Week 12 - Dynamic, Reproducible Presentations Using `xaringan`

Andrew Stewart

Andrew.Stewart@manchester.ac.uk

 @ajstewart_lang

 https://github.com/ajstewartlang

Week	Topic
1	Introduction, Open Science, and Power
2	Introduction to R
3	Data Wrangling and Visualisation
4	General Linear Model - Regression
5	General Linear Model - Regression
6	No Timetabled Lecture - Reading Week
7	Consolidation Lab
8	General Linear Model - ANOVA
9	General Linear Model - ANOVA
10	Tidy Thursday Data Wrangling & Visualisation Challenge
11	Reproducing your Computational Environment using Binder
12	Dynamic, Reproducible Presentations Using xaringan

Semester 1 Assignments

Data wrangling and visualisation – Due December 5th

ANOVA/ANCOVA – Due January 17th

Xaringan

- The xaringan package for R allows you to write presentations in Markdown which can then be rendered as .html files.

- Allows you to include R analysis (data, code, and output) in a presentation without any cutting and pasting.

- Also allows you to rebuild a presentation at the press of a button if your analysis changes, you add more data etc.

- Allows for fully reproducible and open presentations!

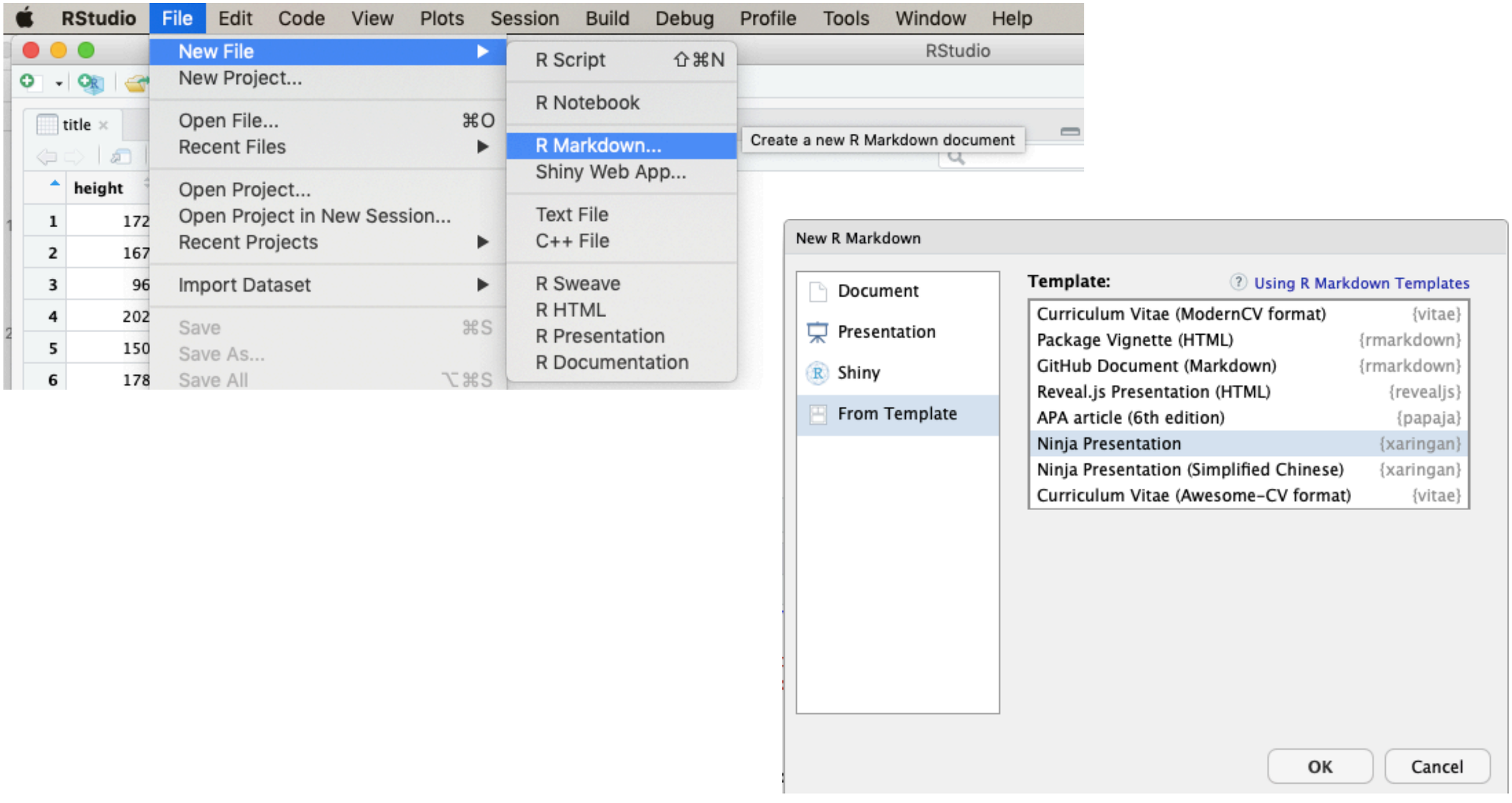
https://bookdown.org/yihui/rmarkdown/xaringan.html

An example...

https://ajstewartlang.github.io/SIPS_2019/SIPS_presentation.html#51

- First, install the package xaringan.

- Then...



Untitled1

Knit | Insert | Run

```
---
title: "Presentation Ninja"
subtitle: "⚔<br/>with xaringan"
author: "Yihui Xie"
institute: "RStudio, Inc."
date: "2016/12/12 (updated: `r Sys.Date()`)"
output:
  xaringan::moon_reader:
    lib_dir: libs
    nature:
      highlightStyle: github
      highlightLines: true
      countIncrementalSlides: false
---

background-image: url(https://upload.wikimedia.org/wikipedia/commons/b/be/Sharingan_triple.svg)

```{r setup, include=FALSE}
options(htmltools.dir.version = FALSE)
```

???

Image credit: [Wikimedia Commons](https://commons.wikimedia.org/wiki/File:Sharingan_triple.svg)

---
class: center, middle

xaringan

/ʃa:.'riŋ.gan/

---
class: inverse, center, middle

Get Started

```

1:1 | Presentation Ninja | R Markdown

- Try 'knitting' the template to see what happens...

- You can look at the code at the same time that you cycle through the slides - xaringan is Markdown but with a few extra things that allow you to change the format of your slides...

- Your RMD script can include CSS (Cascading Style Sheets) code which describes how HTML elements are to be displayed.

- Delete everything after from line 15 and paste this at line 15:

```
---

class: center, inverse

A new slide

Content.
```

- In the header (around line 9) add `seal:false` after the `xaringan::moon_reader:` line - this will allow you to write your own title slide:

```
output:
  xaringan::moon_reader:
    seal: false
```

- You can write text as you do in R Markdown - to make text italics use _ either side like this _*italics*_ and to make text bold use two underscores __**bold**__

- You can use .pull-left[] to enclose the text you want to be presented on the left hand side of a slide and .pull-right[] to enclose text to be presented on the right...

```
---
.pull-left[
here is some text in _italics_
]

.pull-right[
and here is some in  __bold__
]
```

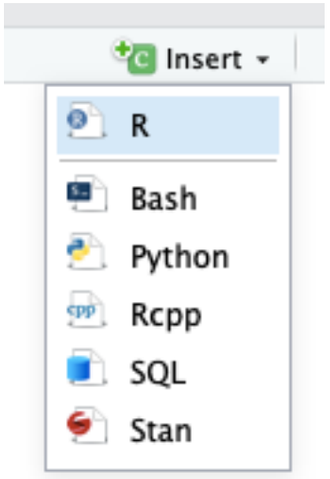
- You can add chunks of R code, and suppress displaying the code (use echo=FALSE to not display the code, message=FALSE to not display messages, warning=FALSE to not display warnings, and eval=FALSE to not run the code).

- See the R Markdown cheatsheet for other options:

https://github.com/ajstewartlang/MRes_Advanced_Data_Skills/blob/master/R_cheatsheets/R_Markdown%20cheatsheet.pdf

- You can insert a chunk of R code by clicking on Insert R.

- Or by clicking CMD-Alt-I (on a Mac) and Ctrl-Alt-I (on a PC).




````
---
```{r, echo=FALSE, message=FALSE}
library(tidyverse)
```

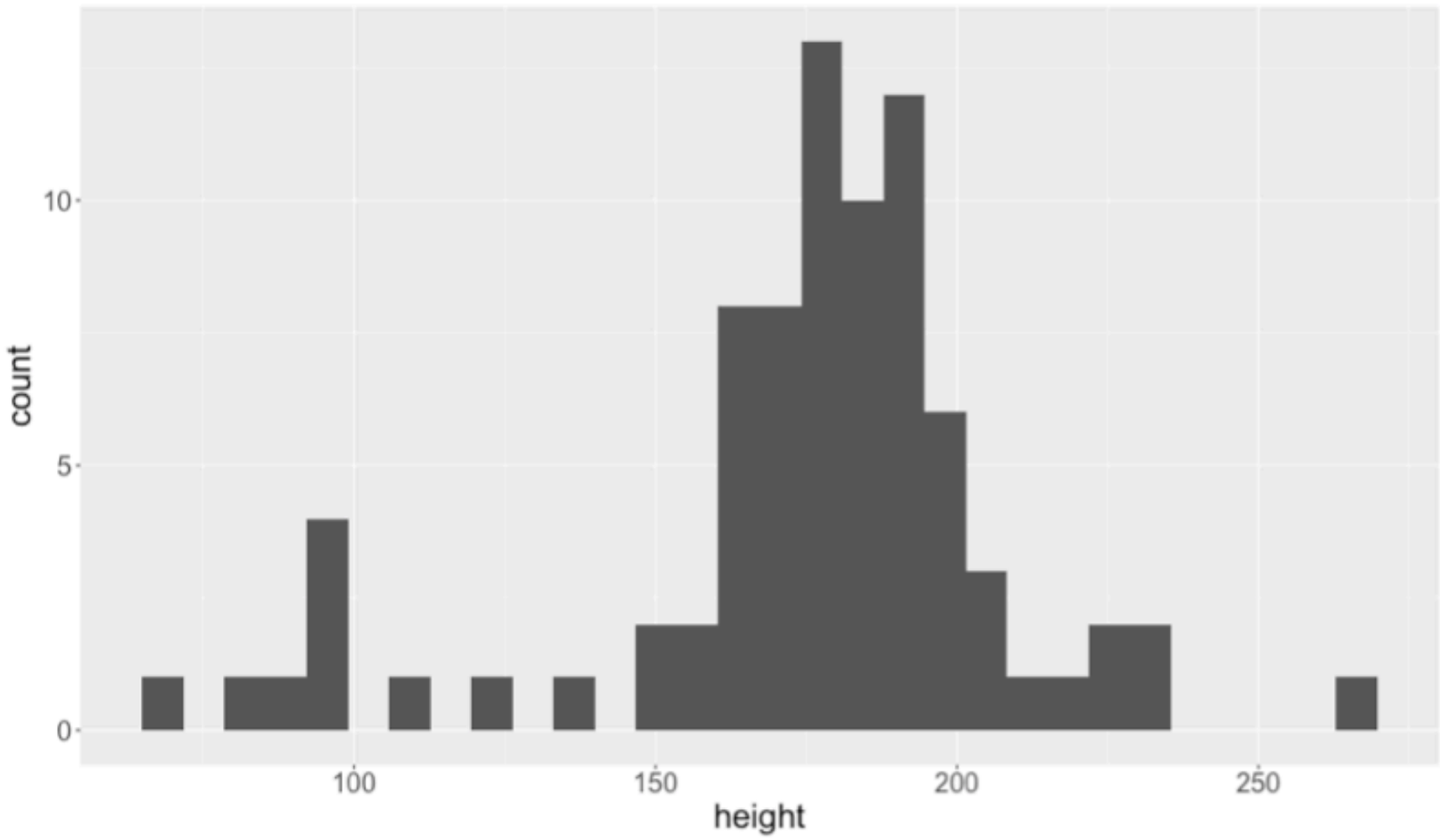

```{r}
head(starwars)
```
````

```
head(starwars)
```

```
## # A tibble: 6 x 13
##   name  height  mass hair_color skin_color eye_color birth_year gender
##   <chr>  <int> <dbl> <chr>      <chr>      <chr>           <dbl> <chr>
## 1 Luke…    172    77 blond      fair       blue             19   male
## 2 C-3PO    167    75 <NA>       gold       yellow          112   <NA>
## 3 R2-D2     96    32 <NA>       white, bl… red              33   <NA>
## 4 Dart…    202   136 none       white      yellow           41.9 male
## 5 Leia…    150    49 brown      light      brown            19   female
## 6 Owen…    178   120 brown, gr… light      blue             52   male
## # … with 5 more variables: homeworld <chr>, species <chr>, films <list>,
## #   vehicles <list>, starships <list>
```

```{r, warning=FALSE, message = FALSE, fig.width=12}
starwars %>%
  ggplot(aes(x = height)) +
  geom_histogram() +
  theme(text = element_text(size = 20))
```

```
starwars %>%
  ggplot(aes(x = height)) +
  geom_histogram() +
  theme(text = element_text(size = 20))
```



- You can also add images in formats including .jpg and .png - just make sure you keep the images at the same level as your RMD script, or specify the path needed to find them.

```
# Opeth 🤘
```{r, echo=FALSE, out.width="100%"}
knitr::include_graphics("opeth.jpg")
```
```

Opeth 🤘

And that's largely it!

A few caveats...

- The first time you use xaringan you will find it slow - it also takes a while to stop thinking in Powerpoint or Keynote terms and start thinking in R and Markdown terms.

- Xaringan presentations are probably most useful when you want to re-run your code without changing the rest of the presentation - you just need to re-knit you Markdown script.

You have a go at writing a brief presentation using xaringan which includes some R code and output...