

A Minimal Book Example

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2023-08-30

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Chapter 1

About

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

1.1 Usage

Each **bookdown** chapter is an .Rmd file, and each .Rmd file can contain one (and only one) chapter. A chapter *must* start with a first-level heading: **# A good chapter**, and can contain one (and only one) first-level heading.

Use second-level and higher headings within chapters like: **## A short section** or **### An even shorter section**.

The `index.Rmd` file is required, and is also your first book chapter. It will be the homepage when you render the book.

1.2 Render book

You can render the HTML version of this example book without changing anything:

1. Find the **Build** pane in the RStudio IDE, and
2. Click on **Build Book**, then select your output format, or select “All formats” if you’d like to use multiple formats from the same book source files.

Or build the book from the R console:

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

To render this example to PDF as a `bookdown::pdf_book`, you'll need to install XeLaTeX. You are recommended to install TinyTeX (which includes XeLaTeX): <https://yihui.org/tinytex/>.

1.3 Preview book

As you work, you may start a local server to live preview this HTML book. This preview will update as you edit the book when you save individual .Rmd files. You can start the server in a work session by using the RStudio add-in “Preview book”, or from the R console:

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

Chapter 2

Learning R

This is notes about learning R.

Please build this simple boook!!!! ahhhhhhhhhhhhhha

2.1 About stringr package

Stringr is more coherent than base R functions for strings treatments.
Stringr functions always begin with prefix **str_** ; the first argument is always the string you want to treat. And then comes the pattern you want to identify.

Most common and useful functions in Stringr :

- `str_detect()` -> returns a logical vector (a vector of TRUE and FALSE)
- `str_subset()`
- `str_view()`
- `str_view_all()`
- `str_replace()`
- `str_replace_all()`
- `str_split()`
- `str_trim()`
- `str_to_lower()`

2.2 About Regex in R

2.2.1 Special characters

- `\\d` stands for **one of any digit 0,1,2, up to 9**

- `\\s` stands for **one** character whitespace
- The dot “.” **matches any character**
- So, to match a literal dot “.” in regex, we need two backslashes then dot `\\.`
- The star “*” stands for **0 or more** instances of the previous character
- The plus sign “+” stands for **1 or more** instances of the previous character
- The question mark “?” stands for **0 or one** instance of the previous character
- `()` “\1” capture le groupe de la parenthèse 1 et “\2” capture le groupe de la parenthèse 2

Separate and extract function are from tidyr package.
In **extract**, you can use regex to split a string.

```
library(dplyr)
library(tidyr)
s <- c("5'6", "6'4")
tab <- data.frame(x = s)

tab %>% separate(x, c("feet", "inches"), sep = "'")
```

```
##   feet inches
## 1     5      6
## 2     6      4
```

```
tab %>% extract(x, c("feet", "inches"), regex = "(\\d)'(\\d{1,2})")
```

```
##   feet inches
## 1     5      6
## 2     6      4
```

2.3 Useful packages or datasets

- gapminder `library(gapminder)`
`data("gapminder")`

2.4 Useful libraries

- It maybe possible to extract a table from a pdf with pdftools
Not tested myself `library("pdftools") temp_file <- tempfile() url <-
"https://www.pnas.org/action/downloadSupplement?doi=10.1073%
2Fpnas.1510159112&file=pnas.201510159SI.pdf" download.file(url,
temp_file) txt <- pdf_text(temp_file) file.remove(temp_file)`

Chapter 3

Learning Python

- shebang line `#!/usr/bin/env python3`

Chapter 4

Learning Git/Github

- `git config user.name "my_name"`
- `git config user.email "me@example.com"`
- `git config --global user.name "my_name"`
-> set the value of the username for all git repos
whereas if "`git config`" without global you set it up for the current directory
- `git init` -> when in the directory which you want to set under git control (initialize a new repo)
- `git add myfile` -> stage myfile (place it in the staging area)
- `git commit -m "my message for this commit"`
- `git config -l`
- `git status` -> check current state
- three status for tracked files : modified/staged/committed
- in order to visualize all **the commits** (not all the modifications) which were made :
`git log`

Admit you modified a file `readme.txt` which is under version control.

You can see the modifications since the previous version with this command line:

```
git diff readme.txt
```

- Add a file to `.gitignore` in order it is not tracked anymore(?) `echo 01-Learning-R.Rmd > .gitignore` `echo .RData » .gitignore` after modifying `.gitignore` you need to stage (`git add`) and commit (`git commit`) it.

- `git commit -a -m 'message for the commit'` when you want to commit only the modifications (a is for only modified files / m is for message)
- `git rm filename`
after this you must commit
- `git mv filename` in order to move or rename a file

Chapter 5

Footnotes and citations

5.1 Footnotes

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

5.2 Citations

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

For example, we are using the **bookdown** package [Xie, 2023] (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 6

Learning Markdown

In markdown you need to escape twice the backslash in order to display two backslashes

So what you see here, I wrote it with **four** not just three : \\

To write a list, you must write a star * followed by a coma a the beginning of a line. Before the list starts you need a blankline and same at the end of the list otherwise Markdown won't recognize it.

To introduce a return to the ligne, you need not only to type return in Markdown, but also to make the line followed by two spaces.

To make a few words bold you need to surrender it with two stars both sides. It is **bold** gives : It is **bold**

Chapter 7

Learning linux commands

- `git -version`
- `mkdir ->` create a directory
- `cat` to read a file
- or `less` (type `q` in order to exit `less` viewer) why `less`? because previous version of `less` was more :)
- write in a file :
`echo toto et tata > toto.txt`

`echo toto et titi > titi.txt`

- differences between two files:
`diff toto.txt titi.txt`
or `diff -u toto.txt titi.txt`
- `diff -u` is more readable than simple `diff` command.
- Create a diff file:
`diff -u toto.txt titi.txt > change.diff`
- Patch the .diff file:
`patch titi.txt < change.diff`
- Clear the console:
just as in Rstudio `ctrl+l` or typing “clear” and then enter in the console.
both works
- Content of a directory:
`dir` or `ls` : both works.

- Content of a directory including hidden files:
dir -a ls -a from the help of ls : " -a, -all do not ignore entries starting with."
- Add the options l to see rights on the files: ls -la
- Get the help in git bash on windows:
function -help example: ls -help
- Make a file executable:
chmod +x filename
- Open a file with nano :
nano my__file.txt
- Save changes made to a file in nano:
ctrl+o + Enter + ctrl+x
- 'cd -' in order to come back to previous directory

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*, 2023. URL <https://CRAN.R-project.org/package=bookdown>. R package version 0.35.