Lab Experiment - 1

CSE3020 - Data Visualisation

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LAB - L13 + L14

Source Code

Dataset Used: AirQuality Dataset

```
#dataframes in R tool
data()

airquality

str(airquality)

summary(airquality)

plot(airquality)

plot(airquality$Day,airquality$Temp)

#Grid chart the margin of the grid(mar),
#no of rows and columns(mfrow),
#whether a border is to be included(bty) and position of the
#labels(las: 1 for horizontal, las: 0 for vertical).
par(mfrow=c(2,2), mar=c(2,5,2,1), las=1, bty="n")

# Simple Histogram
#A histogram is very common plot.
#It plots the frequencies that data appears
```

```
#within certain ranges.
hist(airquality$Temp, main="Histogram",xlab='temperature',col="orange",ylim=c(0,30))



#Simple Scatterplot
#A scatter plot provides a graphical view of
#the relationship between two sets of numbers.
plot(airquality$Ozone, airquality$Solar.R, main="Scatterplot Airquality",
    xlab="Ozone Level ", ylab="Solar.R level", pch=1,
    col=c("green", "yellow"))



# Simple Bar Plot
#Barplots are useful for comparing the distribution of
#a quantitative variable (numeric) between groups or categories.
counts <- table(airquality$Wind)
barplot(counts, main="Wind Variation",
       xlab="Wind",horiz=TRUE)

# Stacked Bar Plot with Colors and Legend
counts <- table(airquality$Ozone, airquality$Temp)
barplot(counts, main="Air Quality Distribution by Ozone and Temp",
       xlab="Ozone Levels", col=c("darkblue","pink"),
       legend = rownames(counts))



# Grouped Bar Plot
counts <- table(airquality$Ozone, airquality$Wind)
barplot(counts, main="Air Pollution Distribution via Ozone and Wind",
       xlab="Ozone", col=c("darkblue","red"),
       legend = rownames(counts), beside=TRUE)

# Simple Pie Chart
```

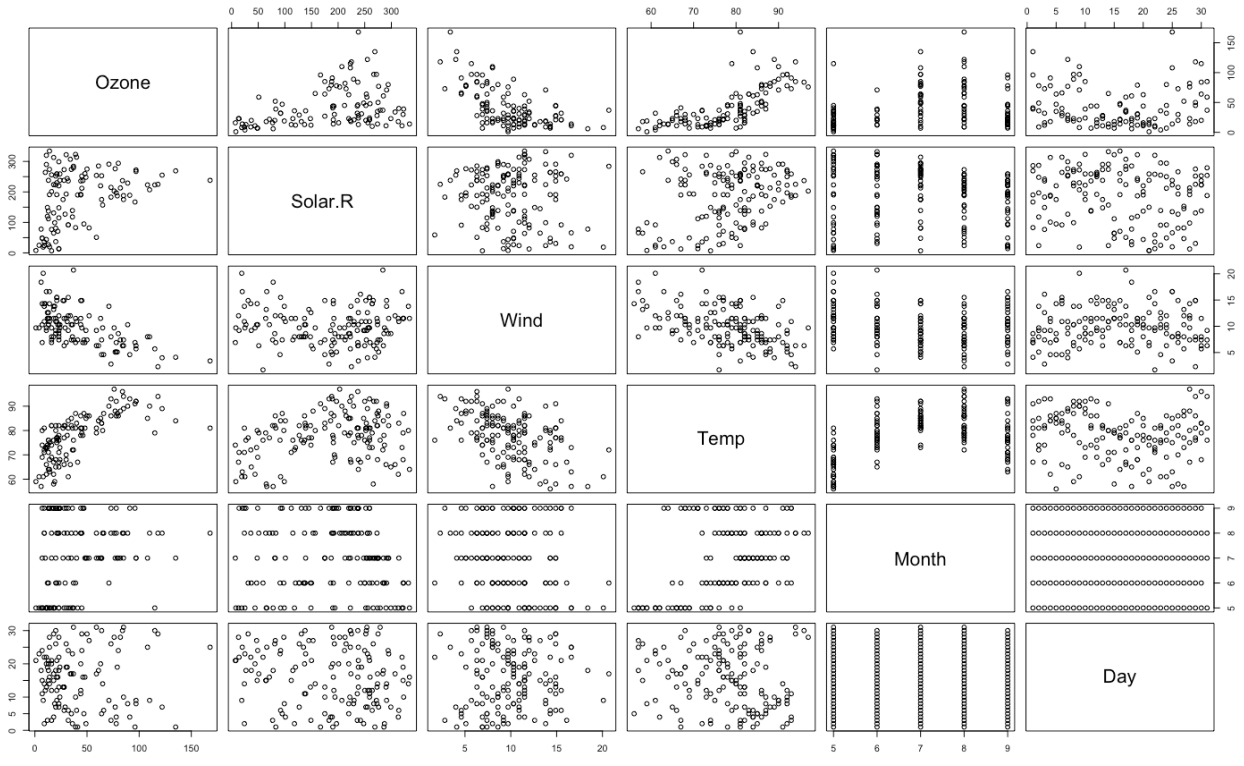
```
slices <- c(100,106, 120,40, 16, 80)
lbls <- c("India","US", "UK", "Australia", "Germany", "Other")
pie(slices, labels = lbls, main="Pie Chart of Countries Contribution to Pollution")

# Boxplot of MPG by Car Cylinders
#A boxplot provides a graphical view of the median, quartiles,
#maximum, and minimum of a data set.
boxplot(Ozone~Temp,data=airquality, main="Ozone vs Temp",
        xlab="Ozone", ylab=“Temperature")
```

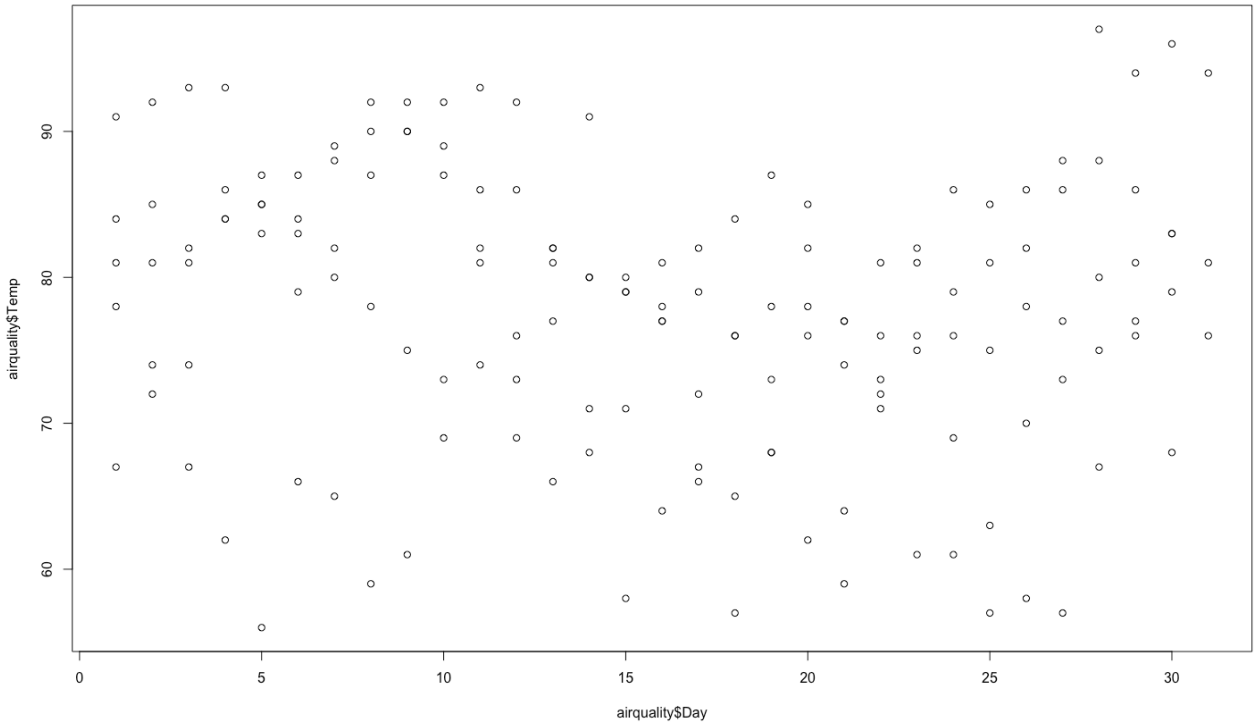
Output Plots

```
> str(airquality)
'data.frame':   153 obs. of  6 variables:
 $ Ozone  : int  41 36 12 18 NA 28 23 19 8 NA ...
 $ Solar.R: int  190 118 149 313 NA NA 299 99 19 194 ...
 $ Wind   : num  7.4 8 12.6 11.5 14.3 14.9 8.6 13.8 20.1 8.6 ...
 $ Temp   : int  67 72 74 62 56 66 65 59 61 69 ...
 $ Month  : int  5 5 5 5 5 5 5 5 5 5 ...
 $ Day    : int  1 2 3 4 5 6 7 8 9 10 ...
```

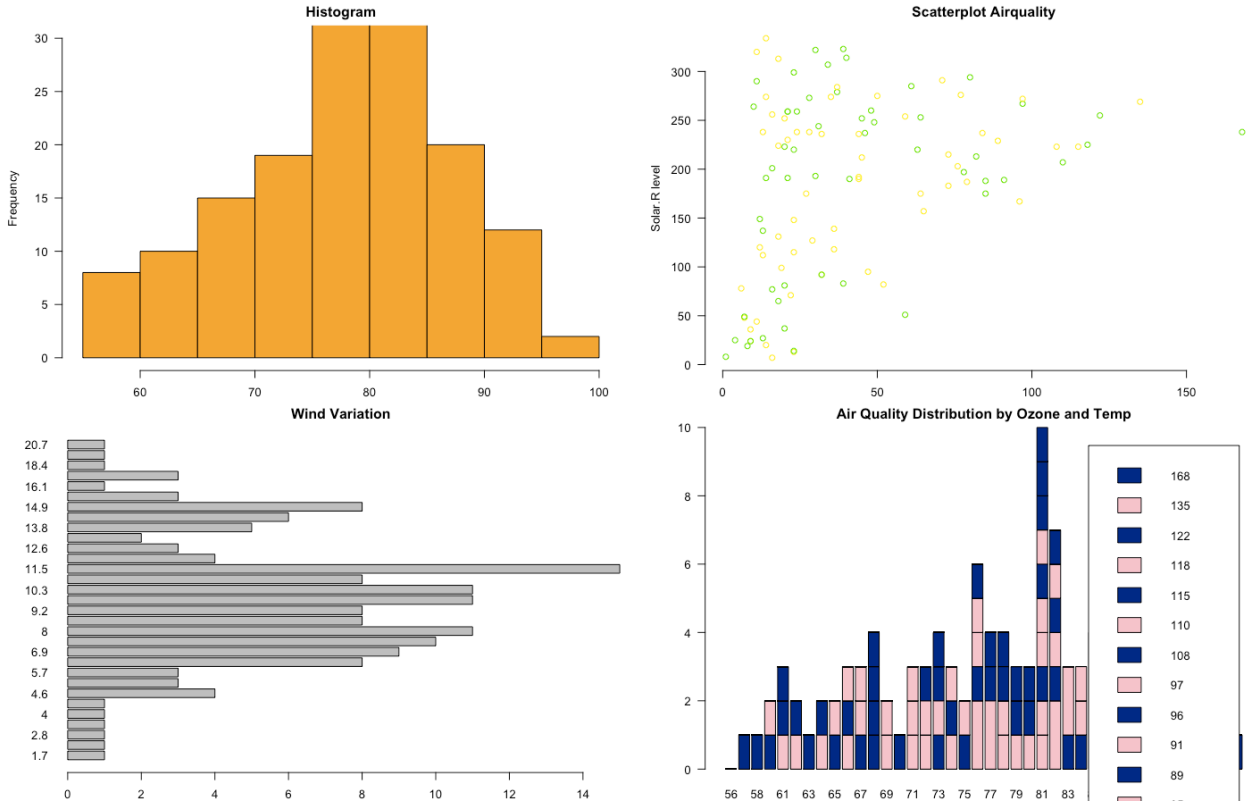
plot(airquality)



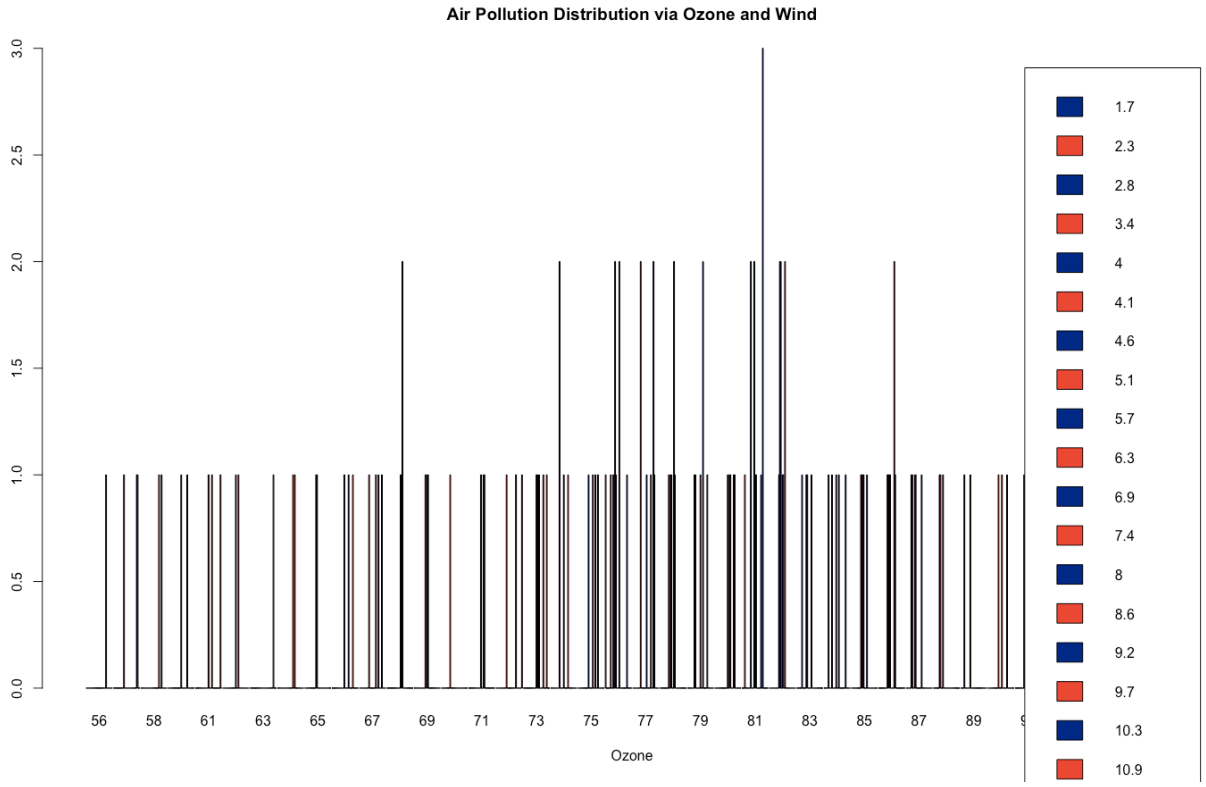
plot(airquality$Day,airquality$Temp)



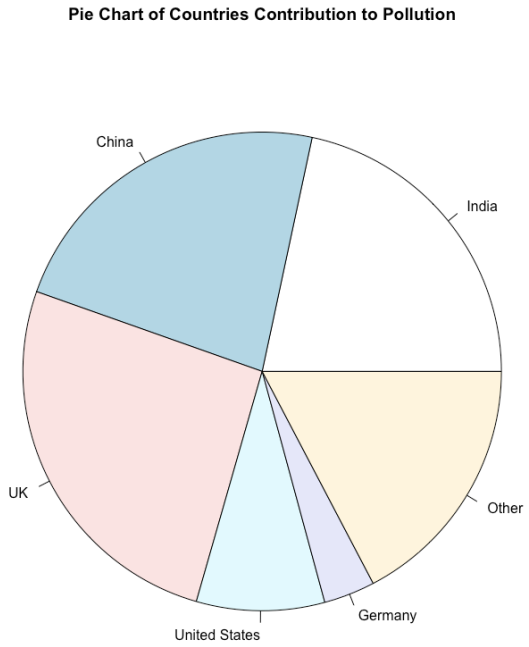
Histogram, Scatter Plot and Bar Plot



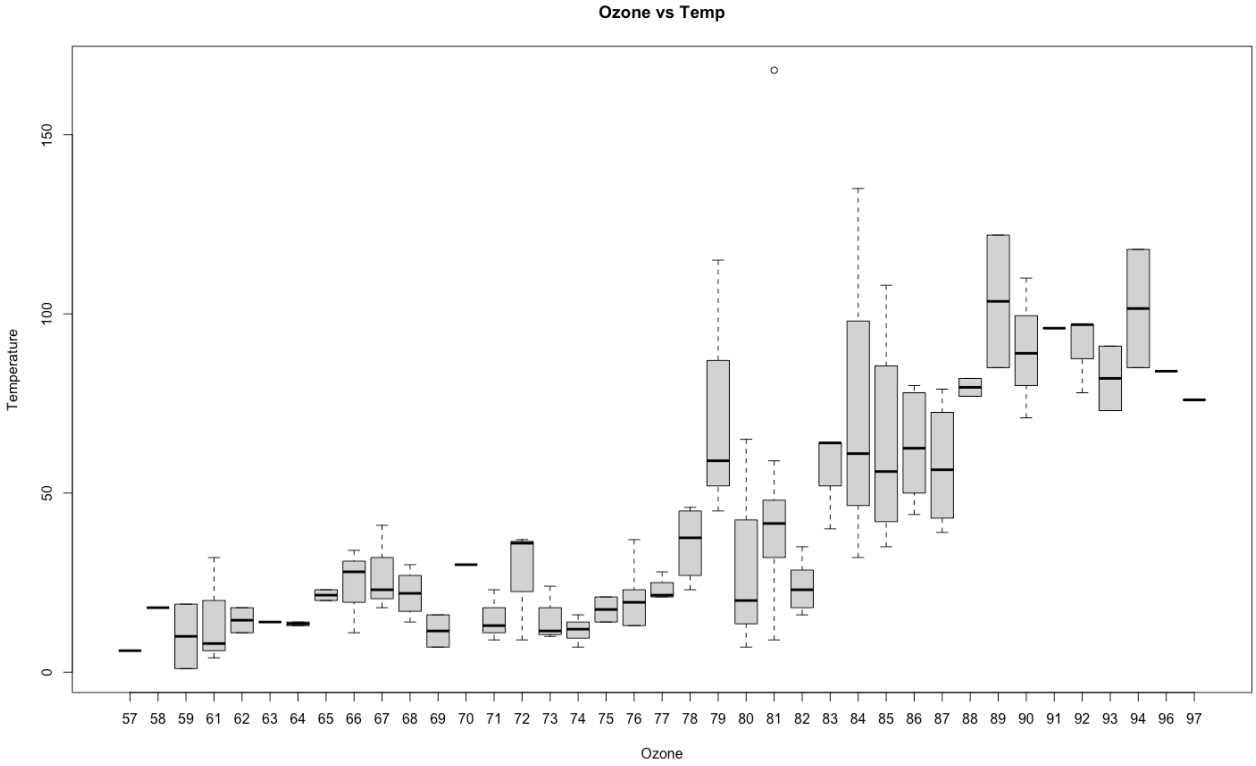
Grouped Bar Plot



Pie Chart



Box Plot


Ozone vs Temp
Temperature
0
50
100
150
57 58 59 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 96 97
Ozone