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2024-03-18

Contents

1	About()	5
1.1	Usage()	5
1.2	Render book()	5
1.3	Preview book()	6
1.4	Rmarkdown	6
1.5	R	6
1.6	R+Rstudio	6
1.7	Rmarkdown	7
2		9
2.1	—	9
2.2	9
2.3	VS	10
3		11
3.1	11
3.2	11
4		13
4.1	13
5	Parts	15
6	Footnotes and citations	17
6.1	Footnotes	17
6.2	Citations	17
7	Blocks	19
7.1	Equations	19
7.2	Theorems and proofs	19
7.3	Callout blocks	19
8	Sharing your book	21
8.1	Publishing	21

8.2	404 pages	21
8.3	Metadata for sharing	21

Chapter 1

About()

Markdown Pandoc Markdown $a^2 + b^2 = c^2$

“All knowledge is, in final analysis, history.
All sciences are, in the abstract, mathematics.
All judgements are, in their rationale, statistics.”

“

”

—C.R. Rao *Statistics And Truth*

1.1 Usage()

```
bookdown .Rmd .Rmd #  
## ###  
index.Rmd
```

1.2 Render book()

HTML

1. RStudio IDE **Build**
2. **Build Book** “All formats”

R

```
bookdown::render_book()
```

```
bookdown::pdf_book XeLaTeX TinyTeX XeLaTeX https://yihui.org/tinytex/
```

```
TeX TeXLive MaCTeX TeXLive LaTeX:TeXLive2021 MaCTeX
```

1.3 Preview book()

```
HTML .Rmd RStudio "Preview book"
```

```
bookdown::serve_book()
```

1.4 Rmarkdown

```
/ gridea
Academic page jerkl1 Internet GitHub
post ~
~
R Rmarkdown ~
...
```

```
MSOFFICE Word
```

```
LaTeX LaTeX LaTeX
```

```
Ramrkdwn xieyihui markdown LaTeX html markdown LaTeX R R
```

1.5 R

```
R R R R R R S Scheme R C
```

1.6 R+Rstudio

```
rmarkdown R Rstudio R R R Rstudio R R
script vscode rmarkdown Rstudio
```

```
macOS R Rstudio
```

Notice macOS Intel arm CPU arm M1/M2

1.7 Rmarkdown

GitHub rmarkdown

1.7.1 bookdown

```
install.packages('bookdown')
```

1.7.2 bookdown

1. create project

Rstudio File->New Project->New Directory->Bookproject using bookdown->Create Project

Chapter 2

2.1 ———

2.1.1

- ———
- ———
- ———

2.1.2

- ———
- ———

2.1.3

- ———
- ——— /
- ———
- ———

2.1.4

- PYLL———
- DALY———

2.2

- Incidence Rate 1000 10
- Prevalence Rate

- <1
- Cumulative Incidence
- Death Rate or Mortality Rate
- Case Fatality Rate

2.3 VS

	/ /	
	/	/
1 /		1 /
	/	/
	/ /	/ /

Chapter 3

3.1

n	“ ”	k

> > >
> > >

3.2

•		
—		
—		
—		
—		

“ ”

Chapter 4

4.1

4.1.1

4.1.2

- 1.
- 2.
- 3.
- 4.

4.1.3

- 1.
- 2.
- 3.
- 4.

4.1.4

Chapter 5

Parts

You can add parts to organize one or more book chapters together. Parts can be inserted at the top of an .Rmd file, before the first-level chapter heading in that same file.

Add a numbered part: `# (PART) Act one {-}` (followed by `# A chapter`)

Add an unnumbered part: `# (PART*) Act one {-}` (followed by `# A chapter`)

Add an appendix as a special kind of un-numbered part: `# (APPENDIX) Other stuff {-}` (followed by `# A chapter`). Chapters in an appendix are prepended with letters instead of numbers.

Chapter 6

Footnotes and citations

6.1 Footnotes

Footnotes are put inside the square brackets after a caret `^[]`. Like this one ¹.

6.2 Citations

Reference items in your bibliography file(s) using `@key`.

For example, we are using the **bookdown** package [Xie, 2024] (check out the last code chunk in `index.Rmd` to see how this citation key was added) in this sample book, which was built on top of R Markdown and **knitr** [Xie, 2015] (this citation was added manually in an external file `book.bib`). Note that the `.bib` files need to be listed in the `index.Rmd` with the YAML `bibliography` key.

The RStudio Visual Markdown Editor can also make it easier to insert citations: <https://rstudio.github.io/visual-markdown-editing/#/citations>

¹This is a footnote.

Chapter 7

Blocks

7.1 Equations

Here is an equation.

$$f(k) = \binom{n}{k} p^k (1-p)^{n-k} \quad (7.1)$$

You may refer to using `\@ref{eq:binom}`, like see Equation (7.1).

7.2 Theorems and proofs

Labeled theorems can be referenced in text using `\@ref{thm:tri}`, for example, check out this smart theorem 7.1.

Theorem 7.1. *For a right triangle, if c denotes the length of the hypotenuse and a and b denote the lengths of the **other** two sides, we have*

$$a^2 + b^2 = c^2$$

Read more here <https://bookdown.org/yihui/bookdown/markdown-extensions-by-bookdown.html>.

7.3 Callout blocks

The R Markdown Cookbook provides more help on how to use custom blocks to design your own callouts: <https://bookdown.org/yihui/rmarkdown-cookbook/custom-blocks.html>

Chapter 8

Sharing your book

8.1 Publishing

HTML books can be published online, see: <https://bookdown.org/yihui/bookdown/publishing.html>

8.2 404 pages

By default, users will be directed to a 404 page if they try to access a webpage that cannot be found. If you'd like to customize your 404 page instead of using the default, you may add either a `_404.Rmd` or `_404.md` file to your project root and use code and/or Markdown syntax.

8.3 Metadata for sharing

Bookdown HTML books will provide HTML metadata for social sharing on platforms like Twitter, Facebook, and LinkedIn, using information you provide in the `index.Rmd` YAML. To setup, set the `url` for your book and the path to your `cover-image` file. Your book's `title` and `description` are also used.

This `gitbook` uses the same social sharing data across all chapters in your book—all links shared will look the same.

Specify your book's source repository on GitHub using the `edit` key under the configuration options in the `_output.yml` file, which allows users to suggest an edit by linking to a chapter's source file.

Read more about the features of this output format here:

<https://pkgs.rstudio.com/bookdown/reference/gitbook.html>

Or use:

```
?bookdown:::gitbook
```

Bibliography

Yihui Xie. *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition, 2015. URL <http://yihui.org/knitr/>. ISBN 978-1498716963.

Yihui Xie. *bookdown: Authoring Books and Technical Documents with R Markdown*, 2024. URL <https://github.com/rstudio/bookdown>. R package version 0.38, <https://pkgs.rstudio.com/bookdown/>.