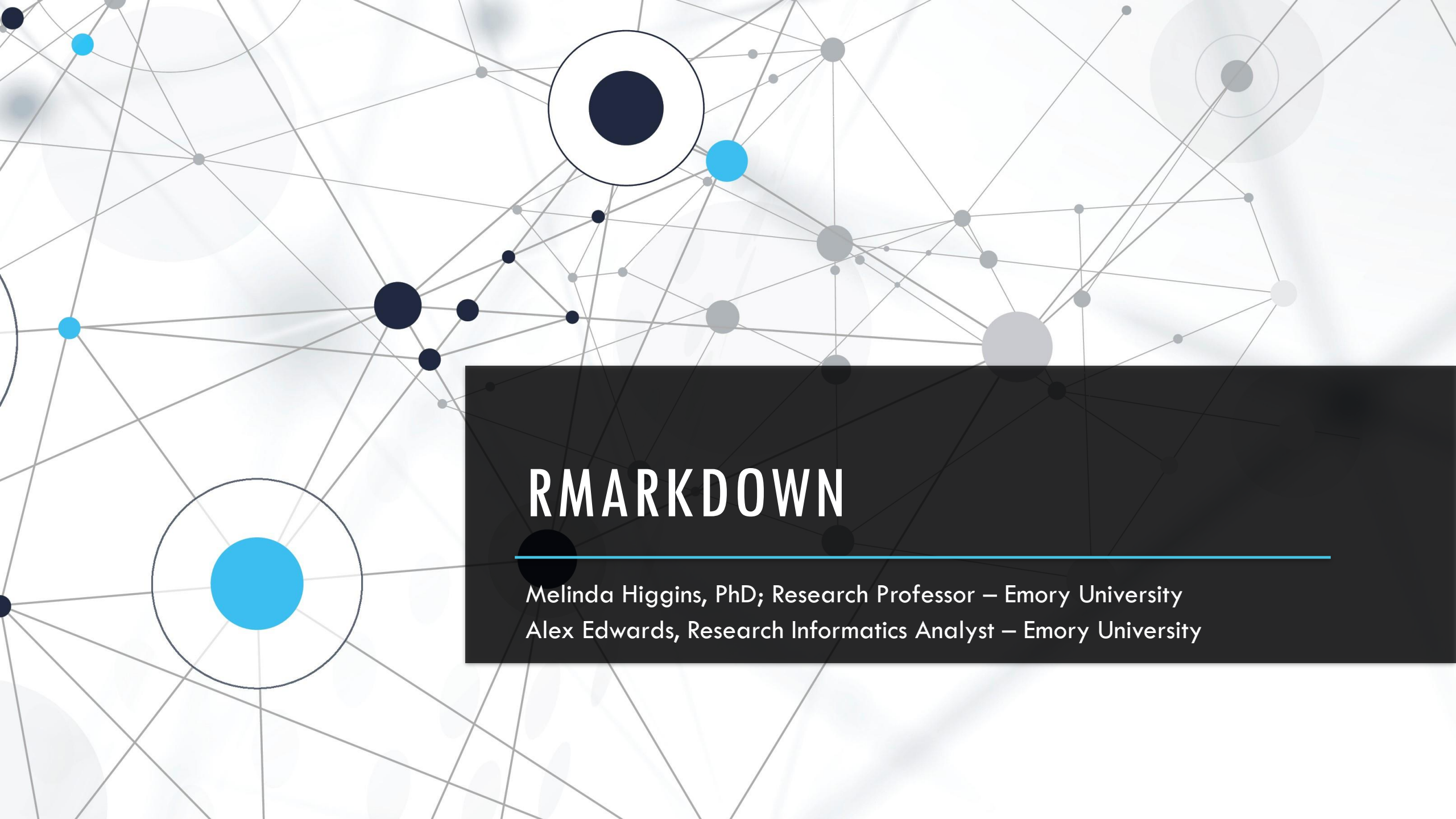


RMARKDOWN

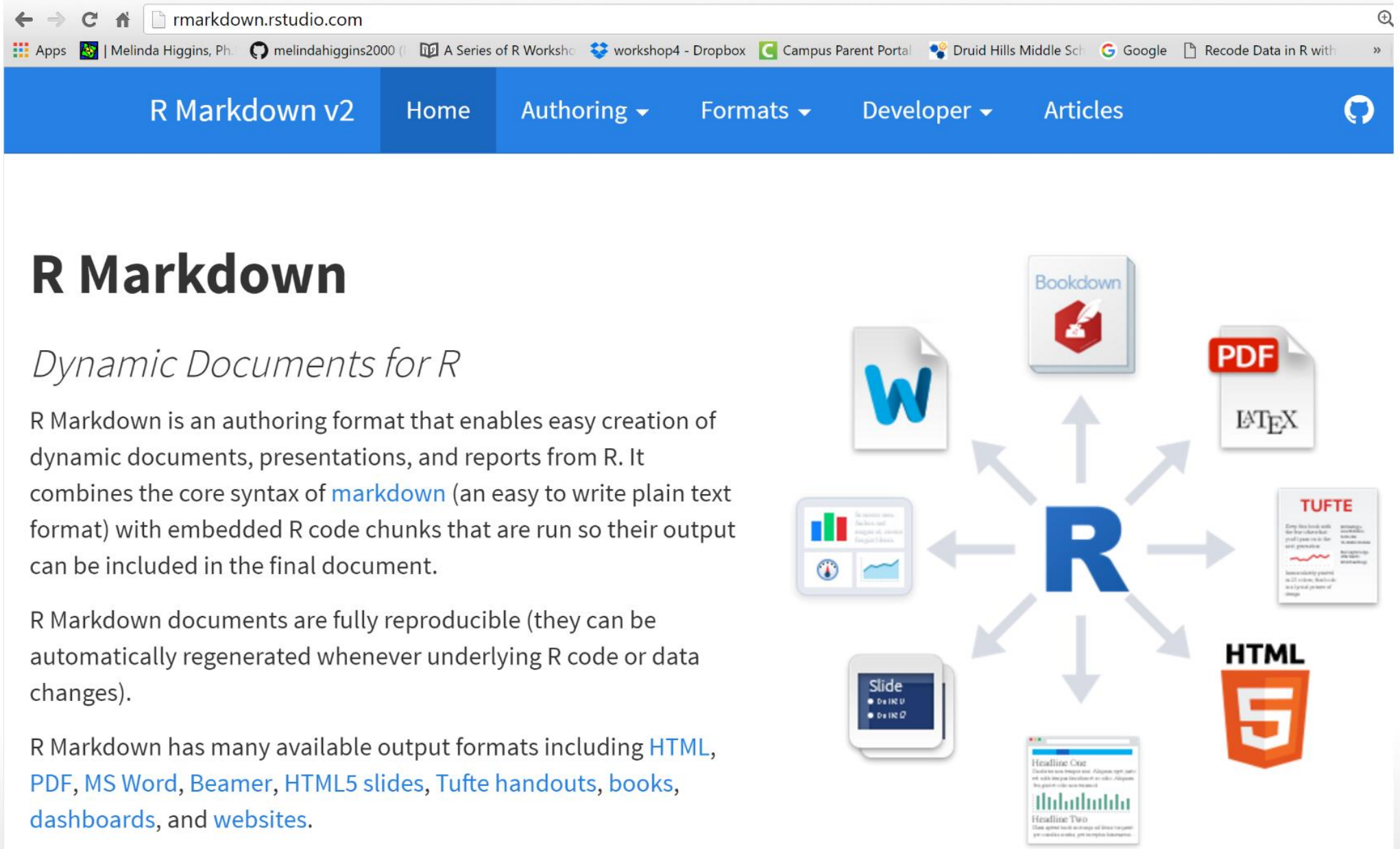
Melinda Higgins, PhD; Research Professor – Emory University
Alex Edwards, Research Informatics Analyst – Emory University

RSTUDIO CLOUD

https://rstudio.cloud/

https://rstudio.cloud/spaces/36397/join?access_code=sVkAKq5o45zIeUMI2EhDJps3PgY5NF28X5UELrOf

https://rmarkdown.rstudio.com/



OUTLINE

1. Simple R script
2. Rmarkdown document
3. Rmarkdown Slides
4. Rmarkdown with custom parameters
5. Rmarkdown Dashboard

https://archive.ics.uci.edu/ml/datasets/abalone

archive.ics.uci.edu/ml/datasets/abalone

Apps | Dekalb, GA LIVE sit... | Google | melindahiggins200... | datacamp/courses-... | R For SAS Users | D... | DataCamp - Teach | Asana

UCI Machine Learning Repository

Center for Machine Learning and Intelligent Systems

About

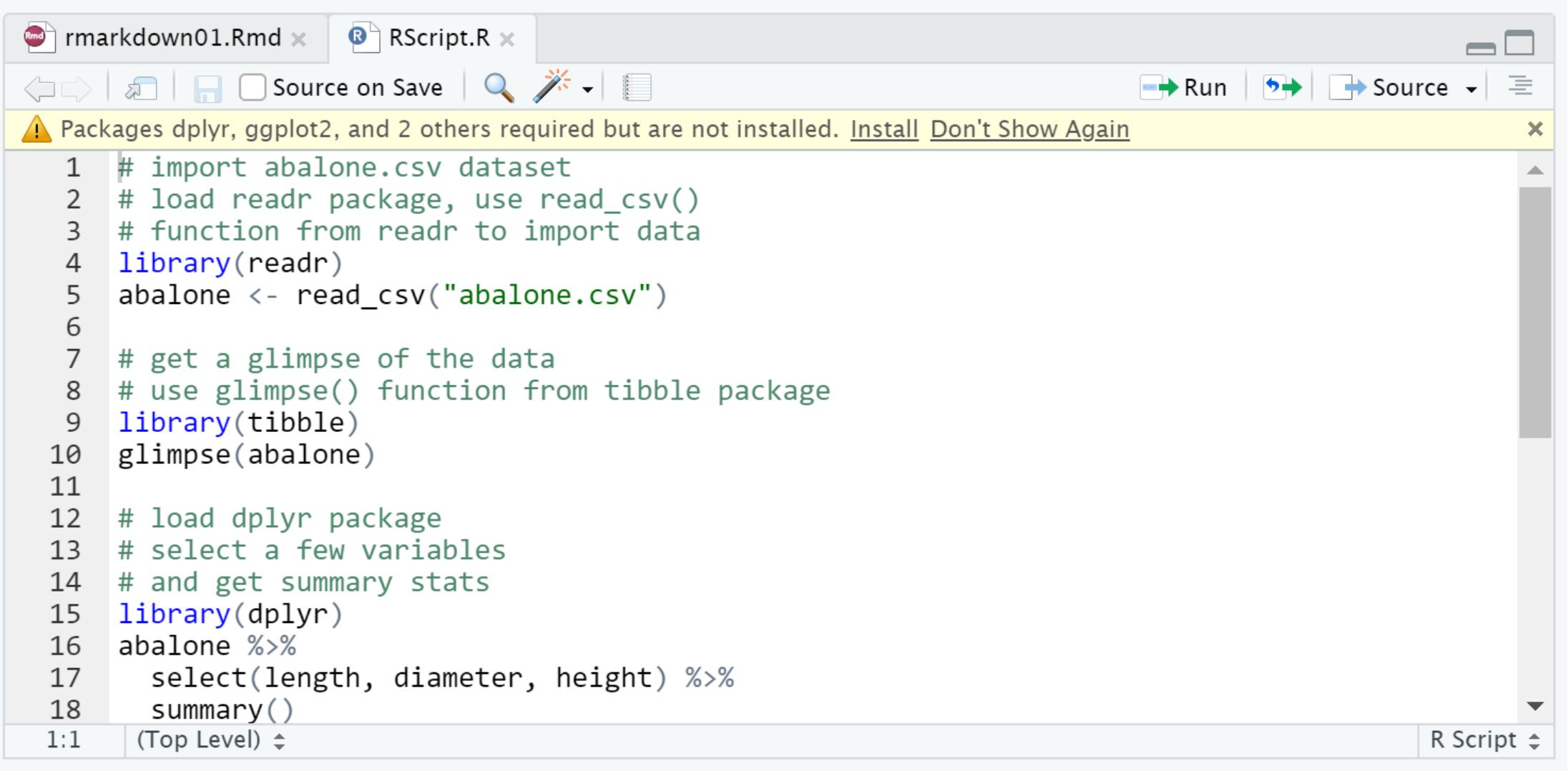
Abalone Data Set

Download: Data Folder, Data Set Description

Abstract: Predict the age of abalone from physical measurements

Data Set Characteristics:	Multivariate	**Number of Instances:**	4177	**Area:**	Life
Attribute Characteristics:	Categorical, Integer, Real	**Number of Attributes:**	8	**Date Donated**	1995-12-01
Associated Tasks:	Classification	**Missing Values?**	No	**Number of Web Hits:**	851186

RSCRIPT.R


rmarkdown01.Rmd
RScript.R
Source on Save
Run
Source
Packages dplyr, ggplot2, and 2 others required but are not installed. Install Don't Show Again
1 # import abalone.csv dataset
2 # load readr package, use read_csv()
3 # function from readr to import data
4 library(readr)
5 abalone <- read_csv("abalone.csv")
6
7 # get a glimpse of the data
8 # use glimpse() function from tibble package
9 library(tibble)
10 glimpse(abalone)
11
12 # load dplyr package
13 # select a few variables
14 # and get summary stats
15 library(dplyr)
16 abalone %>%
17 select(length, diameter, height) %>%
18 summary()
1:1
(Top Level)
R Script

RMARKDOWN

Open rmarkdown01.rmd

"Marked" up text

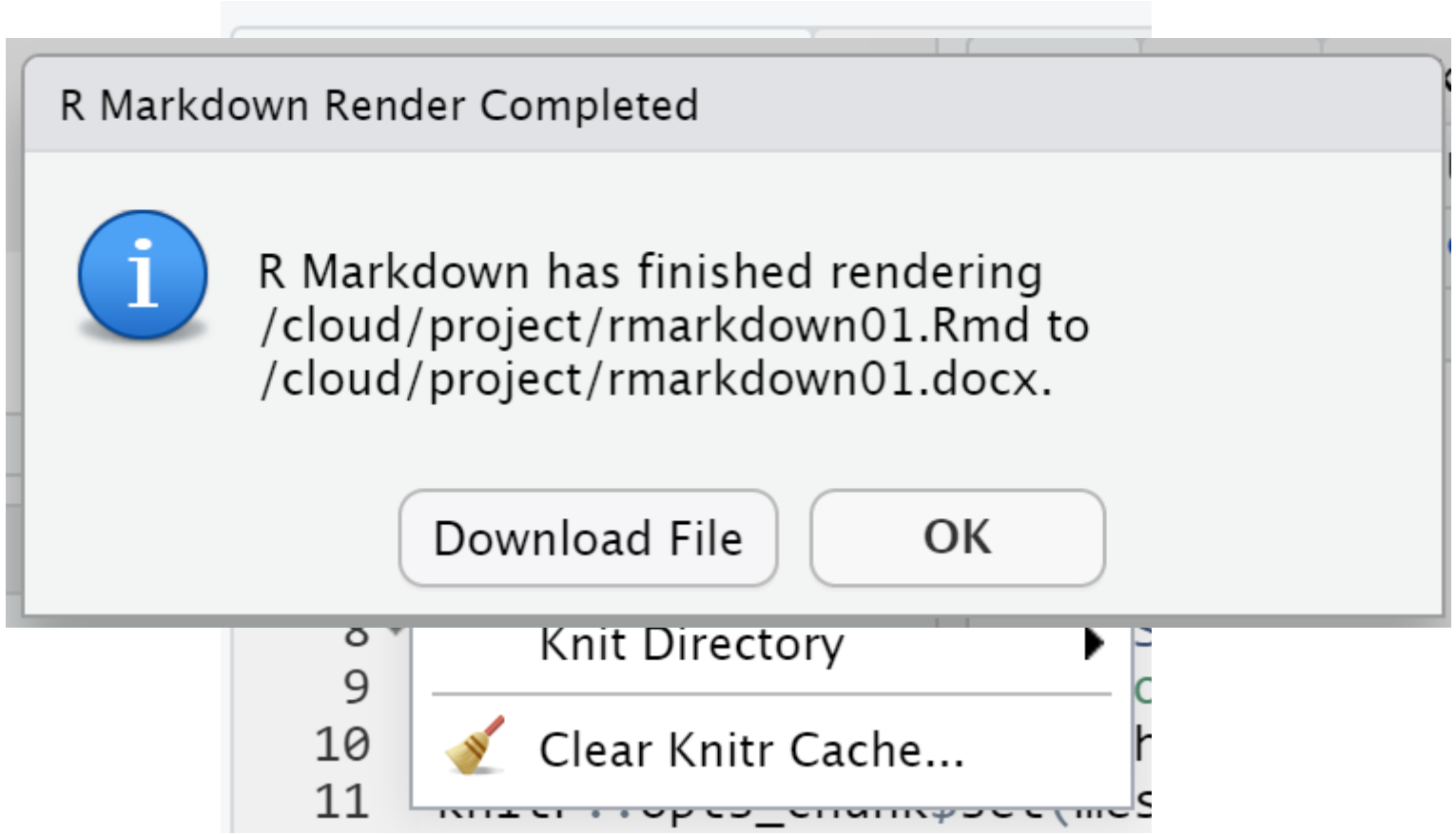
RScript.R | rmarkdown01.Rmd

Knit | Insert | Run

```
---
title: "Abalones"
author: "Melinda Higgins"
date: "November 10, 2019"
output: html_document
---
```

YAML

```
```{r setup, include=FALSE}
# set up knitr options for all code chunks
knitr::opts_chunk$set(echo = FALSE)
knitr::opts_chunk$set(message = FALSE)
knitr::opts_chunk$set(warning = FALSE)
knitr::opts_chunk$set(error = FALSE)

# load packages needed for code chunks
library(readr)
library(tibble)
library(dplyr)
library(ggplot2)

# import abalone.csv dataset
# use read_csv()
# function from readr to import data
abalone <- read_csv("abalone.csv")
```
```

R CODE CHUNK

```
## A Glimpse of the Abalone Dataset

Use the `glimpse()` function from the `tibble` package to take a peak
at the **abalone** dataset.
```

"KNIT" THE DOCUMENT



Try all 3 options

EDIT YAML AND RE-KNIT DOCUMENT

Change author and date and re-knit document

```
---
title: "Abalones"
author: "Melinda Higgins"
date: "November 10, 2019"
output: html_document
---
```

FIRST R CHUNK

```
```{r setup, include=FALSE}
```

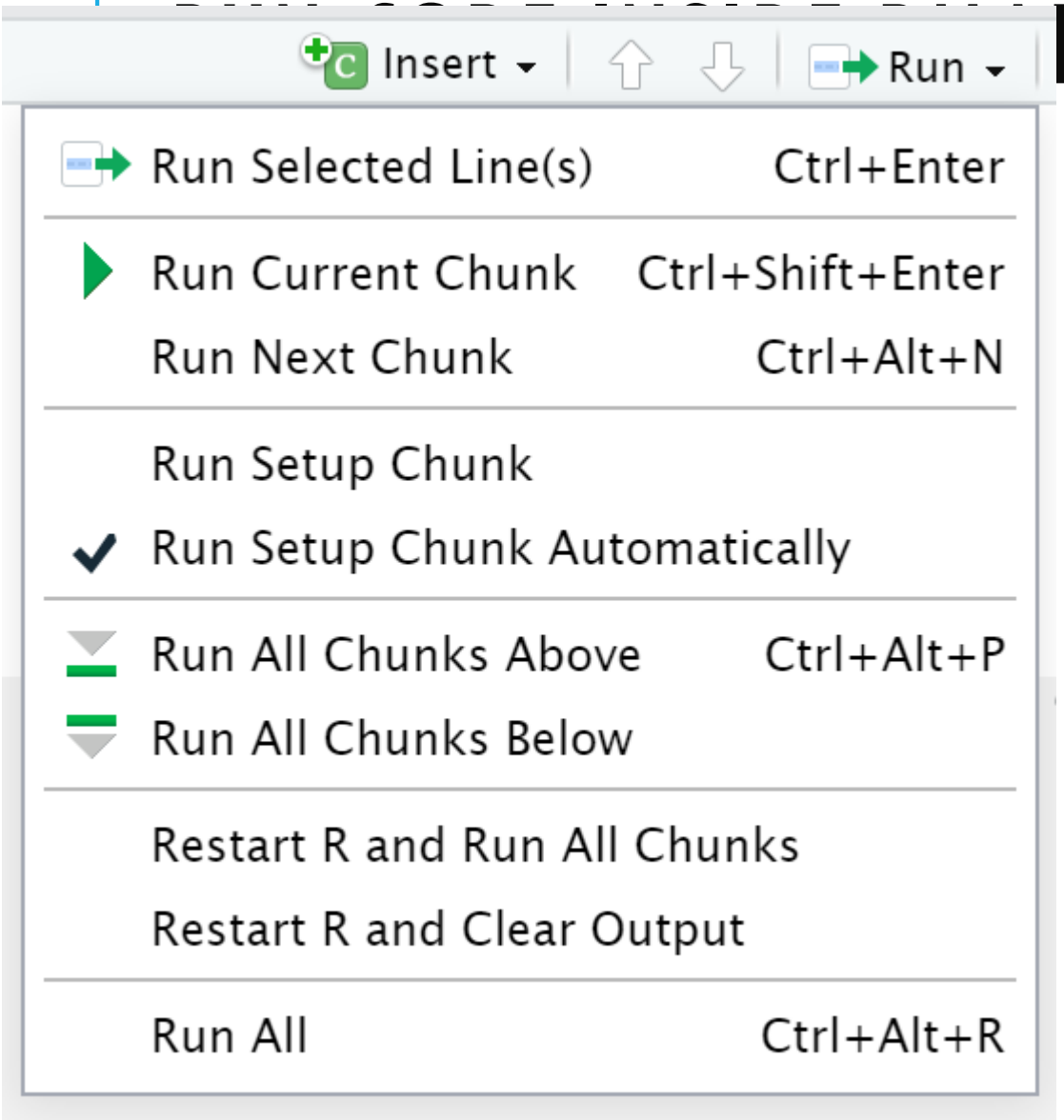
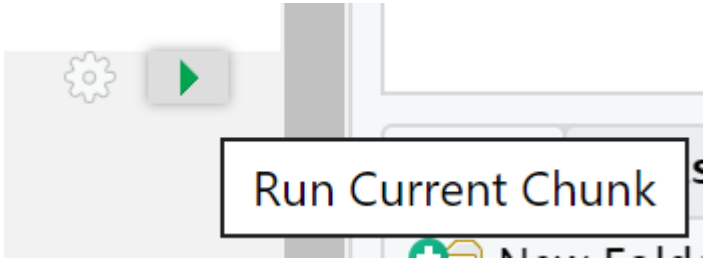
Begins with 3 backticks ```

Followed by {r} to indicate r code will follow

After r space type simple word to label the r chunk

After comma KNITR options can be specified

… add r code …

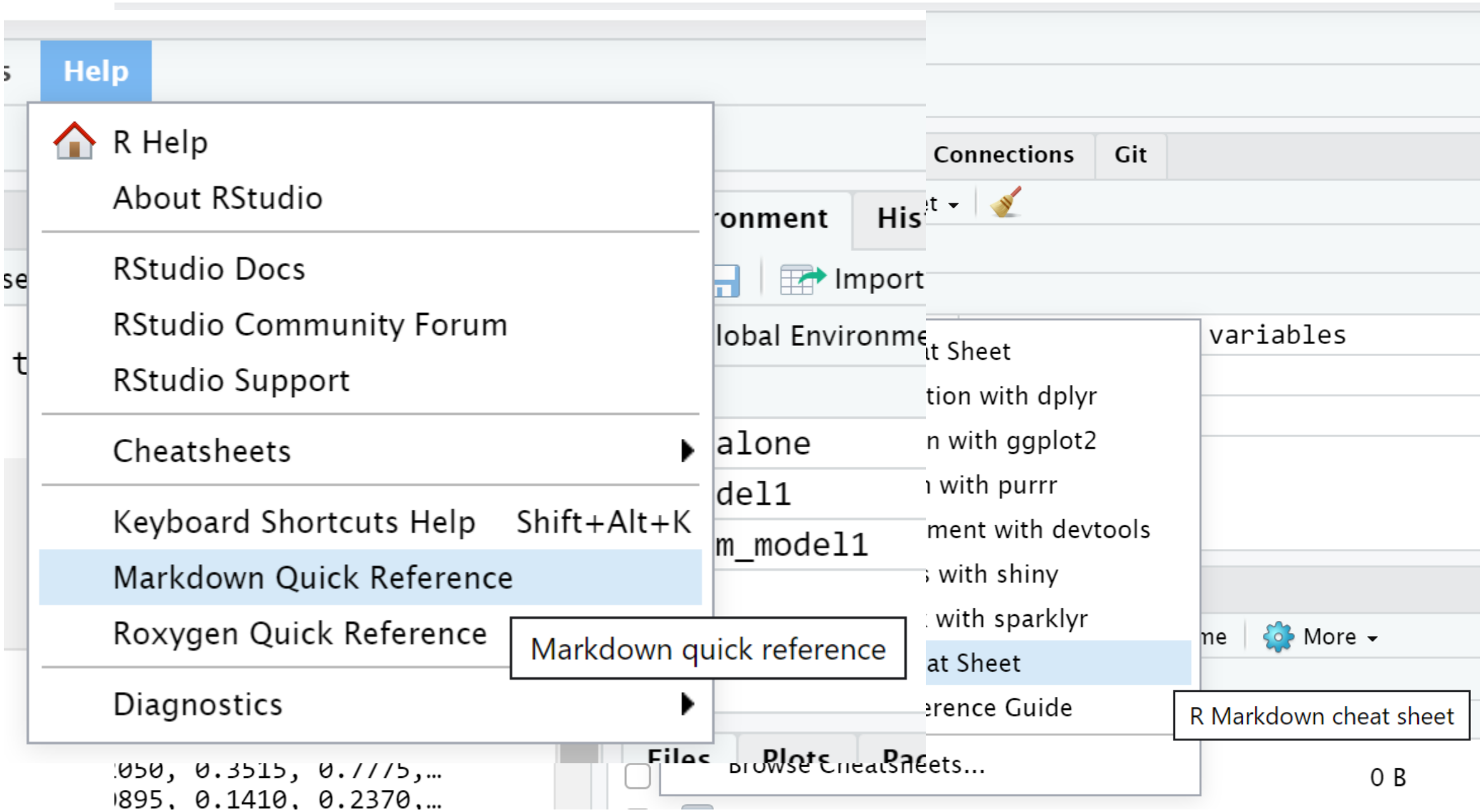
End with 3 backticks ``` to end r code section
```

KNITR OPTIONS

https://yihui.name/knitr/options/

```
# set up knitr options for all code chunks
knitr::opts_chunk$set(echo = FALSE)
knitr::opts_chunk$set(message = FALSE)
knitr::opts_chunk$set(warning = FALSE)
knitr::opts_chunk$set(error = FALSE)
```

LOAD PACKAGES

```
# load packages needed for code chunks
library(readr)
library(tibble)
library(dplyr)
library(ggplot2)
```

ADD OTHER CODE AND END CHUNK

```
# import abalone.csv dataset
# use read_csv()
# function from readr to import data
abalone <- read_csv("abalone.csv")
```

RKDOWN


Insert
Run
Run Selected Line(s) Ctrl+Enter
Run Current Chunk Ctrl+Shift+Enter
Run Next Chunk Ctrl+Alt+N
Run Setup Chunk
Run Setup Chunk Automatically
Run All Chunks Above Ctrl+Alt+P
Run All Chunks Below
Restart R and Run All Chunks
Restart R and Clear Output
Run All Ctrl+Alt+R


Run Current Chunk

ADD A SECTION OF DOCUMENT TEXT

Marked up text

```
## A Glimpse of the Abalone Dataset
```

HEADER – Level 2

```
Use the `glimpse()` function from the `tibble` package to take a peak at the
**abalone** dataset.
```

```
```{r dataglimpse}
# get a glimpse of the data
# use glimpse() function from tibble package
glimpse(abalone)
```
```

Next code chunk

R CHUNK RUN INTERACTIVELY

```{r dataglimpse}
# get a glimpse of the data
# use glimpse() function from tibble package
glimpse(abalone)
```

```
Observations: 4,177
Variables: 10
$ id            <dbl> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, …
$ sex           <chr> "M", "M", "F", "M", "I", "I", "F", "F", "M", "F", "F", …
$ length        <dbl> 0.455, 0.350, 0.530, 0.440, 0.330, 0.425, 0.530, 0.545,…
$ diameter      <dbl> 0.365, 0.265, 0.420, 0.365, 0.255, 0.300, 0.415, 0.425,…
$ height        <dbl> 0.095, 0.090, 0.135, 0.125, 0.080, 0.095, 0.150, 0.125,…
$ wholeWeight   <dbl> 0.5140, 0.2255, 0.6770, 0.5160, 0.2050, 0.3515, 0.7775,…
$ shuckedWeight <dbl> 0.2245, 0.0995, 0.2565, 0.2155, 0.0895, 0.1410, 0.2370,…
$ visceraWeight <dbl> 0.1010, 0.0485, 0.1415, 0.1140, 0.0395, 0.0775, 0.1415,…
$ shellWeight   <dbl> 0.150, 0.070, 0.210, 0.155, 0.055, 0.120, 0.330, 0.260,…
$ rings         <dbl> 15, 7, 9, 10, 7, 8, 20, 16, 9, 19, 14, 10, 11, 10, 10, …
```

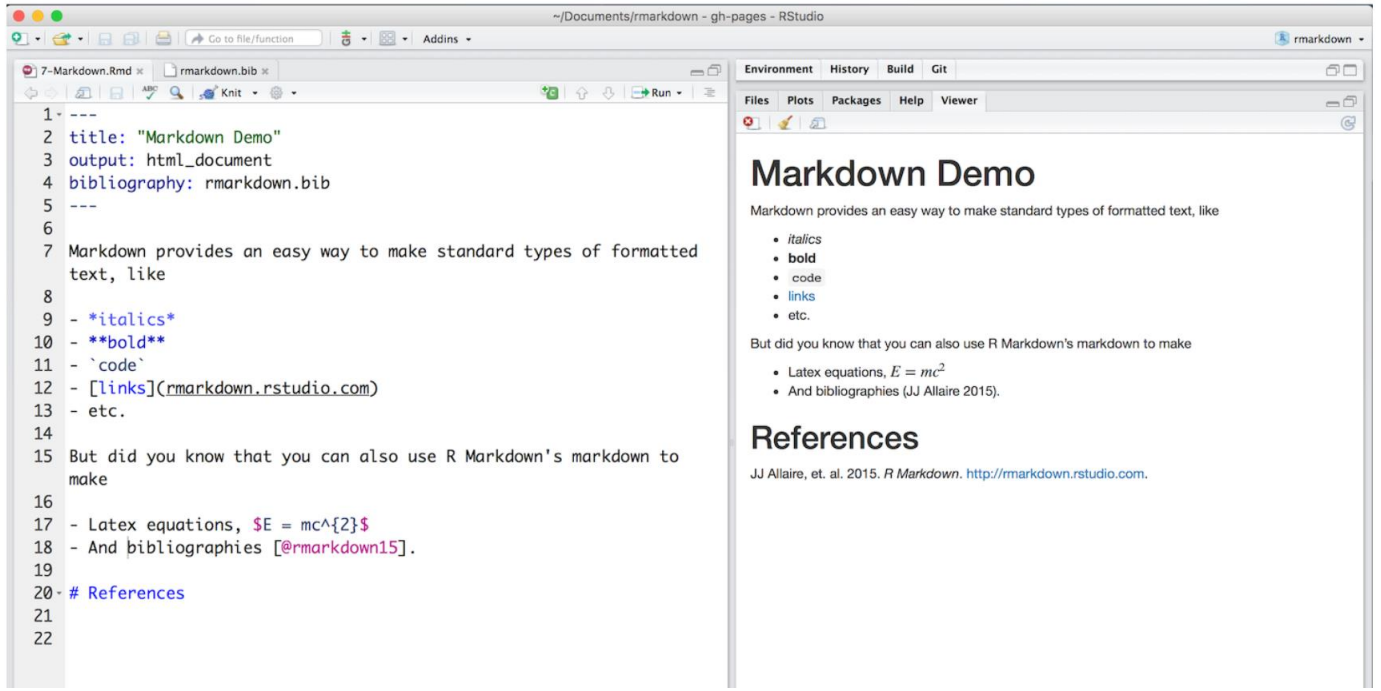

Help
R Help
About RStudio
RStudio Docs
RStudio Community Forum
RStudio Support
Cheatsheets
Keyboard Shortcuts Help Shift+Alt+K
Markdown Quick Reference
Roxygen Quick Reference
Diagnostics
Markdown quick reference
Connections
Git
Import
variables
More
R Markdown cheat sheet
Browse Cheatsheets...
0 B

https://rmarkdown.rstudio.com/lesson-8.html

Introduction
How It Works
Code Chunks
Inline Code
Code Languages
Parameters
Tables
Markdown Basics
Output Formats
Notebooks
Slide Presentations
Dashboards

Markdown Basics

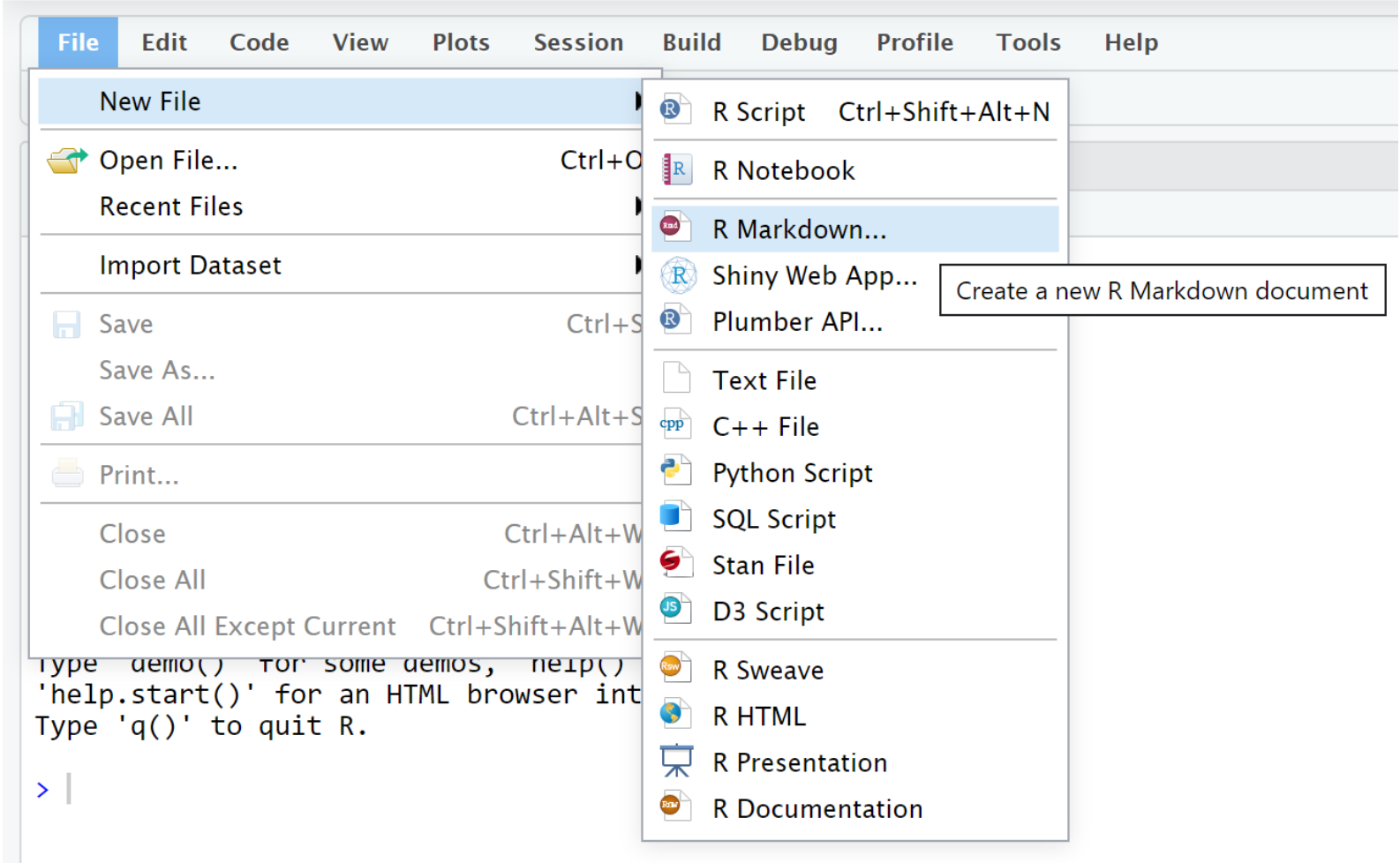
Format the text in your R Markdown file with Pandoc's Markdown, a set of markup annotations for plain text files. When you render your file, Pandoc transforms the marked up text into formatted text in your final file format, as below. Try it out with this file on RStudio Cloud.



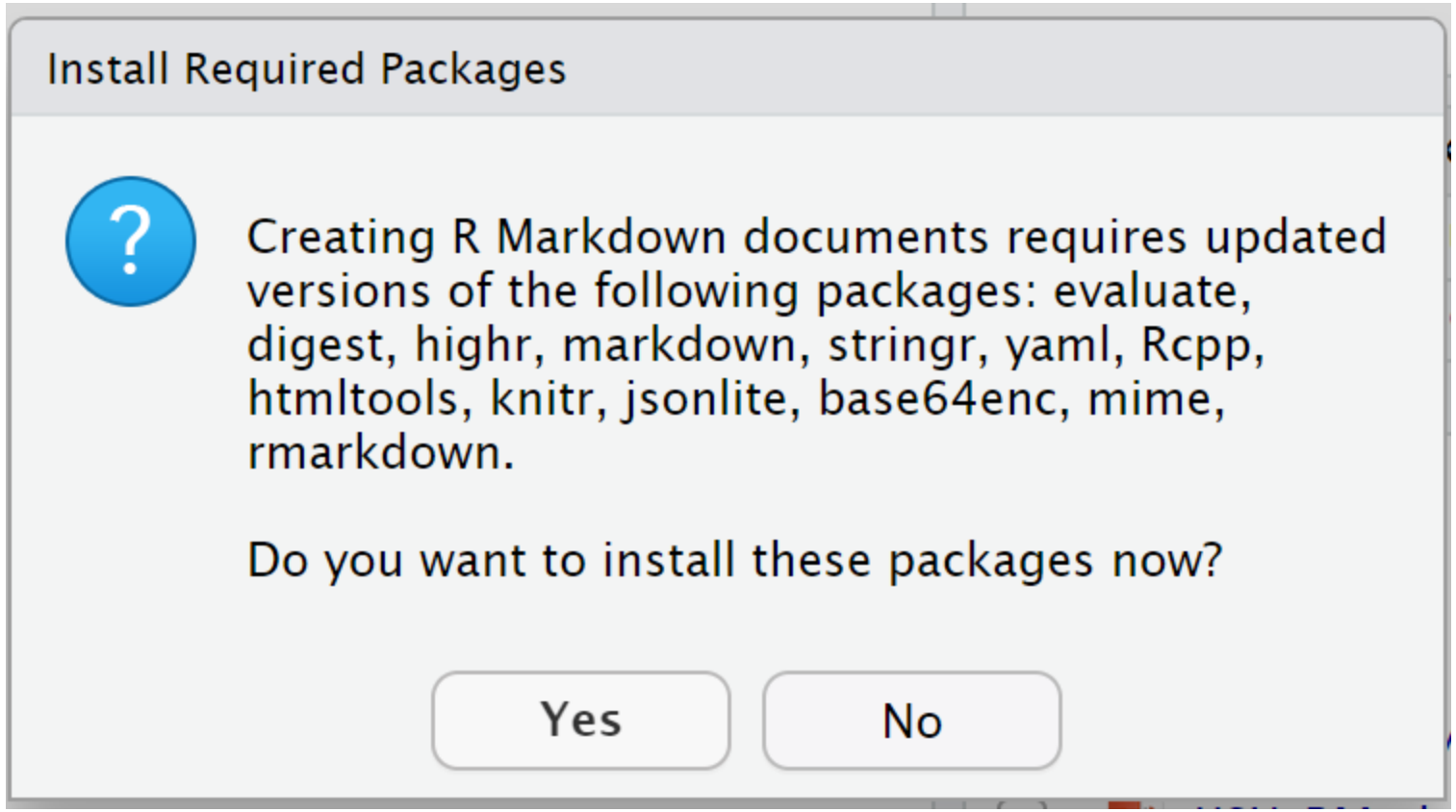
RUN OTHER CHUNKS, EDIT DOCUMENT, RE-KNIT

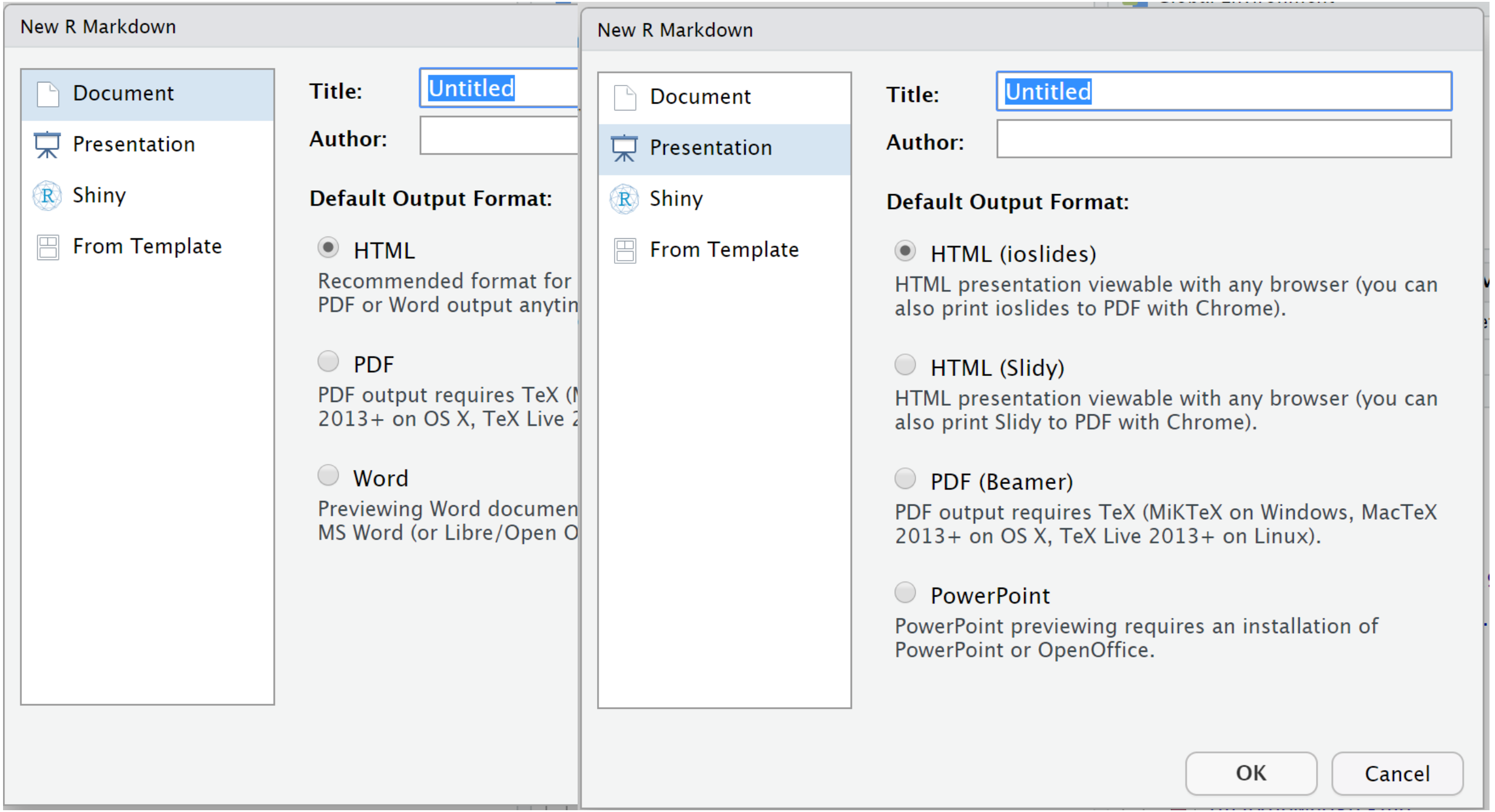
RMARKDOWN OPTIONS

R Workshops By Melinda Higgins / KSURmarkdown



RMARKDOWN OPTIONS




New R Markdown
Document
Presentation
Shiny
From Template
Title:
Untitled
Author:
Default Output Format:
HTML
Recommended format for
PDF or Word output anytin
PDF
PDF output requires TeX (M
2013+ on OS X, TeX Live 2
Word
Previewing Word documen
MS Word (or Libre/Open O
New R Markdown
Document
Presentation
Shiny
From Template
Title:
Untitled
Author:
Default Output Format:
HTML (ioslides)
HTML presentation viewable with any browser (you can also print ioslides to PDF with Chrome).
HTML (Slidy)
HTML presentation viewable with any browser (you can also print Slidy to PDF with Chrome).
PDF (Beamer)
PDF output requires TeX (MiKTeX on Windows, MacTeX 2013+ on OS X, TeX Live 2013+ on Linux).
PowerPoint
PowerPoint previewing requires an installation of PowerPoint or OpenOffice.
OK
Cancel

RMARKDOWN SLIDE FORMAT

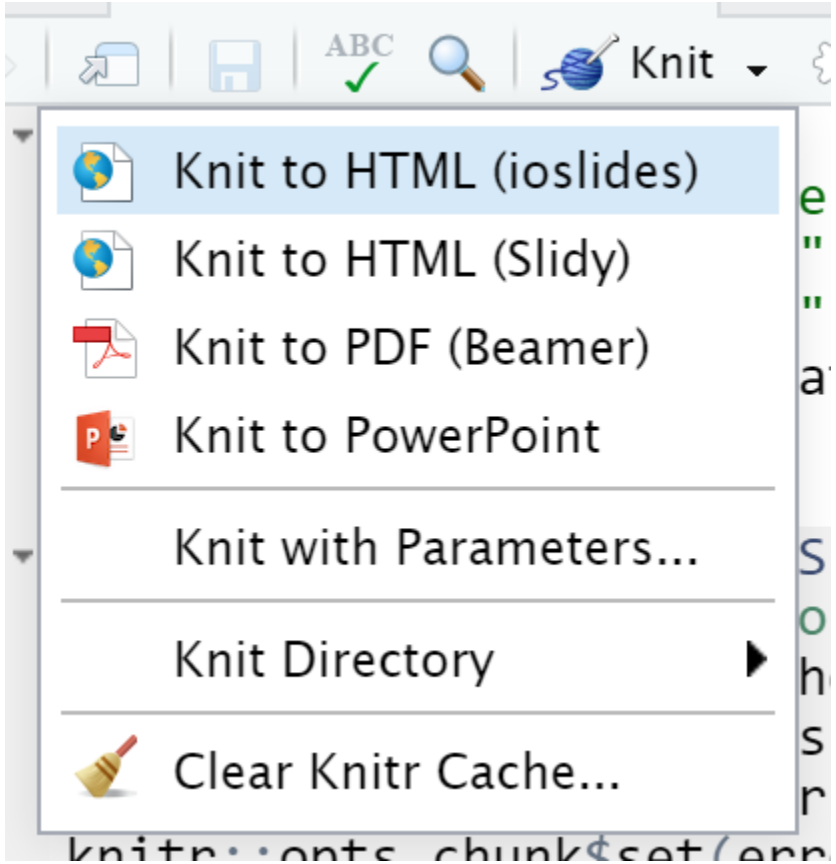
Open rmarkdown02.rmd

- notice that YAML creates title slide
- notice ## Header level 2 begins new slide

RMARKDOWN – SLIDE FORMATS

Knit to HTML (ioslides)

Try other formats



RMARKDOWN WITH PARAMETERS

Open rmarkdown03a.rmd

```
---
title: "Abalones"
author: "Melinda Higgins"
date: "November 10, 2019"
output: html_document
params:
   sex: "M"
---
```

Add parameters to document

USE PARAMS IN DOCUMENT

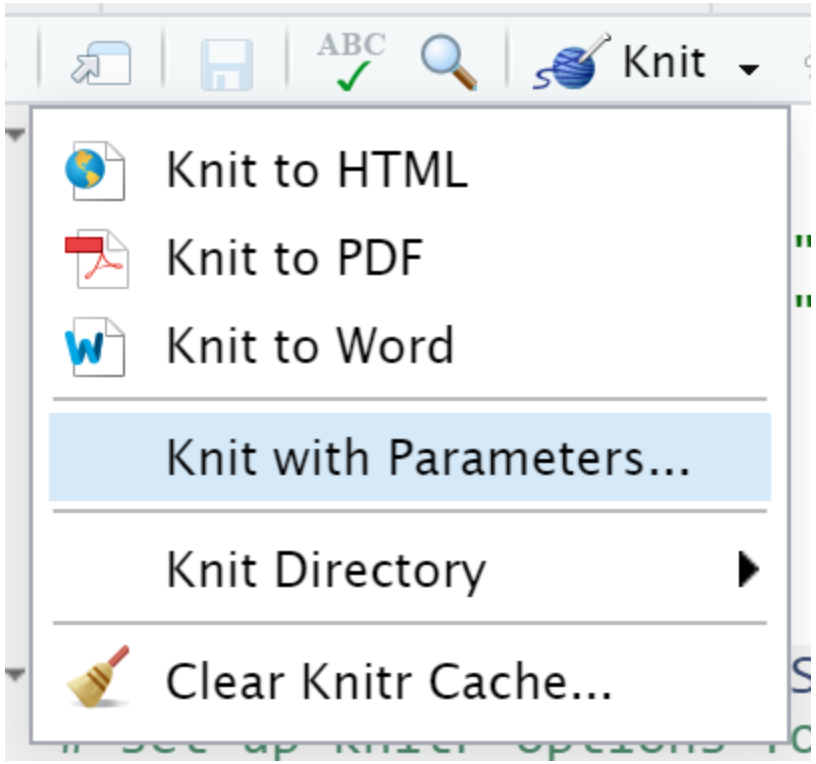
```
# import abalone.csv dataset
# use read_csv()
# function from readr to import data
abalone <- read_csv("abalone.csv")

# keep only the sex specified in params above
abalone <- abalone %>%
  filter(sex == params$sex)
```

A Glimpse of the Abalone Dataset - for sex = `r params$sex`

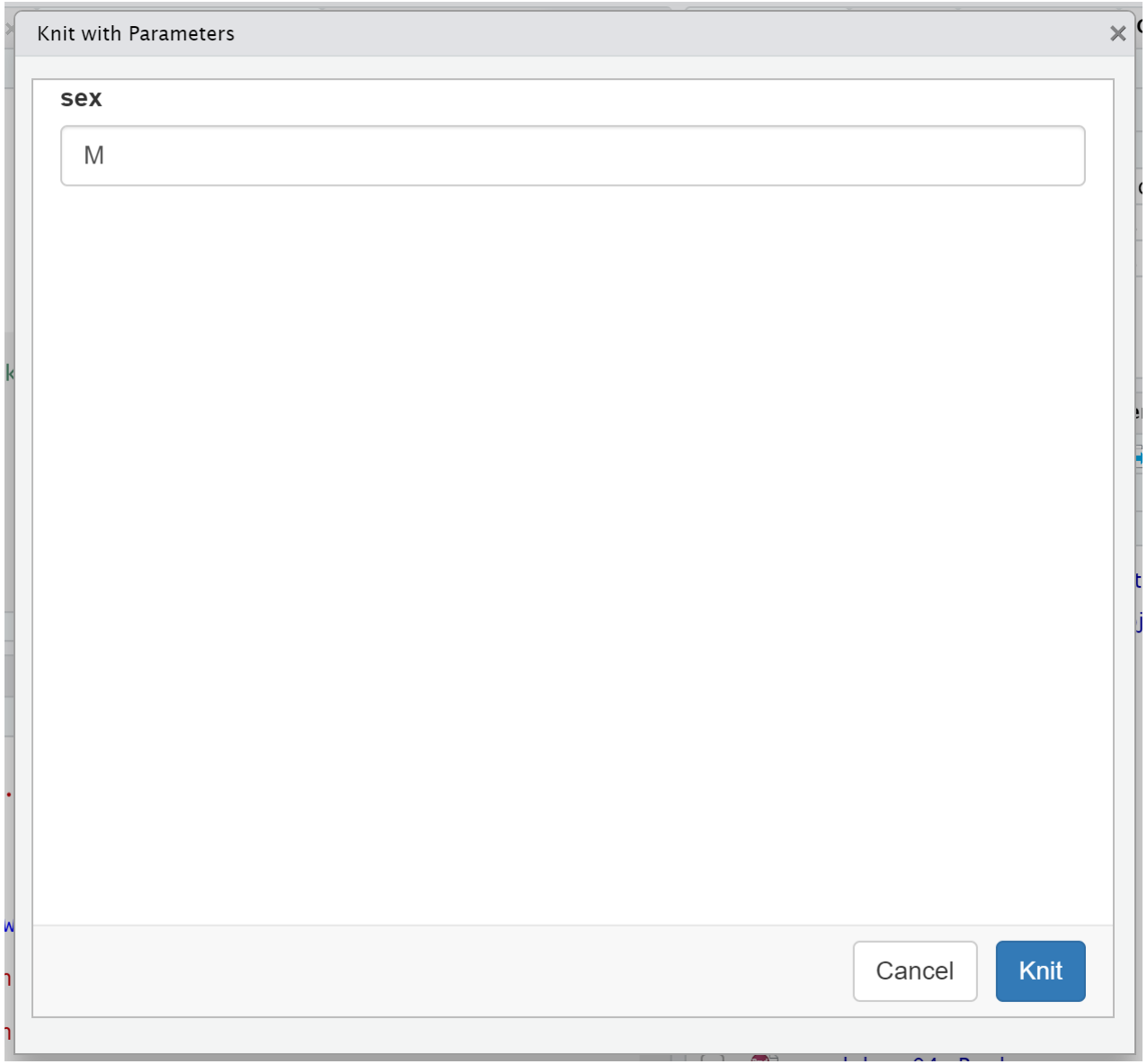
Use the `glimpse()` function from the `tibble` package to take a peak at the **abalone** dataset.

KNIT WITH PARAMS

Knit with parameters



TYPE “M”, “F”, OR “I”



RMARKDOWN WITH PARAMETERS – PICK LIST

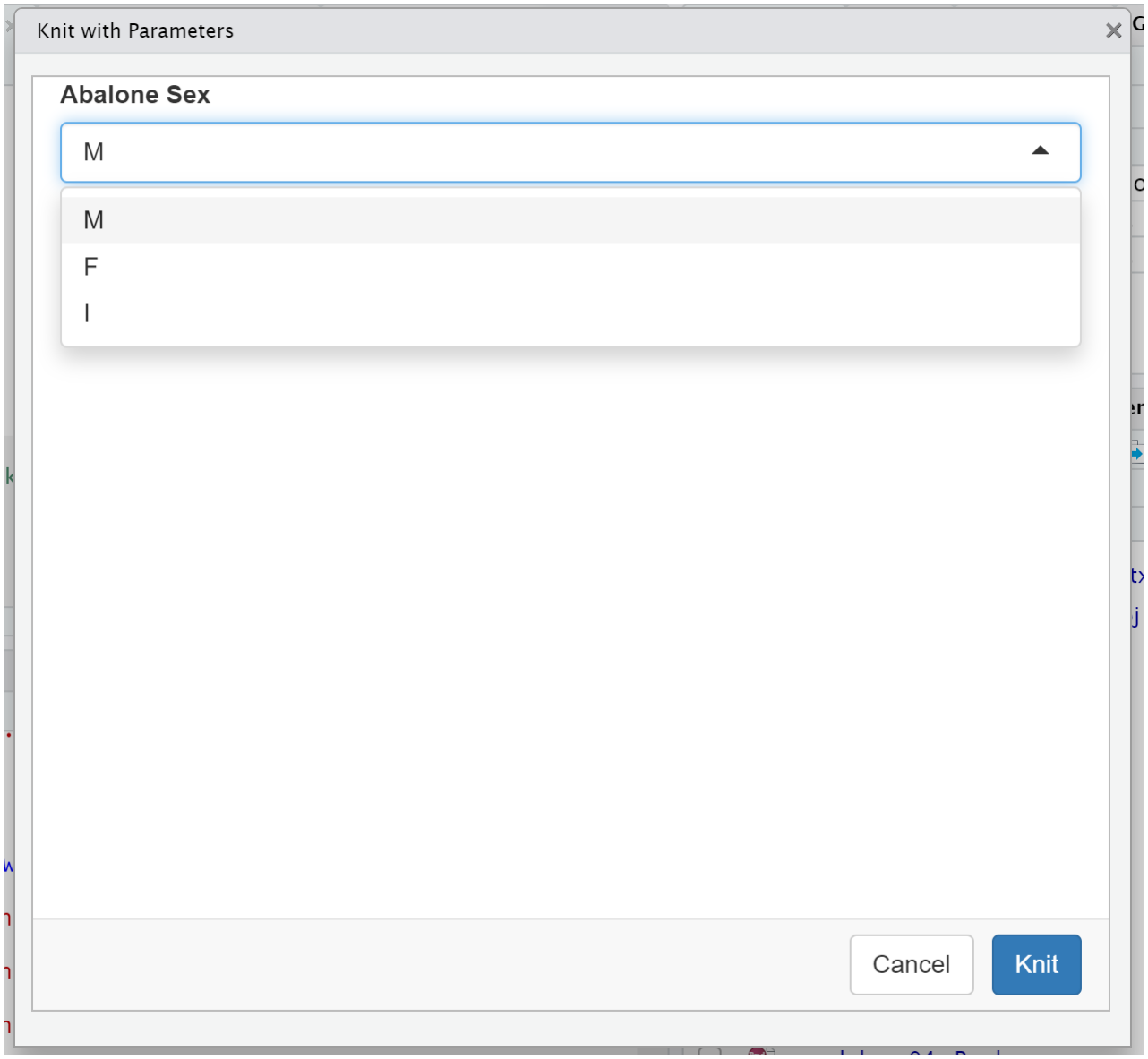
Open rmarkdown03b.rmd

- YAML updated
- create pull down box
- “shiny” under-the-hood

```
---
title: "Abalones"
author: "Melinda Higgins"
date: "November 10, 2019"
output: html_document
params:
  sex:
    label: "Abalone Sex"
    value: M
    input: select
    choices: ["M","F","I"]
---
```

KNIT WITH PARAMETERS

- Pulldown list added
- Interface created with shiny



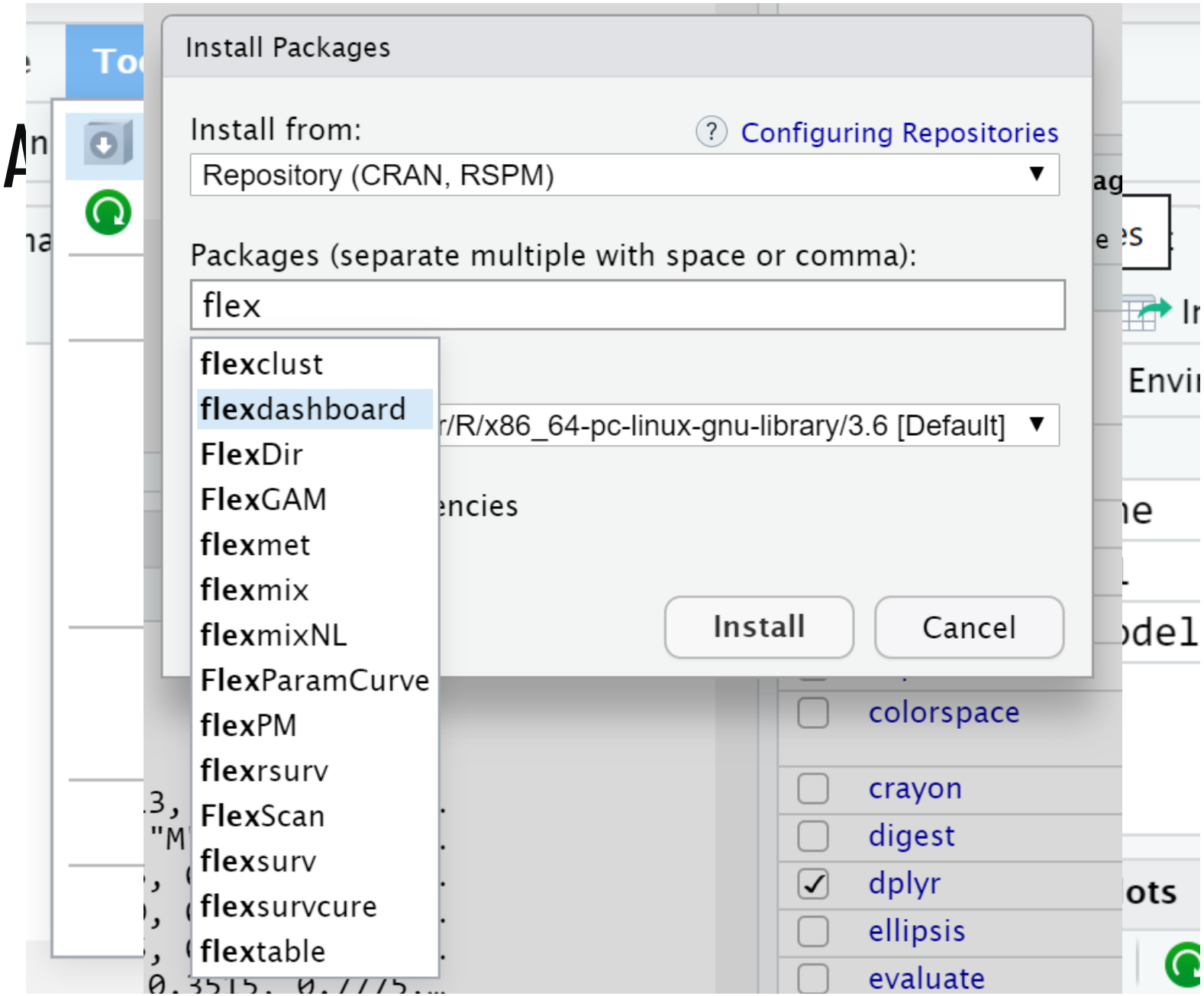
RMARKDOWN – OTHER FORMATS

https://rmarkdown.rstudio.com/formats.html

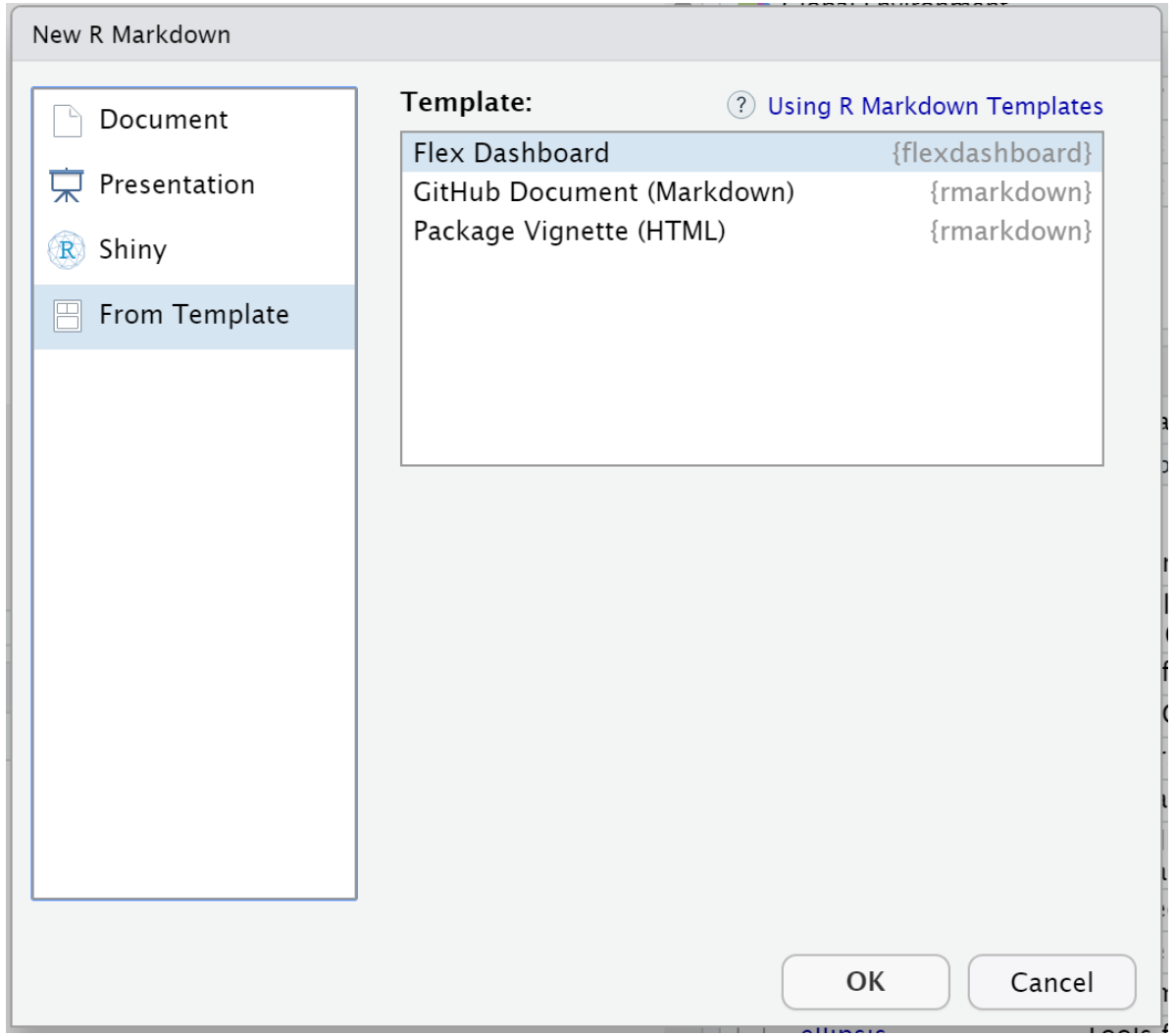
Dashboards

https://rmarkdown.rstudio.com/flexdashboard/index.html

FLEXDA


Install Packages
Install from:
Configuring Repositories
Repository (CRAN, RSPM)
Packages (separate multiple with space or comma):
flex
flexclust
flexdashboard
FlexDir
FlexGAM
flexmet
flexmix
flexmixNL
FlexParamCurve
flexPM
flexrsurv
FlexScan
flexsurv
flexsurvcure
flextable
/R/x86_64-pc-linux-gnu-library/3.6 [Default]
Install
Cancel
colorspace
crayon
digest
dplyr
ellipsis
evaluate

FLEXDASHBOARD TEMPLATE



EXPLORE DASHBOARDS

Open rmarkdown04a.rmd

- knit to flex_dashboard

Open rmarkdown04b.rmd

- knit to flex_dashboard