**Get R/RStudio – Step-by-Step Prep for ESM 206**

**COMPLETE BY SEPTEMBER 17th**

**WHY AM I READING THIS?**

We’ll use R with RStudio in ESM 206 for data organization, manipulation, exploration, analysis, statistics, reporting and visualization. You’ll learn more about both later, but R is basically the brains of the operation where all the real work happens, and RStudio gives you a much more user-friendly interface to work with.

**ESM 206 labs are in Bren Hall 1414, so you will need to bring your laptop (or a loaner from the Bren Compute Team) to all labs** (there are outlets available in 1414 so you can charge your computer if needed). We start using R/RStudio right away, so you’ll need to have both installed and working on your computer before then.

The step-by-step instructions in this document are to help you get R/RStudio on your own computer, along with several tools we’ll be using in the first week of labs. **DO THIS BEFORE September 17th. If you have problems, you need to visit Allison, Jessica or Sam in their office hours during orientation week (we’ll send out those office hours dates/times soon) to make sure that you’re squared away before the first 206 lab.** We will not have time during the labs to help you install/load/troubleshoot the installation.

*\*Note: If you have older versions of R/RStudio installed, we recommend updating. To get the updated version of R, just follow the instructions below to get Version 3.5.1. To update RStudio, you can follow the instructions below OR go to the ‘Help’ tab in RStudio, click on “Check for Updates,” then choose “Quit and Download” if you’re running an older version, then follow instructions below to download the newest version. The versions we’ll use are:*

*R: Version 3.5.1 -- "Feather Spray" (released 07-02-2018)*

*RStudio: Version 1.1.456 (released 07-19-2018)*

**STEP 1. GET R (IT’S FREE!)**

You can visit <https://www.r-project.org/> to learn a little about R. You’ll see in the first paragraph some active links to download R, but first you’ll need to choose a CRAN (**C**omprehensive **R** **A**rchive **N**etwork) mirror. You can think of a CRAN mirror as a local grocery store for all-things-R, which is part of a bigger store chain – you usually want to pick one that’s close by. We recommend using the UCLA CRAN. So…

1. Go to the UCLA CRAN hub at the following URL (you can also link to the CRAN options from the r-project site above): <http://cran.stat.ucla.edu/>
2. Choose the correct “Download R for…” option from the top (Mac or Windows), then:

* For Mac users, select the appropriate version for your operating system (the latest release is version 3.5.1 “Feather Spray”), then choose to Save or Open
* For PC users, choose “Install R for the first time” (next to the *base* subdirectory) and then “Download R 3.5.1 for Windows”

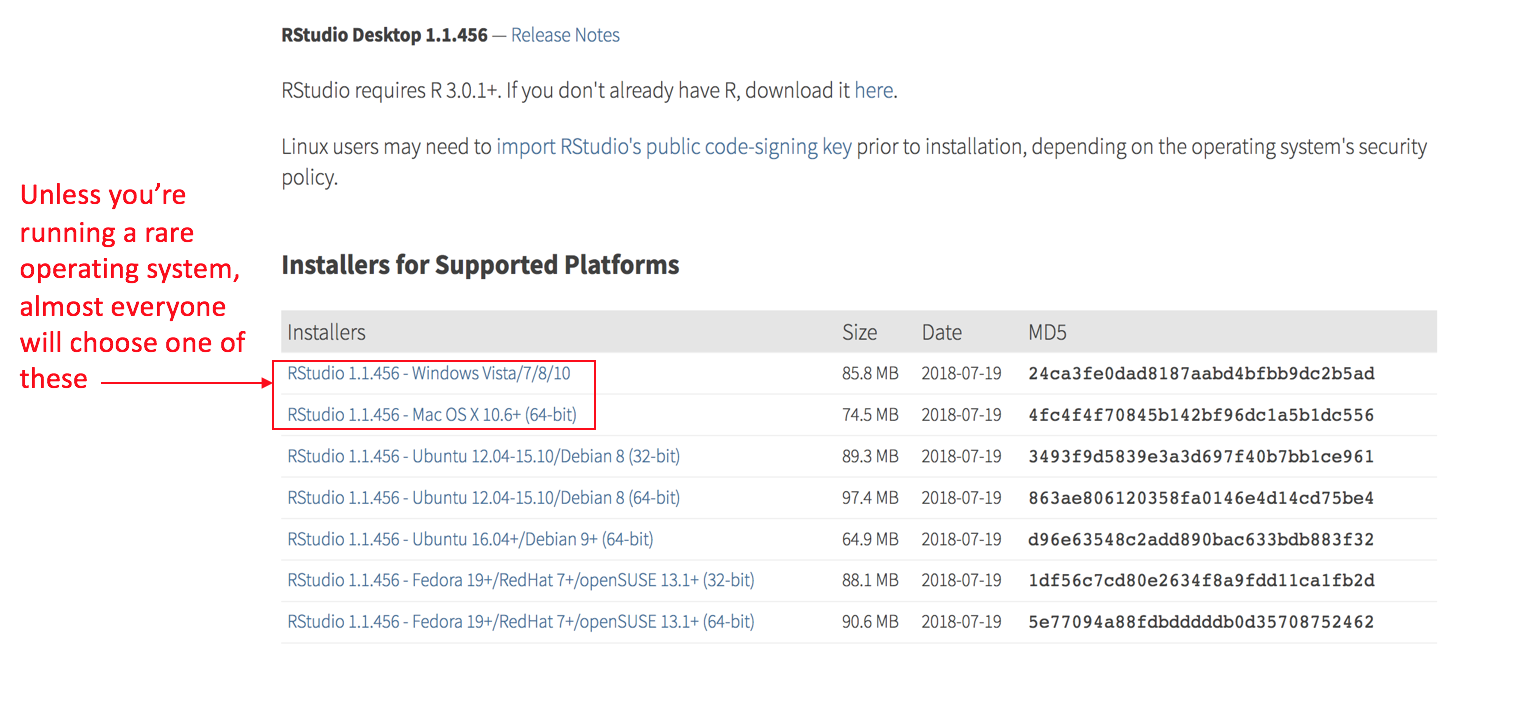
1. Once downloaded, save, open once downloaded, agree to license, and install like you would any other software. If it installs, you should be able to find the R icon in your applications:

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**STEP 2. GET RSTUDIO (IT’S ALSO FREE!)**

RStudio is a user-friendly interface for working with R. That means you **must have R already installed** for RStudio to work. Make sure you’ve successfully installed R in Step 1 before getting RStudio. Then…

1. Go to <https://www.rstudio.com/products/rstudio/download/> to download RStudio Desktop (Open Source License). You’ll know you’re clicking the right one because it says “FREE” right above it.
2. Click download, which takes you just down the page to where you can select the correct version under **Installers for Supported Platforms** (almost everyone will choose one of the first two options, RStudio for Windows or Mac OS X).
3. Click on the correct installer version, save, open once downloaded, agree to license and install like you would any other software:

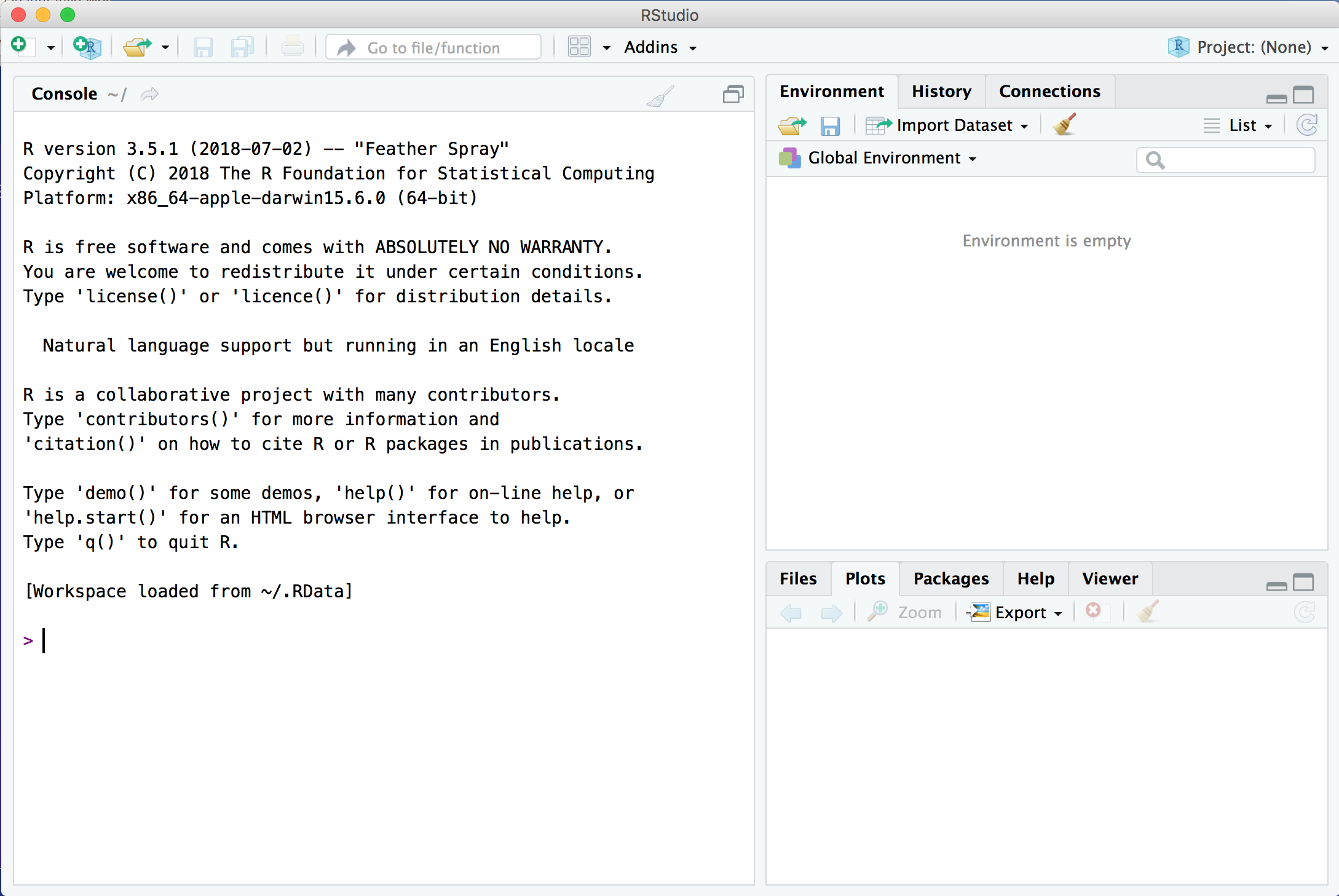
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**STEP 3. OPEN RSTUDIO AND MAKE SURE THINGS ARE WORKING**

1. Once you have R then RStudio installed, you can find and click on the RStudio icon to open. **When you open RStudio, it automatically also runs R. So even though you’ll be using both, you only need to actively open RStudio.** The RStudio icon looks like this:



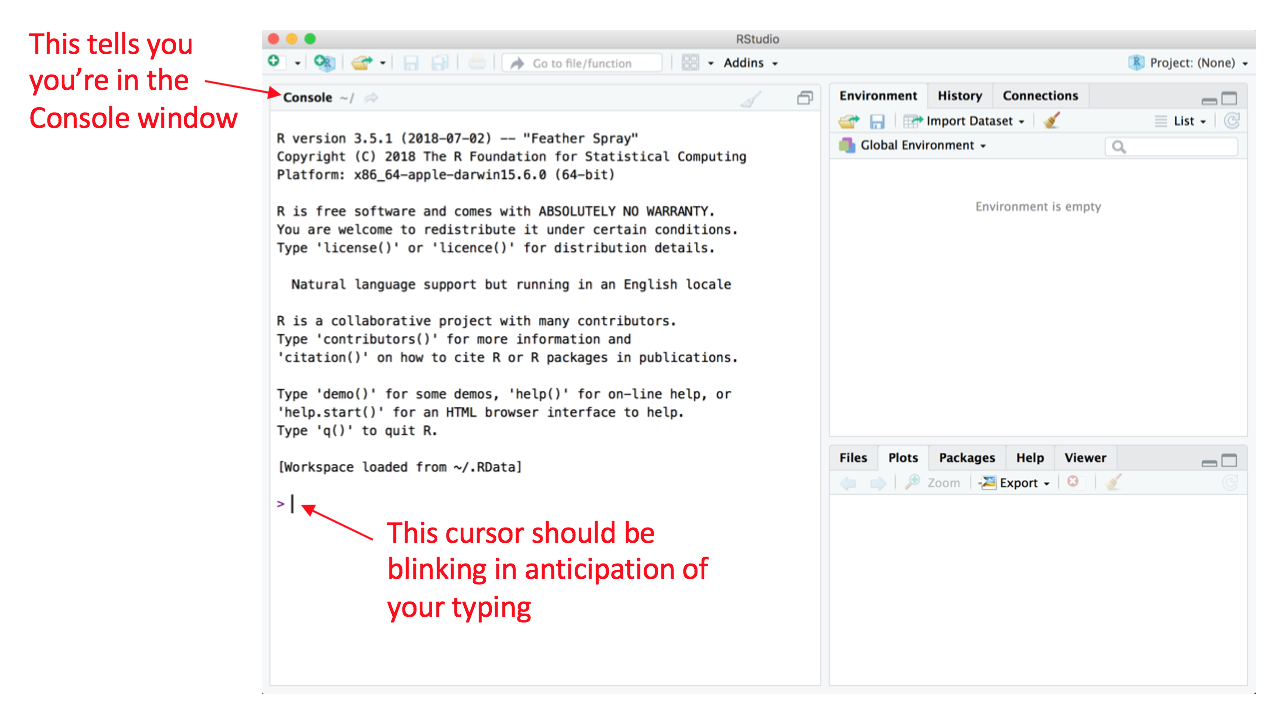
1. When you open RStudio, you should get a workspace that looks something like the screen shot below. Does that show up? If yes, you have R and RStudio installed correctly, and you can move on to Step 4.



**STEP 4. INSTALL TIDYVERSE PACKAGE**

When you install R, it comes with a bunch of built-in tools that are automatically installed with it. There also exist additional tools and packages that will make your life much easier. For Lab 1, we’ll use packages that exist in the aggregate *tidyverse* package. The tidyverse contains a collection of very useful packages that play nicely together for data exploration, manipulation, wrangling and visualization. Here, you’ll install the *tidyverse* package.

1. Open RStudio
2. In the CONSOLE WINDOW of RStudio, you should see an active cursor waiting patiently for you to type something:

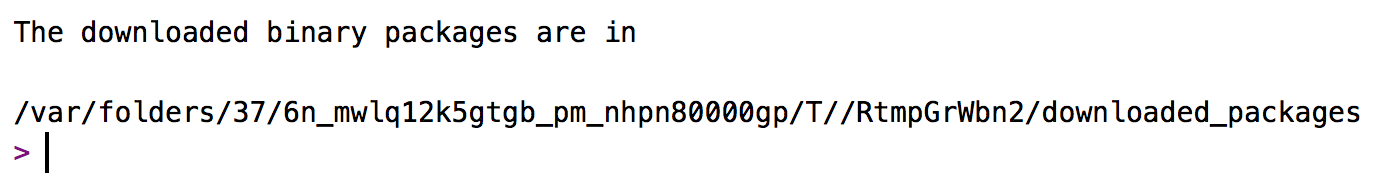


1. To install the tidyverse, type the following (exactly) where that cursor is waiting, then press ‘Enter’:

install.packages(“tidyverse”)

1. After you press ‘Enter,’ you should see a whole bunch of green text starting to appear in the Console Window. That’s good – it’s just a record of what’s being downloaded/installed. This process can go on for a few minutes (the tidyverse has a lot of different components).

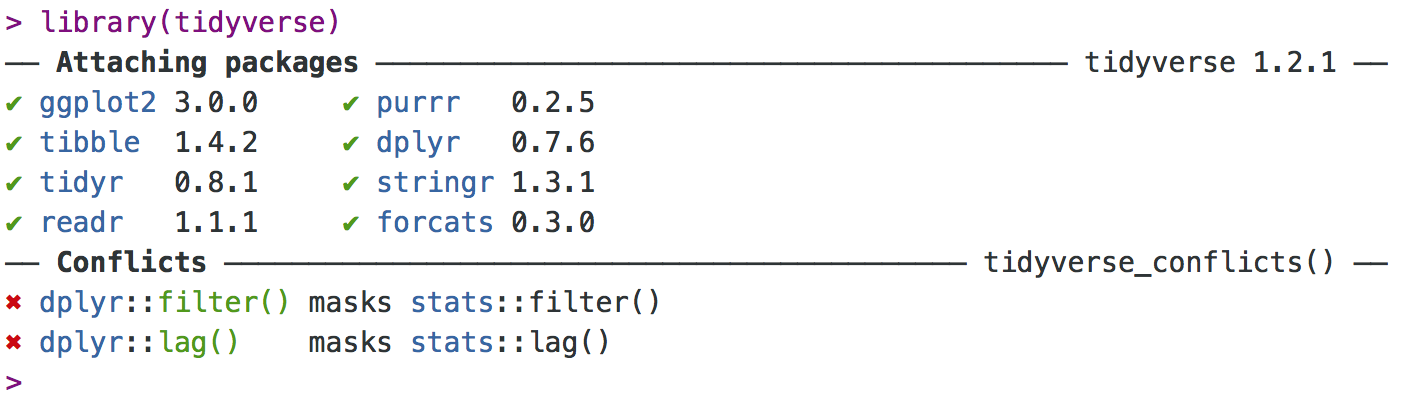
You will know it’s done when you get something like this (yours will differ slightly), with no red error messages, and the active cursor shows up again waiting for your next command:



1. Once it’s installed, you can ensure that everything worked out by *loading* the tidyverse package (that just means that it’s bringing the package into R’s active brain, instead of just existing in a dormant phase). To load the tidyverse package you’ve just installed, type the following into the console where the active cursor is waiting, then press ‘Enter’:

library(tidyverse)

When you press enter, some information will come up below the command (this might also take a minute or two to load). Don’t worry too much about it – we’ll learn what it tells us in 206. Mine looks like this:



If you got something similar with no error messages (different from the ‘Conflicts’ section – that’s fine, as we’ll also learn later) then you’ve successfully installed R, RStudio, and the tidyverse package. **Congratulations!** Now you can close RStudio (you don’t need to “Save the Workspace” or anything else when prompted).

That’s all you need to do before ESM 206 starts.

**If you CANNOT get this working by September 17th, you’ll need to come see us in office hours during that week. We’ll send an email out letting you know when/where to find us for those office hours.**

Good luck, and we’ll see you in a couple weeks!

Allison, Jessica & Sam