###Loading the data #####

library(readxl)

comcat <- read.csv('C:/Users/476756/Downloads/Comcast\_Telecom\_Complaints\_data.csv')

View(comcat)

##Renamed all the columns by removing '.'

names(comcat) <- gsub(pattern = '\\.',replacement = '',x =names(comcat))

library(lubridate)

comcat$Date <- parse\_date\_time(comcat$Date, orders = "%d!-%m!-%y!")

View(comcat)

##Provide the trend chart for the number of complaints at monthly ###

comcat$Month <- strftime(comcat$Date,'%m')

monthly\_count <- comcat %>% count(Month) %>% group\_by(Month)

monthly\_count<-monthly\_count %>% rename(NoofTickets=n)

ggplot(data = monthly\_count,aes(x=Month,y=NoofTickets,group=1))+geom\_line(color="red")+geom\_point()

##Provide the trend chart for the number of complaints at daily ###

comcat$Daily <- strftime(comcat$Date,'%m-%d')

daily\_count <- comcat %>% count(Daily) %>% group\_by(Daily)

daily\_count<-daily\_count %>% rename(NoofTickets=n)

ggplot(data = daily\_count,aes(x=Daily,y=NoofTickets,group=1))+geom\_line(color="red")+geom\_point()+theme(axis.text.x = element\_text(angle = 75),

plot.title = element\_text(hjust = 0.5))

####Provide a table with the frequency of complaint types####

Speed\_tickets <- grep('speed',comcat$CustomerComplaint,ignore.case = TRUE)

Internet\_tickets <-grep('internet',comcat$CustomerComplaint,ignore.case = TRUE)

Service\_tickets <-grep('service',comcat$CustomerComplaint,ignore.case = TRUE)

Billing\_tickets <-grep('billing',comcat$CustomerComplaint,ignore.case = TRUE)

Network\_tickets <-grep('network',comcat$CustomerComplaint,ignore.case = TRUE)

comcat$ComplaintType[Speed\_tickets] <- "Speed"

comcat$ComplaintType[Internet\_tickets] <- "internet"

comcat$ComplaintType[Service\_tickets] <- "service"

comcat$ComplaintType[Billing\_tickets] <- "billing"

comcat$ComplaintType[Network\_tickets] <- "network"

comcat$ComplaintType[-c(Speed\_tickets,Internet\_tickets,Service\_tickets,Billing\_tickets,Network\_tickets)] <- "Others"

table(comcat$ComplaintType)

#####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.###

Open\_complaints <-(comcat$Status=="Open"|comcat$Status=="Pending")

Closed\_complaints <-(comcat$Status=="Closed"|comcat$Status=="Solved")

comcat$ComplaintStatus[Open\_complaints ] <- "Open"

comcat$ComplaintStatus[Closed\_complaints] <- "Closed"

View(comcat)

#####- 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###############

library(ggplot2)

comcat\_statewise <- group\_by(comcat,State,ComplaintStatus)

View(comcat\_statewise)

stackedchart <- summarise(comcat\_statewise,count=n())

View(stackedchart)

ggplot(stackedchart ,mapping = aes(State,count))+

geom\_col(aes(fill = ComplaintStatus),width = 0.95)+

theme(axis.text.x = element\_text(angle = 90),

axis.title.y = element\_text(size = 15),

axis.title.x = element\_text(size = 15),

title = element\_text(size = 16,colour = "#005333FF"),

plot.title = element\_text(hjust = 0.5))+

labs(title = "Ticket Status Stacked Bar Chart ",

x = "States",y = "No of Tickets",

fill= "Status")

#######Which state has the highest percentage of unresolved complaints #############

Complaints\_open <- stackedchart %>% filter(ComplaintStatus =="Open")

Complaints\_open[Complaints\_open$count ==max(Complaints\_open$count),c(1,3)]

View(Complaints\_open)

###########- Provide the percentage of complaints resolved till date, which were received through theInternet and customer care calls.

resolved\_data <- group\_by(comcat,ComplaintStatus)

total\_resloved<- summarise(resolved\_data ,percentage =(n()/nrow(resolved\_data)))

resolved\_data <- group\_by(comcat,ReceivedVia,ComplaintStatus)

Category\_resloved<- summarise(resolved\_data ,percentage =(n()/nrow(resolved\_data)))

library(ggpubr)

par(mfrow = c(1,2))

total<-ggplot(total\_resloved,

aes(x= "",y =percentage,fill = ComplaintStatus))+

geom\_bar(stat = "identity",width = 1)+

coord\_polar("y",start = 0)+

geom\_text(aes(label = paste0(round(percentage\*100),"%")),

position = position\_stack(vjust = 0.5))+

labs(x = NULL,y = NULL,fill = NULL)+

theme\_classic()+theme(axis.line = element\_blank(),

axis.text = element\_blank(),

axis.ticks = element\_blank())

# Pie Chart for Category wise Ticket Status

category<-ggplot(Category\_resloved,

aes(x= "",y =percentage,fill = ComplaintStatus))+

geom\_bar(stat = "identity",width = 1)+

coord\_polar("y",start = 0)+

geom\_text(aes(label = paste0(ReceivedVia,"-",round(percentage\*100),"%")),

position = position\_stack(vjust = 0.5))+

labs(x = NULL,y = NULL,fill = NULL)+

theme\_classic()+theme(axis.line = element\_blank(),

axis.text = element\_blank(),

axis.ticks = element\_blank())

ggarrange(total,category,nrow = 1, ncol = 2)