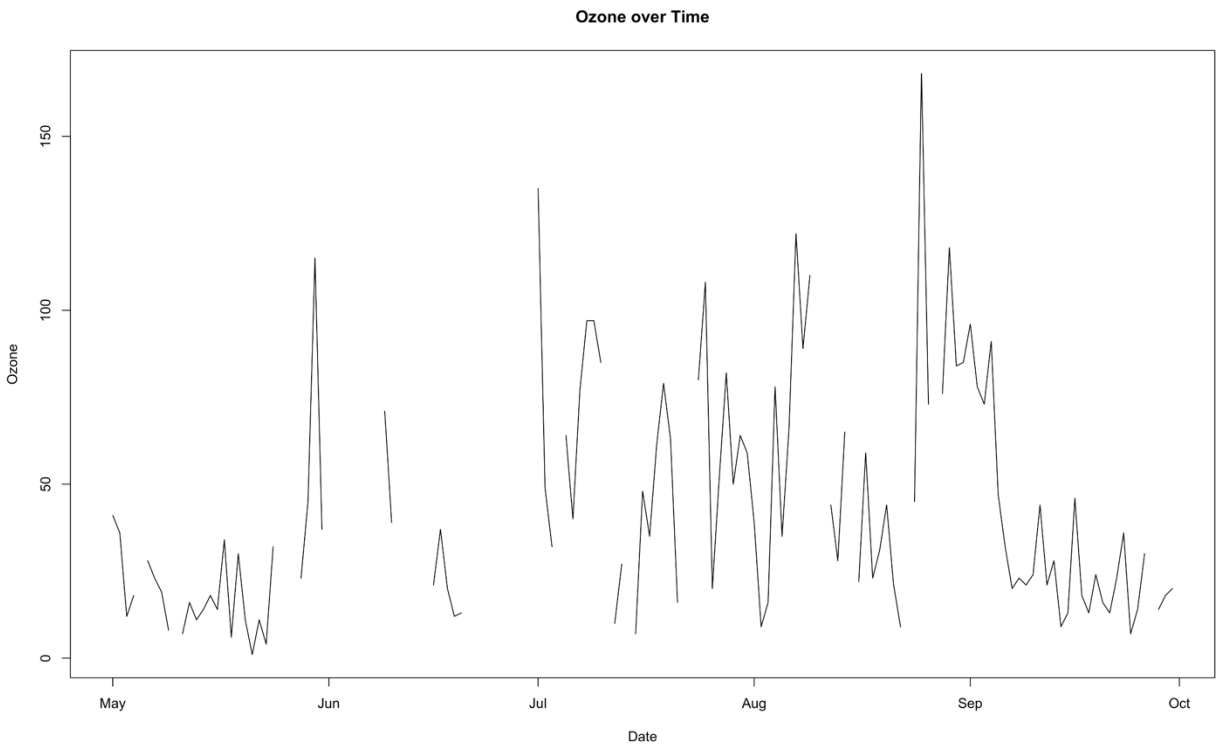
Question 3

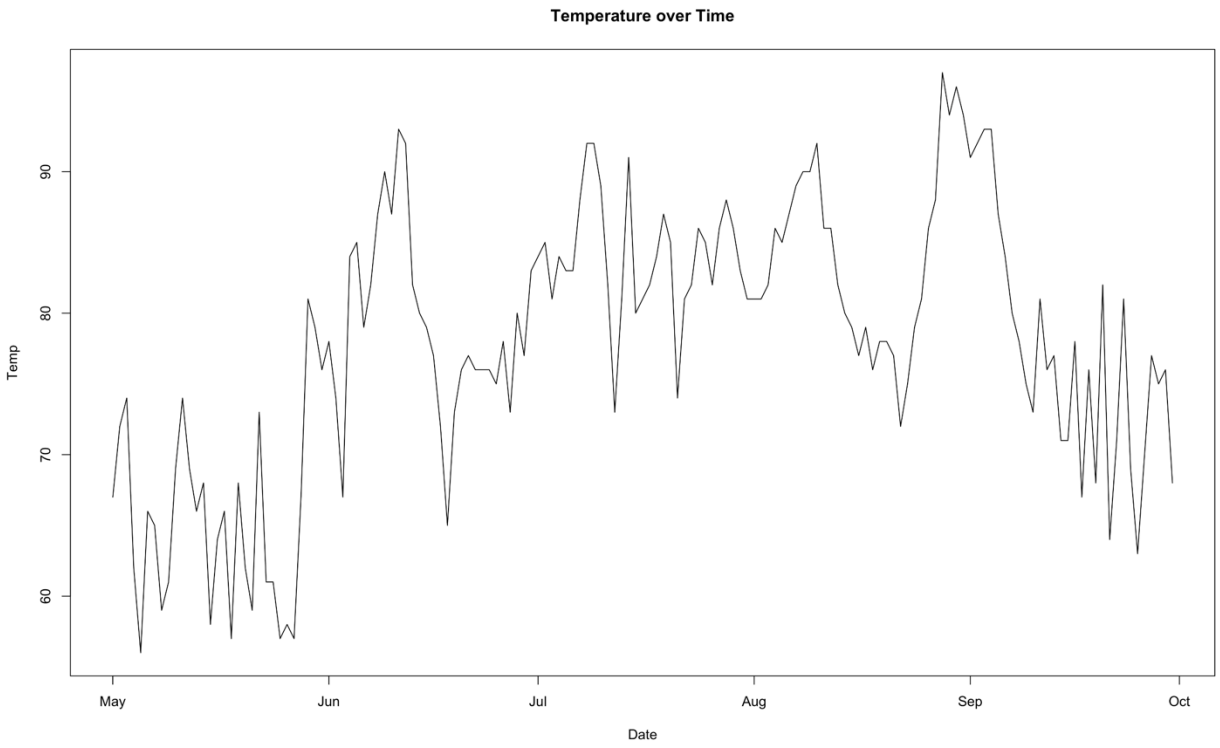
data("airquality")

Create appropriate dates
airquality$Date <- as.Date(paste("1973", airquality$Month, airquality$Day, sep = "-"), "%Y-%m-%d")

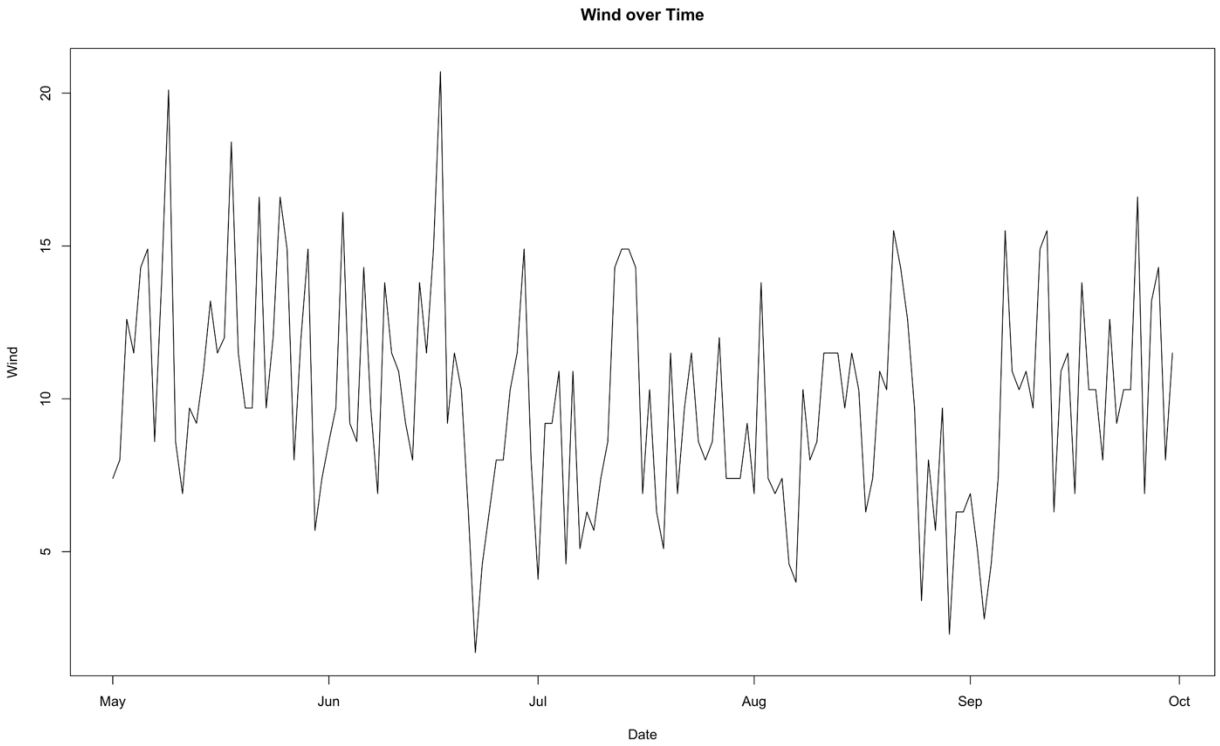
Screenshot of the plot and underneath that is the code



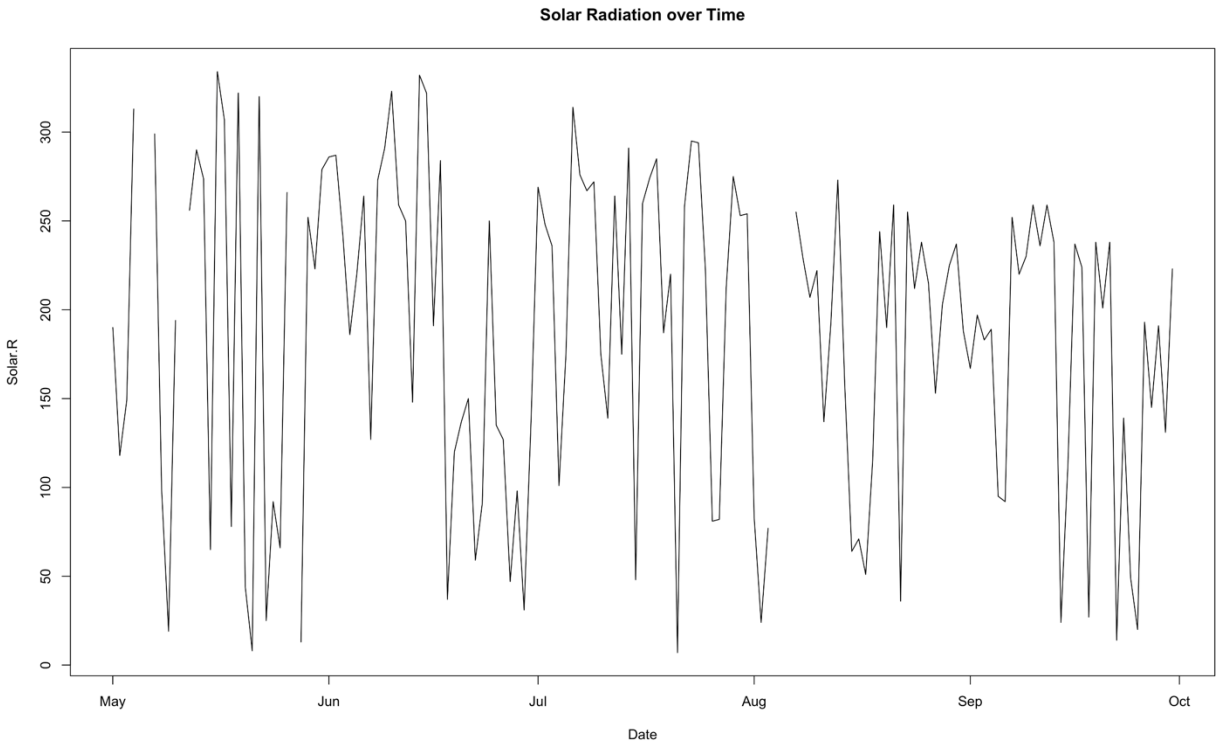
plot(airquality$Date, airquality$Ozone, type = "l", xlab = "Date", ylab = "Ozone", main = "Ozone over Time")



plot(airquality$Date, airquality$Temp, type = "l", xlab = "Date", ylab = "Temp", main = "Temperature over Time")



plot(airquality$Date, airquality$Wind, type = "l", xlab = "Date", ylab = "Wind", main = "Wind over Time")



plot(airquality$Date, airquality$Solar.R, type = "l", xlab = "Date", ylab = "Solar.R", main = "Solar Radiation over Time")

Unlist combining scaling

```
# Create one line chart with 4 lines, for each of the variables, each line with different color
scale_func <- function(x) {
  return((x - min(x, na.rm = TRUE)) / (max(x, na.rm = TRUE) - min(x, na.rm = TRUE)))
}

# Scale first four columns into a vector
scaleddata <- apply(airquality[, 1:4], 2, scale_func)

# Unlist Date column
dates <- unlist(airquality$Date)

# Combine the vector and date into a new dataframe
combined_data <- data.frame(Date = dates, Scaled_Ozone = scaled_data[,1],
```

```
                    Scaled_Solar.R = scaled_data[,2], Scaled_Wind = scaled_data[,3], Scaled_Temp
= scaled_data[,4])

# Melt the data
library(reshape2)
melted_data <- melt(combined_data, id.vars = "Date", variable.name = "Variable", value.name
= "Scaled_Value")
```

Code for plotting all the graphs together

```
# Create one line chart for all 4 parameters
library(ggplot2)
ggplot(melted_data, aes(x = Date, y = Scaled_Value, color = Variable)) +
  geom_line() +
  scale_y_continuous(labels = scales::percent_format()) +
  labs(x = "Date", y = "Scaled Value", title = "Air Quality over time ")
```