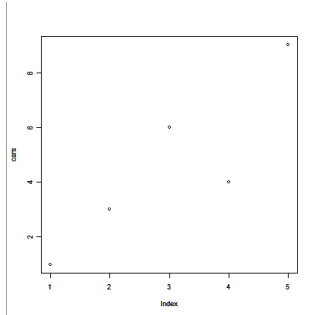


R plot layout

```
# make some data.  
cars<-c(1,3,6,4,9)
```

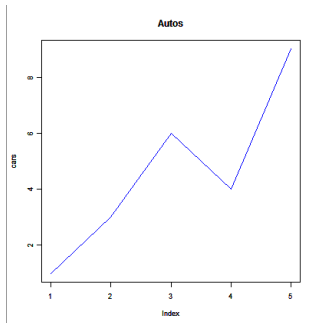
Default Plotting

```
# Graph the cars vector with all defaults  
plot(cars)
```



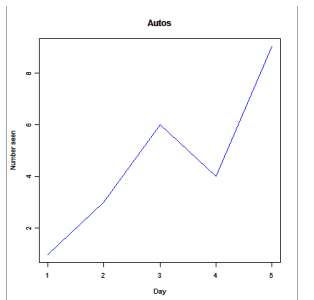
Line instead of Points

```
# Graph cars using blue line and add a title  
plot(cars, type="l", col="blue", main="Autos")
```



Axis labels - ylab & xlab

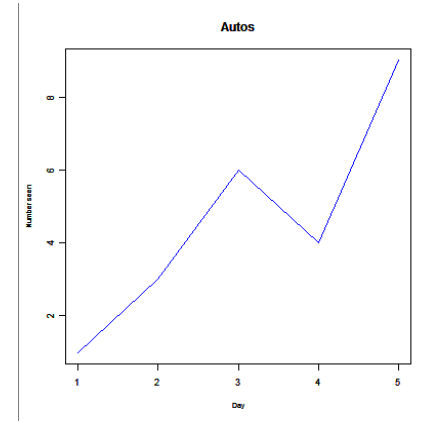
```
# Add axis labels  
plot(cars, type="l", col="blue", main="Autos",  
ylab='Number seen',xlab='Day')
```



Axis label font size

```
# Change the font size of the axis labels  
plot(cars, type="l", col="blue", main="Autos",  
ylab='Number seen',xlab='Day', cex.lab=.7)
```

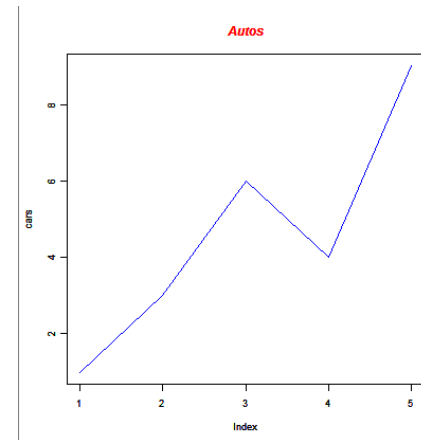
```
# You can also change the font size of the title and the  
axis using cex.main and cex.axis
```



Prettier title

```
# Graph cars using blue line  
#main is left off here so we can make our own pretty title  
plot(cars, type="l", col="blue")
```

```
# Create a title with a red, bold, italic font  
title(main="Autos", col.main="red", font.main=4)
```



Plot another data set on same plot

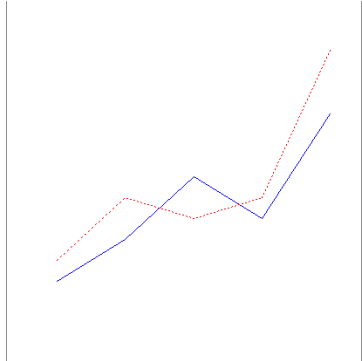
```
#add another data vector called trucks
trucks <- c(2, 5, 4, 5, 12)
```

```
#find out the range of both
g_range <- range(0, cars, trucks)
```

```
# Graph autos using y axis that ranges from 0 to max value
in the cars or trucks vector.
# Right now we're telling it to leave off the axes so we
can make our own.
```

```
#first cars
plot(cars, col="blue", type='l', ylim=g_range, axes=FALSE,
ann=FALSE, main="Cars and Trucks")
```

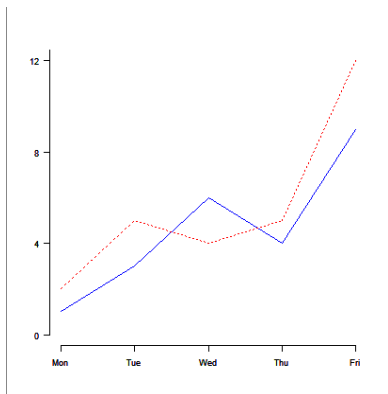
```
#now add trucks, red dotted line.
lines(trucks,col='red',lty=3)
```



Making our own axis

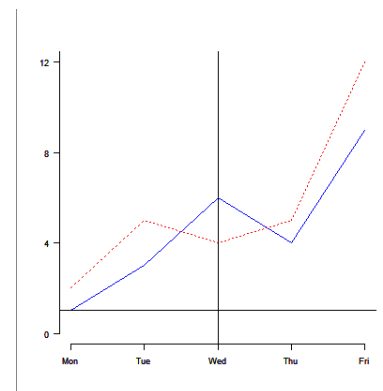
```
# Make x axis using Mon-Fri labels
axis(1, at=1:5, lab=c("Mon","Tue","Wed","Thu","Fri"))
```

```
# Make y axis with horizontal labels that display ticks at
every 4 marks.
# 4*0:g_range[2] is equivalent to c(0,4,8,12).
axis(2, las=1, at=4*0:g_range[2])
```



Add some horizontal or vertical lines to the plot for fun

```
abline(h=1)
abline(v=3)
```



Plot trendlines

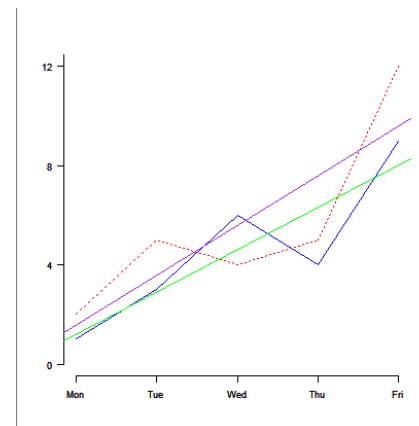
```
#remake plot
plot(cars, col="blue", type='l', ylim=g_range, axes=FALSE,
ann=FALSE, main="Cars and Trucks")
lines(trucks,col='red',lty=3)
axis(1, at=1:5, lab=c("Mon","Tue","Wed","Thu","Fri"))
axis(2, las=1, at=4*0:g_range[2])
```

```
#first make a data frame of the data
temp<-data.frame(1:5,cars,trucks)
```

```
#set some column names
colnames(temp)<-c("index","cars","trucks")
```

```
#make a line of the linear model, see ?lm for more
details.
```

```
abline(lm(formula=cars~index,data=temp),col='green')
abline(lm(formula=trucks~index,data=temp),col='purple')
```



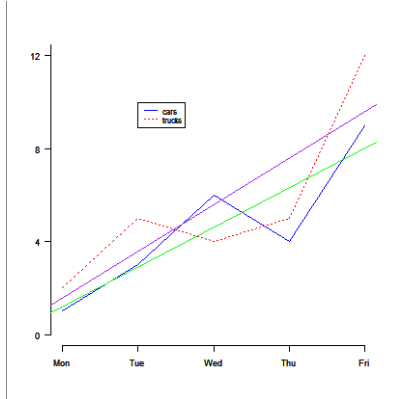
Legends

```
#locator(1) - the legend will be placed where you click
the mouse
```

```
legend(locator(1), c("cars","trucks"), cex=0.8,
col=c("blue","red"), lty=c(1,3));
```

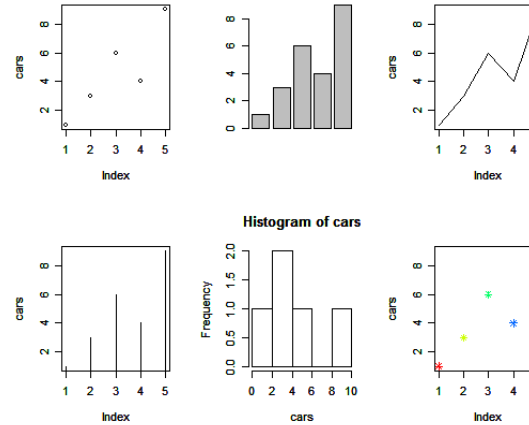
```
#you can also assign the legend position with coordinates.
```

```
legend(x=2,y=10, c("cars","trucks"), cex=0.8,
col=c("blue","red"), lty=c(1,3));
```



Same thing, different plot types

```
#same layout, with all different types of plots
par(mfrow=c(2,3))
plot(cars)
barplot(cars)
plot(cars,type='l')
plot(cars,type='h')
hist(cars)
plot(cars,pch=8,col=rainbow(5))
```

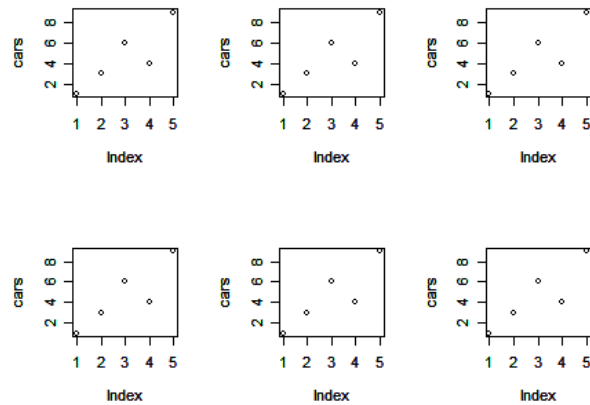


Multiple plot layout

Simple example

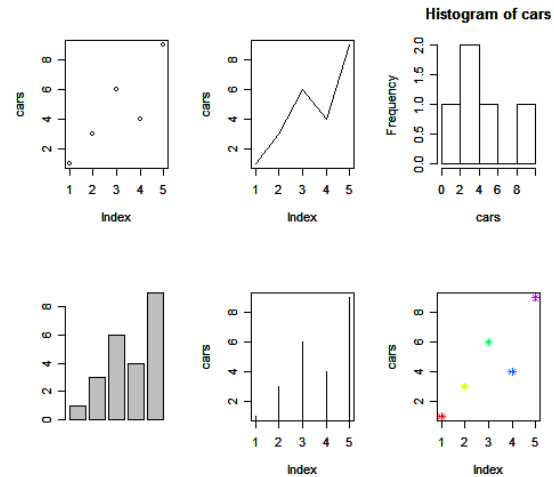
```
#make 2 rows, 3 columns, 6 plots total, by row.
par(mfrow=c(2,3))
```

```
for(i in 1:6)
{
  plot(cars)
}
```



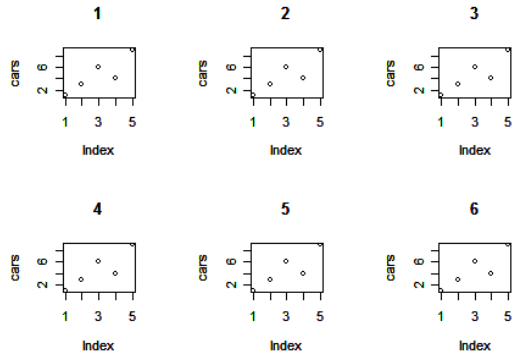
Same thing, but plot by column instead of row.

```
#fill down the column first
par(mfcol=c(2,3))
plot(cars);
barplot(cars);
plot(cars,type='l');
plot(cars,type='h');
hist(cars)
plot(cars,pch=8,col=rainbow(5))
```



Adjusting margins

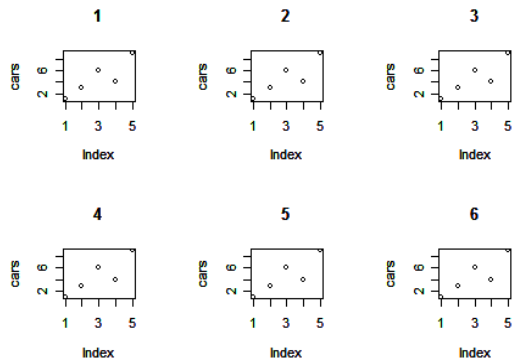
```
#mar is the margin around each individual plot, oma is the
outer margin area around all the plots.
par(mfrow=c(2,3), mar=c(5,5,5,3), oma=c(3,3,5,3)) #Bottom,
Left, Top, Right.
for(i in 1:6)
{
  plot(cars, main=i)
}
```



Adding title for multiple figure layout

```
#the "line" value tells how far away from the figures the
title should be placed.
mtext("All my plots",outer=TRUE,line=1)
```

All my plots



Put plots in a file

PDF

Oftentimes it's nice to have each plot on a separate pdf page. This allows you to do things like print out plots 20 per page. If you start writing output to a pdf file, each plot you create will be on its own pdf page.

```
pdf(file="H:/figures.pdf")
plot(cars);
barplot(cars);
plot(cars,type='l');
plot(cars,type='h');
hist(cars)
plot(cars,pch=8,col=rainbow(5))
dev.off()
```

PNG

You can write to a png or other types of image files (bmp, jpeg), but it doesn't create multiple images the same way as pdf. Each file is only one image. But that image could be a multiple figure plot.

```
png(filename="H:/figures.png", width=600, bg="white")
par(mfrow=c(2,3))
plot(cars);
barplot(cars);
plot(cars,type='l');
plot(cars,type='h');
hist(cars)
plot(cars,pch=8,col=rainbow(5))
dev.off()
```

