

Mixing text + computations

Markdown, quarto, webpages, pandoc

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Motivation

- often useful to produce short documents that mix code snippets, plots, text, images
- could use PPT, Keynote, Word (but don't play nicely with version control)
- use a simple text based version

Where would you use this?

- teaching (content changes slightly/a lot) each year
- research: publishing data + code is now a *must* for many journals
- after this walk-through, it would be great to discuss if people find this useful?! What for?

markdown is widely used

- if you want some *light markup*
- go **beyond simple text**
- a couple of key things like
- [easy to write links](#)

... images

Maths, equations are easy

$$\chi^2 = \sum_i \left(\frac{y_i - y(x_i; a_1 \dots, a_M)}{\sigma_i} \right)^2$$

an online editor at [stackedit](#), to just have a play



Figure 1: some bread in a dutch oven

Challenges

- placing images where you want them (arbitrarily on page) requires some work
- you need to render / transform it (only seconds, but not instantaneous)
- if you make mistakes you (it's a very light version of coding)
- if you link to local files (images, etc), you have to remember to move them along (not a problem if everything is online)

Advantages

- markdown (itself) structures your documents
- can easily be **transformed** into pdf, pptx, docx, revealjs, etc.
- gets rendered nicely on `github.com`, by default
- easy to edit, rules are simple to learn
- you can add in computations code in `r`, `python`, `julia` et al and make them part of your documents → `quarto`

quick demo

- VSCode with markdown plugin (linting, preview)
- (! the `github.com` repo which gets rendered using a tool called `jekyll` under the hood)

quarto

- a command line tool that renders a flavour of markdown called `qmd` (quarto-markdown)
- a superset of markdown, so any previous work should be ok
- by adding some additional info at top of document, you can opt into lots of good stuff

info at top: YAML

A text block delimited by `---`, key/value

```
---  
title: "Mixing text + computations"  
subtitle: "Markdown, quarto, webpages, pandoc"
```

```
author: Denis Schluppeck
date: 2023-01-18
format:
  revealjs:
    mainfont: Helvetica
    sansfont: Helvetica
---
```

quarto

- if you like RStudio, there is a nice interface
- VScode has a plugin that works well
- or if you prefer emacs/vim/nano/TextEdit, the command line tool is not that hard to use.

```
quarto preview test.qmd
# or render
quarto render test.qmd --to pdf
```

Any Questions?

Links

- <https://quarto.org/>
- <https://rstudio.org/> - now pos.it: <https://posit.co/>
- the original proposal for markdown: <https://daringfireball.net/projects/markdown/>
- <https://code.visualstudio.com/> - visual studio code (free download)

related ideas

- literate programming
- Matlab / `publish()`
- notebooks, Pluto.jl