

markdown-memo example document

make writing easier and more productive

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This is an example document discussing and demonstrating how to use the markdown-memo package, meant to aid quick development of quality html and pdf documents from simple Markdown markup. Markdown-memo is developed by Ryan Reece at <https://github.com/rreece/markdown-memo>.

Keywords: academic writing, blogging, digital humanities, LaTeX, Markdown, open publishing, open science, productivity, technical writing, typesetting, writing

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1 Introduction

1.1 What this is for

This project is meant to make writing easier and more productive.

So you want to write a document. Maybe you'll share it on the web. Maybe you want a polished pdf. Maybe it's a blog, research paper, book draft, or just a set of notes. You *don't* want to think about typesetting details. You just want to throw your ideas in some plain text files and call make.

This package makes it very easy to compile text taken in Markdown to valid xhtml or to a pdf via LaTeX. It can be used to make simple webpages quickly, for example:

<http://rreece.github.io/sw/markdown-memo/>

This same document compiled to a pdf can be found here:

<http://rreece.github.io/sw/markdown-memo/example.pdf>

1.2 How it works

[Markdown](#) is a very simple markup language for writing documents that basically looks as if you were to write your ideas in a plain-text email. In this package, we aim to hide some of the boiler-plate issues of compiling a completely formatted document or webpage from Markdown, trying to make it as trivial as possible to get your ideas out.

Most of the heavy-lifting work underneath markdown-memo is done by the [pandoc](#) program, which does the actual compilation of Markdown to html or pdf.

Most of the magic in the implementation of markdown-memo is in its [Makefile](#), which basically calls pandoc in various useful configurations and applies some hacks to the output using the tools in `scripts/`.

Keep content and style separated.

The idea is that all user *content* should be in plainly written *.md files and one metadata file: `meta.yaml`. All *stylistic* issues should be implemented in the details of the files in `templates/` and configurable through `meta.yaml`, and unless you want to, you shouldn't have to worry about them.

For example, [see what changes](#) when this document is created with

```
css: 'templates/markdown-memo-alt.css'
```

set in `meta.yaml`, instead of the css file used in the [default version](#):

```
css: 'templates/markdown-memo.css'
```

2 Getting started

2.1 Checking-out the template

Checking out markdown-memo with a [simple git command](#), like:

```
git clone https://github.com/rreece/markdown-memo.git
```

Some basic instructions are given in the [README.md](#). They are expanded on here.

Basically, once you have cloned markdown-memo, if you satisfy its requirements you should be able to call `make` and receive reasonable html output, and call `make pdf` and receive a reasonable pdf.

Feel free to rename markdown-memo as whatever is suitable to your project, and delete the example `*.md` files.

2.2 Requirements

- `make`
- LaTeX (texlive)
- `cabal`
- `pandoc`
- `python`

On my Mac laptop (OS X, 10.8), I installed any missing dependencies through [macports](#). You can probably use [Fink](#), or [Homebrew](#), or whatever, instead if you like.

After installing [macports](#) or whatever, maybe you need to do something like the following to install missing dependencies.

```

sudo port selfupdate
sudo port install python27
sudo port select python python27
sudo port install py27-matplotlib
sudo port install texlive-latex texlive-latex-recommended texlive-latex-extra texlive-math-extra
sudo port install hs-cabal-install
sudo port install pandoc

```

I've also had to install `pandoc-crossref`, and I think I had to install `pandoc-citeproc`. In the case of [pandoc-crossref](#), you simply do this to install:

```

cabal update
cabal install pandoc-crossref

```

If something doesn't work for you, please let me know! I'll do my best improve the documentation and make the software more robust as time allows. Contact me at: ryan.reece@cern.ch

Please let me know if you have success or failure testing this on different systems.

2.3 Starting a page or section

Just open or create a first `md` file in that directory like `01-introduction.md`, and start typing. Each file should probably correspond to a webpage or section in the document, and in that case, it should begin with an `h1`-level heading (section), denoted with a double-rule of equal-signs, like:

```

Section title
=====

```

Or marked like this:

```

# Section title

```

Then you can have sub-sections as you wish, and/or just start typing the main text. There's no need for additional markup or `html`.

You can delete the example `*.md` files within this template when beginning your project.

2.4 Going from there

The following sections of this example document will show examples of Markdown syntax. For now, briefly, some examples of [Markdown syntax](#) are

Section 1

=====

Sub-section 1

[Lorem ipsum](https://en.wikipedia.org/wiki/Lorem_ipsum)
 dolor sit amet, duo ut putant verear, nam ut brute utroque.
 Officiis qualisque conceptam te duo, eu vim soluta numquam, has ut aliquip
 accusamus. Probo aliquam pri id. Mutat singulis ad vis, eam euismod pertinax
 an, ea tale volumus vel. At porro soleat est. Debet facilis admodum an sed,
 at falli feugiat est.

1. one
1. two
1. three

You can do latex in-line, $e^{i\pi} + 1 = 0$, like that.
 Or equations:

```
\begin{equation}
  \int_{\partial\Omega} \omega = \int_{\Omega} \mathrm{d}\omega \,,
\end{equation}
```

2.5 Building your document

In addition to writing the basic md files for your project, you need to write a metadata file: meta.yaml. See the example metadata there.

Then you can build your document. A lot of the inner-workings of markdown-memo are done in the Makefile.

- Call `make html` to generate valid xhtml. For example, [this document](#).
- Call `make pdf` to generate a pdf document. For example, [this document](#).
- Call `make clean` to delete temporary LaTeX files.
- Call `make realclean` to additionally delete the output html and pdf files.

I use an image of my email to hide it from text crawlers. Please replace `img/my_email.png`

with a screenshot of your email address instead of mine, or just remove the use of the image in `meta.yaml`.

Customize the files in `templates/` to adjust the format of the output html and pdfs files to your needs.

3 Markdown basics

Here we review the basics of Markdown. A further reference on Markdown syntax by its creator is [here](#).

3.1 Sections

Are marked like this:

```
Section title {#sec:put-section-label-here}
=====

Sub-section title
-----
```

Or marked like this:

```
# Section title {#sec:put-section-label-here}

## Sub-section title

### Sub-sub-section title

Main text here.
```

Note the examples of labeling a section in braces with #, as shown above. This allows one to refer to labels in the text like:

The next section, [`@sec:lists`], is about lists.

The next section, Section [3.2](#), is about lists.

3.2 Lists

Unnumbered lists like this:

- Galileo Galilei
- Robert G. Ingersoll
- Jill Tarter

- Galileo Galilei
- Robert G. Ingersoll
- Jill Tarter

Numbered lists like this:

1. Naïve realists
1. Scientific realists
1. Constructive empiricists
1. Positivists
1. Relativists

1. Naïve realists
2. Scientific realists
3. Constructive empiricists
4. Positivists
5. Relativists

3.3 Blocks

The following is a **quote block**.

```
> It ain't what you don't know that gets you into trouble.  
> It's what you know for sure that just ain't so.
```

```
-- Mark Twain
```

It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so.

– Mark Twain

A **code block** (used throughout these examples) is just indented with 4 spaces, like this:


```
def shortBubbleSort(alist):
    exchanges = True
    passnum = len(alist)-1
    while passnum > 0 and exchanges:
        exchanges = False
        for i in range(passnum):
            if alist[i]>alist[i+1]:
                exchanges = True
                temp = alist[i]
                alist[i] = alist[i+1]
                alist[i+1] = temp
        passnum = passnum-1

alist=[20,30,40,90,50,60,70,80,100,110]
shortBubbleSort(alist)
print(alist)
```

which makes:

```
def shortBubbleSort(alist):
    exchanges = True
    passnum = len(alist)-1
    while passnum > 0 and exchanges:
        exchanges = False
        for i in range(passnum):
            if alist[i]>alist[i+1]:
                exchanges = True
                temp = alist[i]
                alist[i] = alist[i+1]
                alist[i+1] = temp
        passnum = passnum-1

alist=[20,30,40,90,50,60,70,80,100,110]
shortBubbleSort(alist)
print(alist)
```

Maybe you want to refer to **code inline** like this with backticks:

Here's some inline code: ``vec.push_back(3.14)``.

Here's some inline code: `vec.push_back(3.14)`.

For poems and the like where you want **linebreaks taken literally**, prepend lines with `|` and a single space. Additional spaces can be used, but will indent the output.

```
| Art is long,  
| Life is short,  
| Opportunity fleeting,  
| Experiment dangerous,  
| Judgment difficult.
```

Art is long,
Life is short,
Opportunity fleeting,
Experiment dangerous,
Judgment difficult.

Otherwise, one can put two or more spaces at the end of a line of Markdown for the linebreak to be taken literally like this.

A **horizontal rule** can be made by just writing some number of dashes:

Boom.

3.4 Fonts

```
- *This is emphasis.*  
- **This is bold.**  
- _This is also emphasis._  
- __This is also bold.__  
- _This is emphasis and bold._  
- __This is bold and emphasis.__  
- ~~This is struck-out.~~
```

produces:

- *This is emphasis.*
- **This is bold.**
- *This is also emphasis.*

- **This is also bold.**
- *This is emphasis **and** bold.*
- **This is bold *and* emphasis.**
- ~~This is struck-out.~~

Don't do this. These will work in LaTeX (L^AT_EX) but may not in html.

```
- \textsf{This should be Sans.}
- \textsc{This Should BE SMALL caps.}
- $\textsf{This works though!}$
- $\textsc{But this does not!}$
```

produces:

- This should be Sans.
- THIS SHOULD BE SMALL CAPS.
- This works though!
- BUT THIS DOES NOT!

3.5 Links

URLs are done like this:

[Lorem ipsum](https://en.wikipedia.org/wiki/Lorem_ipsum)

[Lorem ipsum](#)

When referring to labeled sections/figures/tables, you do not include the literal word “Section”, “Figure”, or “Table”, which will be included for you, *but for equations you do* (tell me otherwise?). These prefixes are configurable in the `meta.yaml` file.

Refer to labeled things like this:

- for sections: [`@sec:footnotes`]
Section [3.6](#)
- for figures: [`@fig:scientific_universe`]
- for tables: [`@tbl:atlas_channels`]
- for equations: `eq.\ $\eqref{eq:stokes}$`

3.6 Footnotes

Here's how you do a footnote[^{~SomeSpecialNote}].

[^{~SomeSpecialNote}]: Lorem ipsum dolor sit amet, duo ut putant verear, nam ut brute utroque. Officiis qualisque conceptam te duo, eu vim soluta numquam, has ut aliquip accusamus. Probo aliquam pri id. Mutat singulis ad vis, eam euismod pertinax an, ea tale volumus vel. At porro soleat est. Debet facilis admodum an sed, at falli feugiat est.

produces:

Here's how you do a footnote¹.

4 Bibliographies

4.1 Making a bibliography

Markdown-memo uses [bibtex](#) via [pandoc](#) to generate a bibliography for your document. We've made this even simpler by allowing the user to create a simple text file to generate the necessary bibtex .bib file using the [markdown2bib](#) script.

TODO: explain bibs/mybib.txt.

If you do not need a bibliography, set

```
dorefs: false
```

in meta.yaml, and then these scripts and programs are not run.

4.2 Doing citations

Citations start with an @-sign, and can be used inline, like:

@Miller_2014_Realism argues that we should get real.

¹ Lorem ipsum dolor sit amet, duo ut putant verear, nam ut brute utroque. Officiis qualisque conceptam te duo, eu vim soluta numquam, has ut aliquip accusamus. Probo aliquam pri id. Mutat singulis ad vis, eam euismod pertinax an, ea tale volumus vel. At porro soleat est. Debet facilis admodum an sed, at falli feugiat est.

which produces:

Miller (2014) argues that we should get real.

Inside a caption, you may want to end it with the citation in parentheses like this:

```
Blah blah blah [@Feynman_1963_The_Feynman_Lectures_on_Physics_Volume_I]\.
```

which produces:

Blah blah blah (R. Feynman, 1963).

Typically, I find it better to leave citations² in footnotes to keep from cluttering the main text. Let's try citing various kinds of references. Feynman said some important things³. But everything is a footnote to Plato⁴. Van⁵ is a cool cat too.

In order for a References section to be generated per html page, you need to add a special html comment near the end of your Markdown file for that page:

```
<!-- REFERENCES -->
```

Pages without such a comment will not get an automatic References section, but the complete pdf document will automatically still have a complete References section at the end as long as

```
dorefs: true
```

is set in `meta.yaml`.

5 Mathematical expressions

5.1 Typetting math

You can do latex inline like this:

²Quine (1969).

³R. P. Feynman (1965).

⁴Plato (2000).

⁵van Fraassen (1980).

Euler's formula is remarkable: $e^{i\pi} + 1 = 0$.

Euler's formula is remarkable: $e^{i\pi} + 1 = 0$.

Just use the latex equation environment directly. Stokes' theorem is pretty cool:

```
\begin{equation} \label{eq:stokes}
\int_{\partial\Omega} \omega = \int_{\Omega} \mathrm{d}\omega \,,
\end{equation}
```

$$\int_{\partial\Omega} \omega = \int_{\Omega} \mathrm{d}\omega . \quad (1)$$

You can also refer to labeled equations, such as eq. (1), with the syntax:

... such as eq. `\$ \eqref{eq:stokes} $`,

Note that `\` makes a non-breaking space.

The align environment can also be used. Maxwell's equations (2) are also tough to beat:

```
\begin{align}
\nabla \cdot \vec{E} &= \rho \nonumber \\
\nabla \cdot \vec{B} &= 0 \nonumber \\
\nabla \times \vec{E} &= - \frac{\partial \vec{B}}{\partial t} \label{eq:maxwell} \\
\nabla \times \vec{B} &= \vec{j} + \frac{\partial \vec{E}}{\partial t} \nonumber
\end{align}
```

$$\begin{aligned} \nabla \cdot \vec{E} &= \rho \\ \nabla \cdot \vec{B} &= 0 \\ \nabla \times \vec{E} &= - \frac{\partial \vec{B}}{\partial t} \\ \nabla \times \vec{B} &= \vec{j} + \frac{\partial \vec{E}}{\partial t} . \end{aligned} \quad (2)$$

5.2 Mathjax

When doing `md` \rightarrow `tex` \rightarrow `pdf`, LaTeX takes care of the math, but to render the math in `html`, we use [MathJax](#). Our `html` template includes the following code to ask MathJax to

render it and number the equations:

```
<!-- MathJax stuff -->
<script src='https://cdn.mathjax.org/mathjax/latest/MathJax.js?config=TeX-AMS-MML_HTMLorMML'></script>
<script type="text/x-mathjax-config">
  MathJax.Hub.Config({ TeX: { equationNumbers: {autoNumber: "all"} } });
</script>
```

6 Floats, Figures, and Tables

6.1 Figures

Ei oratio mediocritatem sea, at choro mandamus disputando quo, id eius albucius deseruisse mei. Id eam verear disputando repudiandae. Per et clita reformidans. Ea his corpora ancillae fabellas, an eum facer tation populo. Vix omittam lucilius inciderint ne, est cu civibus scribentur adversarium.

Figure 1 shows some cool things.

Ei oratio mediocritatem sea, at choro mandamus disputando quo, id eius albucius deseruisse mei. Id eam verear disputando repudiandae. Per et clita reformidans. Ea his corpora ancillae fabellas, an eum facer tation populo. Vix omittam lucilius inciderint ne, est cu civibus scribentur adversarium.

Pro solet accumsan at. Id has dicunt corrumpit, vel in mundi vitae definiebas, eos in dicunt aliquando. His falli qualisque eu, ad vim movet dolor, per ne denique lobortis. Recusabo tractatos per cu. Apeirian voluptaria constituam eam no. Scripta vivendum mel ne.

Lorem ipsum dolor sit amet, duo ut putant verear, nam ut brute utroque. Officiis qualisque conceptam te duo, eu vim soluta numquam, has ut aliquip accusamus. Probo aliquam pri id. Mutat singulis ad vis, eam euismod pertinax an, ea tale volumus vel. At porro soleat est. Debet facilis admodum an sed, at falli feugiat est.

Ne nonumy quodsi petentium vix, mel ad errem accusata periculis. Porro urbanitas consetetur mei eu, his nisl officiis ei. Ei cum fugit graece, ne qui tantas qualisque voluptaria. Vis ut laoreet euripidis, vix aequae omittam at, vix no cetero volumus. Per te omnium volutpat torquatos, cu vis sumo decore. Eirmod hendrerit an pri.

Figure 2 shows the p_0 value as a function of the reconstructed Higgs mass from the ATLAS experiment.



Figure 1: The scale of the universe mapped to the branches of science and the hierarchy of science.
CC BY-SA 3.0 (2013) [Wikimedia Commons](#).

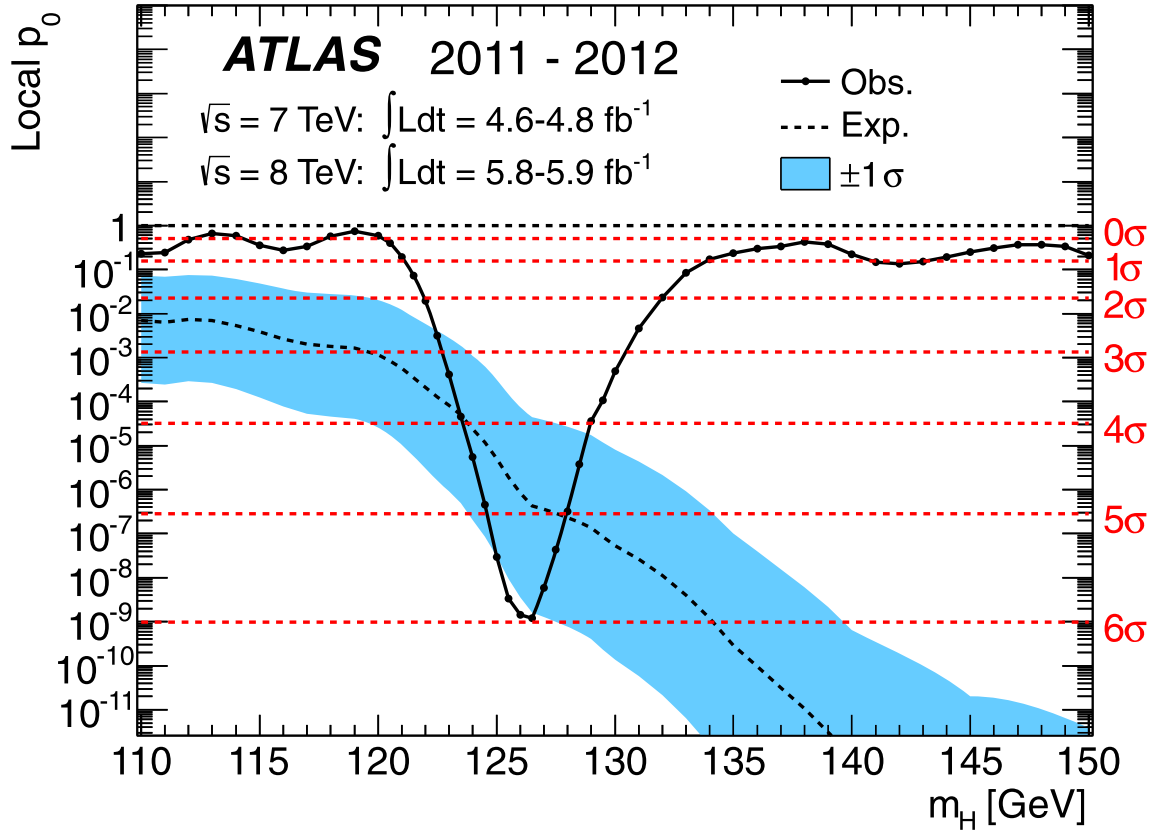


Figure 2: The observed (solid) local p_0 as a function of m_H in the low mass range. The dashed curve shows the expected local p_0 under the hypothesis of a SM Higgs boson signal at that mass with its $\pm 1\sigma$ band. The horizontal dashed lines indicate the p -values corresponding to significances of 1 to 6 σ (ATLAS Collaboration, 2012).

Amet magna voluptatum eam eu. Denique moderatius ad pri, an vix tale referrentur, atqui appetere et eos. Pri esse disputationi et. Te his assum persius, in eam deterruisset consequuntur. Quando signiferumque no his, usu nusquam corrumpit ex, sea ex soluta option facilisis. Ne autem assentior consequuntur nam, constituto scripserit no eam. Eu laoreet fabellas postulant eos.

6.2 Tables

Ei oratio mediocritatem sea, at choro mandamus disputando quo, id eius albucius deseruisse mei. Id eam verear disputando repudiandae. Per et clita reformidans. Ea his corpora ancillae fabellas, an eum facer tation populo. Vix omittam lucilius inciderint ne, est cu civibus scribentur adversarium.

Table 1: Approximate number of readout channels per sub-detector in ATLAS for the primary sub-detectors (ignoring the minbias trigger system, luminosity monitors, and DCS sensors) (ATLAS Collaboration, 2008).

System	Subsystem	Approx. channels
Inner detector	Pixels	80 M
	SCT	6.3 M
	TRT	350 k
EM Calorimeter	LAr barrel	110 k
	LAr end-cap	64 k
Hadronic Calorimeter	Tile barrel	9.8 k
	LAr end-cap	5.6 k
	LAr forward	3.5 k
Muon spectrometer	MDTs	350 k
	CSCs	31 k
	RPCs	370 k
	TGCs	320 k
Total		88 M

Pro solet accumsan at. Id has dicunt corrumpit, vel in mundi vitae definiebas, eos in dicunt aliquando. His falli qualisque eu, ad vim movet dolor, per ne denique lobortis. Recusabo tractatos per cu. Apeirian voluptaria constituam eam no. Scripta vivendum mel ne.

Table 1 shows some cool things too.

6.3 Table of contents per html page

To insert a table of contents for a single html page, add the following line to the Markdown, probably near the top of the page as is done for this one.

```
<!-- PAGETOC -->
```

6.4 Clickmore

You can hide parts of a document in a heading that needs to be clicked to show more by making a div of class `clickmore` and a div of class `more`, linked to eachother like this:

```
<div class="clickmore"><a id="link:test1" class="closed" onclick="toggle_more('test1')">Click for more details</a>
<div id="test1" class="more">
```

Ne nonumy quodsi petentium vix, mel ad errem accusata periculis. Porro urbanitas consetetur mei eu, his nisl officiis ei. Ei cum fugit graece, ne qui tantas qualisque voluptaria. Vis ut laoreet euripidis, vix aequae omittam at, vix no cetero volumus. Per te omnium volutpat torquatos, cu vis sumo decore. Eirmod hendrerit an pri.

...

```
</div>
```

For example:

Click for more details

Ne nonumy quodsi petentium vix, mel ad errem accusata periculis. Porro urbanitas consetetur mei eu, his nisl officiis ei. Ei cum fugit graece, ne qui tantas qualisque voluptaria. Vis ut laoreet euripidis, vix aequae omittam at, vix no cetero volumus. Per te omnium volutpat torquatos, cu vis sumo decore. Eirmod hendrerit an pri.

Amet magna voluptatum eam eu. Denique moderatius ad pri, an vix tale referrentur, atqui appetere et eos. Pri esse disputationi et. Te his assum persius, in eam deterruisset consequuntur. Quando signiferumque no his, usu nusquam corrumpit ex, sea ex soluta option facilisis. Ne autem assentior consequuntur nam, constituto scripserit no eam. Eu laoreet fabellas postulant eos.

Ei oratio mediocritatem sea, at choro mandamus disputando quo, id eius albucius deseruisse mei. Id eam verear disputando repudiandae. Per et clita reformidans. Ea his

corpora ancillae fabellas, an eum facer tation populo. Vix omittam lucilius inciderint ne, est cu civibus scribentur adversarium.

Pro solet accumsan at. Id has dicunt corrumpit, vel in mundi vitae definiebas, eos in dicunt aliquando. His falli qualisque eu, ad vim movet dolor, per ne denique lobortis. Recusabo tractatos per cu. Apeirian voluptaria constituam eam no. Scripta vivendum mel ne.

I wonder if Table 2 works.

Table 2: Caption

a	b	c
1	2	3
4	5	6

7 Conclusions

This project is meant to make writing easier and more productive.

markdown-memo is developed by [Ryan Reece](#).

Let me know what you think about it in an email to ryan.reece@cern.ch, or find me on Twitter [@RyanDavidReece](#).

Acknowledgements

Thanks to everyone who helped with this manuscript.

A Special features

This is an appendix. You start it like any other section, except put the following command first, before the section heading.

```
\appendix
```

```
Put appendix name here
```

```
=====
```

If you add multiple appendices, perhaps you want to separate them from the main text with a part:

```
\clearpage
\appendix
\part*{Appendices}
\addcontentsline{toc}{part}{Appendices}
```

Example appendix

```
=====
```

Start writing the appendix...

A.1 Special files

There are a few special files that help steer the execution of `markdown-memo` or are otherwise exceptional.

Documentation:

- `README.md` - Please empty this file and adapt it to your project.
- `VERSIONS` - Documents the chronology of `markdown-memo` versions. Feel free to delete or adapt this to your project.

Primary files edited by the user:

- `meta.yaml` - The main metadata file controlling the project in many ways.
- `*.md` - Any other user-created Markdown files, the markup of your document.

Optional files:

- `index.[md,txt]` - The top-level, root file of your project. By default, if `index.txt` is missing, a table of contents is generated for `index.md`, otherwise (the user-written) `index.txt` is copied to be the `index.md`.
- `bib_index.md` - Call `make bib_index.md` to generate this file. It is to help incorporate citations into your document by being an automatically generated list of the references, with footnotes, created from the available bibliography files in `bibs/`.
- `order.txt` - Optionally, the user can create this file, which should have a list of Markdown files used in the document, one-per-line, in the order as to be used for the

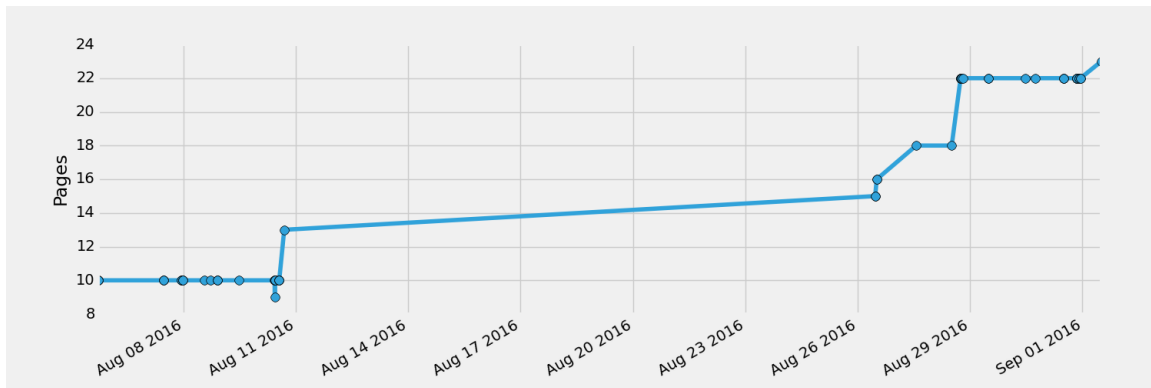


Figure 3: my pages

navigation buttons in the html template. By default, building the html will generate this file if it doesn't already exist, with the Markdown files listed in alphabetical order. If one names the Markdown files something like 01-first-section.md, 02-second-section.md, etc., then the order should be handled automatically.

A.2 Disqus integration

You can choose to append a comments section at the end of your html. Just register a user name and the site name with disqus.com. Then in the meta.yaml, set `disqus: true`, and set your `disqus_shortcode`.

A.3 Google analytics integration

TODO: describe.

A.4 Word count

Note that word-count and page-count plots are generated when you call `make pdf`. You might want to keep these around in the `README.md` for your document.

References

ATLAS Collaboration. (2008). The ATLAS Experiment at the CERN Large Hadron Collider. *JINST*, 3. S08003.

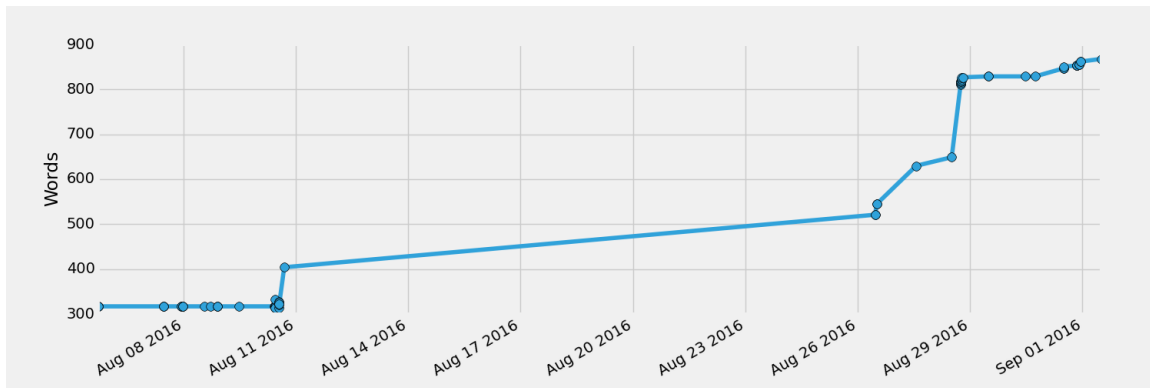


Figure 4: my words

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