Last week We co-ran the [FOSS4GUK conference in Edinburgh](https://uk.osgeo.org/foss4guk2019). It was great fun and thoroughly exhausting. Part of the preparation work I did was to produce an [abstract booklet for the conference](https://uk.osgeo.org/foss4guk2019/FOSS4GUK_2019_Abstracts.pdf). This post is a guide to how We automated that with R and LaTeX.

[R is a programming language](https://cran.r-project.org/) focused on data analysis and [LaTeX is a document preparation system](https://www.latex-project.org/). Both are open source. I used R to process and clean abstracts and LaTeX to type set the booklet, based on a [template I found on Overleaf](https://www.overleaf.com/latex/examples/a-basic-conference-abstract-booklet/tkjfcvzgjrnd).

With hindsight We wish we had required speakers to submit abstract text in a form, but we allowed them to upload files. This lead to a tedious amount of copy and pasting from pdf, word and plain text. Once this was over I set up a delegates file with the following columns:

* name
* join
* day
* time
* room
* title
* affiliation

We populated it from the conference programme.

Next I used R to read each abstract file and join it to the delegate meta data. Each abstract was then written out to a new file in the format for the LaTeX document. Finally a list of these LaTeX ready abstracts was made:

library(tidyverse)

library(janitor)

f = list.files("~/Cloud/Michael/FOSS4G/talks/abstracts\_clean")

meta = read\_csv("~/Cloud/Michael/FOSS4G/talks/abstract\_book/talk\_names.csv") %>%

clean\_names()

lapply(f, function(i){

x = read\_file(paste0("~/Cloud/Michael/FOSS4G/talks/abstracts\_clean/", i))

y = str\_remove(i, ".txt")

z = filter(meta, join == y)

fileConn = file(paste0("~/Cloud/Michael/FOSS4G/talks/abstract\_book/abstracts/", i))

writeLines(c(paste0("\\begin{conf-abstract}[", z$day, "\\", str\_sub(z$time, 1, 5), "\\", z$room, "]"),

paste0("{", z$title, "}"),

paste0("{", z$name, "}"),

paste0("{", z$affiliation, "}"),

"",

x,

"\\end{conf-abstract}"),

fileConn)

close(fileConn)

})

f = list.files("~/Cloud/Michael/FOSS4G/talks/abstract\_book/abstracts/")

fileConn = file("~/Cloud/Michael/FOSS4G/talks/abstract\_book/abstracts\_list.txt")

writeLines(paste0("\\input{abstracts/", f, "}"),

fileConn)

close(fileConn)

There’s a but here. LaTeX requires \\ for a new line, but R uses regex which makes the first \ an escape sequence to print the second \. No doubt there’s some bash wizardry I could use to replace these (comments welcome), but I resorted to a find and replace in a text editor as I was on a rush to get the booklet finished! Here’s a list of characters/strings I had to replace and what I replaced them with:

* $ | \$
* % | \%
* \_ | \\_
* & | \&
* [Thu\ | [Thu\\
* [Fri\ | [Fri\\
* \Green] | \\Green]
* \Blue] | \\Blue]

There were also some oddly encoded ' from word (no surprise), which needed to be swapped. LaTeX likes “quotes” to be formatted like “quotes”, which are then rendered beautiful – I had to manually fix these.

Finally I ran the LaTeX compiler, after I’d added the abstract list to the following.

\documentclass[12pt]{book}

\usepackage[a4paper,margin=3cm,innermargin=3cm]{geometry}

\usepackage{needspace}

\usepackage{marginnote}

\renewcommand\*{\marginfont}{\sffamily\footnotesize}

\usepackage{imakeidx}

\usepackage{hyperref}

\makeindex[intoc]

\newenvironment{conf-abstract}[4][]{

\needspace{10\baselineskip}

\begin{center}

{ \renewcommand\textsuperscript[1]{}

\phantomsection\addcontentsline{toc}{section}

{\texorpdfstring{#2 (\emph{#3})}{#2 (#3)}}

}

{{\large\bfseries #2}\marginnote{#1}\par}

\medskip

{#3\par}

\smallskip

{\small #4\par}

\end{center}

}{%

\bigskip

\hrule

\bigskip

}

\usepackage{etoolbox}

\newcommand{\indexauthors}[1]{%

\forcsvlist{\index}{#1}

}

\setcounter{tocdepth}{3}

\setcounter{secnumdepth}{-1}

\pagestyle{plain}

\usepackage{graphicx}

\begin{document}

\begin{titlepage}

\centering

\vspace\*{150px}

{\bfseries\Huge

Conference Abstracts\\

}

\vfill

\includegraphics[width=8cm]{../../logos/FOSS4G-LOGO@2x.png} % also works with logo.pdf

\vfill

\vfill

\end{titlepage}

\frontmatter

%\maketitle

\tableofcontents

\mainmatter

\chapter{Abstracts}

% Specify conf-abstract like this:

% \begin{conf-abstract}[optional text going into the margin note]

% {Title of Paper}

% {Authors (use \textsuperscript as institution markers)}

% {Institutions (use \textsuperscript as institution markers)}

% \indexauthors{Lastname1!Firstname 1, Lastname2!Firstname2}

% Abstract text

% \end{conf-abstract}

%

% It's probably best to generate the abstracts from a

% database or something via a script. Don't forget to

% check through for any special characters that need to

% be escaped.

\input{abstracts/Barter.txt}

\input{abstracts/Bauszus.txt}

\input{abstracts/Boerlage.txt}

\input{abstracts/Constantinescu.txt}

\input{abstracts/Cook.txt}

\input{abstracts/Coulon.txt}

\input{abstracts/Duncan.txt}

\input{abstracts/Fleet.txt}

\input{abstracts/Fleming.txt}

\input{abstracts/Frerichs.txt}

\input{abstracts/Gordon.txt}

\input{abstracts/Graham.txt}

\input{abstracts/Holderness.txt}

\input{abstracts/Hopkin.txt}

\input{abstracts/Ijaz.txt}

\input{abstracts/Landy.txt}

\input{abstracts/le\_Riche.txt}

\input{abstracts/Maire.txt}

\input{abstracts/Milner.txt}

\input{abstracts/Moon.txt}

\input{abstracts/Moules.txt}

\input{abstracts/Ormsby.txt}

\input{abstracts/Rattey.txt}

\input{abstracts/Razmjooei.txt}

\input{abstracts/Reid.txt}

\input{abstracts/Rowlingson.txt}

\input{abstracts/Santos.txt}

\input{abstracts/Scott.txt}

\input{abstracts/Selwood.txt}

\input{abstracts/Smith.txt}

\input{abstracts/Spencer.txt}

\input{abstracts/Stevenson.txt}

\input{abstracts/Stubbins.txt}

\input{abstracts/Taylor.txt}

\input{abstracts/Turton.txt}

\input{abstracts/Varley.txt}

\input{abstracts/Vesanto.txt}

\backmatter

\end{document}

If We had more time I would play about with fonts, colours and automate some of the string replacement.