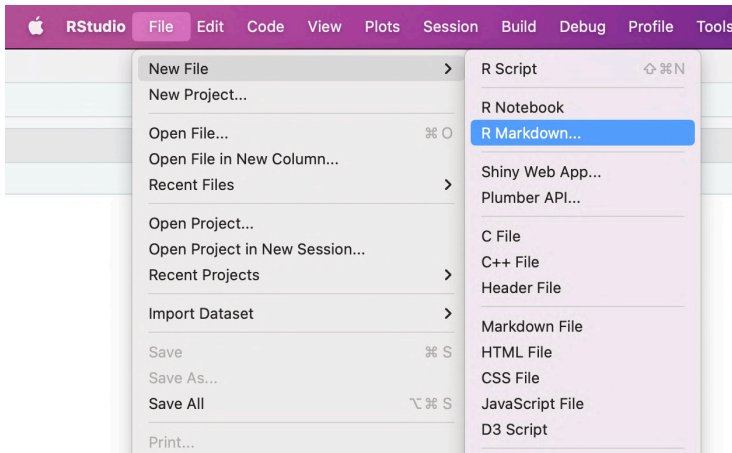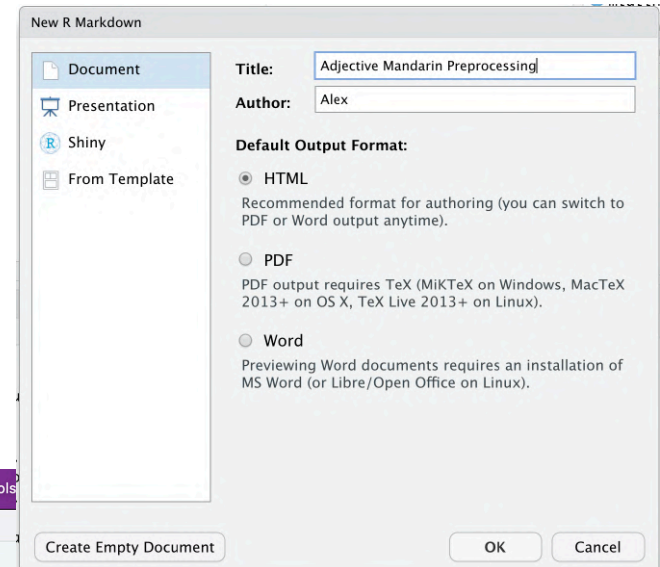# HOW TO CREATE AN RMARKDOWN DOCUMENT?

Create an Rmarkdown document - *option 'R Markdown'*
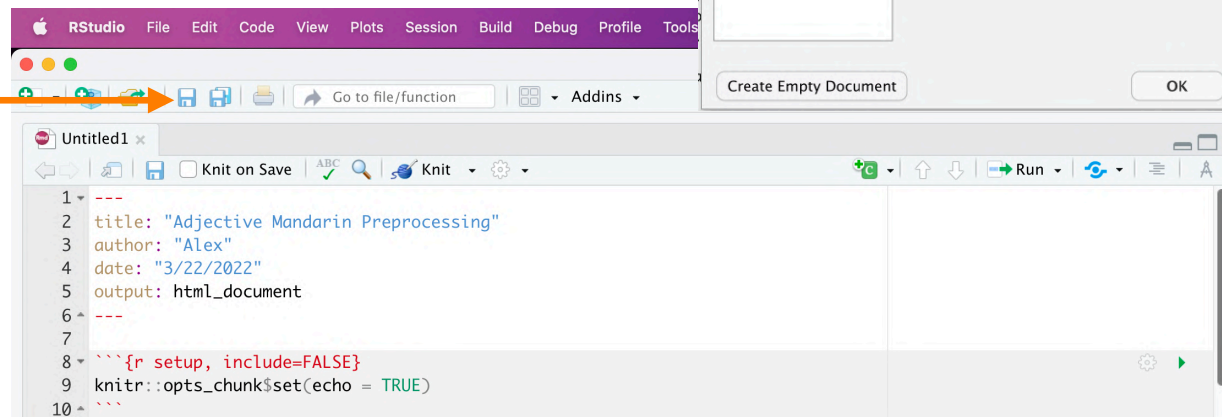
1 **Click on File > R Markdown**

2 Select 'Document' in the left column, enter a title and an author, and finally select the default output format (the format can be changed easily after)
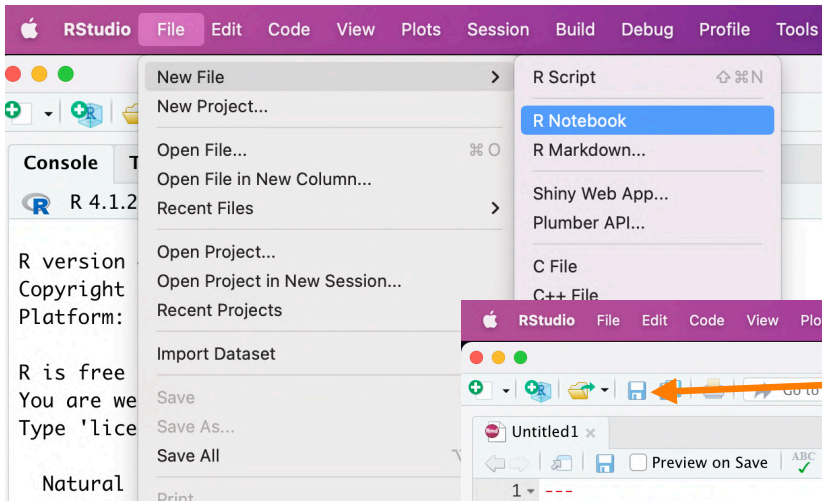

3 **You get a new R Markdown Untitled file**
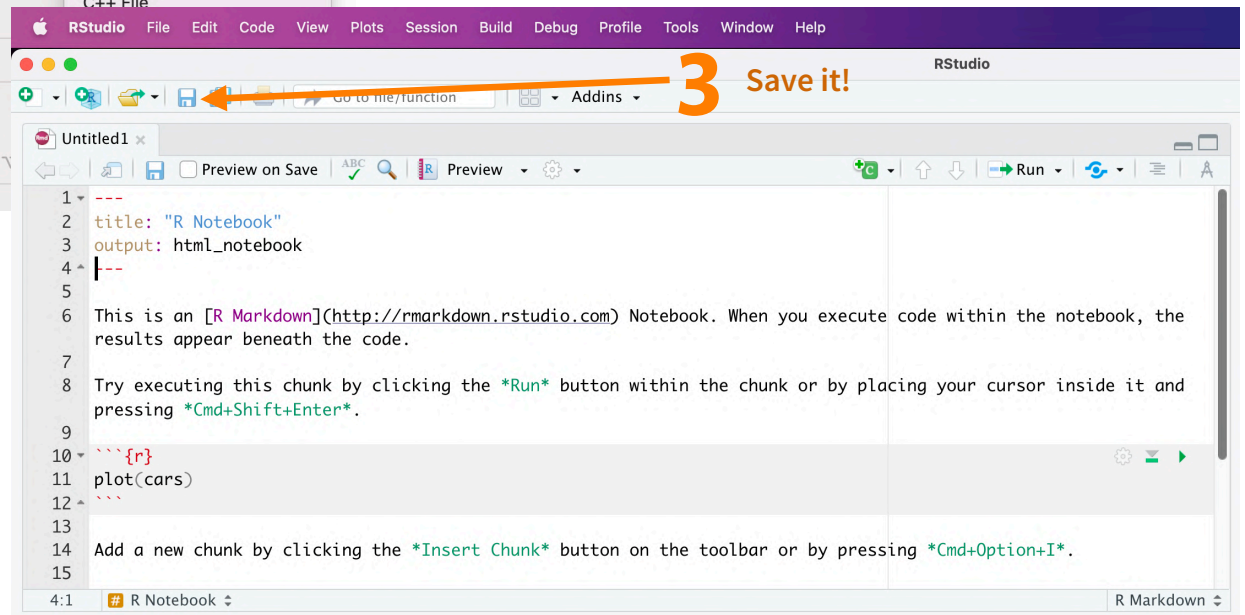
4 Save it! ➡

Create an Rmarkdown document - *option 'R Notebook'*

1 **Click on File > R Notebook**

2 **You get a new R Markdown Untitled notebook**
This document will by default generate an HTML file

3 **Save it!**

Writing text - Markdown Syntax

Syntax	Becomes

```
Plain text

End a line with two spaces
to start a new paragraph.

*italics* and _italics_

**bold** and __bold__

superscript^2^

~~strikethrough~~

[link](www.rstudio.com)

# Header 1

## Header 2

### Header 3

#### Header 4

##### Header 5

###### Header 6
```

Plain text

End a line with two spaces to start a new paragraph.

italics and *italics*

bold and **bold**

superscript^2

~~strikethrough~~

link

Header 1

Header 2

Header 3

Header 4

Header 5

Header 6

(from the R Markdown reference document)

rmarkdown

Writing text - Markdown Syntax

Syntax	Becomes

```
endash: --

emdash: ---

ellipsis: ...

inline equation: $A = \pi*r^{2}$

image: ![](path/to/smallorb.png)

horizontal rule (or slide break):

***

> block quote

* unordered list
* item 2
    + sub-item 1
    + sub-item 2

1. ordered list
2. item 2
    + sub-item 1
    + sub-item 2
```

Plain text

End a line with two spaces to start a new paragraph.

italics and *italics*

bold and **bold**

superscript^2

~~strikethrough~~

link

Header 1

Header 2

Header 3

Header 4

Header 5

Header 6

endash: –

emdash: —

ellipsis: …

inline equation: $A = \pi * r^2$

image:

horizontal rule (or slide break):

(from the R Markdown reference document)

Create a finalized document (PDF, HTML …) from your Rmarkdown file

- In R Markdown, it is called *knitting*
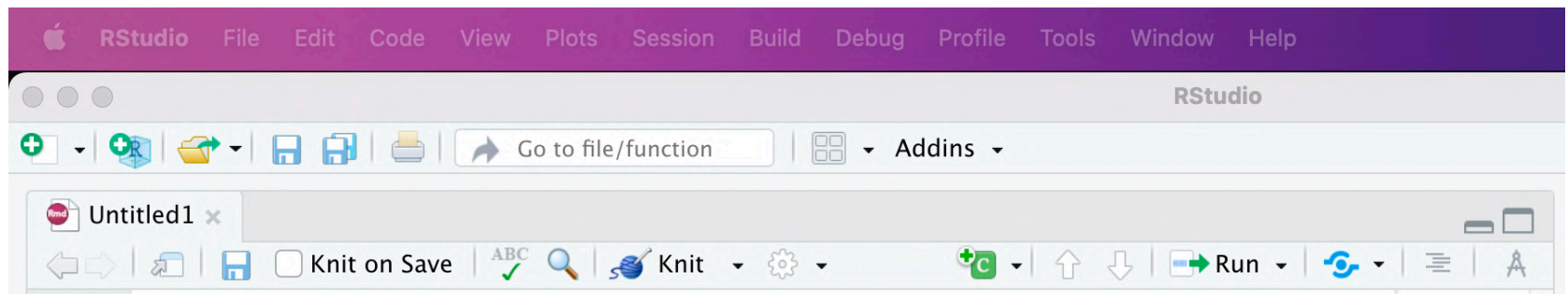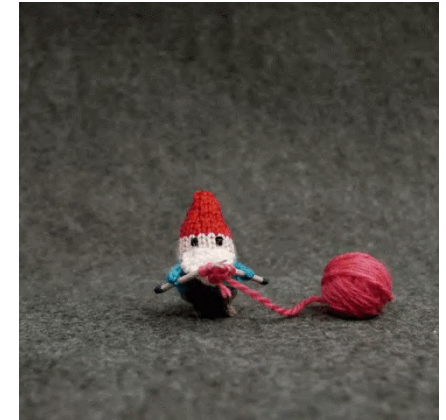
Click on the left part
of the button
Knit in the last used
output format

N.B. If you created your RMarkdown document with
the 'R Notebook' option in the menu (option 2
described above), Knit will first appear as 'Preview'

Click on the right part
of the button

To **choose/change the
type of output format**
or access some other
options

Knit to HTML
Knit to PDF
Knit to Word
Knit with Parameters...
Knit Directory
Clear Knitr Cache...
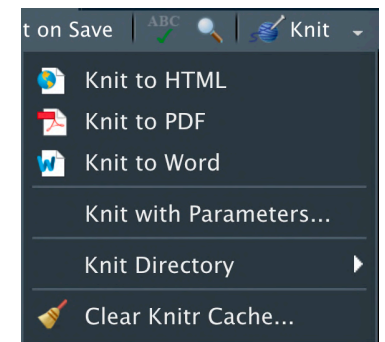
Mix text and code: Inline code
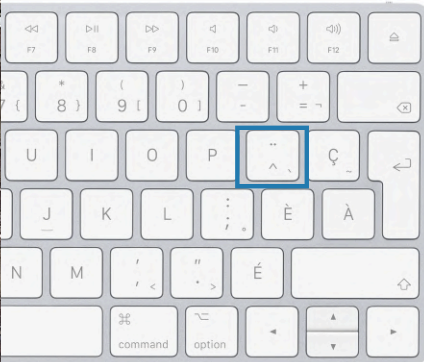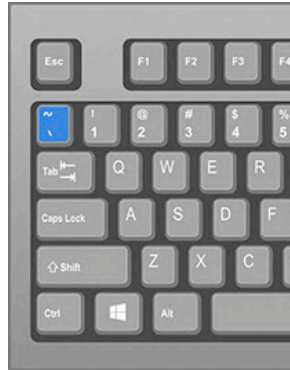
Place code inline with a single back ticks.

The first back tick must be followed by an R, like this:

FR-CA keyboard

`` `r paste("Hello", "World!")` ``

* variable named number_of_electrodes

```
If I have a variable and I want to display it value in my text

This is an example of inline code to do it. I have `r number_of_electrodes` electrodes.
```

rmarkdown

CODE CHUNKS

Anatomy of a code chunk

A code chunk starts and ends with three back ticks. An r in braces after the first three back ticks indicates that it will be R language
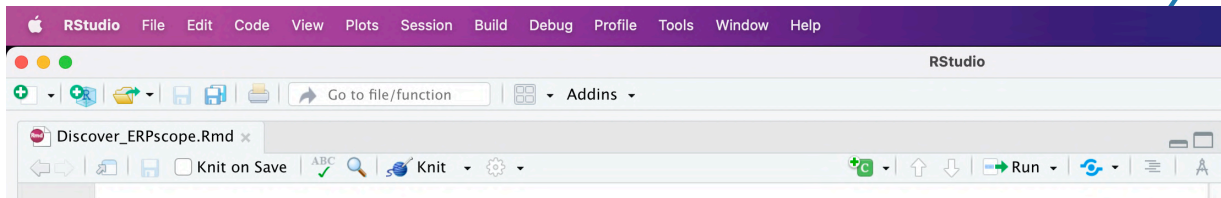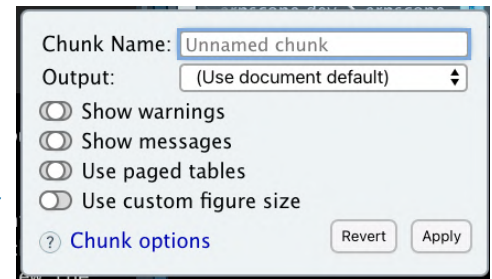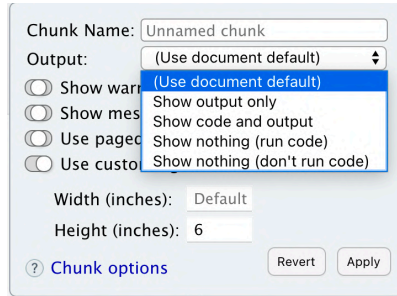
```
```{r}

paste("Hello", "Lab!")

```
```

Run all the previous chunks

Run the code chunk

To create a new R code chunk

To create a new chunk:

Click here …

… and select R

Or use the keyboard shortcut:

cmd+option+I in MacOS

Ctrl + Alt + I in Windows

Name your chunks

The first text that follows the 'r' sign in the curly bracket will be interpreted as the chunk name. The chunk can also be named through the user interface when clicking on the cog symbol

Chunk Name: my_first_chunk
Output: (Use document default)
Show warnings
Show messages
Use paged tables
Use custom figure size
? Chunk options   Revert   Apply

Chunk name: here 'my_first_chunk'

```{r my_first_chunk}

```
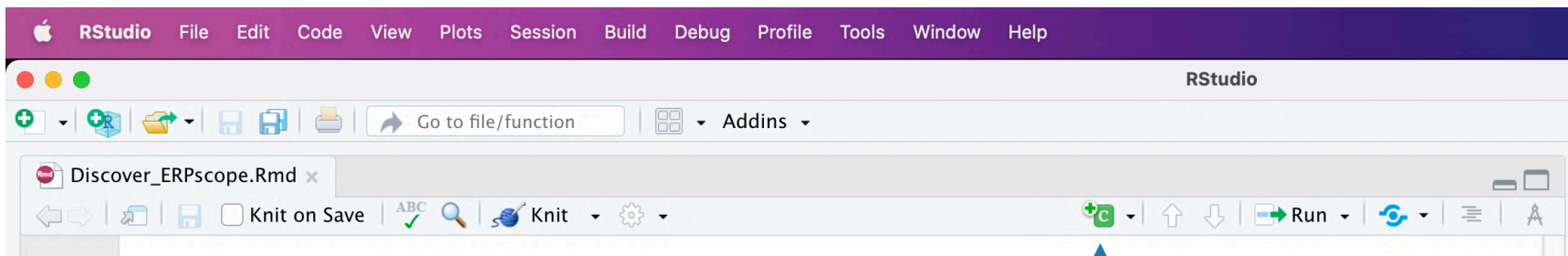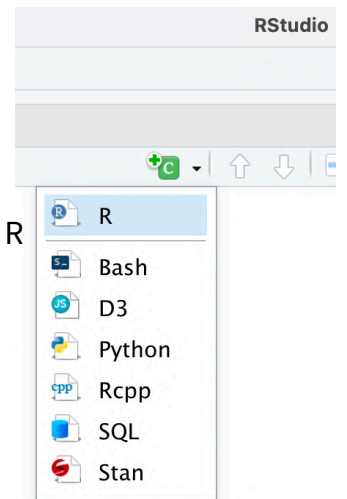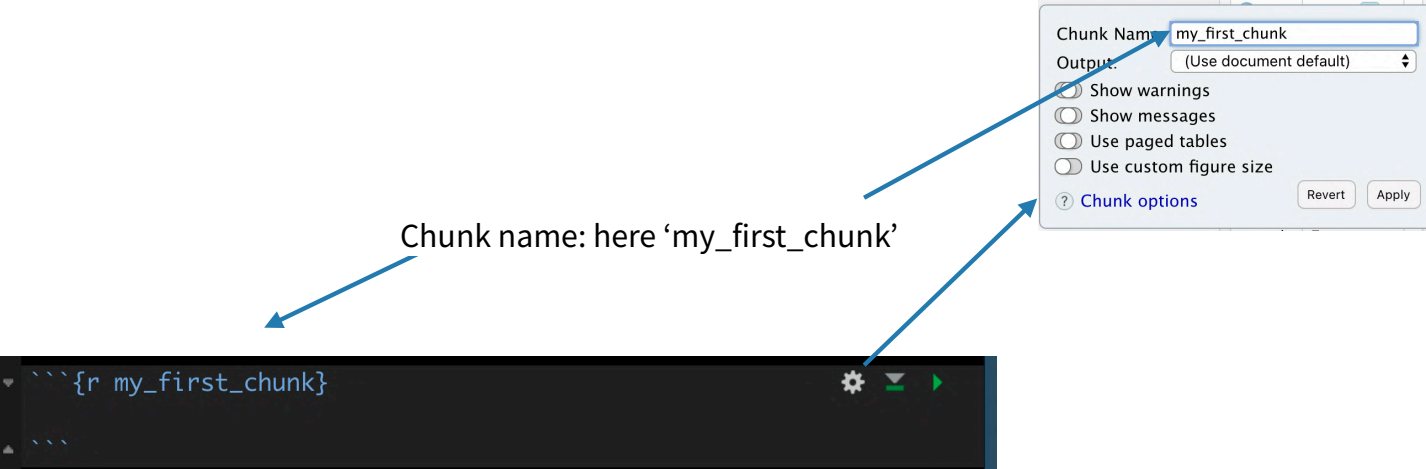
rmarkdown

Name your chunks

Naming chunks helps to keep track of the knitting process when knitting long R markdown documents and to find where the error comes from when the knitting is interrupted because of an error.

```
here() starts at /Users/herbay/Desktop/Lab Retreat 2022/Hands on 1 For me
  |...............                                                    |  23%
  ordinary text without R code


  |.....................                                              |  31%
label: unnamed-chunk-1
  |........................                                           |  38%
  ordinary text without R code


  |..............................                                     |  46%
label: unnamed-chunk-2
  |.................................                                  |  54%
  ordinary text without R code


  |.....................................                              |  62%
label: unnamed-chunk-3
  |.......................................                            |  69%
  ordinary text without R code
```
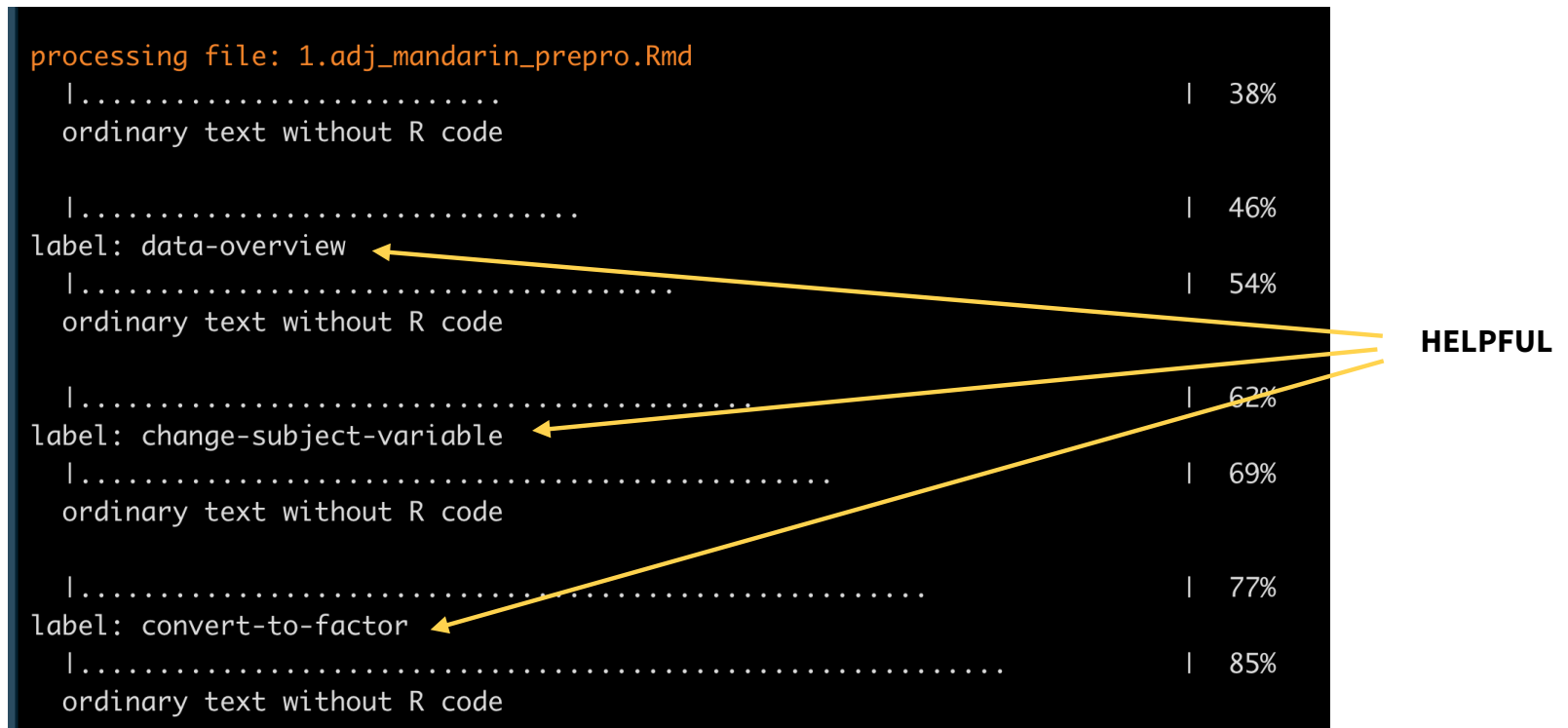
NOT HELPFUL

Name your chunks

Naming chunks helps to keep track of the knitting process when knitting long R markdown documents and to find where the error comes from when the knitting is interrupted because of an error.

```
processing file: 1.adj_mandarin_prepro.Rmd
  |..........................                                       |  38%
  ordinary text without R code


  |................................                                 |  46%
label: data-overview
  |......................................                           |  54%
  ordinary text without R code


  |.............................................                    |  62%
label: change-subject-variable
  |....................................................             |  69%
  ordinary text without R code


  |...........................................................      |  77%
label: convert-to-factor
  |..................................................................|  85%
  ordinary text without R code
```

HELPFUL

Code chunk options

Chunk output can be customized with knitr options, arguments set in the `{ }` of a chunk header.

chunk language   chunk name   chunk option1   chunk option2

```
```{r my_first_chunk, eval=FALSE, include=FALSE}

```
```

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Code chunk options

`eval = FALSE`

▶ The code will not be evaluated. This is a useful way to incorporate code that you want to run manually

`include = FALSE`

▶ The FALSE value prevents code and results from appearing in the finished file. For things you want to run silently

`echo = FALSE`

▶ The code will not appear in the finished file, but the results will. This is a useful way to embed figures without sharing the code that generated it

+ see the many options in the Rmarkdown reference document

Most common chunk options - summary

Option	Default value		Code evaluated	Code appear in the finished document	Results appear in the finished document
eval	TRUE	IF set to FALSE:	No	No	No
include	TRUE	IF set to FALSE:	Yes	No	No
echo	TRUE	IF set to FALSE:	Yes	No	Yes

rmarkdown

Code chunk options - error, message, warning

`error = TRUE`

 ▸ if an error occurs, it will display the error message in the finished document and continue knitting. (The FALSE default value make it stop the document knitting when an error occurs)

`message = FALSE`

 ▸ prevents messages that are generated by code from appearing in the finished file.

`warning = FALSE`

 ▸ prevents warnings that are generated by code from appearing in the finished.

+ see the many options in the Rmarkdown reference document
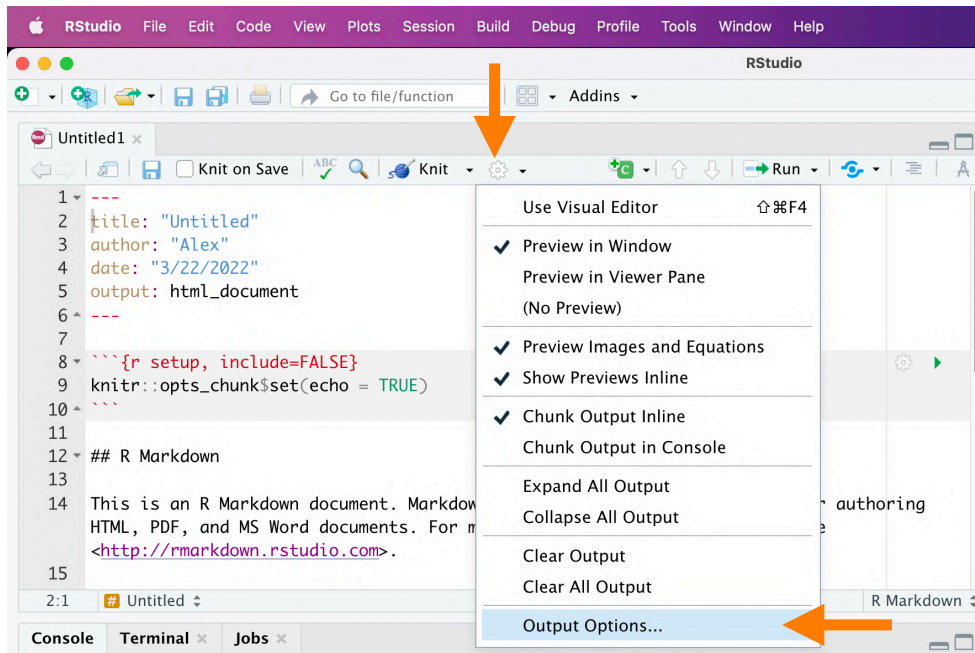
THE HEADER

Anatomy of a header

- The header is in the YAML format

- It defines the general properties of your target file depending on its format:

  - Table of content: toc, toc_float, toc_depth

  - Plots default size: fig_width, fig_height

  - CSS Themes: theme

  - Code folding options: code_folding = hide

    - See the R Markdown reference document
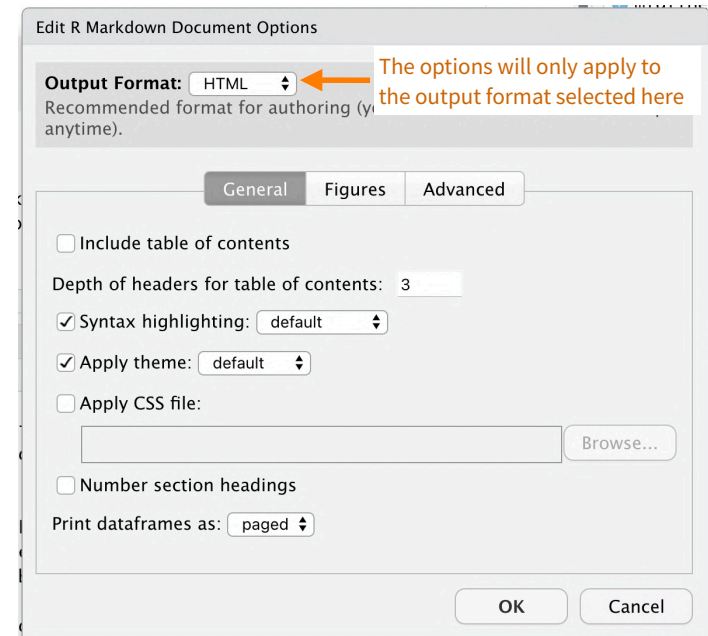
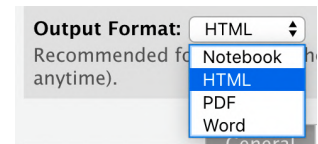# Define some of the header properties with the user interface

1 Click on the 'cog' icon and select 'Output Options…'

2 For each output format, select the properties you want

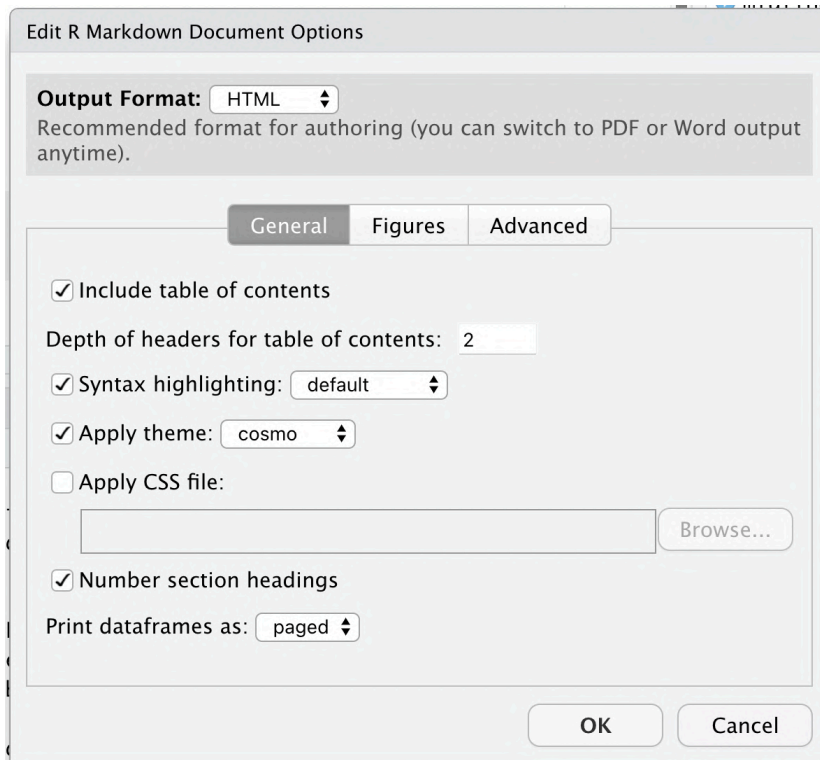The options will only apply to the output format selected here

To choose header options for another format :

Define some of the header properties with the user interface

- For example, the selected options on GUI on the left will create the header displayed on the right


```
1   ---
2   title: "My RMarkdown Example"
3   author: "Alexandre Herbay"
4   date: "3/22/2022"
5   output:
6     html_document:
7       toc: yes
8       toc_depth: 2
9       theme: cosmo
10      number_sections: yes
11  ---
```

Example of a detailed header

```
 1  ---
 2  title: "Discover ERPscope - plot_erp"
 3  author: "Alexandre Herbay"
 4  date: "16/03/2022"
 5  output:
 6    pdf_document:                          ← PROPERTIES FOR PDF OUTPUTS
 7      toc: yes
 8      toc_depth: '2'                       PDFs will have a table of content with the first two levels of titles
 9    html_document:                         ← PROPERTIES FOR HTML OUTPUTS
10      toc: yes
11      toc_float: yes                       HTML files will have a table of content with the first two levels
12      toc_depth: 2                         of titles, the table will be floating
13      number_sections: yes                 The section titles will be automatically numbered
14      code_folding: hide                   The code will be hidden, but a button for each chunk will make it possible to display it
15      theme: united                        A CSS theme 'united' will be applied, to make the file pretty!
16      fig_width: 8
17      fig_height: 6                        The figures default size will be 6 by 8 inches
18  editor_options:                          ← PROPERTIES FOR THE RMarkdown EDITOR
19    chunk_output_type: console             With this option 'console', the results will appear in the
20  ---                                      console and in the RStudio figure panel (rather than inline)
```