
Rmarkdown
TEXT. CODE. OUTPUT.
(GET IT TOGETHER, PEOPLE.)
#HEADERS
CODE
italics
TEXT
PANDOC
KNITR
FAIRY DUST
RECIPE
1. ADD TEXT
2. ADD CODE
3. KNIT
4. (magic)
5. CELEBRATE PERCEIVED WIZARDRY
YAML
rmarkdown
.Rmd
knitr
pandoc
Horst '19

2.

R-Markdown

Goal

👀 What is R Markdown (useful for)?

🌱 Learning the basic features

🧩 Building the first part of our website

What is R Markdown ?

1. An authoring framework for data science.
2. A document format (.Rmd).
3. An R package named rmarkdown.
4. A file format for making dynamic documents with R.
5. A tool for integrating prose, code, and results.
6. Wizardry.

What is R Markdown ?

1. "An authoring framework for data science." (✔)
2. A document format (.Rmd). (✔)
3. An R package named rmarkdown. (✔)
4. "A file format for making dynamic documents with R." (✔)
5. "A tool for integrating text, code, and results." (✔)
6. Wizardry. (🧙)

Wouldn’t it be great if

- You could have code, results, and text in the same document?
- Your results and plots were automatically generated from your data, so your documents were updated if your data changed?
- The file format of your documents was future-proof?
- The syntax for this was easy?

R Markdown file = plain text file with extension *.Rmd*

Useful for what?

- Avoid copy & paste mistakes
- Avoid copy & pasting in general
- Sharing insights with non-tech people

```r
# 2016
elic_2016_1 <- read.xlsx(file = "input/elic_2016_1.xlsx", sheetIndex = 1, colClasses = "character", stringsAsFactors = F)
elic_2016_1 <- elic_2016_1 %>%
  mutate(Datum = as.Date("2016-01-01 00:00:01")) %>%
  mutate(Quartal = paste(format(Datum, "%y"), sprintf("%02i", (as.POSIXlt(Datum)$mon) %/% 3L + 1L), sep="/")) %>%
  select(GN = Geschäftsnummer, Datum, Quartal, Land = Bestimmungsland, Wert = Wert..CHF., Position...Güterart = Güterart, Position...EKN = Exportkontrollnummer..EKN., Art =
  Richtung) %>%
  filter(Art == "Ausfuhr") %>%
  select(-Art)

elic_2016_2 <- read.xlsx(file = "input/elic_2016_2.xlsx", sheetIndex = 1, colClasses = "character", stringsAsFactors = F)
elic_2016_2 <- elic_2016_2 %>%
  mutate(Datum = as.Date("2016-04-01 00:00:01")) %>%
  mutate(Quartal = paste(format(Datum, "%y"), sprintf("%02i", (as.POSIXlt(Datum)$mon) %/% 3L + 1L), sep="/")) %>%
  select(GN = Geschäftsnummer, Datum, Quartal, Land = Bestimmungsland, Wert = Wert..CHF., Position...Güterart = Güterart, Position...EKN = Exportkontrollnummer..EKN., Art =
  Richtung) %>%
  filter(Art == "Ausfuhr") %>%
  select(-Art)

elic_2016_3 <- read.xlsx(file = "input/elic_2016_3.xlsx", sheetIndex = 1, colClasses = "character", stringsAsFactors = F)
elic_2016_3 <- elic_2016_3 %>%
  mutate(Datum = as.Date("2016-07-01 00:00:01")) %>%
```

< versus >

Wie viele Einträge haben in der Tracker-Applikation zwei Signaturen?

```r
dim(filter(tracker_summarized, NSGII..GKV. != "", WA..GKV. != ""))[1]
```

Wie viele davon sind solche, die mit der gleichen Obersignatur (sprich: dem gleichen Haupt- und Untertyp, siehe unten) beginnen?

```r
dim(filter(tracker_summarized, NSGII..GKV. != "", WA..GKV. != "", substr(NSGII..GKV.,1,2) == substr(WA..GKV.,1,2)))[1
```

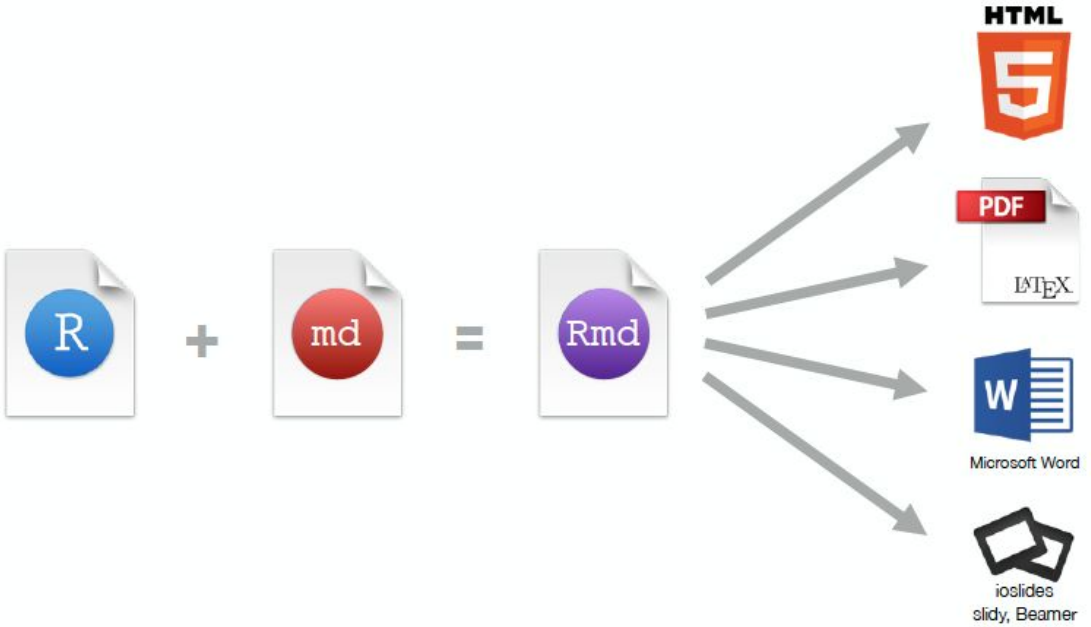
Useful for what?

- Avoid copy & paste mistakes
- Avoid copy & pasting in general
- Sharing insights with non-tech people
- Keeping text, code and output in one place (future you)

Useful for what?

- Avoid copy & paste mistakes
- Avoid copy & pasting in general
- Sharing insights with non-tech people
- Keeping text, code and output in one place (future you)
- Exporting it to share the information with others

R Markdown Workflow



Intro Video: [Introduction RMarkdown]

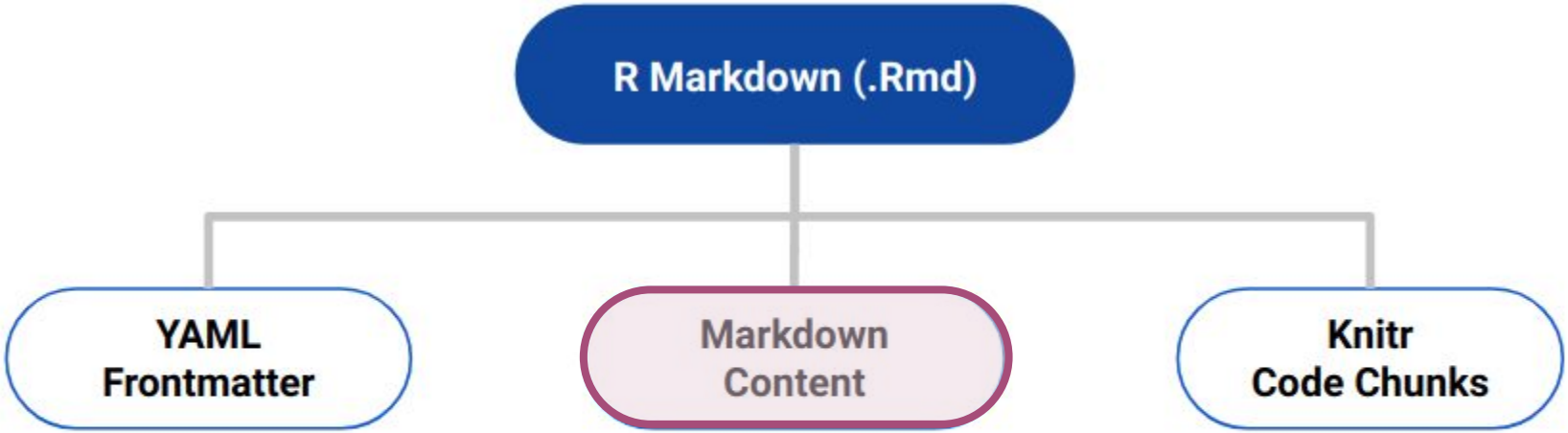
Group Exercise

15:00

Explore Gallery

- Browse through some examples
- Show each other which examples you liked
- https://rmarkdown.rstudio.com/gallery.html

Structure of an R Markdown Document

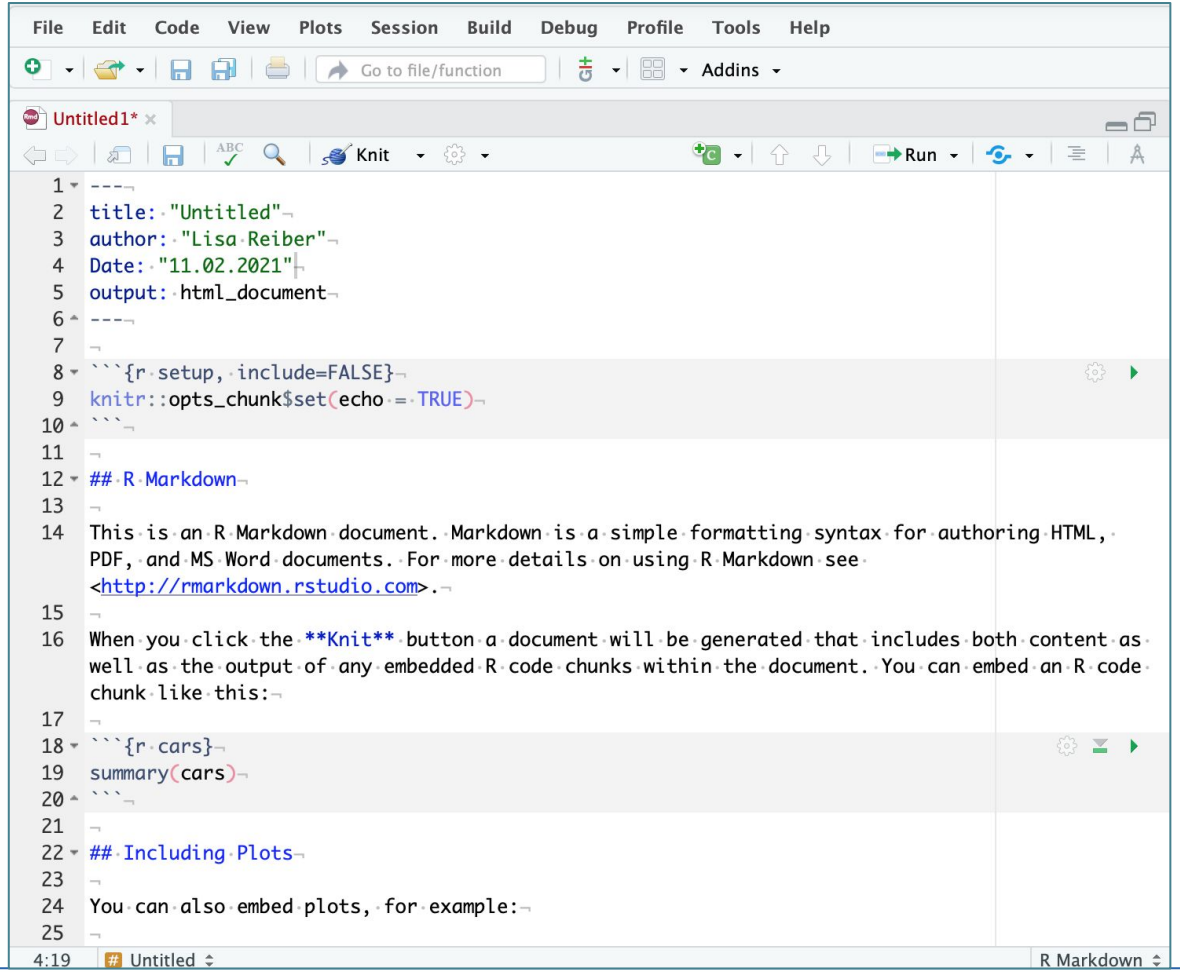


R-Studio Cloud

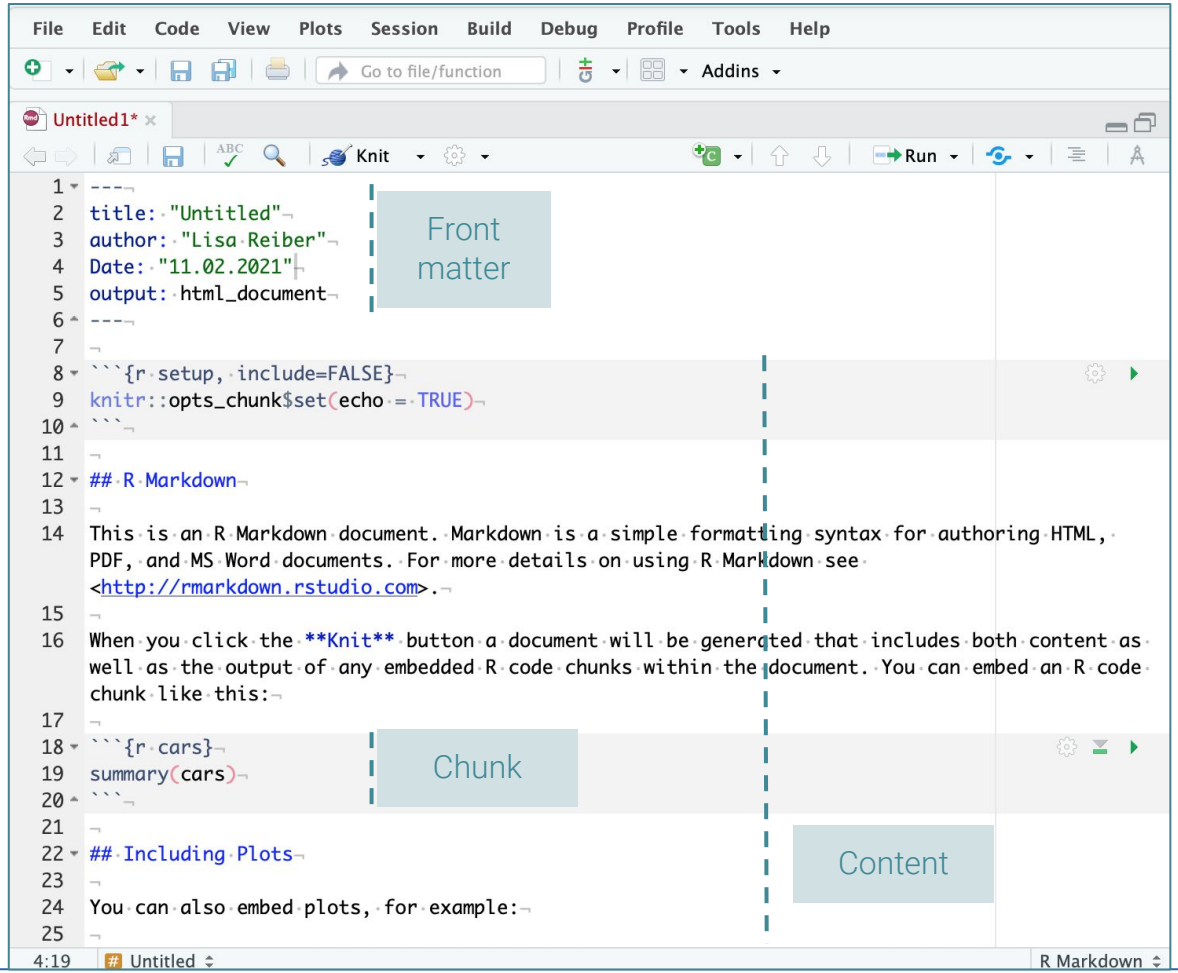
Add fade in

Explore

- Go to RStudio Cloud
- Create a new .Rmd file
- Identify 3 components (frontmatter, content, chunks)


File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Untitled1*
Knit
Run
---
title: "Untitled"
author: "Lisa Reiber"
Date: "11.02.2021"
output: html_document

```{r setup, include=FALSE}
knitr::opts_chunk$set(echo = TRUE)
```
R Markdown
This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:
```{r cars}
summary(cars)
```
Including Plots
You can also embed plots, for example:
4:19
Untitled
R Markdown


File Edit Code View Plots Session Build Debug Profile Tools Help
Go to file/function
Addins
Untitled1*
Knit
Run
---
title: "Untitled"
author: "Lisa Reiber"
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```{r cars}
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```
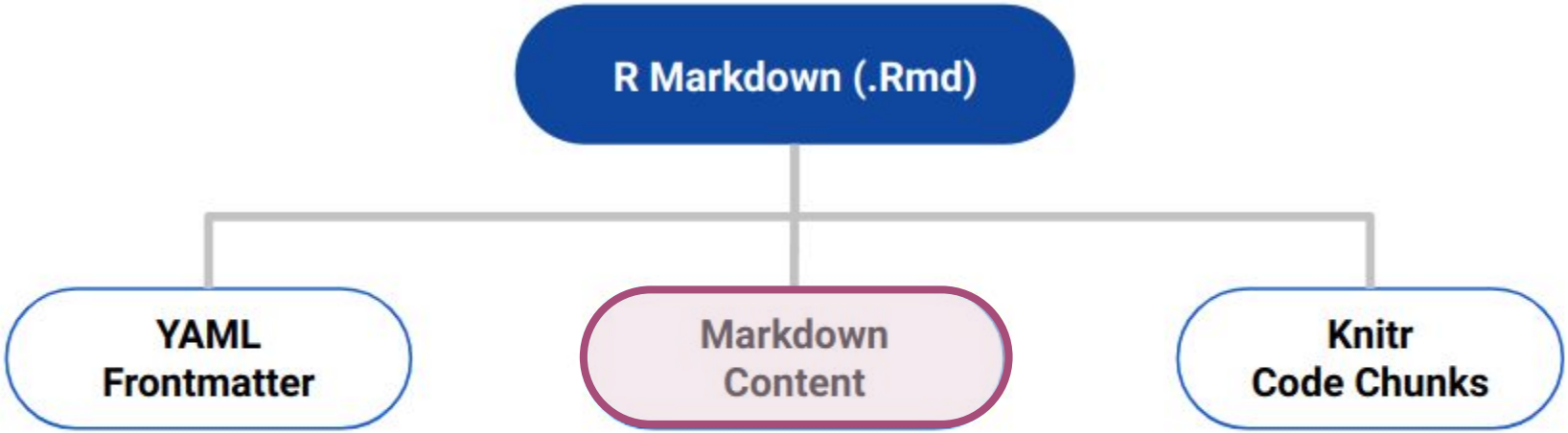
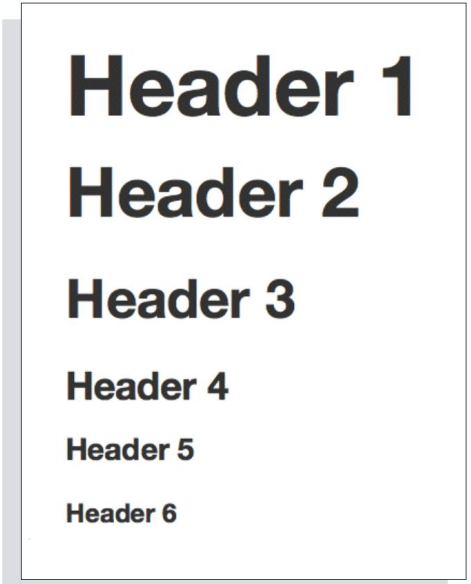
Including Plots
You can also embed plots, for example:
Front matter
Chunk
Content
4:19
Untitled
R Markdown

Structure of an R Markdown Document



Headers

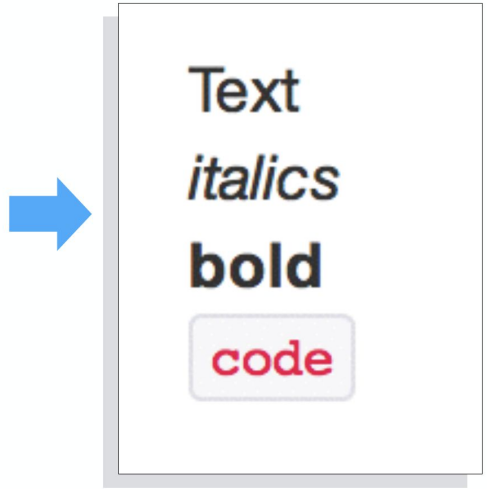
```
# Header 1
## Header 2
### Header 3
#### Header 4
##### Header 5
###### Header 6
```



Text

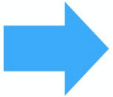
Add two spaces at the end of a line to start a new line

```
Text
_italics_
__bold__
`code`
```



Lists

```
Bullets

* bullet 1
* bullet 2

Numbered list

1. item 1
2. item 2
```



Bullets

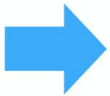
- bullet 1
- bullet 2

Numbered list

1. item 1
2. item 2

Links

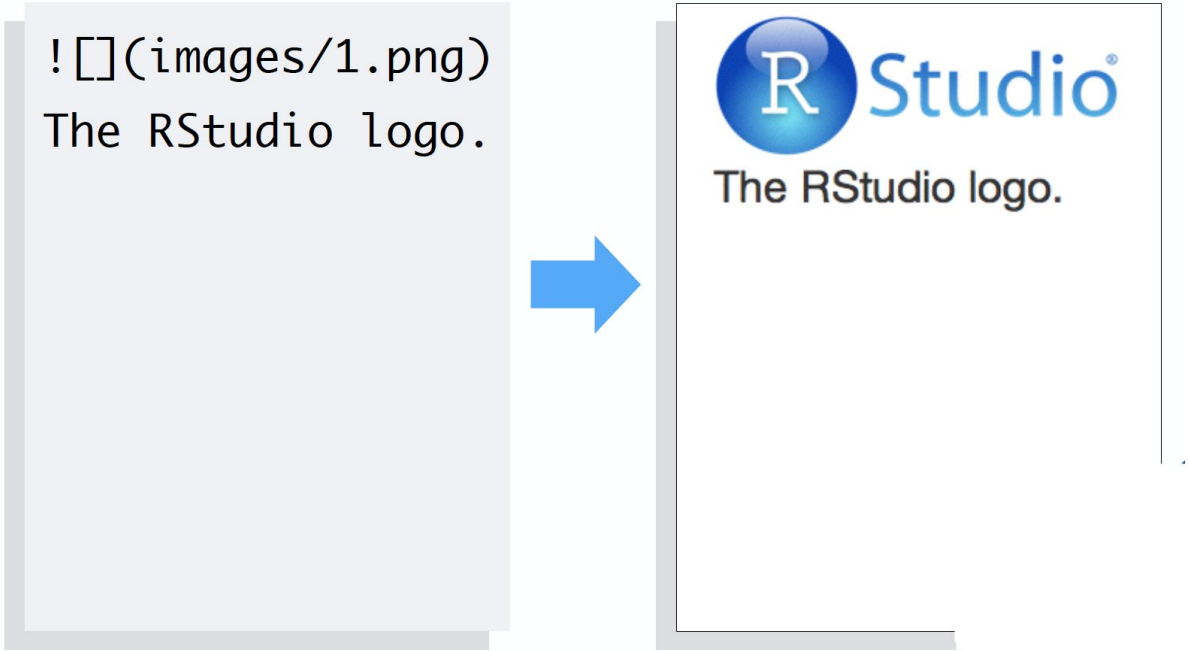
```
This is a
[link](www.git.com).
```



This is a link.

Images

```
![](images/1.png)
The RStudio logo.
```



R Markdown Reference Guide

R Markdown Reference Guide

Learn more about R Markdown at rmarkdown.rstudio.com
Learn more about Interactive Docs at shiny.rstudio.com/articles

Contents:

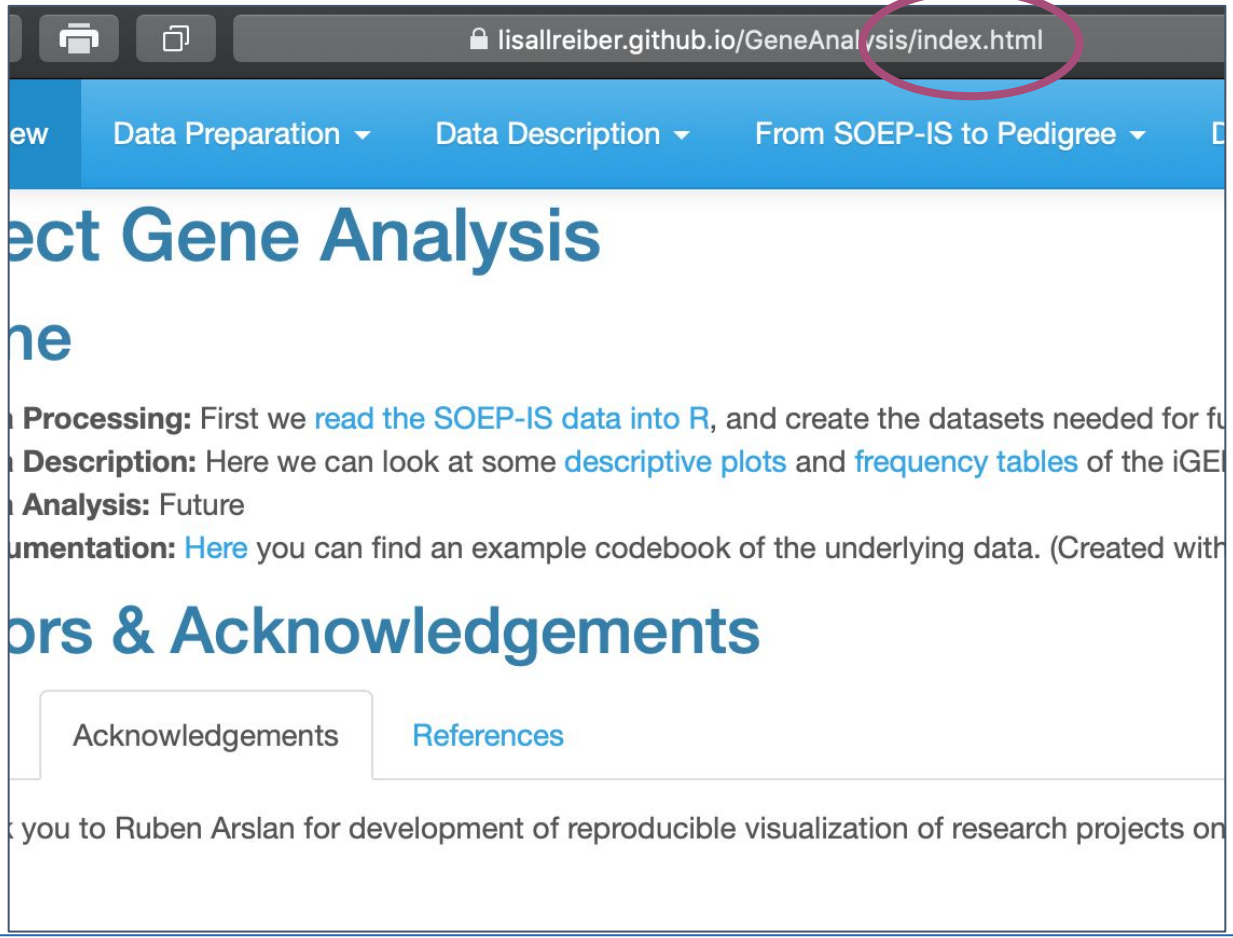
Syntax	Becomes
`Plain text`	Plain text
`End a line with two spaces` `to start a new paragraph.`	End a line with two spaces to start a new paragraph.
`*italics* and _italics_`	*italics* and *italics*
`**bold** and __bold__`	**bold** and **bold**
`superscript^2^`	superscript^2
`~~strikethrough~~`	~~strikethrough~~
`[link](www.rstudio.com)`	link
`# Header 1`	**Header 1**
`## Header 2`	**Header 2**

Hands-on

15:00

Your Turn

- Find the reference guide in the workshop references
- Try yourself out with this tutorial


lisallreiber.github.io/GeneAnalysis/index.html
ew
Data Preparation
Data Description
From SOEP-IS to Pedigree
ect Gene Analysis
ne
Processing: First we read the SOEP-IS data into R, and create the datasets needed for fu
Description: Here we can look at some descriptive plots and frequency tables of the iGE
Analysis: Future
umentation: Here you can find an example codebook of the underlying data. (Created with
ors & Acknowledgements
Acknowledgements
References
you to Ruben Arslan for development of reproducible visualization of research projects on

Hands-on

15:00

Your Turn

- Find the reference guide in the workshop references
- Try to recreate the index.html

2.

R-Markdown

Recap

👀 R-Markdown can combine text, code and outputs

🌱 We know how to use basic features

🧩 We build the first part of our website

Lunch Time

Thursday	Friday (half-day)
09:00 - 10:30 Welcome & RStudio Intro	09:00 - 10:30 Git + GitHubPages
10:30 - 11:00 Break	10:30 - 11:00 Break
11:00 - 12:30 R Markdown Intro	11:00 - 12:30 Putting all the pieces together
12:30 - 13:30 Lunch	12:30 - 13:00 Wrap-up
13:30 - 15:00 Meta-Viz and ggplot2	
15:00 - 15:30 Break	
15:30 - 17:00 R Markdown: website features	