A Minimal Book Example

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Contents

Chapter 1

Publishing Rbookdown with Github Pages and Travis

1.1 Bookdown Guide

While we take the same approach as the Bookdown guide, I update some steps to reflect changes with Travis.

First, as in the guide, set up gh-pages branch as noted in the guide:

```
# assume you have initialized the git repository,
# and are under the directory of the book repository now

# create a branch named gh-pages and clean up everything
git checkout --orphan gh-pages
git rm -rf .

# create a hidden file .nojekyll
touch .nojekyll
git add .nojekyll

git commit -m "Initial commit"
git push origin gh-pages
```

1.1.1 Files to Modify/Add

1.1.1.1 .travis.yml

Depending on your file system, you may not see this file immediately because it starts with a period. Look up on your system how to "view hidden files" if you wish to see it.

```
language: r
cache: packages
pandoc_version: 2.9.2.1

addons:
  apt:
    packages:
    - ghostscript

before_script:
  - chmod +x ./_build.sh
  - chmod +x ./_deploy.sh

script:
  - ./_build.sh

deploy:
  provider: pages
  skip_cleanup: true
  github_token: $GITHUB_PAT  # Set in the settings page of your repository, as a secure
  keep_history: true
  on:
    branch: main
  local_dir: _book/
  committer_from_gh: true
```

1.1.1.2 __build.sh

You'll need to specify the commands to build your book in Travis:

```
#!/bin/sh

set -ev

Rscript -e "bookdown::render_book('index.Rmd', 'bookdown::gitbook')"
tlmgr option repository ctan
Rscript -e "bookdown::render_book('index.Rmd', 'bookdown::pdf_book')"
Rscript -e "bookdown::render_book('index.Rmd', 'bookdown::epub_book')"
```

1.1.1.3 Description File

As noted on the Bookdown guide:

> The only thing in this file that really matters is the specification of dependencies. All dependencies will be installed via the devtools package. If a dependency is on CRAN or BioConductor, you can simply list it in the Imports field of the DESCRIPTION file. If it is on GitHub, you may use the Remotes field to list its repository name.

So the takeaway is, list your RPackages used in `Imports`. Here's the example file:

```
Package: placeholder
Type: Book
Title: Does not matter.
Version: 0.0.1
Imports: bookdown, ggplot2
Remotes: rstudio/bookdown
```

1.1.2 Travis

Let's do everything through the website to keep things simple and not using the terminal!

Create a Github PAT through the Github website and sign up for Travis CI.

You should see a list of your repositories and in your profile, you should be sure to activate Github Apps integration.

When you find your repository in the dashboard, click it and in "More options>Settings" enter the Github PAT value into the Environmental Variables section. Name it `GITHUB_PAT` because that is what is specified in `.travis.yml`.

1.1.2.1 Note on Credit

We have limited free credits available on Travis CI. This means that we have probably around 1000 build minutes and the book make take around 10 minutes or even more to run. Ways to save time involve caching, through which we can add the following to our `.travis.yml` file:

```
sudo: false

cache:
  packages: yes
  directories:
    - $TRAVIS_BUILD_DIR/_bookdown_files
```

Chapter 2

Introduction

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 4.

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

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

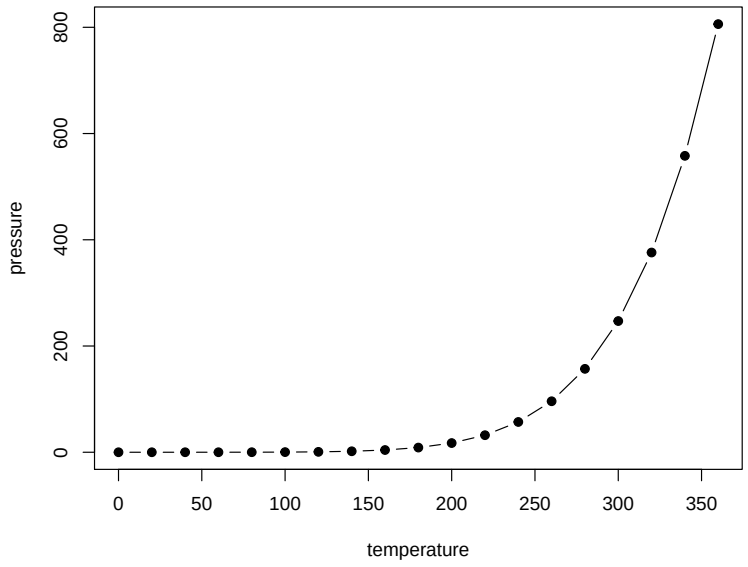

Figure 2.1: Here is a nice figure!

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

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.

```
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, 2022) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015).

Chapter 3

Literature

Here is a review of existing methods.

Chapter 4

Methods

We describe our methods in this chapter.

Math can be added in body using usual syntax like this

4.1 math example

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

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

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. (2022). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.29.