Workshop Setup

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Thank you again for signing up for the R workshop! This document will serve as a quick introductiont to R Markdown and help ensure that you are set up properly to follow along in the actual class.

R Markdown

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:

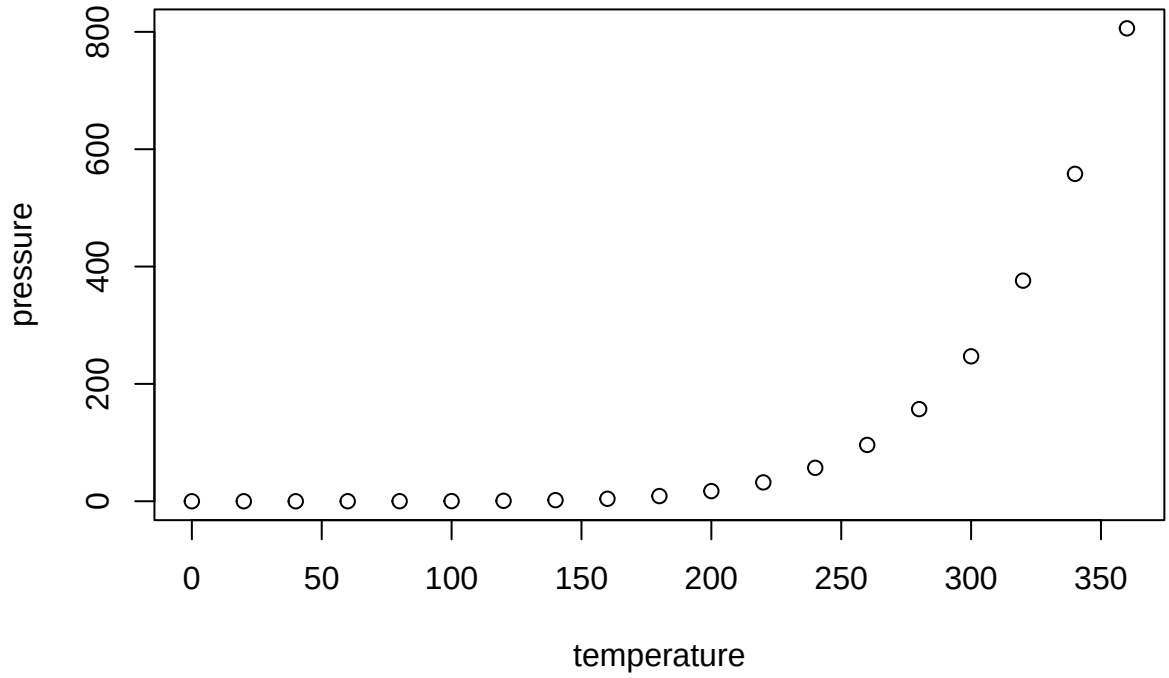
```
summary(cars)
```

```
##      speed           dist       
##  Min.   : 4.0   Min.   :  2.00  
##  1st Qu.:12.0   1st Qu.: 26.00  
##  Median :15.0   Median : 36.00  
##  Mean   :15.4   Mean   : 42.98  
##  3rd Qu.:19.0   3rd Qu.: 56.00  
##  Max.   :25.0   Max.   :120.00
```

Including Plots

You can also embed plots, for example:

```
plot(pressure)
```



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

R Packages

Packages are a way to extend R's functionality outside the core features of the language. This can be something as simple as allowing R to read from Excel documents (readxl) to an entire extension of R's handling of data (tidyverse - which is, itself, a collection of other packages). We'll need a few of these non-standard packages from the Comprehensive R Archive Network (CRAN). This is a curated collection of packages that meet high standards of usability, design, and security and they can be downloaded directly through the R interface using a function in the base language, install.packages(). Please note the single quotation mark around each package name (double quotations work too) - these are required since the text in the function is passed to the repository to search for a package with that name.

I've included a link in an inline comment to each package's page on CRAN in case you want to check the documentation before downloading.

Required packages: -readxl This will allow us to read from Excel files https://cran.r-project.org/web/packages/readxl/index.html -writexl This will allow us to write Excel files https://cran.r-project.org/web/packages/writexl/index.html -psych This package includes some descriptive statistics functions that are useful https://cran.r-project.org/web/packages/psych/index.html -xts This package extends R's ability to work with time series data https://cran.r-project.org/web/packages/xts/index.html -tidyverse This is a collection of packages that extends many of base R's features, from making it easier to work with data to enabling you to create better graphics than the base R plotting system. https://cran.r-project.org/web/packages/tidyverse/index.html

```
required_packages <- c('readxl','writexl','psych','xts','tidyverse')

install.packages(required_packages, repos = "http://cran.us.r-project.org")
```

```
## Installing packages into 'C:/Users/Erik/Documents/R/win-library/4.1'
## (as 'lib' is unspecified)

## package 'readxl' successfully unpacked and MD5 sums checked
## package 'writexl' successfully unpacked and MD5 sums checked
## package 'psych' successfully unpacked and MD5 sums checked
## package 'xts' successfully unpacked and MD5 sums checked
## package 'tidyverse' successfully unpacked and MD5 sums checked
##
## The downloaded binary packages are in
##  C:\Users\Erik\AppData\Local\Temp\RtmpyUN27B\downloaded_packages
```

You are also able to download packages from GitHub in a slightly more complicated way. ONLY DO THIS FOR PACKAGES YOU TRUST. Packages on CRAN are vetted and guaranteed to work within R. Any interactions between base R and CRAN packages are required to be documented. There is no quality control for GitHub packages.

You will need to do this in Mini 4 for Statistical Decision Making.