008-`knitr` and Large Documents

Thesis type projects

August 12, 2015

Abstract

When writing large documents such as a thesis, book, or even a manuscript, it is recommended to split the markup document into several smaller ones. I will show how this is accomplished with `knitr` (Xie, 2015, 2013, 2014; Gandrud, 2013).

Contents

1 How it is done traditionally in LaTeX

Suppose we have a file structure as shown in Figure 1

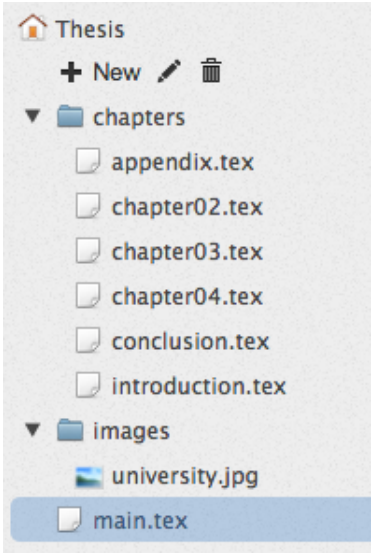

Figure 1: Thesis file structure. (source: sharelatex.com)

Then to add these chapters into the document we use the `\input` command in the root document:

```
\chapter*{Abstract}

\tableofcontents

\chapter{Introduction}
\input{chapters/introduction}

\chapter{Chapter Two Title}
\input{chapters/chapter02}

\chapter{Chapter Three Title}
\input{chapters/chapter03}

\chapter{Chapter Four Title}
\input{chapters/chapter04}

\chapter{Conclusion}
\input{chapters/conclusion}

\bibliographystyle{apa}
\bibliography{main.bib}

\appendix
```

```
\chapter{Appendix Title}
\input{chapters/appendix}
```

2 Large documents with knitr

For knittable documents we need to use `knitr`'s parent-child options. It allows us to include knittable children in parent documents, and to `knit` each child document separately (Gandrud, 2013). Rather than use the `\input` commands, we use the `child` code chunk option which takes as its value the file path of the child document. See `008-final-report.Rnw` for the source code of the parent document, and `008-intro.Rnw` & `008-model.Rnw` for the child documents.

References

Christopher Gandrud. *Reproducible Research with R and R Studio*. CRC Press, 2013. 1, 3

Yihui Xie. *Dynamic Documents with R and knitr*. Chapman and Hall/CRC, Boca Raton, Florida, 2013. URL http://yihui.name/knitr/. ISBN 978-1482203530. 1

Yihui Xie. knitr: A comprehensive tool for reproducible research in R. In Victoria Stodden, Friedrich Leisch, and Roger D. Peng, editors, *Implementing Reproducible Computational Research*. Chapman and Hall/CRC, 2014. URL http://www.crcpress.com/product/isbn/9781466561595. ISBN 978-1466561595. 1

Yihui Xie. *knitr: A General-Purpose Package for Dynamic Report Generation in R*, 2015. URL http://yihui.name/knitr/. R package version 1.10.5. 1

A Session Information

```
sessionInfo()
```

```
## R version 3.2.1 (2015-06-18)
## Platform: x86_64-pc-linux-gnu (64-bit)
## Running under: Ubuntu 14.04 LTS
##
## locale:
##  [1] LC_CTYPE=en_CA.UTF-8       LC_NUMERIC=C
##  [3] LC_TIME=en_CA.UTF-8        LC_COLLATE=en_CA.UTF-8
##  [5] LC_MONETARY=en_CA.UTF-8    LC_MESSAGES=en_CA.UTF-8
##  [7] LC_PAPER=en_CA.UTF-8       LC_NAME=C
##  [9] LC_ADDRESS=C               LC_TELEPHONE=C
## [11] LC_MEASUREMENT=en_CA.UTF-8 LC_IDENTIFICATION=C
##
## attached base packages:
## [1] grid      stats     graphics  grDevices utils
## [6] datasets  methods   base
##
## other attached packages:
## [1] vcd_1.3-2    knitr_1.10.5
##
## loaded via a namespace (and not attached):
## [1] colorspace_1.2-6 MASS_7.3-43      magrittr_1.5
## [4] formatR_1.2      tools_3.2.1      stringi_0.5-5
## [7] stringr_1.0.0    evaluate_0.7
```