




# Welcome to Intro to



**and**



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# Workshop materials

## OPTION 1



[bit.ly/shiny-rmd-cloud](https://bit.ly/shiny-rmd-cloud)

log in and sit tight

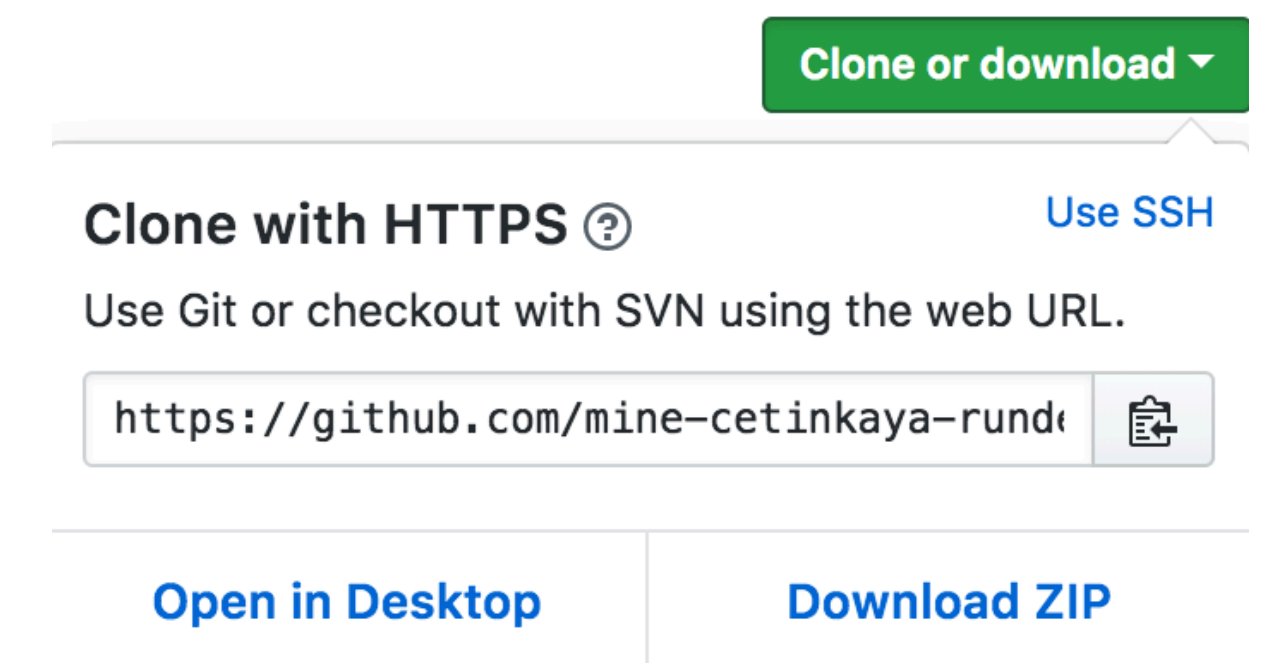
## OPTION 2



[bit.ly/shiny-rmd-repo](https://bit.ly/shiny-rmd-repo)

1. clone or download

2. launch `rstudioconf-2018-intro-shiny-rmarkdown.Rproj`



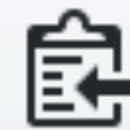
Clone or download ▼

## Clone with HTTPS ?

Use SSH

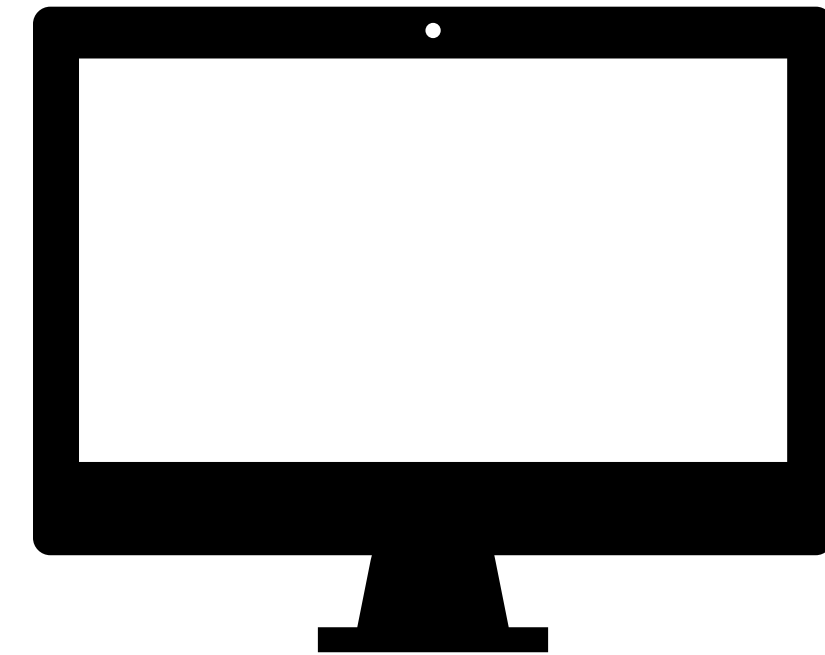
Use Git or checkout with SVN using the web URL.

`https://github.com/mine-cetinkaya-rundel`



Open in Desktop

Download ZIP



# DEMO



# Meet & greet



Mine Çetinkaya-Rundel

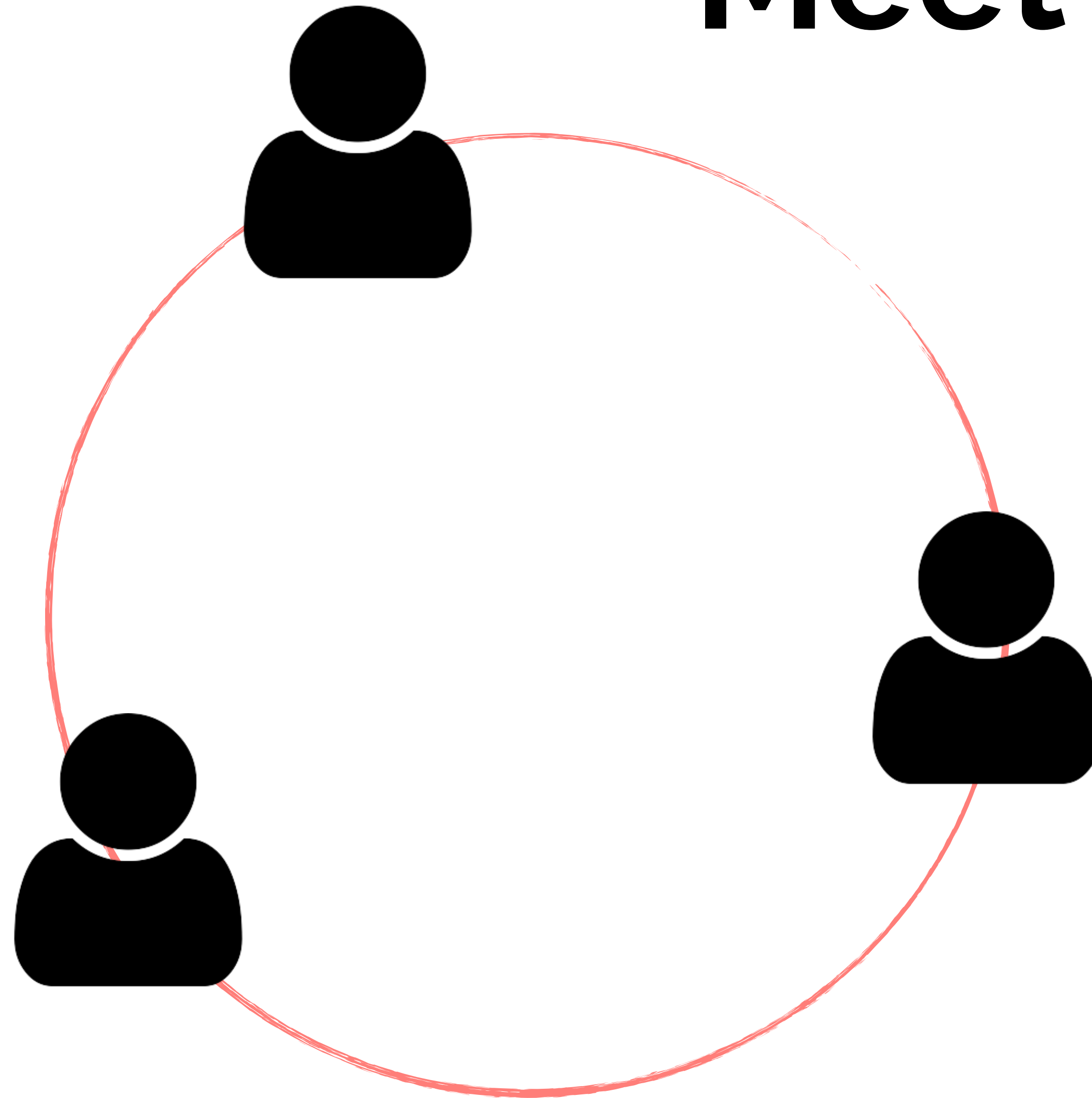


Amanda Gadrow



Gabriela De Quieroz

# Meet & greet



# Overview

- Day 1: (Mostly) R Markdown
- Day 2: (Mostly) Shiny
- Lots of info!
- Lots of “your turn” breaks
- Additional time for Q&A at the end of each day





# Outline - Day 1

- 9am - 10:30am - Getting started with Markdown
- 10:30am - 11am - Morning break ☕
- 11am - 12:30pm - Putting the R in R Markdown
- 12:30pm - 1:30pm - Lunch 🍴
- 1:30pm - 3pm - Upping your R Markdown game
- 3pm - 3:30pm - Afternoon break ☕
- 3:30pm - 5pm - Dashboarding + Q&A

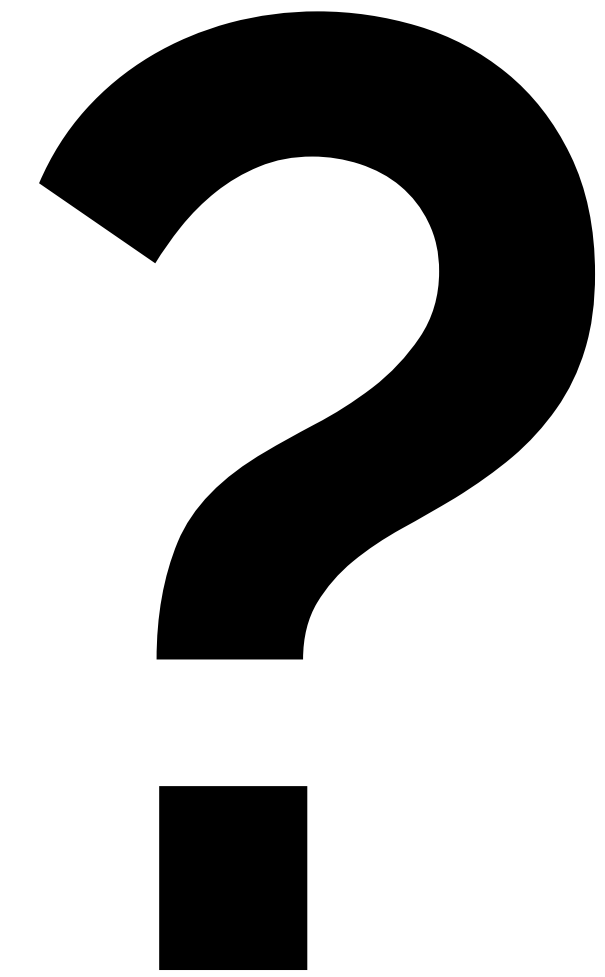


# Getting started with R Markdown





What is a the definition of a  
reproducible data analysis? What  
tools do you/others use to make their  
data analysis reproducible?



# Reproducible data analysis

- Scriptability ➡ R
- Literate programming ➡ R Markdown
- Automation ➡ Make
- Version control ➡ Git / GitHub



# Reproducibility checklist

- Are the tables and figures reproducible from the code and data?
- Does the code actually do what you think it does?
- In addition to what was done, is it clear **why** it was done? (e.g., how were parameter settings chosen?)
- Can the code be used for other data?
- Can you extend the code to do other things?



# Is this new?

"Let us change our traditional attitude to the construction of programs: Instead of imagining that our main task is to instruct a computer what to do, let us concentrate rather on explaining to human beings what we want a computer to do."

*–Donald Knuth*

- These ideas have been around for years!
- and tools for putting them to practice have also been around
- but they have never been as accessible as the current tools

# What is Markdown?

- Lightweight markup language with plain text formatting syntax
- Designed so that it can be converted to HTML (and many other formats)

**README.md**

```
1 # rstudioconf-2018-intro-shiny-rmarkdown
2
3 Materials for the "Intro to Shiny and R Markdown" 2-day workshop at [rstudio::conf 2018](https://www.rstudio.com/conference/).
4
5 ---
6
7 ## Outline
8
9 ### Day 1: January 31
10
11 #### :computer: 09:00 - 10:30: Session 1 - Introduction to R Markdown
12   - Welcome and motivation
13   - Demo: R, Markdown, knitr, Pandoc/YAML, Parameters, Templates, Tables, htmlwidgets, rpubs (and maybe shiny/shinyapps.io)
14   - Composing your prose (markdown)
15     - Text, headers, lists, hyperlinks
16     - Math text
17     - Images
18     - Tables
19     - Bibliographies and citations
20     - The Markdown Quick Reference
21
```



**README**

## **rstudioconf-2018-intro-shiny-rmarkdown**

Materials for the "Intro to Shiny and R Markdown" 2-day workshop at [rstudio::conf 2018](https://www.rstudio.com/conference/).

### **Outline**

#### **Day 1: January 31**

##### **09:00 - 10:30: Session 1 - Introduction to R Markdown**

- Welcome and motivation
- Demo: R, Markdown, knitr, Pandoc/YAML, Parameters, Templates, Tables, htmlwidgets, rpubs (and maybe shiny/shinyapps.io)
- Composing your prose (markdown)
  - Text, headers, lists, hyperlinks
  - Math text
  - Images
  - Tables
  - Bibliographies and citations
  - The Markdown Quick Reference

A Markdown-formatted document should be publishable as-is, as plain text, without looking like it's been marked up with tags or formatting instructions.

*- John Gruber*



# What is R Markdown?

- Markdown + R
- Text + R code (in chunks) gets converted to text + R code + R output in HTML (and many other formats)

**my-first-rmd.Rmd**

```
1 ---
2 title: "My First R Markdown doc"
3 author: "Mine Cetinkaya-Rundel"
4 date: "1/23/2018"
5 output: html_document
6 ---
7
8 ```{r setup, include=FALSE}
9 knitr::opts_chunk$set(echo = TRUE)
10 ```
11
12 ## R Markdown
13
14 This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF,
15 and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.
16
17 When you click the Knit button a document will be generated that includes both content as
18 well as the output of any embedded R code chunks within the document. You can embed an R code
19 chunk like this:
20
21 ```{r cars}
22 summary(cars)
23 ```
```

**my-first-rmd.html**

## My First R Markdown doc

*Mine Cetinkaya-Rundel*

1/23/2018

### 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





# Your turn

- In RStudio, File ➡ New File ➡ R Markdown...
- Title: My first R Markdown doc
- Author: [INSERT NAME]
- OK
- Knit the document, saving the file as `my-first-rmd.Rmd`

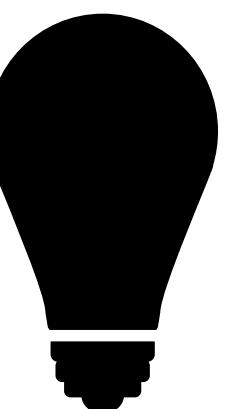


3<sub>m</sub> 00<sub>s</sub>



# Tips

- Hitting knit is equivalent to running `rmarkdown::render()`.
- When you create an Rmd document, it will first ask you to give it a title, that is the **title** of the document. Use whatever capitalization you prefer in titles, and you can edit it later too.
- When you go to knit the file, it will ask for another name. This is the **filename**. You might want to keep it no-spaces-no-capitals.



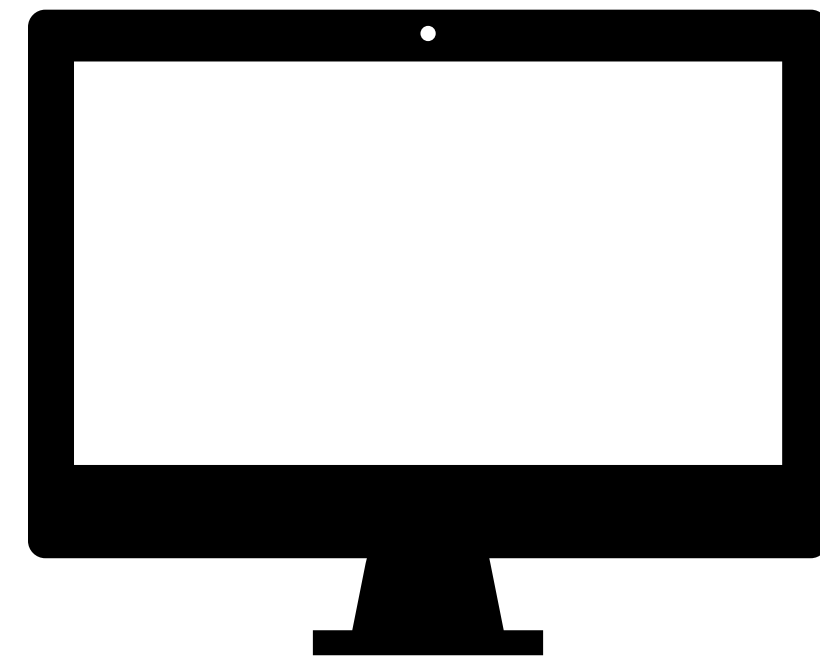
# What's in an Rmd?

Three types of content:

- An (optional) YAML header surrounded by `---`
- R code chunks surrounded by `` ` ``
- Text with markdown formatting

What does YAML mean?





# DEMO

# Demo recap

- R, Markdown
- knitr
- Pandoc/YAML
- Parameters
- Templates
- Tables
- htmlwidgets
- RPubS

