Markdown: A Very Short Introduction

1 R Markdown

You can use R Markdown to

- save and execute code
- generate pdfs (like the lecture notes)
- generate html files (like the website for the lecture notes)
- make slides for presentations

Installation: follow the instruction on https://bookdown.org/yihui/rmarkdown/installation.html

Use ctrl + shift + k to knit your file (or click the Knit button in RStudio)

Some References:

1. R for Data Science: https://r4ds.had.co.nz/r-markdown.html
2. R Cookbook: https://rc2e.com/rmarkdown
3. R Markdown Cookbook: https://bookdown.org/yihui/rmarkdown-cookbook/
4. The files for generating the notes and assignments (onQ -> R Markdown Examples)

You may use R Markdown for your final project.

2 Basic formatting

```
# Level 1 Heading
## Level 2 Heading
### Level 3 Heading
#### Level 4 Heading
##### Level 5 Heading
###### Level 6 Heading
```

2.1 This is a subsection

2.1.1 This is a subsubsection

2.2 Formatting Text

- `*italics*` gives *italics*
- `**bold**` gives **bold**
- `` `code` `` gives `code`

See https://rc2e.com/rmarkdown#tab:commonMarkdown

2.3 List

To create a bulleted list, start each line with an asterisk (*) like so:

```
* first item
* second item
* third item
```

Results:

- first item
- second item
- third item

To create a numbered list, start each line with 1. as follows:

```
1. first item
1. second item
1. third item
```

Results:

1. first item
2. second item
3. third item

```
1. first item
1. second item
   a. subitem 1
   a. subitem 2
      i. sub-subitem 1
      i. sub-subitem 2
   a. subitem 2
1. third item
```

Results:

1. first item
2. second item
    a. subitem 1
    b. subitem 2
        i. sub-subitem 1
        ii. sub-subitem 2
    c. subitem 2
3. third item

2.4 Table

```
||$H_0$ is true|$H_1$ is true|
|--|-----|----|
|Reject $H_0$| Type I error | No Error|
|Do not reject $H_0$| No Error | Type II Error|
```

Results:

	H_0 is true	H_1 is true
Reject H_0	Type I error	No Error
Do not reject H_0	No Error	Type II Error

3 R code

Two ways: inline and code chunk.

Code Chunk:

```
x <- 2
sqrt(x)
## [1] 1.414214
```

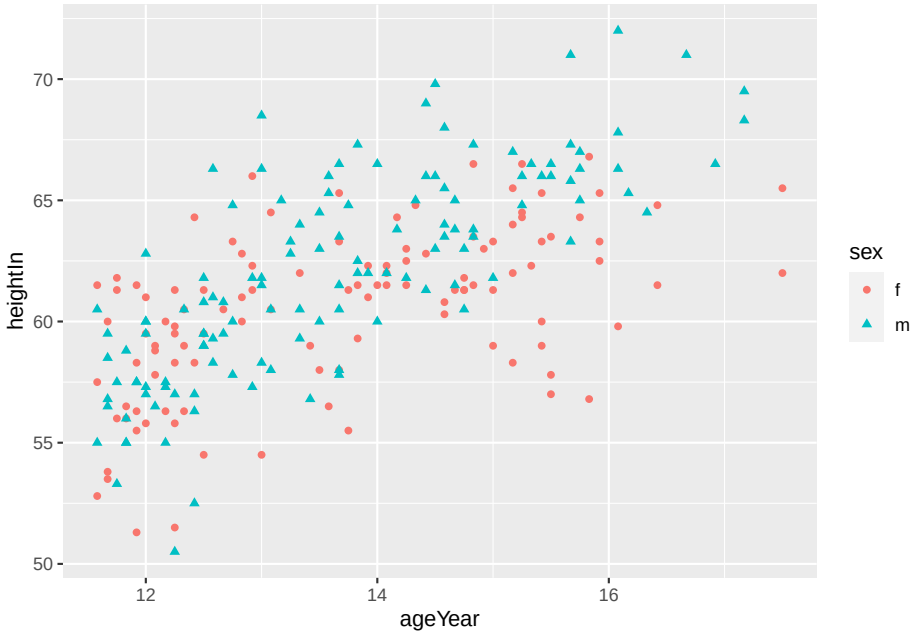
Inline: The square root of `x` is 1.4142136.

3.1 Controlling Which Code and Results Are Shown

See: https://rc2e.com/rmarkdown#recipe-code-results

4 Graphics

```
library(ggplot2)
library(gcookbook)
ggplot(heightweight, aes(x = ageYear, y = heightIn, shape = sex, color = sex)) +
  geom_point()
```



5 Latex Equation

R Markdown supports the LaTeX math equation notation.

Reference: https://en.wikibooks.org/wiki/LaTeX/Mathematics

Inline: $x + 2$

Displayed Equation:

$$x + 2 = 4$$