

Introduction to R Markdown

Combine text, code, and output in one document

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[Created using the "λέξις" theme](#)

R markdown

TEXT. CODE. OUTPUT.
(GET IT TOGETHER, PEOPLE.)



Artwork by @allison_horst

Materials



Link to slides:

<https://mjfrigaard.github.io/csuc-data-journalism/slides.html>

Link to exercises:

<https://mjfrigaard.github.io/csuc-data-journalism/lessons-exercises.html>

What is RMarkdown?



Three technologies:

- 1) Markdown is a plain text markup language for capturing **human-readable prose**
- 2) Data manipulation/graphing/statistical language engines for computing **machine-readable code**
- 3) Multiple **output options** for creating PDFs, Word docs, PowerPoints, HTML, etc.

How R Markdown works

`rmarkdown` works directly with `knitr`

`rmarkdown` combines YAML, markdown, and R code into a markdown document and passes it to `knitr`



`knitr` uses `pandoc` (a universal document conversion tool) to generate the specified document format





Exercises

We will create an example HTML report using the R Markdown template provided by RStudio

Exercise 1: create a new RMarkdown file

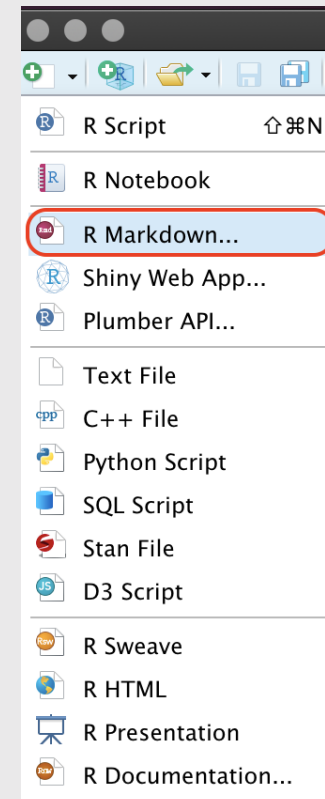


Click on **File** >

then **New File** >

then **R Markdown**

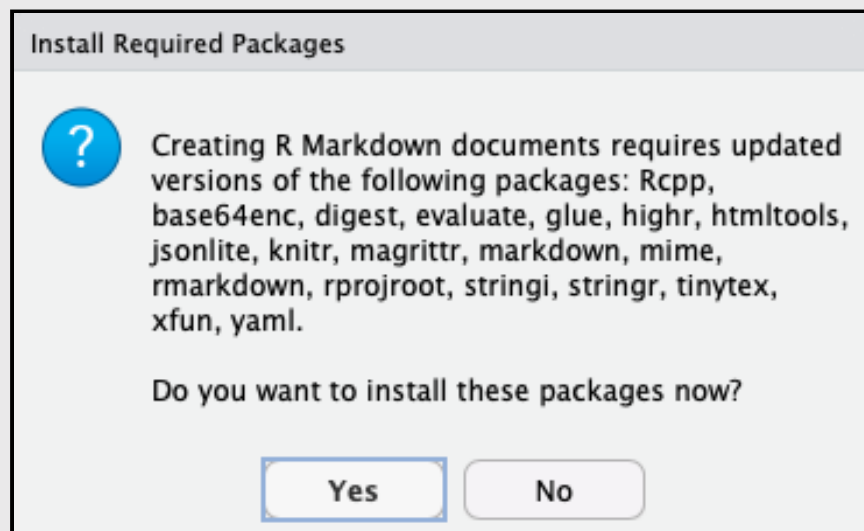
Or use the drop-down menu



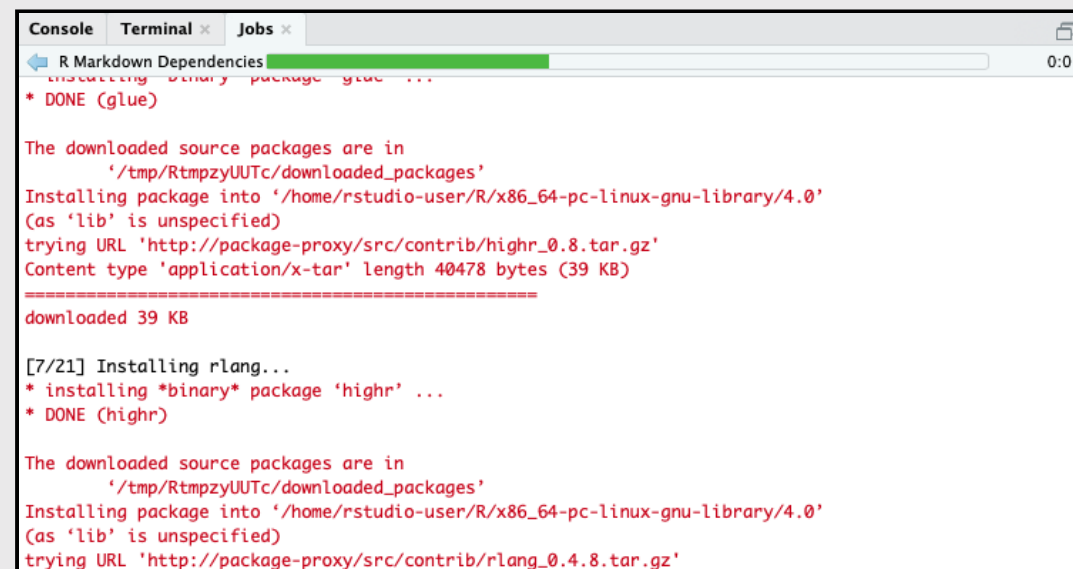
Install required packages



If you're in a fresh RStudio.Cloud session, you *might* be asked to install the required packages for R Markdown, Click **Yes**



You will see RStudio installing the packages in the **Jobs** pane



New R Markdown File



Enter **'Title'** and **'Author'** of your report and click **OK**

New R Markdown

Document
Presentation
Shiny
From Template

Title: Monthly Report

Author: Martin Frigaard

Default Output Format:

HTML
Recommended format for authoring (you can switch to PDF or Word output anytime).

PDF
PDF output requires TeX (MiKTeX on Windows, MacTeX 2013+ on OS X, TeX Live 2013+ on Linux).

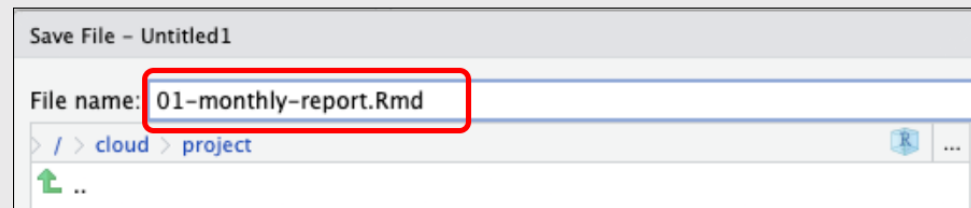
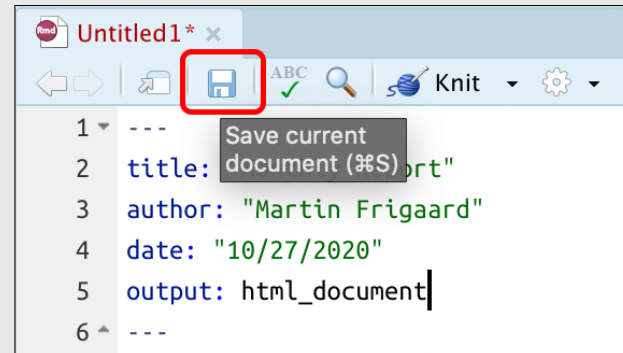
Word
Previewing Word documents requires an installation of MS Word (or Libre/Open Office on Linux).

Create Empty Document OK Cancel

Save your `.Rmd` file



Click on the small floppy disk, enter a name (with `.Rmd` extension), and save your `.Rmd` file

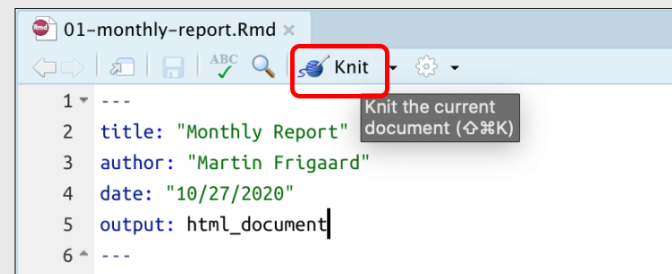
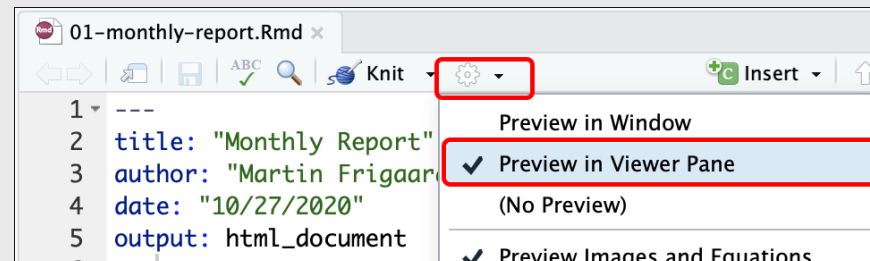


Knit your .Rmd file



Click on the small gear, select **Preview in Viewer Pane**

Click on the knit icon (ball of yarn)



Our First R Markdown Report!



The screenshot shows the RStudio interface with two panes. The left pane displays the source R Markdown file, and the right pane shows the rendered HTML output.

Source R Markdown Code:

```
1 ---
2 title: "Monthly Report"
3 author: "Martin Frigaard"
4 date: "10/27/2020"
5 output: html_document
6 ---
7
8 {r setup, include=FALSE}
9 knitr::opts_chunk$set(echo = TRUE)
10 {r}
11
12 ## R Markdown
13
14 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.
15
16 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:
17
18 {r cars}
19 summary(cars)
20 {r}
21
22 ## Including Plots
23
24 You can also embed plots, for example:
25
26 {r pressure, echo=FALSE}
27 plot(pressure)
28 {r}
29
30 Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.
31
```

Rendered HTML Report:

Monthly Report

Martin Frigaard
10/27/2020

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:

```
summary(cars)
```

##	speed	dist
## Min.	: 4.0	Min. : 2.00
## 1st Qu.	:12.0	1st Qu.: 26.00
## Median	:15.0	Median : 36.00
## Mean	:15.4	Mean : 42.98
## 3rd Qu.	:19.0	3rd Qu.: 56.00
## Max.	:25.0	Max. :120.00

Including Plots

You can also embed plots, for example:

Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

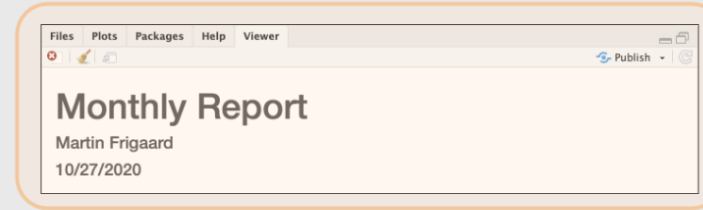


How R Markdown Works (under the hood)

R Markdown is made up of three elements

YAML header = metadata

```
1 ---
2 title: "Monthly Report"
3 author: "Martin Frigaard"
4 date: "10/27/2020"
5 output: html_document
6 ---
7
```



Markdown = prose

```
12 ## R Markdown
13
14 This is an R Markdown document. Markdown is a simple formatting syntax for
15 authoring HTML, PDF, and MS Word documents. For more details on using R
16 Markdown see <http://rmarkdown.rstudio.com>.
17
18 When you click the Knit button a document will be generated that includes
19 both content as well as the output of any embedded R code chunks within
20 the document. You can embed an R code chunk like this:
```



Code chunks = R code

```
18 ```{r cars}
19 summary(cars)
20 ```
```



Rmarkdown combines metadata, markdown, *and* R code



- `.yaml` = Metadata
- `.md` = Prose
- `.R` = Code

The result is a file framework for creating reproducible reports using YAML, Markdown, and computer code

R Markdown: YAML



▪ `.yaml` = Metadata

~~▪ `.md` = Prose~~

~~▪ `.R` = Code~~

YAML is a human friendly data serialization standard for all programming languages.

YAML stands for '*YAML Ain't Markup Language*' (funny, huh?)

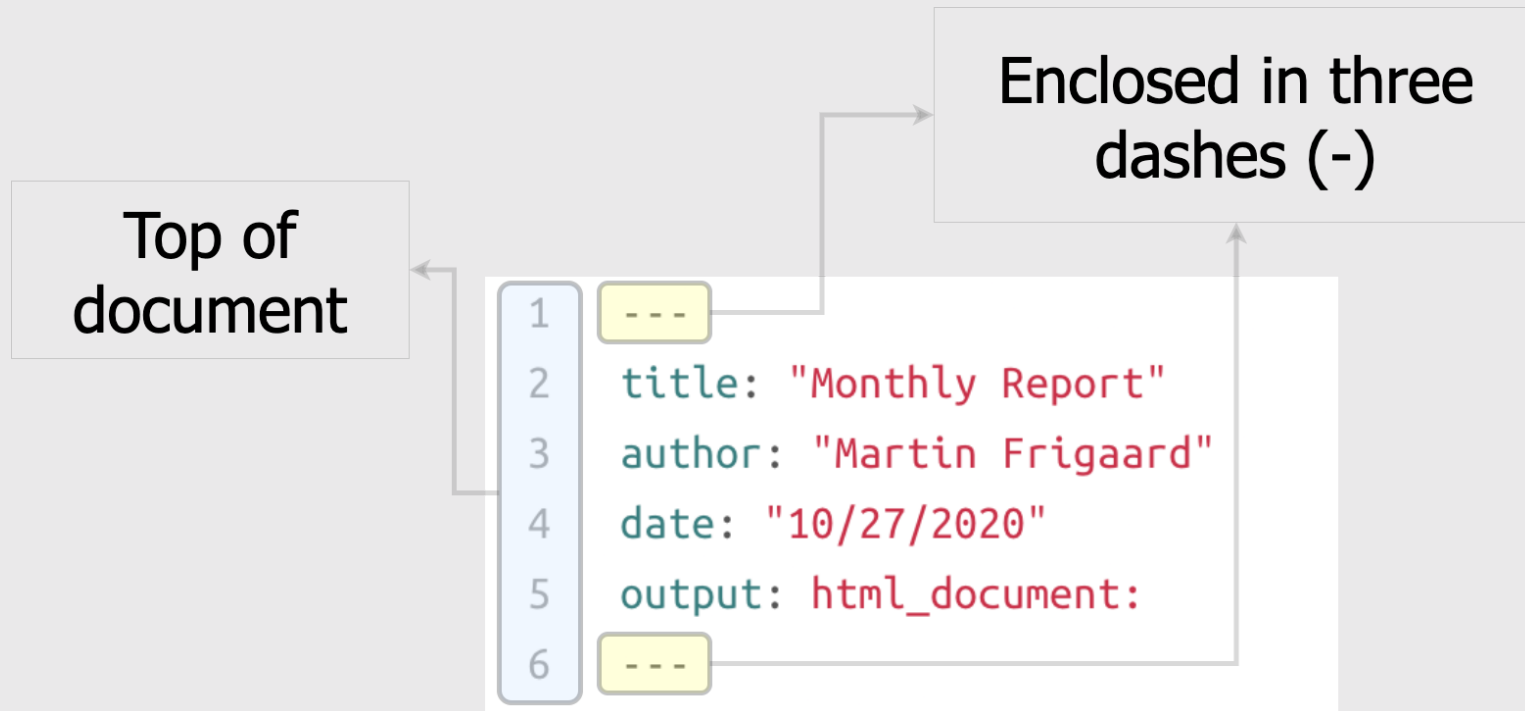
R Markdown: YAML



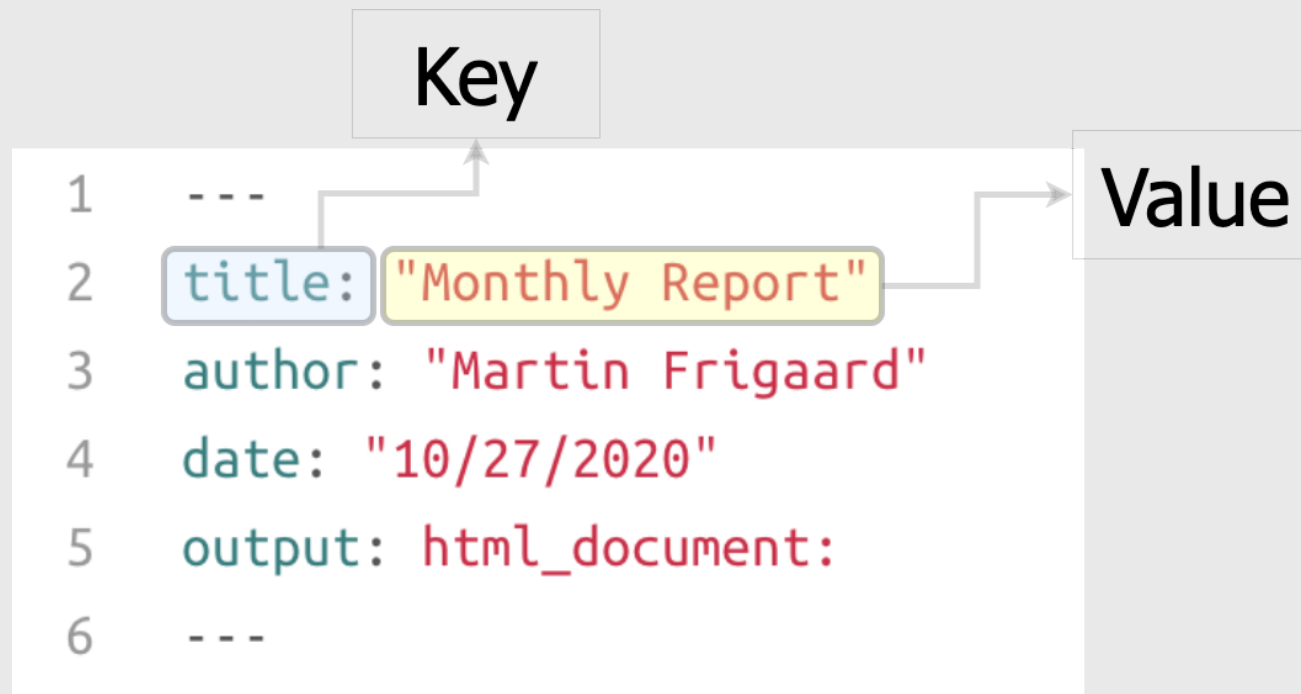
YAML contains the information about the document we're going to create

```
---  
title: "Monthly Report"  
author: "Martin Frigaard"  
date: "10/27/2020"  
output: html_document  
---
```

R Markdown: YAML format



R Markdown: YAML format



R Markdown: YAML



There are many YAML arguments and options

Indentation matters in YAML!!

Check out the [YAML Fieldguide](#) for a comprehensive list



Example YAML output options

Table of contents:

`toc:` logical (`true` or `false`)

`toc_float:` logical (`true` or `false`)

`toc_depth:` set numerically 0 - 6

Exercise 2: create a floating table of contents

Change the `output` in the YAML header to the following:

```
output:  
  html_document:  
    toc: yes  
    toc_float: true
```

Knit the document again



YAML output options: table of contents

Floating table of contents (rendered)

```
1 ---
2 title: "Monthly Report"
3 author: "Martin Frigaard"
4 date: "10/27/2020"
5 output:
6   html_document:
7     toc: yes
8     toc_float: true
9 ---
```

R Markdown

Including Plots

Monthly Report

Martin Frigaard

10/27/2020

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:



Exercise 3: text highlighting and themes

Add the following two options to your YAML header

```
output:  
  html_document:  
    toc: yes  
    toc_float: yes  
    highlight: zenburn  
    theme: united
```

Knit the document again



YAML: text highlighting and theme options

Text highlighting and theme options (rendered)

```
1 ---
2 title: "Monthly Report"
3 author: "Martin Frigaard"
4 date: "10/27/2020"
5 output:
6   html_document:
7     toc: yes
8     toc_float: yes
9     highlight: zenburn
10    theme: united
11 ---
```

Monthly Report
Martin Frigaard
10/27/2020

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:

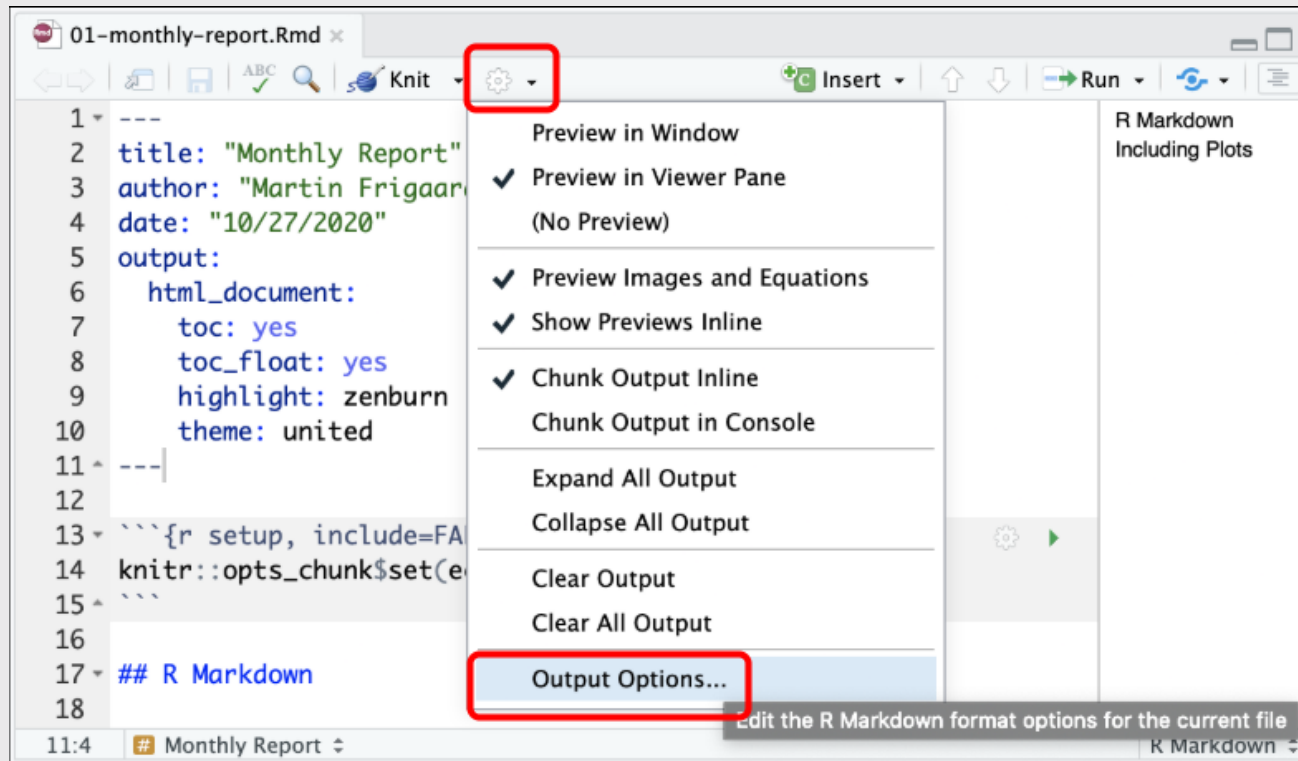
```
summary(cars)
```

##	speed	dist
## Min.	: 4.0	Min. : 2.00
## 1st Qu.	:12.0	1st Qu.: 26.00
## Median	:15.0	Median : 36.00
## Mean	:15.4	Mean : 42.98
## 3rd Qu.	:19.0	3rd Qu.: 56.00
## Max.	:25.0	Max. :120.00



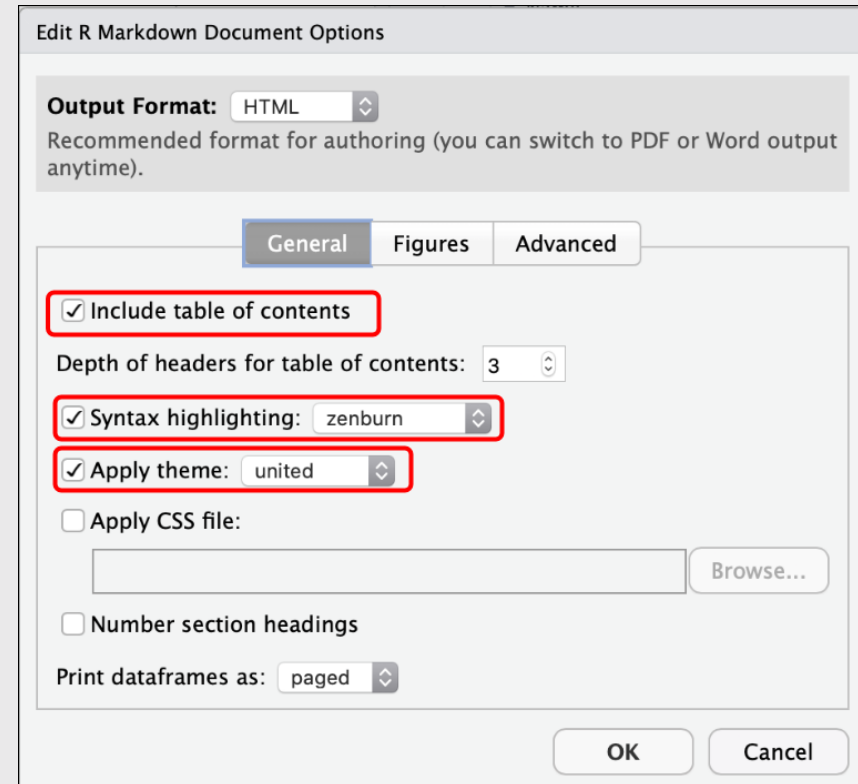
More YAML options

You can change the YAML contents using the settings (small gear)



Edit R Markdown Document Options

This window gives us the ability to manually change some of the YAML settings (but not all of them!)



Edit R Markdown Document Options

Output Format: HTML
Recommended format for authoring (you can switch to PDF or Word output anytime).

General Figures Advanced

Include table of contents
Depth of headers for table of contents: 3

Syntax highlighting: zenburn

Apply theme: united

Apply CSS file:
Browse...

Number section headings

Print dataframes as: paged

OK Cancel



YAML Parameters

YAML parameters can be referred to throughout the document

Create *params* in YAML header

```
params:  
  param1: x  
  param2: y  
  data: df
```

Refer to *params* in .Rmd document

```
params$param1  
params$param2  
params$data
```



Exercise 4: Using YAML parameters

Add the following *params* option in the YAML header

```
params:  
  small_pressure: !r  
head(pressure)
```

Add this code to the end of the document

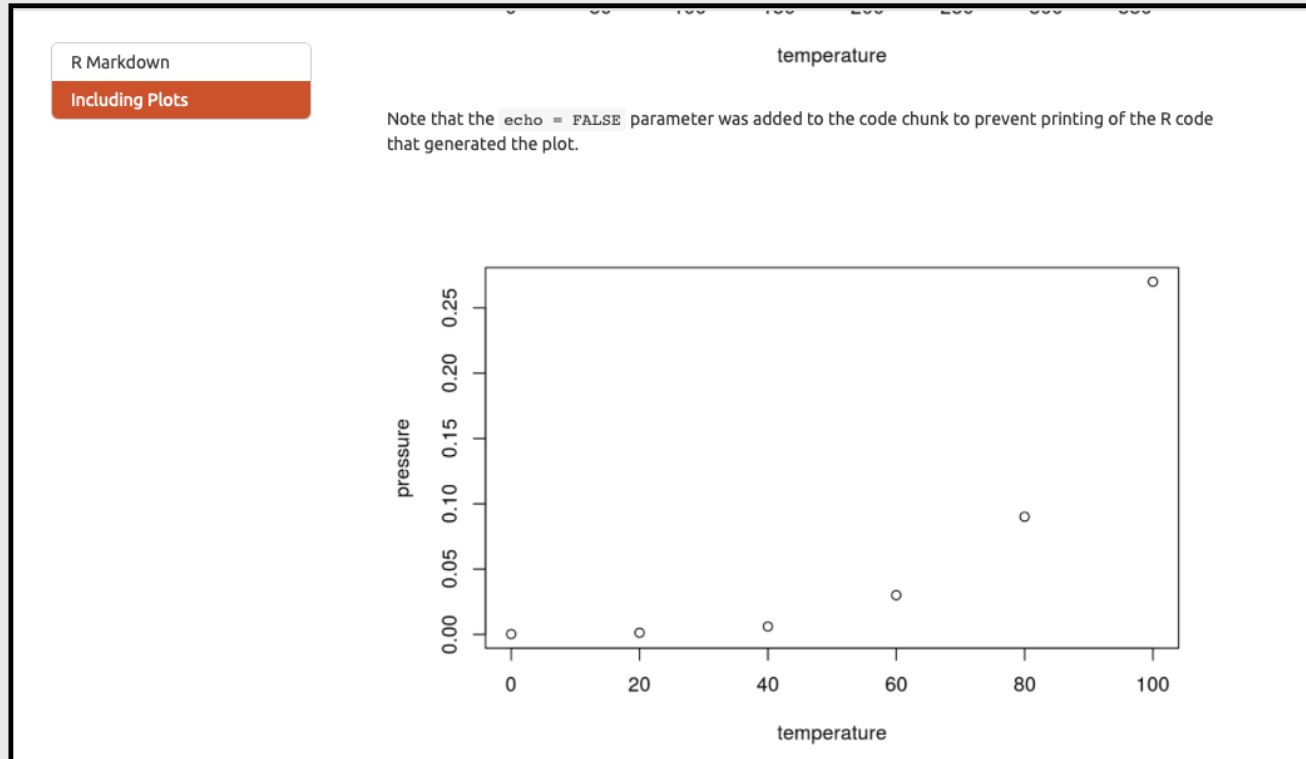
```
```${r small_pressure, echo=FALSE}  
plot(params$small_pressure)
```
```

Knit the document again!



See our new plot with the `params`

We can see the new plot with the reduced sample size



YAML output formats



| Function | Outputs |
|--|---------------------|
| <code>html_document()</code> | HTML document |
| <code>pdf_document()</code> | PDF document |
| <code>word_document()</code> | Word document |
| <code>odt_document()</code> | ODT document |
| <code>rtf_document()</code> | RTF document |
| <code>md_document()</code> | Markdown document |
| <code>slidy_presentation()</code> | Slidy Slides (HTML) |
| <code>beamer_presentation()</code> | Beamer Slides (PDF) |
| <code>ioslides_presentation()</code> | ioslides (HTML) |
| <code>powerpoint_presentation()</code> | PowerPoint (pptx) |

R Markdown

~~▪ .yaml = Metadata~~

▪ .md = Prose

~~▪ .R = Code~~



Basic Markdown Syntax



Italics & Bold

```
*italic*    **bold**  
_italic_    __bold__
```

italic **bold**
italic **bold**

Basic Markdown Syntax



Headers

```
# Header 1  
## Header 2  
### Header 3
```

Header 1

Header 2

Header 3

Basic Markdown Syntax



Bullets & Numeric Lists

```
* Item 1
* Item 2
  + Item 2a
  + Item 2b

1. Item 1
2. Item 2
```

- Item 1
- Item 2
 - Item 2a
 - Item 2b

1. Item 1
2. Item 2

Basic Markdown Syntax



Hyperlinks

becomes...

```
https://www.biomarin.com/  
[linked phrase](https://www.biomarin.com/)
```

linked phrase

Basic Markdown Syntax

Images

```
  
![optional caption](https://www.r-  
project.org/logo/Rlogo.png)
```

becomes...



Basic Markdown Syntax



Math Equations

```
$equation$
```

```
$$ equation $$
```

equation

equation

Basic Markdown Syntax



Super scripts & Strike-through

```
superscript^2^  
~~strikethrough~~
```

superscript²

~~strikethrough~~

Exercise 5: Markdown Formatting

Delete the top portion of the markdown in `01-monthly-report.Rmd`.

Delete

```
1 ---
2 title: "Monthly Report"
3 author: "Martin Frigaard"
4 date: "10/27/2020"
5 output:
6   html_document:
7     toc: yes
8     toc_float: yes
9     highlight: zenburn
10    theme: united
11 params:
12   small_pressure: !r head(pressure)
13 ---
14
15 ```{r setup, include=FALSE}
16 knitr::opts_chunk$set(echo = TRUE)
17 ```
18
19 ## R Markdown
20
21 This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF,
22 and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.
23
24 When you click the Knit button a document will be generated that includes both content as
25 well as the output of any embedded R code chunks within the document. You can embed an R code
26 chunk like this:
```



Exercise 5: Markdown Formatting

Add the text below to your report

This is a monthly report generated with RMarkdown, a literate programming tool for combining text and code.

Include the following formatting:

1. make `monthly report` italic
2. include this hyperlink for Rmarkdown: <https://rmarkdown.rstudio.com/>
3. format `code` as code.

Knit the document when you're finished



Exercise 5: Markdown Formatting (rendered)

The screenshot displays the RStudio interface. The left pane shows the source code for a file named '01-monthly-report.Rmd'. The code includes a YAML header with metadata (title, author, date), output options (html_document with toc, theme, and highlight settings), and a parameter for a small pressure variable. The main content starts with a blue header '## R Markdown' followed by a paragraph describing R Markdown and a code chunk for the 'summary(cars)' function.

```
1 ---
2 title: "Monthly Report"
3 author: "Martin Frigaard"
4 date: "10/27/2020"
5 output:
6   html_document:
7     toc: yes
8     toc_float: yes
9     highlight: zenburn
10    theme: united
11 params:
12   small_pressure: !r head(pressure)
13 ---
14
15 ```{r setup, include=FALSE}
16 knitr::opts_chunk$set(echo = TRUE)
17 ```
18
19 ## R Markdown
20
21 This is a monthly report generated with
22 [RMarkdown](https://rmarkdown.rstudio.com/), a literate programming tool
23 for combing text and `code`.
24
25 ```{r cars}
26 summary(cars)
27 ```
```

The right pane shows the rendered output. It features a title 'Monthly Report' in a large font, followed by the author 'Martin Frigaard' and the date '10/27/2020'. Below this is a sub-header 'R Markdown' and a paragraph: 'This is a *monthly report* generated with RMarkdown, a literate programming tool for combing text and `code`.' A code block displays the output of the 'summary(cars)' function:

```
summary(cars)
```

| ## | speed | dist |
|-------------|-------|----------------|
| ## Min. | : 4.0 | Min. : 2.00 |
| ## 1st Qu.: | 12.0 | 1st Qu.: 26.00 |
| ## Median : | 15.0 | Median : 36.00 |
| ## Mean : | 15.4 | Mean : 42.98 |
| ## 3rd Qu.: | 19.0 | 3rd Qu.: 56.00 |
| ## Max. | :25.0 | Max. :120.00 |



Exercise 6: Tabsets



Remove the `toc` and `toc_float` options from your YAML header

```
output:  
  html_document:  
    highlight: zenburn  
    theme: united  
params:  
  small_pressure: !r head(pressure)
```

Exercise 6: Tabsets



Make the following changes to the **R Markdown** header sections

```
18
19 ▾ ## R Markdown {.tabset}
20
21 This is a monthly report generated with
  [RMarkdown](https://rmarkdown.rstudio.com/), a literate programming tool
  for combing text and `code`.
22
23 ▾ ### Summary
24
25 ▾ ```{r cars}
26 summary(cars)
27 ^```
28
29 ▾ ### Including Plots
30
31 You can also embed plots, for example:
32
33 ▾ ```{r pressure, echo=FALSE}
34 plot(pressure)
35 ^```
36
37 Note that the `echo = FALSE` parameter was added to the code chunk to
  prevent printing of the R code that generated the plot.
38
39 ▾ ```{r small_pressure, echo=FALSE}
40 plot(params$small_pressure)
41 ^```
```

→ Include tabset in curly brackets

→ Add 'Summary' level 3 header

→ Change 'Including Plots' to level 3 header

Exercise 6: Tabsets (rendered)



Tab 1

The screenshot shows the RStudio interface with a document titled '01-monthly-report.Rmd'. The left pane displays the source code, and the right pane shows the rendered HTML output.

```
1 ---
2 title: "Monthly Report"
3 author: "Martin Frigaard"
4 date: "11/5/2020"
5 output:
6   html_document:
7     highlight: zenburn
8     theme: united
9 params:
10   small_pressure: !r head(pressure)
11 ---
12
13 ```{r setup, include=FALSE}
14 knitr::opts_chunk$set(echo = TRUE)
15 ```
16
17 ## R Markdown {.tabset}
18
19 This is a monthly report generated with [RMarkdown](https://rmarkdown.rstudio.com/), a
20 literate programming tool for combing text and `code`.
21
22 ### Summary
23
24 ```{r cars}
25 summary(cars)
26 ```
27
28 ### Including Plots
29
30 You can also embed plots, for example:
31
32 ```{r pressure, echo=FALSE}
33 plot(pressure)
34 ```
35
36 Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R
37 code that generated the plot.
38
39 ```{r small_pressure, echo=FALSE}
40 plot(params$small_pressure)
41 ```
```

The rendered output on the right shows a document titled "Monthly Report" by Martin Frigaard, dated 11/5/2020. It features a "R Markdown" section with a paragraph explaining the tool. Below this, there are two tabs: "Summary" (selected) and "Including Plots". The "Summary" tab displays the output of the `summary(cars)` function as a table:

| ## | speed | dist |
|------------|-------|----------------|
| ## Min. | : 4.0 | Min. : 2.00 |
| ## 1st Qu. | :12.0 | 1st Qu.: 26.00 |
| ## Median | :15.0 | Median : 36.00 |
| ## Mean | :15.4 | Mean : 42.98 |
| ## 3rd Qu. | :19.0 | 3rd Qu.: 56.00 |
| ## Max. | :25.0 | Max. :120.00 |

Exercise 6: Tabsets (rendered)



Tab 2

The screenshot shows the RStudio interface with a document titled '01-monthly-report.Rmd'. The left pane displays the source code, and the right pane shows the rendered HTML output.

```
1 ---
2 title: "Monthly Report"
3 author: "Martin Frigaard"
4 date: "11/5/2020"
5 output:
6   html_document:
7     highlight: zenburn
8     theme: united
9   params:
10    small_pressure: !r head(pressure)
11 ---
12
13 ```{r setup, include=FALSE}
14 knitr::opts_chunk$set(echo = TRUE)
15 ```
16
17 ## R Markdown {.tabset}
18
19 This is a monthly report generated with [RMarkdown](https://rmarkdown.rstudio.com/), a
20 literate programming tool for combing text and `code`.
21
22 ### Summary
23
24 ```{r cars}
25 summary(cars)
26 ```
27
28 ### Including Plots
29
30 You can also embed plots, for example:
31
32 ```{r pressure, echo=FALSE}
33 plot(pressure)
34 ```
35
36 Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R
37 code that generated the plot.
38
39 ```{r small_pressure, echo=FALSE}
40 plot(params$small_pressure)
41 ```
```

The rendered output on the right shows a document titled "Monthly Report" by Martin Frigaard, dated 11/5/2020. It features a tabset with two tabs: "Summary" (selected) and "Including Plots". The "Summary" tab contains the text: "This is a **monthly report** generated with RMarkdown, a literate programming tool for combing text and `code`." Below this, the "Including Plots" tab is active, displaying a scatter plot of pressure versus temperature. The plot shows a clear positive correlation between the two variables.

| temperature | pressure |
|-------------|----------|
| 0 | 0 |
| 50 | 0 |
| 100 | 0 |
| 150 | 0 |
| 200 | 0 |
| 220 | 50 |
| 240 | 100 |
| 260 | 150 |
| 280 | 200 |
| 300 | 300 |
| 320 | 400 |
| 340 | 550 |
| 350 | 800 |

R Markdown

~~▪ `.yaml` = Metadata~~

~~▪ `.md` = Prose~~

▪ `R` = Code



Code chunks (**setup**)



The first bit of R code in our RMarkdown file is the **setup** chunk

```
```${r setup, include=FALSE}  
knitr::opts_chunk$set(echo = TRUE)
```
```



Chunks named '**setup**' are special because they can set global options

'**include=FALSE**' means this code is run, but not displayed

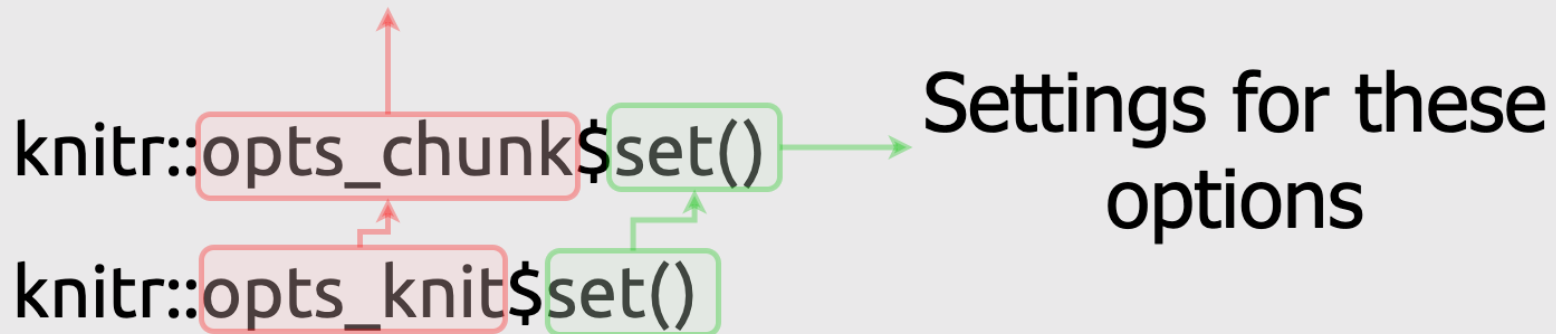
Code chunks (**setup**)



R Markdown document options come from the **knitr** package

We can access both the with syntax below:

Code chunks and
knit options



Code chunks (`setup`)



The `echo=TRUE` option controls whether we want to display the code in the code chunk

Other common options regarding code are `eval`, `tidy`, `error`, `message`, and `warning`

Advanced options can control language engines (`engine`), caching (`cache`, `dependson`), and plot animations (`fig.show`)

Code chunks (**setup**)



Many options for code chunks

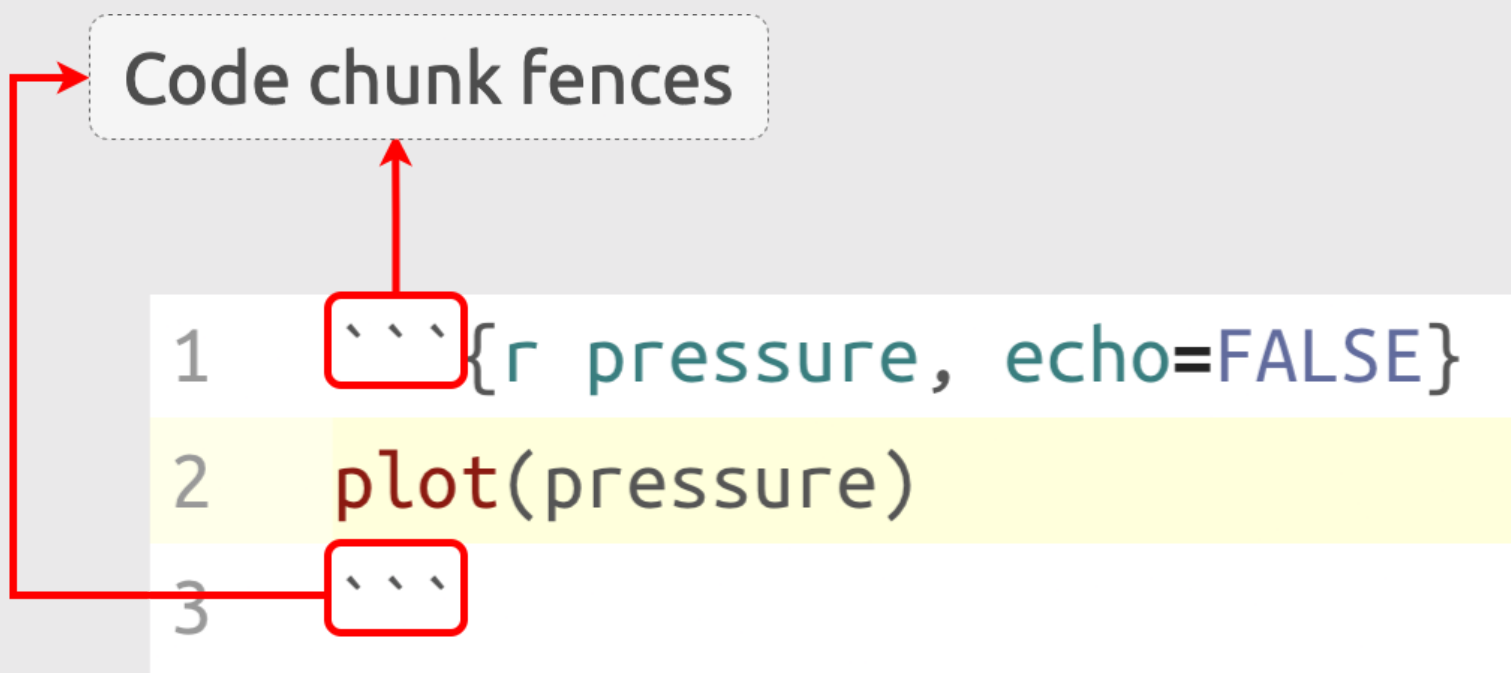
| Option | Document Effect |
|----------------------|---|
| <code>include</code> | run code, but do/don't print code and results |
| <code>eval</code> | do/don't evaluate the code |
| <code>echo</code> | run code, but don't print code |
| <code>message</code> | do/don't print messages (e.g. from functions) |
| <code>warning</code> | do/don't print warnings |

Code chunks

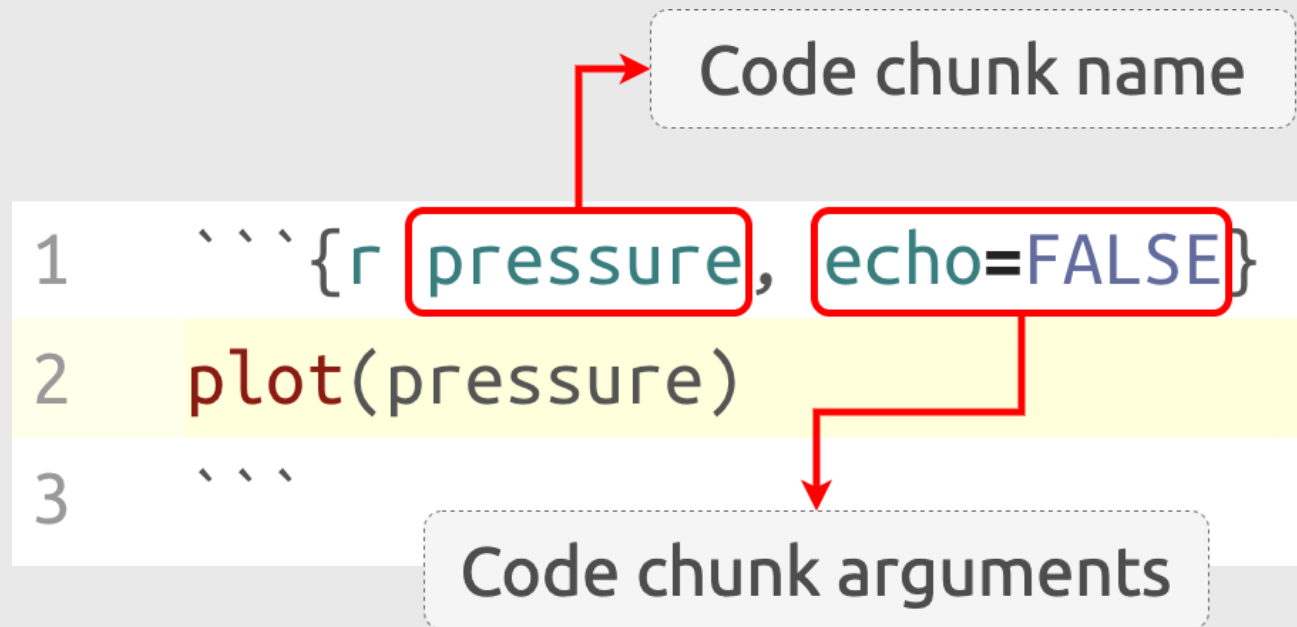


```
1   ```{r pressure, echo=FALSE}  
2   plot(pressure)  
3   ```
```

Code chunk fences



Code chunk names and arguments

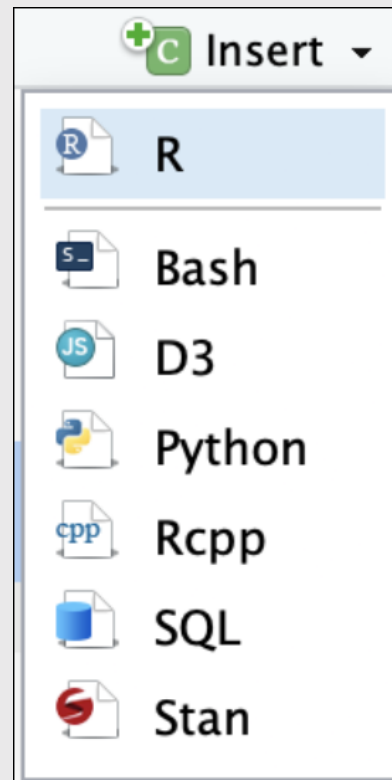


See the [knitr web page](#) for complete list of options

Inserting code chunks



Use keyboard shortcuts **CMD/CTRL + I** or **ALT/OPTION + I**



Edit code chunk options



You can edit code chunk options using the icon (small gear)

Code chunk settings

A screenshot of the R Markdown code chunk settings dialog box. The dialog box is titled "Code chunk settings" and contains the following options:

- Chunk Name: (highlighted with a red box)
- Output:
- Show warnings
- Show messages
- Use paged tables
- Use custom figure size
- [? Chunk options](#)
-

A red arrow points from the gear icon in the top right corner of the dialog box to the "Code chunk settings" text above it.

Code Chunk Engines



More and more code engines all the time

```
names(knitr::knit_engines$get())
```

```
[1] "awk"      "bash"      "coffee"   "gawk"      "groovy"    "haskell"
[7] "lein"     "mysql"     "node"      "octave"    "perl"      "psql"
[13] "Rscript"  "ruby"      "sas"       "scala"     "sed"       "sh"
[19] "stata"    "zsh"       "highlight" "Rcpp"      "tikz"      "dot"
[25] "c"        "cc"        "fortran"   "fortran95" "asy"       "cat"
[31] "asis"     "stan"      "block"     "block2"    "js"        "css"
[37] "sql"      "go"        "python"    "julia"     "sass"      "scss"
[43] "R"        "bslib"     "targets"
```

Exercise 7: code chunks (kable)

Create a new **Tables** level three header under the **Summary** heading,

```
### Tables
```

Insert the following code chunk under **Tables**

```
```{r kable}  
knitr::kable(params$small_pressure)
```
```

insert the code block manually with the keyboard short-cut, or use the "Insert" button



Exercise 7: code chunks (kable rendered)



We can see the `small_pressure` parameter from the YAML has been rendered in the new **Tables** tab. `kable` tables are great for presenting small, summary tables.

```
### Tables
```{r kable}
knitr::kable(params$small_pressure)
```
```

R Markdown

This is a **monthly report** generated with RMarkdown, a literate programming tool for combining text and code .

Summary **Tables** Including Plots

```
knitr::kable(params$small_pressure)
```

| temperature | pressure |
|-------------|----------|
| 0 | 0.0002 |
| 20 | 0.0012 |
| 40 | 0.0060 |
| 60 | 0.0300 |
| 80 | 0.0900 |
| 100 | 0.2700 |

Read more about `kable` table options [here](#)

Exercise 8: code chunks (paged)



We are going to repeat the process above, but with a larger table (`mtcars`)

Insert the following code chunk above the `knitr::kable()` output:

```
### Tables

```{r paged}
rmarkdown::paged_table(mtcars)
```

```{r kable}
knitr::kable(params$small_pressure)
```
```

Knit the document

Exercise 8: code chunk (paged rendered)

Paged tables are great for larger datasets

```
## Tables  
````{r paged}  
rmarkdown::paged_table(mtcars)
````  
````{r kable}  
knitr::kable(params$small_pressure)
````
```

R Markdown

This is a **monthly report** generated with **RMarkdown**, a literate programming tool for combining text and code.

Summary Tables Including Plots

```
rmarkdown::paged_table(mtcars)
```

| | mpg | cyl | disp | hp | drat | wt | qsec | vs | am |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | <dbl> | <dbl> | <dbl> | <dbl> | <dbl> | <dbl> | <dbl> | <dbl> | <dbl> |
| Mazda RX4 | 21.0 | 6 | 160.0 | 110 | 3.90 | 2.620 | 16.46 | 0 | 1 |
| Mazda RX4 Wag | 21.0 | 6 | 160.0 | 110 | 3.90 | 2.875 | 17.02 | 0 | 1 |
| Datsun 710 | 22.8 | 4 | 108.0 | 93 | 3.85 | 2.320 | 18.61 | 1 | 1 |
| Hornet 4 Drive | 21.4 | 6 | 258.0 | 110 | 3.08 | 3.215 | 19.44 | 1 | 0 |
| Hornet Sportabout | 18.7 | 8 | 360.0 | 175 | 3.15 | 3.440 | 17.02 | 0 | 0 |
| Valiant | 18.1 | 6 | 225.0 | 105 | 2.76 | 3.460 | 20.22 | 1 | 0 |
| Duster 360 | 14.3 | 8 | 360.0 | 245 | 3.21 | 3.570 | 15.84 | 0 | 0 |
| Merc 240D | 24.4 | 4 | 146.7 | 62 | 3.69 | 3.190 | 20.00 | 1 | 0 |
| Merc 230 | 22.8 | 4 | 140.8 | 95 | 3.92 | 3.150 | 22.90 | 1 | 0 |
| Merc 280 | 19.2 | 6 | 167.6 | 123 | 3.92 | 3.440 | 18.30 | 1 | 0 |

1-10 of 32 rows | 1-10 of 12 columns

Previous 1 2 3 4 Next



Exercise 8: paged tables



R Markdown

This is a monthly report generated with RMarkdown, a literate programming tool for combining text and code.

Summary

Tables

Including Plots

```
rmarkdown::paged_table(mtcars)
```

| | mpg | cyl | disp | hp | drat | wt | qsec | vs | am |
|-------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | <dbl> | <dbl> | <dbl> | <dbl> | <dbl> | <dbl> | <dbl> | <dbl> | <dbl> |
| Mazda RX4 | 21.0 | 6 | 160.0 | 110 | 3.90 | 2.620 | 16.46 | 0 | 1 |
| Mazda RX4 Wag | 21.0 | 6 | 160.0 | 110 | 3.90 | 2.875 | 17.02 | 0 | 1 |
| Datsun 710 | 22.8 | 4 | 108.0 | 93 | 3.85 | 2.320 | 18.61 | 1 | 1 |
| Hornet 4 Drive | 21.4 | 6 | 258.0 | 110 | 3.08 | 3.215 | 19.44 | 1 | 0 |
| Hornet Sportabout | 18.7 | 8 | 360.0 | 175 | 3.15 | 3.440 | 17.02 | 0 | 0 |
| Valiant | 18.1 | 6 | 225.0 | 105 | 2.76 | 3.460 | 20.22 | 1 | 0 |
| Duster 360 | 14.3 | 8 | 360.0 | 245 | 3.21 | 3.570 | 15.84 | 0 | 0 |
| Merc 240D | 24.4 | 4 | 146.7 | 62 | 3.69 | 3.190 | 20.00 | 1 | 0 |
| Merc 230 | 22.8 | 4 | 140.8 | 95 | 3.92 | 3.150 | 22.90 | 1 | 0 |
| Merc 280 | 19.2 | 6 | 167.6 | 123 | 3.92 | 3.440 | 18.30 | 1 | 0 |

1-10 of 32 rows | 1-10 of 12 columns

Previous 1 2 3 4 Next

Inline R Code



R Markdown also supports inline R code

Grave accent or back-tick
around code

Some text `r function(x)` more text

A diagram illustrating inline R code in a sentence. The sentence is "Some text r function(x) more text". The words "Some text" and "more text" are in a light gray font, while "r function(x)" is in a light red font. Two blue dashed boxes highlight the backticks around the 'r' and the closing backtick. Red arrows point from these boxes up to the text "Grave accent or back-tick around code" above.

Inline R Code



Inline R code allows us to include summaries of our analysis in the report

Some text `function(x)` more text



Any R expression

Exercise 9: Add Inline Code



We're going to add a Pearson correlation between speed and stopping distance

Include the following code under the **Summary level three header**

The correlation between speed and stopping distance is 0.8068949

Knit the document again

Exercise 9: Add Inline Code (rendered)



```
### Summary

The correlation between speed and stopping distance
is `r cor(x = cars$speed, y = cars$dist)`

```{r cars}
summary(cars)
```
```

Monthly Report

Martin Frigaard
10/27/2020

R Markdown

This is a monthly report generated with **RMarkdown**, a literate programming tool for combining text and `code`.

Summary Tables Including Plots

The correlation between speed and stopping distance is 0.8068949

```
summary(cars)
```

| ## | speed | dist |
|-------------|-------|----------------|
| ## Min. | : 4.0 | Min. : 2.00 |
| ## 1st Qu.: | 12.0 | 1st Qu.: 26.00 |
| ## Median : | 15.0 | Median : 36.00 |
| ## Mean : | 15.4 | Mean : 42.98 |
| ## 3rd Qu.: | 19.0 | 3rd Qu.: 56.00 |
| ## Max. : | 25.0 | Max. : 120.00 |

Make cool stuff in R Markdown!

bookdown

blogdown

these slides!



Resources



- **YAML:** check out the [yamlthis package](#) for tools and documentation for working with YAML
- **Markdown:** [Commonmark](#) has a quick ten-twenty minute tutorial on markdown.
- [R Markdown:](#) A comprehensive but friendly introduction to R Markdown and friends. Free online!
- [R for Data Science:](#) A comprehensive but friendly introduction to the tidyverse. Free online.
- [R Markdown for Scientists:](#) R Markdown for Scientists workshop material