MarkDown Thesis FrameWork[1]

An example meta declaration

Jan Sobeslav

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[1]Thanks to Pandoc and LaTeX creators

Abstrakt

Lorem Ipsum dolor sit amet

Obsah

Seznam tabulek

Seznam obrázků

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Overview and philoshophy

As stated in the readme, this framework is a tool that utilizes Pandoc[1] to create beautiful standalone ebooks and documents from multiple MarkDown[2] markup files. The text contents are written in plain text, and can therefore be tracked by version control system, like Git, and before exporting to pdf or epub, the MD code is translated to, and interpreted as LaTeX[3].

The main reasons, why I decided to try this approach, instead of continuing to use any office document processing tool, were following:

- Modular nature: I wanted to divide a lengthy document into more managable set of files - chapters. That way, I can see two chapters side by side and modify them parallelly without scrolling all the time (I figured out, that such feature would be invaluable, only after writing a 13k words bachelor thesis)
- Version control: I thought it would be useful to see different versions of the document, and changes made between them. Moreover, remote VCS makes perfect backups, and even makes possible collaboration way easier
- Clearer style: Since MD markup is quite limited, I like to think of it as of a benefit: I hope it will give the document more unified, more readable look

Features checklist

There are certain features this framework in general, and other tools I use, must provide for me. Some features must be satisfied by recommended text processing program, other by the MD-to-PDF compilation tool. It's important to note, that theese points are my personal requirements, and I present them only to give an idea on the philosophy behind the project, and what could it give you.

As noted further in the docs, the framework relies on Pandoc[4] tool, and I personally chosed Haroopad[5] as text processor, which suits me the most.

My text processor requirements:

- [x] Live compilation result preview

[1] https://pandoc.org
[2] https://daringfireball.net/projects/markdown/
[3] https://www.latex-project.org
[4] https://pandoc.org
[5] http://pad.haroopress.com/user.html

  - I need to see the result of MD processing as I write. I prefer two-pane layout, instead of WYSIWIG, and this requirement is satisfied by Haroopad
- [x] Ability to view multiple files simoutanously
  - Haroopad works in windowed mode, and therefore it is possible to arrange the files for convenience
- [x] Multiple monitor support
  - Again, windowed mode enables spreading the work on multiple monitors. This is feature, which might not be able to accomplish with a single-window IDE (which could, however, at least support viewing multiple files at the same time)
- [ ] Tabbed interface of opened documents
  - Haroopad does not have this feature. Instead, it works in windowed mode, which is not perfect to me personally, but it is satisfactory enough
- [x] Diacritics support (UTF8)
  - Haroopad works well with UTF-8

Framework requirements and goals:

- [x] Git support
  - MD files are basically plain-text and therefore perfectly compatible with any VCS
- [x] Export: Export to PDF (EPUB), merge of multiple files
  - Pandoc does this, and much more
- [x] Content: images, code preview
  - Works like a charm, as seen in example chapter
- [x] Content: tables
  - It's difficult to maintain the tables in plain text, but it's possible, as seen in example chapter
- [x] Organization: Table of contents, list of tables, list of figures
  - Another few of nice features Pandoc provides
- [ ] Organization: Bibliography (References)
  - Hasn't been tested yet, but there is Pandoc support for this, too
- [ ] Organization: pagebreaks, heading numbering
  - Hasn't been tested yet
- [x] Style: Template support
  - It's not perfect enough in current version of the framework, as described in first News entry, but Pandoc does have the template support
- [ ] Custom formatting / style
  - Hasn't been tested properly
- [ ] Formalized FW
  - In the end, I want to present a publishable version of the project, with accurate docs and all features working and tested

News

I have just finished the first working verion of the framework, and will test it on a real example soon. When that happens, I will probably update the tool with some fixes, or additional options. I am quite happy with the results so far, with the only exception being the template format. I wanted the template to be written in MD as well and to be translated to LaTeX during the compillation, but there were errors, and that's why I left the template in LaTeX. I will try to look into it later. - February 2018

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Docs

Dependencies

The framework requires Pandoc[1] tool installed. If You need to export to PDF, you will also need MiKTeX[2], as Pandoc docs recommend.

I also had an issue with following error: `pdfTeX error (font expansion): auto expansion is only possible with scalable fonts`. I found solution in this latextemplates issue thread[3], where user by the name koppor recommended installing `cm-super` MiKTeX plugin, which has worked for me.

MarkDown processing

I use Haroopad[4] to process MD files, since I like the two-pane interface more, than any WYSIWIG, like what Typora[5] offers. Unfortunatelly, Haroopad has not been updated for a long time, and might have some issues, especially in the future. Nevertheless it still works for me, which is why I am leaving it here as a recommendation.

A decent list of other recommendations is available in this SitePoint article[6].

Moreover: You can use any IDE with MD highlight support: NetBeans, for example, offer optional MarkDown plugin (with live preview functionality), and enables user to split the window area, so that only issue I have had with it, was that the IDE does not break lines, which could be fixed in a few ways (with `Toggle line wrap` plugin, for example).

Directory structure:

- `chapters`: The document content itself. Contains MD files.
- `images`: Optional folder required only if you embed any image in the chapters. You may create any folder like this one
- `metadata`: The document meta information declarations, containing data like author name, or list of sources

[1] https://pandoc.org
[2] https://miktex.org
[3] https://github.com/latextemplates/scientific-thesis-template/issues/28
[4] http://pad.haroopress.com/user.html
[5] https://typora.io
[6] https://www.sitepoint.com/best-markdown-editors-windows/

  - `metadata.yaml`: Content-related metadata; a set of data like author name, in YAML[7] format
  - `bibliography.bib`: Bibliography, a list of references in BibTeX[8] format
- `template`: The general output document markup, style and meta data
  - `template.tex`: A template file, containing intro, tables of contents, figures, and tables, and other document parts, in Pandoc LaTeX template format You can replace it with any of user contributed templates[9]. If you do so, many metadata entries won't probably be working and other might have to be added. In other words: the meteadata files, and template file, are closely related.
  - `style_metadata.yaml`: Style-related metadata, containing data like paper size, or page margins
  - `citation_style.csl`: A citation style declaration. Default file is IEEE standard, but feel free to replace it with any other. You can find thousands of CSL files on Zotero Style Repository[10]
  - `epub_style.css`: A stylesheet declaration for epub format
- `_script`: Operating system batch command files that compile chapters and template into an output in requested format
  - `windows_cmd.bat`: Windows batch file; tested on Windows 10. Check the script variables section bellow
  - Other OS batch command files are missing; If you are writing one on your own, please see the `windows_cmd.bat` comments, and, please, contribute to the project with your solution
  - `_temp`: Temporary files required for compillation process

Use

First of all modify all the content files, and the metadata as well. Once You want to compile the results, navigate to the `_script` folder and run whatever script your OS need. You can run it ither from CLI, or GUI, if your OS allows to run the script from there, but if the script fails, it's better to go to CLI as you will be able to see the errors.

You might want to look into the script, and modify following variables:

- `extension` (default: `pdf`): Result output format; I will test the results for `pdf` and `epub` only, but other values are possible, as seen in Pandoc docs
- `template` (default: `template.tex`): A chosen LaTeX template file from `template` folder

Again: the script is built on Pandoc[11], so you should check their docs as well.

[7] http://yaml.org
[8] http://www.bibtex.org
[9] https://github.com/jgm/pandoc/wiki/User-contributed-templates
[10] https://www.zotero.org/styles
[11] https://pandoc.org

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Functions example

Chapter One

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Table	Example
Github	Style
10	45

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Chapter Two

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Obrázek 3.1: A magnificent animal

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```
main() {
    printf("hello, world");
```

[1] A quick footnote example Etiam luctus urna

```
}
```

Aliquam feugiat tempor vestibulum.

[1] F. Mollinedo a C. Gajate, „Microtubules, microtubule-interfering agents and apoptosis", *Apoptosis*, 2003.