Setting up R and R Studio

Robin Jeffries

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Overview

This lesson will provide information on how to

1. Install R – *The programming language*
2. Install R Studio – *A fantastic interface for coding in R*
3. Basics of Navigating R Studio
4. Set up preferences – *To avoid common mistakes and pitfalls*
5. Install Packages – *Adds functionality to R*

Installing R & R Studio

Download the latest versions of R and R Studio for your flavor of operating system.

- R http://cran.r-project.org/
- R Studio http://www.rstudio.com/products/rstudio/download/.

If you are having difficulty installing these programs here are links to helpful YouTube video on installing both R and R Studio.

- Mac
- Windows

Layout of R Studio

- The panel in the upper right contains your *workspace* (Environment) as well as a history of the commands that you've previously entered.

- Any plots that you generate will show up in the panel in the lower right corner.
- There are multiple tabs down there such as your file explorer, and the help files.
- The panel on the left is the *console* and it's where the action happens.

The Console

- Everytime you launch RStudio, it will have the same text at the top of the console telling you the version of R that you're running.

- Below that information is the *prompt*, `>` . As its name suggests, this prompt is really a request, a request for a command.
- Initially, interacting with R is all about typing commands and interpreting the output.
- These commands and their syntax have evolved over decades (literally) and now provide what many users feel is a fairly natural way to access data and organize, describe, and invoke statistical computations.

Initial Setup

To avoid some of the most common errors when learning R let's set some preferences in RStudio.

1. On your computer, create a folder called `RBootcamp`. Store all files associated with this class here.
2. In RStudio the file menu go to *Tools* then *Global Options*.
3. Select your `RBootcamp` folder as your default working directory by clicking [Browse.] and navigating to your `RBootcamp` folder.
4. Uncheck "Restore .RData into workspace at startup" and "Always save history"
5. Where it says 'Save workspace to .RData on exit:" Select 'Never'
6. Check" "Remove duplicate entries in history"
7. Click *apply* then *ok*.

Installing Packages

- Packages are sets of predefined code, functions and data sets. They provide additional functionality and goodies beyond what is included when you download Base R.
- Packages are only installed once per computer ever
- During this course you will be asked to complete several interactive tutorials that use code found in the `swirl` package.
- To install the Swirl package type the following command at the prompt `>` and hit enter to submit the command.

```
install.packages("swirl")
```

Downloading Swirl lessons

- The `swirl` package and it's fantastic tutorials were created by the folks at http://swirlstats.com/. All of their work is free to use and modify under the GPLv3 copyright license.
- I have spliced and diced the lessons to fit this class. My thanks to them for doing all the hard work.
- Download the zipped file and place it into your `RBootcamp` folder.
- Leave a window open to this folder. You will need to know the path to this zip file next.

Installing Swirl lessons

The functions used to install the custom lessons are contained within the `swirl` package.

To get access to these functions you have to load the swirl library and then use the `install_course_zip()` function to install the lessons.

```
library(swirl)
install_course_zip("YOUR PATH HERE/R-Bootcamp/swirl.zip",
                   multi=TRUE)
```

- You must change `YOUR PATH HERE` to the path to where your RBootcamp folder is located.
- Only change the `PATH`.
- Be sure all slashes are forward `/`
- You will FREQUENTLY have to insert this `PATH`, so if you have any questions **NOW** is the time to ask!

Finding your path on a Mac

1. Select the file or folder in the OS X Finder, then hit Command+i to summon Get Info
2. Get Info can also be accessed by the control-click and right-click menus.
3. Click and drag alongside **FIX THIS** to select the path, then hit Command+C to copy the full path to the clipboard
4. Paste this into `R` for your path.

Ref: http://osxdaily.com/2013/06/19/copy-file-folder-path-mac-os-x/

Finding your path on Windows

1. Open Windows Explorer and browse to the folder or file of your choice.
2. The path to the folder/file will be indicated in the Address bar of Windows Explorer.
3. To copy it, simply right-click on the Address bar and select *Copy address as text.*
4. Paste this into `R` for your path.

Ref: http://ccm.net/faq/31588-windows-8-easily-copy-the-full-path-of-a-file-folder

Using Swirl

That's material for Lab 1!

Go download it from here,put it in your `RBootcamp` folder, double click on it to open it in R Studio and start working on it.

Don't forget to use the Piazza if you get stuck.