Lab1: Installing R and RStudio; Getting Started with R Markdown

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#Introduction

Throughout the course, we'll use R on RStudio and RStudio Cloud as tools for analysis and communication. R, RStudio, and RStudio Cloud are free; you should install RStudio on your machine before our second week of class and get familiar with using R on the R Studio Cloud environment.

In addition to providing instructions for helping you install R and RStudio, this lab provides you with practice using R Markdown, which is a lightweight markup language for making dynamic documents with R. R Markdown (rmd) is similar to Markdown (md).

#1. Tutorials

The Lynda.com playlist linked below should help you to get R and RStudio installed and running on your machine. We will be using Lynda playlists as guides about key software and analysis topics throughout the semester, so you should get comfortable with viewing them and working with the provided exercise files.

Tip: You'll need to save your own copy of the playlist in order to keep track of your progress and to ensure that you're completing *only* the required excerpts from larger Lynda courses.

- Lynda playlist for Lab 1: <a https://www.linkedin.com/learning/learning-the-r-tidyverse/welcome?contextUrn=urn%3Ali%3AlearningCollection%3A6547426894269206528&u=2149178" target="_blank">1 Getting Started (Hadley, n.d.)
- R Markdown tutorial for Lab 1: *R for Data Science* - Chapter 27 (Wickham & Grolemund, 2017). Read parts 27.1 - 27.4.2 of the tutorial.

#2. Exercises

To make sure everything is working correctly, you will create a new RStudio *project* and an R Markdown *file* associated with that project.

RStudio projects make it straightforward to divide your work into multiple contexts, each with their own working directory, workspace, history, and source documents.

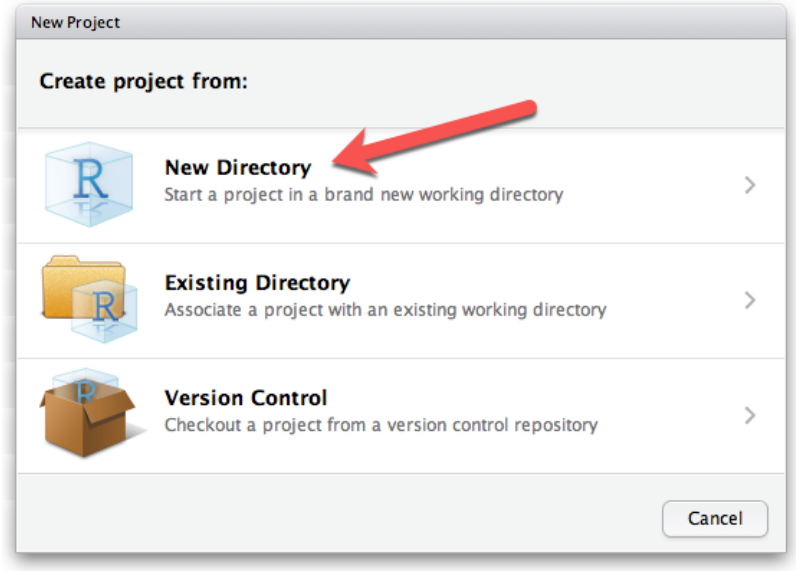
You can create an RStudio project:

- In a brand new directory
- In an existing directory where you already have R code and data

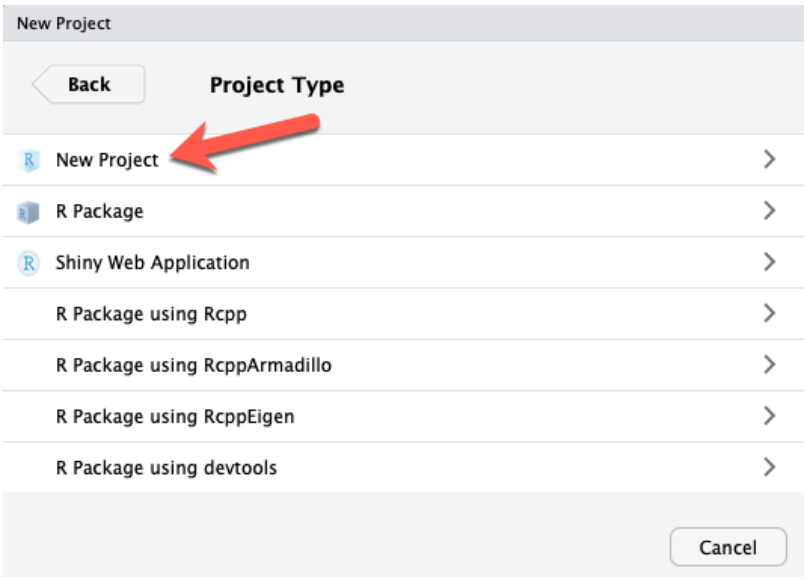
The Lynda tutorial provides a helpful walkthrough of the following process.

##Create a new project in a new directory

1. Select File–>New Project...
2. Under **Create project from**, select New Directory.

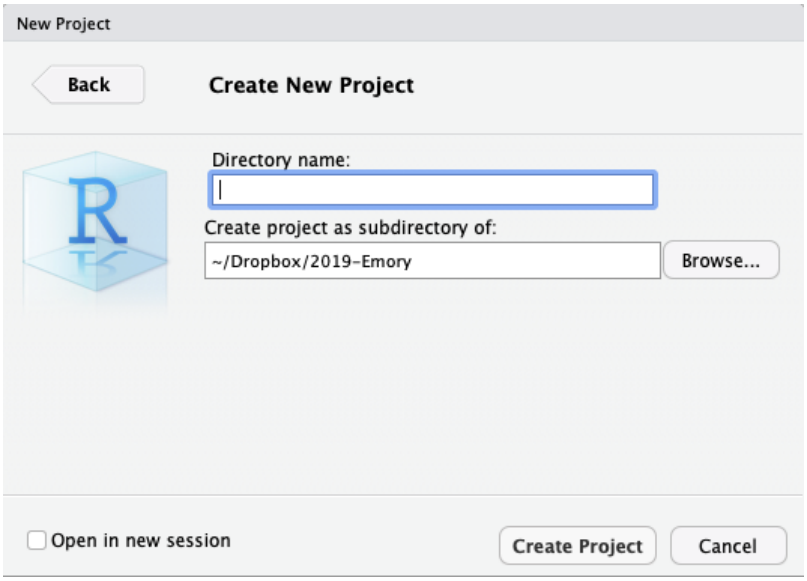


3. Under **Project Type**, select New Project.



4. Under **Create New Project**, browse to the directory in which you wish the new project directory to be created.

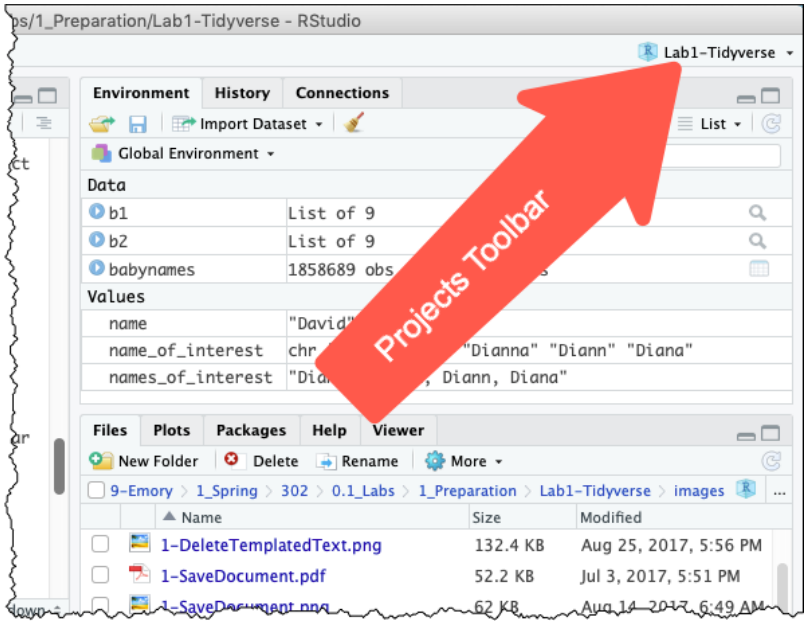
Then, enter the name you wish to give the project (and the directory in which it is contained). "Lab_1" would be a logical name for this project/directory.



RStudio:

- Creates a project file (with an .Rproj extension) within the project directory. This file contains various project options (discussed below) and can also be used as a shortcut for opening the project directly from the file system.
- Creates a hidden directory (named .Rproj.user) where project-specific temporary files (e.g. auto-saved source documents, window-state, etc.) are stored.
- Loads the project into RStudio and displays its name in the Projects toolbar (which is located on the far right side of the main toolbar)

5. Whenever you want to work with files in this project, first navigate to the project using the projects toolbar.

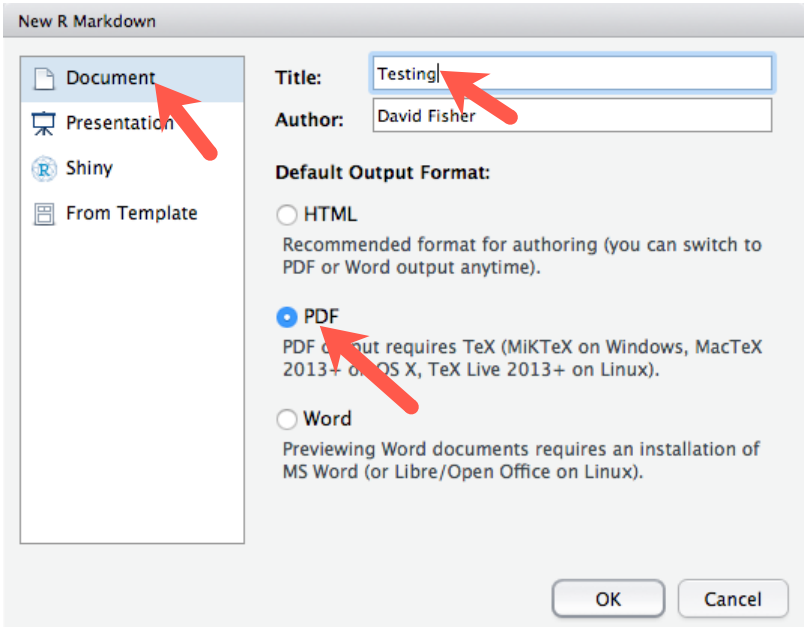


##Create a new R Markdown file

1. Navigate to the project you just created using the projects toolbar.

2. Select File–>New File–>R Markdown. . . .

3. Enter a title for the file, and select HTML as the output file format.



A templated page opens. This is your R markdown file.

4. Select File–>Save As... to save the R markdown (.Rmd) file. Name it `yourlastname_Lab1.Rmd`.

##Test and develop the Rmd file you just created

With the R markdown file you created above, complete the following exercises from *R for Data Science*:

- Exercise 27.2.1 - Number 2 - You will knit the Rmd file into an HTML file.
- Exercise 27.3.1 - Number 1 - Add the CV after the boilerplate in the default Rmd file. This CV can be *very* brief. Follow the formatting instructions carefully.

Tip: Make sure to knit the file again after you've created your CV and before you submit the resulting HTML file on Canvas.

##Submit your work

Upload the HTML file to Canvas as your submission for Lab 1.

References

Hadley, M. J. (n.d.). *Learning the R Tidyverse*. Retrieved from Lynda.com

Wickham, H., & Grolemund, G. (2017). *R for Data Science: Import, Tidy, Transform, Visualize, and Model Data* (1 edition). Sebastopol, CA: O'Reilly Media.