

PSC 505- R Markdown Tutorial

Ezgi Siir Kibris

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1. Introduction to R Markdown

To install R Markdown: `install.packages("rmarkdown")`.

Open a new R Markdown file in RStudio by navigating to File > New File > R Markdown... R Markdown files have the file extension “.Rmd”

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>. Another useful website is <https://www.dataquest.io/blog/r-markdown-guide-cheatsheet>.

In general, R Markdown is a way to integrate text and R code all in one place. The novelty is that you can write as you would in a text document, but you can also add R code. When you compile the document, also known as *knitting* the document, the text will print, the R code will run, and the resulting R output will be displayed.

To switch from writing text to writing R code, you will want to type on a new line ````{r}`. To then switch back from R to regular text, you will want to type ````` on a new line. Once you have opened R, you should notice that the background color switches from white to grey.

You can quickly insert chunks into your R Markdown file with the keyboard shortcut Cmd + Option + I (Windows Ctrl + Alt + I). You can also have code chunks in other programming languages such as Python and SQL.

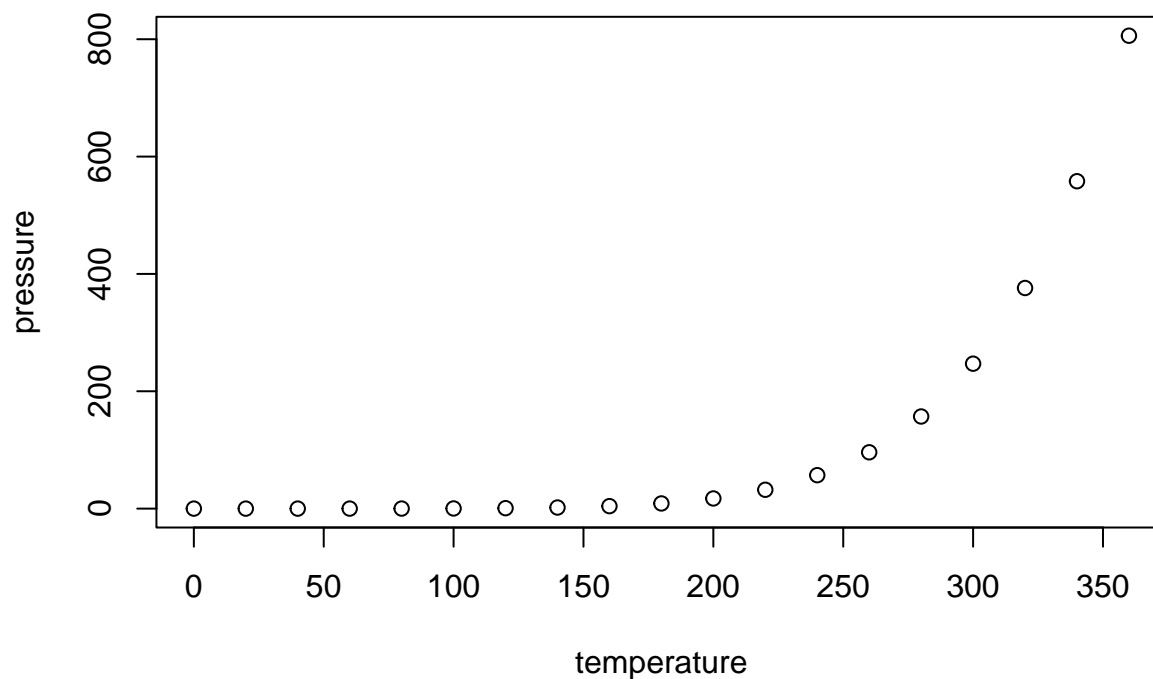
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. (Note that to bold text, you can use **text**, or you can do `text`). You can embed an R code chunk like this:

```
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
```

2. 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.

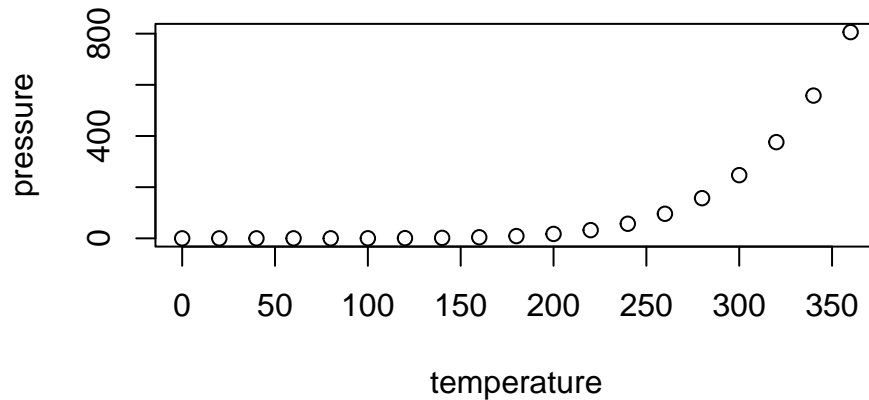
You can also embed R code directly into your comments. For example, there are 19 observations.

See <http://www.stat.cmu.edu/~cshalizi/rmarkdown/>

2.1. Plot Size Options

You can change the figure size by adding `fig.height` and `fig.width` to code chunk.

```
plot(pressure)
```



3. Adding Formulas

If you want to type in LaTeX math mode in line, you need to use the `$` symbol. For example, we can write $\alpha_1^2 + \frac{3}{4}$

Or, you can use `$$` to denote a math chunk.

$$\sum_{i=1}^n \left(\frac{x_i^2}{3+i} \right) \sigma^2 + 3 \times \beta$$

4. Output Format Options

You can change output as `html_document`, `word_document`, `beamer_presentation` or `powerpoint_presentation` to have different formats.

5. Adding Table of Contents

You can include table of contents in your document by typing `toc: TRUE` in the beginning of the Rmd file.

6. Text Formatting options

Note that the `##` command gives a heading

Header 1

Header 2

Header 3

Unordered List

- Item 1
- Item 2
 - Item 2a
 - Item 2b

For more text formatting options see in RStudio: Help > Markdown Quick Reference

7. Chunk Options

You can customize R chunks:

- **include = FALSE** prevents code and results from appearing in the finished file. R Markdown still runs the code in the chunk, and the results can be used by other chunks.
- **echo = FALSE** prevents code, but not the results from appearing in the finished file.
- **warning = FALSE** prevents warnings that are generated by code from appearing in the finished.
- **eval = FALSE** includes code but not the results.