```
library(readr)
library(utils)
library(tidyverse)
library(plyr)
library(dplyr)
library(ggplot2)
library(dplyr)
library(scales)
library(sqldf)
library(reshape2)
library(ggpubr)
library(readxl)
library(lubridate)

covidcase <- read_csv("C:/Users/Jaswanth/Desktop/DataManagement/
covidcase.csv")
Totalstock <- read_csv("C:/Users/Jaswanth/Desktop/DataManagement/
Totalstock.csv")

View(covidcase)
View(Totalstock)


#cases
ggplot(data=covidcase)+geom_line(aes(x=datecase,y=daily_cases),color =
'red',size=1.1)+geom_point(aes(x=datecase,y=daily_cases),color = 'red')+labs(x
= "Month", y = "Daily increase in Cases")+ geom_vline(xintercept =
as.Date("2020-03-04","%Y-%m-%d"), linetype="dashed")+geom_text(mapping
=aes(x=as.Date("2020-03-02","%Y-%m-%d"),y=40000,label = "4th March"), angle =
90)

ggplot(data=covidcase,aes(x=datecase,y=daily_cases))+geom_(),color =
'red',size=1.1)+geom_point(aes(x=datecase,y=daily_cases),color = 'red')+labs(x
= "Month", y = "Daily increase in Cases")+ geom_vline(xintercept =
as.Date("2020-03-04","%Y-%m-%d"), linetype="dashed")+geom_text(mapping
=aes(x=as.Date("2020-03-02","%Y-%m-%d"),y=40000,label = "4th March"), angle =
90)

#Industrial data

colors=c("DowJones"="red","Nasdaq"="darkcyan")
ggplot(data=Totalstock)+geom_line(aes(x=Date,y=DowJones_PC,color =
'DowJones'),size=1.1)+geom_line(aes(x=Date,y=Nasdaq_pc,color =
'Nasdaq'),size=1.1)+theme_minimal()+labs(x = "Month", y = "Daily Percentage
Change in stocks")+ylim(-40,20)+ geom_hline(yintercept=0)
+geom_vline(xintercept = as.numeric(Totalstock$Date[22]), linetype="dashed")
+geom_text(data = Totalstock, mapping =aes(x=as.Date("2020-03-02","%Y-%m-
%d"),y=-30,label = "4th March"), angle = 90)
+scale_colour_manual("Company",values =colors)

#Technology
colors=c("Netflix"="red","Zoom"="blue","Amazon"="orange")
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```
ggplot(data=Totalstock) +geom_line(aes(x=Date,y=Netflix_pc,color
='Netflix'),size=1.1)+geom_line(aes(x=Date,y=Amazon_pc,color
='Amazon'),size=1.1)+geom_line(aes(x=Date,y=Zoom_pc,color ='Zoom'),size=1.1)
+labs(x = "Month", y = "Daily Percentage Change in stocks")+theme_minimal()+
geom_hline(yintercept=0)+geom_vline(xintercept = as.Date("2020-03-04","%Y-%m-
%d"), linetype="dashed")+scale_colour_manual("Company",values =colors)
+scale_y_continuous(limits=c(-20,100))+geom_text(data = Totalstock, mapping
=aes(x=as.Date("2020-03-02","%Y-%m-%d"),y=70,label = "4th March"), angle = 90)

#Automobile
colors=c("General Motors"="blue","Ford"="red")
ggplot(data=Totalstock,aes(x=Date)) +
geom_line(aes(y=GM_pc,colour ="General Motors"),size=1.1)+
geom_line(aes(y=Ford_pc,colour ="Ford"),size=1.1)+
labs(x = "Month", y = "Daily Percentage Change in stocks",color="Legend")+
theme_minimal()+ geom_hline(yintercept=0)+ geom_vline(xintercept =
as.Date("2020-03-04","%Y-%m-%d"), linetype="dashed")+
scale_colour_manual("Company",values =colors)+scale_y_continuous(limits =
c(-60,20))+geom_text(data = Totalstock, mapping =
aes(x=as.Date("2020-03-02","%Y-%m-%d"),y=-50,label = "4th March"), angle = 90)

#Oilprice
ggplot(data=Totalstock) +
geom_line(aes(x=Date,y=Oil),color ="orange",size=1.1)+
labs(x = "Month", y = "Daily change in Oil Price")+ geom_hline(yintercept=0)
+geom_text(mapping=aes(x=as.Date("2020-04-22","%Y-%m-%d"),y=-40,label =
"-37.68"))+theme_minimal()

attach(covidcase)
boxplot(covidcase$daily_cases, main="Cases",
sub=paste(boxplot.stats(daily_cases)$out))

attach(Totalstock)

cor(cases,Ford)
cor(cases,Amazon)


cor(cases,DowJones)
cor(cases,Tesla)

#Industrial sector

attach(Totalstock)
cor(cases,DowJones)
cor(cases,Nasdaq)

ggplot(data=Totalstock,aes(y=DowJones_PC+Nasdaq_pc,x=cases))+geom_point()
+geom_smooth(method="lm", formula = y~poly(x,9), se=FALSE)+ylim(-75,20)
+labs(x="Daily Increase in Cases",y="Percetage change in stock
price",subtitle="DowJones+Nasdaq~poly(cases,9)")

model_Ind =  lm(DowJones_PC+Nasdaq_pc~poly(cases,9),Totalstock)
summary(model_Ind)
```

```
#Automobile

ggplot(data=Totalstock,aes(y=GM_pc+Ford_pc,x=cases))+geom_point()
+geom_smooth(method="lm", formula = y~poly(x,7))+labs(x="Daily Increase in
Cases",y="Percetage change in stock price",subtitle=GM+Ford~poly(cases,7))

cor(cases,Ford)
cor(cases,GM)
model_auto =  lm(GM_pc+Ford_pc~poly(cases,7),Totalstock)
summary(model_auto)

#Oil
boxplot(Totalstock$Oil, main="Oil Price", sub=paste("Outlier rows: ",
boxplot.stats(Oil)$out))

Oil1=filter(Totalstock,Oil!=-36.98)

ggplot(data=Oil1,aes(y=Oil,x=cases))+geom_point()+geom_smooth(method="lm",
formula = y~poly(x,7))+labs(x="Daily Increase in Cases",y="Percetage change in
stock price",subtitle=Oil~poly(cases,7))
cor(Oil,cases)
model_Oil =  lm(Oil~poly(cases,7),Totalstock)
summary(model_Oil)

#Technology
ggplot(data=Totalstock,aes(y=Netflix_pc+Zoom_pc+Amazon_pc,x=cases))
+geom_point()+geom_smooth(method="lm", formula = y~poly(x,8), se=FALSE)
+labs(x="Daily Increase in Cases",y="Percetage change in stock
price",subtitle=Netflix+Zoom+Amazon~poly(cases,8))

model_tech =  lm(Netflix_pc+Zoom_pc+Amazon_pc~poly(cases,8),Totalstock)
summary(model_tech)
cor(cases,Netflix)
cor(cases,Amazon)
cor(cases,Zoom)

par(mfrow=c(1, 2))  # divide graph area in 2 columns
boxplot(stockdata$Food_Close, main="Food_Close", sub=paste("Outlier rows: ",
boxplot.stats(Food_Close)$out))
```