

# S&DS 361 Homework 0: Software Prep

Due Tue Jan 23, 2024

## Part 1: Course prep and software installation

### 1. Complete the Course Survey in the Quizzes section of Canvas

After you submit the quiz, take a screenshot of the time stamp and Question 1. It should look something like this.

! Correct answers are hidden.

Submitted Jan 16 at 10:13am

#### Question 1

Describe what program you are in.

- ☐ Undergraduate student, S&DS major
- ☐ Undergraduate student, S&DS concentration
- ☐ Undergraduate student, Other major (please describe in next question)
- ☒ Graduate student, S&DS MA or MS program
- ☐ Graduate student, S&DS Ph.D. program
- ☐ Graduate student, Other MA or MS program (please describe in next question)
- ☐ Graduate student, Other Ph.D. program (please describe in next question)

You Answered

Edit the above file name and path to show your screenshot and ensure that it appears when you knit your document.

### 2. Download and install the latest version of R

See <https://bmacgtpm.github.io/notes/software-installation.html> (<https://bmacgtpm.github.io/notes/software-installation.html>) for some potentially useful tips.

The following code will show your version of R when you knit the document. It should say `R version 4.3.2` or later. Make sure it appears when you knit your document.

```
R.Version()$version.string
```

```
[1] "R version 4.3.2 (2023-10-31 ucrt)"
```

### 3. Download and install the latest version of RStudio.

See <https://bmacgtpm.github.io/notes/software-installation.html> (<https://bmacgtpm.github.io/notes/software-installation.html>) for some potentially useful tips.

This code will show your version of R when you knit the document. Make sure it appears when you knit your document. It should say 2023.12.0+369 (or later).

```
rstudioapi::versionInfo()$long_version
```

```
[1] "2023.12.0+369"
```

### 4. Install/update packages

See <https://bmacgtpm.github.io/notes/software-installation.html> (<https://bmacgtpm.github.io/notes/software-installation.html>) for the packages to install.

Do not write R code for installing packages in this R Markdown. You don't want packages to install every time you knit this document.

Check that you can load all of the libraries by running this chunk of code and showing that it executes without error. There may be some messages, and maybe warnings about versions. Those are ok. Make sure the output appears when you knit the document.

```

library(knitr)
library(plotly)
library(scales)
library(DT)
library(leaflet)
library(gganimate)
library(gifski)
library(png)
library(corrplot)
library(GGally)
library(ggmap)
library(shiny)
library(MASS)
library(lme4)
library(arm)
library(pROC)
library(MLmetrics)
library(viridis)
library(RSelenium)
library(rvest)
library(randomForest)
library(FNN)
library(caret)
library(pls)
library(devtools)
library(splines)
library(RecordLinkage)
library(rsconnect)
library(grid)
library(foreign)
library(maps) ## Leave uncommented. For some reason GitHub Actions had a problem when this was
n't explicitly loaded here.

## Load tidyverse last!
library(tidyverse)
library(pubtheme)

```

## 5. Check gganimate

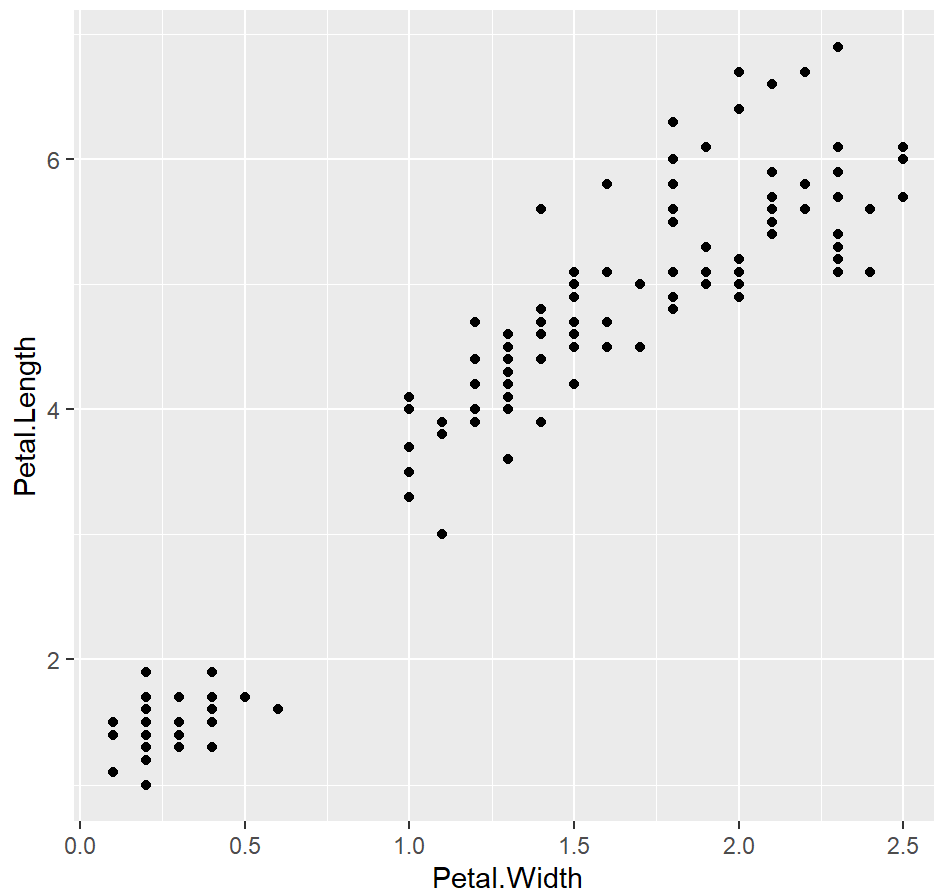
See <https://bmacgtpm.github.io/notes/software-installation.html> (<https://bmacgtpm.github.io/notes/software-installation.html>). The code from that page is below, except a custom title has been added. Replace my name with yours, uncomment the animation code, run all of this code.

```

# We'll start with a static plot
g = ggplot(iris,
           aes(x = Petal.Width,
               y = Petal.Length)) +
  geom_point() +
  ggtitle("Jiayi Chen's animation")
g

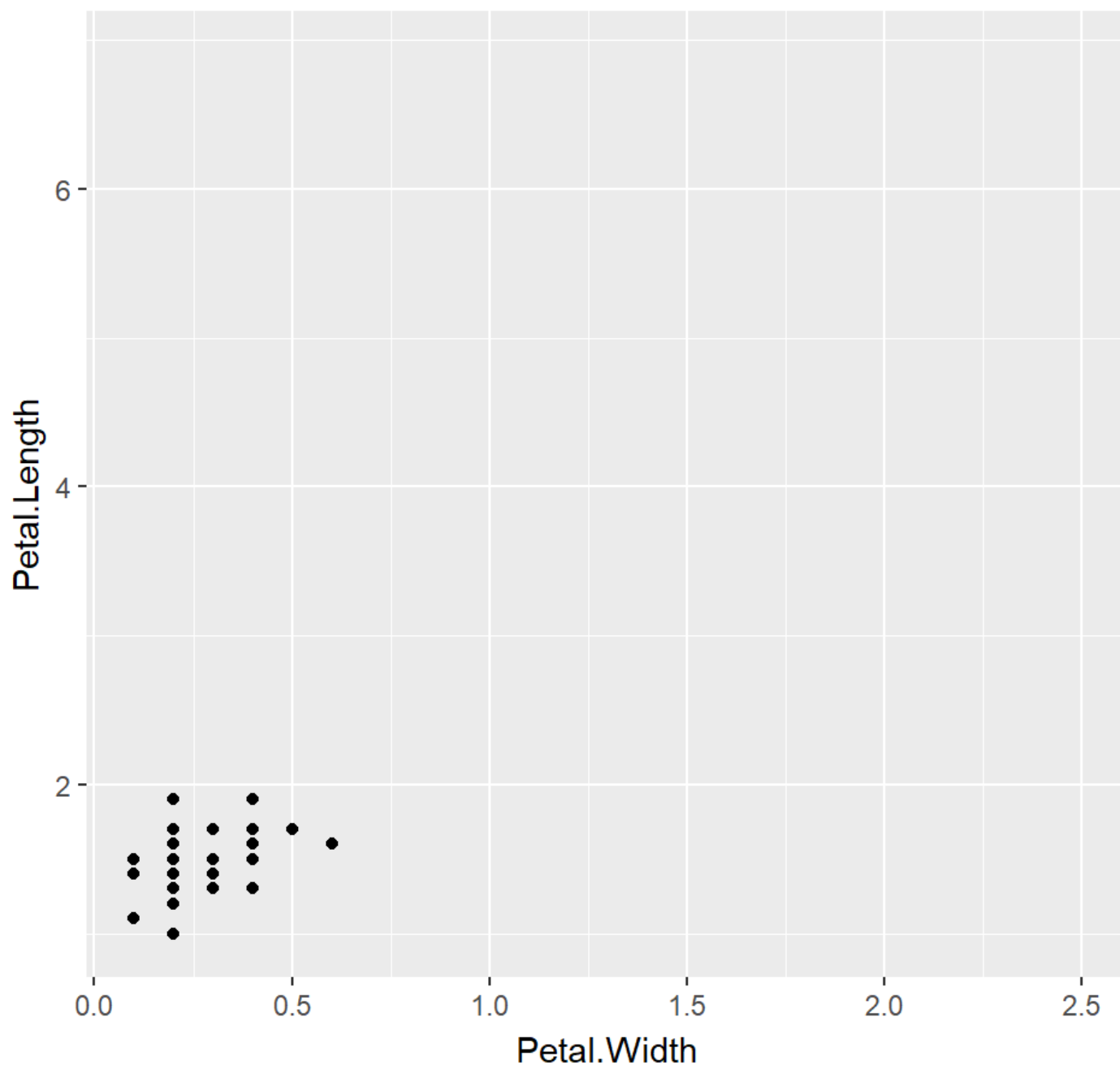
```

## Jiayi Chen's animation



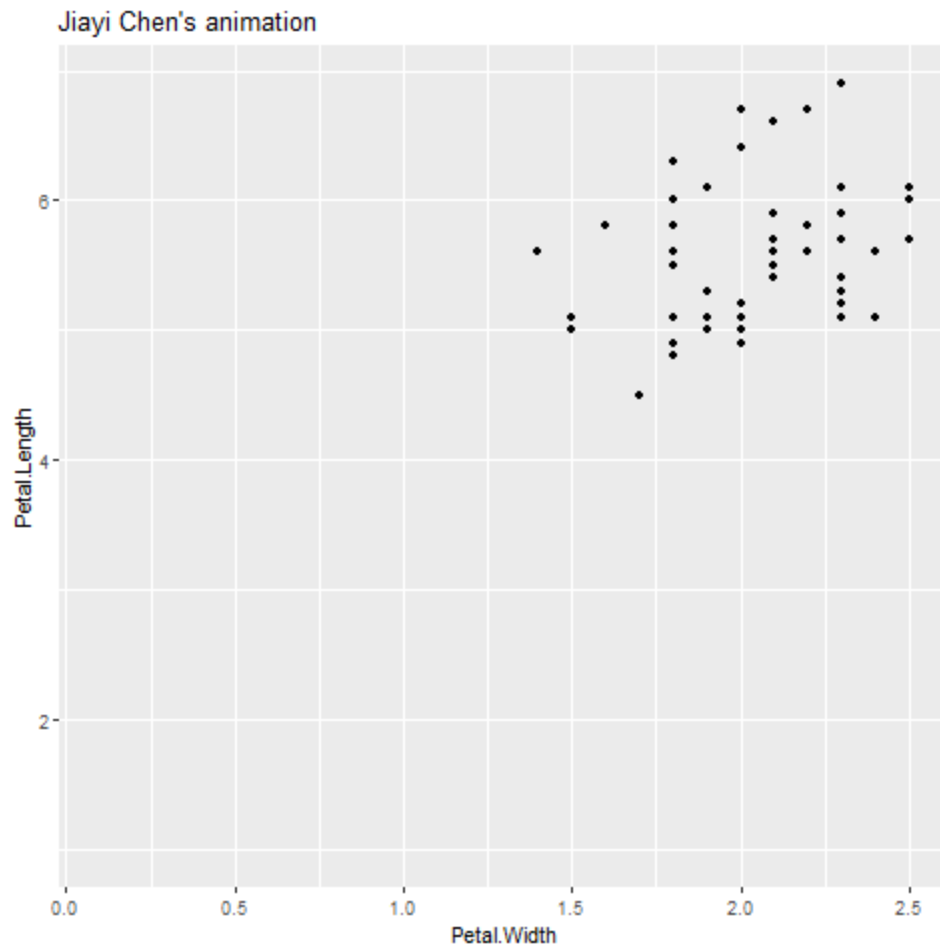
```
a = g +  
  transition_states(Species,  
    transition_length = 2,  
    state_length = 1)  
  
a ## check that the animation works
```

## Jiayi Chen's animation



```
# save the animation
anim_save(a,
          filename = 'img/test animation.gif')
```

There should be a static plot and an animated plot above. If the `anim_save` worked properly there should be a new `test.gif` in the `img` folder that has your name. Take a screen shot of your animated gif when the points are near the upper right and show the screenshot here:



If all of that works, `gganimate` is good to go! If that doesn't work, see the tips at <https://bmacgtpm.github.io/notes/software-installation.html> (<https://bmacgtpm.github.io/notes/software-installation.html>).

Once you have created the animation, comment out the code that creates the animation (as I have done above). This document won't knit to PDF with the animation code in it. You can only knit to HTML.

## 6. Bookmarks

See <https://bmacgtpm.github.io/notes/software-installation.html> (<https://bmacgtpm.github.io/notes/software-installation.html>).

# Part 2: Github

7. Create a GitHub account at <https://github.com/> (<https://github.com/>) if you don't have one. Submit your GitHub username in Quizzes -> Course Survey on Canvas.

8. Download GitHub Desktop at <https://desktop.github.com/> (<https://desktop.github.com/>).

Take a screenshot showing Github Desktop (or different software, or the command line) and show it here.

```

Windows PowerShell
examine the history and state (see also: git help revisions)
  bisect    Use binary search to find the commit that introduced a bug
  diff      Show changes between commits, commit and working tree, etc
  grep      Print lines matching a pattern
  log       Show commit logs
  show      Show various types of objects
  status    Show the working tree status

grow, mark and tweak your common history
  branch    List, create, or delete branches
  commit    Record changes to the repository
  merge     Join two or more development histories together
  rebase    Reapply commits on top of another base tip
  reset     Reset current HEAD to the specified state
  switch    Switch branches
  tag       Create, list, delete or verify a tag object signed with GPG

collaborate (see also: git help workflows)
  fetch     Download objects and refs from another repository
  pull      Fetch from and integrate with another repository or a local branch
  push      Update remote refs along with associated objects

'git help -a' and 'git help -g' list available subcommands and some
concept guides. See 'git help <command>' or 'git help <concept>'
to read about a specific subcommand or concept.
See 'git help git' for an overview of the system.
PS C:\Users\User\OneDrive - Yale University\Academic\Yale Academic\2024 Spring\S&DS 661\361-Spring-2024> git -v
git version 2.39.2.windows.1
PS C:\Users\User\OneDrive - Yale University\Academic\Yale Academic\2024 Spring\S&DS 661\361-Spring-2024>

```

If you have experience with Git/Github, and prefer to use different software or the command line, that's fine, but we may not be able to help if you have a problem.

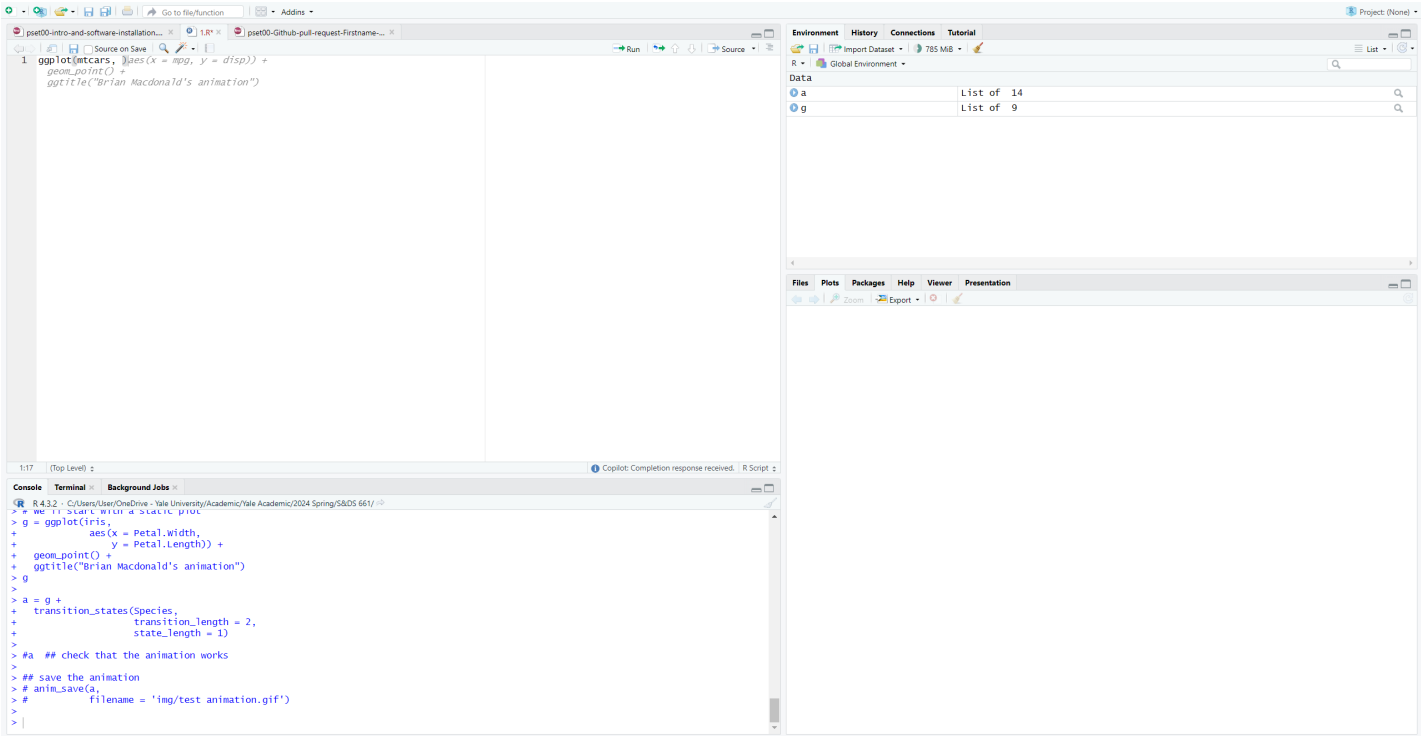
## 9. Clone the repo <https://github.com/bmacGTPM/361-Spring-2024> (<https://github.com/bmacGTPM/361-Spring-2024>) and create PR as follows.

Clone the repo, create a new branch and name the branch `Firstname Lastname` your first and last name. Make an edit to the R Markdown file `pset00-GitHub-pull-request-Firstname-Lastname.Rmd` to have your name at the top instead of mine. Commit that to your branch, push those commits to GitHub, and create a pull-request to the `main` branch on the 361-Spring-2024 repo. Make the title of the pull request your first and last name. For help getting started, see <https://docs.github.com/en/desktop/installing-and-configuring-github-desktop/overview/getting-started-with-github-desktop> (<https://docs.github.com/en/desktop/installing-and-configuring-github-desktop/overview/getting-started-with-github-desktop>).

If you find yourself getting many notification, you can go to <https://github.com/watching> (<https://github.com/watching>) to choose what notifications you get. This page (<https://docs.github.com/en/account-and-profile/managing-subscriptions-and-notifications-on-github/managing-subscriptions-for-activity-on-github/managing-your-subscriptions>) has some more info on notifications/subscriptions.

## 10. Set up Github Copilot in RStudio

See <https://bmacgtpm.github.io/notes/github-copilot-in-rstudio.html> (<https://bmacgtpm.github.io/notes/github-copilot-in-rstudio.html>).



If you use Github Copilot elsewhere, take a screenshot of whatever software you use.