Untitled

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

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

library(ggplot2)  
library(lubridate)

##   
## Attaching package: 'lubridate'

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

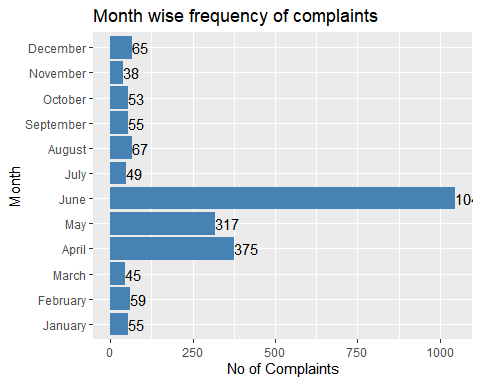
library(data.table)

##   
## Attaching package: 'data.table'

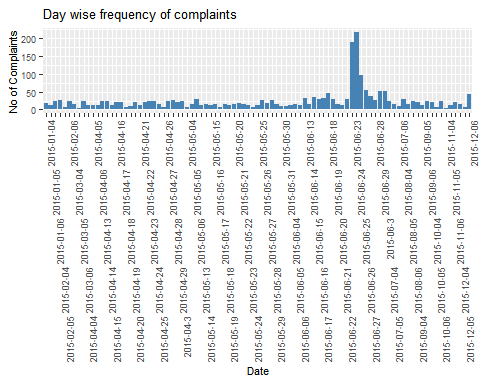
## The following objects are masked from 'package:lubridate':  
##   
## hour, isoweek, mday, minute, month, quarter, second, wday, week,  
## yday, year

## The following objects are masked from 'package:dplyr':  
##   
## between, first, last

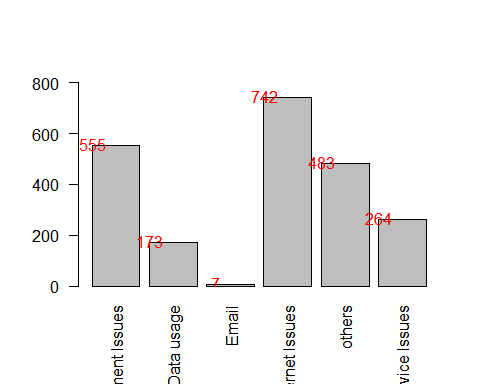
# 1) Import data into R environment  
  
Comcast\_data = read.csv("Comcast Telecom Complaints data.csv", header = TRUE, sep = "," )  
comcast = data.frame(Comcast\_data)  
comcast$Date\_NEW <- strptime(as.character(comcast$Date), "%d/%m/%Y" )  
comcast$Date\_NEW1 <- strptime(as.character(comcast$Date), "%d-%m-%Y")  
comcast$Date\_Updated <- case\_when(is.na(comcast$Date\_NEW) ~comcast$Date\_NEW1,  
 TRUE ~comcast$Date\_NEW)  
View(comcast)  
  
  
# ------------------------------------------------------  
#-----2) Provide the trend chart for the number of complaints at monthly and daily granularity levels  
  
comcast$MonthName <- months(comcast$Date\_Updated)  
Month\_counts <- count(comcast$MonthName)   
ggplot(Month\_counts, aes( y= factor(x,levels= month.name, ordered = T), x = freq))+  
 geom\_bar(stat = "identity", fill = "steelblue") +  
 ggtitle("Month wise frequency of complaints") +  
 geom\_text(aes(label = freq), hjust = 0 ) +  
 labs(x ="No of Complaints", y = "Month")



#---- Day wise granularity   
  
comcast$daywise <- date(comcast$Date\_Updated)  
Day\_counts <- count(comcast$daywise)  
ggplot(Day\_counts, aes( x= factor(x, ordered = T), y = freq))+  
 geom\_bar(stat = "identity" , fill = "steelblue" ) +  
 scale\_x\_discrete(labels = abbreviate,guide = guide\_axis(n.dodge=5)) +  
 ggtitle("Day wise frequency of complaints") +  
 theme(text = element\_text(size=8), axis.text.x = element\_text(angle=90, hjust=1)) +  
 labs(x ="Date", y = "No of Complaints")



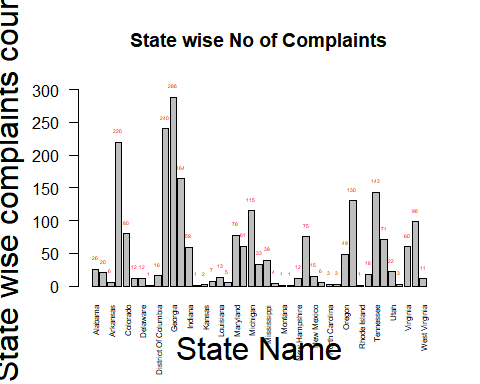
#-----------------------------------------------------------  
# ----3) Provide a table with the frequency of complaint types.  
  
  
comcast$Complaint\_type <- case\_when(  
 tolower(comcast$Customer.Complaint) %like% "internet" |   
 tolower(comcast$Customer.Complaint) %like% "speed" |  
 tolower(comcast$Customer.Complaint) %like% "cable" |  
 tolower(comcast$Customer.Complaint) %like% "xfinity" |  
 tolower(comcast$Customer.Complaint) %like% "frequent" |  
 tolower(comcast$Customer.Complaint) %like% "broadband" ~ "Internet Issues",  
 tolower(comcast$Customer.Complaint) %like% "payment" |   
 tolower(comcast$Customer.Complaint) %like% "bill"|   
 tolower(comcast$Customer.Complaint) %like% "fee" |  
 tolower(comcast$Customer.Complaint) %like% "claims" |  
 tolower(comcast$Customer.Complaint) %like% "refunding"|  
 tolower(comcast$Customer.Complaint) %like% "overcharg"|  
 tolower(comcast$Customer.Complaint) %like% "paying"|   
 tolower(comcast$Customer.Complaint) %like% "charge"|  
 tolower(comcast$Customer.Complaint) %like% "rental" |  
 tolower(comcast$Customer.Complaint) %like% "credit after cancellation" |  
 tolower(comcast$Customer.Complaint) %like% "refund" |  
 tolower(comcast$Customer.Complaint) %like% "pric" |  
 tolower(comcast$Customer.Complaint) %like% "rate" ~ "Billing and Payment Issues",  
 tolower(comcast$Customer.Complaint) %like% "service"|  
 tolower(comcast$Customer.Complaint) %like% "installation"|  
 tolower(comcast$Customer.Complaint) %like% "username"|  
 tolower(comcast$Customer.Complaint) %like% "account" |  
 tolower(comcast$Customer.Complaint) %like% "wifi" |  
 tolower(comcast$Customer.Complaint) %like% "support"|  
 tolower(comcast$Customer.Complaint) %like% "lack of"|  
 tolower(comcast$Customer.Complaint) %like% "resol"|  
 tolower(comcast$Customer.Complaint) %like% "access" ~"Service Issues",  
 tolower(comcast$Customer.Complaint) %like% "cap" |  
 tolower(comcast$Customer.Complaint) %like% "data usage"|  
 tolower(comcast$Customer.Complaint) %like% "data plan" |  
 tolower(comcast$Customer.Complaint) %like% "data limit" ~ "Data usage",  
 tolower(comcast$Customer.Complaint) %like% "email" ~ "Email",  
 TRUE ~ "others" )   
  
Count\_complaints <- count(comcast$Complaint\_type)  
  
ylim2 <- c(0, 1.1\*max(Count\_complaints$freq))  
Type\_Complaint <- barplot(Count\_complaints$freq, names.arg = Count\_complaints$x, las =2,  
 ylim = ylim2, width = 0.25)  
#--- label on top of the bar   
text(x = Type\_Complaint, y = Count\_complaints$freq,  
 label = Count\_complaints$freq, col = "red", pos = 2)



# -------------------------------------------------------------------------------  
# 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.  
  
comcast$Complaints <- ifelse(comcast$Status == "Open" | comcast$Status =="Pending", "Open", "Closed")   
comcast$Complaints

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## [2209] "Open" "Closed" "Closed" "Closed" "Closed" "Closed" "Closed" "Closed"  
## [2217] "Closed" "Closed" "Open" "Closed" "Closed" "Closed" "Closed" "Open"

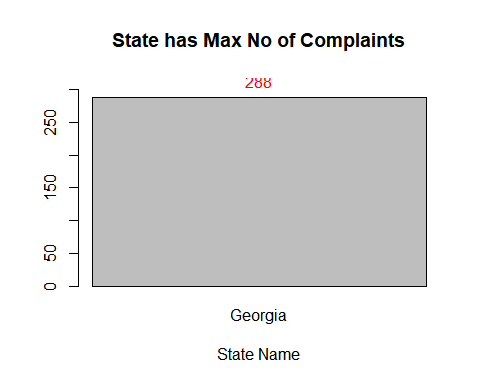
#----------------------------------------------------------------------------  
# 5) Provide state wise status of complaints in a stacked bar chart. Use the categorized variable from Q3. Provide insights on  
  
#State wise complaints  
State\_count <- count(comcast$State)  
  
ylim0 <- c(0, 1.1\*max(State\_count$freq))  
  
Complaint\_freq <- barplot(State\_count$freq,  
 xlab = "State Name", ylab = "State wise complaints count",  
 names.arg = State\_count$x ,  
 main = "State wise No of Complaints", width = 0.5,las = 2,  
 ylim = ylim0, cex.names =0.5, cex.lab = "2" )   
  
text(x= Complaint\_freq, y = State\_count$freq, col = "red", cex = 0.3, pos = 3,  
 label = State\_count$freq )



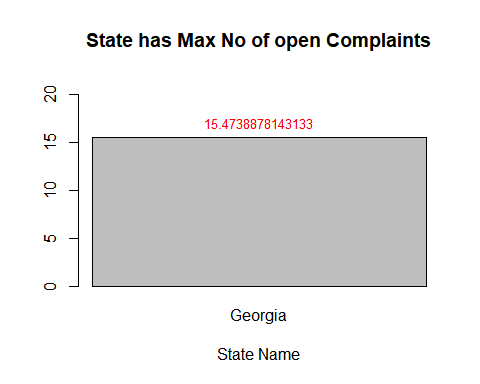
# Which state has the maximum complaints  
  
State\_count <- count(comcast$State)  
Sate\_wise\_Max\_Count <- filter( State\_count, State\_count$freq == max(State\_count$freq) )  
Sate\_wise\_Max\_Count

## x freq  
## 1 Georgia 288

ylim <- c(0, 1.1\*max(Sate\_wise\_Max\_Count$freq))  
  
Max\_freq <- barplot(Sate\_wise\_Max\_Count$freq,  
 xlab = "State Name", ylab = "",  
 names.arg = Sate\_wise\_Max\_Count$x ,  
 main = "State has Max No of Complaints", width = 0.2,ylim = ylim)   
#label on top of the bar  
text(x= Max\_freq, y = Sate\_wise\_Max\_Count$freq, col = "red",pos = 3,  
 label = Sate\_wise\_Max\_Count$freq)



#Which state has the highest percentage of unresolved complaints  
  
Comcast\_data\_1 <- data.frame(comcast$Complaints, comcast$Ticket, comcast$State, comcast$Received.Via )  
Open\_Complaints <- filter(Comcast\_data\_1,Comcast\_data\_1$comcast.Complaints == "Open")  
State\_unresolved\_count <- count(Open\_Complaints$comcast.State )  
State\_unresolved\_count <- mutate(State\_unresolved\_count, percentage\_unre = (State\_unresolved\_count$freq/sum(State\_unresolved\_count$freq))\*100 )  
Sate\_Open\_Max\_Count <- filter(State\_unresolved\_count, State\_unresolved\_count$percentage\_unre == max(State\_unresolved\_count$percentage\_unre) )  
  
ylim1 <- c(0, 1.4\*max(Sate\_Open\_Max\_Count$percentage\_unre))  
  
max\_bar <- barplot(Sate\_Open\_Max\_Count$percentage\_unre ,  
 xlab = "State Name", ylab = "",  
 names.arg = Sate\_Open\_Max\_Count$x ,  
 main = "State has Max No of open Complaints", width = 0.5,  
 ylim = ylim1 )  
#-- value on top of the bar  
text(x = max\_bar, y = Sate\_Open\_Max\_Count$percentage\_unre,   
 label = Sate\_Open\_Max\_Count$percentage\_unre, pos = 3, cex = 0.8,   
 col = "red")



#-----------------------------------------------------------------------------  
#6) Provide the percentage of complaints resolved till date, which were received through theInternet and customer care calls  
  
Closed\_complaints = filter(Comcast\_data\_1, Comcast\_data\_1$comcast.Complaints == "Closed" )  
count\_closed\_complaints <- count(Closed\_complaints$comcast.Received.Via )  
Percentage\_closed\_complaints <- mutate(count\_closed\_complaints,   
 percentage = (count\_closed\_complaints$freq/sum(count\_closed\_complaints$freq) )\*100 )  
  
ylim3 =c(0, 1.2\*max(Percentage\_closed\_complaints$percentage))  
#----- Barplot  
xx <- barplot(Percentage\_closed\_complaints$percentage ,  
 xlab = "", ylab = "",  
 names.arg = Percentage\_closed\_complaints$x ,  
 main = "Percentage of closed complaints", width = 0.85,  
 ylim = ylim3)  
## Add text at top of bars  
text(x = xx, y = Percentage\_closed\_complaints$percentage,   
 label = Percentage\_closed\_complaints$percentage, pos = 3, cex = 0.8,   
 col = "red")

