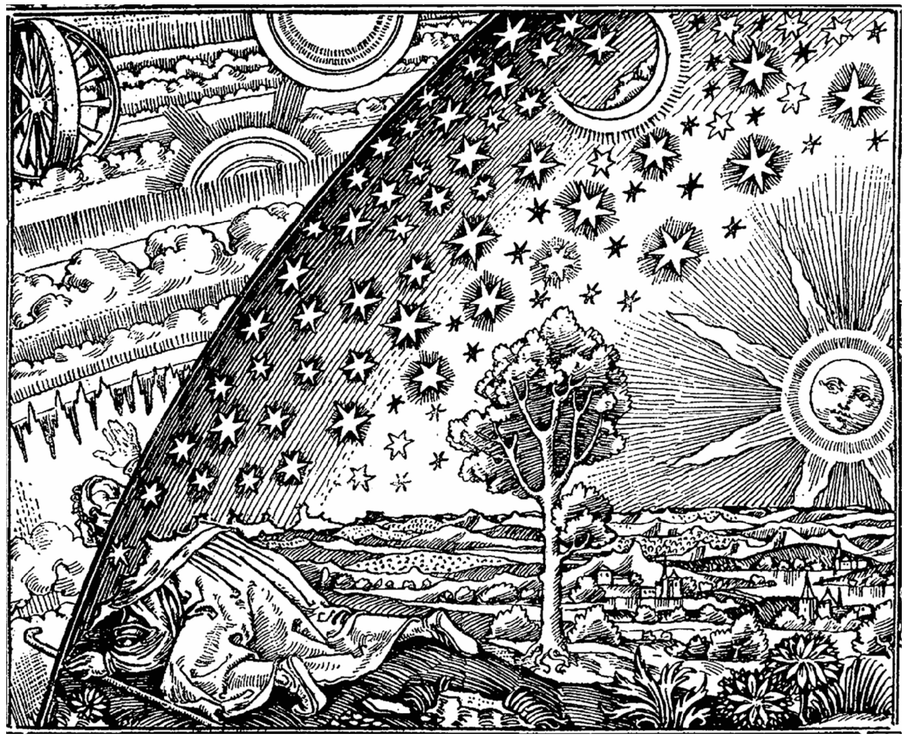
R + ggplot2 for Mt. Allison

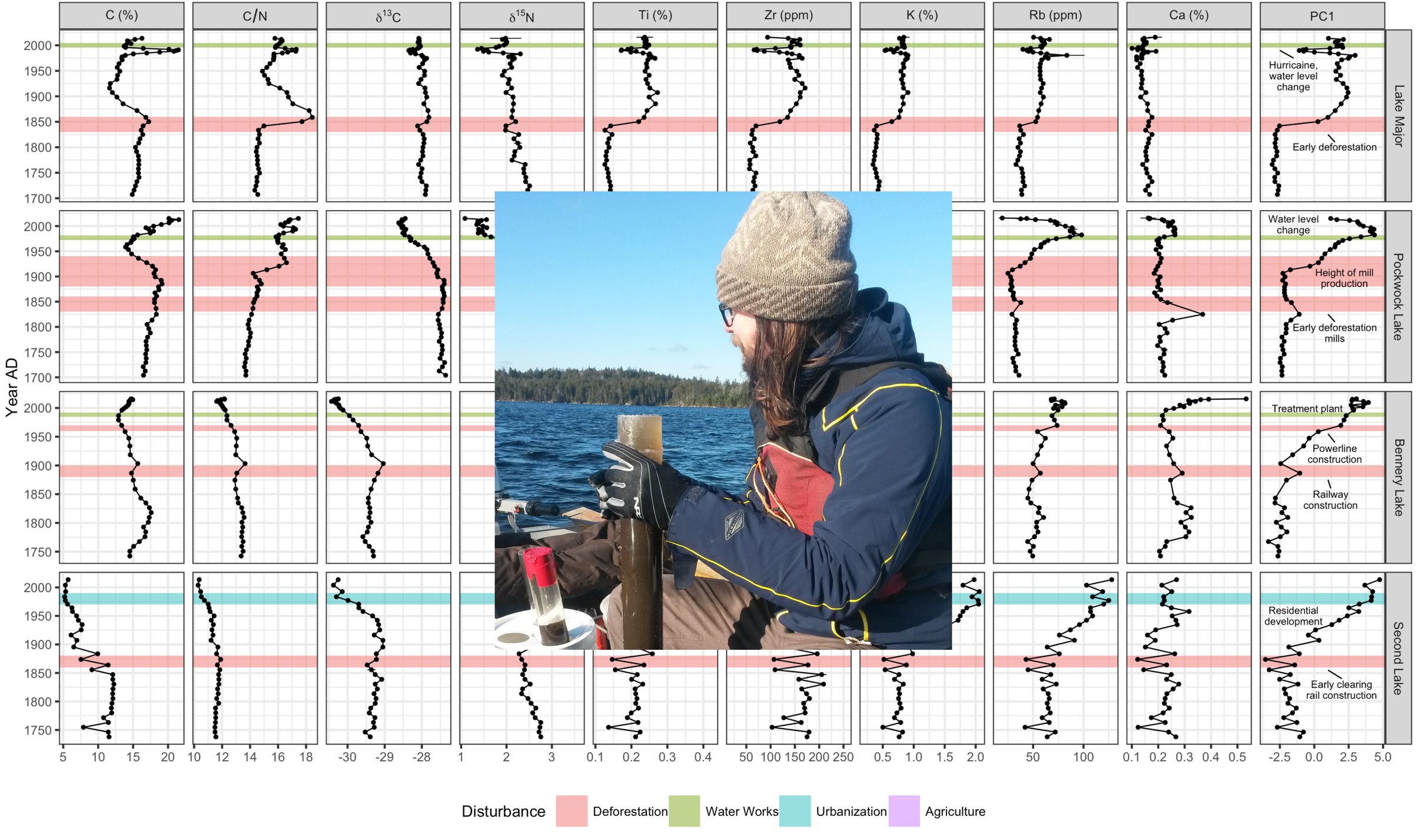


Dewey Dunnington

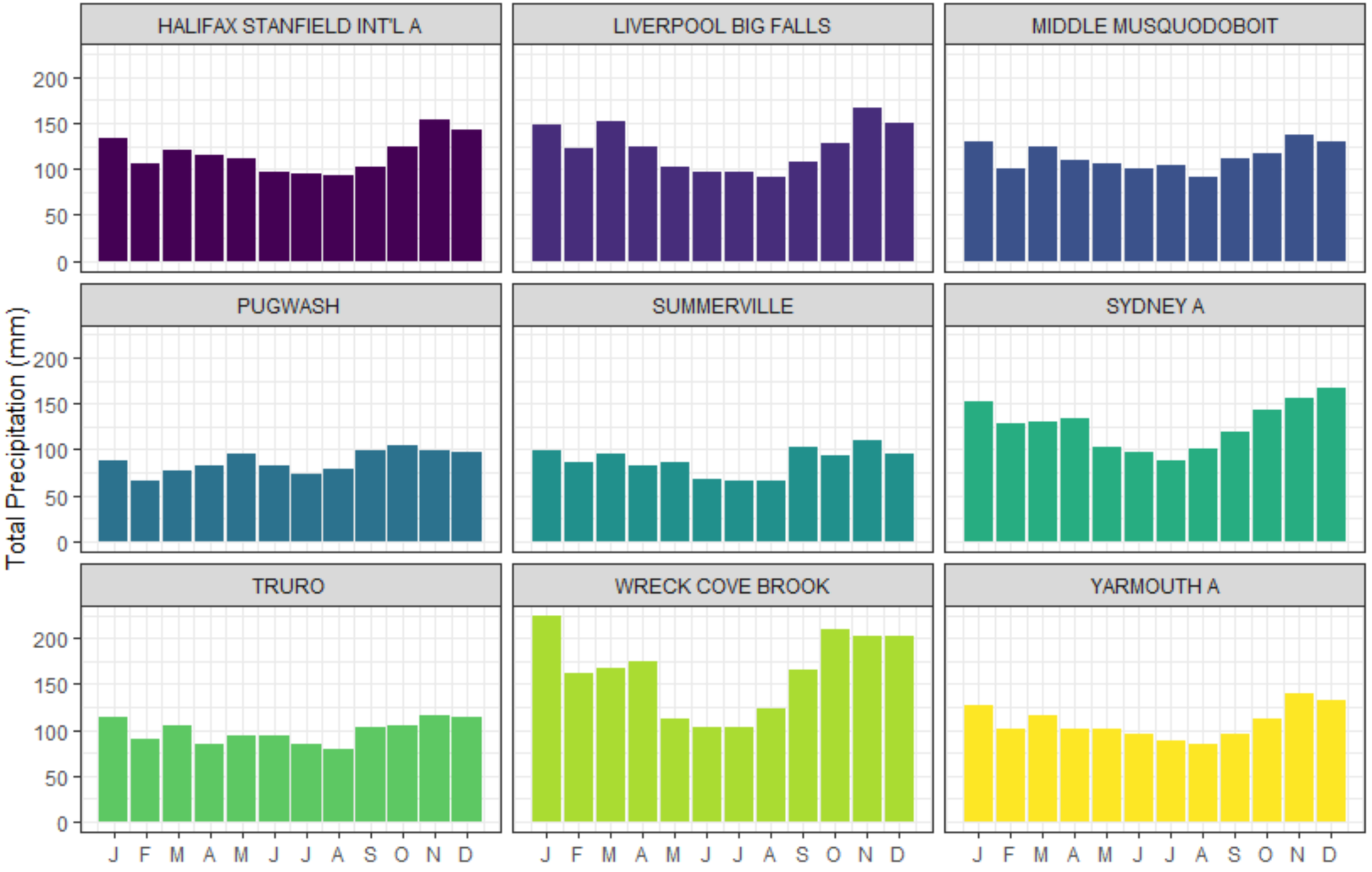
Ph.D. Student

May 2019

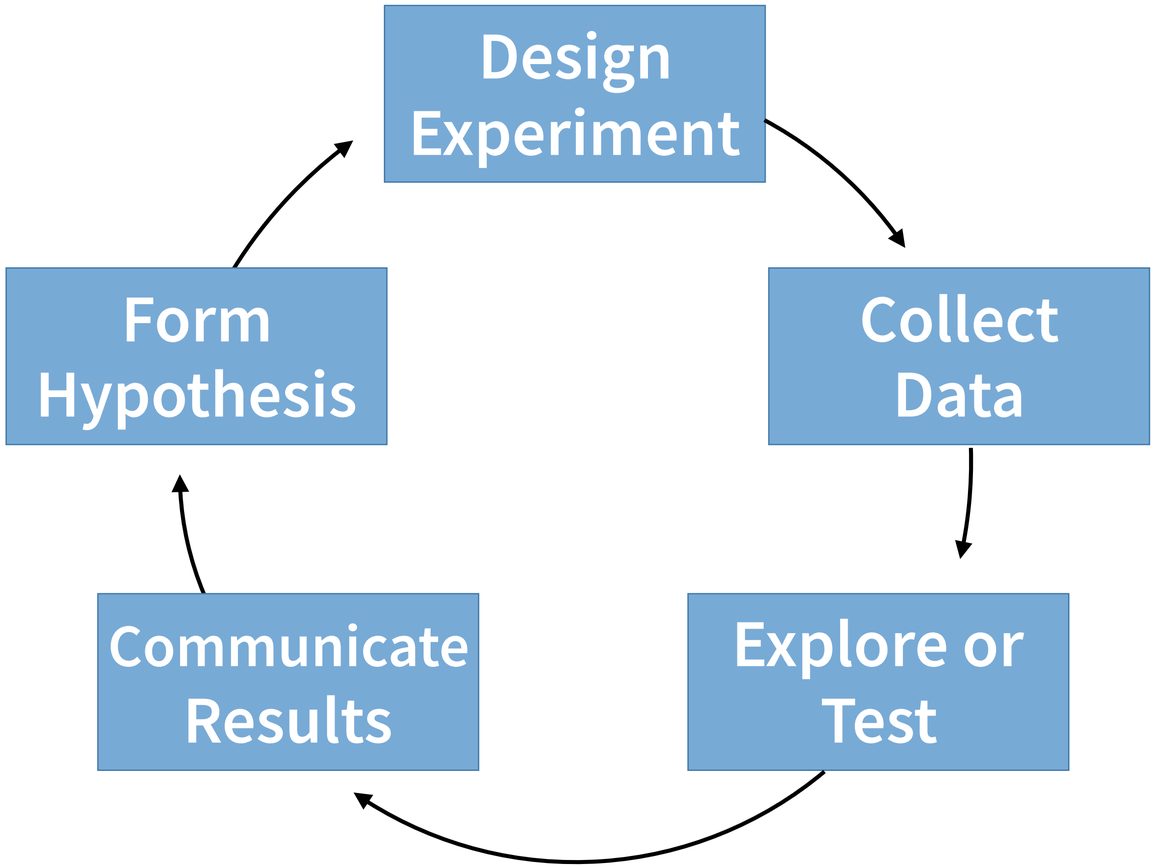
@paleolimbot

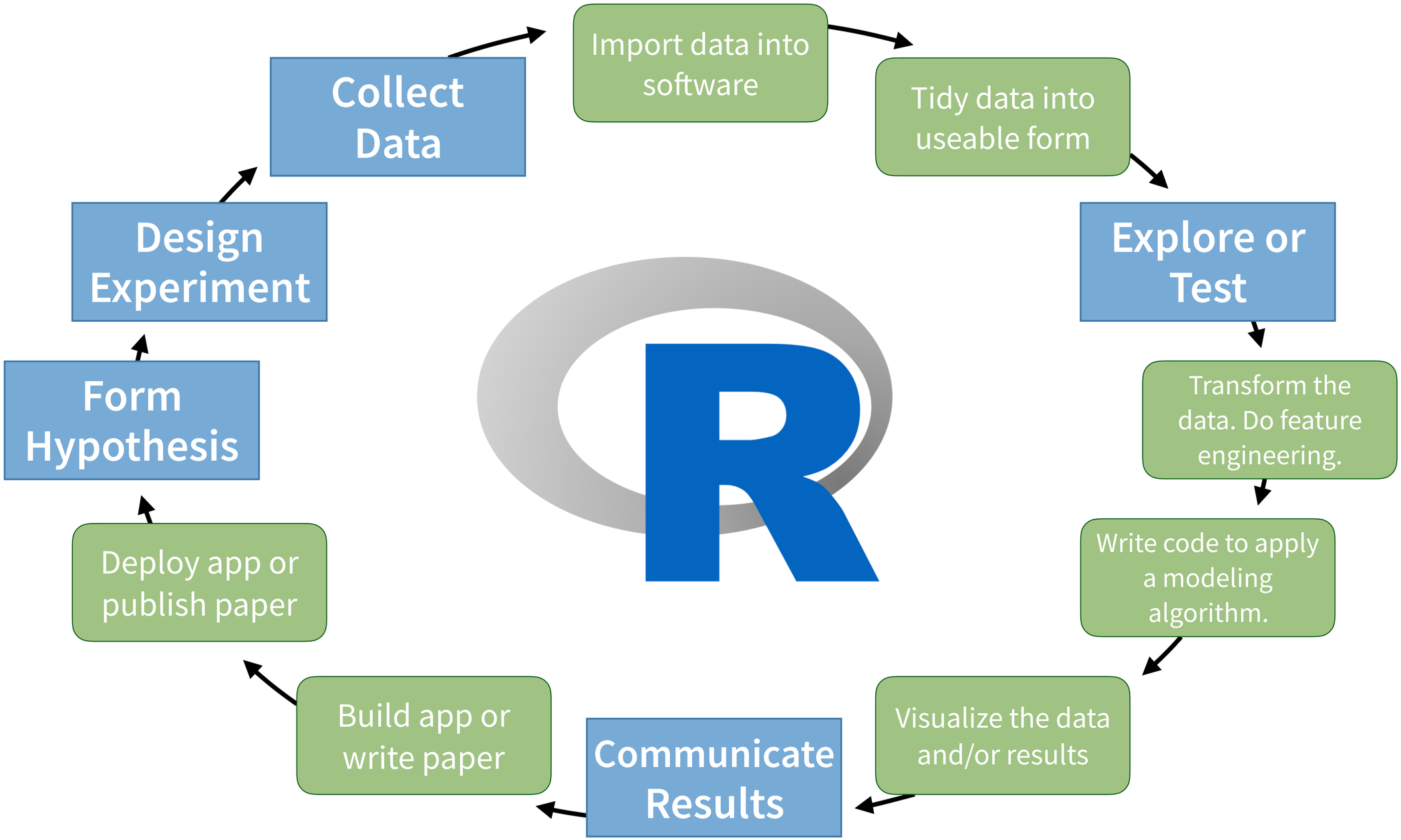

C (%)
C/N
δ13C
δ15N
Ti (%)
Zr (ppm)
K (%)
Rb (ppm)
Ca (%)
PC1
Year AD
Lake Major
Pockwock Lake
Bennery Lake
Second Lake
Hurricaine, water level change
Early deforestation
Water level change
Height of mill production
Early deforestation mills
Treatment plant
Powerline construction
Railway construction
Residential development
Early clearing rail construction
Disturbance
Deforestation
Water Works
Urbanization
Agriculture


HELLO
my name is
Lindsay


HALIFAX STANFIELD INT'L A
LIVERPOOL BIG FALLS
MIDDLE MUSQUODOBOIT
PUGWASH
SUMMERVILLE
SYDNEY A
TRURO
WRECK COVE BROOK
YARMOUTH A
Total Precipitation (mm)
0
50
100
150
200
J F M A M J J A S O N D

"Science"


Design Experiment
Collect Data
Explore or Test
Communicate Results
Form Hypothesis

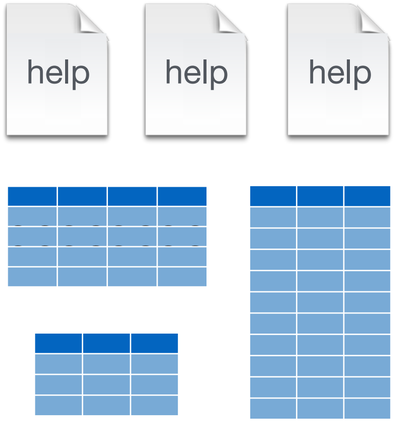

Collect Data
Import data into software
Tidy data into useable form
Explore or Test
Transform the data. Do feature engineering.
Write code to apply a modeling algorithm.
Visualize the data and/or results
Communicate Results
Build app or write paper
Deploy app or publish paper
Form Hypothesis
Design Experiment
R

Your Turn

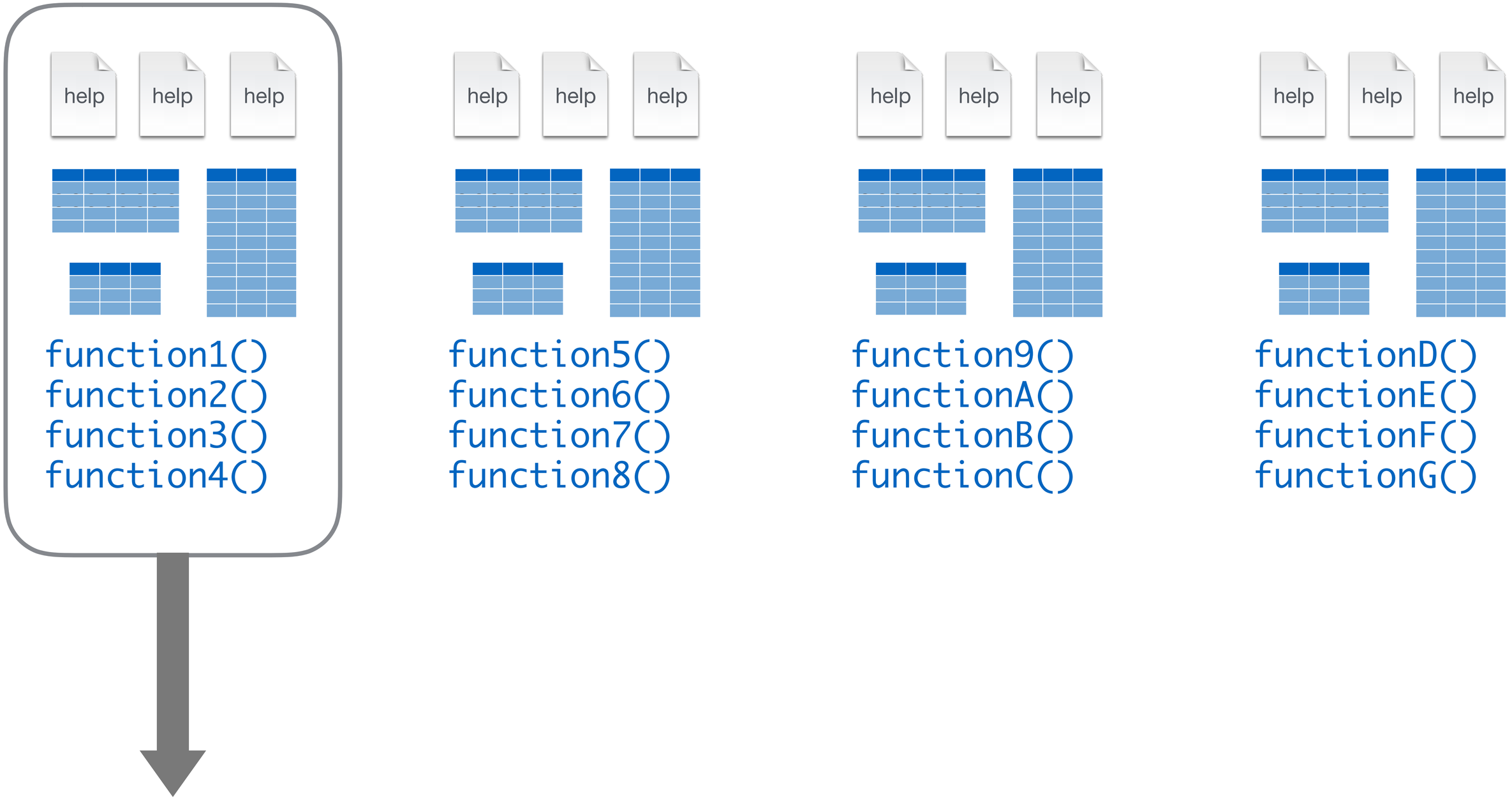
Form groups of 2-4 people. Introduce yourself to your group members. Tell them:

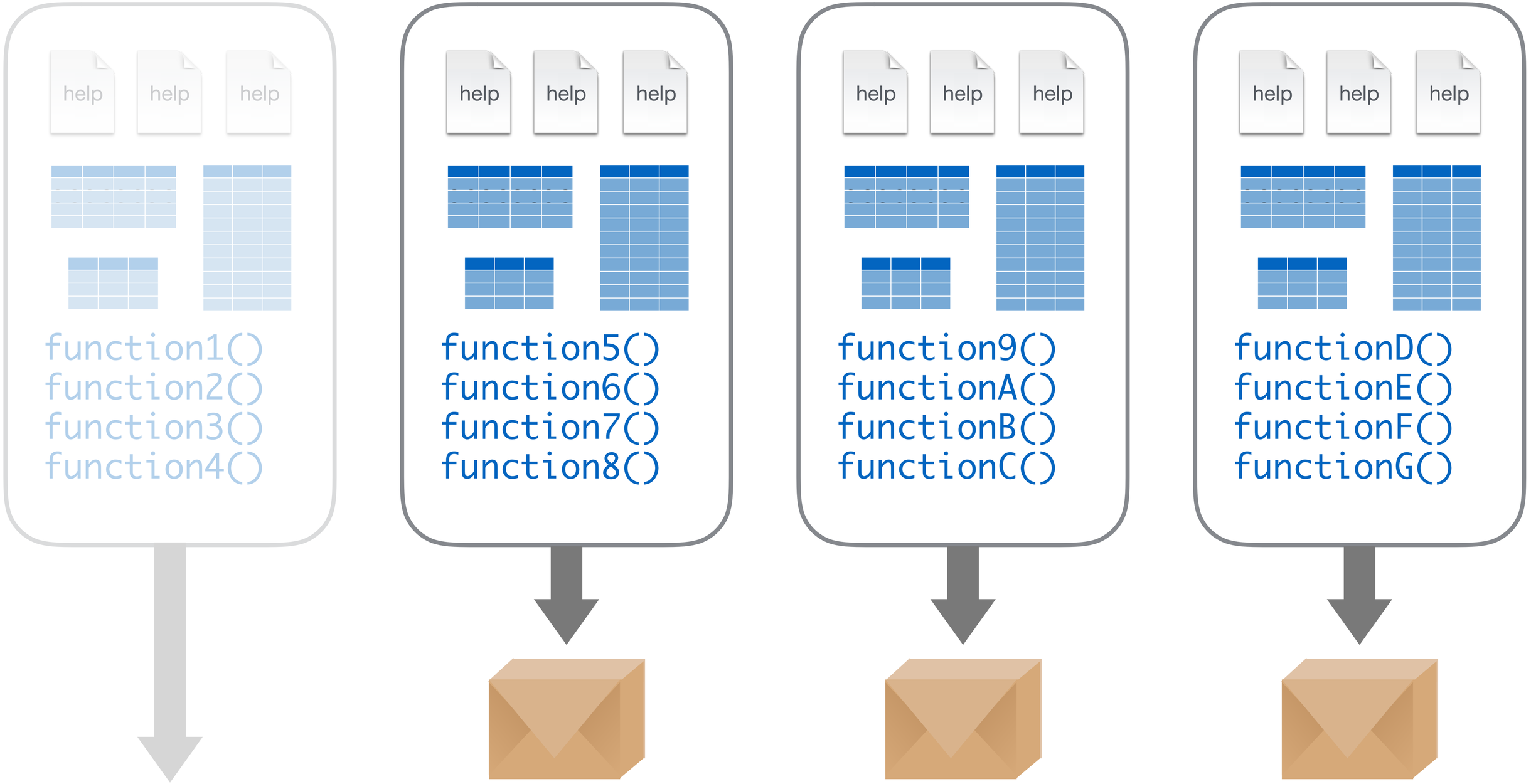
1. Who you are
2. What you do with data
3. How long you have been using R

R Packages




```
function1()
function2()
function3()
function4()
```


help
help
help
help
help
help
help
help
help
help
help
help
function1()
function2()
function3()
function4()
function5()
function6()
function7()
function8()
function9()
functionA()
functionB()
functionC()
functionD()
functionE()
functionF()
functionG()
Base R



Base R

R Packages

Using packages

1

```
install.packages("foo")
```

Downloads files to computer

1 x per computer

2

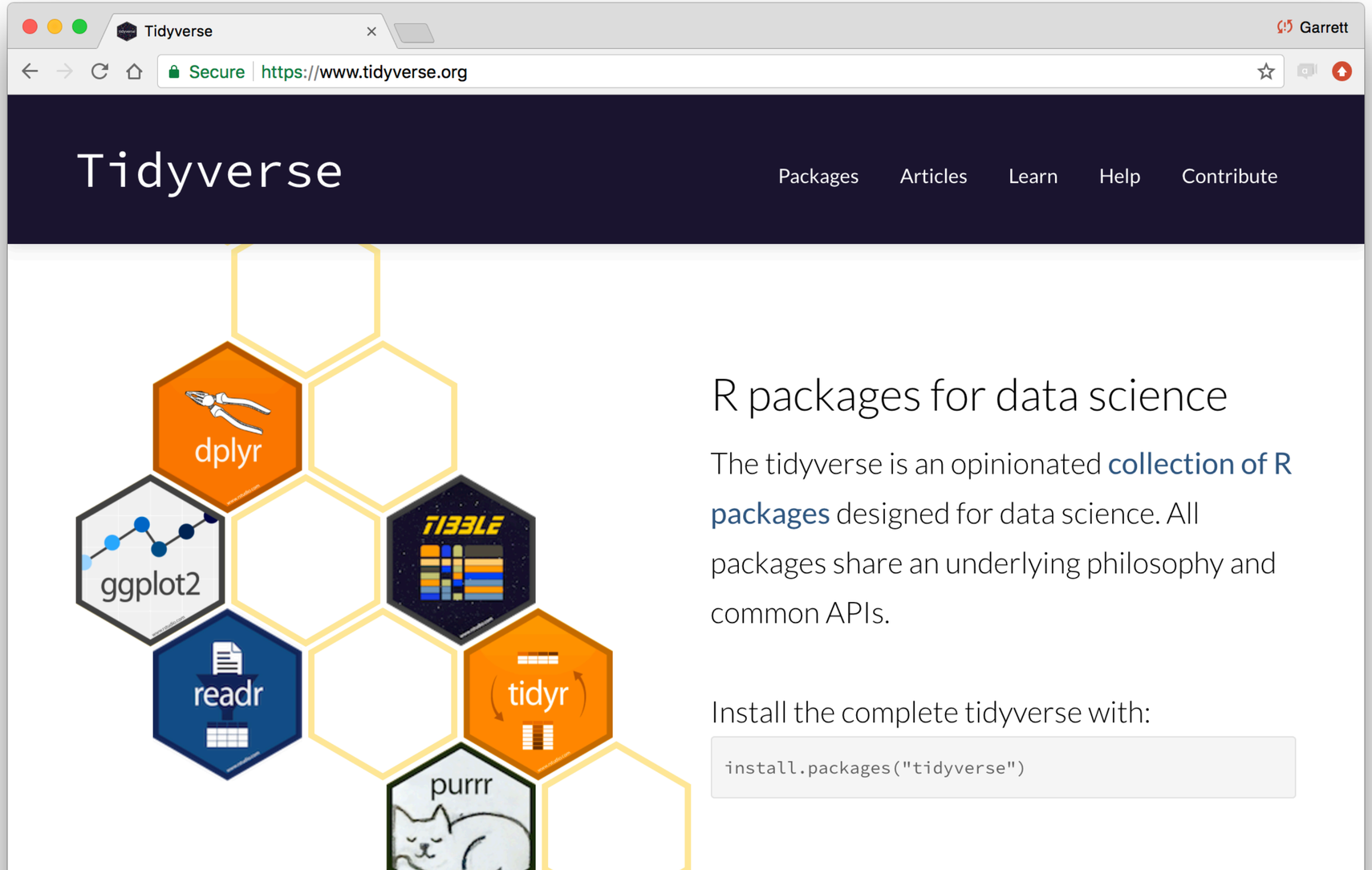
```
library(foo)
```

Loads package

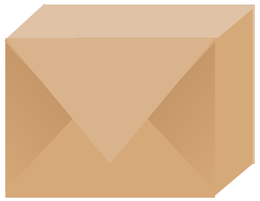
1 x per R Session

The Tidyverse

tidyverse.org



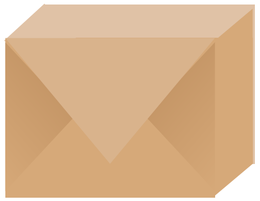
tidyverse



An R package that serves as a short cut for installing and loading the components of the tidyverse.

```
install.packages("tidyverse")
```

tidyverse



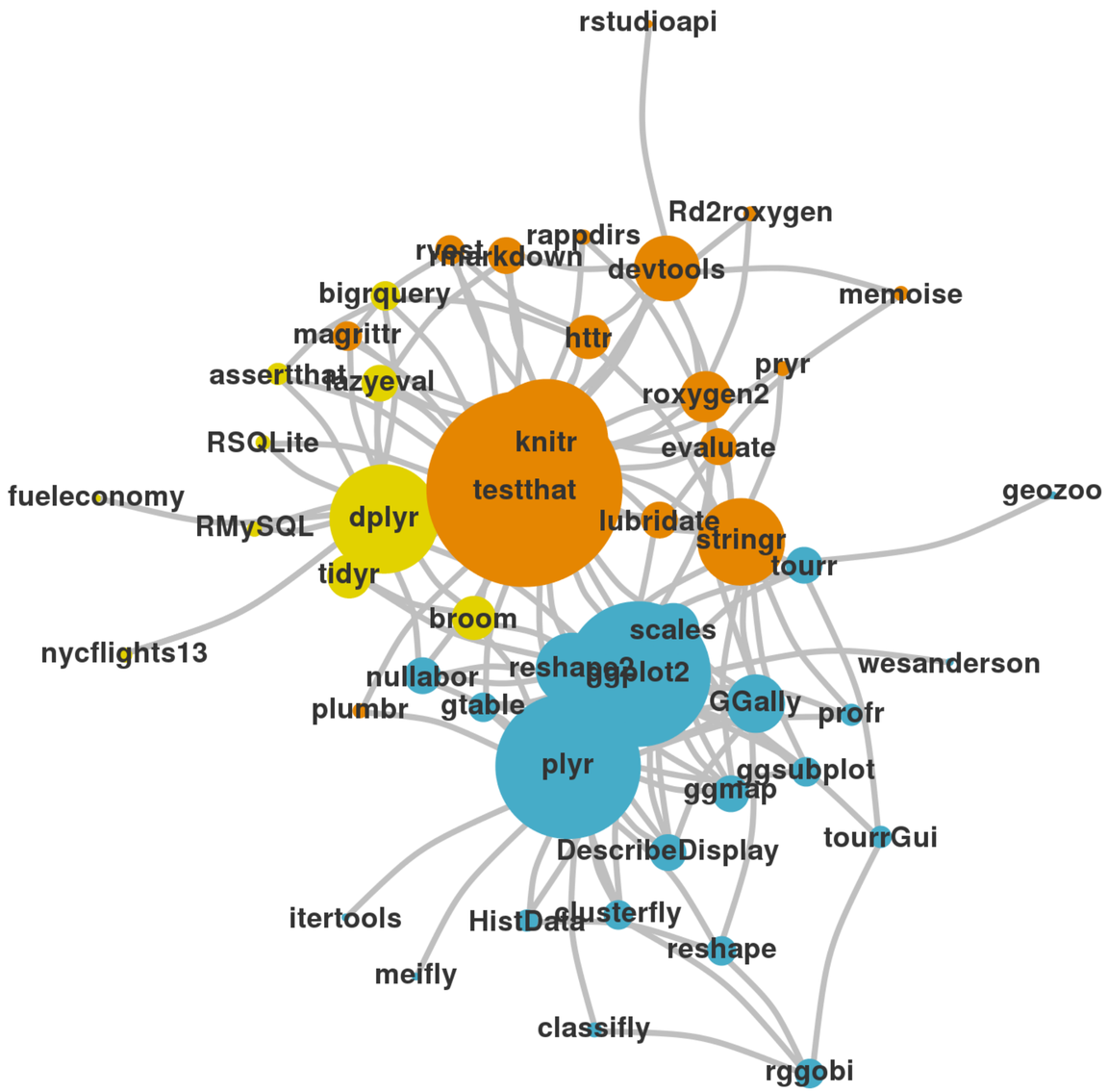
An R package that serves as a short cut for installing and loading the components of the tidyverse.

```
library(tidyverse)
```

```
install.packages("tidyverse")
```

does the equivalent of

```
install.packages("ggplot2")
install.packages("dplyr")
install.packages("tidyr")
install.packages("readr")
install.packages("purrr")
install.packages("tibble")
install.packages("hms")
install.packages("stringr")
install.packages("lubridate")
install.packages("forcats")
install.packages("DBI")
install.packages("haven")
install.packages("httr")
install.packages("jsonlite")
install.packages("readxl")
install.packages("rvest")
install.packages("xml2")
install.packages("modelr")
install.packages("broom")
```



```
install.packages("tidyverse")
```

does the equivalent of

```
install.packages("ggplot2")
install.packages("dplyr")
install.packages("tidyr")
install.packages("readr")
install.packages("purrr")
install.packages("tibble")
install.packages("hms")
install.packages("stringr")
install.packages("lubridate")
install.packages("forcats")
install.packages("DBI")
install.packages("haven")
install.packages("httr")
install.packages("jsonlite")
install.packages("readxl")
install.packages("rvest")
install.packages("xml2")
install.packages("modelr")
install.packages("broom")
```

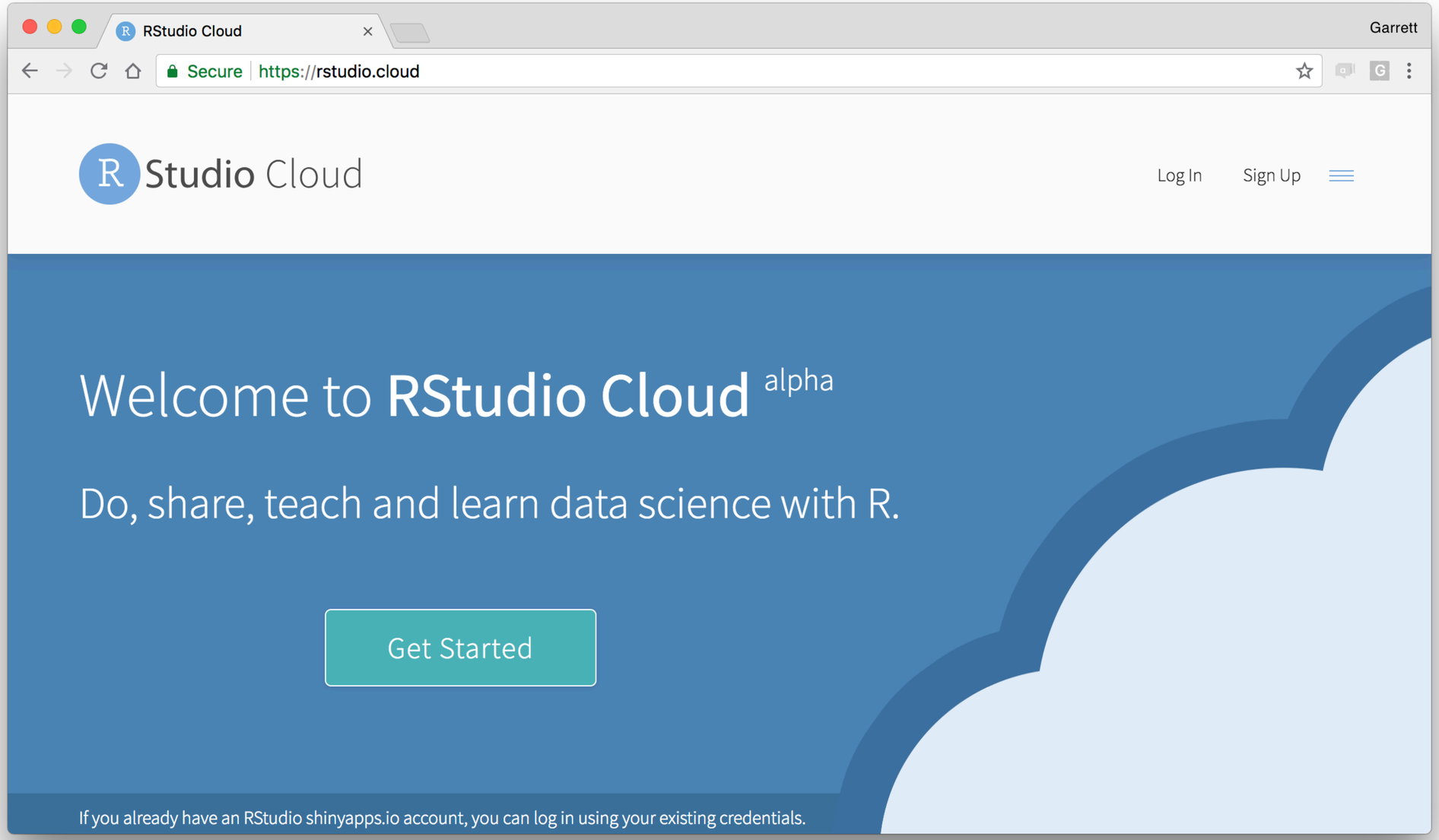
```
library(tidyverse)
```

does the equivalent of

```
library(ggplot2)
library(dplyr)
library(tidyr)
library(readr)
library(purrr)
library(tibble)
library(stringr)
library(forcats)
```

R Notebooks
(Let's start!)

https://bit.ly/2VDuGwx

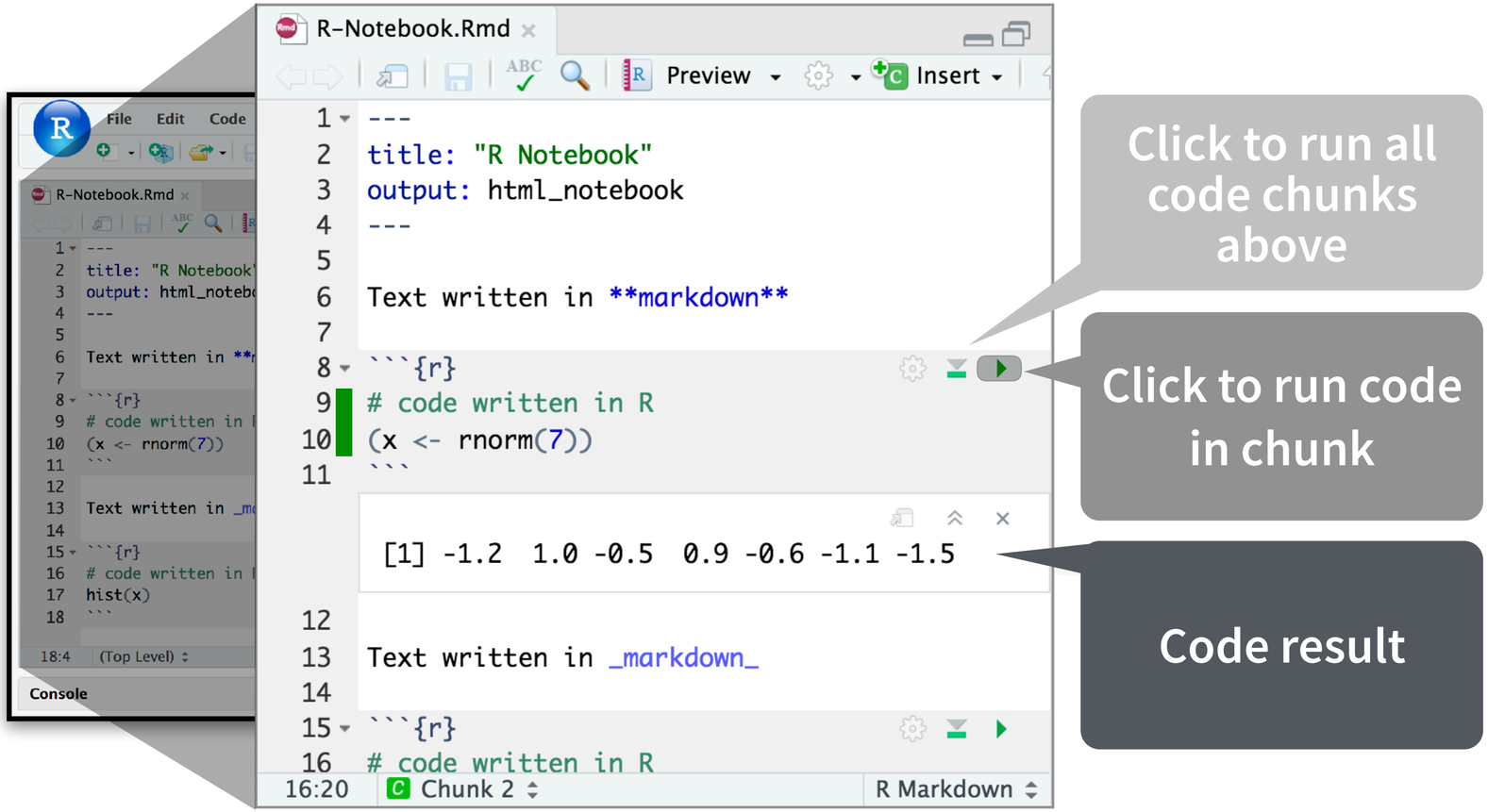


Your Turn

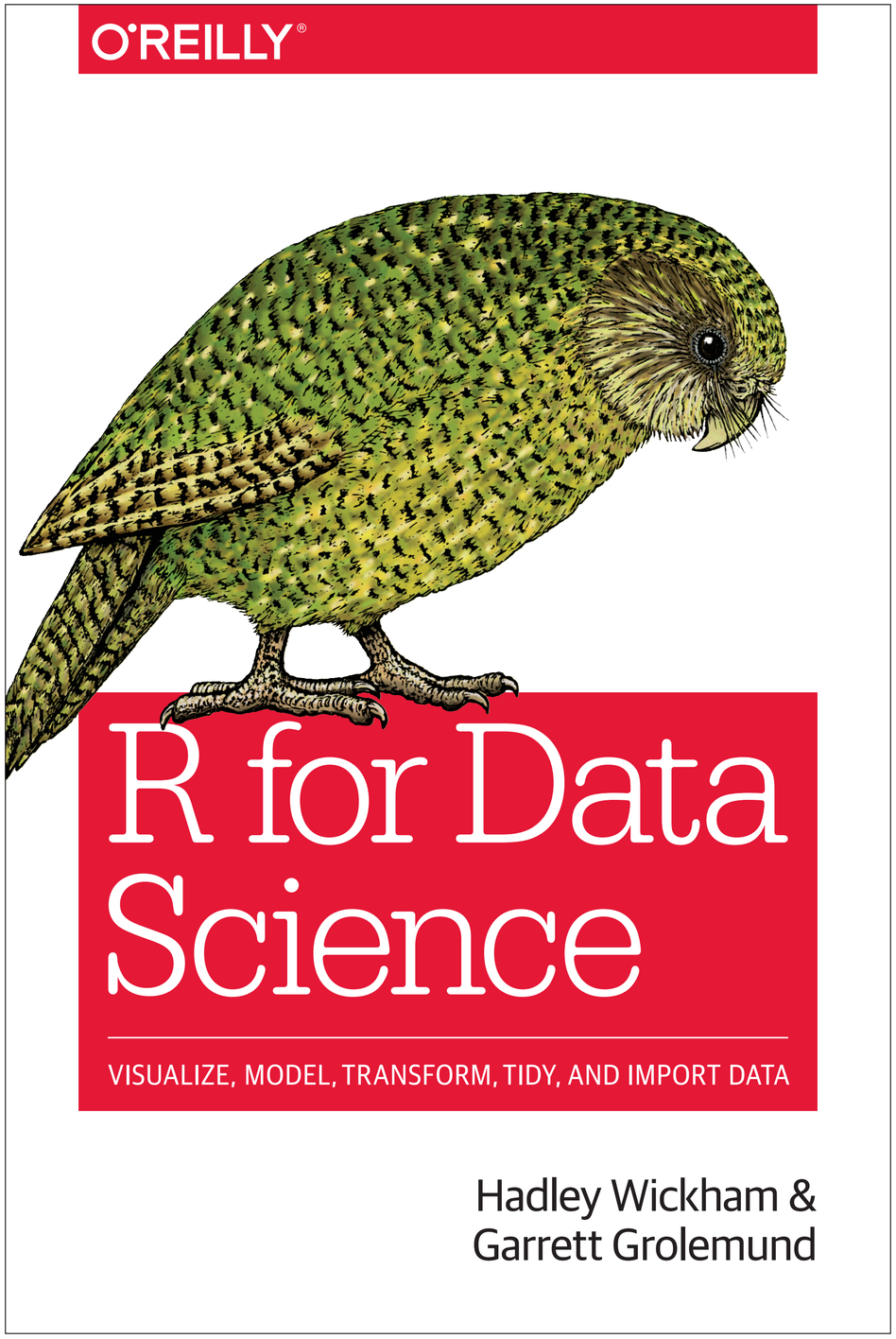
Go to **0-Introduction.Rmd**. Read through the notebook and do everything it tells you to do.

R Notebooks

An authoring format for Data Science.



Outro



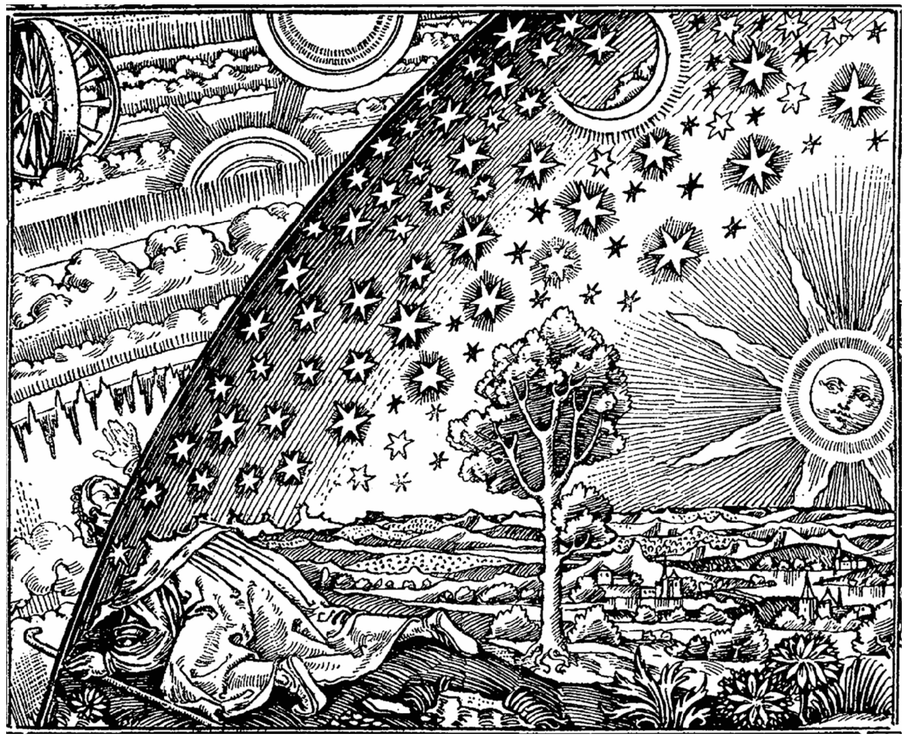
Free online at
http://r4ds.had.co.nz

Your Turn

In RStudio Cloud, Click on

1-Visualize-Data.Rmd

R + ggplot2 for Mt. Allison



Dewey Dunnington

Ph.D. Student

May 2019