip.code Status
## 1 2015-04-22 3:53:50 PM Customer Care Call Abingdon Maryland 21809 Closed
## 2 2015-08-04 10:22:56 AM Internet Acworth Georgia 30102 Closed
## 3 2015-04-18 9:55:47 AM Internet Acworth Georgia 30101 Closed
## 4 2015-07-05 11:59:35 AM Internet Acworth Georgia 30101 Open
## 5 2015-05-26 1:25:26 PM Internet Acworth Georgia 30101 Solved
## 6 2015-12-06 9:59:40 PM Internet Acworth Georgia 30101 Solved
## Filling.on.Behalf.of.Someone Month
## 1 No Apr
## 2 No Aug
## 3 Yes Apr
## 4 Yes Jul
## 5 No May
## 6 No Dec
```

### ANALYSIS OF DATA

```
library(dplyr)

##
## Attaching package: 'dplyr'

## The following objects are masked from 'package:stats':
##
## filter, lag

## The following objects are masked from 'package:base':
##
## intersect, setdiff, setequal, union

data_date<-data2 %>% group_by(Date) %>% dplyr::summarise(frequency = n())
dff<-head(dff)
dff

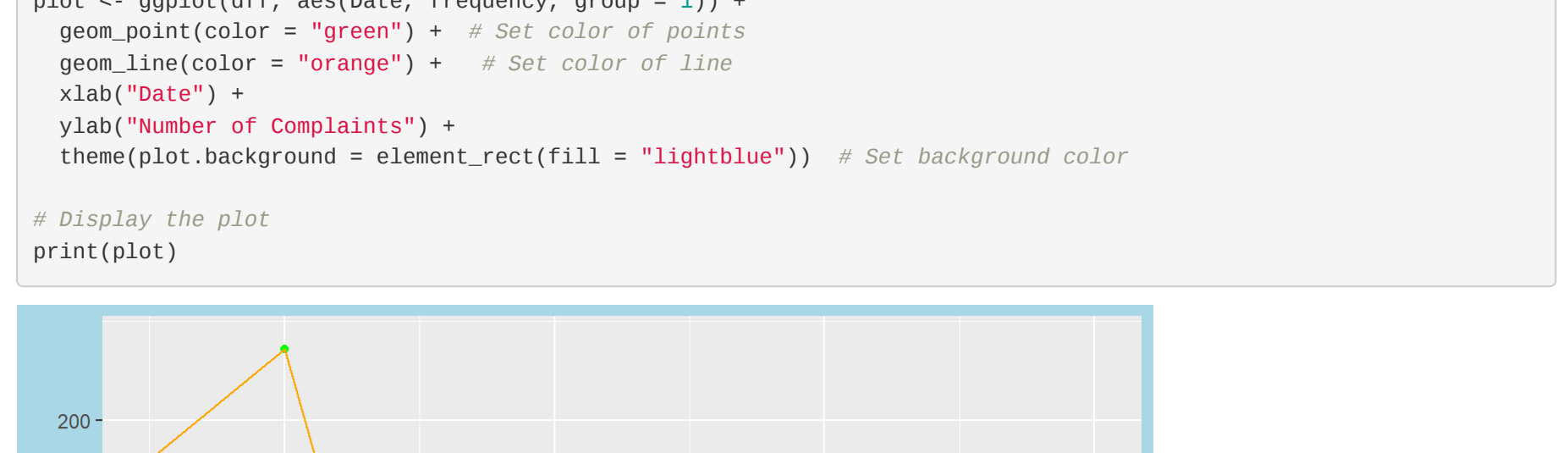
## # A tibble: 6 x 2
## Date frequency
## <date> <int>
## 1 2015-08-24 09:00:00 218
## 2 2015-06-23 09:00:00 190
## 3 2015-06-26 09:00:00 88
## 4 2015-06-26 09:00:00 55
## 5 2015-06-26 09:00:00 53
## 6 2015-06-20 09:00:00 51
```

Analysis:- This Above Data Frame shows that, on June 24 Comcast was reported with 218 complains.

```
library(ggplot2)

# Create the plot
plot <- ggplot(data_date, aes(Date, frequency, group = 1)) +
  geom_point(color = "blue") + # Set color of points
  geom_line(color = "red") + # Set color of line
  xlab("Date") +
  ylab("Number of Complaints") +
  theme(plot.background = element_rect(fill = "gray90")) # Set background color

# Display the plot
print(plot)
```



Analysis:- Clearly from the above

Trend Graph, we can easily say that in the month of JUNE 2015, Comcast got reported with Maximum Number of complains.

```
library(ggplot2)

# Create the plot
plot <- ggplot(dff, aes(Date, frequency, group = 1)) +
  geom_point(color = "green") + # Set color of points
  geom_line(color = "orange") + # Set color of line
  xlab("Date") +
  ylab("Number of Complaints") +
  theme(plot.background = element_rect(fill = "lightblue")) # Set background color

# Display the plot
print(plot)
```



Analysis:- It's evident from the data

that on June 24th, the company received a significant number of complains. This trend is consistent with several observations throughout the month of June.

```
library(dplyr)
data_month<-data2 %>%
group_by(Month) %>% summarise(frequency = n())
data_month

## # A tibble: 12 x 2
## Month frequency
## <chr> <int>
## 1 Apr 375
## 2 Aug 67
## 3 Dec 66
## 4 Feb 59
## 5 Jan 55
## 6 Jul 49
## 7 Jun 1046
## 8 Mar 45
## 9 May 317
## 10 Nov 38
## 11 Oct 93
## 12 Sep 55

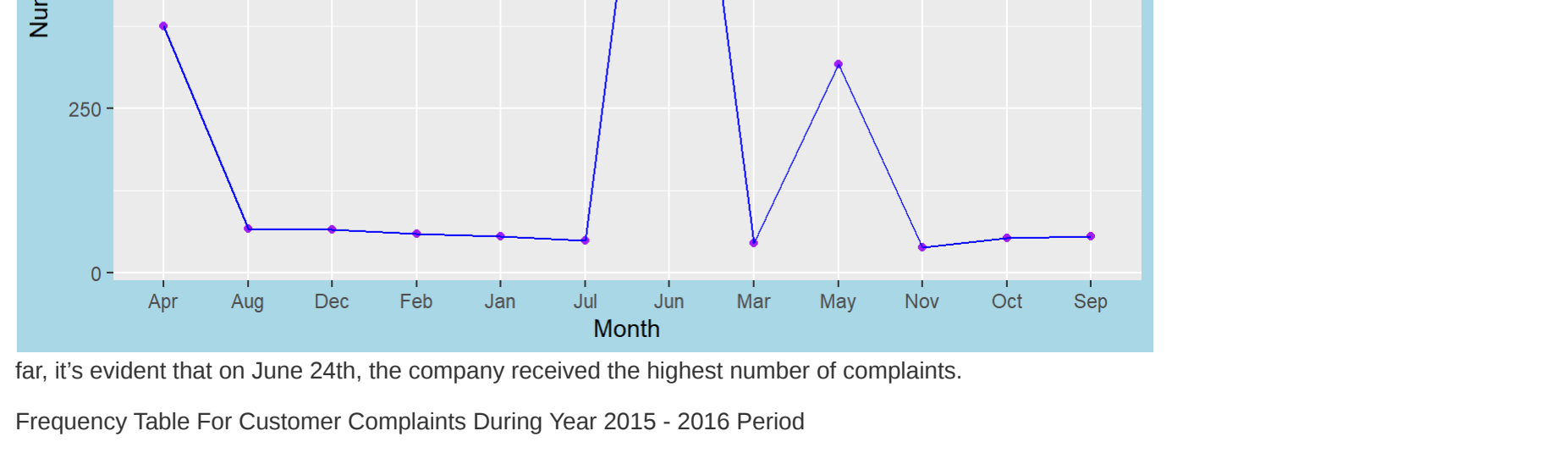
data2$Month <- as.factor(data2$Month)
levels(data2$Month)

## [1] "Apr" "Aug" "Dec" "Feb" "Jan" "Jul" "Jun" "Mar" "May" "Nov" "Oct" "Sep"

library(ggplot2)

# Create the plot
plot <- ggplot(data_month, aes(Month, frequency, group = 1)) +
  geom_point(color = "purple") + # Set color of points
  geom_line(color = "blue") + # Set color of line
  xlab("Month") +
  ylab("Number of Complaints") +
  theme(plot.background = element_rect(fill = "lightblue")) # Set background color

# Display the plot
print(plot)
```



Analysis:-With the insights gained so

far, it's evident that on June 24th, the company received the highest number of complains.

Frequency Table For Customer Complaints During Year 2015 - 2016 Period

```
library(dplyr)
#Removing All String Values to Lower, so as to Eliminate Duplication of any Complaint
data3<-data2%>% mutate(Customer.Complaint = tolower(Customer.Complaint))
CustTable <- table(data3$Customer.Complaint)
CustTable <- frame(CustTable)
filters<-CustTable %>%
  rename(
    CustomerComplaintType = Var1,
    Frequency = Freq
  )
#<- Filtered %>% arrange(desc(Frequency))

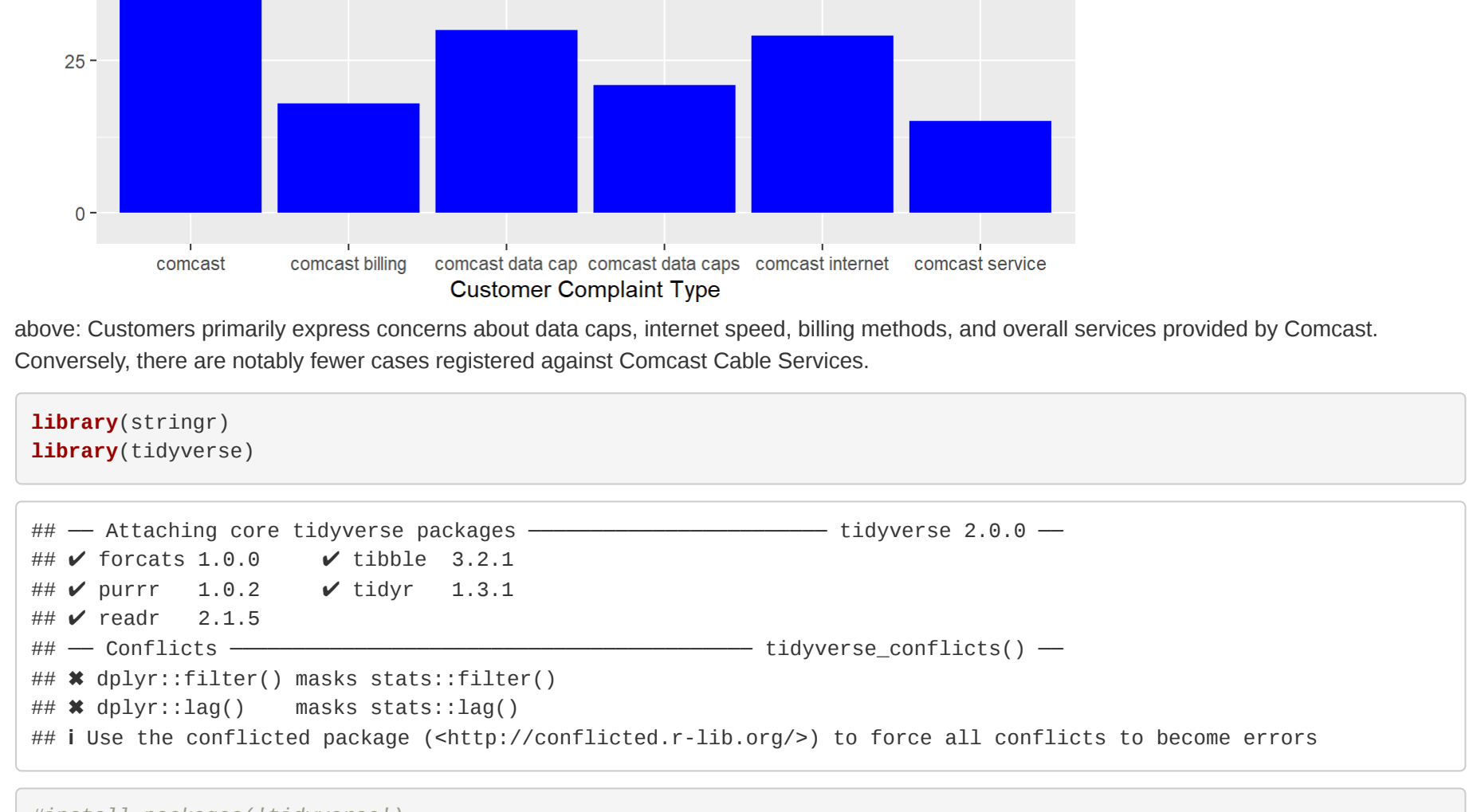
#finding The Top 20 complains filed by customers on different days.
final_res<-head(final,20)
final_res

## CustomerComplaintType Frequency
## 1 comcast 102
## 2 comcast data cap 38
## 3 comcast internet 29
## 4 comcast data caps 21
## 5 comcast billing 18
## 6 comcast service 15
## 7 internet speed 15
## 8 data caps 13
## 9 unfair billing practices 13
## 10 data cap 12
## 11 comcast complaint 11
## 12 comcast/rfinty 11
## 13 comcast internet service 10
## 14 billing 9
## 15 billing issues 8
## 16 comcast billing complaint 5
## 17 comcast billing practices 5
## 18 comcast cable 5
## 19 comcast issues 5
## 20 complaint against comcast 5
```

### library(ggplot2)

```
# Plotting the top 6 customer complaint types
plot <- ggplot(head(final_res, 6), aes(CustomerComplaintType, Frequency)) +
  geom_bar(stat = "identity", fill = "blue") + # Set fill color to blue
  xlab("Customer Complaint Type") +
  ylab("Frequency")

# Display the plot
print(plot)
```



Analyzing the table and bar plot

above, Customers primarily express concerns about data caps, internet speed, billing methods, and overall services provided by Comcast. Conversely, there are notably fewer cases registered against Comcast Cable Services.

```
library(stringr)
library(tidyverse)

## --- Attaching core tidyverse packages --- tidyverse 2.0.0 ---
## ✓ forcats 1.0.0 ✓ tibble 3.2.1
## ✓ purr 1.0.2 ✓ tidyr 1.3.1
## ✓ readr 2.1.5
## --- Conflicts --- tidyverse_conflicts() ---
## #> dplyr::filter() masks stats::filter()
## #> dplyr::lag() masks stats::lag()
## # Use the conflicted package (<http://conflicted.r-lib.org/>) to force all conflicts to become errors

#install.packages("tidyverse")
levels(data$Status)

## NULL

Create:Closed'Open'Pending'Solved'
```

```
library(plyr)

## -----
## You have loaded plyr after dplyr - this is likely to cause problems.
## If you need functions from both plyr and dplyr, please load plyr first, then dplyr:
## library(plyr); library(dplyr)
## -----
##
## Attaching package: 'plyr'

## The following object is masked from 'package:rrrr':
##
## compact

## The following objects are masked from 'package:dplyr':
##
## arrange, count, desc, fullwidth, id, mutate, rename, summarise,
## summarize

data$Status_New<-revalue(data$Status, c(Pending = "Open", Solved = "Closed"))
head(data)
```

```
## Ticket.. Customer.Complaint Date Time
## 1 250635 Comcast Cable Internet Speeds
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## 3 242732 Speed and Service
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## 5 307175 Comcast not working and no service to boot
## 6 338519 ISP Charging for arbitrary data limits with overage fees
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## 1 22-04-2015 3:53:50 PM Customer Care Call Abingdon Maryland 21809 Closed
## 2 4/8/2015 9:55:47 AM Internet Acworth Georgia 30102 Closed
## 3 18-04-2015 9:55:47 AM Internet Acworth Georgia 30101 Closed
## 4 5/7/2015 11:59:35 AM Internet Acworth Georgia 30101 Open
## 5 26-05-2015 1:25:26 PM Internet Acworth Georgia 30101 Solved
## 6 6/12/2015 9:59:40 PM Internet Acworth Georgia 30101 Solved
## Filling.on.Behalf.of.Someone Status_New
## 1 No Closed
## 2 No Closed
## 3 Yes Closed
## 4 Yes Open
## 5 No closed
## 6 No Closed
```

Upon reviewing the newly created column 'Status', it is evident that it consists of only two distinct levels, as intended. We have combined 'Pending' requests under the label 'Open' and 'Solved' requests under the label 'Closed'.

```
tab <- table(data$State, data$Status_New)
tab <- cbind(tab, Total = rowSums(tab))
head(tab,15)

## Closed Open Total
## Alabama 17 9 26
## Arizona 14 6 20
## Arkansas 6 0 6
## California 159 61 220
## Colorado 58 22 80
## Connecticut 9 3 12
## Delaware 8 4 12
## District of Columbia 1 0 1
## District of Columbia 14 2 16
## Florida 281 39 320
## Georgia 288 98 386
## Illinois 135 29 164
## Indiana 50 9 59
## Iowa 1 0 1
## Kansas 1 1 2
```

### library(gridExtra)

```
##
## Attaching package: 'gridExtra'

## The following object is masked from 'package:dplyr':
##
## combine

library(ggplot2)
```

```
# Define custom fill colors
custom_colors <- c("open" = "blue", "closed" = "red")

# Create the plot
plot <- ggplot(data, aes(y = Received.Via, fill = Status_New)) +
  geom_bar() +
  scale_fill_manual(values = custom_colors) # Set custom fill colors

# Display the plot
print(plot)
```



Analysis: Upon examining the chart,

it's evident that Georgia and Florida stand out as the states where Comcast has successfully resolved a significant number of customer issues, indicating a high level of customer satisfaction in these regions.

```
library(ggplot2)

# Define custom fill colors
custom_colors <- c("open" = "blue", "closed" = "red")

# Create the plot
plot <- ggplot(data, aes(y = Received.Via, fill = Status_New)) +
  geom_bar() +
  scale_fill_manual(values = custom_colors) # Set custom fill colors

# Display the plot
print(plot)
```



Status\_New

Closed

Open

Analysis: Upon examining the chart,

```
df1 <- table(data$Received.Via, data$Status_New)
df1 <- cbind(df1, Total = rowSums(df1))
df1

## Closed Open Total
## Customer Care Call 864 295 1159
## Internet 843 262 1105

# Define data
slices <- c(864, 295)
lbls <- c("Closed", "Open")
pct <- round(slices/sum(slices)*100)
lbls <- paste(lbls, pct, "%", sep = "")

# Define custom colors
custom_colors <- c("Closed" = "blue", "Open" = "green")

# Create pie chart
pie(slices, labels = lbls, col = custom_colors,
  main = "Pie Chart of Received Via Call")
```

### Pie Chart of Received Via Call



Closed77%

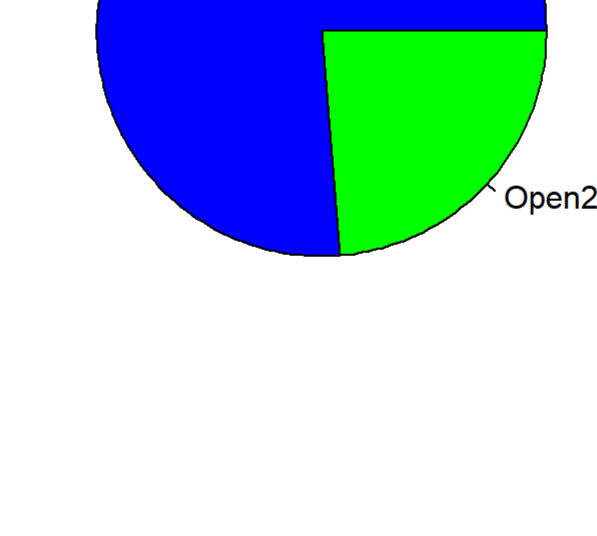
Open23%

```
# Define data
slices <- c(843, 262)
lbls <- c("Closed", "Open")
pct <- round(slices/sum(slices)*100)
lbls <- paste(lbls, pct, "%", sep = "")

# Define custom colors
custom_colors <- c("Closed" = "blue", "Open" = "green")

# Create pie chart
pie(slices, labels = lbls, col = custom_colors,
  main = "Pie Chart of Received Via Internet")
```

### Pie Chart of Received Via Internet



Closed76%

Open24%

Recommendations:

Focus on Complaint Resolution: Comcast should prioritize resolving complaints, especially regarding data caps, internet speed, billing methods, and overall services. It's notable that very few cases were registered against Comcast Cable Services.

Target Improvement in Georgia and Florida: The company's services in Georgia and Florida are showing signs of improvement. However, in states like California, Colorado, and Illinois, Comcast should allocate additional resources to address the aforementioned issues and enhance customer satisfaction.

Address Complaints during Peak Periods: During the months of June and early July, the company experienced a surge in complaints. To proactively manage this, Comcast should implement measures to ensure better service delivery during these months. This may involve collaborating with their BPO clients to increase staff availability, enabling prompt resolution of arising issues and ensuring effective feedback mechanisms.