

Slides in R Markdown

Taught from slides that I made in R markdown...

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(R) Markdown May in almost over!

- Just making sure that you've seen these links:

<https://rmarkdown.rstudio.com/index.html>

<https://rmarkdown.rstudio.com/lesson-1.html>

- This is a great guide to using R Markdown within the R Studio environment.
- This is also awesome:

<https://bookdown.org/yihui/rmarkdown/presentations.html>

- Today we're going to use R Markdown to make some presentation slides (just like these ones).

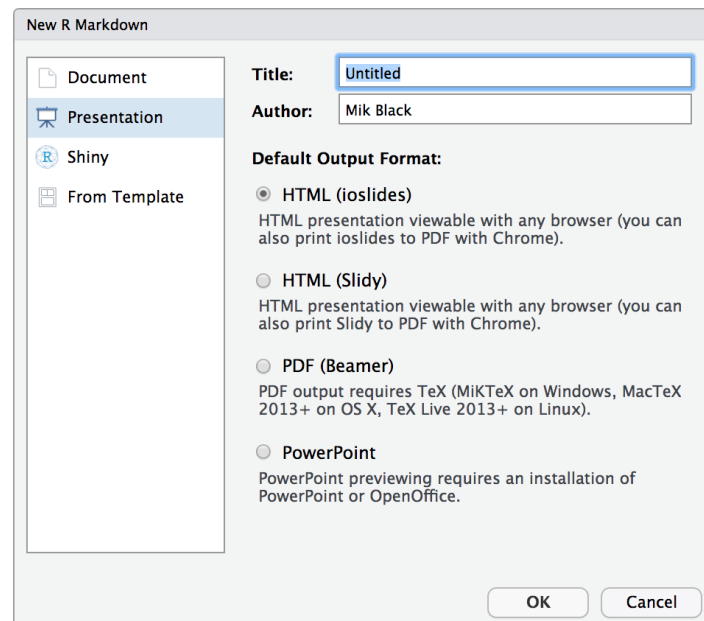
Slides in R markdown

- R Studio makes it easy to produce slides using R Markdown.
- R Markdown renders to four presentation formats:
 - [beamer presentation](#) - PDF presentations with beamer
 - [ioslides presentation](#) - HTML presentations with ioslides
 - [slidy presentation](#) - HTML presentations with slidy
 - [powerpoint presentation](#) - PowerPoint presentation
 - [revealjs::revealjs presentation](#) - HTML presentations with reveal.js
- We will focus on the `ioslides presentation`.

From: <https://rmarkdown.rstudio.com/lesson-11.html>

New presentation

- File menu:
 - New File -> Rmarkdown...
- Select “Presentation” and click “OK”



Your new document

- Following the steps on the previous slide will produce a new R Markdown *presentation*, complete with some example text and code.
- It should look suspiciously familiar...
- What is the difference between this and a R Markdown *document*?

YAML header

R Markdown document:

```
---  
title: "Untitled"  
author: "Mik Black"  
date: "28/05/2019"  
output: html_document  
---
```

R Markdown presentation:

```
---  
title: "Untitled"  
author: "Mik Black"  
date: "28/05/2019"  
output: ioslides_presentation  
---
```

**Let's see what is in the example
slides**

Slide 1 (title slide): code

```
---  
title: "Untitled"  
author: "Mik Black"  
date: "28/05/2019"  
output: ioslides_presentation  
---
```


Slide 2: code

`## R Markdown`

This is an R Markdown presentation. 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.

R Markdown

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Slide 3: code

```
## Slide with Bullets
```

- Bullet 1
- Bullet 2
- Bullet 3

Slide with Bullets

- Bullet 1
- Bullet 2
- Bullet 3

Slide 4: code

```
## Slide with R Output

```{r cars, echo = TRUE}
summary(cars)
```
```

Slide with R Output

```
summary(cars)
```

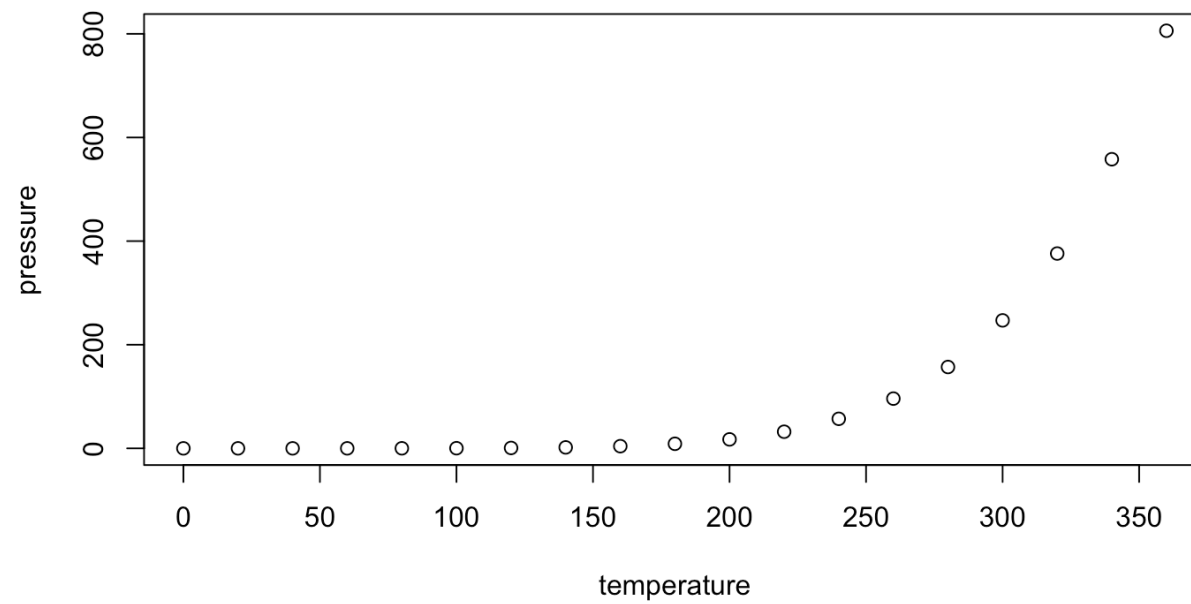
| ## | speed | dist |
|----|--------------|----------------|
| ## | Min. : 4.0 | Min. : 2.00 |
| ## | 1st Qu.:12.0 | 1st Qu.: 26.00 |
| ## | Median :15.0 | Median : 36.00 |
| ## | Mean :15.4 | Mean : 42.98 |
| ## | 3rd Qu.:19.0 | 3rd Qu.: 56.00 |
| ## | Max. :25.0 | Max. :120.00 |

Slide 5: code

```
## Slide with Plot
```

```
```{r pressure}  
plot(pressure)
```
```

Slide with Plot



Echoing code

- Note that code is not displayed by default
- This can be specified per code chunk:

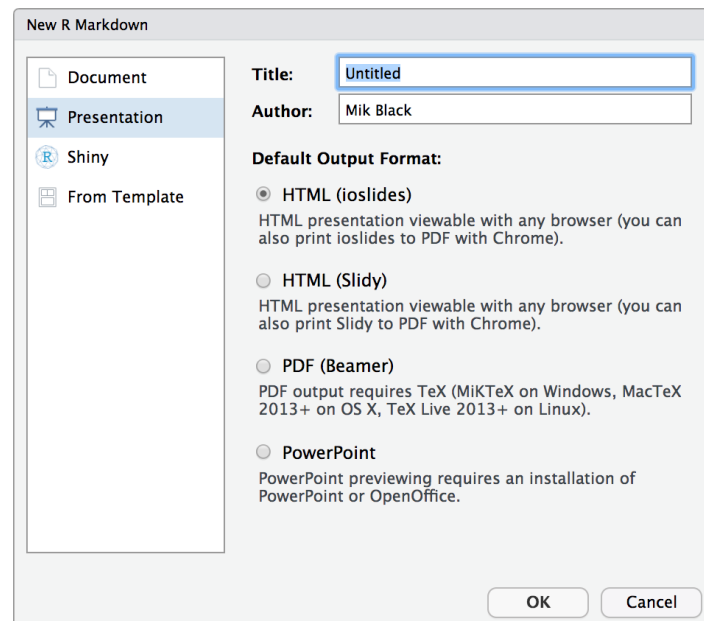
```
```{r cars, echo = TRUE}  
summary(cars)
```
```

- Or you can define it globally at the top of the file (after the YAML header):

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

Let's make a presentation...

- File menu:
 - New File -> Rmarkdown...
- Select "Presentation" and click "OK"



...and customise it

- Give it a proper title
- Click “Knit” to generate the output
- Click the “Open in Browser” button (at the top of the output page) to open the slides in a web browser.
- Try adding some content - perhaps a slide containing a boxplot:

```
boxplot( cars$speed )
```

Inserting an image

- The following code will add an image to the slide (note, this isn't R code, it's Markdown, so doesn't sit in a code chunk):

```
![some text](figures/img.png)
```



some text

How I do it

- Simple HTML code can also be used:

```
<center>  
  
</center>
```



And here is the newer cooler way...

- `knitr` now includes a built-in function for this:

```
```{r, out.width = "400px", fig.align="center"}  
knitr::include_graphics("figures/otago_logo.jpg")
```
```



Using an image URL

- You can also load an image directly from the web (make sure you have internet connectivity when you knit your document):

```
```{r, out.width = "400px", fig.align="center"}  
fig <- 'https://carpentries.org/images/TheCarpentries-opengraph.png'
knitr::include_graphics(fig)
```
```



Random tricks!

Like - what's with that grey slide?

- If you use a single hash for the slide title, you get a grey-background “transition slide”

Random tricks!

- Note that most of my “random tricks” are directly from:

<https://bookdown.org/yihui/rmarkdown/presentations.html>

Math formulae

- LaTeX commands can be used to insert equations.
- Code

```

$$\pi(\theta|X) = \frac{f(X|\theta)\pi(\theta)}{\int f(X|\theta)\pi(\theta)d\theta}$$

```

- Output:

$$\pi(\theta|X) = \frac{f(X|\theta)\pi(\theta)}{\int f(X|\theta)\pi(\theta)d\theta}$$

Size changes

- You can display the presentation using a wider form factor using the widescreen option. You can specify that smaller text be used with the smaller option. For example:

```
---  
output:  
  ioslides_presentation:  
    widescreen: true  
    smaller: true  
---
```

- You can also enable the “smaller” option on a slide-by-slide basis by adding the .smaller attribute to the slide header:

```
## Title {.smaller}
```

Smaller text slide

- The text on this slide is smaller
- You could use this if you need to squeeze some more words in...

Incremental bullets

- You can render bullets incrementally by adding the incremental option:

```
---  
output:  
  ioslides_presentation:  
    incremental: true  
---
```

- If you want to render bullets incrementally for some slides but not others you can (ab)use this syntax for blockquotes:

```
> - Eat eggs  
> - Drink coffee
```

Two column layout

```
<div class="columns-2">
```

```
```${r, out.width = "300px"}  
knitr::include_graphics("figures/otago_logo.jpg")
```
```

- Bullet 1
- Bullet 2
- Bullet 3

```
</div>
```



- Bullet 1

Text colour

You can color content using base color classes red, blue, green, yellow, and gray (or variations of them, e.g., red2, red3, blue2, blue3, etc.). For example:

```
<div class="red2">  
This text is red  
</div>
```

This text is red

Pretty tables

```
library(dplyr)
summary(cars) %>% knitr::kable()
```

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
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In summary

- Making cool looking presentations using R Markdown is super easy.
- There are MANY ways to tweak your slides
 - see links at the start of this document
 - lots of other online resources
- Advantages:
 - analyses are built-in and reproducible
 - outputs are automatically integrated into the document
 - fits seamlessly into an R-centric workflow
 - text-based document makes version control with Git easy

Let's try it!