6. Basics of graph

```
# Reference book: "Beginning R: The Statistical Programming Language"
# Author: Dr. Mark Gardener
```

Barplot for vector

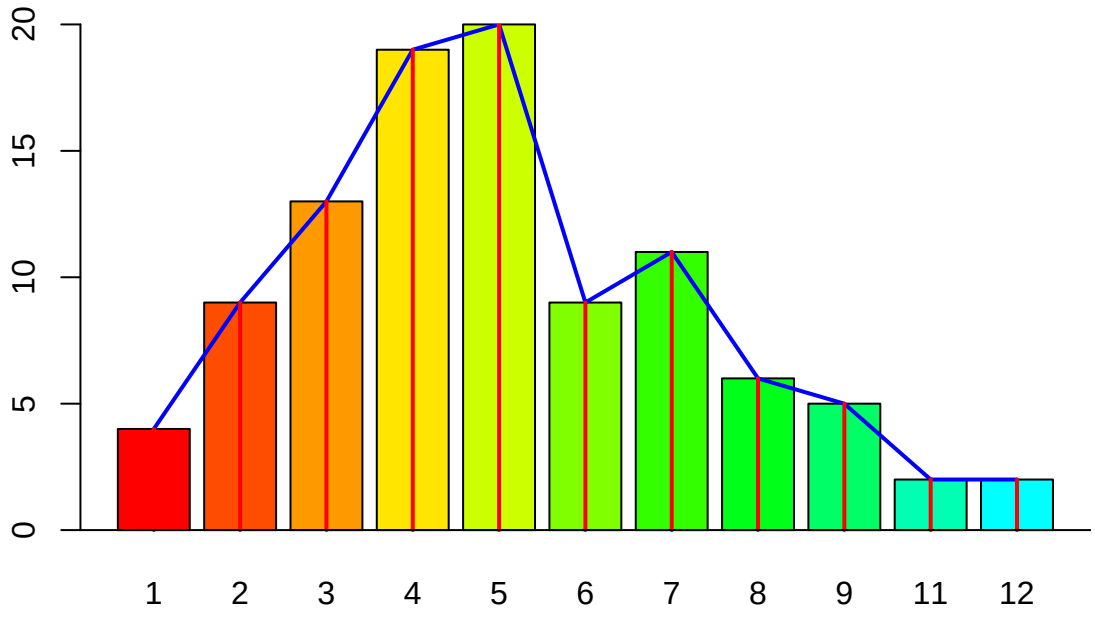
```
require(grDevices)
require(stats)
ni=rpois(100,5)
ni
```

```
  [1]  3  9  8  3  7  4  5  6  4  3  4  2  3  1  8  4  5  4  5  3  9  5  7  3  4
 [26]  5  5 12  2  5  6  4  8  1  8  7  9  5  1  6  8  7  5  7  2  2  2  2 12  9
 [51]  5  7  5  5  9  4  4  3  6  8 11  7  4  4  4  3  4  1  7  4  3  4  6  2  3
 [76]  7  5  2  5  3  5  3  5  2  3  6  4  6 11  5  5  4  4  5  5  6  6  7  7  4
```

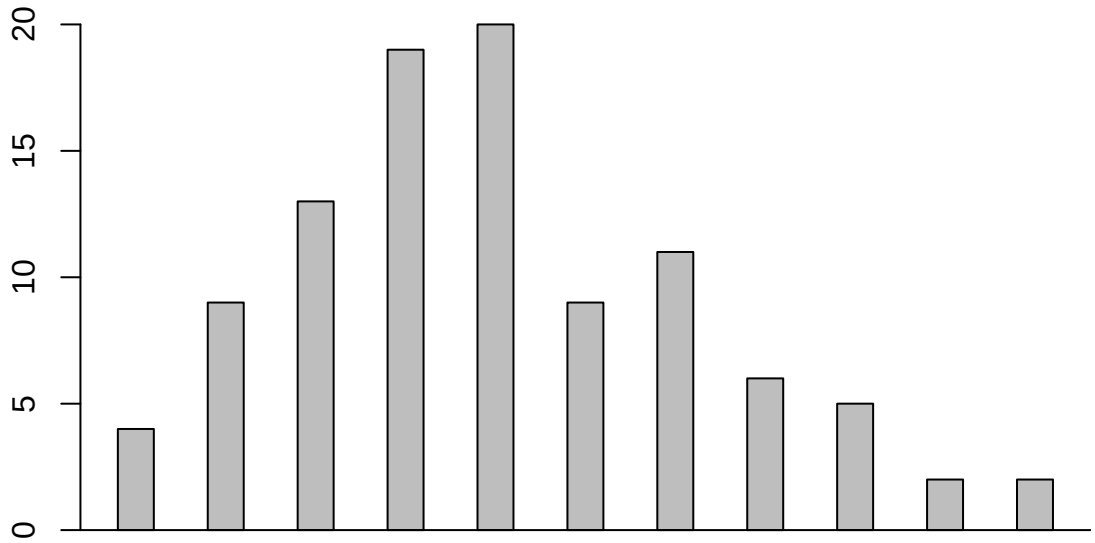
```
tN=table(ni)
tN
```

```
ni
 1  2  3  4  5  6  7  8  9 11 12
 4  9 13 19 20  9 11  6  5  2  2
```

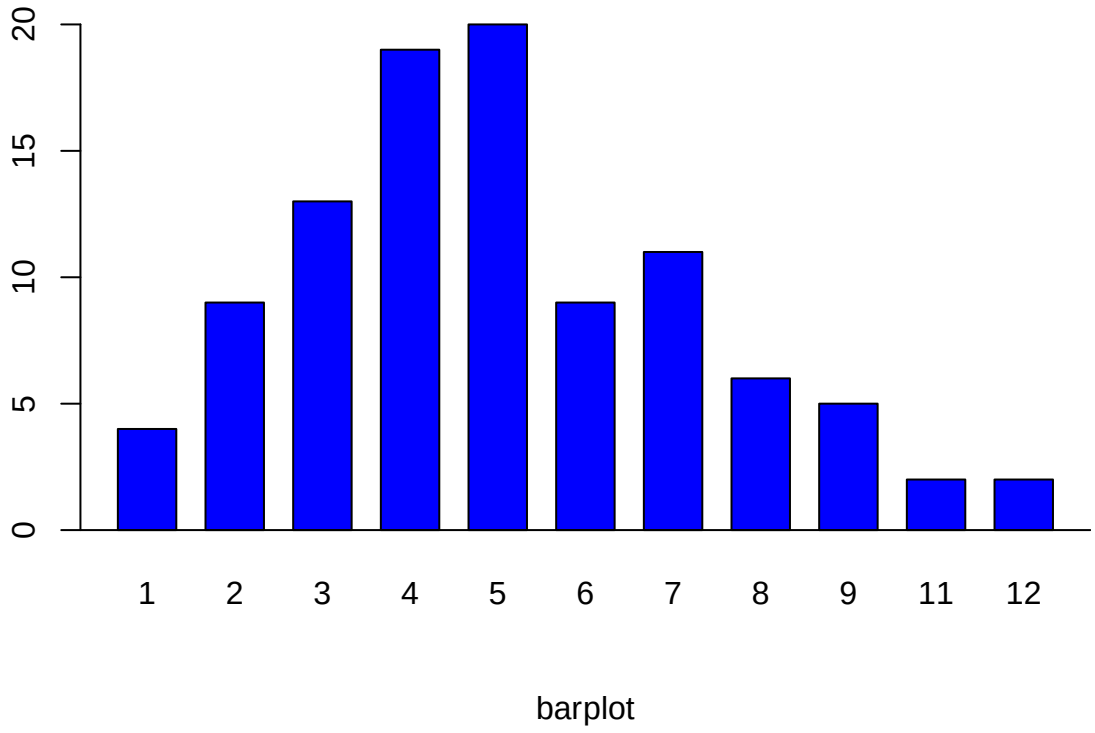
```
r=barplot(tN,col=rainbow(20))
lines(r,tN,col="blue",lwd=2)
lines(r,tN,type="h",col="red",lwd=2)
abline(h=0)
```




```
barplot(tN,space = 1.5,axisnames = F)
abline(h=0)
```

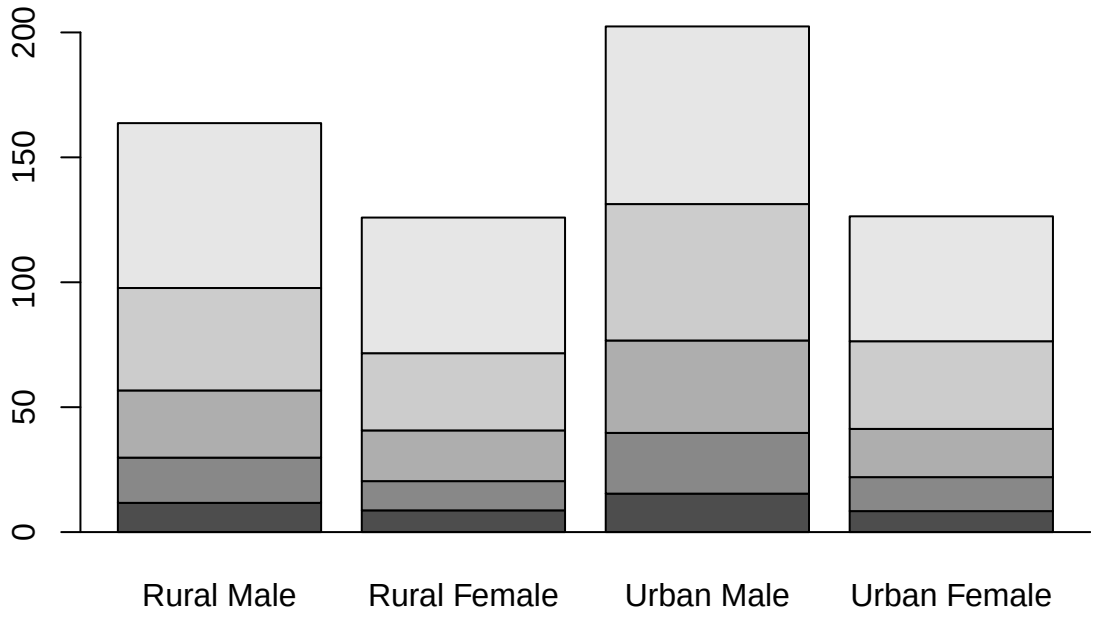



```
barplot(tN,space = 0.5,axisnames = T,sub="barplot",col="blue")
abline(h=0)
```

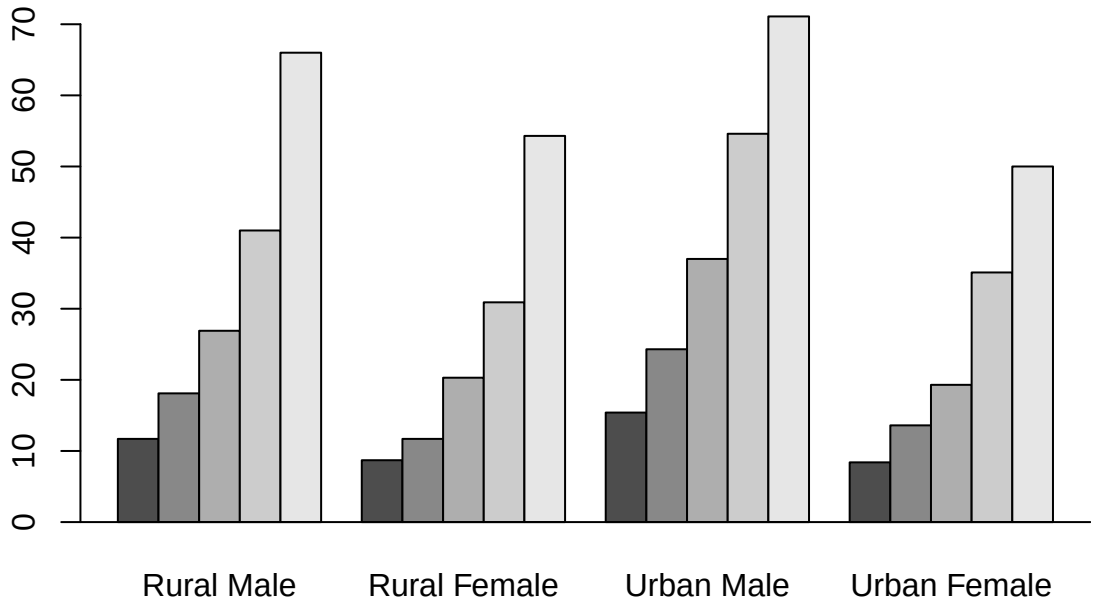


Bar plot for data frame

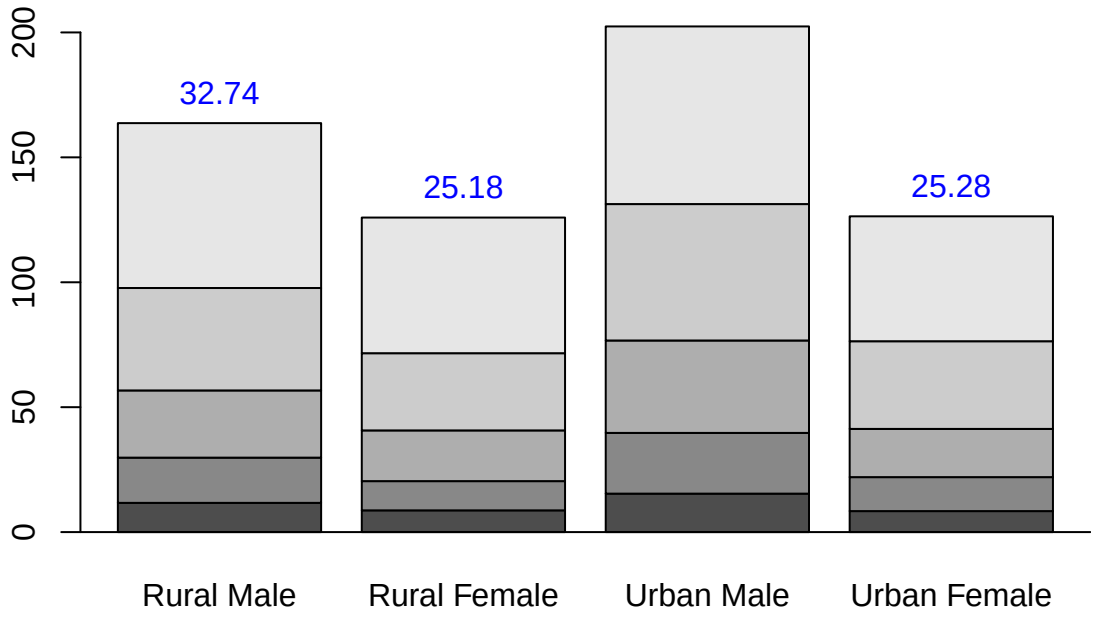
```
barplot(VADeaths,plot = T)
abline(h=0)
```



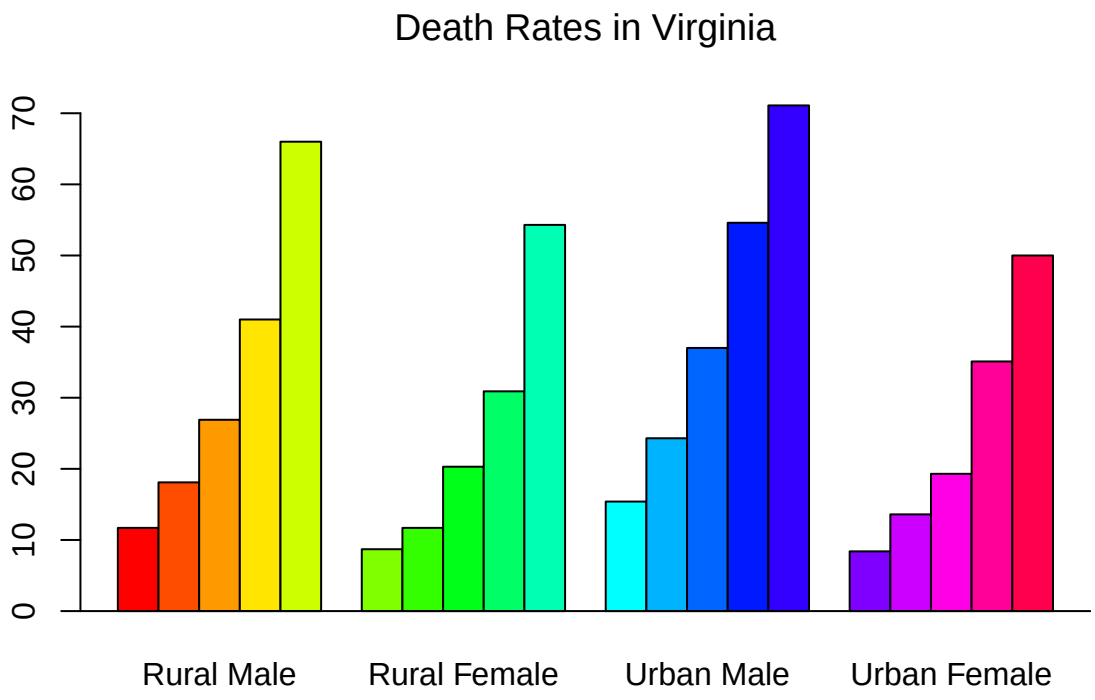

```
barplot(VADeaths,plot = T,beside = T)
abline(h=0)
```



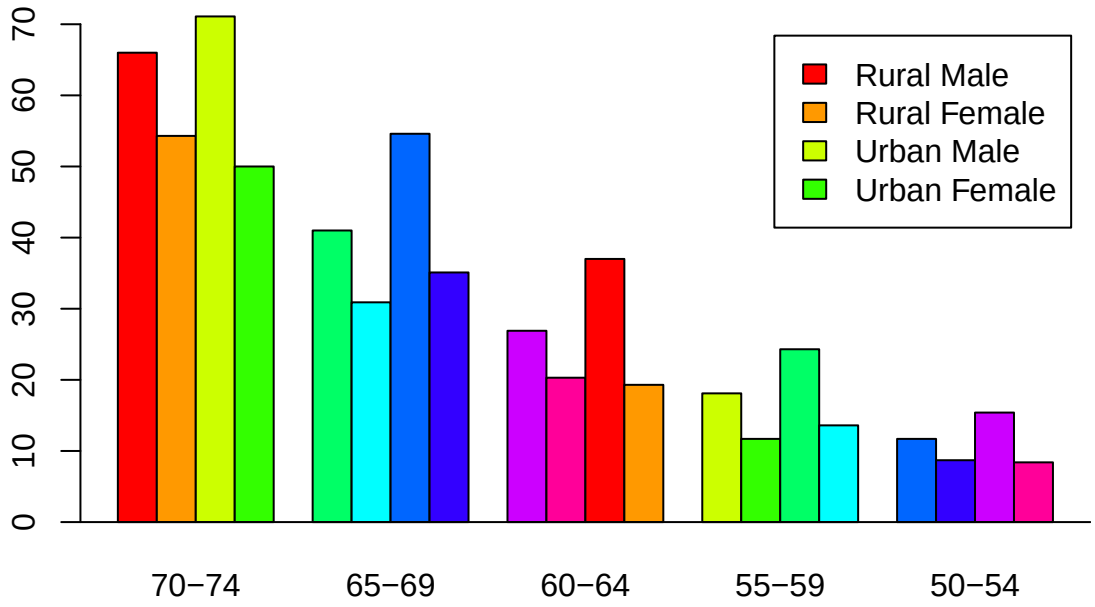

```
mp=barplot(VADeaths)
tot=colMeans(VADeaths)
sm=colSums(VADeaths)
text(mp,sm,tot,col='blue',pos=3)
abline(h=0)
```




```
barplot(VADeaths,beside = T,col=rainbow(20))
title(main="Death Rates in Virginia",font.main=10)
abline(h=0)
```

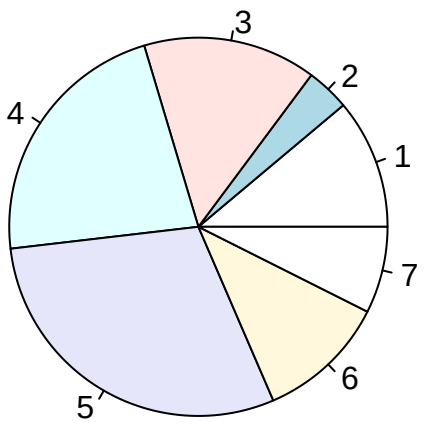



```
hh=t(VADeaths)[,5:1]
barplot(hh,beside = T,col = rainbow(10),legend=colnames(VADeaths),cex.names = 1)
abline(h=0)
```

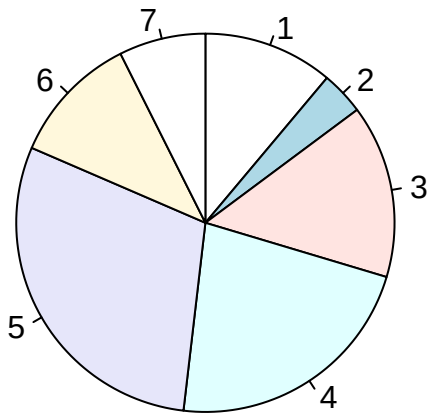


Pie chart for vector

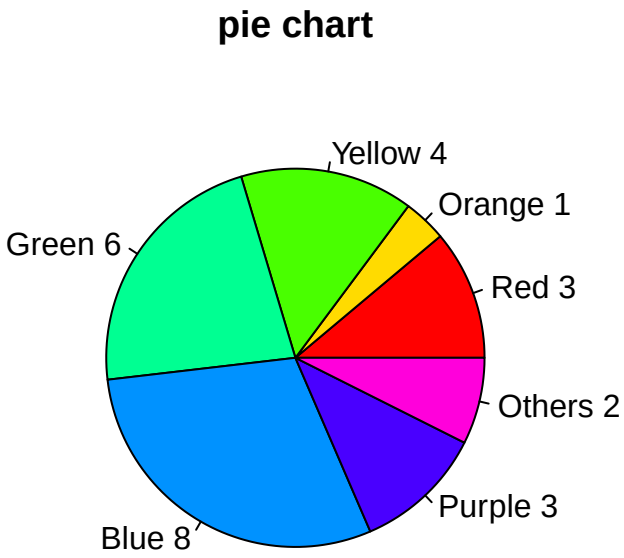
```
fcolor=c(3,1,4,6,8,3,2)
pie(fcolor,main = "pie chart",)
```




```
pie(fcolor, clockwise = T, main = "clockwise pie chart")
```




```
lbls=c("Red","Orange","Yellow","Green","Blue","Purple","Others")
lbls=paste(lbls,fcolor)
pie(fcolor,labels = lbls,main = "pie chart",col=rainbow(7))
```



Scatter plot

```
class(iris)
```

```
[1] "data.frame"
```

```
head(iris)
```

```
  Sepal.Length Sepal.Width Petal.Length Petal.Width Species
1          5.1         3.5          1.4         0.2  setosa
2          4.9         3.0          1.4         0.2  setosa
3          4.7         3.2          1.3         0.2  setosa
4          4.6         3.1          1.5         0.2  setosa
5          5.0         3.6          1.4         0.2  setosa
6          5.4         3.9          1.7         0.4  setosa
```

```
summary(iris)
```

```
  Sepal.Length    Sepal.Width     Petal.Length    Petal.Width
 Min.   :4.300   Min.   :2.000   Min.   :1.000   Min.   :0.100
 1st Qu.:5.100   1st Qu.:2.800   1st Qu.:1.600   1st Qu.:0.300
 Median :5.800   Median :3.000   Median :4.350   Median :1.300
```

```
 Mean   :5.843   Mean   :3.057   Mean   :3.758   Mean   :1.199
 3rd Qu.:6.400   3rd Qu.:3.300   3rd Qu.:5.100   3rd Qu.:1.800
 Max.   :7.900   Max.   :4.400   Max.   :6.900   Max.   :2.500
       Species
 setosa    :50
 versicolor:50
 virginica :50
```

```
table(iris$Species)
```

```
    setosa versicolor  virginica
        50         50         50
```

```
cor(iris$Sepal.Length,iris$Sepal.Width)
```

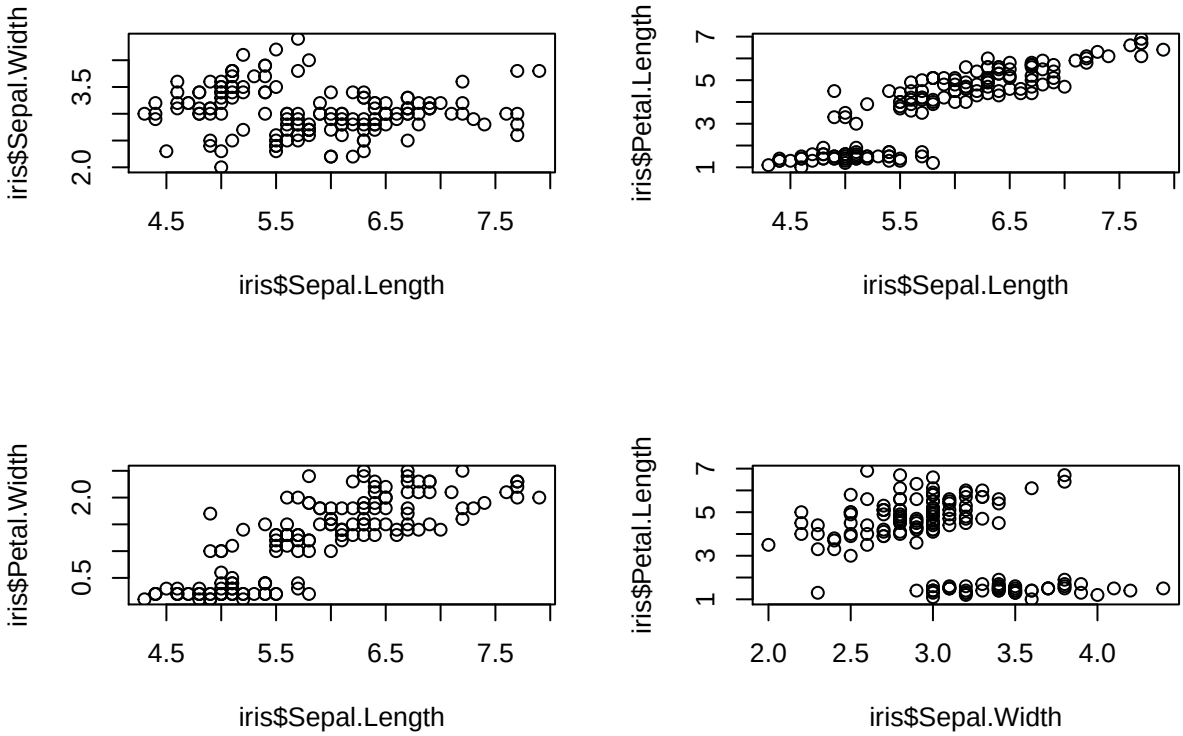
```
[1] -0.1175698
```

```
cor.test(~iris$Sepal.Length+iris$Sepal.Width,data=iris)
```

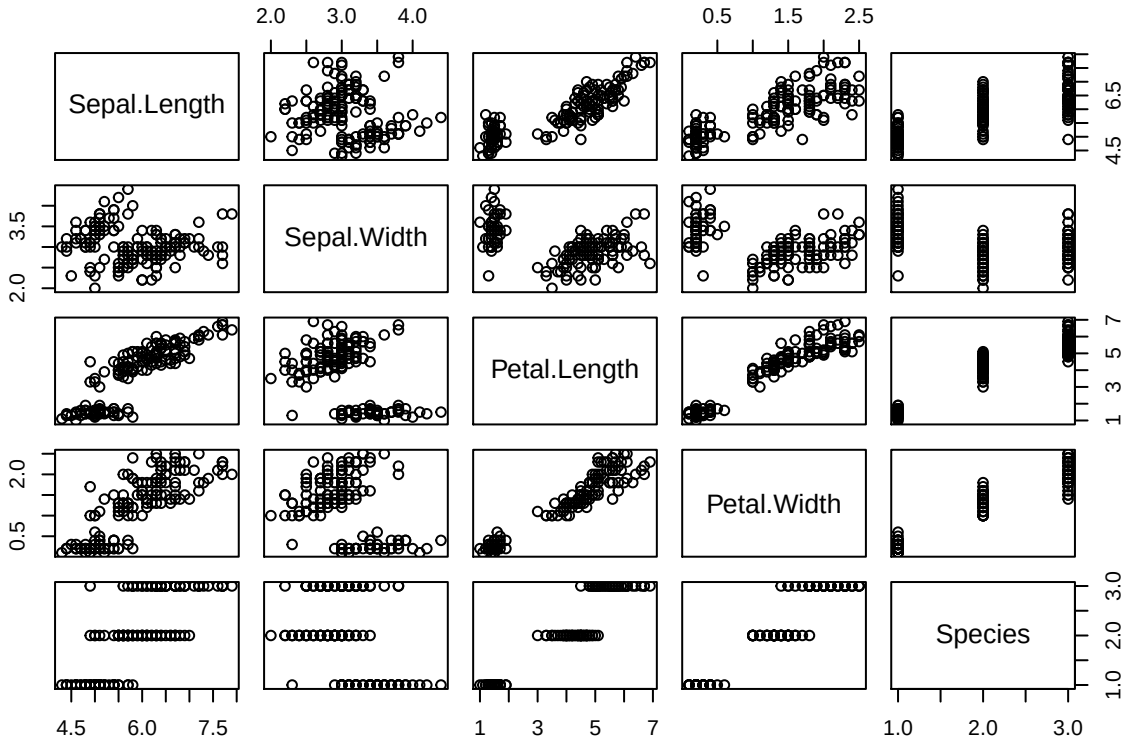
```
    Pearson's product-moment correlation

data:  iris$Sepal.Length and iris$Sepal.Width
t = -1.4403, df = 148, p-value = 0.1519
alternative hypothesis: true correlation is not equal to 0
95 percent confidence interval:
 -0.27269325  0.04351158
sample estimates:
       cor
-0.1175698
```

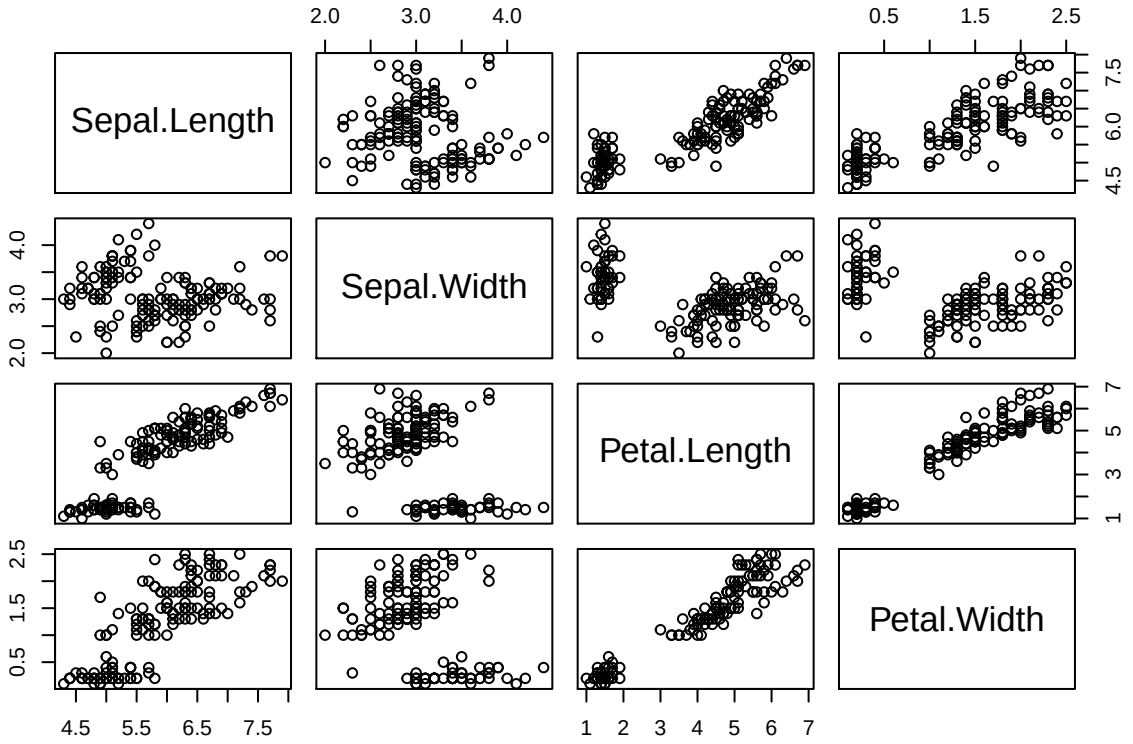
```
par(mfrow=c(2,2))
plot(iris$Sepal.Length,iris$Sepal.Width)
plot(iris$Sepal.Length,iris$Petal.Length)
plot(iris$Sepal.Length,iris$Petal.Width)
plot(iris$Sepal.Width,iris$Petal.Length)
```


iris$Sepal.Width
2.0
3.5
4.5
5.5
6.5
7.5
iris$Sepal.Length
iris$Petal.Length
1
3
5
7
iris$Sepal.Length
iris$Petal.Width
0.5
2.0
iris$Sepal.Length
iris$Petal.Length
2.0
2.5
3.0
3.5
4.0
iris$Sepal.Width

```
pairs(iris)
```




```
pairs(iris[,c(1:4)])
```



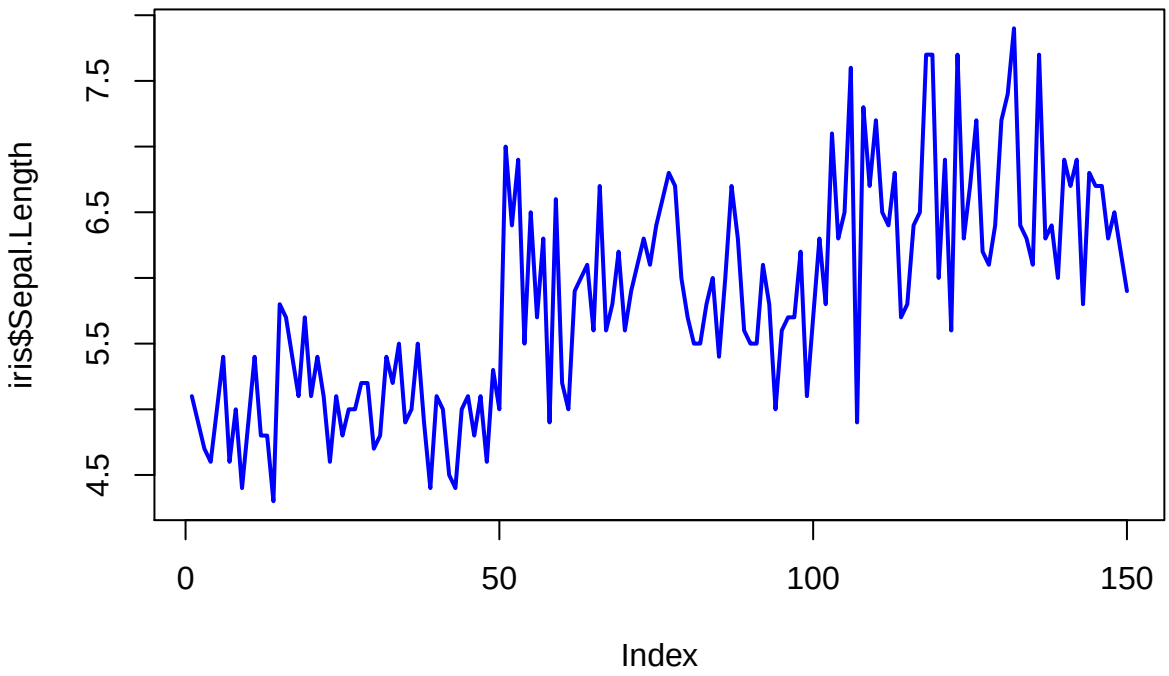

```
cor(iris[,c(1:4)])
```

```
             Sepal.Length Sepal.Width Petal.Length Petal.Width
Sepal.Length    1.0000000  -0.1175698    0.8717538   0.8179411
Sepal.Width    -0.1175698   1.0000000   -0.4284401  -0.3661259
Petal.Length    0.8717538  -0.4284401    1.0000000   0.9628654
Petal.Width     0.8179411  -0.3661259    0.9628654   1.0000000
```

```
par(mfrow=c(1,1))
```

Line chart for Sepal.Length

```
plot(iris$Sepal.Length,type="l",lwd=2,col="Blue")
```


iris$Sepal.Length
4.5
5.5
6.5
7.5
0
50
100
150
Index