Welcome to the wonderful world of Open Source!!!

I am assuming you are reading this because you want to attend the C-15 Concurrent Session on "First Steps With Integrating R & RStudio Into Actuarial Workflow" at the 2017 CAS Annual Meeting. The session is designed as an interactive exploration. For an optimal experience, you need to install four software components before coming to the session:

1. R (the programming language)
2. RStudio (an integrated development environment for the R language)
3. Additional R packages (using RStudio) (libraries of R programs that will be used for our demo)
4. TeX Live (a version of LaTeX, that is used for creating pdf documents)

Please make sure that you have an excellent internet connection and about 2GB of free hard disk space before attempting the installations.

Depending on the speed of your computer and your internet connection, this may take an hour or longer (especially the TeX Live installation), so please plan accordingly. To avoid it taking that long, do the installation while you are connected to the internet using an Ethernet connection (not WiFi). Also note that the bottleneck is the TeX Live installation. If you don't install this, you will still be able to run all but the last line of the session script (i.e. you won't be able to create a pdf).

The following instructions assume that you have 64-bit Windows computer. Please let me know if that does not work for you. Also note that some of the screenshots show earlier versions of the software components, but the menus should still be all the same.

Here are the step-by-step installation instructions (if you run into any issues, please let me know right away):

1. Download and install R 3.4.2 for Windows (64 bit)

   a) Download self-extracting installer: https://cran.r-project.org/bin/windows/base/R-3.4.2-win.exe (click here, if you want to see the official download page)

   b) Once downloaded, double click (or otherwise run) "R-3.4.2-win.exe"

   c) Select "English" (or your preferred language) and click on "OK"

   d) Click on "Next >" to get to next pop-up

   e) Click on "Next >" (acknowledging license information)

   f) Click on "Next >" (accept default path)

g) In the "Select Components" pop-up, I recommend that you select "Core Files" and "64-bit Files" (OK to select everything if you don't care about minimizing disk space)
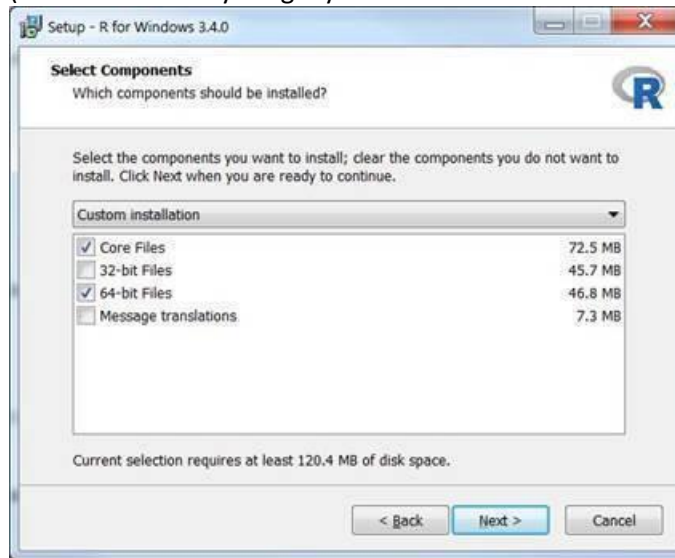
Click on "Next >" to proceed

h) Click on "Next >" (accept default startup options)

i) Click on "Next >" (accept default start menu folder)

j) Click on "Next >" (accept default additional tasks)

k) R should start installing; click on "Finish" to close pop-up

2. Download and install RStudio Desktop 1.0.153 for Windows

a) Download self-extracting installer: https://download1.rstudio.org/RStudio-1.0.153.exe (click here, if you want to see the official download page)

b) Once downloaded, double click (or otherwise run) "RStudio-1.0.153.exe"

c) Click on "Next >" to get to next pop-up

d) Click on "Next >" (accept default path)

e) Click on "Install" (accept default start menu folder)

f) R Studio should start installing; click on "Finish" to close pop-up
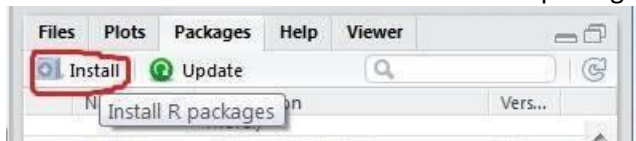
3. Download and install R packages

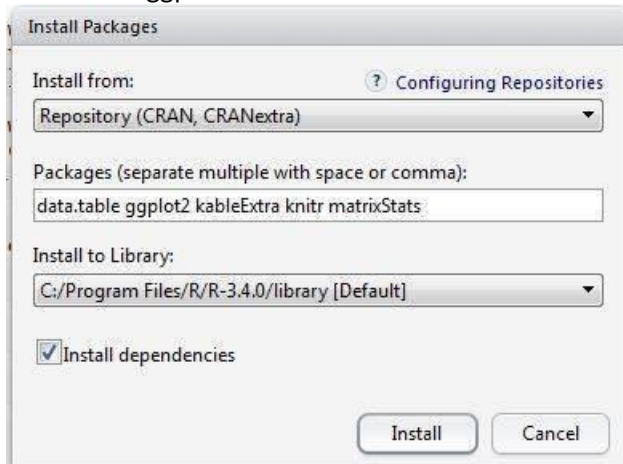a) Start RStudio Start -> All Programs -> RStudio -> RStudio (look for the following icon):

b) Find the "Packages" tab within the bottom right panel:
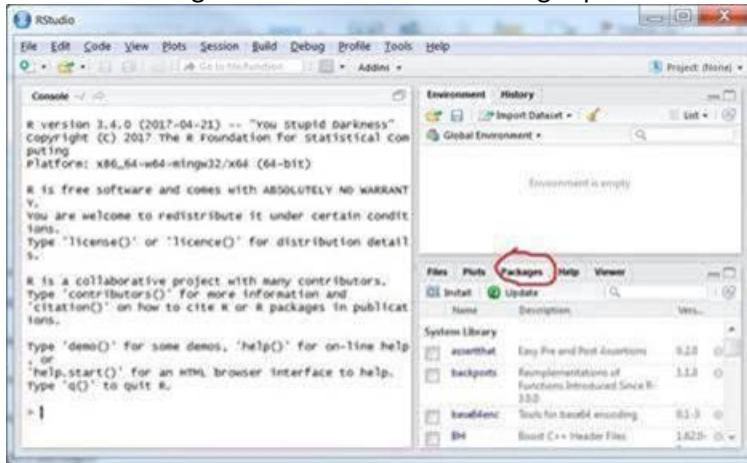
c) Click on "Install" to download and install the packages:

d) Paste the following string (without quotes) into the input box and click on "Install"
    "data.table ggplot2 kableExtra knitr matrixStats"

e) The packages should install; this is going to take some time, since it will install a number of other packages that are required;
    If you are watching closely, you will see some activity in the console pane (bottom left of the RStudio window), but often it may look like nothing is happening.

There is a "STOP" icon (DON'T CLICK IT) that tells you that R is still busy:

f) Once there is not further activity in the console pane (i.e. nothing is happening, and there is no red "STOP" icon), you can quit RStudio (no saving necessary).

4. Download and install TeX Live 2017 for Windows (if at all possible, install this while connected to the internet via Ethernet [not WiFi])

   a. Download self-extracting installer:
   http://mirror.ctan.org/systems/texlive/tlnet/install-tl-windows.exe
   (click here, if you want to see the official download page)

   b. Once downloaded, double click (or otherwise run) "install-tl-windows.exe"
   You may get a security warning (may look different depending on how you download and then attempt to run the file) – please ignore and confirm that you want to run the file anyway:

c. Select "Custom install" and click on "Next >"
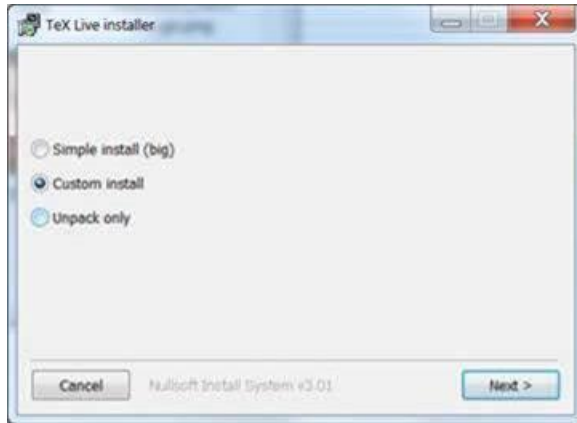
d. Make sure you have a fast internet connection, and click on "Install"

e. Click on "Continue" (ignore the notice that disabling virus scan may be necessary [it isn't])

f. You will get the following pop-up (red circles indicate where customizations are recommended; see steps below):
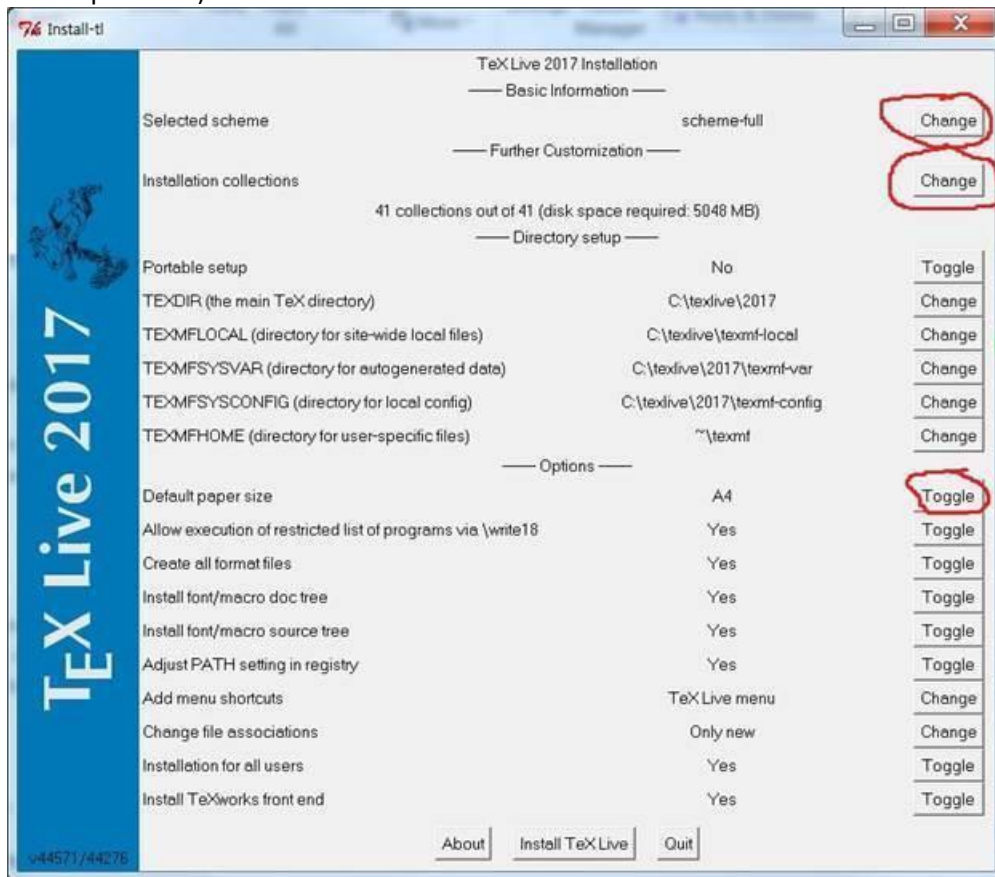
g. Click on "Change" for "Selected scheme", select "basic scheme (plain and latex)", and click on "Ok":
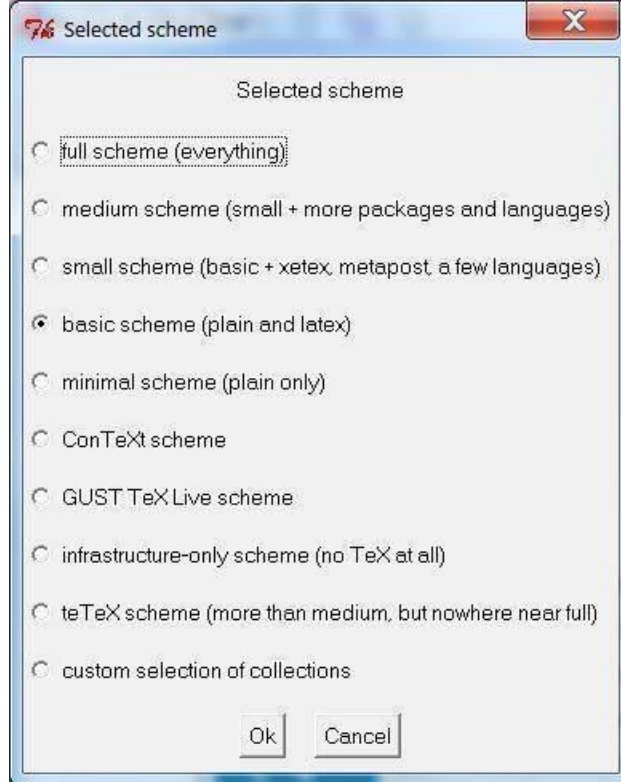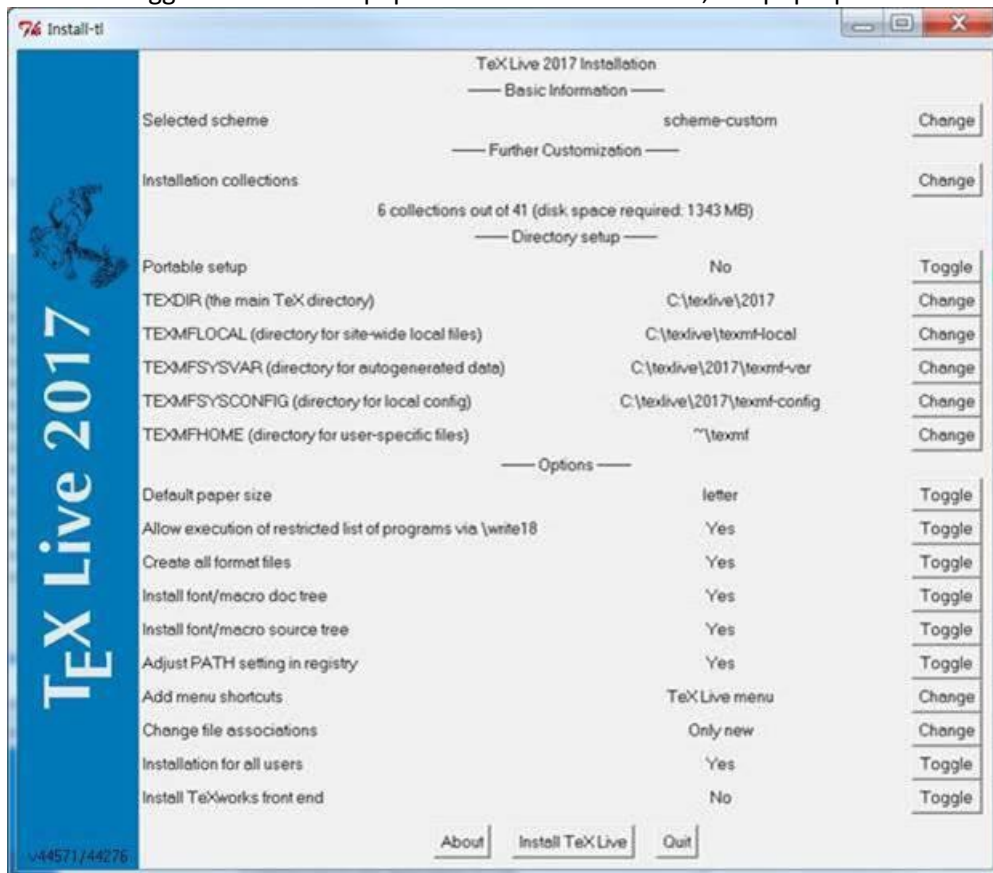

h. Click on "Change" for "Installation collections", select
   - Essential programs and files
   - Recommended fonts
   - LaTeX fundamental packages
   - LaTeX additional packages
   - LaTeX recommended packages
   - Windows-only support programs
   … [continued on next page]

… and click on "OK"
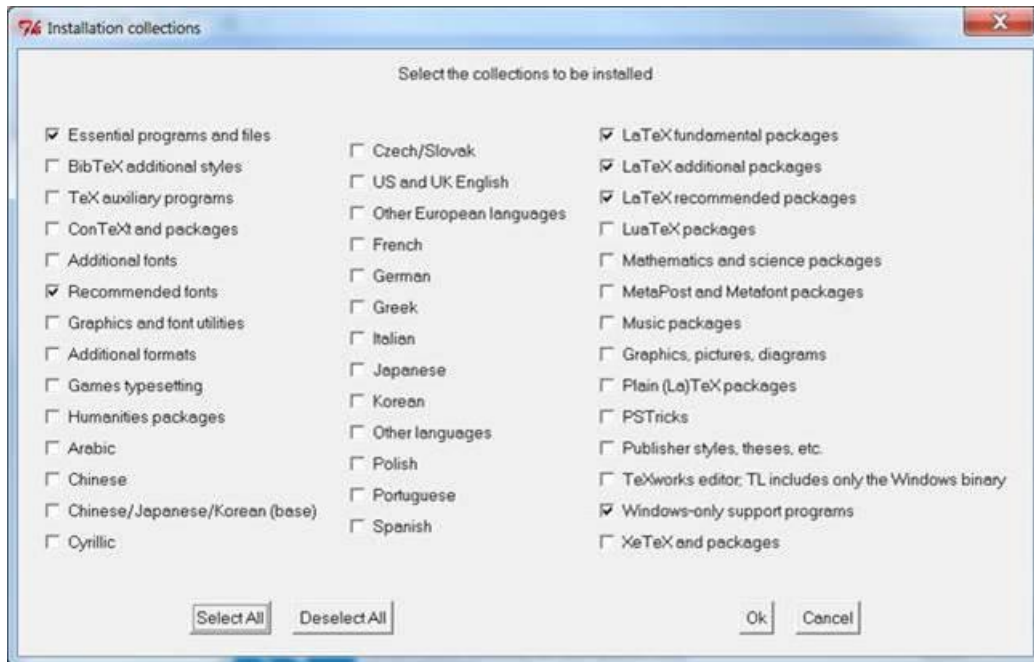
i. Click on "Toggle" for "Default paper size" to select "letter"; the pop-up should now look like this:
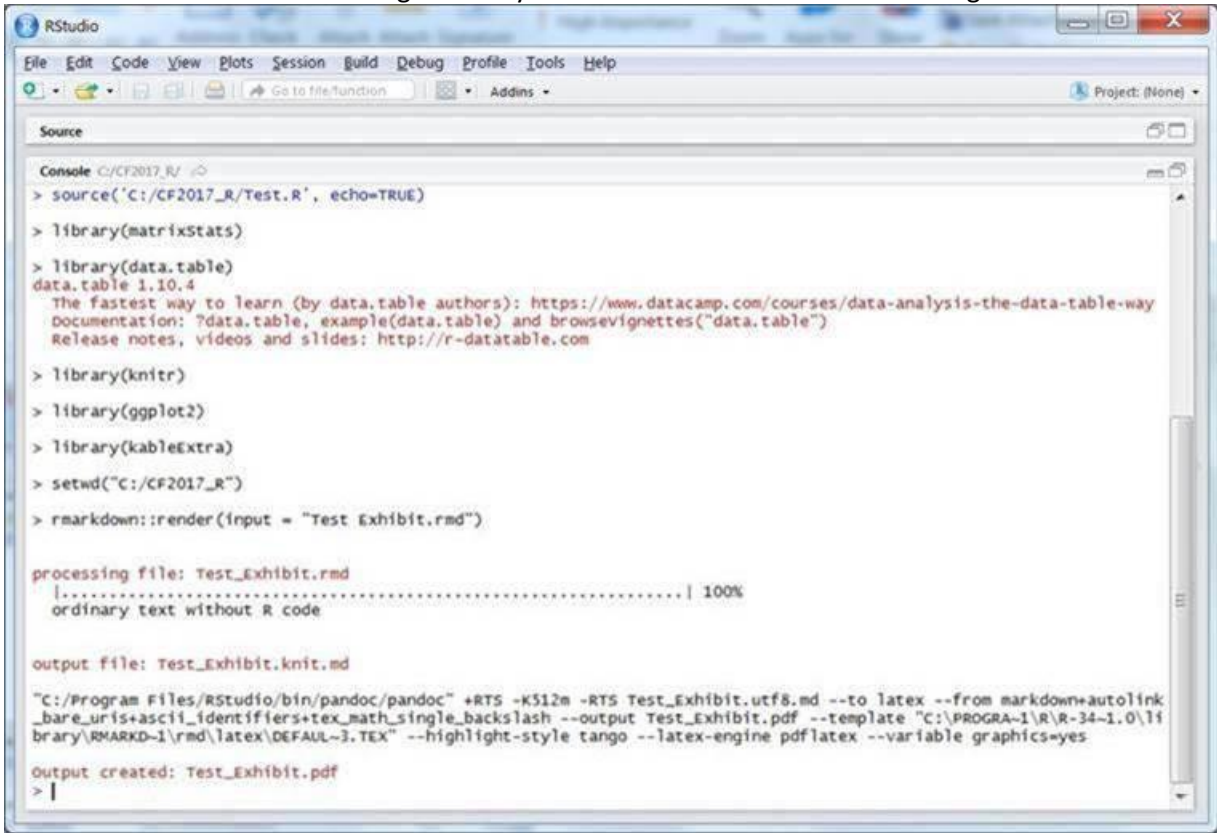
j.   Click on "Install TeX Live" and <u>wander off</u> to get a cup of coffee (i.e. this may take a while, but no active input is required once it starts)

k.   Close pop-up once everything has been installed

Congratulations! Almost done – if you want, you can test your installation by running the attached test script. To do so, please follow these instructions:

A.   Use the paper clip icon on the left to open the attachment "AnnualMeetingC15_Test.zip". Note that this will likely prompt some sort of warning about the dangers of opening attachments downloaded from the internet. Please contact me at the email address given at the end of this document if your security settings do not allow you to access the attached zip archive.

B.   Unzip the files "Test.R" and "Test Exhibit.rmd", making sure that they end up in the folder C:\AnnualMeetingC15

C.   Sorry to belabor this, but make sure that the files end up in the folder C:\AnnualMeetingC15 Double check the path! The way WinZip works, it is very easy for the files to end up in C:\ AnnualMeetingC15_Test\AnnualMeetingC15; i.e. in an extra subdirectory; if that happens, just move the files one level up and rename the top-level directory as needed.

D.   Start RStudio, and use File -> Open File to open "Test.R" (which by now should be in C:\AnnualMeetingC15). Your screen should look like this:
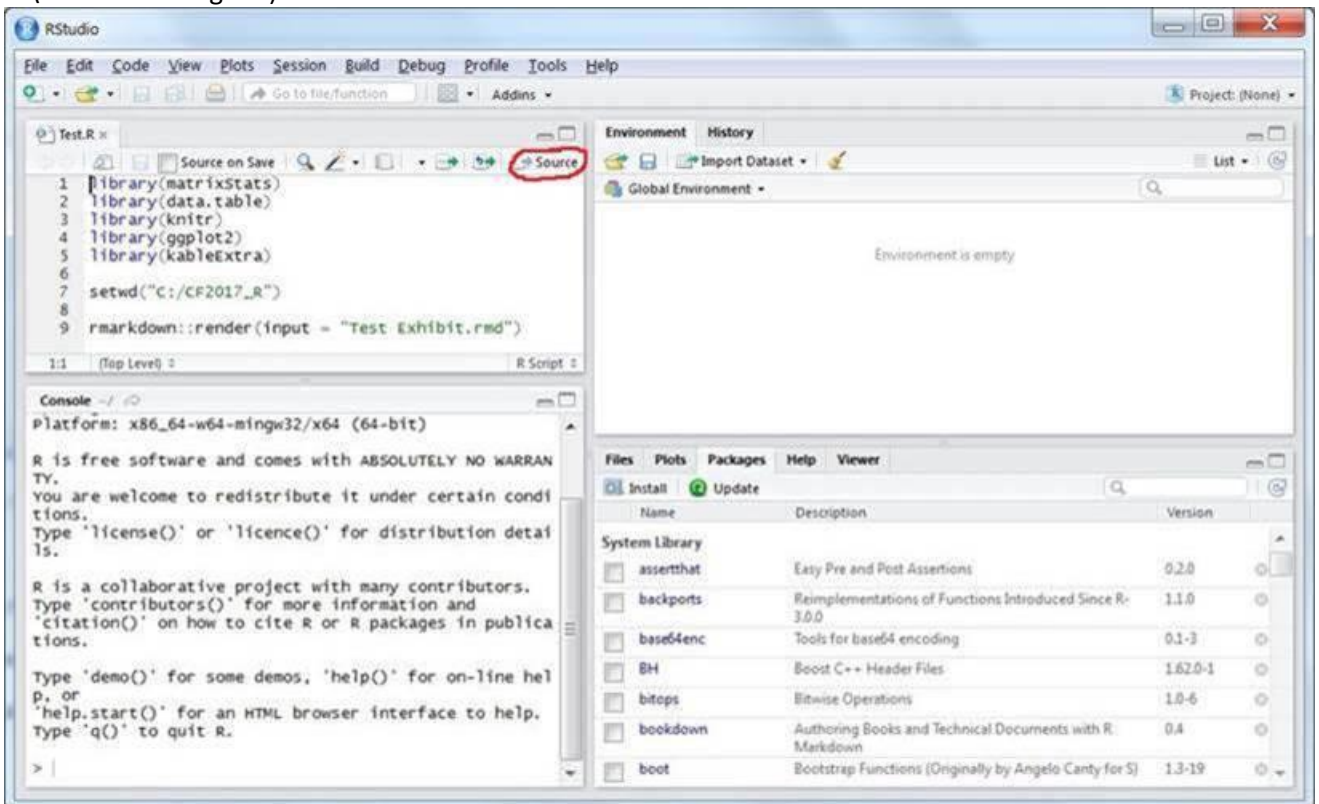
E. Click on the "Source" icon – if all goes well your console should have the following content:

F. You should be able to view the pdf file "Test_Exhibit.pdf" in the C:\AnnualMeetingC15 folder

G. If you don't end up with the file "Test_Exhibit.pdf" in your C:\AnnualMeetingC15 folder, don't hesitate to make a screen shot of your console output (copying and pasting the text should also work) and send it to me via email

OK, now you are done with the installation. Note that there is a separate document with the R scripts for the actual session and a pre-session check list (see "C15 Session R Scripts.pdf").

Let me know if you run into any issues, or have any questions. Here is my contact information:

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