

SEDSI 2022

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Contents

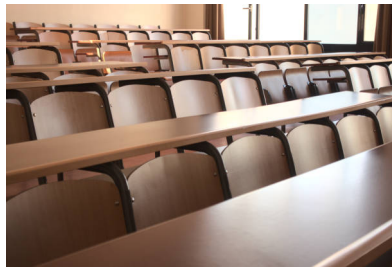
1	Motivation	5
2	Hello SEDSI	7
2.1	Spring 2022	7
2.2	Or a figure	8
2.3	Or an Image	9
2.4	Or an Equation	10
2.5	Or a table of something	10
3	Workflow Summary	11
3.1	R (engine) and Rstudio (IDE)	11
3.2	bookdown package	12
3.3	github	12
3.4	netlify	13
4	Cross-references	15
4.1	Chapters and sub-chapters	15
4.2	Captioned figures and tables	15
5	Parts	19
6	Footnotes and citations	21
6.1	Footnotes	21
6.2	Citations	21

7	Blocks	23
7.1	Equations	23
7.2	Theorems and proofs	23
7.3	Callout blocks	23
8	Sharing your book	25
8.1	Publishing	25
8.2	404 pages	25
8.3	Metadata for sharing	25

Chapter 1

Motivation

A COVID Classroom



A Learning Management System Nightmare



Concise and Precisely Organized with Frequent Revisions

Date	Topic
Wednesday, February 16, 2022	SEDSI in Jacksonville
Thursday, February 17, 2022	Present at 2:45 PM
Friday, February 18, 2022	Celebrate a successful DASI Session

Chapter 2

Hello SEDSI

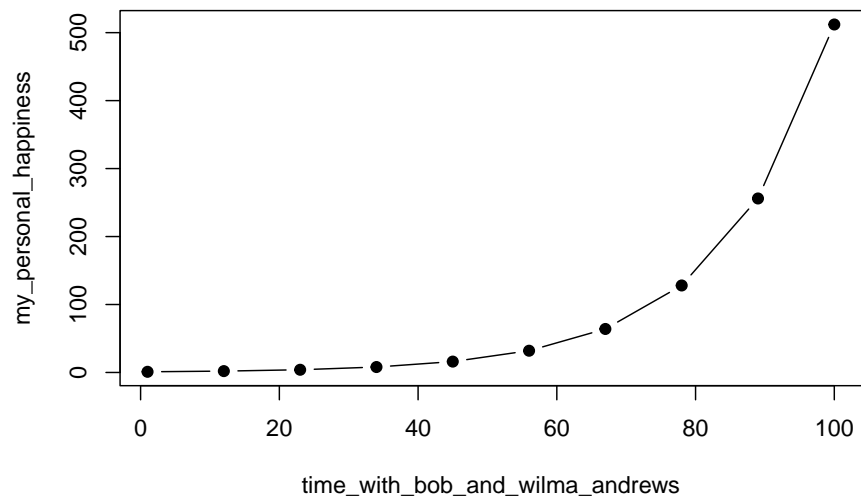
This is just a cool place to put stuff.

Like a schedule, for example:

2.1 Spring 2022

Date	Topic
Monday, January 10, 2022	R basics and install
Wednesday, January 12, 2022	R basics and workflows
Friday, January 14, 2022	QUIZ 1
Monday, January 17, 2022	MLK Holiday
Wednesday, January 19, 2022	Objects, Vectors, and Arithmetic
Friday, January 21, 2022	QUIZ 2
Monday, January 24, 2022	Summaries and Subscripting

2.2 Or a figure



2.3 Or an Image

2.3.1 Hero 1



2.3.2 Hero 2



Table 2.2: A table of the first 10 rows of the mtcars data.

	mpg	cyl	disp	hp	drat	wt	qsec	vs
Mazda RX4	21.0	6	160.0	110	3.90	2.620	16.46	0
Mazda RX4 Wag	21.0	6	160.0	110	3.90	2.875	17.02	0
Datsun 710	22.8	4	108.0	93	3.85	2.320	18.61	1
Hornet 4 Drive	21.4	6	258.0	110	3.08	3.215	19.44	1
Hornet Sportabout	18.7	8	360.0	175	3.15	3.440	17.02	0
Valiant	18.1	6	225.0	105	2.76	3.460	20.22	1
Duster 360	14.3	8	360.0	245	3.21	3.570	15.84	0
Merc 240D	24.4	4	146.7	62	3.69	3.190	20.00	1
Merc 230	22.8	4	140.8	95	3.92	3.150	22.90	1
Merc 280	19.2	6	167.6	123	3.92	3.440	18.30	1

Table 2.3: A Tale of Two Tables.

Sepal.Length	Sepal.Width		mpg	cyl	disp
5.1	3.5	Mazda RX4	21.0	6	160
4.9	3.0	Mazda RX4 Wag	21.0	6	160
4.7	3.2	Datsun 710	22.8	4	108
		Hornet 4 Drive	21.4	6	258
		Hornet Sportabout	18.7	8	360

2.4 Or an Equation

Here is a fun equation for my SEDSI DASI friends.

$$f(k) = \binom{n}{k} p^k (1-p)^{n-k} \quad (2.1)$$

2.5 Or a table of something

2.5.1 Fun example table

2.5.2 ANOTHER Fun example

Chapter 3

Workflow Summary

3.1 R (engine) and Rstudio (IDE)



3.2 bookdown package



3.3 github



3.4 netlify



netlify

Chapter 4

Cross-references

Cross-references make it easier for your readers to find and link to elements in your book.

4.1 Chapters and sub-chapters

There are two steps to cross-reference any heading:

1. Label the heading: `# Hello world {#nice-label}`.
 - Leave the label off if you like the automated heading generated based on your heading title: for example, `# Hello world = # Hello world {#hello-world}`.
 - To label an un-numbered heading, use: `# Hello world {-#nice-label}` or `{# Hello world .unnumbered}`.
2. Next, reference the labeled heading anywhere in the text using `\@ref(nice-label)`; for example, please see Chapter 4.
 - If you prefer text as the link instead of a numbered reference use: any text you want can go here.

4.2 Captioned figures and tables

Figures and tables *with captions* can also be cross-referenced from elsewhere in your book using `\@ref(fig:chunk-label)` and `\@ref(tab:chunk-label)`, respectively.

See Figure 4.1.

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

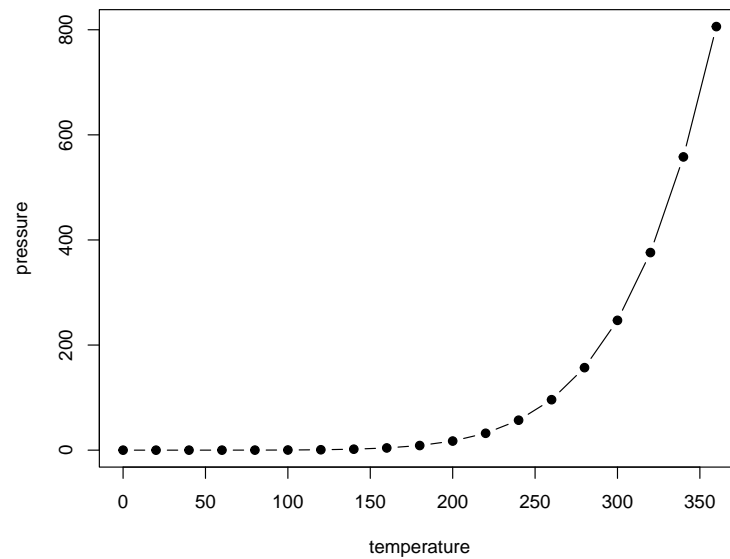


Figure 4.1: Here is a nice figure!

Don't miss Table 4.1.

```
knitr::kable(  
  head(pressure, 10), caption = 'Here is a nice table!',  
  booktabs = TRUE  
)
```


Table 4.1: Here is a nice table!

temperature	pressure
0	0.0002
20	0.0012
40	0.0060
60	0.0300
80	0.0900
100	0.2700
120	0.7500
140	1.8500
160	4.2000
180	8.8000

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, 2021) (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 `bs4_book` theme makes footnotes appear inline when you click on them. In this example book, we added `cs1: chicago-fullnote-bibliography.cs1` to the `index.Rmd` YAML, and include the `.cs1` file. To download a new style, we recommend: <https://www.zotero.org/styles/>

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 `bs4_book` theme also includes special callout blocks, like this `.rmdnote`.

You can use **markdown** inside a block.

```
head(beaver1, n = 5)
#>   day time  temp activ
#> 1 346  840 36.33     0
#> 2 346  850 36.34     0
#> 3 346  900 36.35     0
#> 4 346  910 36.42     0
#> 5 346  920 36.55     0
```

It is up to the user to define the appearance of these blocks for LaTeX output.

You may also use: `.rmdcaution`, `.rmdimportant`, `.rmdtip`, or `.rmdwarning` as the block name.

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 `bs4_book` provides enhanced metadata for social sharing, so that each chapter shared will have a unique description, auto-generated based on the content.

Specify your book's source repository on GitHub as the `repo` in the `_output.yml` file, which allows users to view each chapter's source file or suggest an edit. Read more about the features of this output format here:

https://pkgs.rstudio.com/bookdown/reference/bs4_book.html

Or use:

```
?bookdown::bs4_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*. R package version 0.24.