Experiment 12:
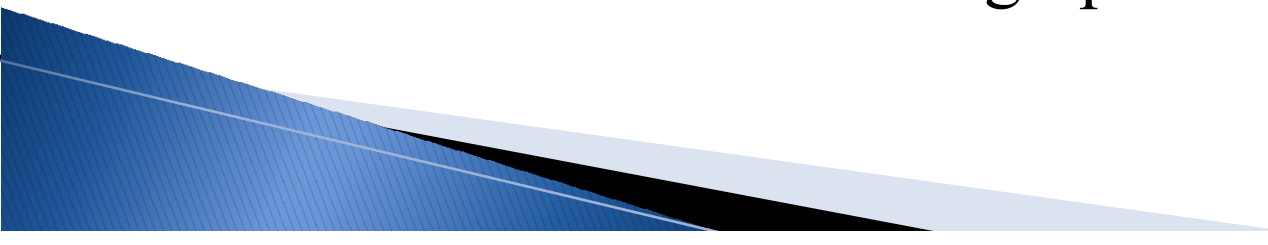
Illustrate the following basic graphics in R:

a. Bar plots

b. Pie Charts

c. Histograms

d. Kernel density plots

e. Boxplots

f. Dotplots

Aim: To understand and use basic graphics in R

Exp. 12 a: Bar plots in R

▸ A bar chart represents data in rectangular bars with length of the bar proportional to the value of the variable

▸ R uses the function **barplot()** to create bar charts

▸ R can draw both vertical and horizontal bars in the bar chart
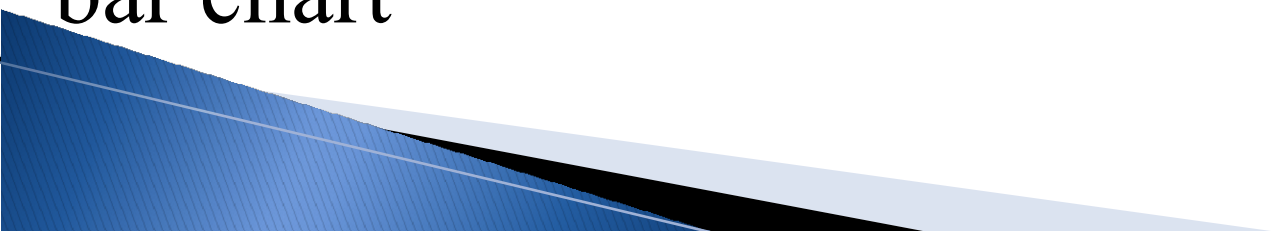
Exp. 12 a: Bar plots in R

ntax:

barplot(height,xlab,ylab,main, names.arg,col)

re

ight is a vector or matrix containing numeric values

ab is the label for x axis

ab is the label for y axis

ain is the title of the bar chart

mes.arg is a vector of names appearing under each bar

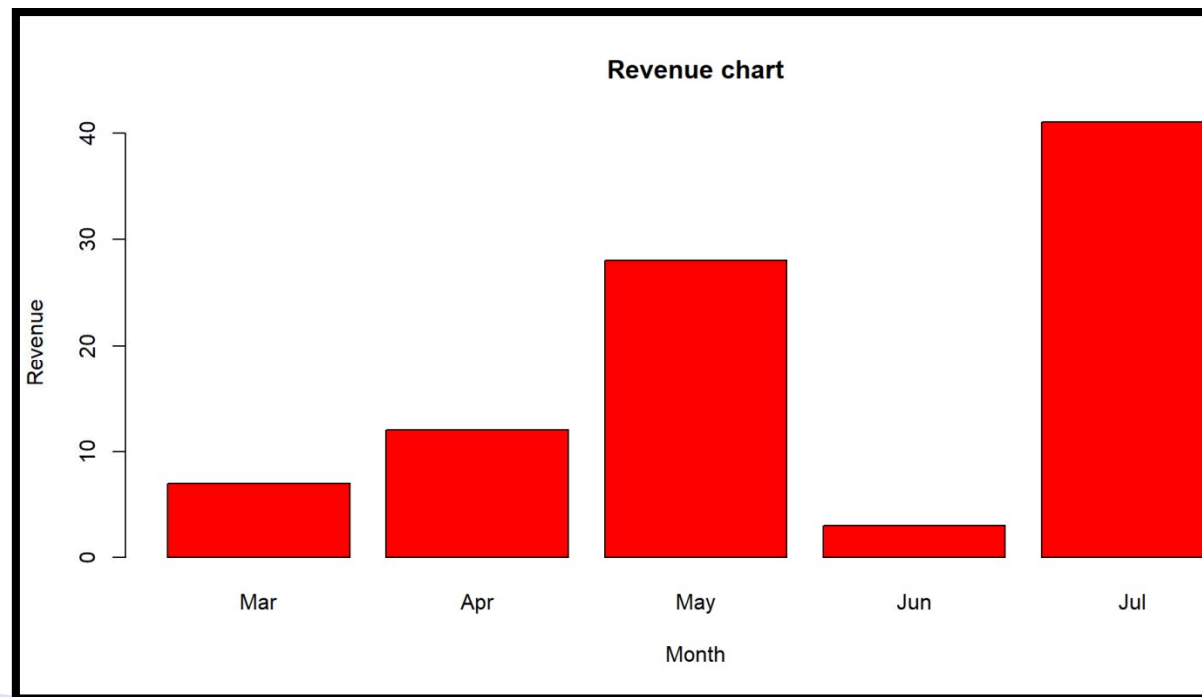is used to give colors to the bars in the graph

Exp. 12 a: Bar plots in R

```r
<- c(7,12,28,3,41)
<- c("Mar","Apr","May","Jun","Jul")
rplot(H, names.arg=M, xlab="Month",ylab="Revenue",
       col="red", main="Revenue chart")
```

Exp. 12 a: Bar plots in R
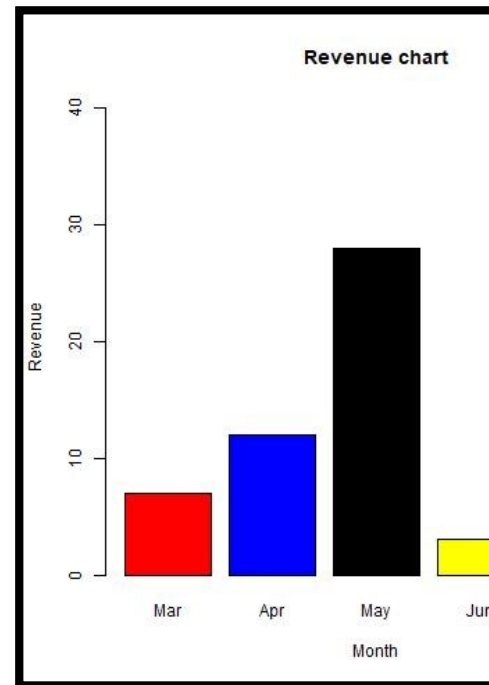
c(7,12,28,3,41)

c("Mar","Apr","May","Jun","Jul")

c("red","blue","black","yellow","green")

(file="monthly_revenue.jpeg")   # pdf / png

lot(H, names.arg=M, xlab="Month",ylab="Revenue", col=C,
="Revenue chart")

off()

#Jpeg image is created in the current working direct

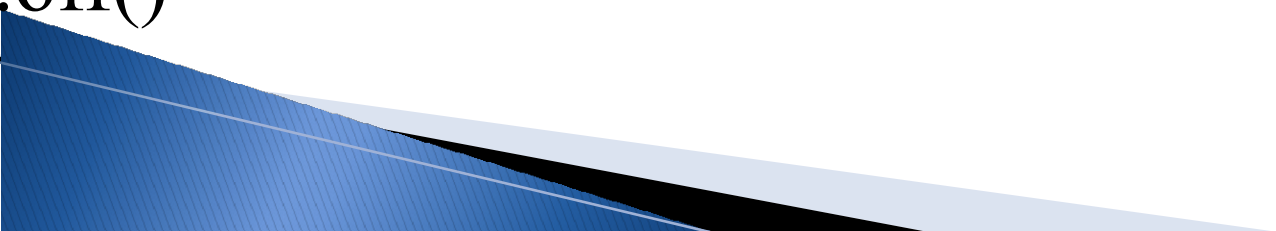**cked Barplot / Grouped Barplot**
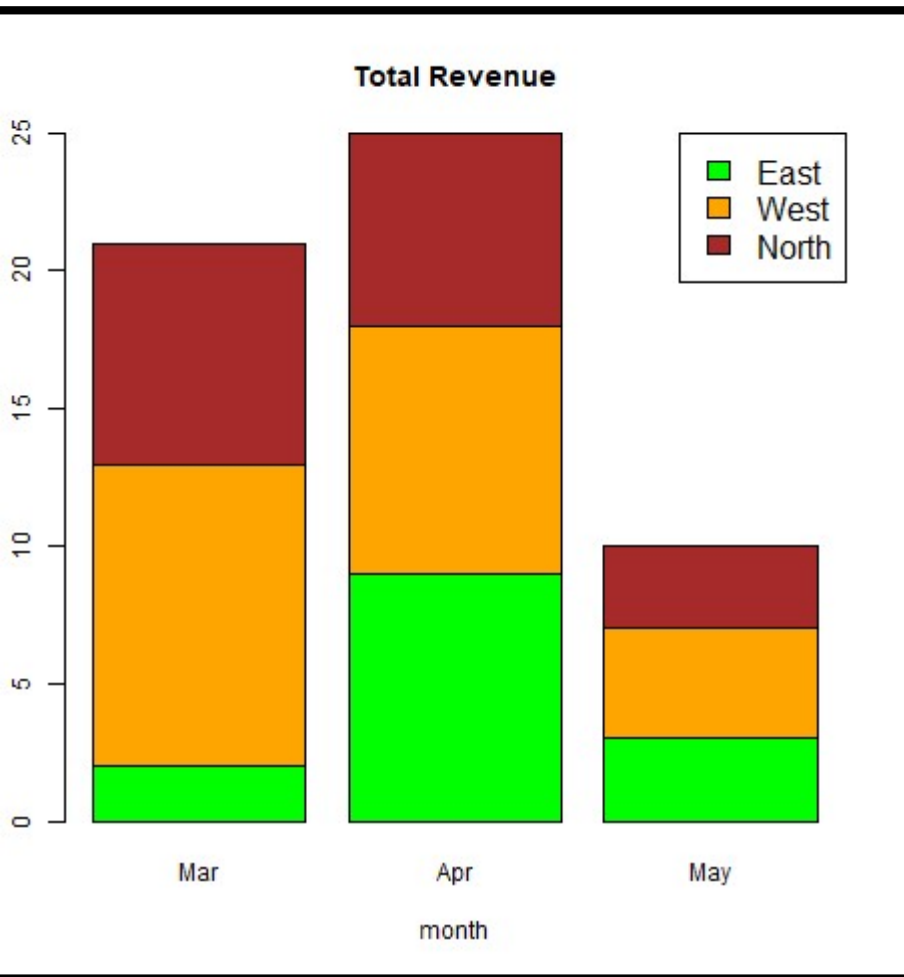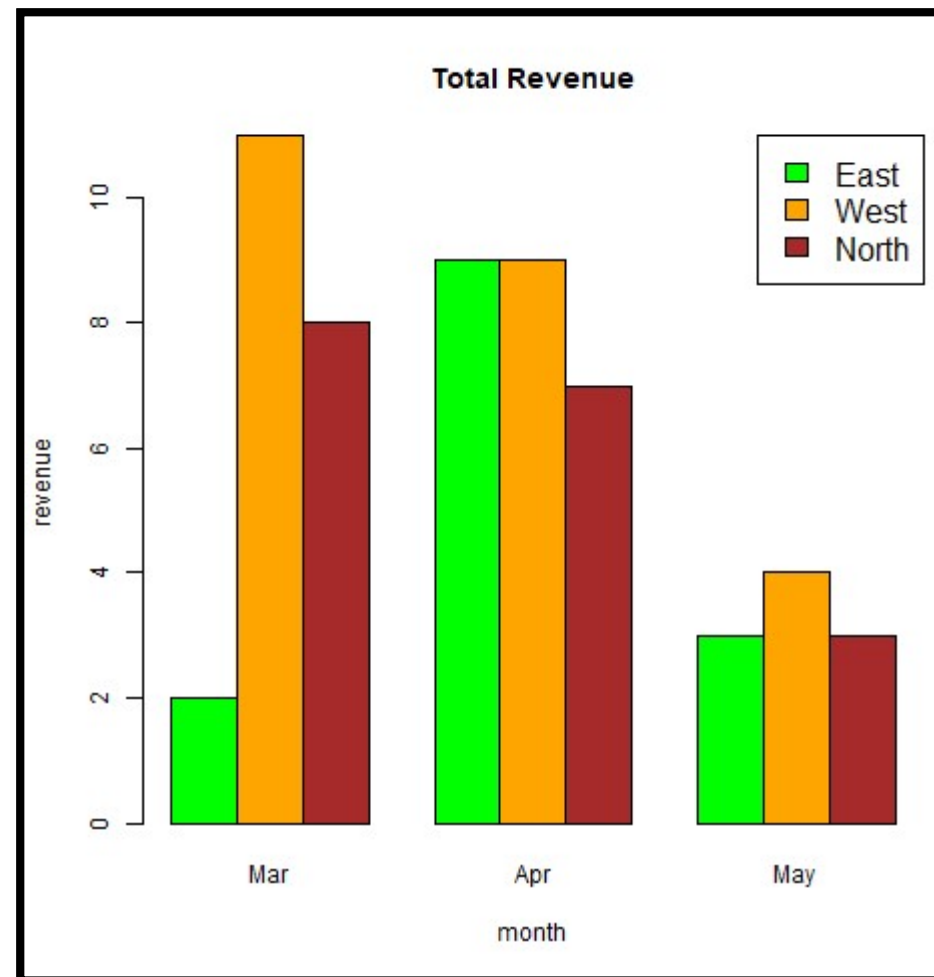
```
ors = c("green","red","blue")
nths = c("Mar","Apr","May")
ons = c("East","West","North")
ues = matrix(c(2,9,3,11,9,4,8,7,3), nrow=3, byrow=TRUE)
(file ="barchart_stack.png")
plot(values, main="Total Revenue",names.arg=months,
b="month",ylab="revenue",col=colors)              #beside=TRU
end("topright", regions, cex = 1.3, fill=colors)
off()
```

Exp. 12 a: Bar plots in R

Stacked

Grouped

Exp. 12 b: Pie charts in R

ie-chart is a representation of values as slices of a circle with different
ors

tax:

pie(x, labels, radius, main, col, clockwise)

- **x** is a vector containing the numeric values used in the pie chart.
- **labels** is used to give description to the slices.
- **radius** indicates the radius of the circle of the pie chart.(−1 to +
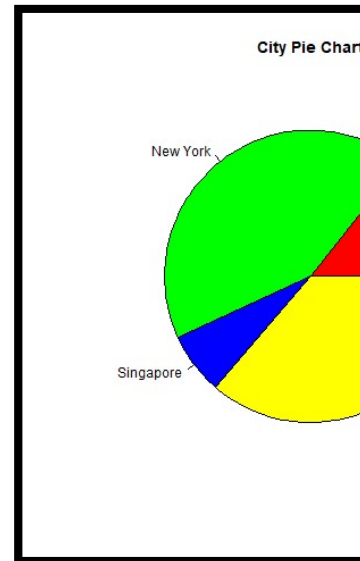- **main** indicates the title of the chart
- **col** indicates the color palette
- **clockwise** is a logical value indicating if the slices are drawn
  clockwise or anti clockwise.(default:FALSE)

Exp. 12 b: Pie charts in R

```
<- c(21, 62, 10, 53)
bels <- c("London", "New York", "Singapore", "Mumba
lors=c("red", "green", "blue", "yellow")
g(file = "city.png")
e(x, labels, main = "City Pie Chart", col=colors)
v.off()
```
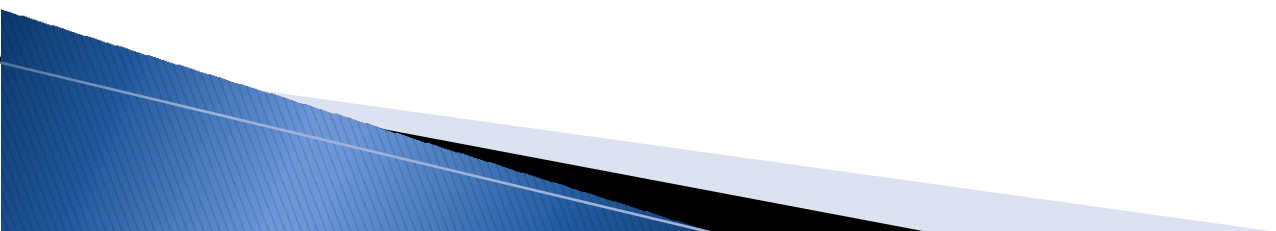
Exp. 12 c: Histograms in R

Exp. 12 c: Histograms in R

histogram represents the frequencies of values of a varia

cketed into ranges

stogram is similar to bar chart but the difference is it gr

values into continuous ranges

Exp. 12 c: Histograms in R

ax:

hist(v, main, xlab, xlim, ylim, breaks, col)

v is a vector containing numeric values used in histogram

main indicates title of the chart

xlab is used to give description of x-axis

xlim is used to specify the range of values on the x-axis

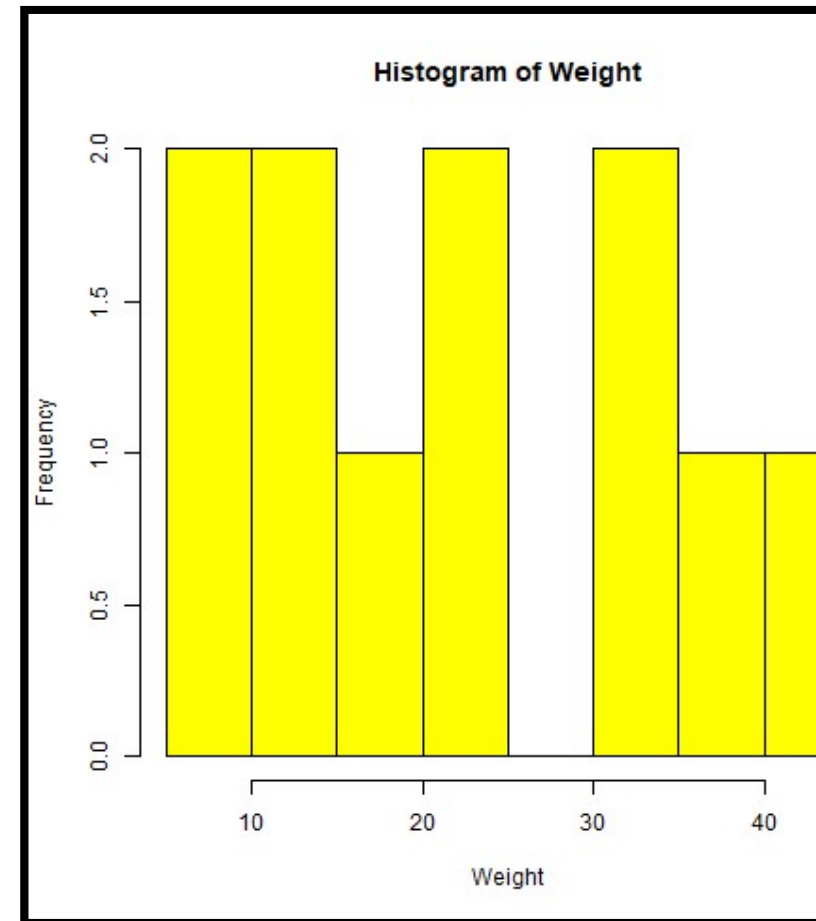**ylim** is used to specify the range of values on the y-axis

breaks is used to mention the width of each bar
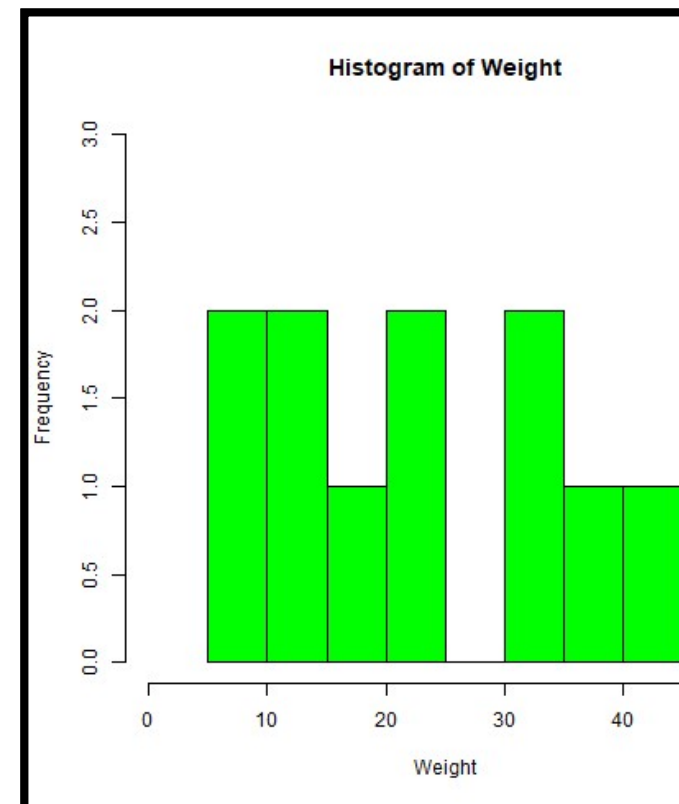
col is used to set color of the bars

Exp. 12 c: Histograms in R

ight <- c(9,13,21,8,36,22,12,41,31,33,19)

(file = "histogram.png")

(Weight, xlab = "Weight", col = "yellow")

.off()

Histogram of Weight

Exp. 12 c: Histograms in R

ght <- c(9,13,21,8,36,22,12,41,31,33,19)

(file = "hist_lims.png")

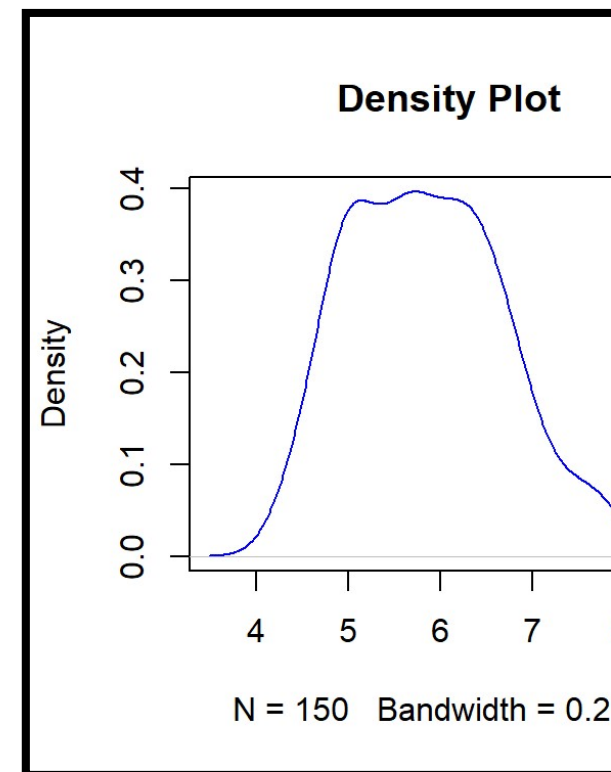(Weight,xlab="Weight",col="green",xlim =c(0,50),ylim=c(0,3),breaks=

.off()

Histogram of Weight

Exp. 12 d: Kernel Density plots in R

rnel density plot is a representation of the distribution of a numeric va
uses a kernel density estimate to show the probability density funct
variable

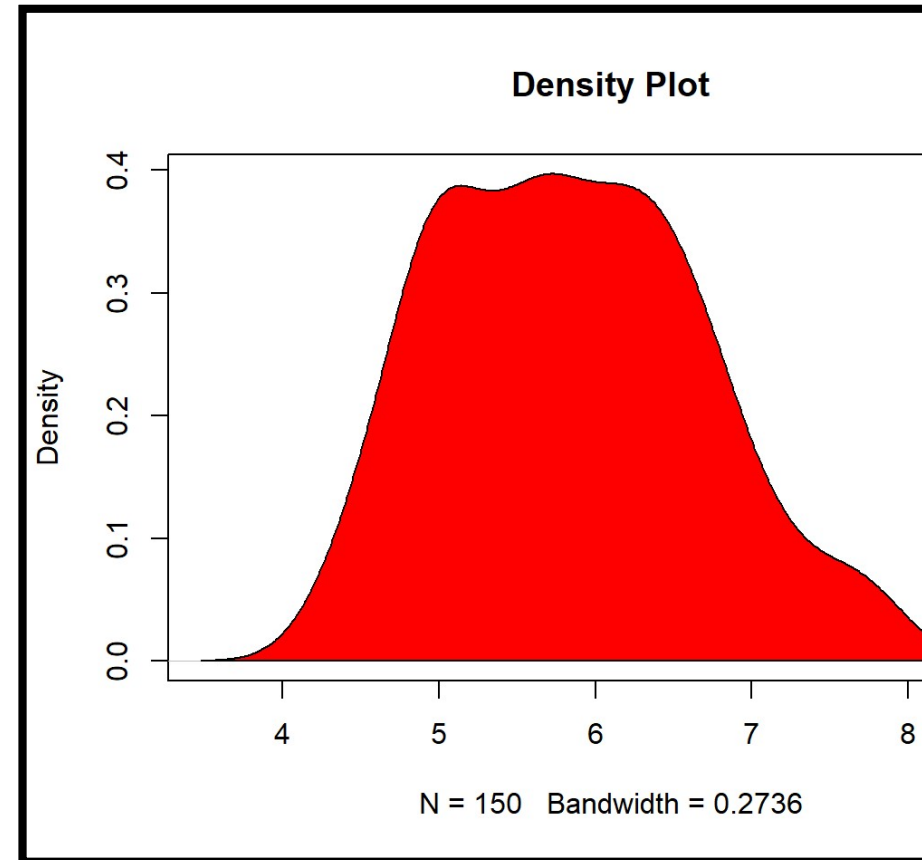density() function is used to compute kernel density estimates

=density(iris$Sepal.Length)
lot(d, main="Density Plot",col="blue")

Density Plot

Density

0.4
0.3
0.2
0.1
0.0

4   5   6   7

N = 150   Bandwidth = 0.2
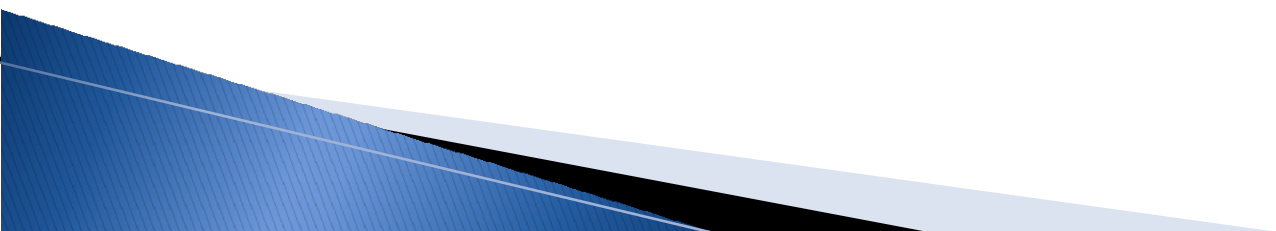
Exp. 12 d: Kernel Density plots in R

ed density plot

=density(iris$Sepal.Length)

lot(d, main="Density Plot")

olygon(d, col="red")

Density Plot

Exp. 12 e: Boxplots in R

xplots are a measure of how well distributed is the data in a data

des the data set into three quartiles

epresents the minimum, maximum, median, first quartile and third qua

data set

Exp. 12 e: Boxplots in R

x:

oxplot(x, data, notch, names, main)

here

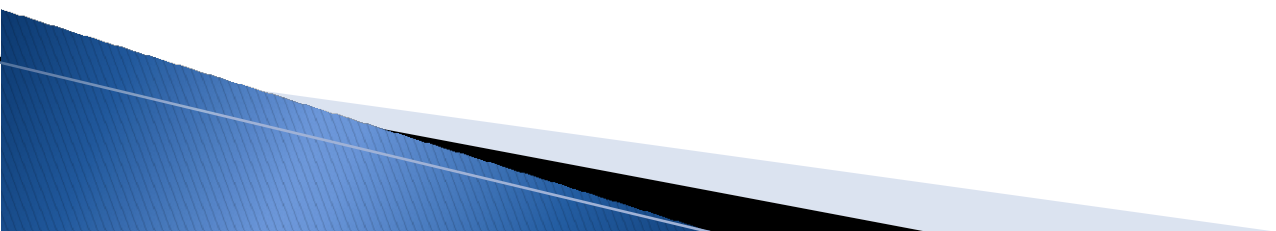**x** is a vector or a single list

data is the data frame

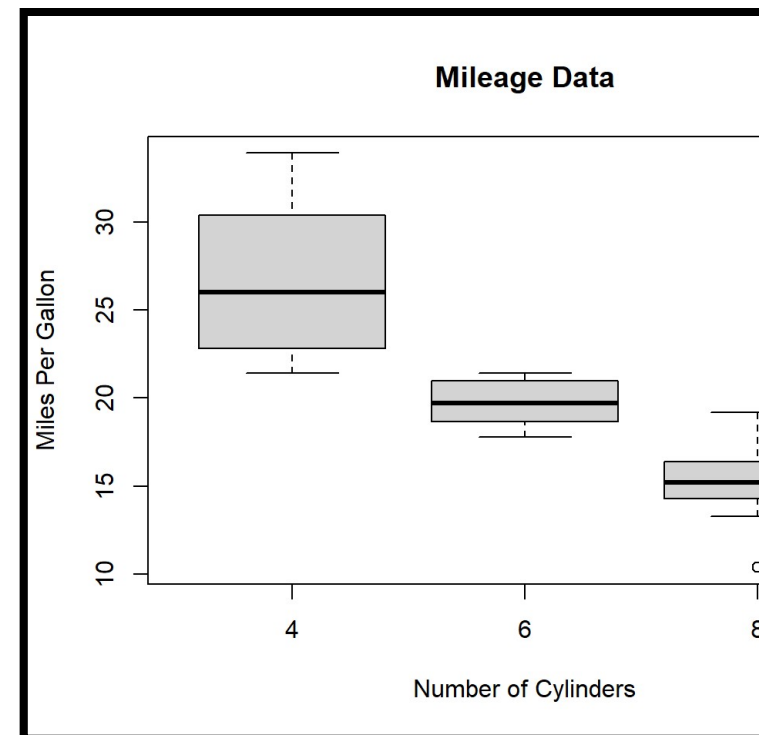**notch** is a logical value, Set as TRUE to draw a notch.

names are the group labels to be printed under each boxplot

main is used to give a title to the graph

Exp. 12 e: Boxplots in R

```
(file = "box_plot.png")
t(summary(mtcars[1:2]))
plot(mpg ~ cyl, data = mtcars, xlab = "Number of Cylinders",
iles Per Gallon", main="Mileage Data")              #notch=TR
.off()
```

Exp. 12 f: Dotplots in R

named as Dotcharts, it draws a Cleveland dot plot

ey are an alternative to bar charts or pie charts

ey look somewhat like a horizontal bar chart where the bar

laced by a dots at the values associated with each category

ntax:

lotchart(x, labels, cex, main, xlab)

where **x** is either a vector or matrix of numeric values

labels is a vector of labels for each point

cex is the character size to be used

main is used to give a title to the graph

xlab , **ylab** –x and y axis labels

Exp. 12 f: Dotplots in R

tchart(mtcars$mpg,labels=row.names(mtcars),cex=0.7,main="
age for Car Models",xlab="Miles Per Gallon", ylab="Car Mod