rmarkdown:: CHEATSHEET

What is rmarkdown?



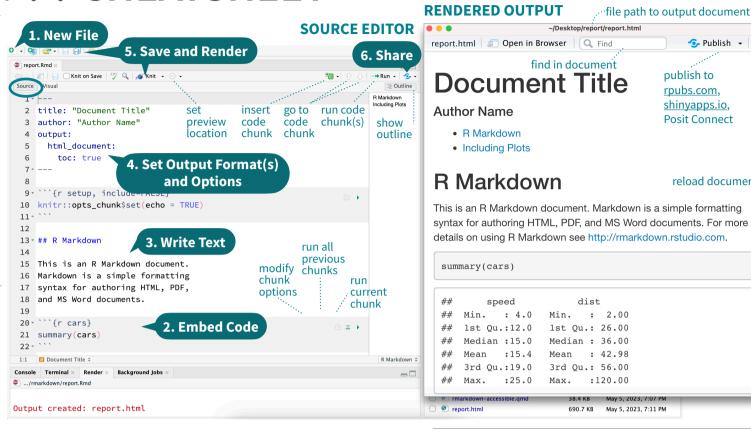
.Rmd files · Develop your code and ideas side-by-side in a single document. Run code as individual chunks or as an entire document.

Dynamic Documents • Knit together plots, tables, and results with narrative text. Render to a variety of formats like HTML, PDF, MS Word, or MS Powerpoint.

Reproducible Research · Upload, link to, or attach your report to share. Anyone can read or run your code to reproduce your work.

Workflow

- Open a **new .Rmd file** in the RStudio IDE by going to File > New File > R Markdown.
- **2 Embed code** in chunks. Run code by line, by chunk, or all at once.
- Write text and add tables, figures, images, and citations. Format with Markdown syntax or the RStudio Visual Markdown Editor.
- 4 Set output format(s) and options in the YAML header. Customize themes or add parameters to execute or add interactivity with Shiny.
- Save and render the whole document. Knit periodically to preview your work as you write.
- 6 Share your work!





run code in chunk

display code in output document

include chunk in doc after running

display code messages in document

display code warnings in document

"hold" (put all results below all code)

figure caption as a character string

prefix for generating figure file paths

rescales output width, e.g. "75%", "300px"

collapse all sources & output into a single block

"asis" (passthrough results)

"hide" (don't display results)

"left", "right", or "center"

plot dimensions in inches

prefix for each line of results

See more options and defaults by running str(knitr::opts_chunk\$get())

files(s) to knit and then include

include or exclude a code chunk when

extracting source code with knitr::purl()

alt text for a figure

TRUE (display error messages in doc)

FALSE (stop render when error occurs)

DEFAULT EFFECTS

TRUE

TRUE

TRUE

TRUE

"markup'

"default'

NULL

"figure/"

7

FALSE

NULL

OPTION

echo

error

eval

include

message

warning

results

fig.align

fig.alt

fig.cap

fig.path

fig.width &

fig.height

out.width

collapse

child

purl

comment

Insert Citations

Create citations from a bibliography file, a Zotero library, or from DOI references.

dist

Min. : 2.00

1st Qu.: 26.00

Median : 36.00

3rd Qu.: 56.00

:120.00

690.7 KB May 5, 2023, 7:11 PM

Mean

Max.

BUILD YOUR BIBLIOGRAPHY

• Add BibTeX or CSL bibliographies to the YAML header.

find in document

R Markdown

Including Plots

speed

1st Qu.:12.0

Median:15.0

:15.4

:25.0

title: "My Document" bibliography: references.bib link-citations: TRUE

- If Zotero is installed locally, your main library will automatically be available.
- Add citations by DOI by searching "from DOI" in the **Insert Citation** dialog.

INSERT CITATIONS

- · Access the Insert Citations dialog in the Visual Editor by clicking the @ symbol in the toolbar or by clicking Insert > Citation.
- Add citations with markdown syntax by typing [@cite] or @cite.

Insert Tables



\\\		1.800	54
```{r}		3.333	74
data <- faithful[1:4, ]		2.283	62
knitr::kable(data,			
caption = "Table w	rith	kabl	.e")

Other table packages include flextable, gt, and kableExtra.

## Write with Markdown



End a line with two spaces to

start a new paragraph.

superscript2/subscript2

endash: -, emdash: -

Header 1

Header 2

unordered list

1. ordered list

item 2b

This is another link

http://www.posit.co/

• item 2a (indent 1 tab)

• item 2a (indent 1 tab)

Header 6

item 2

2. item 2

This is a link.

Caption.

to make a new line.

italics and **bold** 

strikethrough

escaped: * _ \

Also end with a backslash

The syntax on the left renders as the output on the right.

Plain text.

#### Plain text.

... file path to output document

publish to

rpubs.com,

shinyapps.io,

**Posit Connect** 

Publish 
 ▼

reload document

End a line with two spaces to start a new paragraph. Also end with a backslash\

to make a new line.

*italics* and **bold** superscript^2^/subscript~2~

~~strikethrough~~

escaped: * _ \\ endash: --, emdash: ---

# Header 1 ## Header 2

#### ###### Header 6

- unordered list
- item 2
- item 2a (indent 1 tab)
- item 2b
- 1. ordered list 2 item 2
- item 2a (indent 1 tab)
- item 2b

k url>

[This is a link.](link url) [This is another link][id]

At the end of the document: [id]: link url

![Caption](image.png) or ![Caption][id2]

At the end of the document: [id2]: image.png

`verbatim code`

multiple lines of verbatim code

> block quotes

equation:  $e^{i \neq i} + 1 = 0$ 

equation block: \$\$E = mc^{2}\$\$

horizontal rule:

| Right | Left | Default | Center | 12 | 12 | 12 | 12 | | 123 | 123 | 123 | 123 | |1|1|1|1|

block quotes equation:  $e^{i\pi} + 1 = 0$ equation block:

verbatim code

multiple lines

of verbatim code

 $E = mc^2$ 

horizontal rule:

Right Left Default Center 12 12 12 12 123 123 123 123 1 1 1

#### **HTML Tabsets** ### Plots text ### Tables

#### Results **Tables** Plots text

## **Embed Code with knitr**

#### **CODE CHUNKS**

Surround code chunks with ```{r} and ``` or use the Insert Code Chunk button. Add a chunk label and/or chunk options inside the curly braces after r.

```{r chunk-label, include=FALSE} summary(mtcars)

SET GLOBAL OPTIONS

Set options for the entire document in the first chunk.

```{r include=FALSE} knitr::opts\_chunk\$set(message = FALSE)

#### **INLINE CODE**

Insert 'r <code>' into text sections. Code is evaluated at render and results appear as text.

"Built with `r getRversion()`" --> "Built with 4.1.0"



3.600

## Set Output Formats and their Options in YAML

Use the document's YAML header to set an **output format** and customize it with **output options**.

title: "My Document"
author: "Author Name"
output:

html_document: Indent format 2 characters, toc: TRUE indent options 4 characters

**OUTPUT FORMAT CREATES** .html html_document pdf_document* .pdf Microsoft Word (.docx) word document Microsoft Powerpoint (.pptx) powerpoint_presentation odt document OpenDocument Text **Rich Text Format** rtf document Markdown md document github_document Markdown for Github ioslides_presentation ioslides HTML slides Slidy HTML slides slidy_presentation beamer_presentation* Beamer slides * Requires LaTeX, use tinytex::install_tinytex()

| IMPORTANT OPTIONS                          | DESCRIPTION                                                                            |   |   | N<br>N |  |
|--------------------------------------------|----------------------------------------------------------------------------------------|---|---|--------|--|
| anchor_sections                            | Show section anchors on mouse hover (TRUE or FALSE)                                    | Χ |   |        |  |
| citation_package                           | The LaTeX package to process citations ("default", "natbib", "biblatex")               |   | Χ |        |  |
| code_download                              | Give readers an option to download the .Rmd source code (TRUE or FALSE)                | Χ |   |        |  |
| code_folding                               | Let readers to toggle the display of R code ("none", "hide", or "show")                | Χ |   |        |  |
| css                                        | CSS or SCSS file to use to style document (e.g. "style.css")                           | Χ |   |        |  |
| dev                                        | Graphics device to use for figure output (e.g. "png", "pdf")                           | Χ | Χ |        |  |
| df_print                                   | Method for printing data frames ("default", "kable", "tibble", "paged")                | Χ | Χ | Χ      |  |
| fig_caption                                | Should figures be rendered with captions (TRUE or FALSE)                               | Χ | Χ | Χ      |  |
| highlight                                  | Syntax highlighting ("tango", "pygments", "kate", "zenburn", "textmate")               | Χ | Χ | Χ      |  |
| includes                                   | File of content to place in doc ("in_header", "before_body", "after_body")             | Χ | Χ |        |  |
| keep_md                                    | Keep the Markdown .md file generated by knitting (TRUE or FALSE)                       | Χ | Χ | Χ      |  |
| keep_tex                                   | Keep the intermediate TEX file used to convert to PDF (TRUE or FALSE)                  |   | Χ |        |  |
| latex_engine                               | LaTeX engine for producing PDF output ("pdflatex", "xelatex", or "lualatex")           |   | Χ |        |  |
| reference_docx/_doc                        | docx/pptx file containing styles to copy in the output (e.g. "file.docx", "file.pptx") |   |   | Χ      |  |
| theme                                      | Theme options (see Bootswatch and Custom Themes below)                                 | Χ |   |        |  |
| toc                                        | Add a table of contents at start of document (TRUE or FALSE)                           | Χ | Χ | Χ      |  |
| toc_depth                                  | The lowest level of headings to add to table of contents (e.g. 2, 3)                   | Χ | Χ | Χ      |  |
| toc_float                                  | Float the table of contents to the left of the main document content (TRUE or FALSE)   | Χ |   |        |  |
| Use <b>?<output format=""></output></b> to | see all of a format's options, e.g. <b>?html_document</b>                              |   |   |        |  |

## Render

When you render a document, rmarkdown:

- 1. Runs the code and embeds results and text into an .md file with knitr.
- 2. Converts the .md file into the output format with Pandoc.

ŕmarkdown



**Save**, then **Knit** to preview the document output. The resulting HTML/PDF/MS Word/etc. document will be created and saved in the same directory as the .Rmd file.

Use **rmarkdown::render()** to render/knit in the R console. See **?render** for available options.

## Share

Χ

Χ

Χ

Χ

#### **Publish on Posit Connect**

to share R Markdown documents securely, schedule automatic

updates, and interact with parameters in real-time.

posit.co/products/enterprise/connect.

## More Header Options

Also see flexdashboard, bookdown, distill, and blogdown.

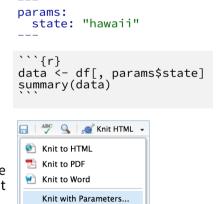
#### **PARAMETERS**

Parameterize your documents to reuse with new inputs (e.g., data, values, etc.).

 Add parameters in the header as sub-values of params.

2. Call parameters in code using params\$<name>.

3. **Set parameters** with Knit with Parameters or the params argument of **render()**.



#### **REUSABLE TEMPLATES**

- 1. **Create a new package** with a inst/rmarkdown/ templates directory.
- Add a folder containing template.yaml (below) and skeleton.Rmd (template contents).

name: "My Template"

3. **Install** the package to access template by going to **File > New R Markdown > From Template**.

#### **BOOTSWATCH THEMES**

Customize HTML documents with Bootswatch themes from the **bslib** package using the theme output option.

Use **bslib::bootswatch_themes()** to list available themes.



title: "Document Title"
author: "Author Name"
output:
html_document:
theme:
bootswatch: solar

#### **CUSTOM THEMES**

Customize individual HTML elements using bslib variables. Use **?bs_theme** to see more variables.

output:
 html_document:
 theme:
 bg: "#121212"
 fg: "#E4E4E4"
 base_font:
 google: "Prompt"

More on bslib at pkgs.rstudio.com/bslib/.

#### STYLING WITH CSS AND SCSS

Add CSS and SCSS to your document by adding a path to a file with the **css** option in the YAML header.

title: "My Document"
author: "Author Name"
output:
 html_document:
 css: "style.css"

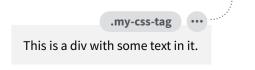
Apply CSS styling by writing HTML tags directly or:

• Use markdown to apply style attributes inline.

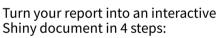
Bracketed Span
A [green]{.my-color} word.

Fenced Div
::: {.my-color}
All of these words
are green.
:::

 Use the Visual Editor. Go to Format > Div/Span and add CSS styling directly with Edit Attributes.

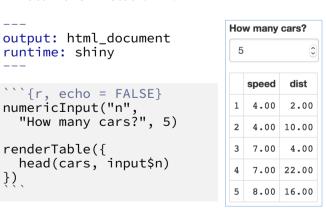


#### INTERACTIVITY





- 2. Call Shiny input functions to embed input objects.
- 3. Call Shiny render functions to embed reactive output.
- 4. Render with rmarkdown::run() or click Run Document in RStudio IDE.



Also see Shiny Prerendered for better performance. <a href="markdown.rstudio.com/">rmarkdown.rstudio.com/</a>
<a href="mailto:authoring_shiny_prerendered">authoring_shiny_prerendered</a>.

Embed a complete app into your document with shiny::shinyAppDir(). More at <u>bookdown.org/yihui/rmarkdown/shiny-embedded.html</u>.

