Frida Gomam

A Chapman & Hall/CRC Book Example Using bookdown

To my son,

without whom I should have finished this book two years earlier

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Preface

Hi there, this is my great book.

Why read this book

It is very important...

Structure of the book

Chapters **??** introduces a new topic, and ...

Software information and conventions

I used the **knitr** package (Xie, 2015) and the **bookdown** package (Xie, 2019) to compile my book. My R session information is shown below:

```
xfun::session_info()
```

```
## R version 3.6.0 (2019-04-26)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Pop!_OS 19.04
##
## Locale:
##   LC_CTYPE=en_US.UTF-8
##   LC_NUMERIC=C
##   LC_TIME=en_US.UTF-8
##   LC_COLLATE=en_US.UTF-8
##   LC_MONETARY=en_US.UTF-8
```

```
##   LC_MESSAGES=en_US.UTF-8
##   LC_PAPER=en_US.UTF-8
##   LC_NAME=C
##   LC_ADDRESS=C
##   LC_TELEPHONE=C
##   LC_MEASUREMENT=en_US.UTF-8
##   LC_IDENTIFICATION=C
##
## Package version:
##   base64enc_0.1.3 bookdown_0.10   compiler_3.6.0
##   digest_0.6.18   evaluate_0.13   glue_1.3.1
##   graphics_3.6.0  grDevices_3.6.0 highr_0.8
##   htmltools_0.3.6 jsonlite_1.6    knitr_1.23
##   magrittr_1.5    markdown_0.9    methods_3.6.0
##   mime_0.6        Rcpp_1.0.1      rmarkdown_1.12
##   stats_3.6.0     stringi_1.4.3   stringr_1.4.0
##   tinytex_0.13    tools_3.6.0     utils_3.6.0
##   xfun_0.7        yaml_2.2.0
```

Package names are in bold text (e.g., **rmarkdown**), and inline code and filenames are formatted in a typewriter font (e.g., `knitr::knit('foo.Rmd')`). Function names are followed by parentheses (e.g., `bookdown::render_book()`).

Acknowledgments

A lot of people helped me when I was writing the book.

Frida Gomam
on the Mars

About the Author

Frida Gomam is a famous lady. Police will always let her go.

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Data

Data science is a field that intersects with statistics, mathematics, computer science, and a wide range of applied fields, such as marketing, biology, and physics. As such, it is hard to formally define data science, but obviously data is central to data science, and it is useful at the start to consider some types of data that are of interest.

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Introduction to R and RStudio

Various statistical and programming software environments are used in data science, including R, Python, SAS, C++, SPSS, and many others. Each has strengths and weaknesses, and often two or more are used in a single project. This book focuses on R for several reasons:

1. R is free
2. It is one of, if not the, most widely used software environments in data science
3. R is under constant and open development by a diverse and expert core group
4. It has an incredible variety of contributed packages
5. A new user can (relatively) quickly gain enough skills to obtain, manage, and analyze data in R

Several enhanced interfaces for R have been developed. Generally such interfaces are referred to as *integrated development environments (IDE)*. These interfaces are used to facilitate software development. At minimum, an IDE typically consists of a source code editor and build automation tools. We will use the RStudio IDE, which according to its developers "is a powerful productive user interface for R."[1] RStudio is widely used, it is used increasingly in the R community, and it makes learning to use R a bit simpler. Although we will use RStudio, most of what is presented in this book can be accomplished in R (without an added interface) with few or no changes.

[1] http://www.rstudio.com/

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Scripts and R Markdown

Doing work in data science, whether for homework, a project for a business, or a research project, typically involves several iterations. For example creating an effective graphical representation of data can involve trying out several different graphical representations, and then tens if not hundreds of iterations when fine-tuning the chosen representation. Furthermore, each of these representations may require several R commands to create. Although this all could be accomplished by typing and re-typing commands at the R Console, it is easier and more effective to write the commands in a *script file*, which then can be submitted to the R console either a line at a time or all together.[2]

[2]Unsurprisingly it is also possible to submit several selected lines of code at once.

More to Say

Yeah! I have finished my book, but I have more to say about some topics. Let me explain them in this appendix.

To know more about **bookdown**, see https://bookdown.org.

Bibliography

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

Xie, Y. (2019). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.10.

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