Intro to Markdown

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What is Markdown?

- Markdown is a lightweight markup language
  - Other markup languages: HyperText Markup Language (HTML), Extensible Markup Language (XML), LaTeX
- WYSIWYG: "What You See Is What You Get
  - You literally write out, what you want the text to look like
- Official website: https://daringfireball.net/projects/markdown/

  Note: No worries, this is not about learning HTML. The following is just an example to show the meaning of markup.

In HTML:

```html
<html>
  <body>
    <h3>headline level 3</h3>
    <h4>headline level 4</h4>
  </body>
</html>
```

In Markdown:

```
### headline level 3
#### headline level 4
```

Rendered output:

headline level 3

headline level 4   In HTML:

```html
<ul>
  <li>List item 1</li>
  <li><strong>List item 2 in bold</strong></li>
</ul>
```

In Markdown:

```
- List item 1
- **List item 2 in bold**
```

Rendered output:

- List item 1
- **List item 2 in bold**

Why Markdown?

- simple, plain text format
    - no hassle with formatting
    - Worry about content, not layout.
    - Most benefits of LaTeX, but simpler
- easy-to-read, easy-to-write
    - intuitively human-readable
    - machine-actionable, convertible
- independent
    - open source
    - You only need a text editor
    - No need for "word processor programs"
        * Microsoft Word, WordPad, macOS Pages, Google Docs, LibreOffice Writer
- reusable
    - text is not stuck in formats or layouts
- extendible
    - many programs and tools work with markdown

Hands-on Live demo

Let's try it out with a few examples.

-> Hands-on markdown tutorial <-

Is there anything markdown can't do?

- Beautiful, perfectly designed documents or slide shows
    - Reminder: "WYSIWYG"
    - Theming, customization, special formatting, design is hard(ly possible)
    - Use a word processor (or LaTeX ;-))
- Collaboration on documents (e.g. reviewing manuscripts)
    - comments, suggestions, discuss changes, text highlighting

Markdown <> Code & Data Management?

- Works perfectly with (text based) version-control (-> git)
- Many GitHub / GitLab features are based on MD
  - README.md, issues, wiki pages, discussions and comments
  - referencing files and folders, e.g. in a README.md
- Structuring and commenting code supported by IDEs[1], e.g.
  - Jupyter Notebooks ~ markdown-commented python scripts
  - RMarkdown ~ markdown-commented R scripts

Implementations and variants

Markdown can be used in many programming languages, platforms and frameworks, incl.:

- GitHub (see GitHub Flavored Markdown)
- Gitlab

- Microsoft Team Chats
- Stack Exchange
- RStudio (see RMarkdown)
- Website generators (forget WordPress)

  Note: There are different flavors to how and what is "interpreted", e.g. not every markdown parser understands

  - bold html text
  - emojis :bike:, :beers:, :tent:
  - or footnotes[2]

Converting markdown files

In case you want to provide your markdown document in another file format, converters help you. The top recommendation: Pandoc![3][Pandoc]

  Note: pandoc conversion to pdf depends on a LaTeX Installation on your system. If you run into issues, see https://pandoc.org/installing.html for details and recommendations.

Use pandoc to convert your...

```
pandoc README.md -o README.html    # ... markdown to .html
pandoc README.md -o README.pdf     # ... markdown to .pdf
pandoc README.md -o README.docx    # ... markdown to .docx
pandoc -t slidy -s --slide-level=2 --metadata pagetitle=markdown_intro README.md -o markdow
```

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[1] Integrated development environments

[2] I am a footnote

[3] https://pandoc.org/

Real-time collaboration

Although markdown is not perfect for collaboration on documents (e.g. manuscripts), there are occasions where online collaboration in markdown format comes in very handy (meetings with people that understand MD, code-intensive classes, etc.).

- HedgeDoc: https://hedgedoc.org
- CodiMD https://github.com/hackmdio/codimd
- **CodiMD instance at HHU: https://pad.hhu.de**

Tutorials and resources

- Markdown Guide: https://www.markdownguide.org/
- Commonmark Tutorial: https://commonmark.org/help/tutorial/
- Cheat sheets:
    - https://www.markdownguide.org/cheat-sheet/
    - https://github.com/adam-p/markdown-here/wiki/Markdown-Cheatsheet
    - https://daringfireball.net/projects/markdown/dingus
- Markdown emojis https://gist.github.com/rxaviers/7360908

Recommended VS code extensions

There are many markdown extensions available for Visual Studio Code.
These support you in

- Creating a table, copy/pasting a table from excel

- Converting a markdown to PDF

- Structuring and formatting

- Creating a TOC

- Use shortcuts

- Microsoft Docs Authoring Pack, including

    - markdownlint
    - Code Spell Checker

- Markdown Shortcuts

- Markdown PDF

- Markdown all in one

Hands-on markdown tutorial