# A GitBook Example for Teaching

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2020-03-26

# Contents

# Chapter 1

# Prerequisites

This GitBook is created in Rstudio, using the `bookdown` package. To get your system set up correctly, I recommend that you follow the installation guide I've written for another package, available here. **NOTE:** You should *skip Step 3* in that guide (it will save you a lot of time), and instead of running the code in *Step 7*, run the following code:

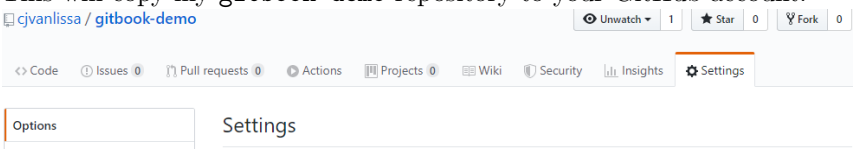
```
install.packages("bookdown")
install.packages("tinytex")
tinytex::install_tinytex()
git2r::config(global = TRUE, user.name = "your.name", user.email = "your.email")
```

# Chapter 2

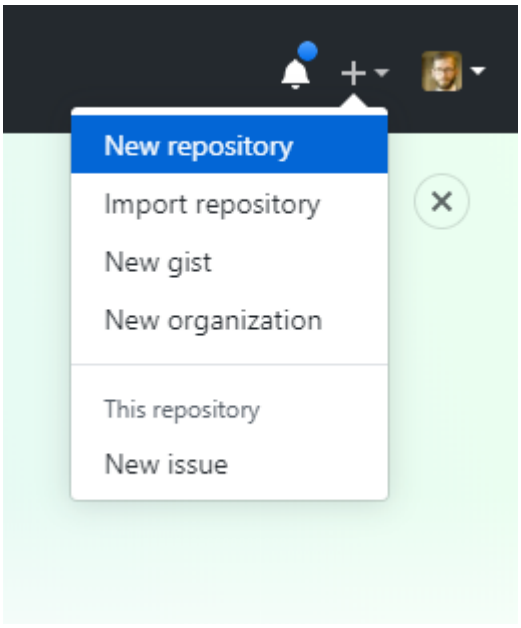
# Get your GitBook

To get your GitBook, you should follow these steps:

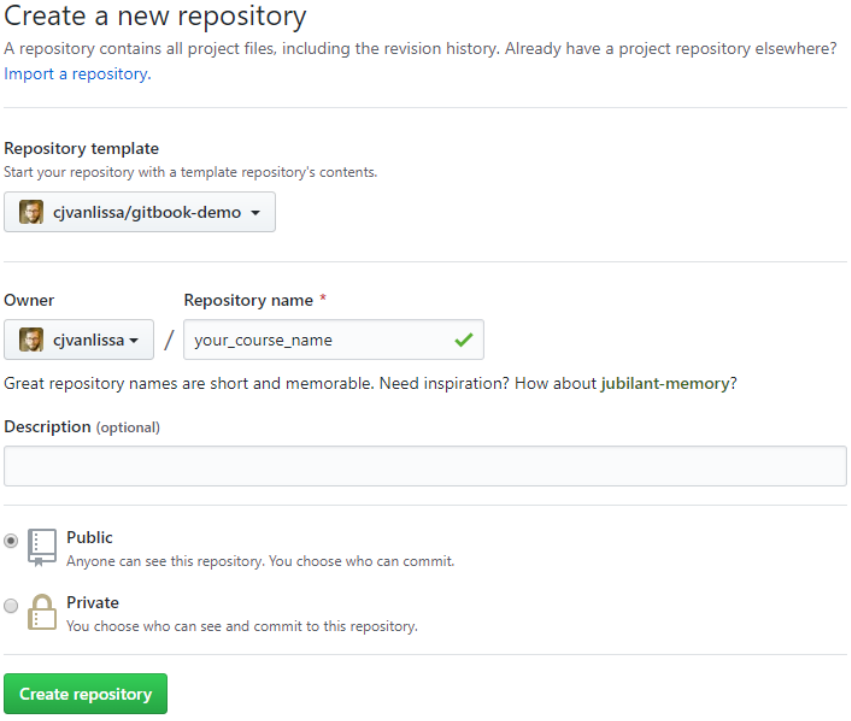
1. Go to https://github.com/cjvanlissa/gitbook-demo
2. In the top right of the page, click `Fork`.
   This will copy my `gitbook-demo` repository to your GitHub account.



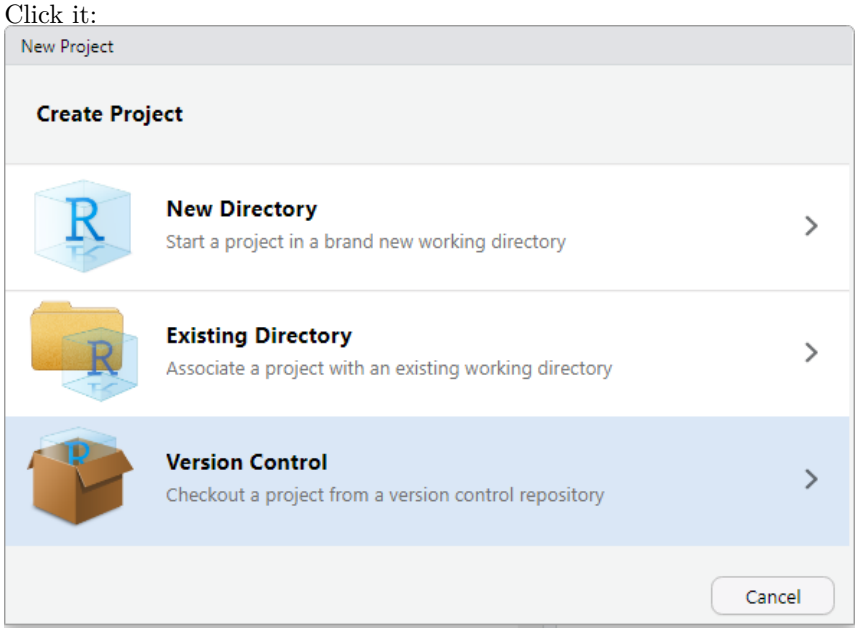

3. My repository is now copied to your account. It is a template repository, which means that you can create a *new repository* based on this one.
4. Create a new repository for your own GitBook. Create one for a course you've been wanting to update. In the top-right corner of the GitHub website, click the + icon, and select "New repository":



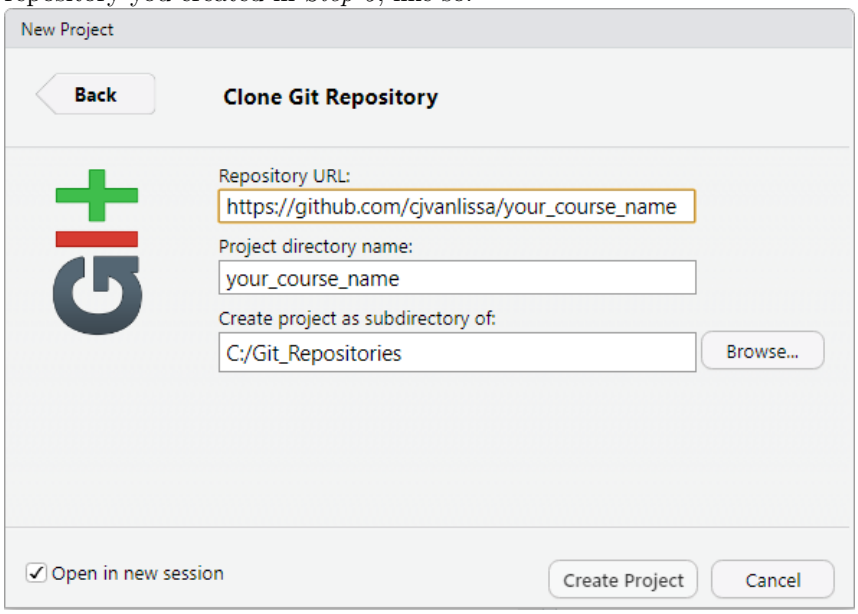

5. In the dialog, select the `gitbook-demo` as "Repository template", and give the repository an appropriate name for your course. Then, press `Create repository`:



6. Now, go back to Rstudio on your computer. In Rstudio, click `File > New Project`. A dialog will open. If you set up Rstudio with Git correctly, the dialog should have an option to create a new project from Version control. Click it:



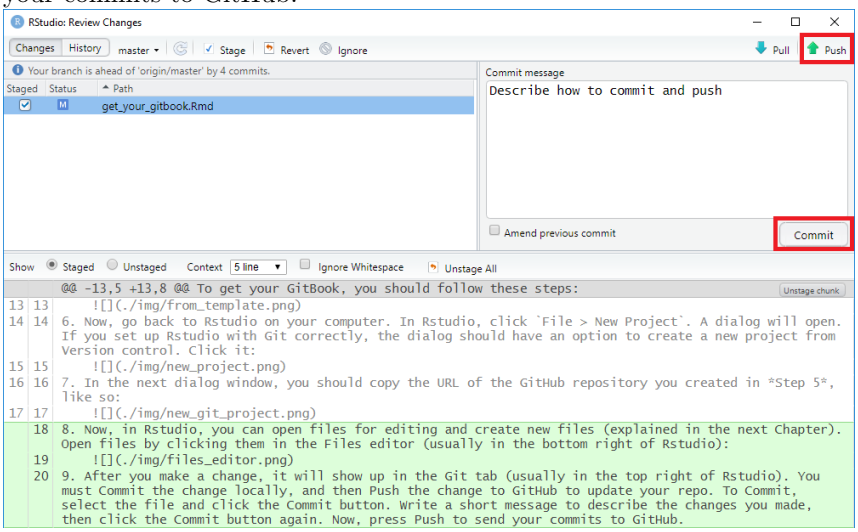

7. In the next dialog window, you should copy the URL of the GitHub repository you created in *Step 5*, like so:




8. Now, in Rstudio, you can open files for editing and create new files (ex-

plained in the next Chapter). Open files by clicking them in the Files editor (usually in the bottom right of Rstudio):


9. After you make a change, it will show up in the Git tab (usually in the top right of Rstudio). You must Commit the change locally, and then Push the change to GitHub to update your repo. To Commit, select the file and click the Commit button. Write a short message to describe the changes you made, then click the Commit button again. Now, press Push to send your commits to GitHub.




10. To render your book as a GitBook, you must "Build" it. In the top-right panel of Rstudio, you see a "Build" tab. In this tab, simply click the "Build Book" button to build your book. You should see a lot of rendering messages, follow

The last remaining task is to publish your GitBook on GitHub pages. Once you do this, any change

# Chapter 3

# Editing the book

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

To edit the book, you can change the text in the `.Rmd` files. Each Rmd file should contain **one and only one** chapter. A chapter is defined by the first-level heading `#`, e.g.:

```
# Editing the book
```

Any sub-headings within the chapter are indicated with several `#` signs, e.g., `##` (level 2) and `###` (level 3).

## 3.1 Creating new chapters

To create a new chapter, you must follow two steps: 1) Create the file, and 2) Include it in the list of chapters.

First, to create the file for a new chapter in Rstudio, click `File > New File > Text file`. At the top of the file, write your chapter heading, as explained above. Then, click `File > Save`. Save the file as `.Rmd`, without spaces in the file name, e.g.: `editing_the_book.Rmd`.

Second, to include it in the list of chapters, open the file `_bookdown.yml` (click it in the Files explorer in the bottom right of Rstudio). This file has a list of `.Rmd` files to be included in the book. In this example, the list looks like this:

```
tmp <- readLines("_bookdown.yml")
cat(tmp[grep("^rmd_files", tmp):grep("references\\.Rmd", tmp)], sep = "\n")
```

rmd_files: [“index.Rmd”, “get_your_gitbook.Rmd”, “editing_the_book.Rmd”, “intro.Rmd”, “literature.Rmd”, “method.Rmd”, “application.Rmd”, “summary.Rmd”, “references.Rmd”]

Insert the file name of your new chapter in the desired position in this list.

# Chapter 4

# Introduction

You can label chapter and section titles using `{#label}` after them, e.g., we can reference Chapter 4. If you do not manually label them, there will be automatic labels anyway, e.g., Chapter 6.

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)
```

Reference a figure by its code chunk label with the `fig:` prefix, e.g., see Figure 4.1. Similarly, you can reference tables generated from `knitr::kable()`, e.g., see Table 4.1.

```
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, 2020) in this sample book, which was built on top of R Markdown and **knitr** (Xie, 2015).

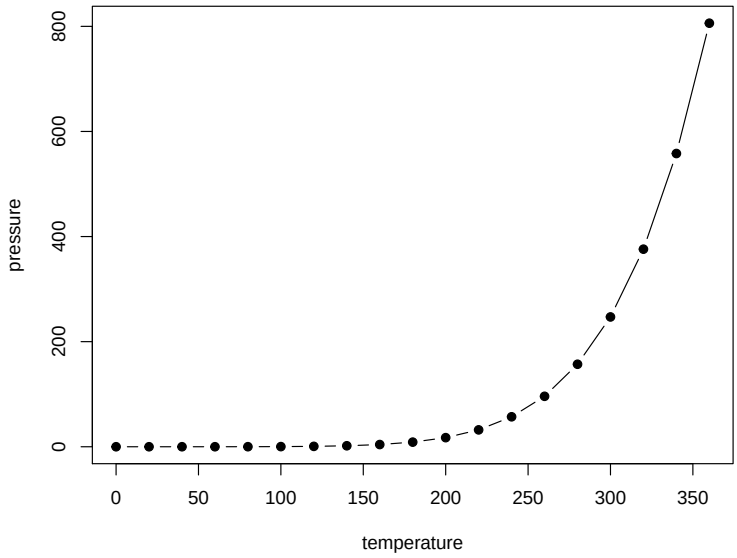



Figure 4.1: Here is a nice figure!

Table 4.1: 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 5

# Literature

Here is a review of existing methods.

# Chapter 6

# Methods

We describe our methods in this chapter.

# Chapter 7

# Applications

Some *significant* applications are demonstrated in this chapter.

## 7.1 Example one

## 7.2 Example two

# Chapter 8

# 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. (2020). *bookdown: Authoring Books and Technical Documents with R Markdown*. R package version 0.17.