

# Set up R and RStudio, and install libraries

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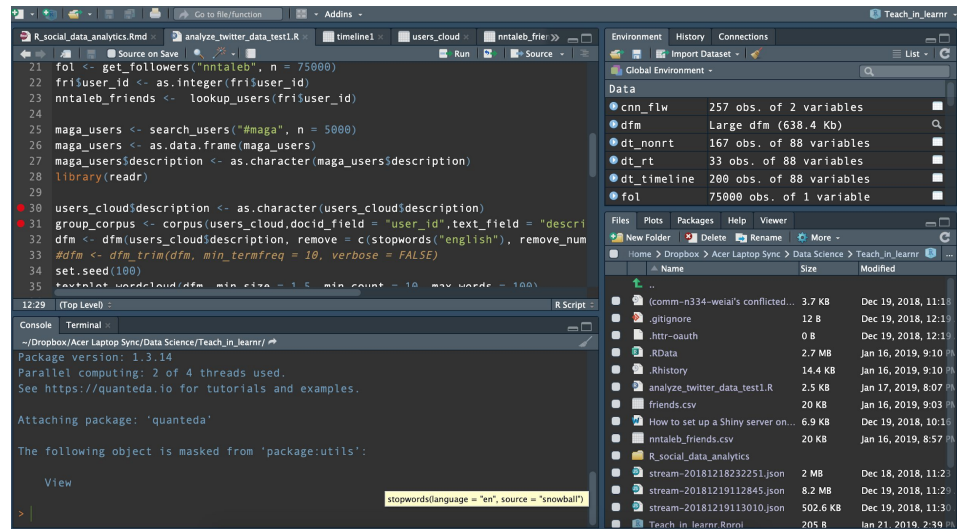
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# Overview

1. Install **R** and **RStudio**
2. R interface
3. Create a **R project**
4. Introducing **R libraries**
5. What is **working directory**?



# Install R in your machine



Download and install R:

<https://www.r-project.org/>

Download and install RStudio:

<https://www.rstudio.com/>



# Install R and RStudio

1. Install R language:  
<https://cloud.r-project.org/>



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## The Comprehensive R Archive Network

### Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Download R for Linux](#)
- [Download R for \(Mac\) OS X](#)
- [Download R for Windows](#)



R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

### Source Code for all Platforms

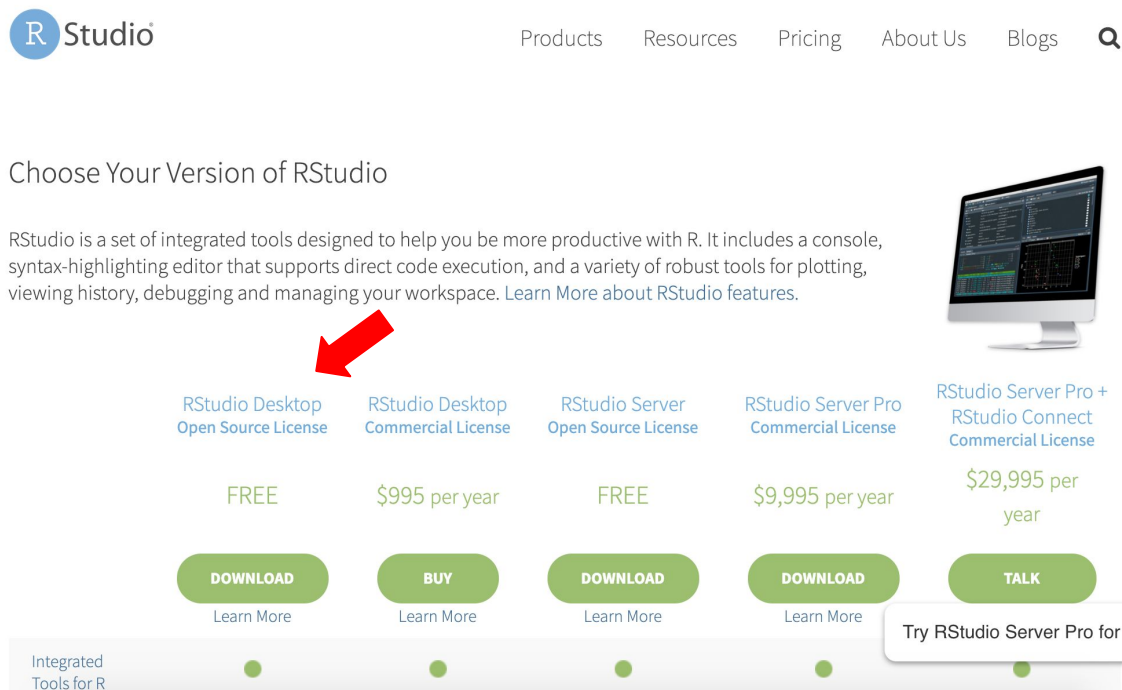
Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

- The latest release (2018-12-20, Eggshell Igloo) [R-3.5.2.tar.gz](#), read [what's new](#) in the latest version.
- Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).
- Daily snapshots of current patched and development versions are [available here](#). Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.
- Source code of older versions of R is [available here](#).

# Install R and RStudio

## 1. Install RStudio:

<https://www.rstudio.com/products/rstudio/download/#download>



The screenshot shows the RStudio website's product selection page. At the top is the RStudio logo and a navigation menu with links for Products, Resources, Pricing, About Us, and Blogs, along with a search icon. Below the navigation is the heading "Choose Your Version of RStudio". A descriptive paragraph states: "RStudio is a set of integrated tools designed to help you be more productive with R. It includes a console, syntax-highlighting editor that supports direct code execution, and a variety of robust tools for plotting, viewing history, debugging and managing your workspace. [Learn More about RStudio features.](#)". To the right of this text is an image of a computer monitor displaying the RStudio interface. Below the text and image is a table of product options. A red arrow points to the "RStudio Desktop Open Source License" option. The table has five columns, each representing a different product version with its license, price, and a button to either download or talk. At the bottom, a row of green dots indicates which features are included in each version, with the first four versions including "Integrated Tools for R". A callout box on the right says "Try RStudio Server Pro for free!".

RStudio Desktop Open Source License	RStudio Desktop Commercial License	RStudio Server Open Source License	RStudio Server Pro Commercial License	RStudio Server Pro + RStudio Connect Commercial License
FREE	\$995 per year	FREE	\$9,995 per year	\$29,995 per year
<a href="#">DOWNLOAD</a> Learn More	<a href="#">BUY</a> Learn More	<a href="#">DOWNLOAD</a> Learn More	<a href="#">DOWNLOAD</a> Learn More	<a href="#">TALK</a>
●	●	●	●	●

Integrated Tools for R

Try RStudio Server Pro for free!

## Milestone 1: R and RStudio installed



- Check in with your class partner;
- Document and share any error message you have encountered on the public Google Docs

([https://docs.google.com/document/d/141qWy-ucwr5\\_5pSKAlySSfIZDRfJrEyeb8SoBnSPsAM/edit?usp=sharing](https://docs.google.com/document/d/141qWy-ucwr5_5pSKAlySSfIZDRfJrEyeb8SoBnSPsAM/edit?usp=sharing))

# R Interface

The image shows the RStudio IDE interface with several annotations highlighting key components:

- Source windows:** A yellow box highlights the script editor area where R code is written and edited. The code visible includes functions for fetching followers, searching users, and processing text data.
- Environment:** A yellow box highlights the Environment pane on the right, which lists the objects in the current R session. The objects listed are: `cnn_flw`, `dfm` (Large dfm (638.4 Kb)), `dt_nonrt` (167 obs. of 88 variables), `dt_rt` (33 obs. of 88 variables), `dt_timeline` (200 obs. of 88 variables), and `fol` (75000 obs. of 1 variable).
- Console Tab:** A yellow box highlights the Console pane at the bottom, which shows the output of the R script. The output includes package version information, parallel computing status, and the installation of the 'quanteda' package.

The R script code visible in the Source window is as follows:

```
21 fol <- get_followers("nntaleb", n = 75000)
22 fri$user_id <- as.integer(fri$user_id)
23 nntaleb_friends <- lookup_users(fri$user_id)
24
25 maga_users <- search_users("#maga", n = 100)
26 maga_users <- as.data.frame(maga_users)
27 maga_users$description <- as.character(maga_users$description)
28 library(readr)
29
30 users_cloud$description <- as.character(users_cloud$description)
31 group_corpus <- corpus(users_cloud, docid_field = "user_id", text_field = "description")
32 dfm <- dfm(users_cloud$description, remove = c(stopwords("english"), remove_num = TRUE))
33 #dfm <- dfm_trim(dfm, min_termfreq = 10, verbose = FALSE)
34 set.seed(100)
35 textstat_wordcloud(dfm, min_size = 1.5, min_count = 10, max_words = 100)
```

The Console output shows:

```
Package version: 1.3.14
Parallel computing: 2 of 4 threads used.
See https://quanteda.io for tutorials and examples.
Attaching package: 'quanteda'
The following object is masked from 'package:utils':
  View
stopwords(language = "en", source = "snowball")
```


# Create a R project

*File--New Project...*

New Project

**Back**

**Create New Project**



Directory name:  **Name of your R project**

Create project as subdirectory of:  **Browse...**

☐ Create a git repository

☐ Use packrat with this project **The working directory of this R project to be created**

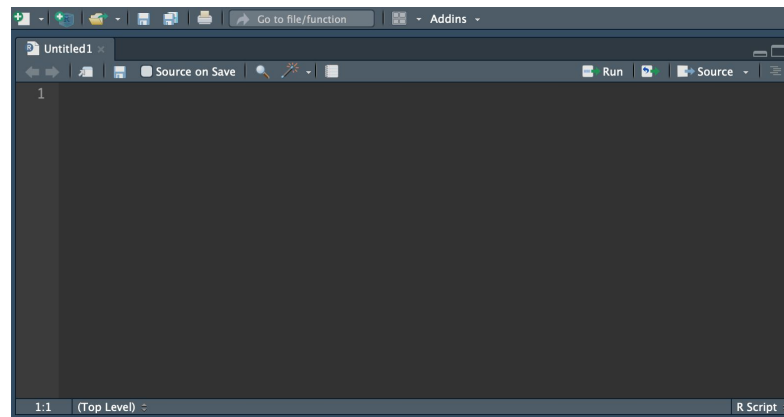
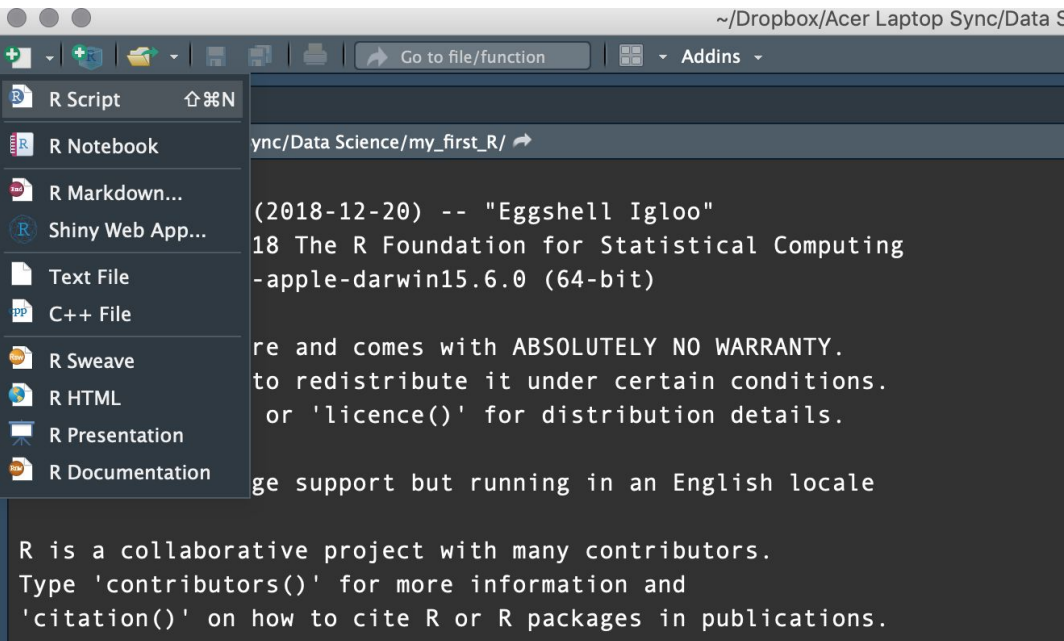
☐ Open in new session

**Create Project** **Cancel**



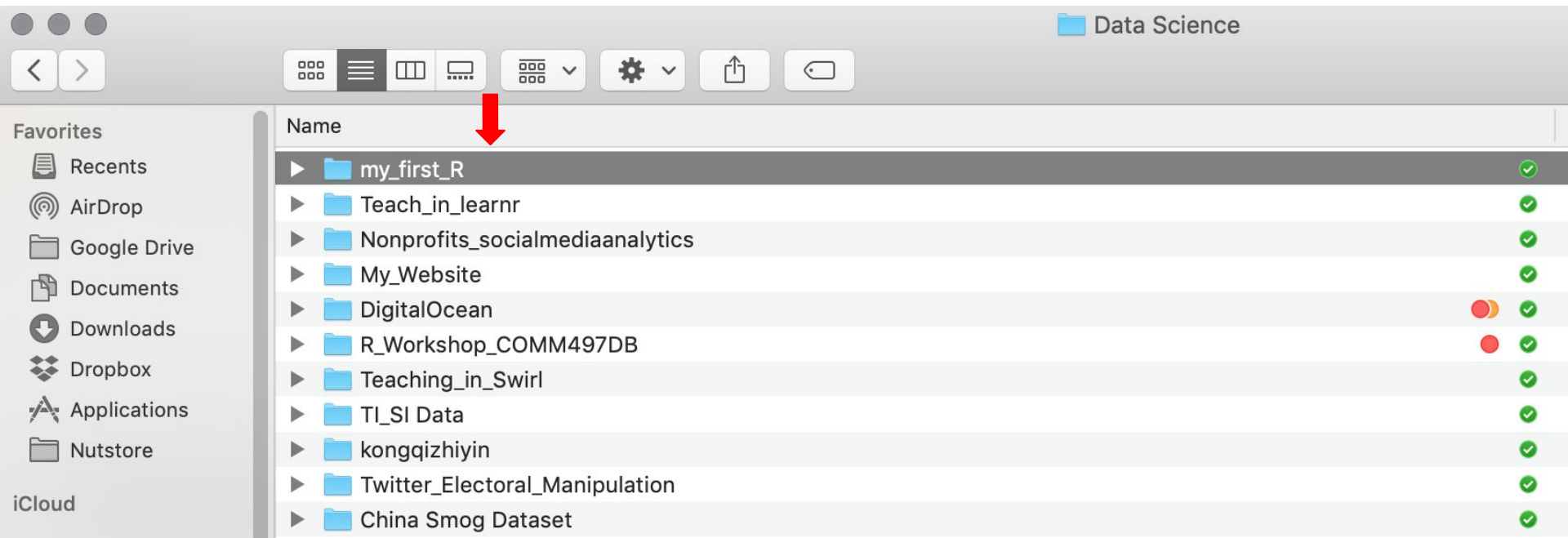
# Create a R project

Add a R script for the newly created project



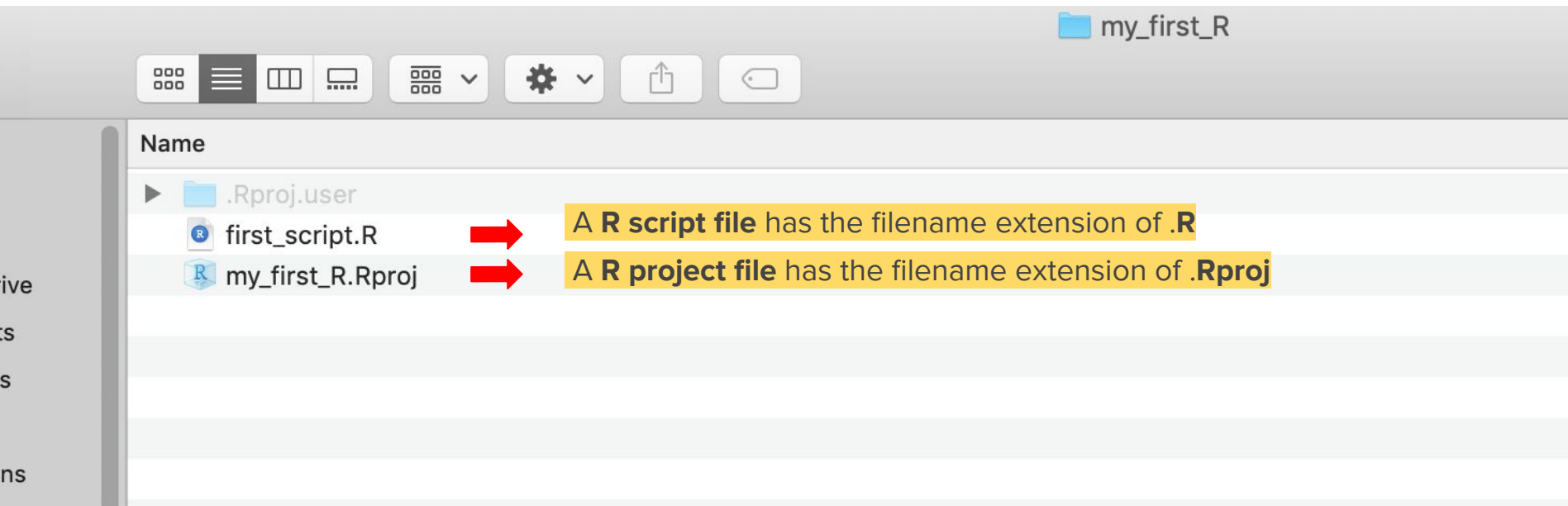
# Create a R project

Explore the working directory for this R project



# Create a R project

Explore the working directory for this R project



# Create a R project

Let's try some simple R codes

Use [**COMMAND**]+[**ENTER**] key on Mac, and [**CONTROL**]+[**ENTER**] key on PC to run a R script one line at a time.

To run multiple lines, just select them and run.

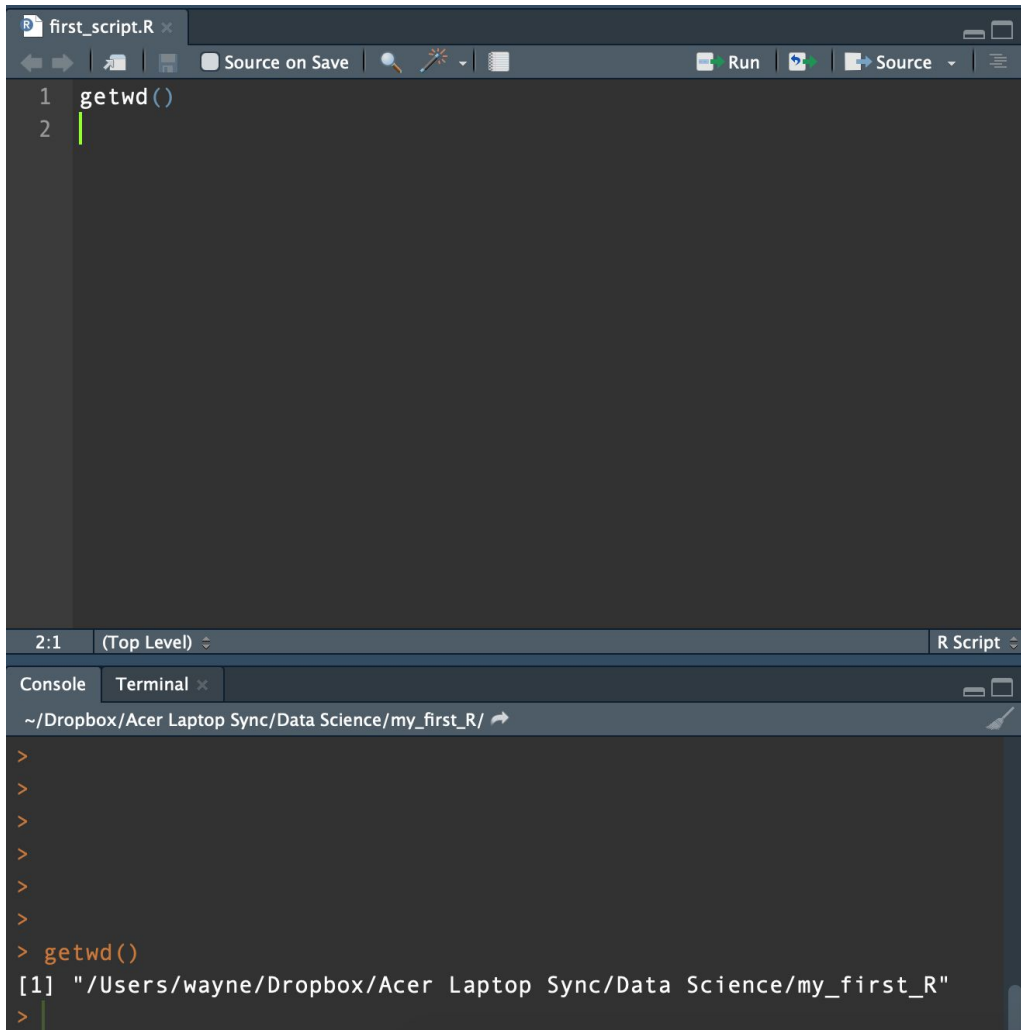
```
getwd()
```

```
a <- "this is my first line of R code"
```

```
typeof(a)
```

# Create a R project

Find out your current working directory



The screenshot shows the RStudio interface. The top pane is the script editor, displaying a file named `first_script.R` with two lines of code: `1 getwd()` and `2` (with a cursor). The bottom pane is the console, showing the current working directory as `~/Dropbox/Acer Laptop Sync/Data Science/my_first_R/`. The console output shows the result of the `getwd()` command: `[1] "/Users/wayne/Dropbox/Acer Laptop Sync/Data Science/my_first_R"`.

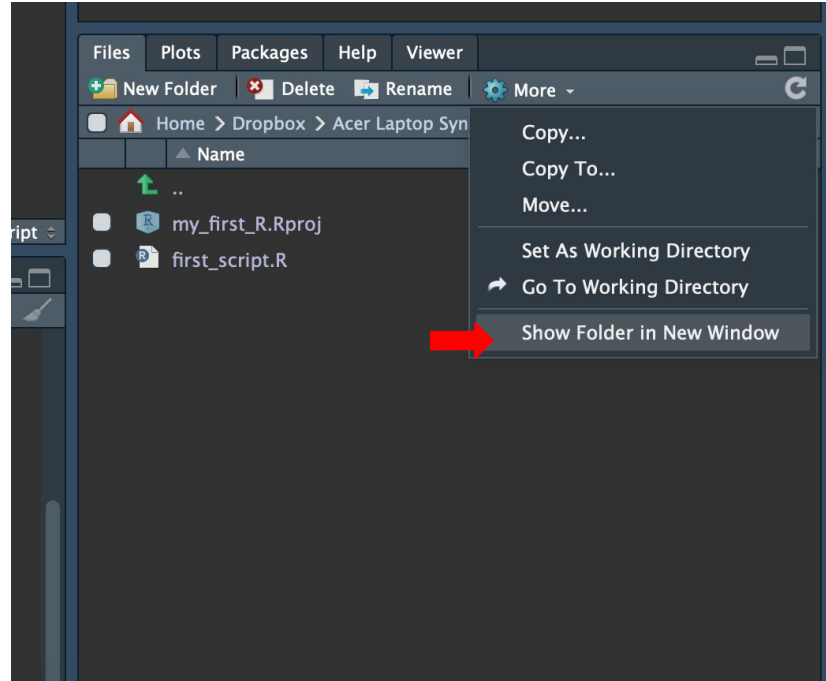
```
first_script.R
1 getwd()
2

2:1 (Top Level) R Script
Console Terminal x
~/Dropbox/Acer Laptop Sync/Data Science/my_first_R/
>
>
>
>
>
>
> getwd()
[1] "/Users/wayne/Dropbox/Acer Laptop Sync/Data Science/my_first_R"
>
```

# Create a R project

Open the directory folder from RStudio

Each R project has a designated folder to store R scripts and data (the folder is referred to as the working directory)



## Milestone 2: Create a R project



- Create a R project and a R script. Take note its working directory;
- Tell your class partner the name of your R project, the name of the R script created, and the working directory associated with the R project
- Document and share any error message & difficulty you have encountered on the public Google Docs

([https://docs.google.com/document/d/141qWy-ucwr5\\_5pSKAlySSflZDRfJrEyeb8SoBnSPsAM/edit?usp=sharing](https://docs.google.com/document/d/141qWy-ucwr5_5pSKAlySSflZDRfJrEyeb8SoBnSPsAM/edit?usp=sharing))

# Install and load a R library

What is a library/package? Think of R as an operating system (e.g., iOS, Windows) and a library/package as an app running on the system. Each library is designed to accomplish specific tasks.

- Step 1: Use **install.packages()** to install libraries. Example:  
***install.packages("rtweet")***
- Step 2: After a library is installed, use **library()**, or **require()** to load an installed library. Example: ***library(rtweet)***

Please follow the tutorial at:

[https://curiositybits.shinyapps.io/R\\_social\\_data\\_analytics/#section-librariespackages](https://curiositybits.shinyapps.io/R_social_data_analytics/#section-librariespackages)



## Milestone 3: Install a R project



- Install and load a R library called *tidyverse*  
(<https://www.tidyverse.org/packages/>)
- Help or seek help from your class partner
- Document and share any error message & difficulty you have encountered on the public Google Docs

([https://docs.google.com/document/d/141qWy-ucwr5\\_5pSKAlySSflZDRfJrEyeb8SoBnSPsAM/edit?usp=sharing](https://docs.google.com/document/d/141qWy-ucwr5_5pSKAlySSflZDRfJrEyeb8SoBnSPsAM/edit?usp=sharing))

# Task for Week 1

## ▼ Week 1



Complete the ***Libraries/packages tutorial*** ([https://curiositybits.shinyapps.io/R\\_social\\_data\\_analytics/#section-librariespackages](https://curiositybits.shinyapps.io/R_social_data_analytics/#section-librariespackages)) before the class on **9/5**.

Complete the ***Data frames*** ([https://curiositybits.shinyapps.io/R\\_social\\_data\\_analytics/#section-data-frames](https://curiositybits.shinyapps.io/R_social_data_analytics/#section-data-frames)) and ***Connecting to the Twitter API*** ([https://curiositybits.shinyapps.io/R\\_social\\_data\\_analytics/#section-connecting-to-the-twitter-api](https://curiositybits.shinyapps.io/R_social_data_analytics/#section-connecting-to-the-twitter-api)) tutorials before the class on **9/10**

**Don't forget to submit your completion reports (submission link is now live on Moodle)**