

Workflows with RStudio Connect

HELLO
my name is

Shannon

HELLO
my name is

Phil

Quick Survey

<http://rstd.io/phil-me-out>

Workshop Learning Objectives

- R markdown
- Publishing to Connect
- Parameterized Reports
- Parameters in Connect
- Flexdashboards
- Connect Scheduling
- Connect Emails

R Markdown



R Markdown

Plain text file with 3 types of content:

The screenshot shows the RStudio interface with an R Markdown file open. The file contains the following content:

```
1 ---  
2 title: "R Notebook"  
3 output: html_notebook  
4 ---  
5  
6 Text written in **markdown**  
7  
8 ```{r}  
9 # code written in R  
10 (x <- rnorm(7))  
11 ...  
12  
13 Text written in _markdown_  
14  
15 ```{r}  
16 # code written in R  
17 hist(x)  
18 ...  
18:4 (Top Level) ◊  
Console  
16:20 C Chunk 2 ◊ R Markdown ◊
```

Annotations explain the three types of content:

- A green callout points to the YAML header: **A YAML header surrounded by ---**
- A grey callout points to the text in markdown: **Text in markdown**
- A blue callout points to the code chunks: **Code chunks surrounded by ```**

knitr



pandoc



HTML



ioslides
slidy, Beamer



Powerpoint



Microsoft Word



Logistics

1

Knitr runs the document in a fresh R session, which means you need to load the libraries that the document uses **in the document**

Logistics

1

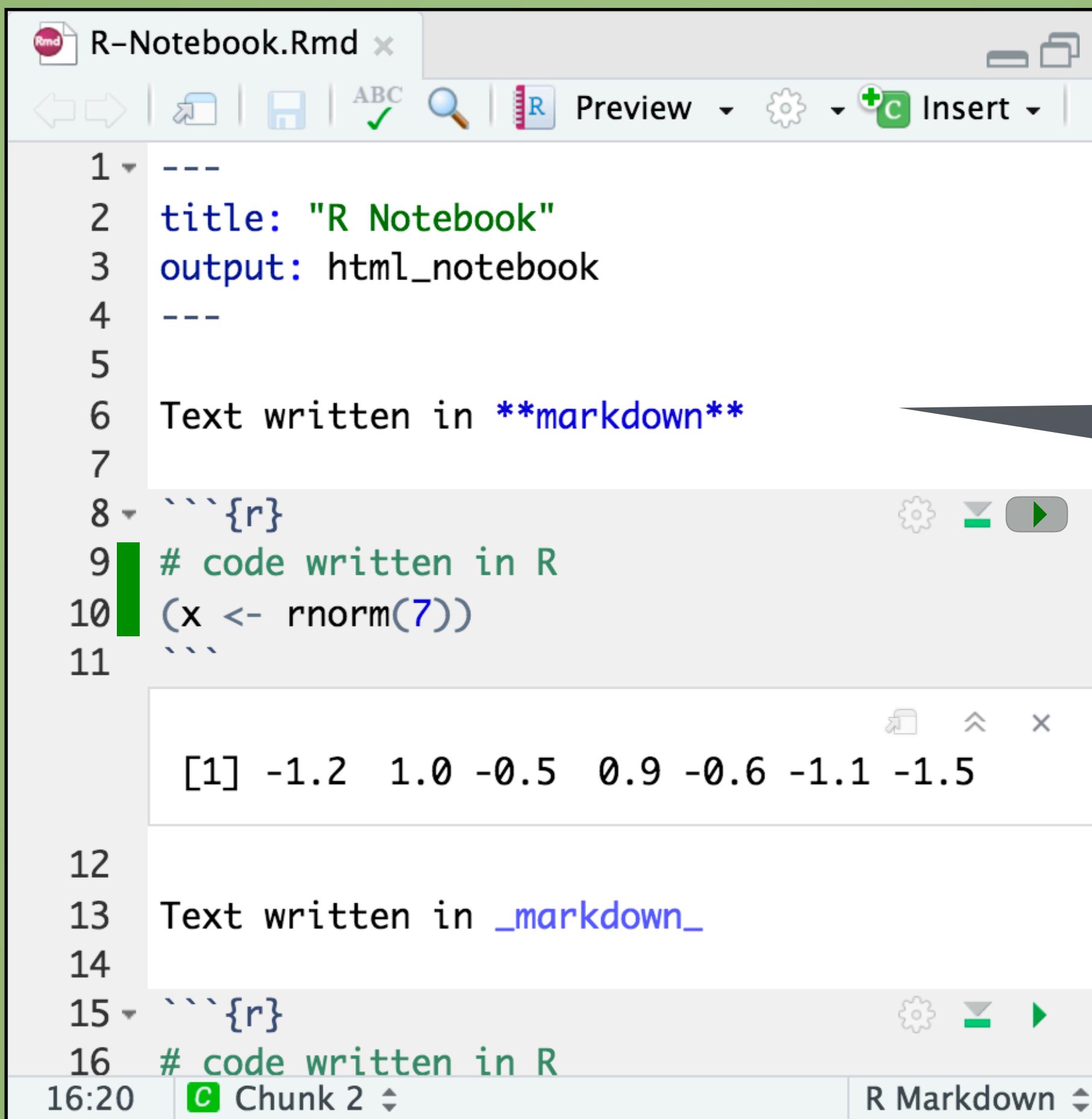
Knitr runs the document in a fresh R session, which means you need to load the libraries that the document uses [in the document](#)

2

Objects made in one code chunk will be available to code in later code

Open 0-Rmarkdown.Rmd &
knit it & publish to Connect!

Markdown



```
R-Notebook.Rmd x
Preview Insert

1 ---  
2 title: "R Notebook"  
3 output: html_notebook  
4 ---  
5  
6 Text written in **markdown**  
7  
8 ```{r}  
9 # code written in R  
10 (x <- rnorm(7))  
11 ```

[1] -1.2 1.0 -0.5 0.9 -0.6 -1.1 -1.5

12  
13 Text written in markdown  
14  
15 ```{r}  
16 # code written in R

16:20 C Chunk 2 R Markdown
```

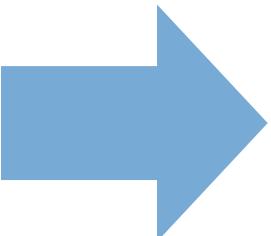
Text in
markdown

Headers

Use # to create headers.

Multiple #'s create lower level

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



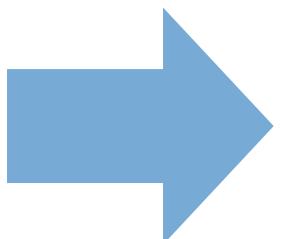
Header 1
Header 2
Header 3
Header 4
Header 5
Header 6

Text

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

Text is rendered as plain text.
Surround text with _, ******, or ``` to

Text
italics
bold
`code`



Text
italics
bold
`code`

Lists

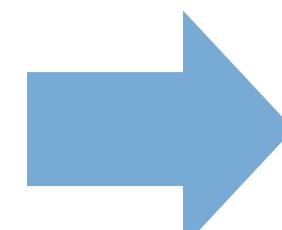
Use asterisks to make bullet points.
Use numbers to make numbered

Bullets

- * bullet 1
- * bullet 2

Numbered list

1. item 1
2. item 2



Bullets

- bullet 1
- bullet 2

Numbered list

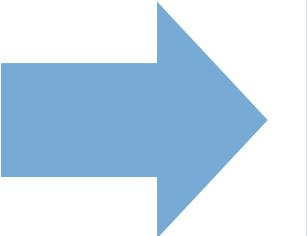
1. item 1
2. item 2

Hyperlinks

Use brackets to denote a link. Place the URL in

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

This is a **link**.



Images

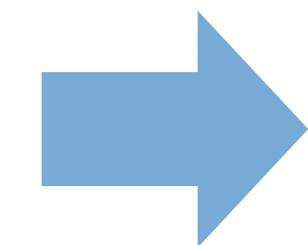
Use a link preceded by an ! to insert an image.

The link text should be a URL (if the image is hosted

The RStudio logo.



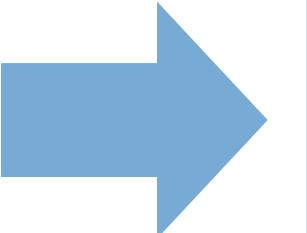
The RStudio logo.



Equations

Write equations with latex math commands and surround them in

According to
Einstein,
 $E=mc^2$



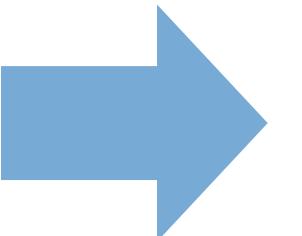
According to
Einstein, $E = mc^2$

Equation blocks

Use two \$'s to make
centered equation

According to
Einstein,

`$$E=mc^{\{2\}}$$`

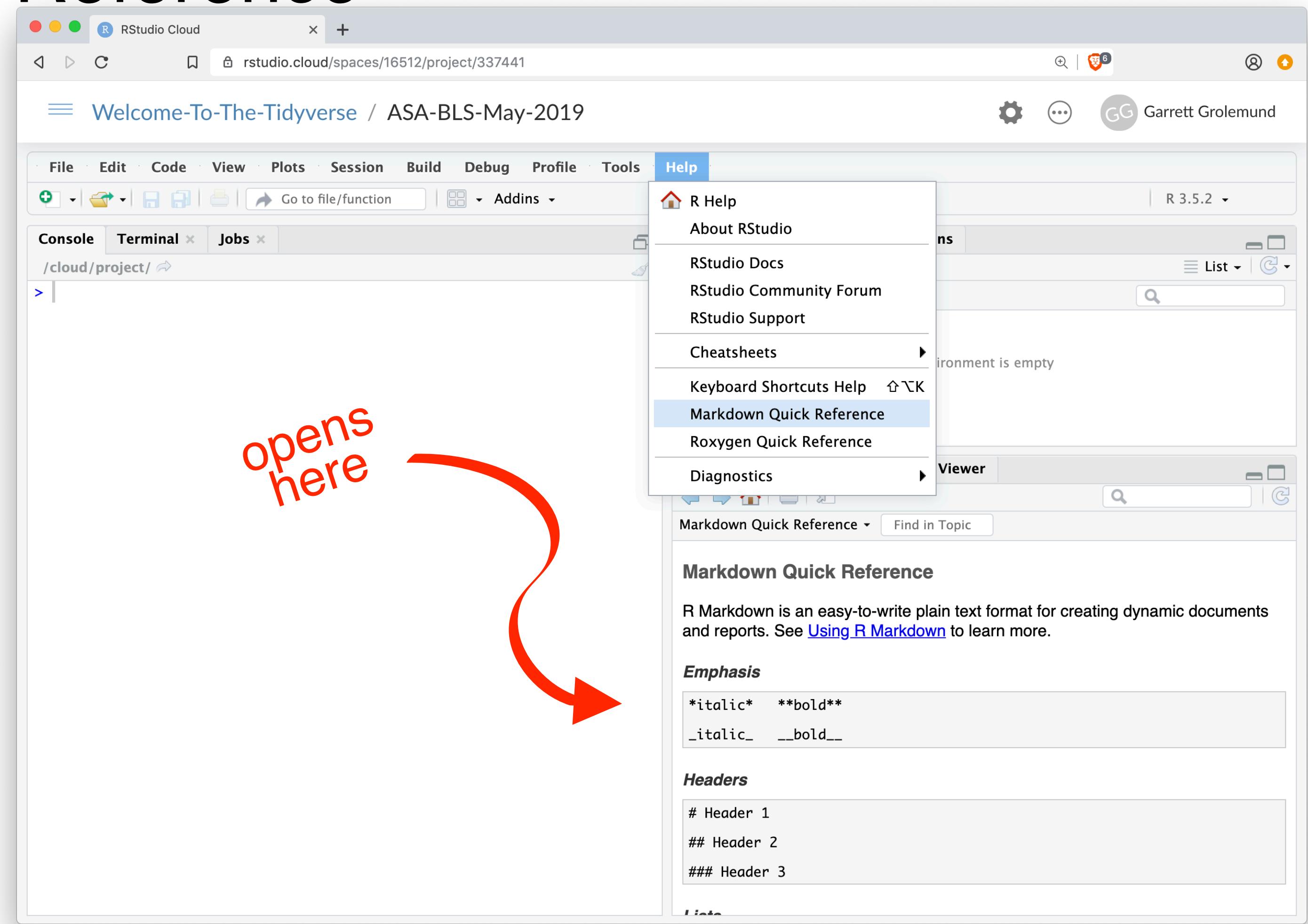


According to
Einstein,

$$E = mc^2$$

IDE Reference

Go to Help > Markdown Quick Reference



Code

The screenshot shows an R-Notebook.Rmd file in a software interface. The code is as follows:

```
1 ---  
2 title: "R Notebook"  
3 output: html_notebook  
4 ---  
5  
6 Text written in **markdown**  
7  
8 ```{r}  
9 # code written in R  
10 (x <- rnorm(7))  
11 ````
```

The output pane below shows the result of the R code chunk:

```
[1] -1.2 1.0 -0.5 0.9 -0.6 -1.1 -1.5
```

Below the code, there is more text:

```
12  
13 Text written in _markdown_  
14  
15 ```{r}  
16 # code written in R
```

The status bar at the bottom indicates it's Chunk 2 and the mode is R Markdown.

Code chunks
surrounded by
```

# Code chunks

Insert a chunk of R code with

```
```{r}  
# some code  
```
```

 + Opt + i (Mac)

Ctrl + Alt + i (PC)

# chunk options

By default, R Markdown includes both the code and its results

Here's some code

```
```{r}  
dim(iris)  
```
```

Here's some code

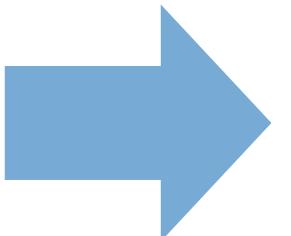
```
dim(iris)
```

```
[1] 150 5
```

# echo

Add options in the brackets after r.  
**echo = FALSE** hides the code.

```
Here's some code
```{r echo=FALSE}  
dim(iris)  
```
```



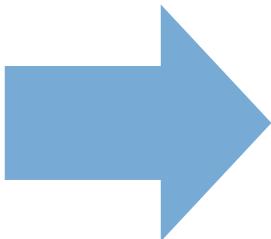
```
Here's some code
[1] 150 5
```

Very useful  
for plots

# eval

**eval = FALSE** prevents the code from being run. As a result, no results will be displayed

```
Here's some code
```{r eval=FALSE}  
dim(iris)  
```
```



```
Here's some code
dim(iris)
```

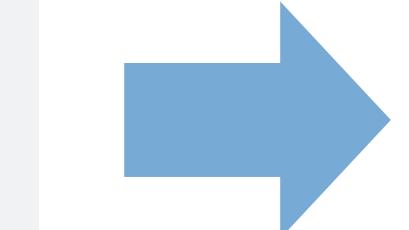
# include

`include = FALSE` runs the code, but prevents both the code and the results from appearing (e.g. to

Here's some code

```
```{r include=FALSE}  
dim(iris)  
```
```

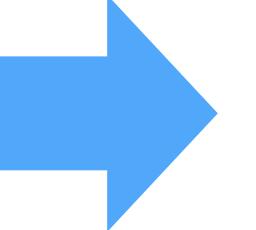
Here's some code



# Inline code

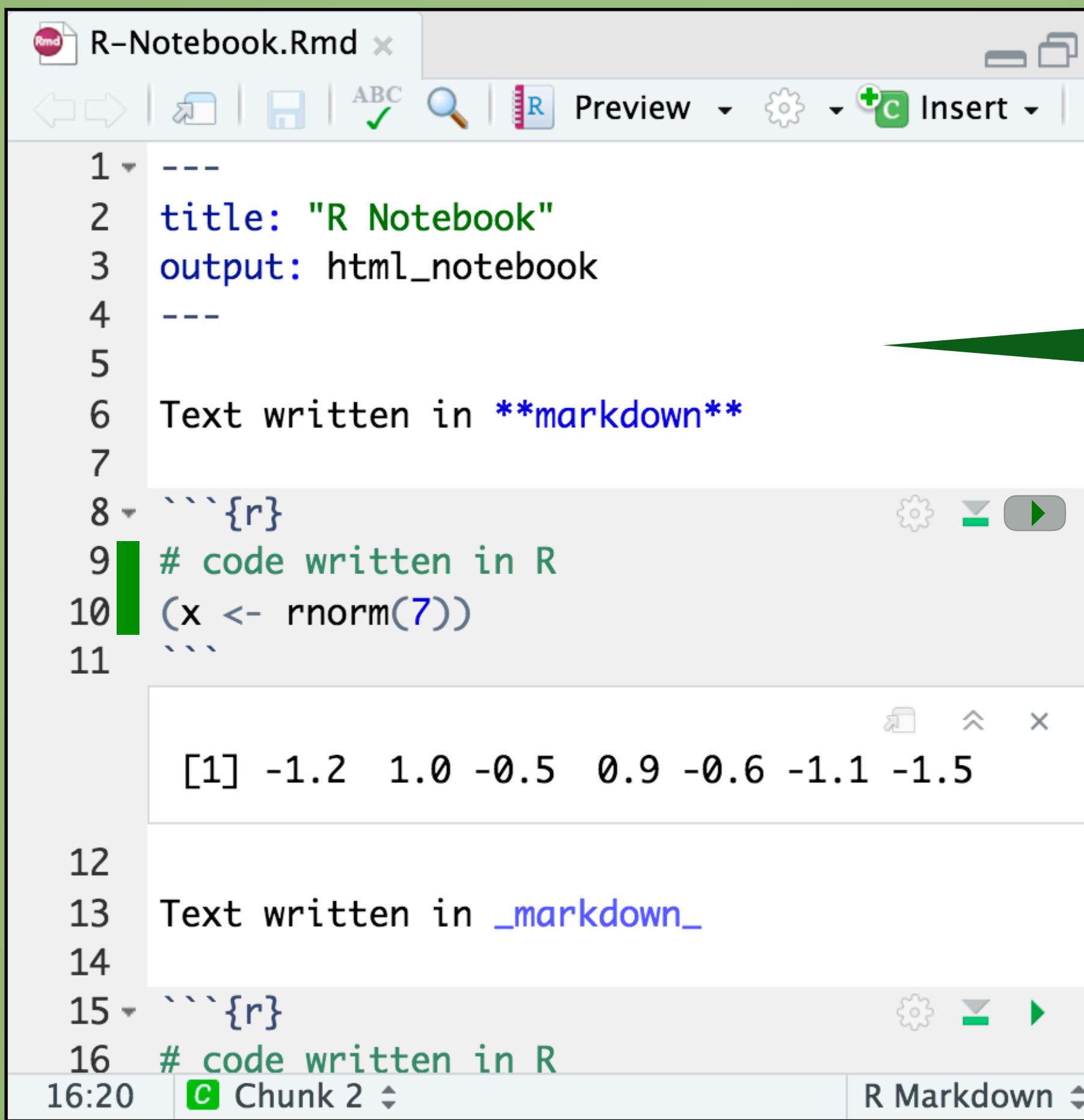
Place code in a sentence with `r <code>`. R Markdown will replace the code with its

Today is  
`r Sys.Date()`.



Today is 2015-04-16.

# YAML



The screenshot shows an R Notebook interface with the file "R-Notebook.Rmd" open. The YAML header is at the top:

```
1 ---
2 title: "R Notebook"
3 output: html_notebook
4 ---
5
6 Text written in **markdown**
7
8 ```{r}
9 # code written in R
10 (x <- rnorm(7))
11 ````
```

Below the header, there is a code chunk output:

```
[1] -1.2 1.0 -0.5 0.9 -0.6 -1.1 -1.5
```

Text written in markdown:

```
12
13 Text written in markdown
14
15 ```{r}
16 # code written in R
```

The status bar at the bottom indicates "16:20" and "Chunk 2".

A YAML header surrounded by  
---

# YAML

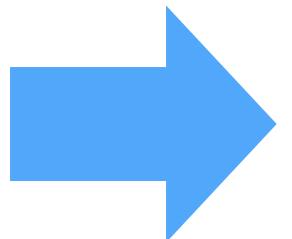
A section of key:value pairs  
separated by dashed lines — — —

```

title: "Untitled"
author: "RStudio"
date: "February 4, 2015"
output: html_document

```

Text of document



## Untitled

*RStudio*

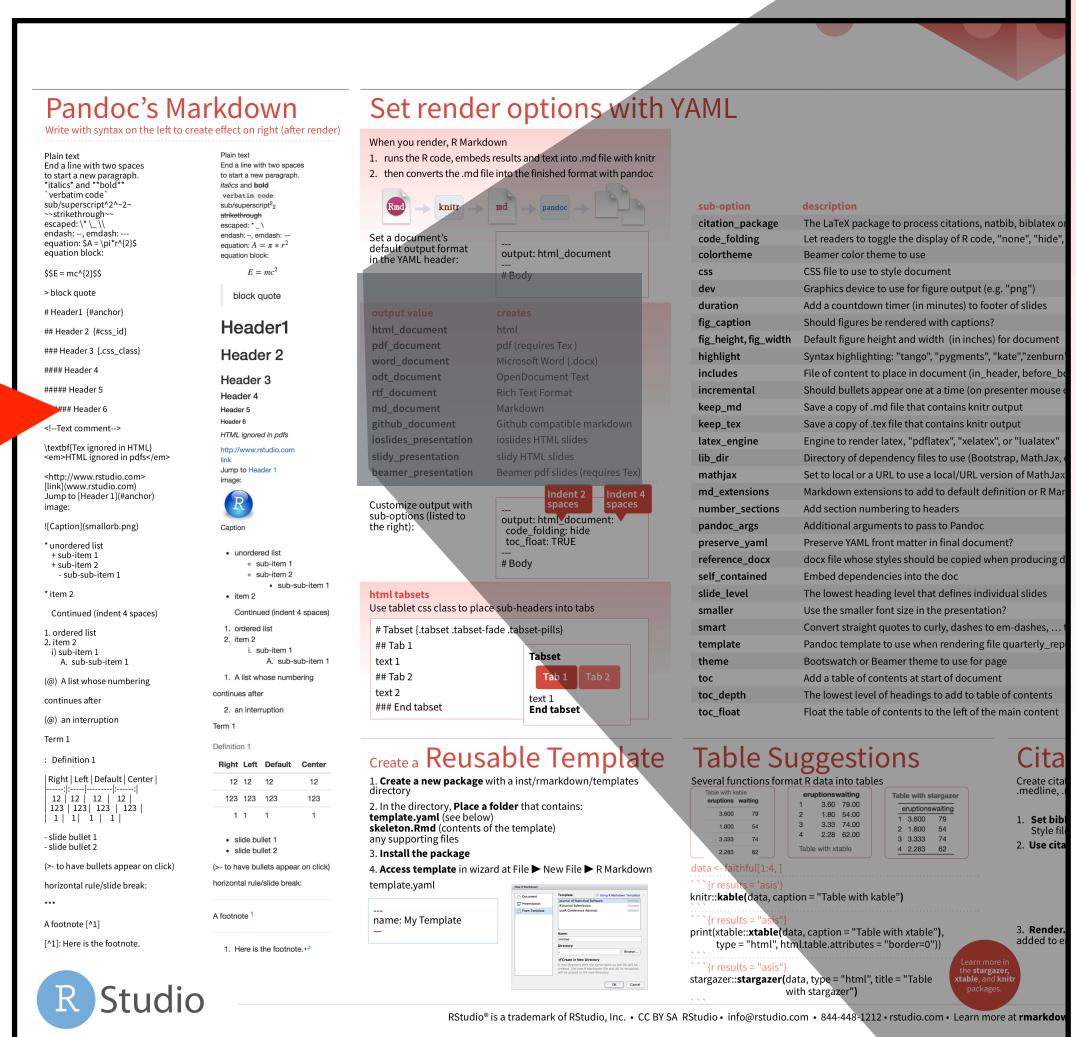
*February 4, 2015*

Text of document

# output

The output: field sets the format of the final report

on back



**output value**

| output value                       | creates                          |
|------------------------------------|----------------------------------|
| <code>html_document</code>         | html                             |
| <code>pdf_document</code>          | pdf (requires Tex)               |
| <code>word_document</code>         | Microsoft Word (.docx)           |
| <code>odt_document</code>          | OpenDocument Text                |
| <code>rtf_document</code>          | Rich Text Format                 |
| <code>md_document</code>           | Markdown                         |
| <code>github_document</code>       | Github compatible markdown       |
| <code>ioslides_presentation</code> | ioslides HTML slides             |
| <code>slidy_presentation</code>    | slidy HTML slides                |
| <code>beamer_presentation</code>   | Beamer pdf slides (requires Tex) |

More at [rmarkdown.rstudio.com/formats.html](http://rmarkdown.rstudio.com/formats.html)

# Your Turn 1

1. Change code chunk settings so only the output shows.
2. Add a bullet to the quick overview section with the number of **serious** events.
3. Change instances of Tylenol to Keytruda (or try another drug brand name)
4. Change output type to `ioslides_presentation`
5. Publish to connect and add your link to the google doc

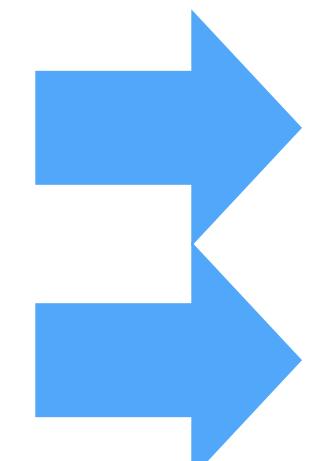
# Parameters

A faint watermark of the R logo is visible in the bottom right corner of the slide.

# Parameters

A list of values that you can call in R code chunks

params list  
elements and  
values



```

```

```
title: ``r params$drug`
Adverse Events"
```

```
output: html_document
```

```
params:
```

```
 drug: "Keytruda"
```

```

```

colon

New line.  
Indented two  
spaces

# Using Parameters

Call parameter values as elements  
of the params list, `params$num`

```

```

```
params:
```

```
 num: 42
```

```

```

```
The value of the
```

```
parameter is
```

```
`r params$num` , e.g.
```

```
```{r}
```

```
params$num
```

```
```
```

The value of the  
parameter is 42, e.g.

`params$num`

`## [1] 42`

# Your Turn 2

1. Add a drug parameter to the YAML, & replace the brand name text in R markdown file with `param$drug`
2. Change output type to `html_document`
3. Publish to connect and add your link to the google doc