

# RMarkdown 0

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## Introduction

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

## Descriptive Statistics

The summary command in R computes descriptive statistics for the columns of a data set:

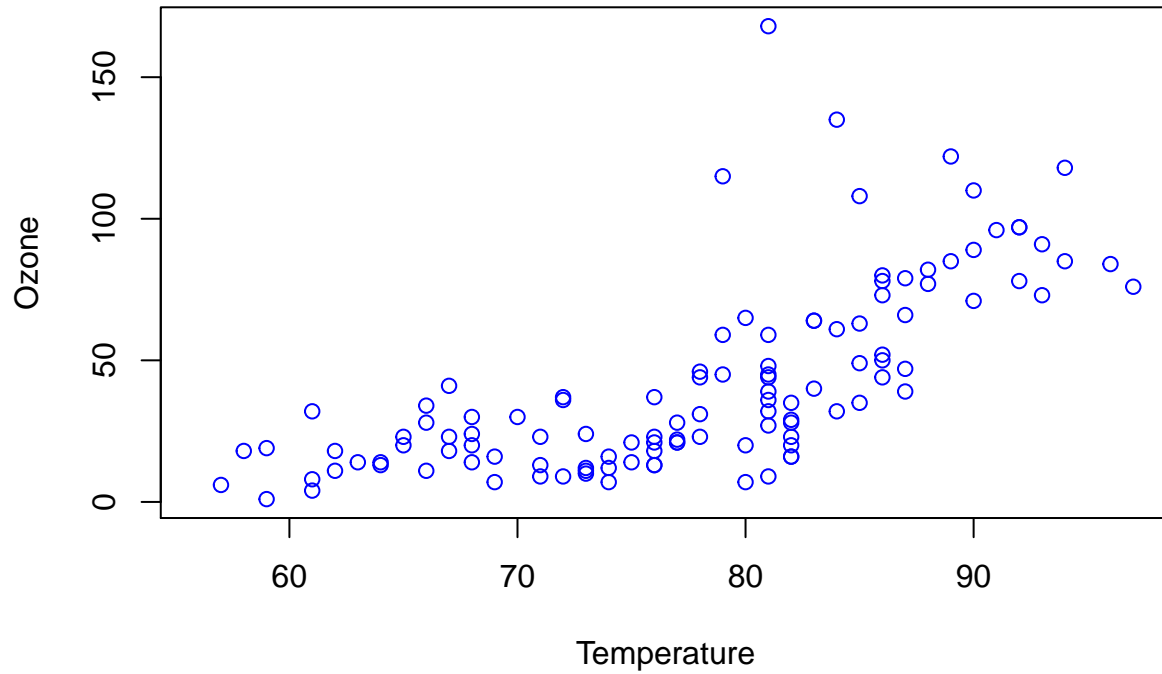
```
summary(airquality)
```

```
##      Ozone      Solar.R      Wind      Temp
## Min.   : 1.00   Min.   : 7.0   Min.   : 1.700   Min.   :56.00
## 1st Qu.:18.00   1st Qu.:115.8   1st Qu.: 7.400   1st Qu.:72.00
## Median :31.50   Median :205.0   Median : 9.700   Median :79.00
## Mean   :42.13   Mean   :185.9   Mean   : 9.958   Mean   :77.88
## 3rd Qu.:63.25   3rd Qu.:258.8   3rd Qu.:11.500   3rd Qu.:85.00
## Max.   :168.00   Max.   :334.0   Max.   :20.700   Max.   :97.00
## NA's   :37      NA's   :7
##      Month      Day
## Min.   :5.000   Min.   : 1.0
## 1st Qu.:6.000   1st Qu.: 8.0
## Median :7.000   Median :16.0
## Mean   :6.993   Mean   :15.8
## 3rd Qu.:8.000   3rd Qu.:23.0
## Max.   :9.000   Max.   :31.0
##
```

## Including Plots

You can also embed plots, for example:

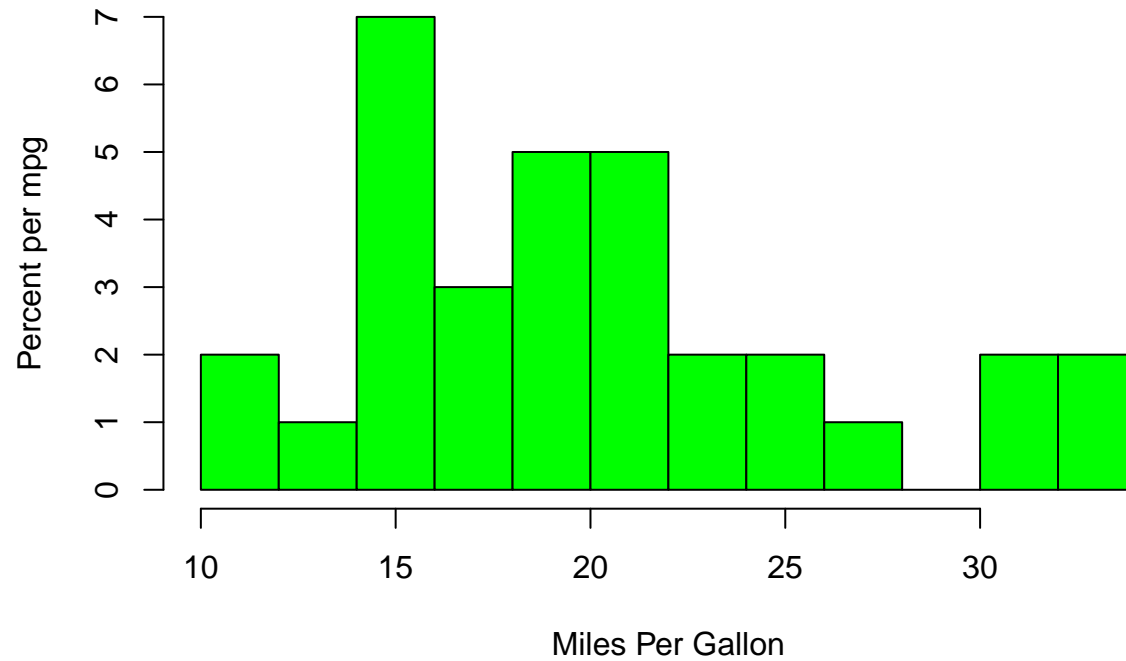
```
plot(airquality$Temp, airquality$Ozone, xlab="Temperature", ylab="Ozone", col='blue')
```



# Histograms

Here is a histogram with a density scale on the vertical axis.

```
hist(mtcars$mpg, col='green', xlab="Miles Per Gallon", ylab="Percent per mpg", main='', breaks=10)
```



## Bar Plots

Roll 100 dice:

```
n = 100
x = sample(1:6, n, replace=TRUE)
x
```

```
## [1] 4 6 2 1 3 1 4 2 5 1 4 6 1 5 6 1 1 1 6 6 2 4 4 3 6 6 3 1 2 2 1 3 5 6 2
## [36] 6 2 1 1 6 2 4 1 3 3 3 2 2 5 1 1 1 4 5 1 2 5 3 1 3 4 3 4 3 4 6 1 6 4 6
## [71] 5 3 4 3 5 1 6 1 1 4 5 3 3 6 2 5 4 4 3 1 4 4 3 6 2 2 6 5 1 3
```

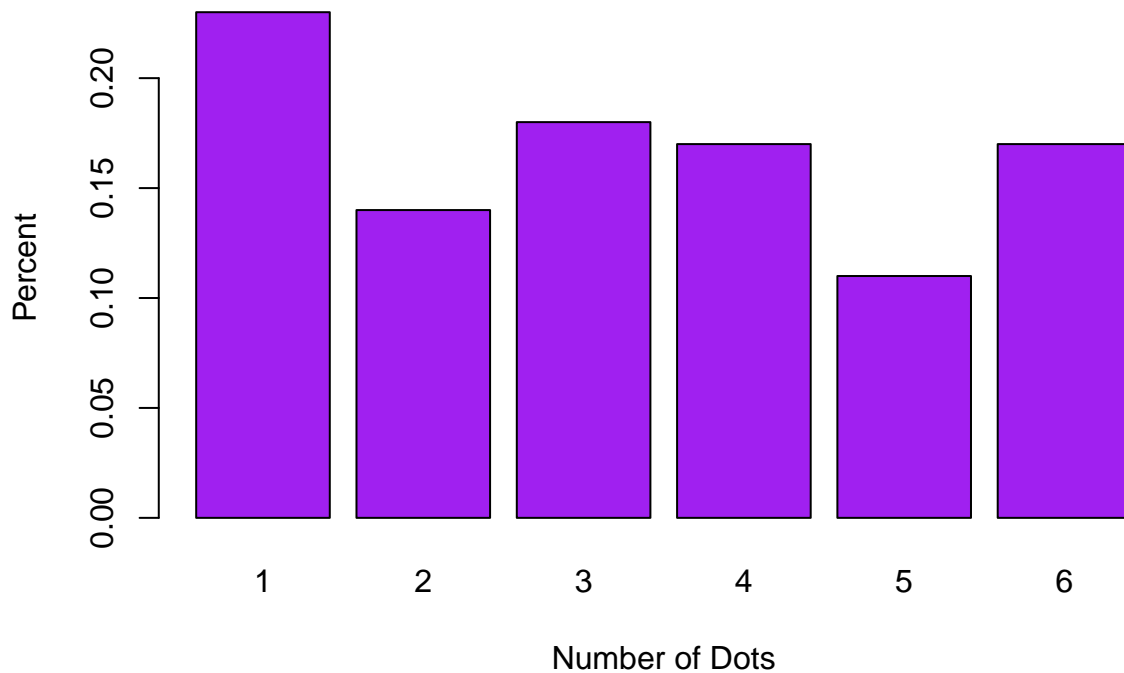
Now tabulate the results:

```
table(x)
```

```
## x
## 1 2 3 4 5 6
## 23 14 18 17 11 17
```

Finally, make a bar plot:

```
barplot(table(x) / n, xlab="Number of Dots", ylab="Percent", col='purple')
```



## Equations

You can typeset equations in line  $y = m x + b$  or in display mode:

$$r = \frac{1}{n-1} \sum_{i=1}^n \left( \frac{x_i - \mu_x}{\sigma_x} \right) \left( \frac{y_i - \mu_y}{\sigma_y} \right)$$