

Welcome!



Danny Kaplan

 dtkaplan

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Workshop materials

OPTION 1



bit.ly/shinymark

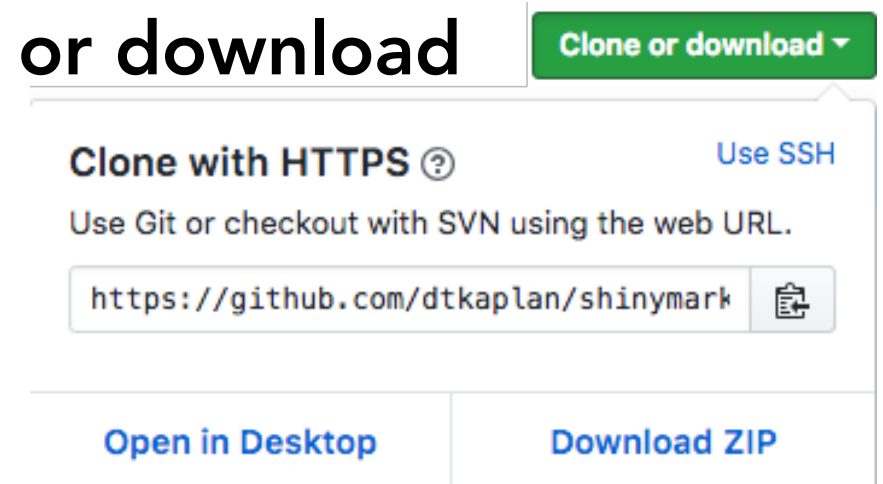
log in and sit tight

OPTION 2



github.com/dtkaplan/shinymark

1. clone or download



2. launch - `shinymark.Rproj`

Clone or download ▾

Clone with HTTPS ⓘ

[Use SSH](#)

Use Git or checkout with SVN using the web URL.

`https://github.com/dtkaplan/shinymark`



[Open in Desktop](#)

[Download ZIP](#)

Meet & greet



Dean Attali



Amanda Gadrow



Danny Kaplan



Lisa Lebovici

Mine Çetinkaya-Rundel



Mine Cetinkaya-Rundel

Associate Professor at Duke
University & Data Scientist and
Professional Educator at RStudio

The screenshot shows the DataCamp website interface. At the top, the DataCamp logo is on the left, and a search bar with the text 'What would you like to learn today?' is on the right. Below the header, the course title 'Building Web Applications in R with Shiny' is prominently displayed in white text on a dark blue background. Above the title, it says 'INTERACTIVE COURSE'. Below the title, a subtitle reads 'Build interactive web apps straight from R with shiny!'. There are two buttons: a yellow 'Start Course For Free' button and a white 'Play Intro Video' button with a play icon. At the bottom, course statistics are listed: '4 hours', '17 Videos', '55 Exercises', '19,280 Participants', and '4,350 XP'.

- **Development of this workshop for Rstudio::conf 2018**
- **DataCamp shiny course**
- **Many DataCamp statistics courses**
- **At rstudio::conf 2019 - two “Train-the-Trainer” workshops.**

Dean Attali



- **Principal of AttaliTech Ltd ... an R-Shiny consultancy**
- **Author of shinyjs package**
- **Creator of online course “Shiny Case Studies”**
- **Second highest all-time answerer in the "shiny" tag on [StackOverflow](#)**

Amanda Gadrow



- **RStudio software engineer**
- **Roles include customer support, test strategy and automation, and product management**
- **Worked with small Boston-area startups for several years**

Lisa Lebovici



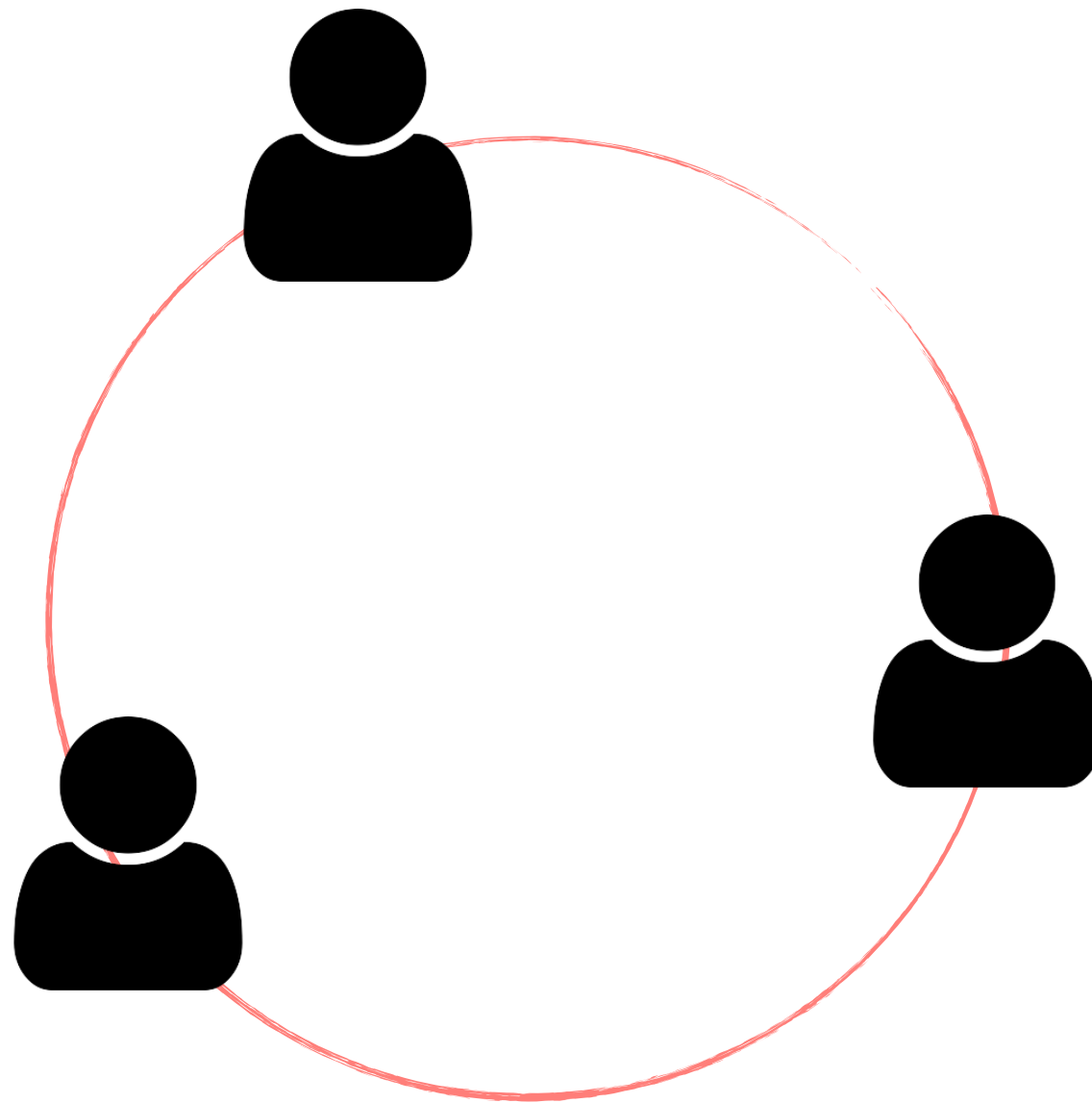
- **second-year master's student in statistics at Duke University**
- **researching mathematical ways to quantify gerrymandering with Prof. Jon Mattingly (Duke Math)**
- **previously a data analyst for a digital marketing company in Cambridge, MA**

Danny Kaplan



- Arguably the first person in North America to teach statistics using R (1997).
- My class was the beta site for Rstudio.
 - My student, Josh Paulson, was Employee # 3 at Rstudio.
- I am the original client for Shiny.
- Author of textbooks ...
 - Statistical Modeling
 - Data Computing
 - Understanding Nonlinear Dynamics
 - Stats for Data Science (in draft)

Meet & greet



Asking for help



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

- 9:00am - 10:30am - Getting started with Markdown
- 10:30am - 11:00am - Morning break ☕
- 11:00am - 12:30pm - Putting the R in R Markdown
- 12:30pm - 1:30pm - Lunch 🍴
- 1:30pm - 3:00pm - Upping your R Markdown game
- 3:00pm - 3:30pm - Afternoon break ☕
- 3:30pm - 5:00pm - 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?

–Johnny Appleseed

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?

Karl Broman. Steps to Reproducible Research. <http://kbroman.org/steps2rr/>.

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

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 text 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 and 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

```
my-first-rmd.Rmd x
[Navigation icons] Knit [Settings icon]
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
15 and MS Word documents. For more details on using R Markdown see
16 http://rmarkdown.rstudio.com
17
18 When you click the Knit button a document will be generated that includes both content
19 and any embedded R code chunks within the document. You can embed an R code chunk like this:
20
21 ```{r cars}
22 summary(cars)
23 ```
```

bit.ly/shinymark

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

–Johnny Appleseed

3_m 00_s

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.

–Johnny Appleseed

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?

–Johnny Appleseed

Demo recap

- R, Markdown
- knitr
- Pandoc/YAML
- Parameters