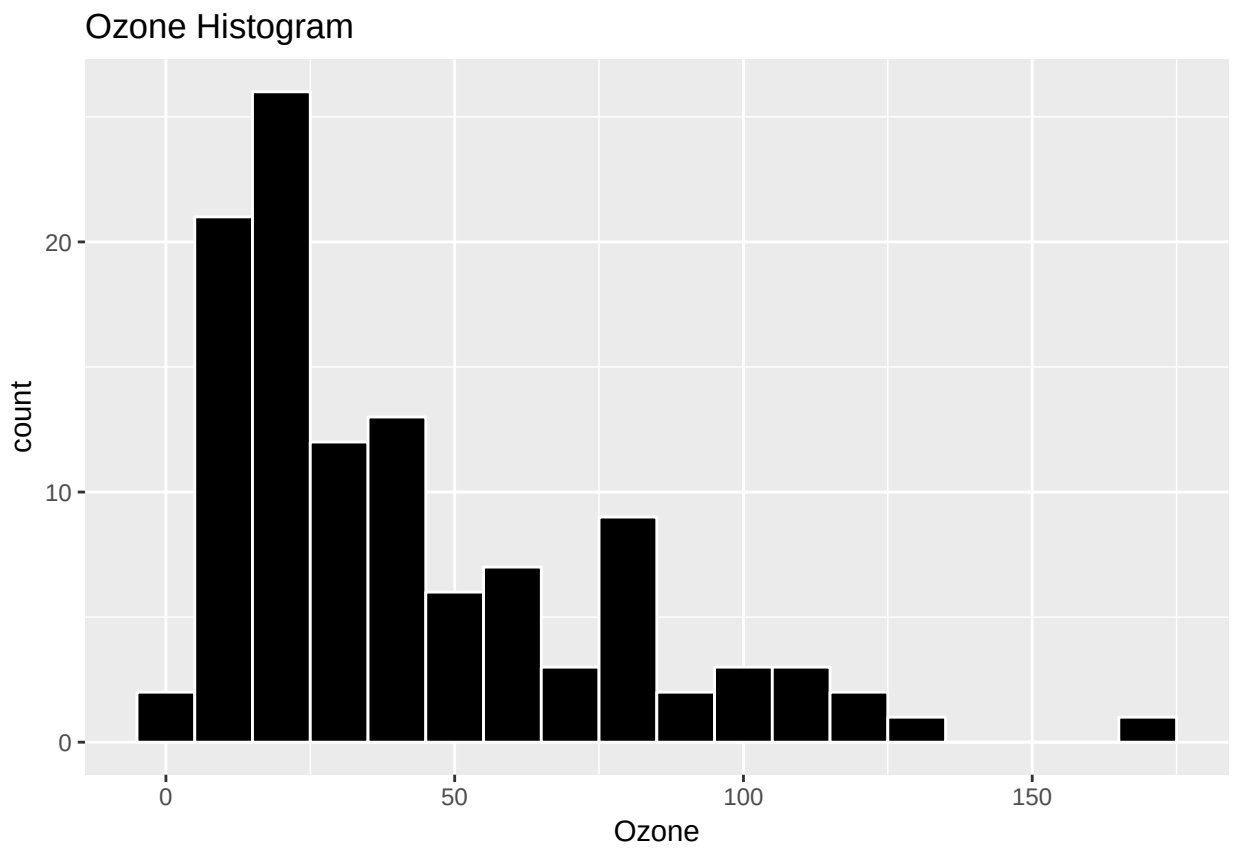
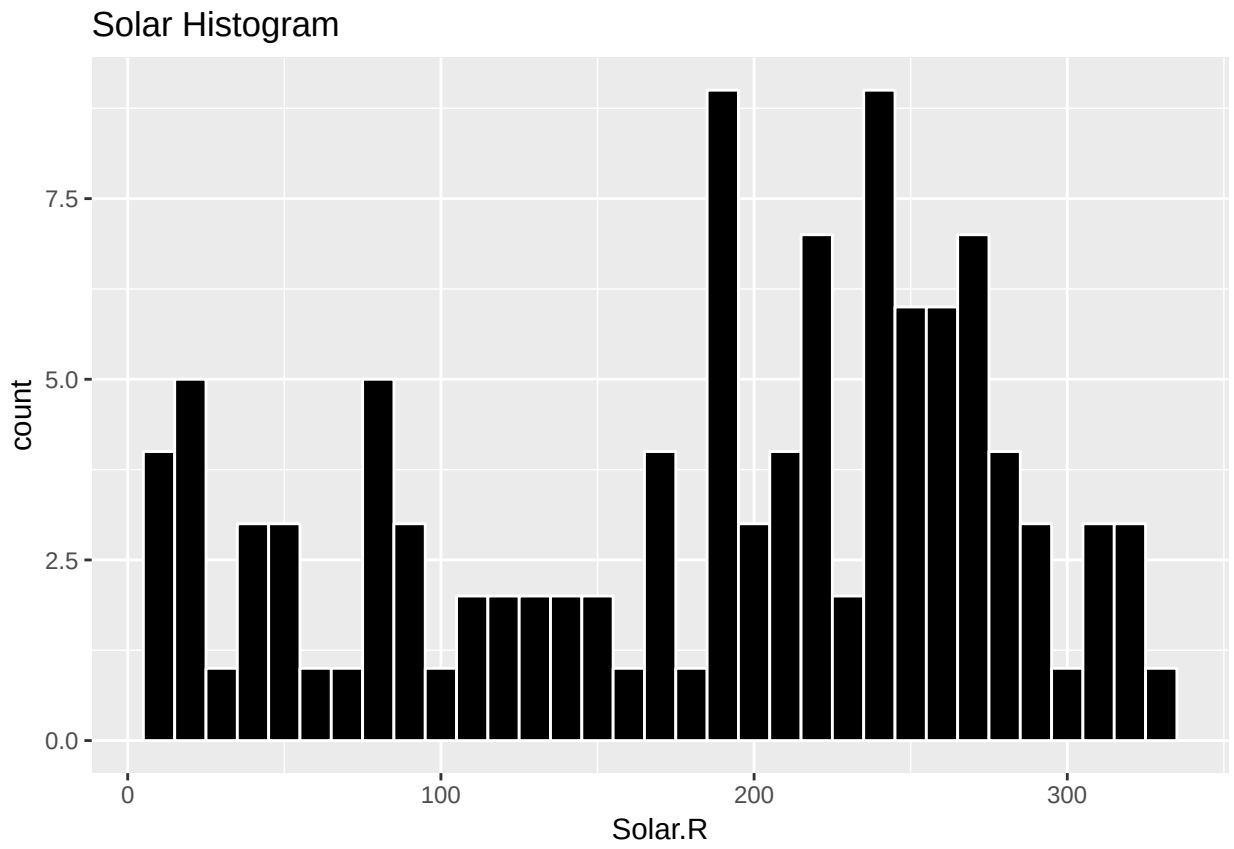
Holden Herrell IST687 HW6

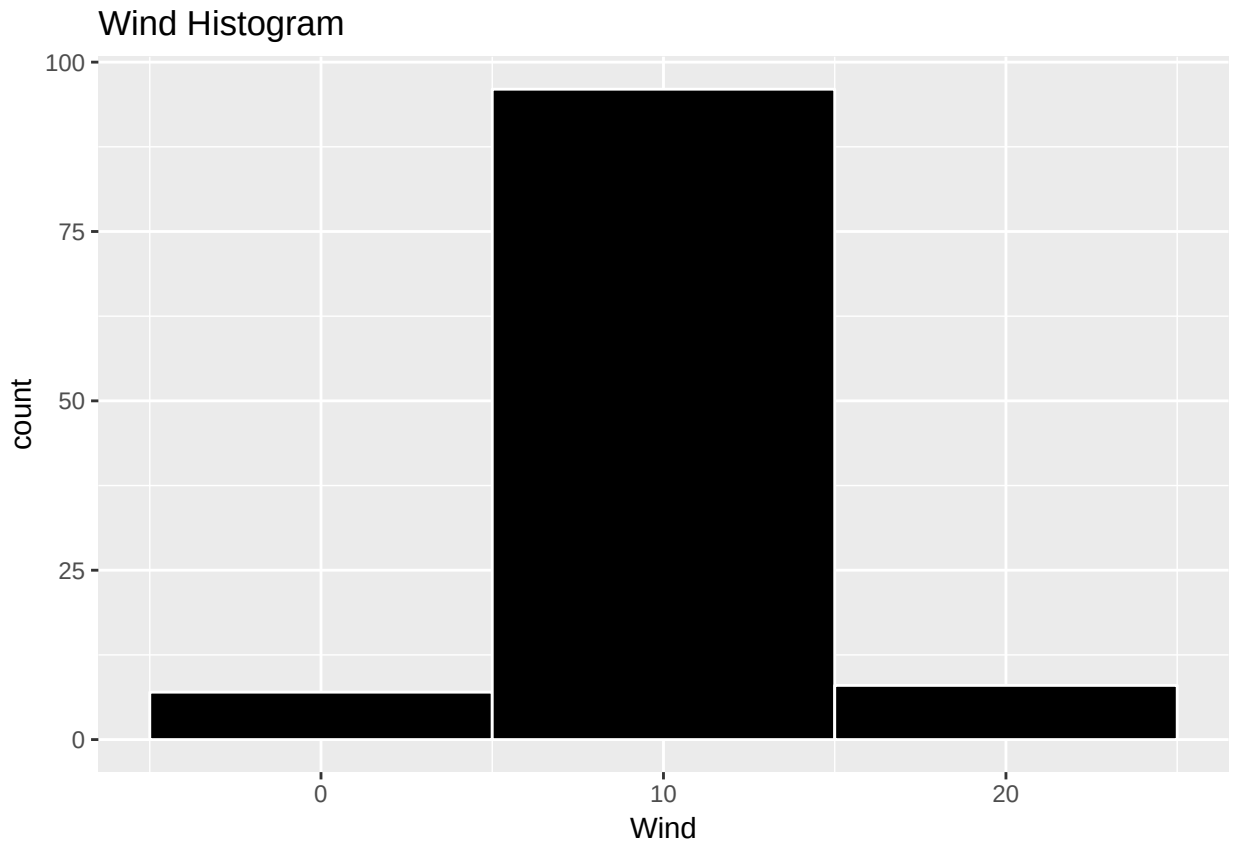
```
#Step 1
AirQuality<-airquality

#Step 2
df<-na.omit(AirQuality)

#Step 3 (Part 1)
OzoneHist <- ggplot(df,aes(x=Ozone))
OzoneHist <- OzoneHist + geom_histogram(binwidth=10,color="white",fill="black")+ggtitle("Ozone Histogram")
OzoneHist
```



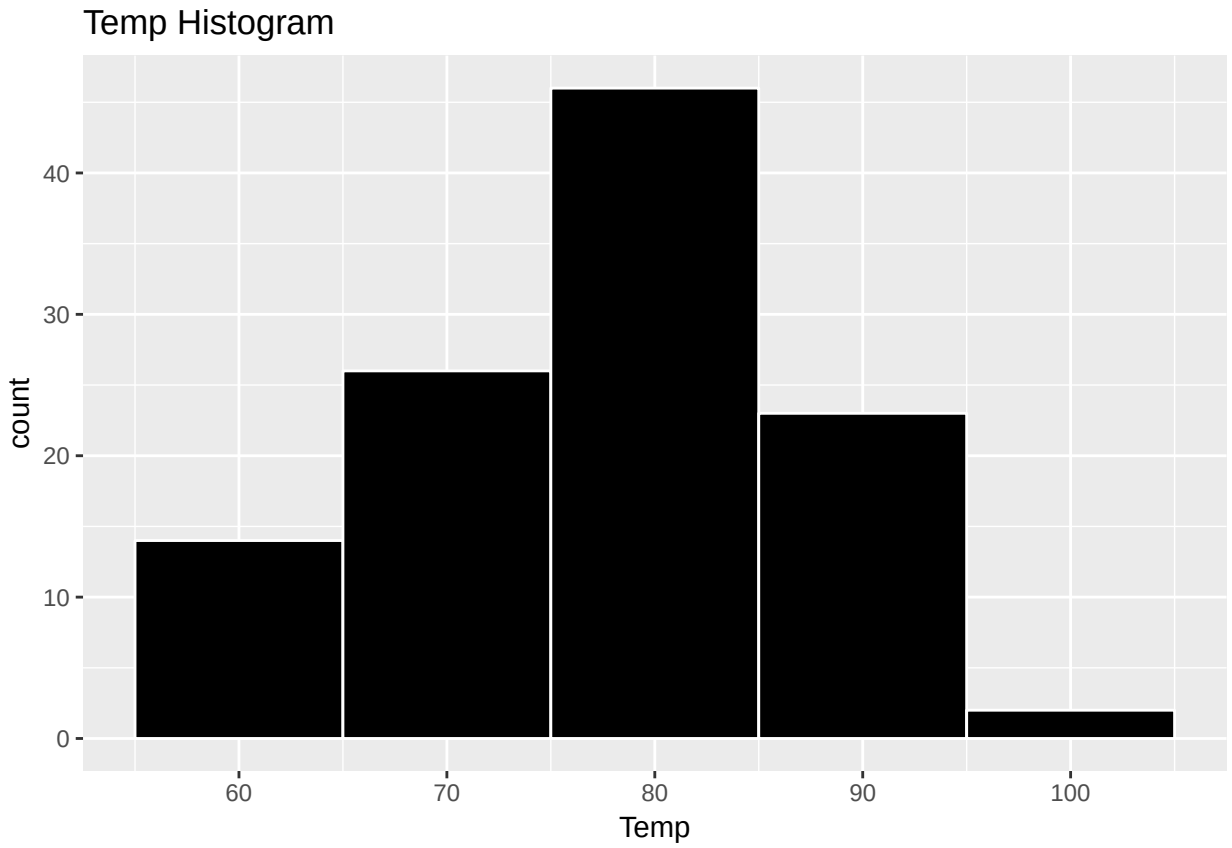
```
SolarHist<- ggplot(df,aes(x=Solar.R))
SolarHist <- SolarHist + geom_histogram(binwidth=10,color="white",fill="black")+ggtitle("Solar Histogram")
SolarHist
```



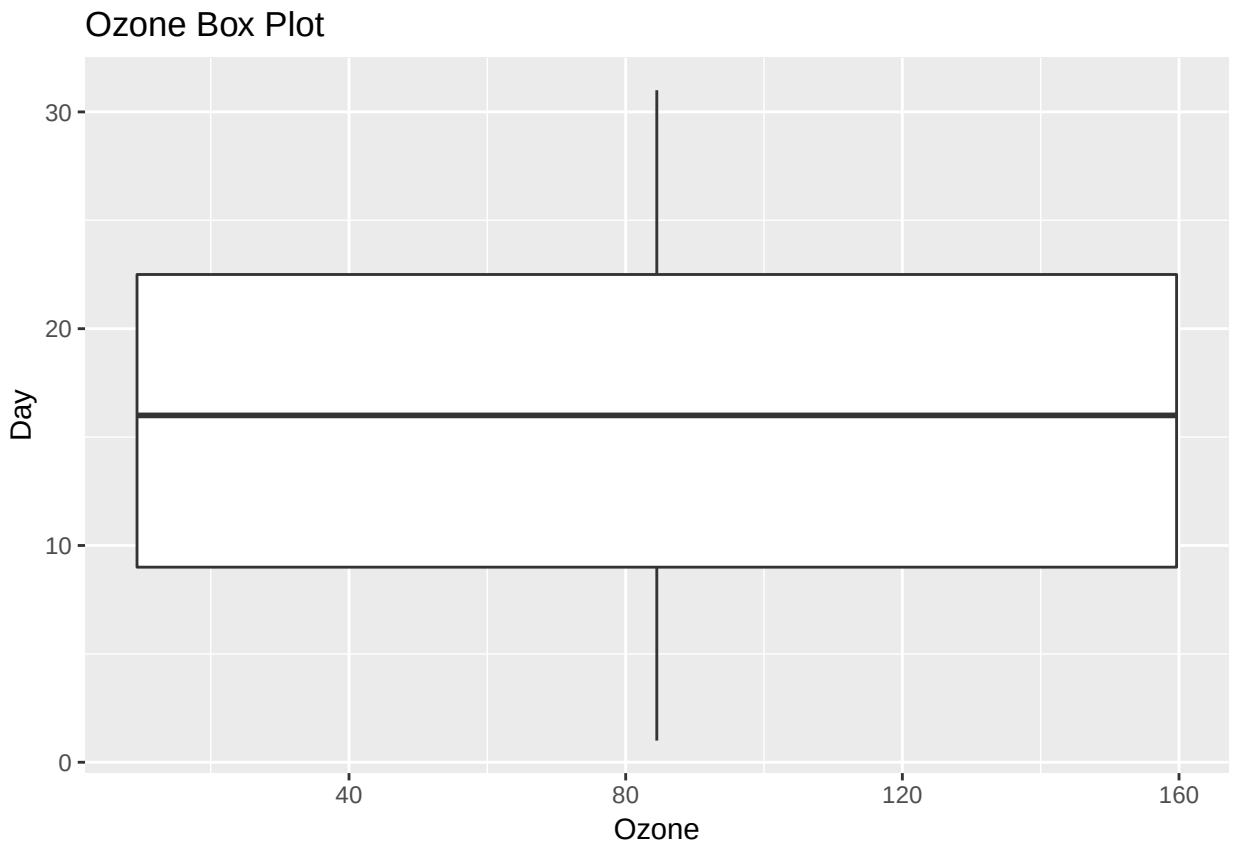
```
WindHist <- ggplot(df,aes(x=Wind))
WindHist <- WindHist + geom_histogram(binwidth=10,color="white",fill="black")+ggtitle("Wind Histogram")
WindHist
```



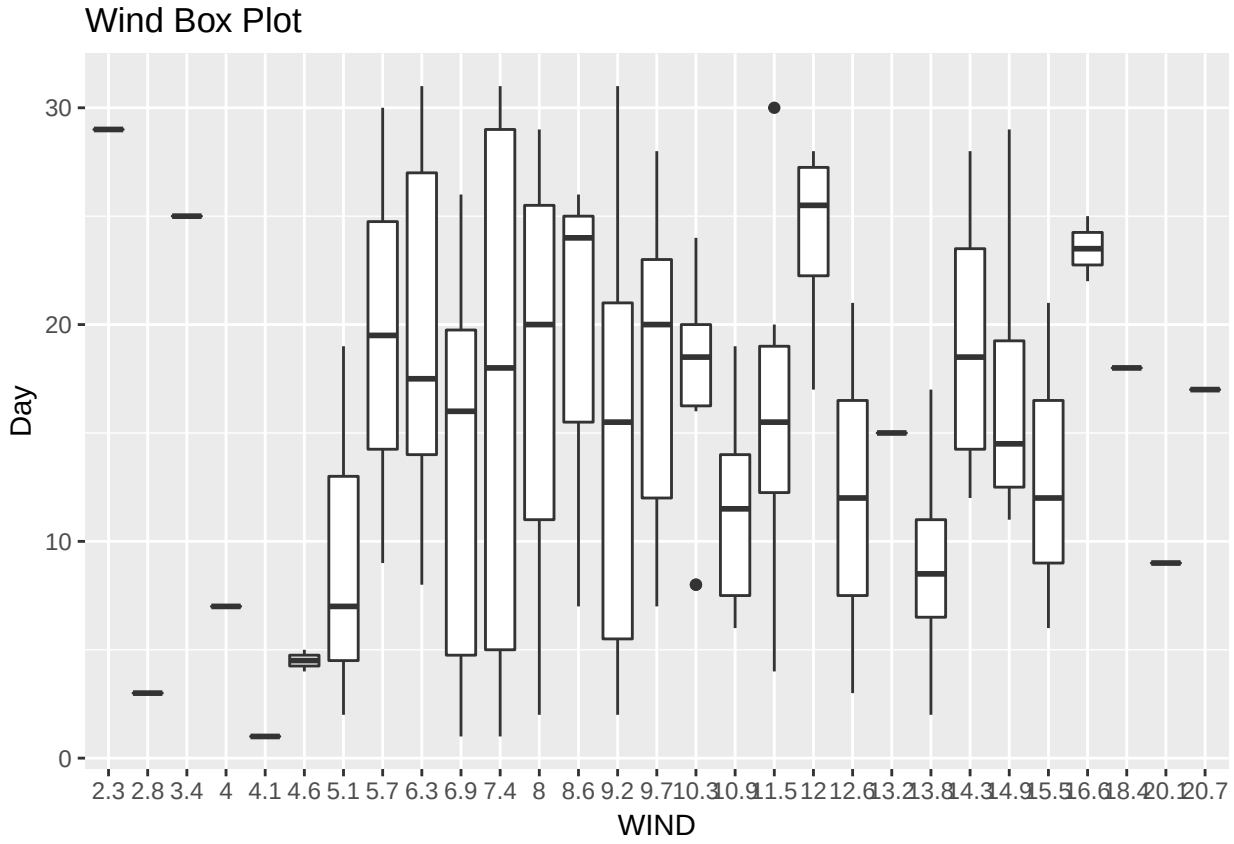
```
TempHist <- ggplot(df,aes(x=Temp))
TempHist <- TempHist + geom_histogram(binwidth=10,color="white",fill="black")+ggtitle("Temp Histogram")
TempHist
```



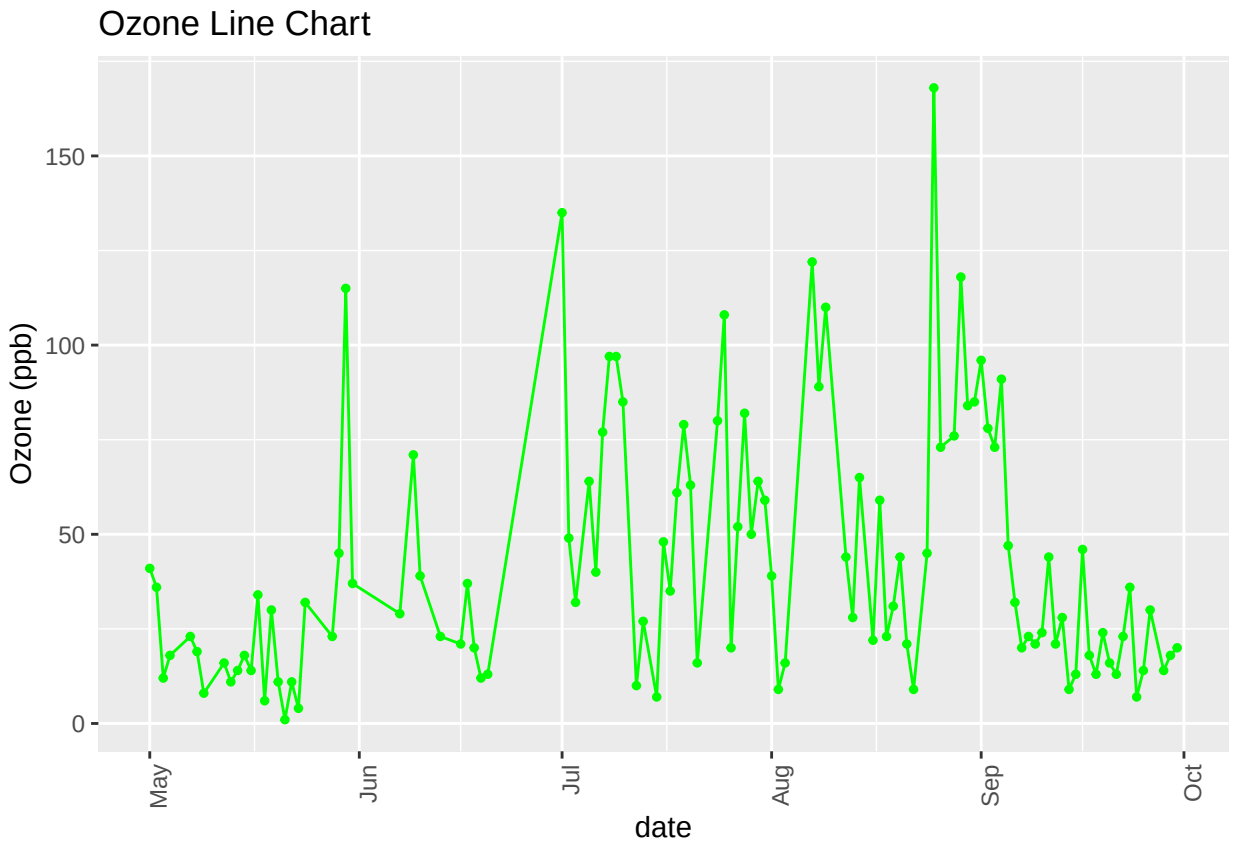
```r
OzoneBox <- ggplot(df, aes(x=Ozone, y=Day, group=1))
OzoneBox <- OzoneBox + geom_boxplot()+ggtitle("Ozone Box Plot")
OzoneBox
```



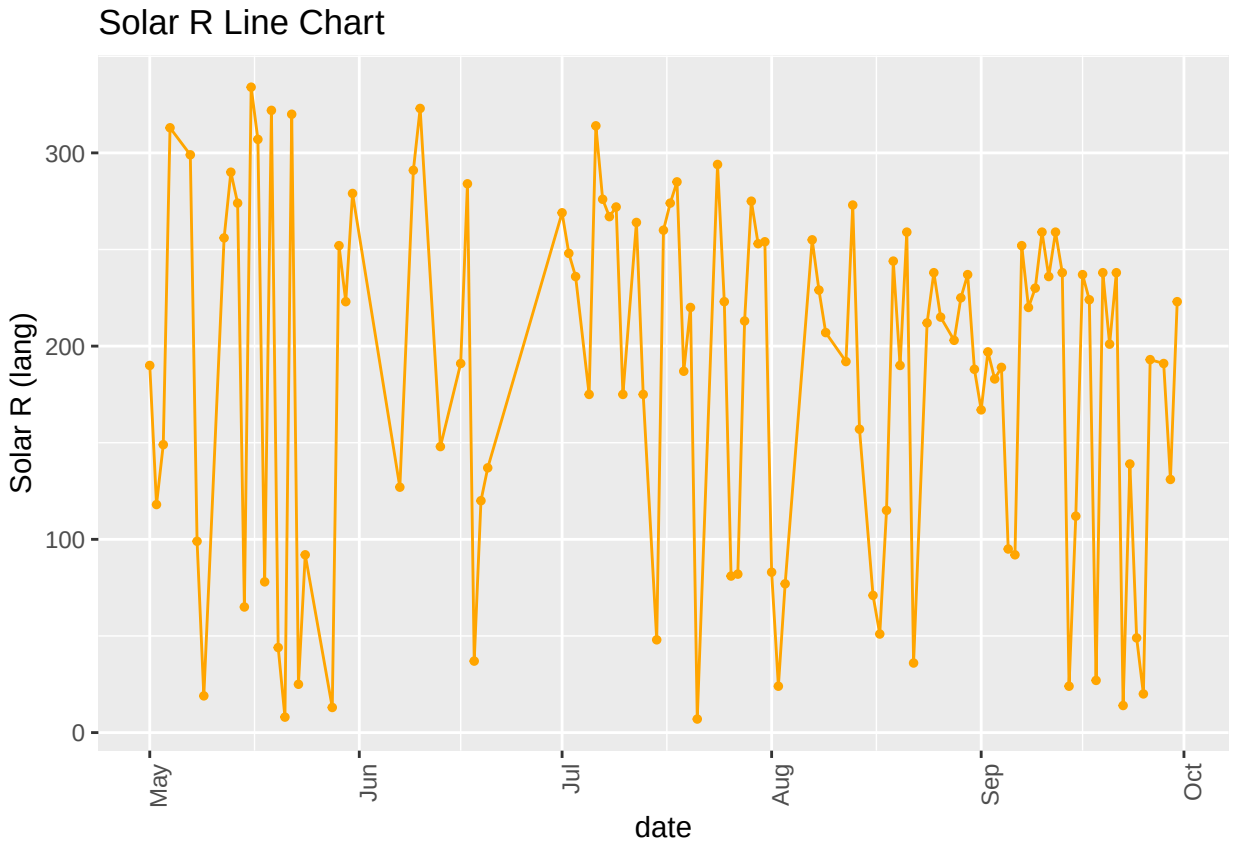
```
WIND <- factor(df$Wind)
WindBox <- ggplot(df, aes(x=WIND, y=Day), group=1)
WindBox <- WindBox  + geom_boxplot()+ggtitle("Wind Box Plot")
WindBox
```



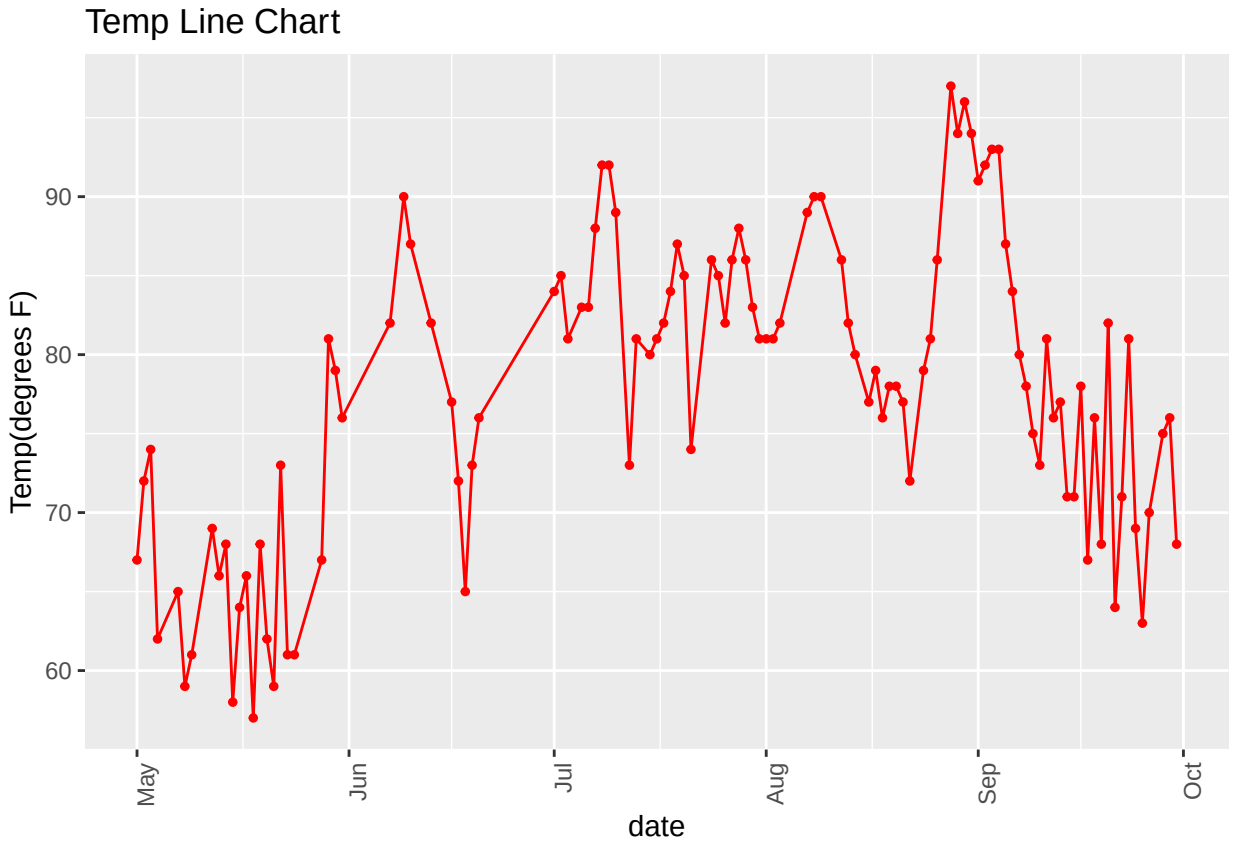
```r
#Step 3 (Part 2)
date<-as.Date(with(df, paste(1973, df$Month, df$Day, sep="-")), "%Y-%m-%d")

OzoneLine <- ggplot(df, aes(x=date, y=Ozone, group=1))
OzoneLine <- OzoneLine + geom_line(color="green")+geom_point(color="green", size=1)
OzoneLine <- OzoneLine + theme(axis.text.x=element_text(angle=90, hjust=1))+ggtitle("Ozone Line Chart")+ylab("Ozone (ppb)")
OzoneLine
```



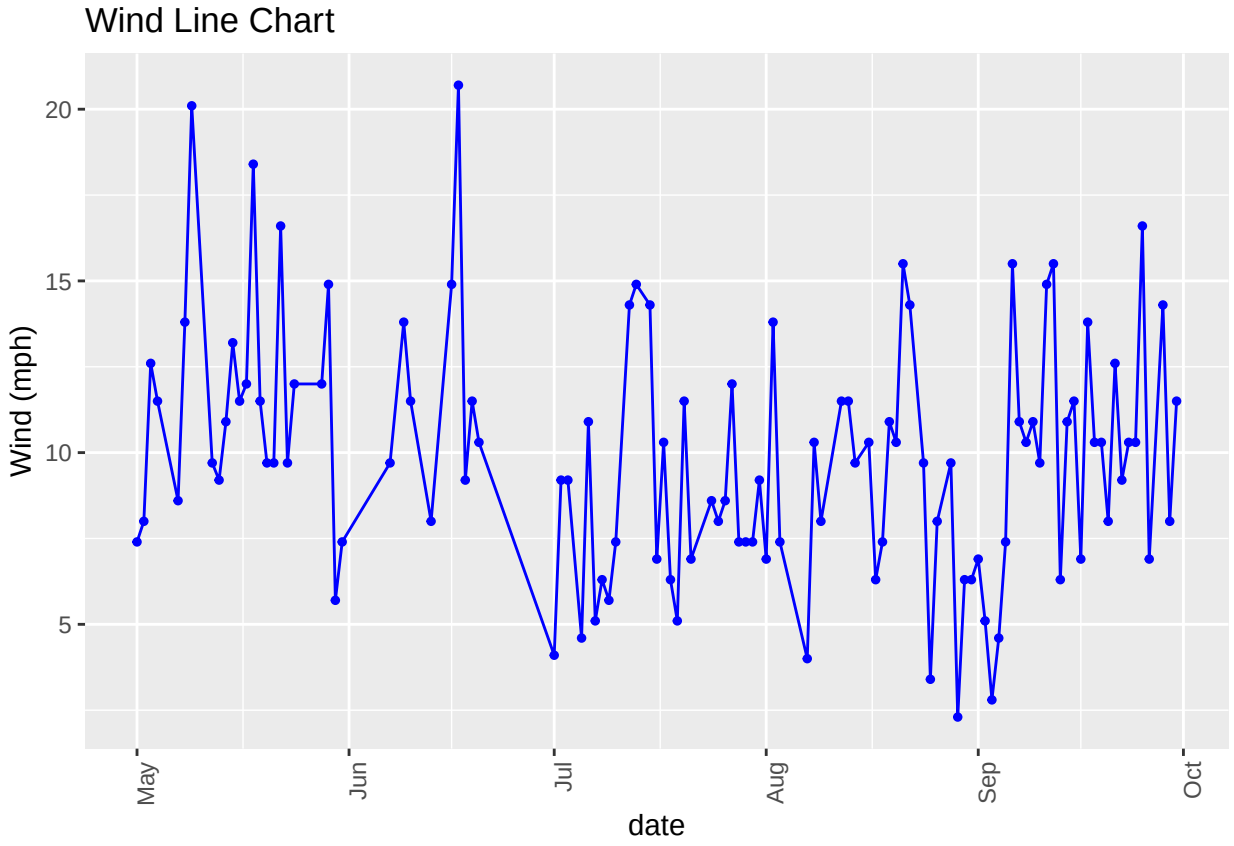
```
SolarLine <- ggplot(df, aes(x=date, y=Solar.R, group=1))
SolarLine <- SolarLine + geom_line(color="orange")+geom_point(color="orange", size=1)
SolarLine <- SolarLine + theme(axis.text.x=element_text(angle=90, hjust=1))+ggtitle("Solar R Line Chart")+ylab("Solar R (lang)")
SolarLine
```



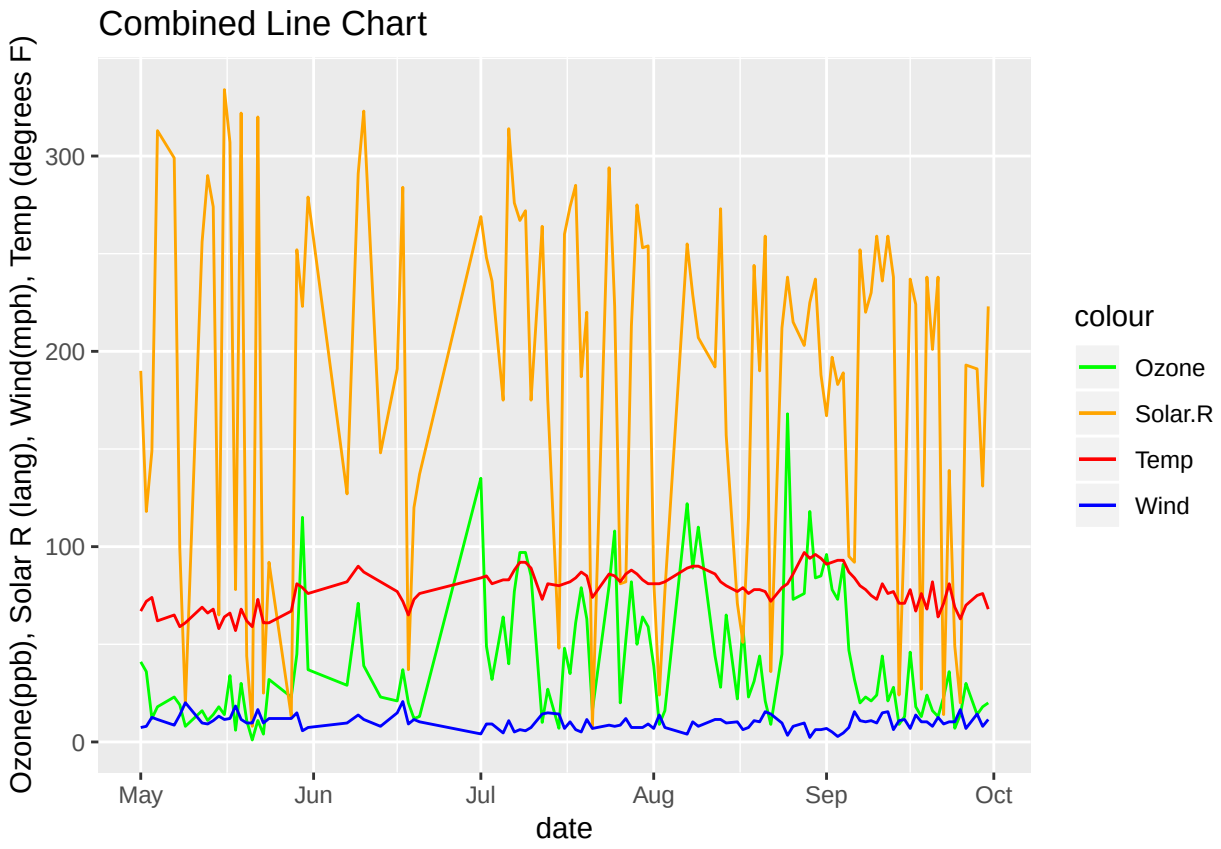
```
TempLine <- ggplot(df, aes(x=date, y=Temp, group=1))
TempLine <- TempLine + geom_line(color="red")+geom_point(color="red", size=1)
TempLine <- TempLine + theme(axis.text.x=element_text(angle=90, hjust=1))+ggtitle("Temp Line Chart")+ylab("Temp(degrees F)")
TempLine
```



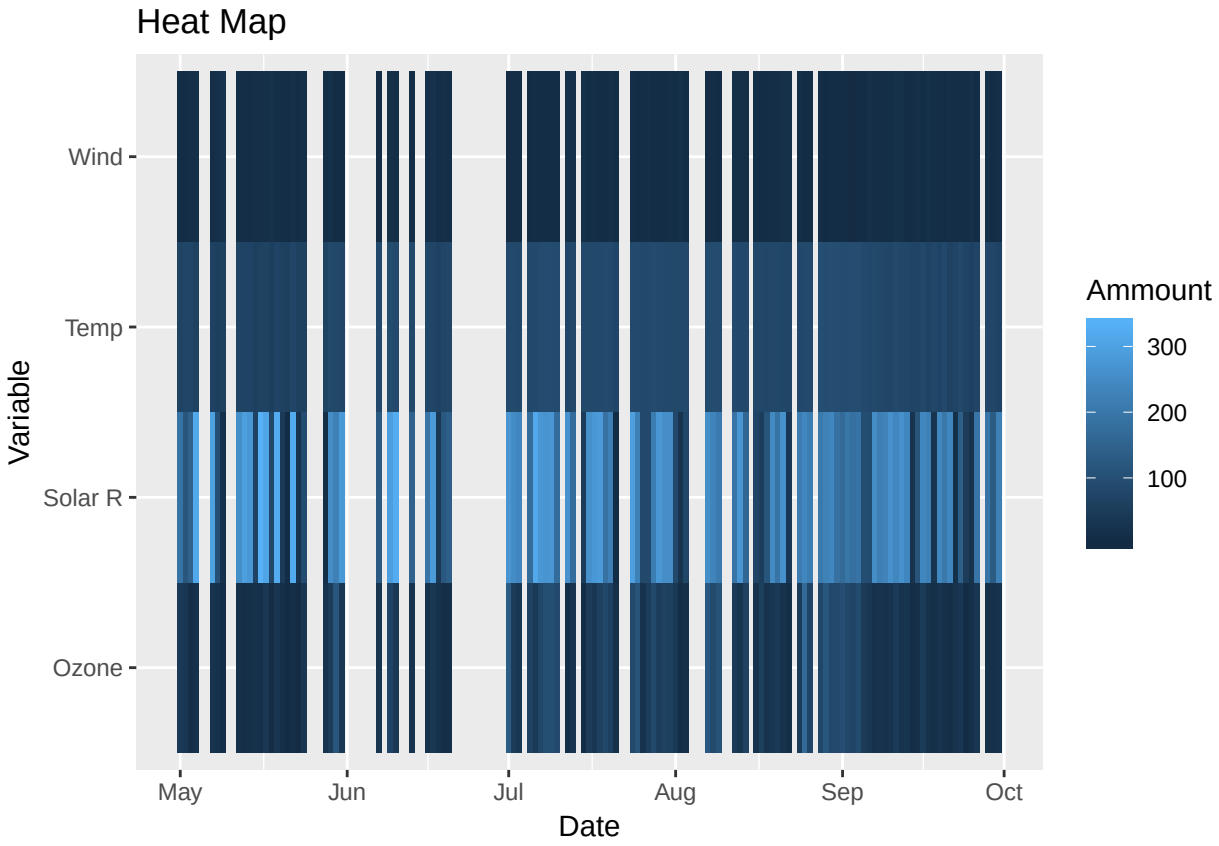
```
WindLine <- ggplot(df, aes(x=date, y=Wind, group=1))
WindLine <- WindLine + geom_line(color="blue")+geom_point(color="blue", size=1)
WindLine <- WindLine + theme(axis.text.x=element_text(angle=90, hjust=1))+ggtitle("Wind Line Chart")+ylab("Wind (mph)")
WindLine
```



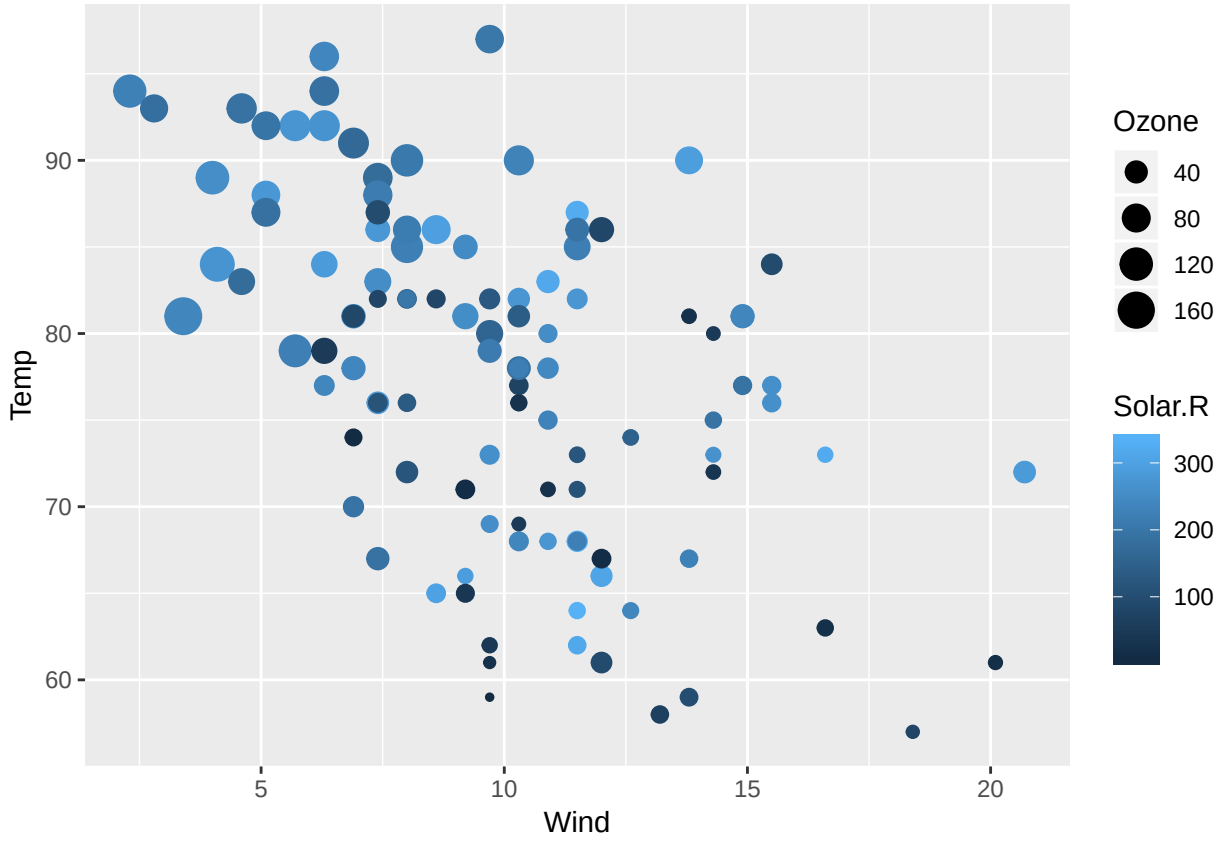
```
ComboLine <- ggplot(df, aes(x=date, group=1))
ComboLine <- ComboLine + geom_line(aes(y=Ozone, color="Ozone"))
ComboLine <- ComboLine + geom_line(aes(y=Solar.R, color="Solar.R"))
ComboLine <- ComboLine + geom_line(aes(y=Temp, color="Temp"))
ComboLine <- ComboLine + geom_line(aes(y=Wind, color="Wind"))
ComboLine <- ComboLine + ggtitle("Combined Line Chart")+ylab("Ozone(ppb), Solar R (lang), Wind(mph), Temp (degrees F)")
ComboLine <- ComboLine + theme(legend.position=("right")) + scale_color_manual(values=c("green","orange","red","blue"))
ComboLine
```



```
#Step 4
HeatMap1<-data.frame(date, df$Ozone, df$Temp, df$Wind, df$Solar.R)
colnames(HeatMap1)<- c("Date","Ozone","Temp","Wind","Solar R")
HeatMap2<-HeatMap1
HeatMapData <-gather(data=HeatMap2, key=Variable, value=Ammount, -Date)
HeatMap <- ggplot(data=HeatMapData, mapping = aes(x = Date, y = Variable, fill=Ammount))+geom_tile()
HeatMap <-HeatMap + ggtitle("Heat Map")
HeatMap
```



```
#Step 5
Scatter <-ggplot(df, aes(x=Wind, y=Temp))
Scatter <- Scatter + geom_point (aes(size=Ozone, color= Solar.R))
Scatter
```




```
#Step 6
#It appears that when there is less wind and the temperature is higher, there is increased Ozone and Solar.R.
#The scatter plot was most useful to me because it helped me understand the relationship between all of the variables.
```