

Reproducible Research – practical

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June 15, 2016

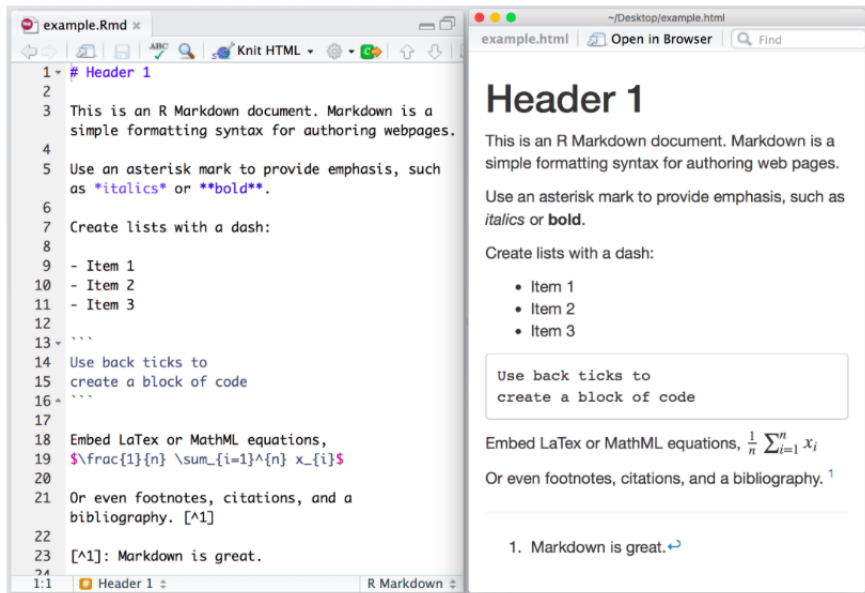
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RMarkdown



Markdown is a simple formatting language designed to make authoring content easy for everyone. Rather than write in complex markup code (e.g. HTML or LaTeX), you write in plain text

Markdown



The image shows a side-by-side comparison of an R Markdown document in its source code form (left) and its rendered HTML output (right).

Left Panel (Source Code): The file is named `example.Rmd`. The code includes a header, a paragraph about R Markdown, instructions on using asterisks for emphasis, a list created with dashes, a code block created with backticks, a LaTeX equation, and a footnote.

```
1 # Header 1
2
3 This is an R Markdown document. Markdown is a
4 simple formatting syntax for authoring webpages.
5
6 Use an asterisk mark to provide emphasis, such
7 as *italics* or **bold**.
8
9 Create lists with a dash:
10
11 - Item 1
12 - Item 2
13 - Item 3
14
15 Use back ticks to
16 create a block of code
17
18 Embed LaTeX or MathML equations,
19 
$$\frac{1}{n} \sum_{i=1}^n x_i$$

20
21 Or even footnotes, citations, and a
22 bibliography. [^1]
23
24 [^1]: Markdown is great.
```

Right Panel (Rendered HTML): The file is named `example.html`. The rendered output shows the formatted version of the source code, including the header, paragraphs, emphasis, list, code block, LaTeX equation, and footnote.

Header 1

This is an R Markdown document. Markdown is a simple formatting syntax for authoring web pages.

Use an asterisk mark to provide emphasis, such as *italics* or **bold**.

Create lists with a dash:

- Item 1
- Item 2
- Item 3

```
Use back ticks to
create a block of code
```

Embed LaTeX or MathML equations, $\frac{1}{n} \sum_{i=1}^n x_i$

Or even footnotes, citations, and a bibliography. ¹

1. Markdown is great. ↩

- R Code Chunks can be embedded with the native Markdown syntax for fenced code regions
- R expressions inline by enclosing the expression within a single back-tick
- Inline text `http://rmarkdown.rstudio.com/authoring_basics.html`

Markdown

chunks.Rmd

Knit HTML Chunks

```
1 R Code Chunks
2 =====
3
4 With R Markdown, you can insert R code
5 chunks including plots:
6
7 ```{r qplot, fig.width=4, fig.height=3,
8 message=FALSE}
9 # quick summary and plot
10 library(ggplot2)
11 summary(cars)
12 qplot(speed, dist, data=cars) +
13   geom_smooth()
```

RStudio: Preview HTML

Preview: ~/chunks.html Save As Publish

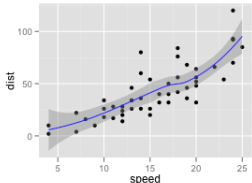
R Code Chunks

With R Markdown, you can insert R code chunks including plots:

```
# quick summary and plot
library(ggplot2)
summary(cars)
```

##	speed	dist
##	Min. : 4.0	Min. : 2
##	1st Qu.:12.0	1st Qu.: 26
##	Median :15.0	Median : 36
##	Mean :15.4	Mean : 43
##	3rd Qu.:19.0	3rd Qu.: 56
##	Max. :25.0	Max. :120

```
qplot(speed, dist, data = cars) + geom_smooth()
```



Exercise 1

GOAL: CREATE A DEFAULT MINIMAL DOCUMENT

- Open RStudio

Exercise 1

GOAL: CREATE A DEFAULT MINIMAL DOCUMENT

- Open RStudio
- Select File > New file > R Markdown

Exercise 1

GOAL: CREATE A DEFAULT MINIMAL DOCUMENT

- Open RStudio
- Select File > New file > R Markdown
- Create an HTML document

Exercise 1

Untitled1 *
Untitled.Rmd

Run Knit HTML Chunks

```
1- ---
2 title: "Untitled"
3 author: "Marco Chiapello"
4 date: "11 June 2016"
5 output: html_document
6- ---
7
8 This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word
9 documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.
10
11 When you click the Knit button a document will be generated that includes both content as well as the
12 output of any embedded R code chunks within the document. You can embed an R code chunk like this:
13
14 ```{r}
15 summary(cars)
16 ```
17
18 You can also embed plots, for example:
19
20 ```{r, echo=FALSE}
21 plot(cars)
22 ```
23
24 Note that the 'echo = FALSE' parameter was added to the code chunk to prevent printing of the R code that
25 generated the plot.
```

Viewer

Untitled

Marco Chiapello

11 June 2016

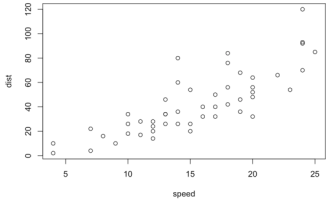
This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

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.: 54.00
##  Max.   :25.0   Max.   :120.00
```

You can also embed plots, for example:



8

- Header
- Text
- Code chunks

– Elements of the Header – – Images – – TOC –

– text styles – – inline r code –

– r options –

Exercise 2

GOAL: CREATE A DEFAULT MINIMAL DOCUMENT

- Create a pdf document
- Create a docx document