Presentations in RMarkdown

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The power of RMarkdown

We have seen that RMarkdown is an efficient and flexible tool for technical documentation
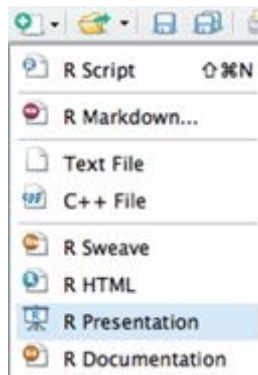

http://rmarkdown.rstudio.com/

RMarkdown and RStudio

RStudio houses many tools for creating presentations, reports, web pages, etc.

Some tools require packages and provide templates

R Presentations

· Default presentations in RStudio

· Written in RMarkdown

https://support.rstudio.com/hc/en-us/sections/200130218-R-Presentations

Formatting R presentations

Beamer

- LaTeX-based document template for creating slides and presentations
- YAML setting: `output: beamer_presentation`
- YAML settings for `theme`, `colortheme`, `fonttheme`
- Markdown syntax can be mixed with LaTeX
- Presentation format:
  http://rmarkdown.rstudio.com/beamer_presentation_format.html
- Customizing Beamer slides:
  https://kbroman.wordpress.com/2013/10/07/better-looking-latexbeamer-slides

Formatting R presentations

ioslides

- Default format for RMarkdown presentations
- YAML setting: `output: ioslides_presentation`
- Markdown syntax can be mixed with HTML
- Presentation format:
  http://rmarkdown.rstudio.com/ioslides_presentation_format.html
- Example:
  https://github.com/mdozmorov/presentations/tree/master/reproducible_resear
  09-09

Formatting R presentations

others

- **Slidy**: a HTML-based slideshow

    1. YAML setting: **output: slidy_presentation**
    2. Tutorial/example: https://www.w3.org/Talks/Tools/Slidy2/

- **reveal.js**: the HTML presentation framework, highly customizable

    1. YAML setting: **output: revealjs::revealjs_presentation**
    2. Example: http://lab.hakim.se/reveal-js/

Slidify

- Customizable presentations in R Markdown. HTML-based. Can render presentations in any format.

- http://slidify.org/: 5 min video tutorial

- Example: Slidify: 'Reproducible HTML Slides from R Markdown', http://slidify.org/samples/intro/

- Themes: https://ramnathv.github.io/slidifyExamples/

Tufte-style handouts

· Distinctive style of text with sidenotes

EDWARD TUFTE · MAGAZINE · 09.01.03 · 12:00 PM

POWERPOINT IS EVIL

Power Corrupts. PowerPoint Corrupts Absolutely.

Imagine a widely used and expensive prescription drug that promised to make us beautiful but didn't. Instead the drug had frequent, serious side effects: It induced stupidity, turned everyone into bores, wasted time, and

https://www.wired.com/2003/09/ppt2/

Tufte-style handouts

Tufte Handouts are documents formatted in the style that Edward Tufte uses in his books and handouts. Tufte's style is known for its extensive use of sidenotes, tight integration of graphics with text, and well-set typography

Figures

Margin Figures

Images and graphics play an integral role in Tufte's work. To place figures or tables in the margin you can use the `fig.margin` knitr chunk option. For example:

```
library(ggplot2)
qplot(Sepal.Length, Petal.Length, data = iris,
    color = Species)
```

Note the use of the `fig.cap` chunk option to provide a figure caption. You can adjust the proportions of figures using the `fig.width` and `fig.height` chunk options. These are specified in inches, and will be automatically scaled down to fit within the handout margin.
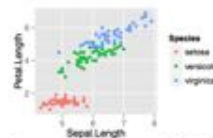
Figure 1: Sepal length vs. petal length, colored by species

Equations

You can also include LATEX equations in the margin by explicitly invoking the `marginfigure` environment.

Note the use of the `\caption` command to add additional text below the equation.

$$\frac{d}{dx}\left(\int_0^x f(u)\,du\right) = f(x).$$

Figure 2: An equation

Tufte-style handouts

- `tufte` package implements rendering `tufte_handouts`, `tufte_book`, `tufte_html`

- Installed as a template in RStudio once the `tufte` package is installed in R

- See the link for examples on accessing and formatting tufte-style reports:

http://rmarkdown.rstudio.com/tufte_handout_format.html

Xaringan

- An R package with templates for presentations

- Find it here: https://github.com/yihui/xaringan

- See the example: https://slides.yihui.name/xaringan/#1

Interactive reports

- Shiny - a web application framework for R, http://shiny.rstudio.com/

- Presentation format, http://rmarkdown.rstudio.com/authoring_shiny.html

- Generally used for exploratory data analysis

Bookdown

- Authoring Books with R Markdown: https://github.com/rstudio/bookdown

- https://bookdown.org/: free books authored with bookdown

- Example: 'Bookdown: Authoring Books with R Markdown', https://bookdown.org/yihui/bookdown/

Blogdown

- Authoring web pages with R Markdown:
  https://github.com/rstudio/blogdown

- Read about it here: https://bookdown.org/yihui/blogdown/

Websites

GitHub pages

- A simple way to make a website using Markdown and git,
  http://rmarkdown.rstudio.com/rmarkdown_websites.html

- GitHub pages hosting, https://pages.github.com/ - quick start on one
  page

- Example: 'Easy websites with GitHub Pages',
  http://kbroman.org/simple_site/

Publishing articles

- LaTeX Journal Article Templates for R Markdown, https://github.com/rstudio/rticles

PeerJ
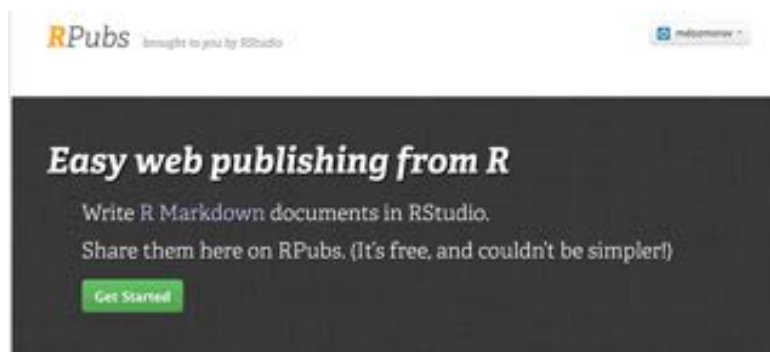
open access peer-reviewed scientific mega journal, https://peerj.com/

- Free preprint submission. Judges scientific/methodological rigor. Does not judge the results (may be null), interest or impact

https://github.com/PeerJ/paper-now

RPubs

- http://rpubs.com/: publishing R Markdown reports and presentation on the web
- Everything public
- Example: 'R Cookbook - Chapter 11 - Linear Regression and ANOVA', http://rpubs.com/escott8908/RC11

Formulas in presentations

- **MathJax** - formula rendering engine accepting LaTeX, MathML, or AsciiMath syntax.

- Inline formula - decorate with `$..$`

    - e.g. `"... when $x < y$ we have ..."`

    - becomes "… when $x < y$ we have …"

- Self-standing equation - decorate with `$$..$$`

    - e.g. `$$\sum_{i=0}^n i^2 = \frac{(n^2+n)(2n+1)}{6}$$`

    - becomes

$$\sum_{i=0}^{n} i^2 = \frac{(n^2 + n)(2n + 1)}{6}$$

https://en.wikibooks.org/wiki/LaTeX/Mathematics

http://meta.math.stackexchange.com/questions/5020/mathjax-basic-tutorial-and-quick-reference