R Markdown basics

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2017-09-05

With R Markdown, prose and code are in the same script

Your portfolio is an R Markdown (.Rmd) script that includes

- the prose of your critiques
- the executable R code that creates your data graphics
- auto-generated tables, citations, and bibliographies

Quick introduction

- 1-minute video

Sample script

File > New File > R Markdown...

```
---
title: "Untitled"
author: "Richard Layton"
date: "September 6, 2017"
output: html_document
---

```{r setup, include=FALSE}
knitr::opts_chunk$set(echo = TRUE)
```

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:

```{r cars}
summary(cars)
```

Including Plots

You can also embed plots, for example:

```{r pressure, echo=FALSE}
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.
```

Sample output document

The *knitr* package "knits" your prose and code results together.

Shown is the HTML output.

Untitled

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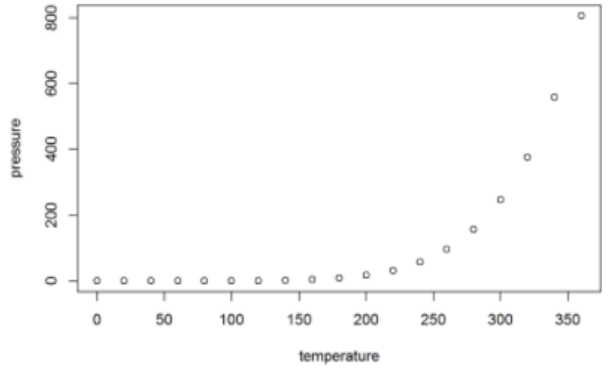
```
summary(cars)
```

```
##      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
```

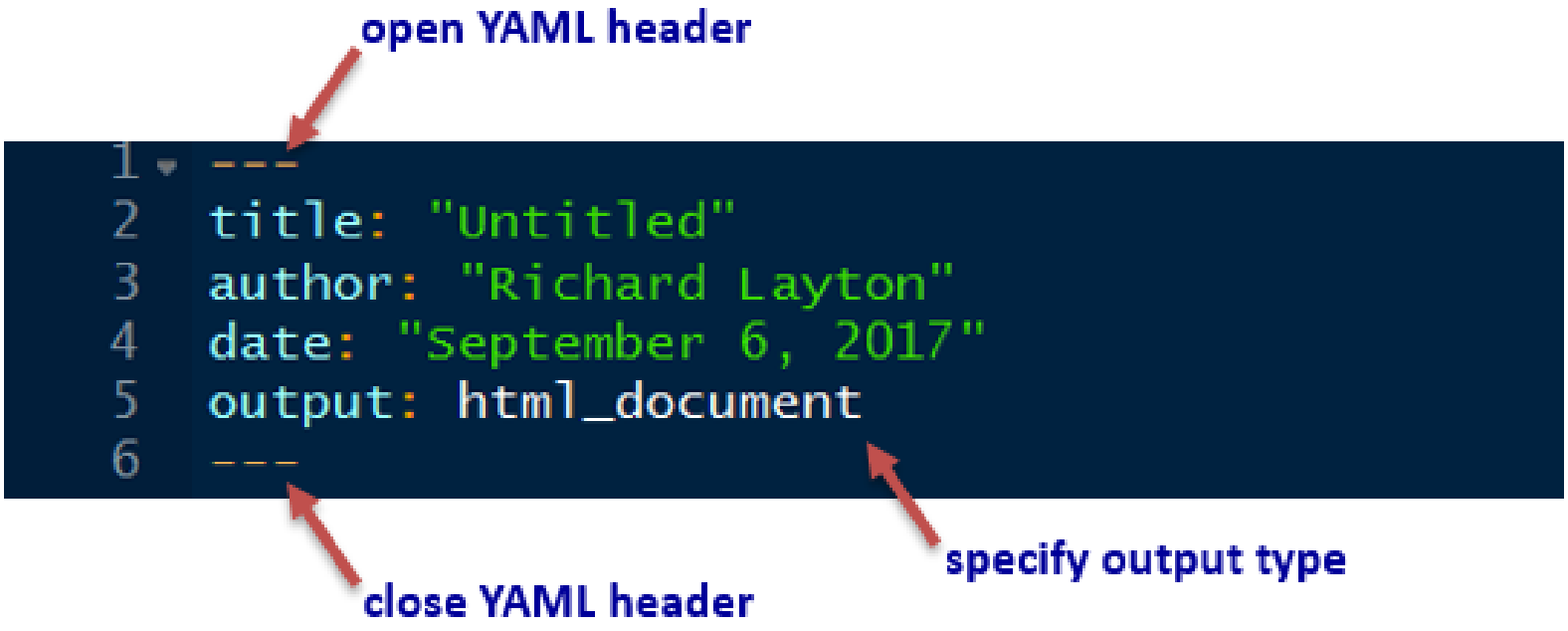
Including Plots

You can also embed plots, for example:



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

The script starts with a YAML header



Untitled

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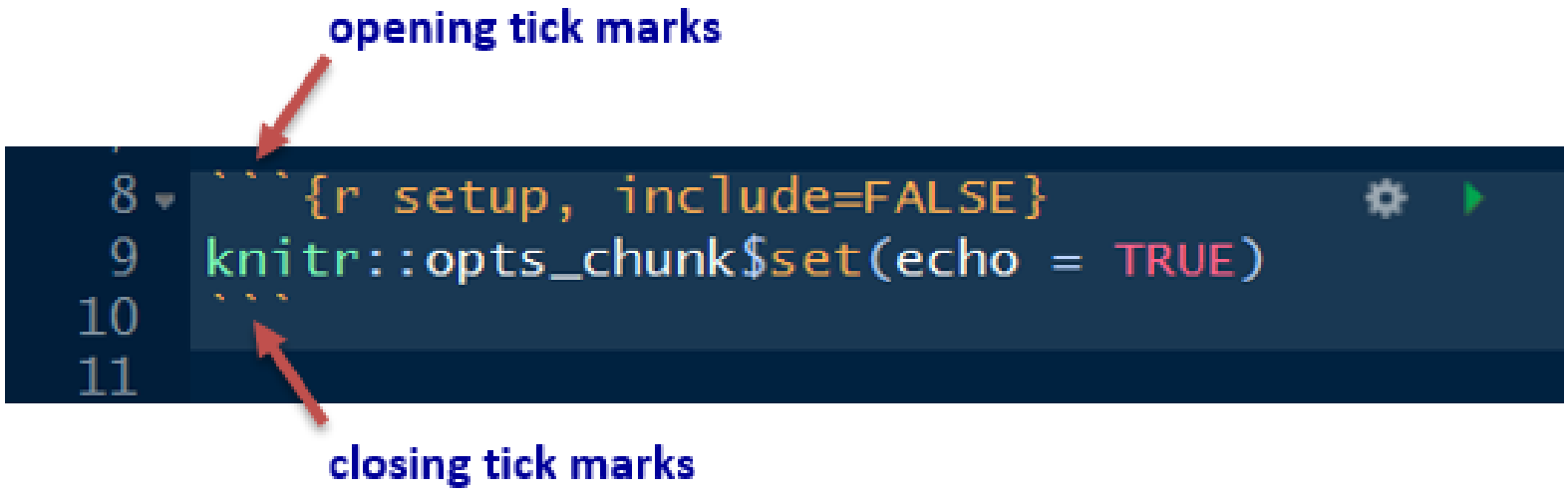
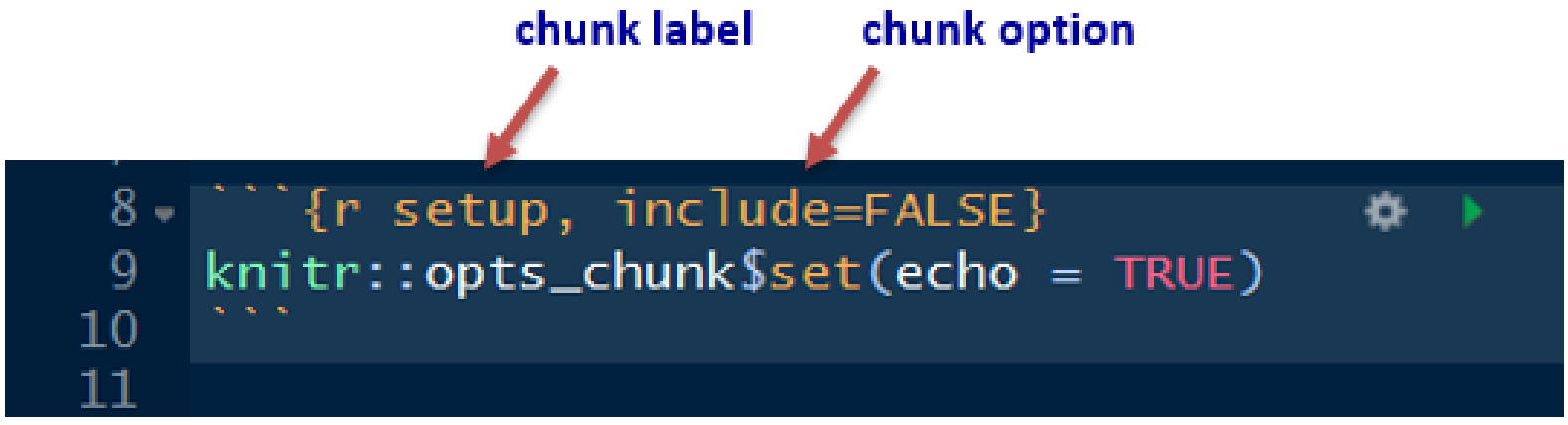
Code chunks open and close with 3 backticks

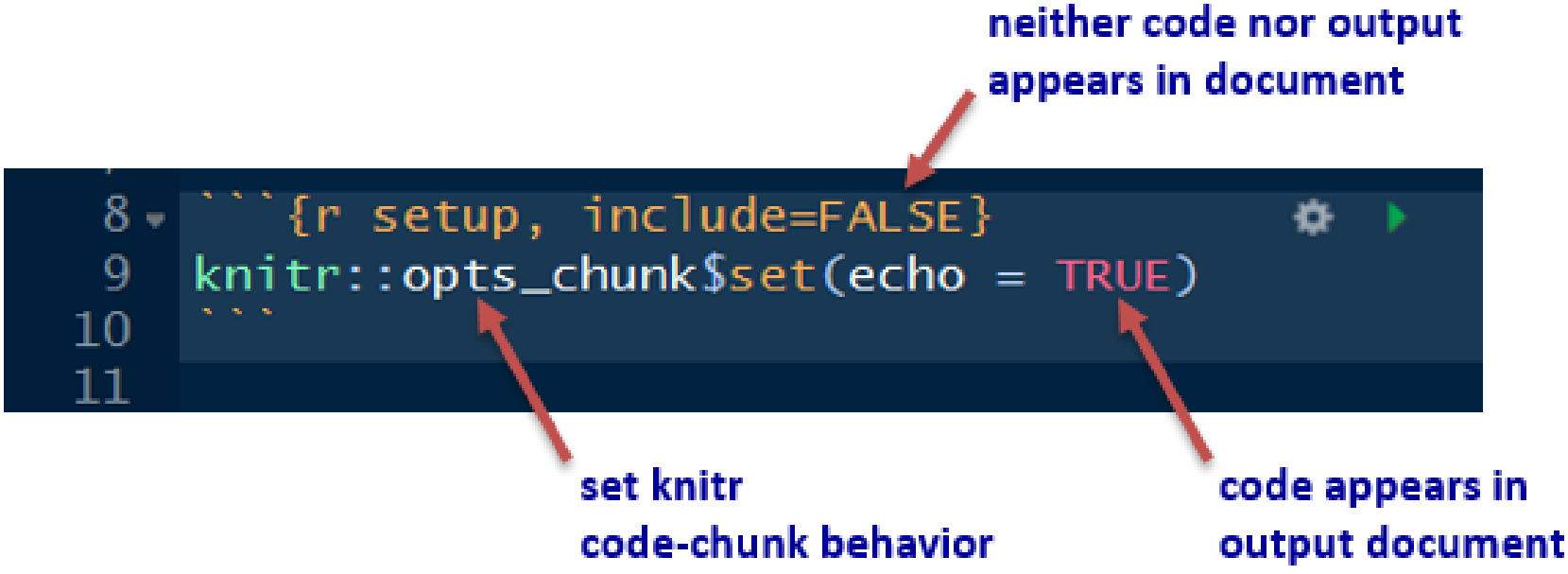


The code chunk header is `{r}`



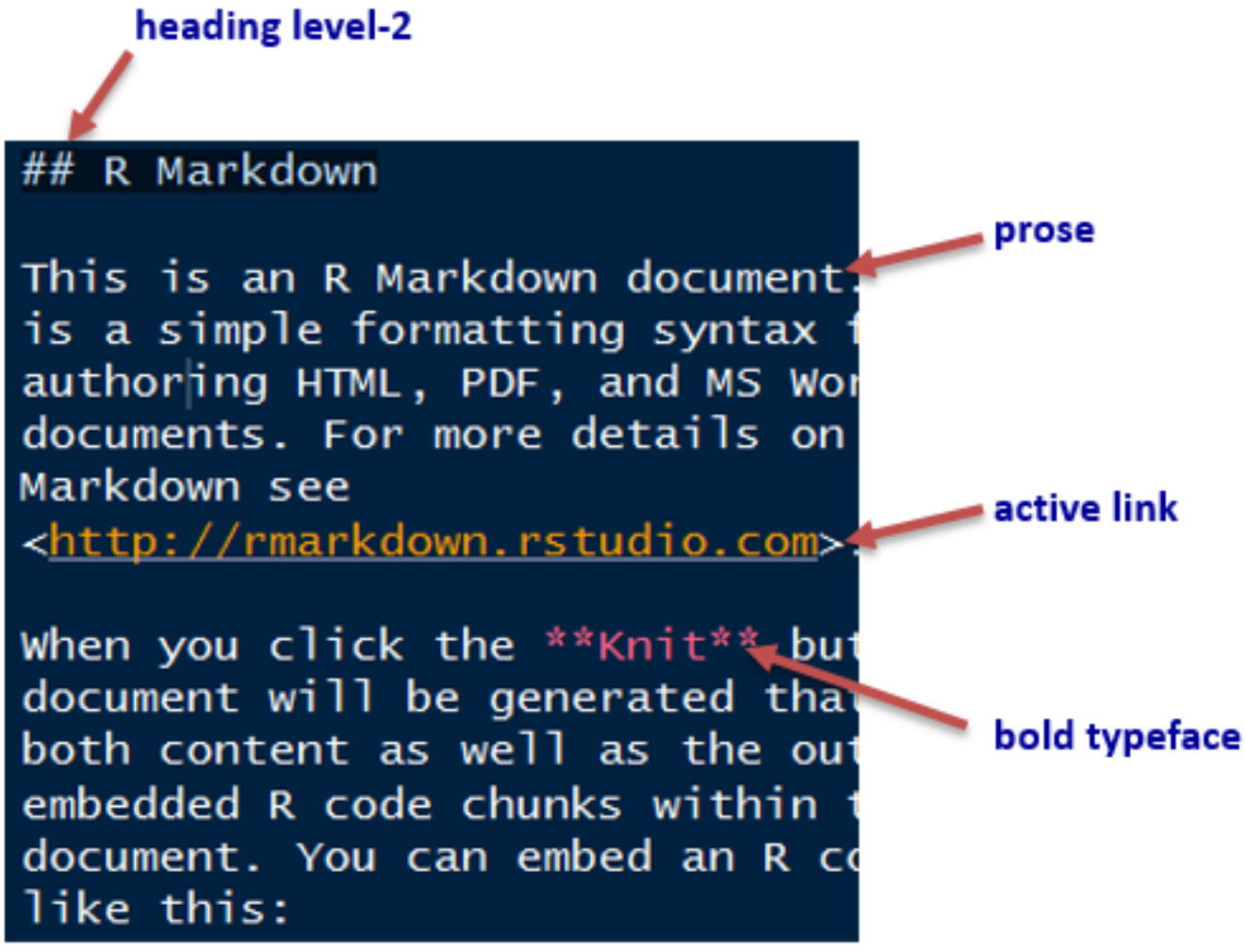
Header labels and arguments are optional.

Knitting options can be specified



The list of knitr options is extensive.

Use markup tags to format text



See the R Markdown cheat sheet for more detail.

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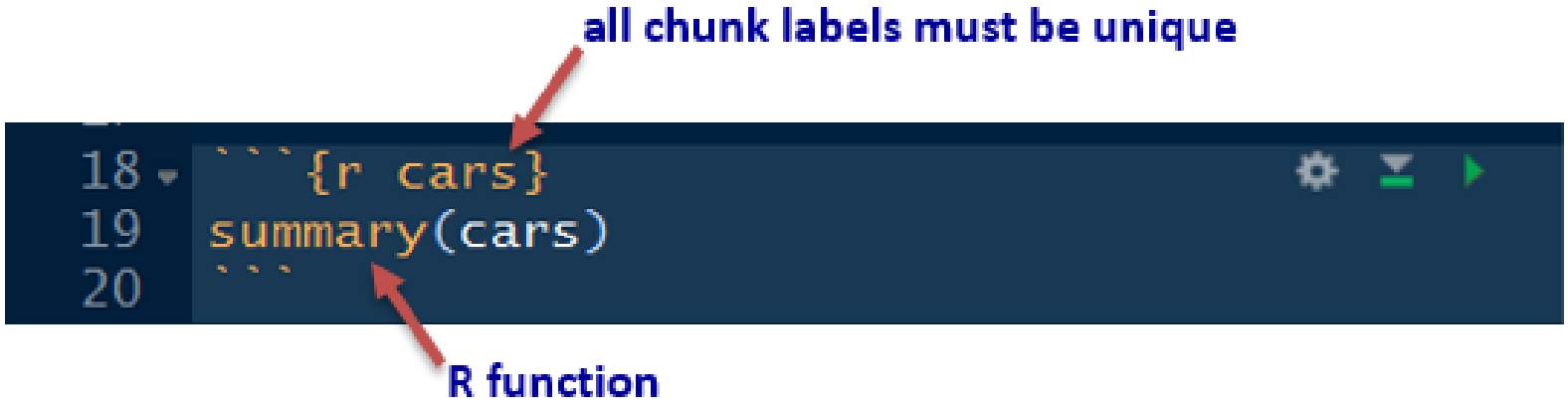
Incorporating R code and output in a document



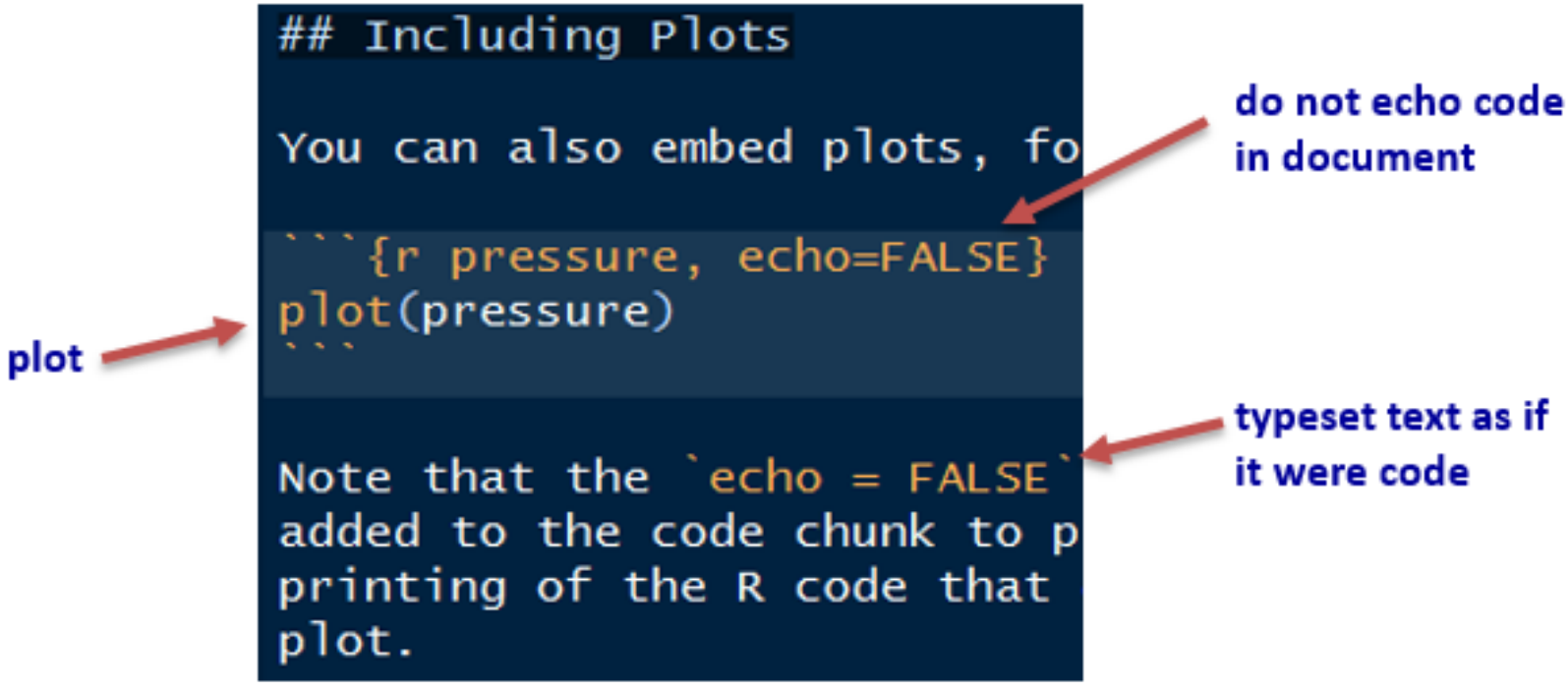
The output document will show

- The code echo
- The `summary(cars)` output table

```
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
```

Incorporating code output without listing the code

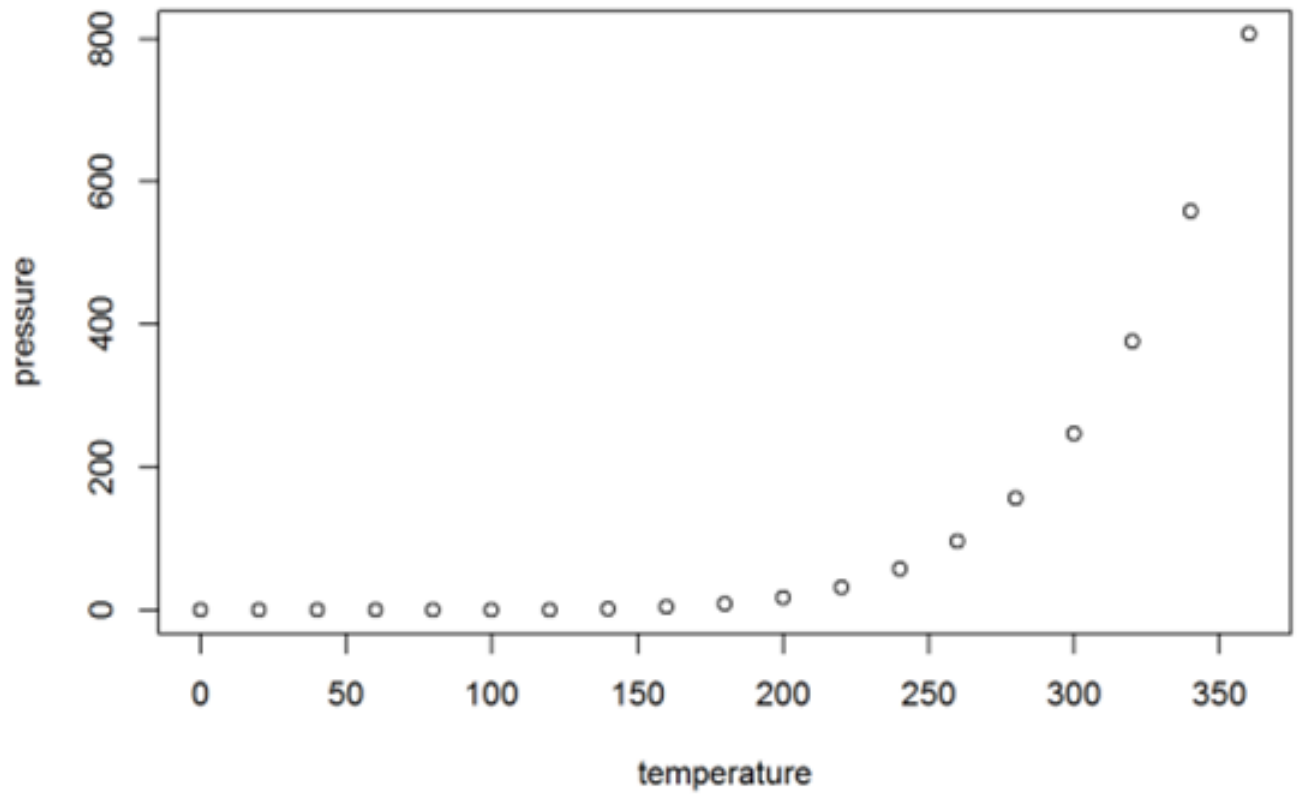


The output document will show

- No code echo
- The `plot(pressure)` output graph

Including Plots

You can also embed plots, for example:



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

Change output type

```yaml
---
title: "Untitled"
author: "Richard Layton"
date: "September 6, 2017"
output: word_document
---
```

Untitled

Richard Layton

September 6, 2017

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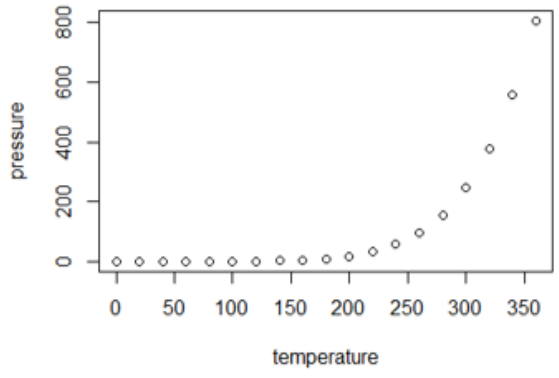
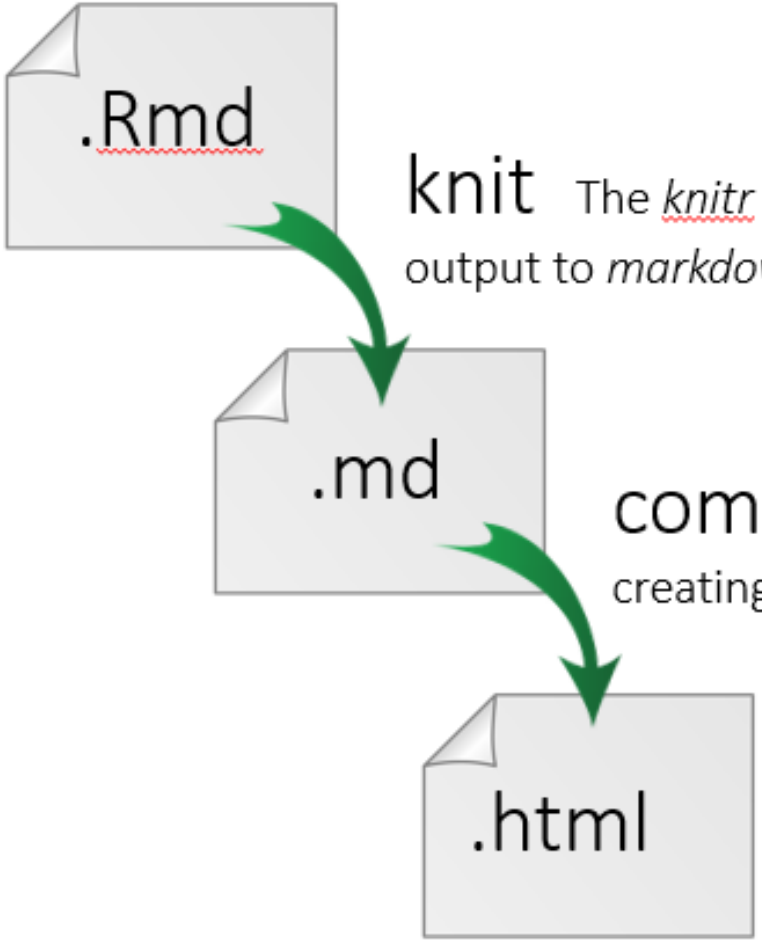


Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

What the software is doing

markup We create the knittable *Rmd* file that includes both marked-up prose and executable code.



knit The *knitr* package executes the R code, converts the output to *markdown*, and creates a new *md* file.

compile The *md* file is compiled, creating a new HTML file.

The resulting output file is placed in the same directory as your Rmd file.