My journey on R

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2021-12-26

Contents

Chapter 1

Prerequisites

Thiis is my test. Test if index.html file has been updated.

This is a *sample* book written in **Markdown**. You can use anything that Pandoc's Markdown supports, e.g., a math equation $a^2 + b^2 = c^2$.

The **bookdown** package can be installed from CRAN or Github:

```
install.packages("bookdown")
# or the development version
# devtools::install_github("rstudio/bookdown")
```

Remember each Rmd file contains one and only one chapter, and a chapter is defined by the first-level heading `#`.

To compile this example to PDF, you need XeLaTeX. You are recommended to install TinyTeX (which includes XeLaTeX): https://yihui.name/tinytex/.

Chapter 2

Introduction

Add somethings to see if changed.

You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter 2. If you do not manually label them, there will be automatic labels anyway, e.g., Chapter **??**.

Figures and tables with captions will be placed in `figure` and `table` environments, respectively.

```r
par(mar = c(4, 4, .1, .1))
plot(pressure, type = 'b', pch = 19)
```

Reference a figure by its code chunk label with the `fig:` prefix, e.g., see Figure 2.1. Similarly, you can reference tables generated from `knitr::kable()`, e.g., see Table 2.1.

```r
knitr::kable(
  head(iris, 20), caption = 'Here is a nice table!',
  booktabs = TRUE
)
```

You can write citations, too. For example, we are using the **bookdown** package (Xie, 2021) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015).

Figure 2.1: Here is a nice figure!

Table 2.1: Here is a nice table!

Sepal.Length	Sepal.Width	Petal.Length	Petal.Width	Species
5.1	3.5	1.4	0.2	setosa
4.9	3.0	1.4	0.2	setosa
4.7	3.2	1.3	0.2	setosa
4.6	3.1	1.5	0.2	setosa
5.0	3.6	1.4	0.2	setosa
5.4	3.9	1.7	0.4	setosa
4.6	3.4	1.4	0.3	setosa
5.0	3.4	1.5	0.2	setosa
4.4	2.9	1.4	0.2	setosa
4.9	3.1	1.5	0.1	setosa
5.4	3.7	1.5	0.2	setosa
4.8	3.4	1.6	0.2	setosa
4.8	3.0	1.4	0.1	setosa
4.3	3.0	1.1	0.1	setosa
5.8	4.0	1.2	0.2	setosa
5.7	4.4	1.5	0.4	setosa
5.4	3.9	1.3	0.4	setosa
5.1	3.5	1.4	0.3	setosa
5.7	3.8	1.7	0.3	setosa
5.1	3.8	1.5	0.3	setosa

Chapter 3

Literature

Here is a review of existing methods.

Chapter 4

Using Git and Github

/RepTemplates   Repository,   Repository   1   Project   hello

```
cd /home/son
cd RepTemplates
```

4.1 git init

`git init`   hello

```
git init
# make a file naming hello.txt
touch hello.txt
ls
```

```
##      Git    /home/son/RepTemplates/R_learn/.git/
## 01-intro.Rmd
## 02-literature.Rmd
## 03-method.Rmd
## 04-application.Rmd
## 05-summary.Rmd
## 06-references.Rmd
## _book
## book.bib
## bookdown-demo_files
## bookdown-demo.Rmd
## bookdown-demo.Rproj
## _bookdown_files
```

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```
## _bookdown.yml
## _build.sh
## _deploy.sh
## DESCRIPTION
## Dockerfile
## docs
## hello2.txt
## hello.txt
## index.Rmd
## LICENSE
## now.json
## _output.yml
## packages.bib
## preamble.tex
## _publish.R
## README.md
## style.css
## toc.css
```

4.2   git status

```
git status
```

```
git status
```

```
##     main
##        'origin/main'
##
##
##      "git add/rm < >..."
##   (use "git checkout -- <file>..." to discard changes in working directory)
##
##         03-method.Rmd
##         docs/404.html
##         docs/applications.html
##         docs/final-words.html
##         docs/index.html
##         docs/intro.html
##         docs/literature.html
##         docs/reference-keys.txt
##         docs/references.html
##         docs/search.json
##         docs/search_index.json
##         docs/using-git-and-github.html
```

```
##
##     :
##       "git add < >..."
##
##   bookdown-demo.Rmd
##   bookdown-demo_files/
##   hello.txt
##   hello2.txt
##
##          "git add"  /  "git commit -a"
```

  hello.txt

```
touch hello2.txt
git status
```

```
##     main
##        'origin/main'
##
##
##       "git add/rm < >..."
##    (use "git checkout -- <file>..." to discard changes in working directory)
##
##          03-method.Rmd
##          docs/404.html
##          docs/applications.html
##          docs/final-words.html
##          docs/index.html
##          docs/intro.html
##          docs/literature.html
##          docs/reference-keys.txt
##          docs/references.html
##          docs/search.json
##          docs/search_index.json
##          docs/using-git-and-github.html
##
##     :
##       "git add < >..."
##
##   bookdown-demo.Rmd
##   bookdown-demo_files/
##   hello.txt
##   hello2.txt
##
##          "git add"  /  "git commit -a"
```

You can also use math in footnotes like this[1].

We will approximate standard error to 0.027[2]

---

[1]where we mention $p = \frac{a}{b}$

[2]p is unknown but expected to be around 1/3. Standard error will be approximated

$$SE = \sqrt{(\frac{p(1-p)}{n})} \approx \sqrt{\frac{1/3(1-1/3)}{300}} = 0.027$$

Chapter 5

Applications

Some *significant* applications are demonstrated in this chapter.

5.1 Example one

5.2 Example two

Chapter 6

Final Words

We have finished a nice book.

Bibliography

Xie, Y. (2015). *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2nd edition. ISBN 978-1498716963.

Xie, Y. (2021). *bookdown: Authoring Books and Technical Documents with R Markdown*. https://github.com/rstudio/bookdown.