

Your RMarkdown Thesis

Simon Goring

15/09/2021

Your Markdown Thesis - Advantages

- Combine code & text
 - Widely used plain-text format
 - Output to multiple formats
 - Easily tracked with `git`
 - Works with many software tools
-

Your Markdown Thesis - Disadvantages

- Disadvantages
 - Can be a pain to edit collaboratively
 - “Some” learning curve
-

Overall Benefits

- Final product is reproducible
 - You are awesome
 - Can be easily shared, modified & updated
-

Getting Started

Start a New RMarkdown File

- Or open our file. . . see GIF [here](#)
 - Navigate to the repository for this workshop
 - Fork the repository see video

- Start a project from Version Control
 - Link to ThesisIsCode
 - Open the file in `thesis/myThesis_Revised.Rmd`
-

How Do We Write?

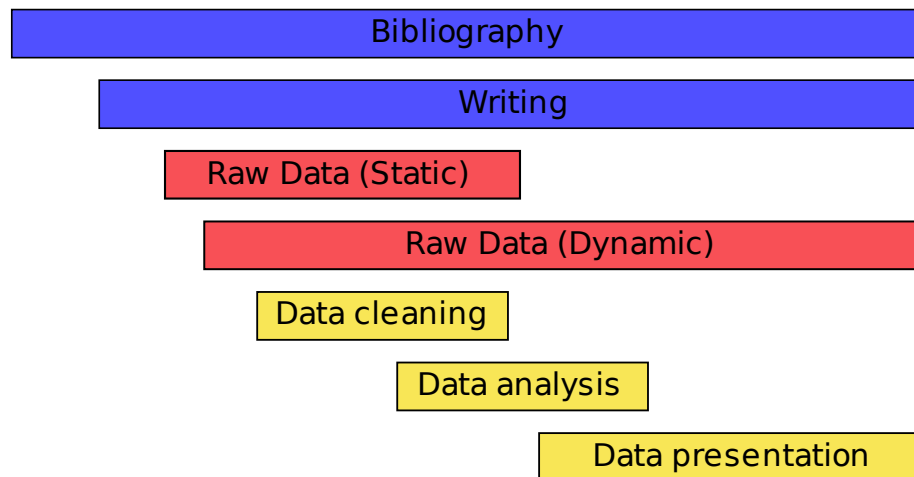


Figure 1: Process of writing papers, bibliography takes the entire life of the paper, writing as well, raw data is used early on, then data cleaning, data analysis and data presentation work.

Main Elements

- Folders!
 - Figures (raw, finished); Code; Data (input/output); Save Google Sheet to file.

image ref

Main Elements

- YAML header (metadata for the document)
- Markdown formatting
- Fenced code blocks (using backticks)
- Data import
- Analysis

- Conclusions
-

Main Elements - YAML

- YAML Ain't Markup Language
- Tells Pandoc how to render the finished file.

```
---  
title: Some title  
author: Simon Goring  
---
```

Main Elements - Markdown

- How you actually apply styles/links &cetera
 - Good Markdown Resources:
 - RMarkdown the Difinitive Guide
 - GitHub Markdown Guide
-

Main Elements - Code Blocks

- This is the R part of RMarkdown. R executes the code and places it inline into the text.
-

Then knit the Document

```
Rscript -e "rmarkdown::render('filename.Rmd')"
```

Or, with `bash` (Mac & Linux) you can build on save.

Let's all Gaze in Wonder

- We can knit to PDF, HTML, DOCX (and other formats)
- Options depend on options in the `yaml` header (in part)
- RMarkdown `render`:
 - Runs each R block the R code
 - Creates a raw Markdown file
 - Replaces code with code results
 - Converts file format to desired output

Main Elements - Data Import

- Lets load in our file in `thesis/data/input`:
-

How Does it Look?

- Are there errors we can fix?
 - We need to check our assumptions
 - Formalize them with `assertthat()`
-

Using Assertions

Why Use Assertions?

- We want to make sure our text follows from our analysis.
meaning less than 300 papers about climate. Shocking!
 - But is it?
-

Writing Assertions

```
assertthat::assert_that(climate[[1]]$hits < 300, msg="The hits are greater than 300 now!")
```

- If the assertion fails then the code doesn't `knit` and you have an informative error message telling you why.
-

Summary

Summary

- You've created a thesis chapter