

Sharing analyses with RMarkdown

Reporters are **very** impressed by this output and consider it very official.

*My theory is that it's the font. Doesn't it look **amazing**?*

Setting up a reproducible data analysis workflow in R

- File organization best practices
- *Intro to R Markdown*
- Github
- Creating functions and packages

Introduction to R Markdown

Markdown

Super simple way to add formatting to plain text

- headers
- bold
- bullet lists
- links

Created by John Gruber (of Daring Fireball) as a simple way for non-programming types to write in an easy-to-read format that could be converted directly into HTML.

R code

```
boston_payroll %>%  
  group_by(TITLE) %>%  
  summarise_each(funs(mean), REGULAR, OVERTIME)
```

.Rmd files

An R Markdown (.Rmd) file is a record of your analysis process.

It contains the code that a scientist needs to reproduce your work along with the narration that a reader needs to understand your work.

Reproducible research

The idea that data analyses, and more generally, stories, are published with their data and software code so that others may verify the findings and build upon them.

- Look for insight deeper than the summary report
- Verify details yourself
- Learn new techniques from looking at other processes
- Figure out ways to apply the analysis to your own needs
- Your future self will thank you for documenting your process now

Reproducible research

At the click of a button, or the type of a command, you can rerun the code in an R Markdown file to reproduce your work and export the results as a finished report.

R Markdown supports dozens of static and dynamic output formats including

- HTML
 - PDF
 - MS Word
 - Beamer
 - HTML5 slides
 - Tufte-style handouts
 - books
 - dashboards
 - scientific articles (white pages)
 - websites
-

1. Open a new .Rmd file

at **File > New File > R Markdown**.

Title the R Markdown file and select **HTML** as the output for now.

.Rmd structure

YAML HEADER

Optional section of render options written as **key:value** pairs.

- At start of file
- Between lines of — (3 dashes)

CODE CHUNKS

Chunks of embedded R code. Each chunk:

- begins with “**{r}**” (the key to the left of 1)
- ends with “”

TEXT

Narration formatted with markdown mixed with code chunks.

2. Write document

Edit the default template by putting in your own code and text.

Intersperse the text with your code to tell a story.

2b. Label your chunks of code

You'll see why in a moment.

2c. Notebooks style

You can run individual chunks of code before generating the full report to see how it looks.

Click the green arrow next to each chunk.

3. Knit document to create report

Use knit button or type `render()` to knit

3b. Check out the build log

Down in the console. Warnings and errors will appear.

Also measures progress by chunks, which is why it's important to label them.

4. Preview output in IDE window

5. Output file

You have a .Rmd file and clicking knit HTML also generated a .html file

Datatables

You need to load libraries just like you would a normal script.

Let's look at the data in R Markdown with a new package called DT that uses the Datatables jquery library.

Example from **Part 1** in the `chunks.MD` file.

Specific features

Hide warnings, messages

Adding `warning=F` and `message=F` hid the little messages.

Example from **Part 2** in the `chunks.MD` file.

Hide code

If the person you're sharing this with has no interest in the code and only the quick results, use `echo=F` to hide the chunk of code and just display the output.

Example from **Part 3** in the `chunks.MD` file.

Inline R code

Embed lines of R code within the narrative with

Example from **Part 4** in the `chunks.MD` file.

Pretty tables

Make pretty tables with the `knitr` package and the `kable` function.

Example from **Part 5** in the `chunks.MD` file.

Change theme and style

Change the appearance and style of the HTML document by changing the theme up top.

Options from the Bootswatch theme library includes:

- `default`
- `cerulean`
- `journal`
- `cosmo`

highlights

- `tango`
- `pygments`
- `kate`

Example from **Part 6** in the `chunks.MD` file.

Table of contents

Add a floating table of contents by changing `html_document` to `toc: true` and `toc_float: true`.

Example from **Part 7** in the `chunks.MD` file.

Next steps?

Exporting as a PDF will require LaTeX installed first * Get it from latex-project.org or MacTex

Check out all the features of R Markdown at RStudio

Publish your results to Github pages

Read more on how

Try to publish directly to Wordpress

I haven't actually made this work but maybe you can try