

# Introduction to R

# In this lecture

- R and RStudio
- How to
  - set the working directory
  - create an R file and save it
  - execute an R file
  - execute pieces of code

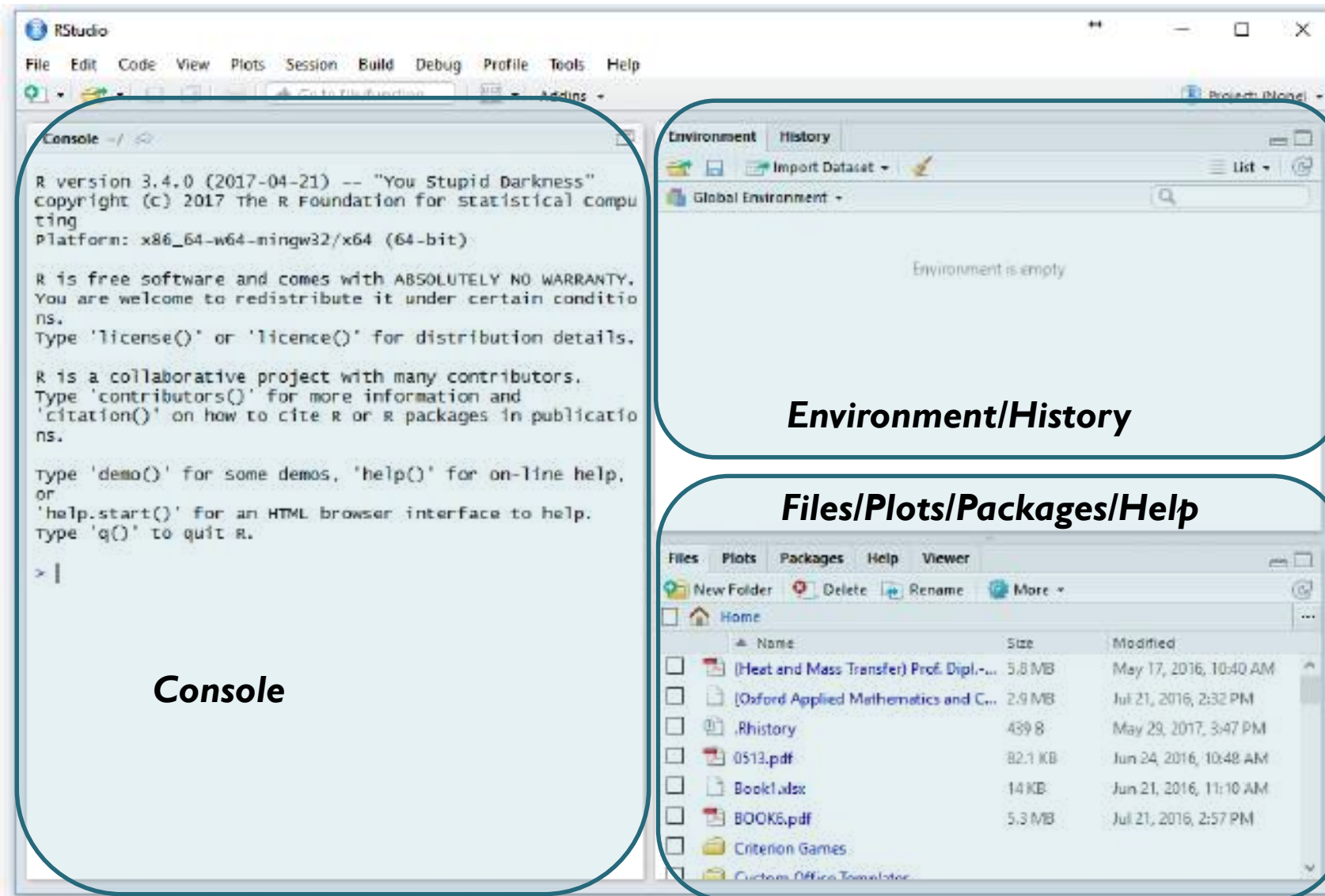
# R

- Open source programming language
- Statistical software and Data analysis tool
- Interface
  - Command line user interface
- Platforms
  - Windows, Linux and Mac OS

# RStudio

- Integrated Development Environment (IDE) for R
- Availability
  - Open source
  - Commercial
- Editions
  - Desktop
  - Server
- Platforms
  - Windows, Linux and Mac OS

# A first look of RStudio



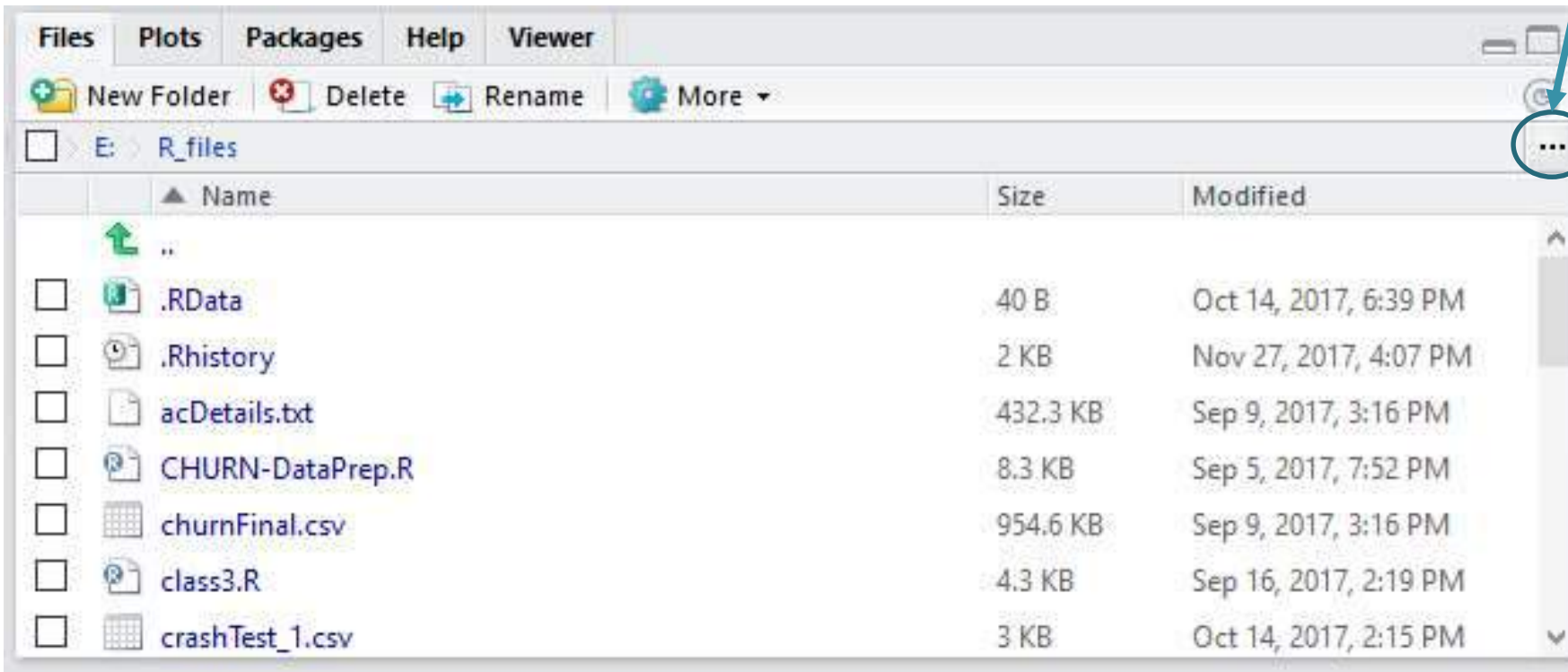
# Set the working directory

Enter in the console : `setwd(“directorypath”)`

(OR)

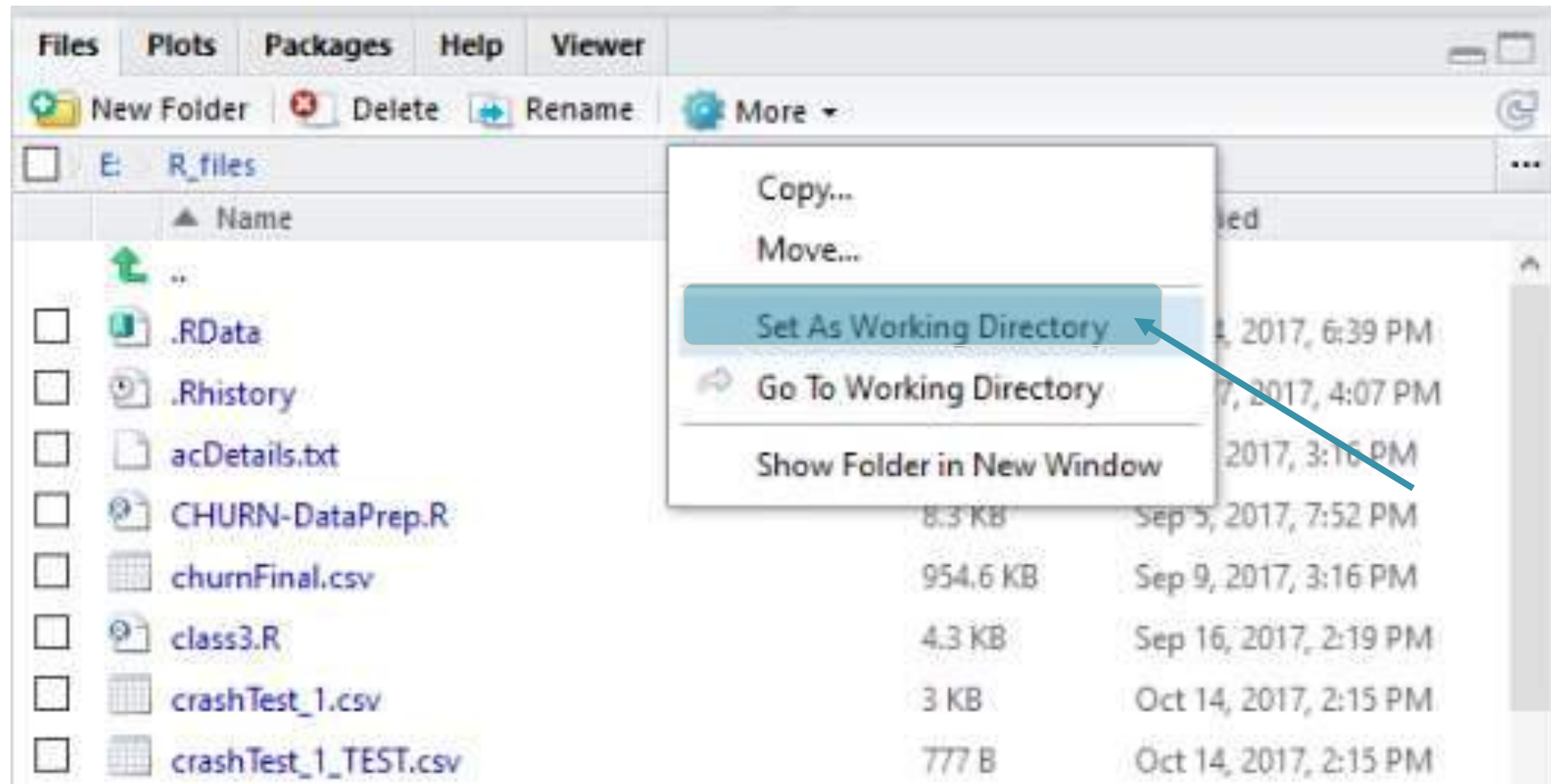
*To choose Working  
directory*

**STEP 1: Choose a suitable location by clicking on the indicated icon**

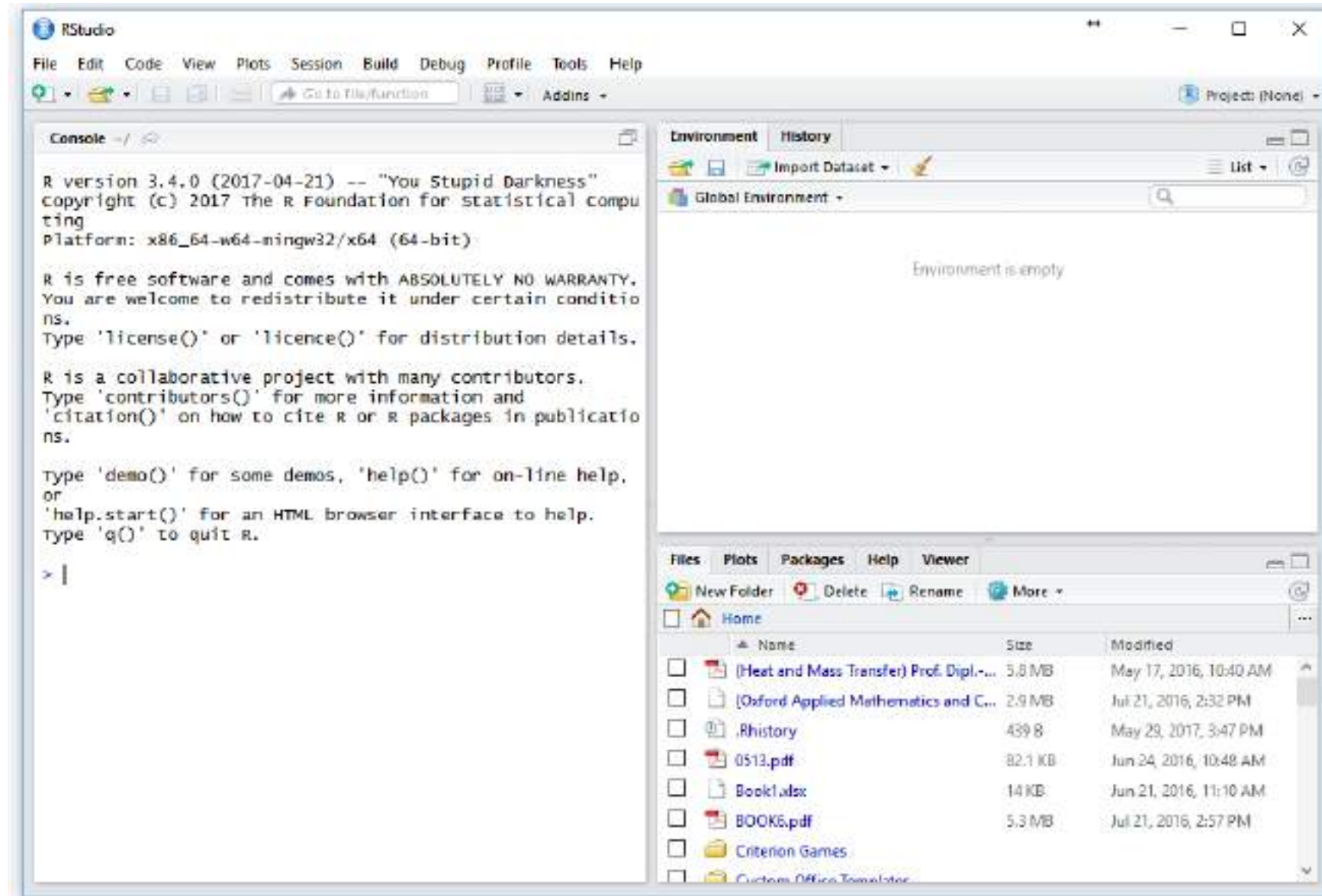


# Set the working directory

**STEP 2:** Once directory is chosen, select the more icon and choose “Set as Working Directory”



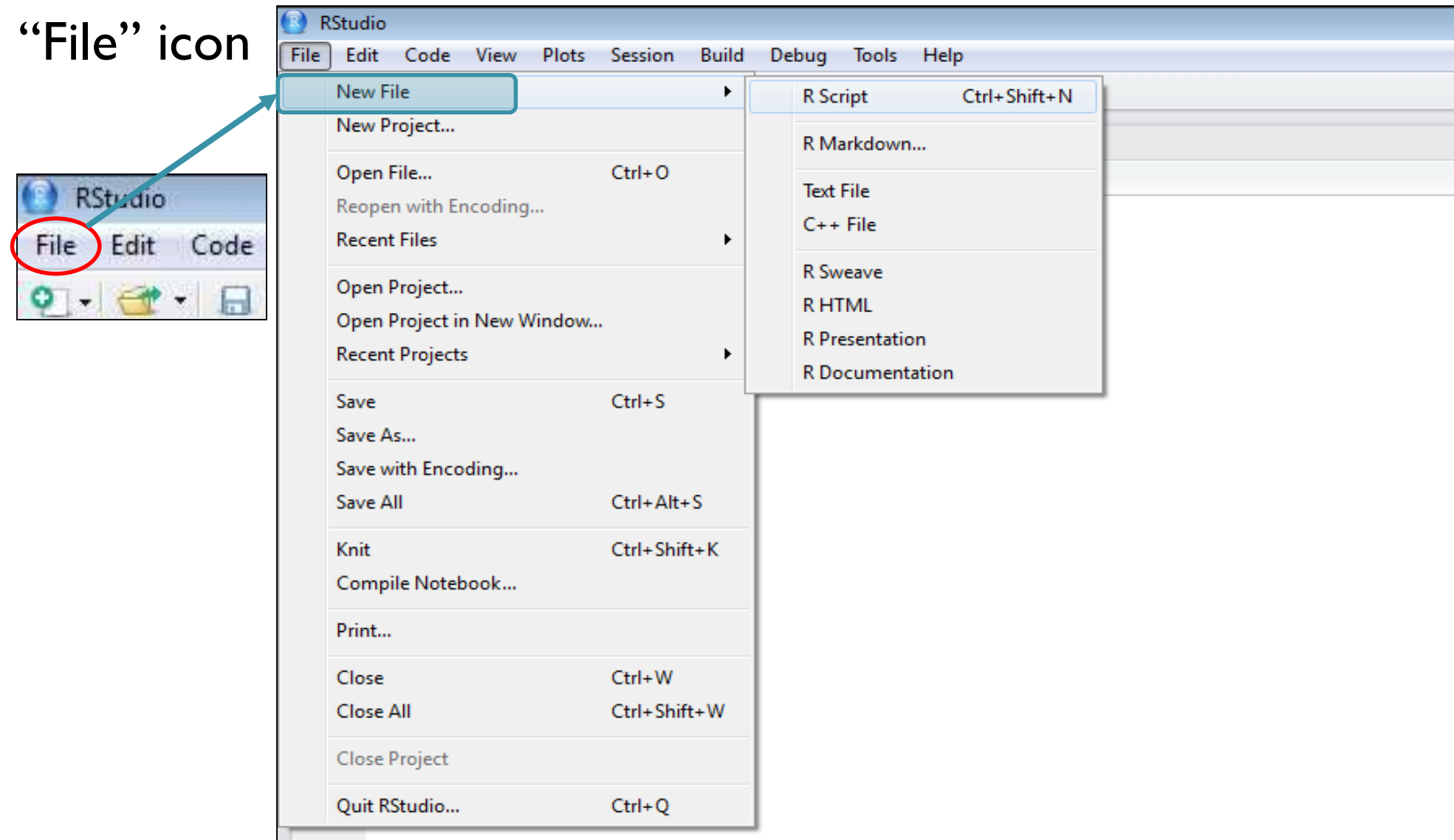
# RStudio





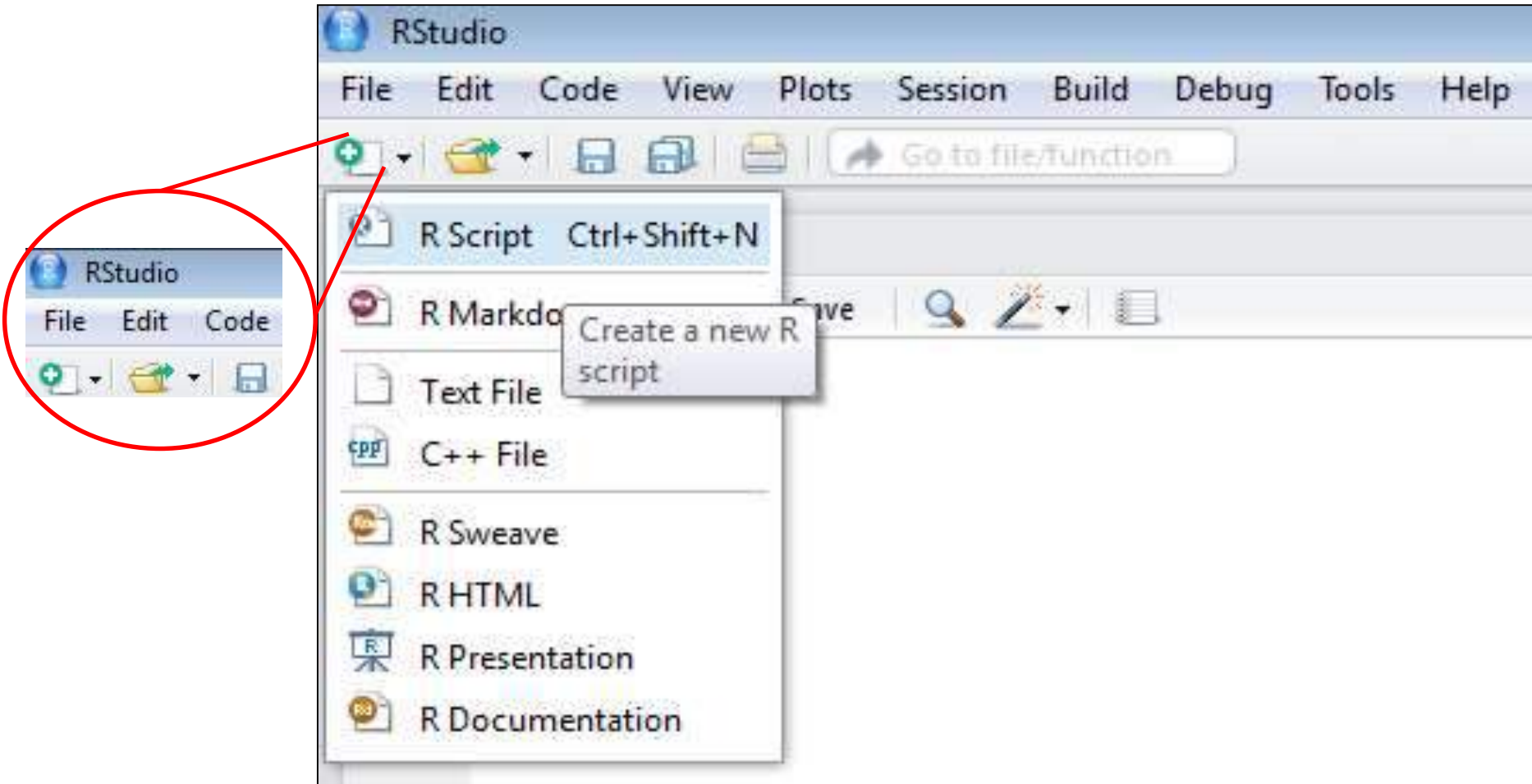
# Create an R file

“File” icon

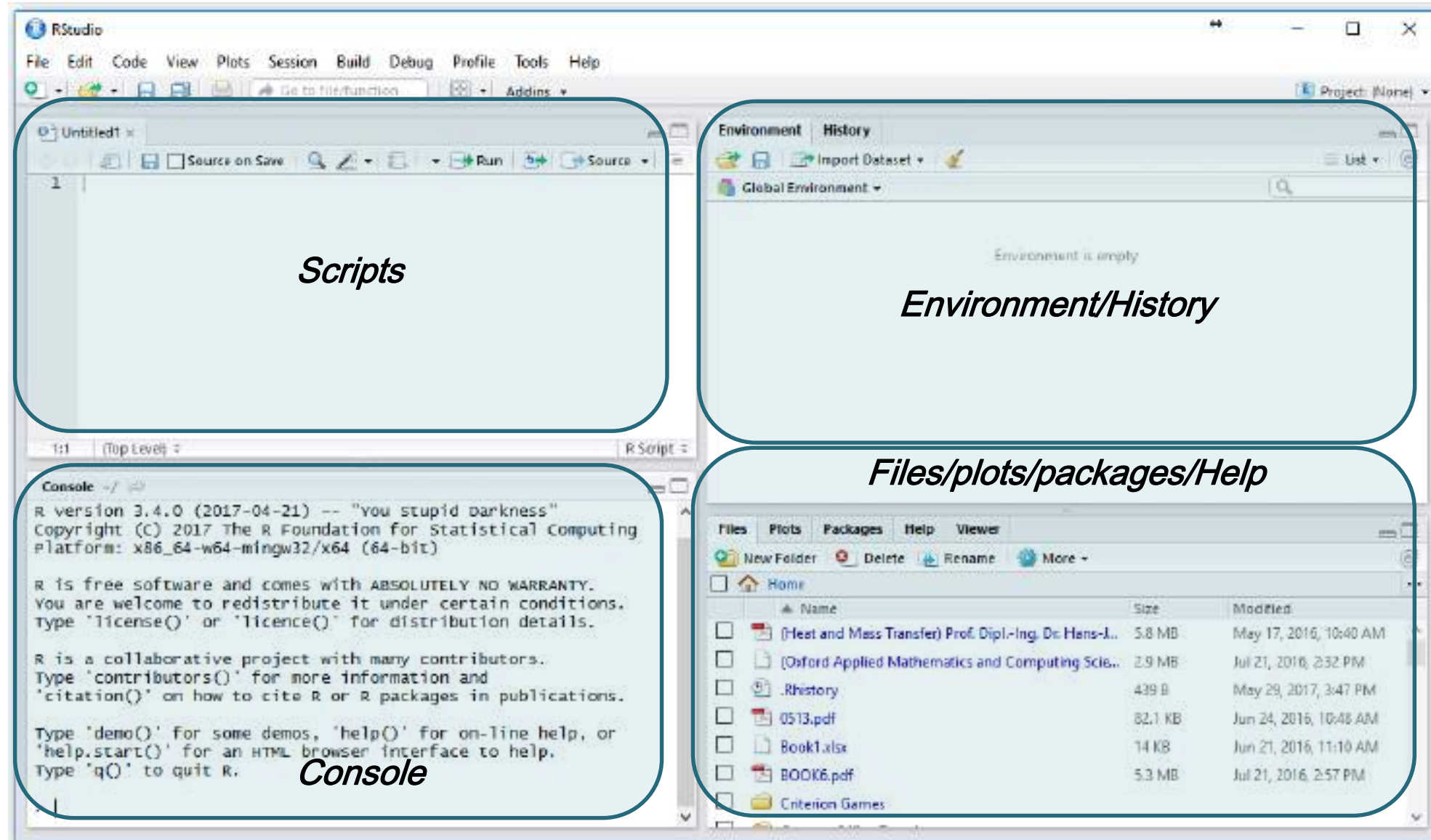


# Create an R file

By clicking the icon “  ”below the toolbar



# RStudio with script file open



# Writing scripts

The screenshot displays the RStudio interface with the following components:

- Source Editor:** Contains an R script named 'Untitled1\*' with the following code:
 

```
1
2 a = 11
3 b = a*10
4 print(c(a,b))
```
- Environment:** Shows the 'Global Environment' which is currently empty.
 

Environment is empty
- Console:** Displays the R version and license information:
 

```
R version 3.4.0 (2017-04-21) -- "You Stupid Darkness"
Copyright (C) 2017 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

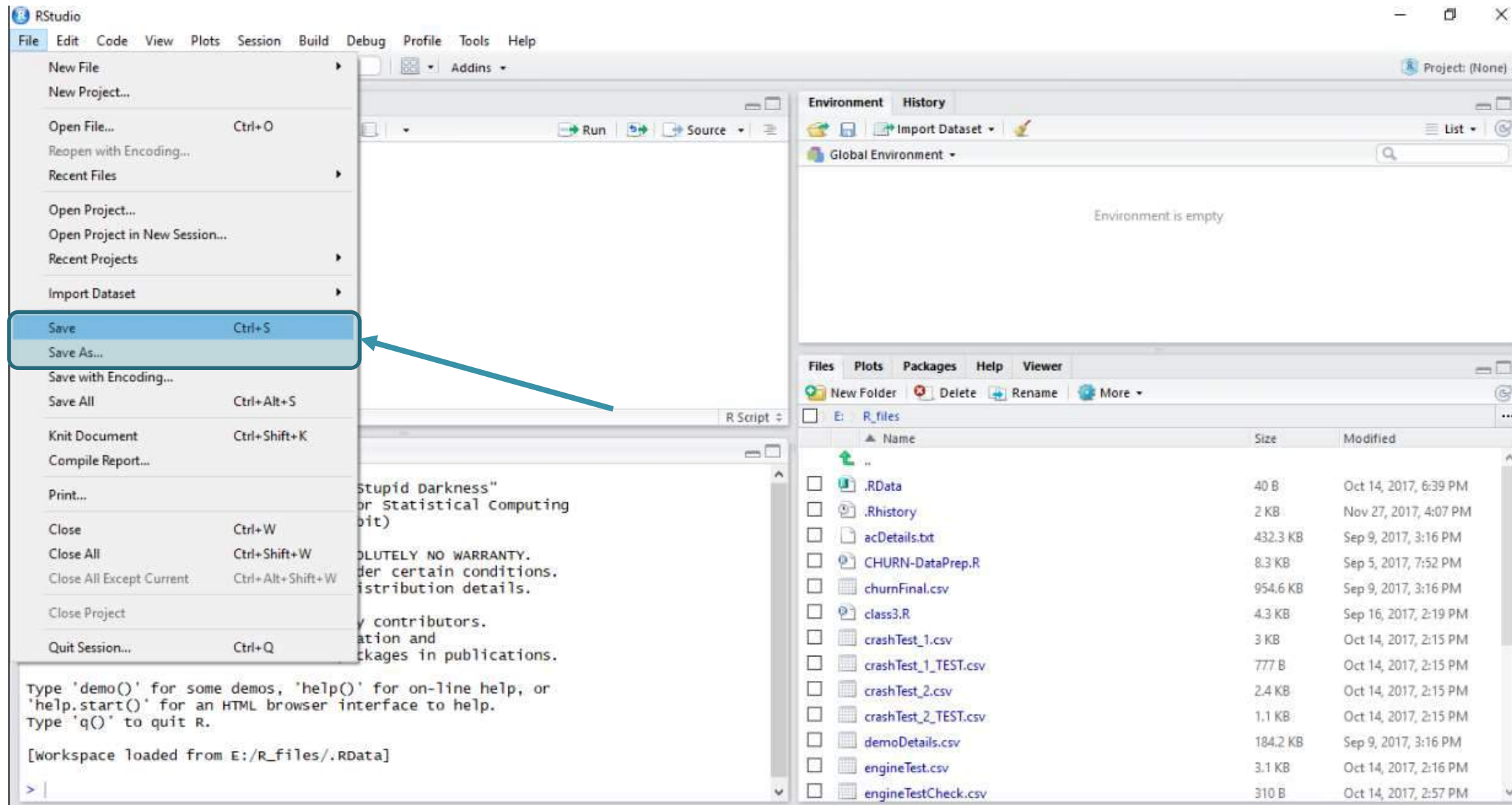
R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.
```
- Files Panel:** Shows the directory structure of the current project:
 

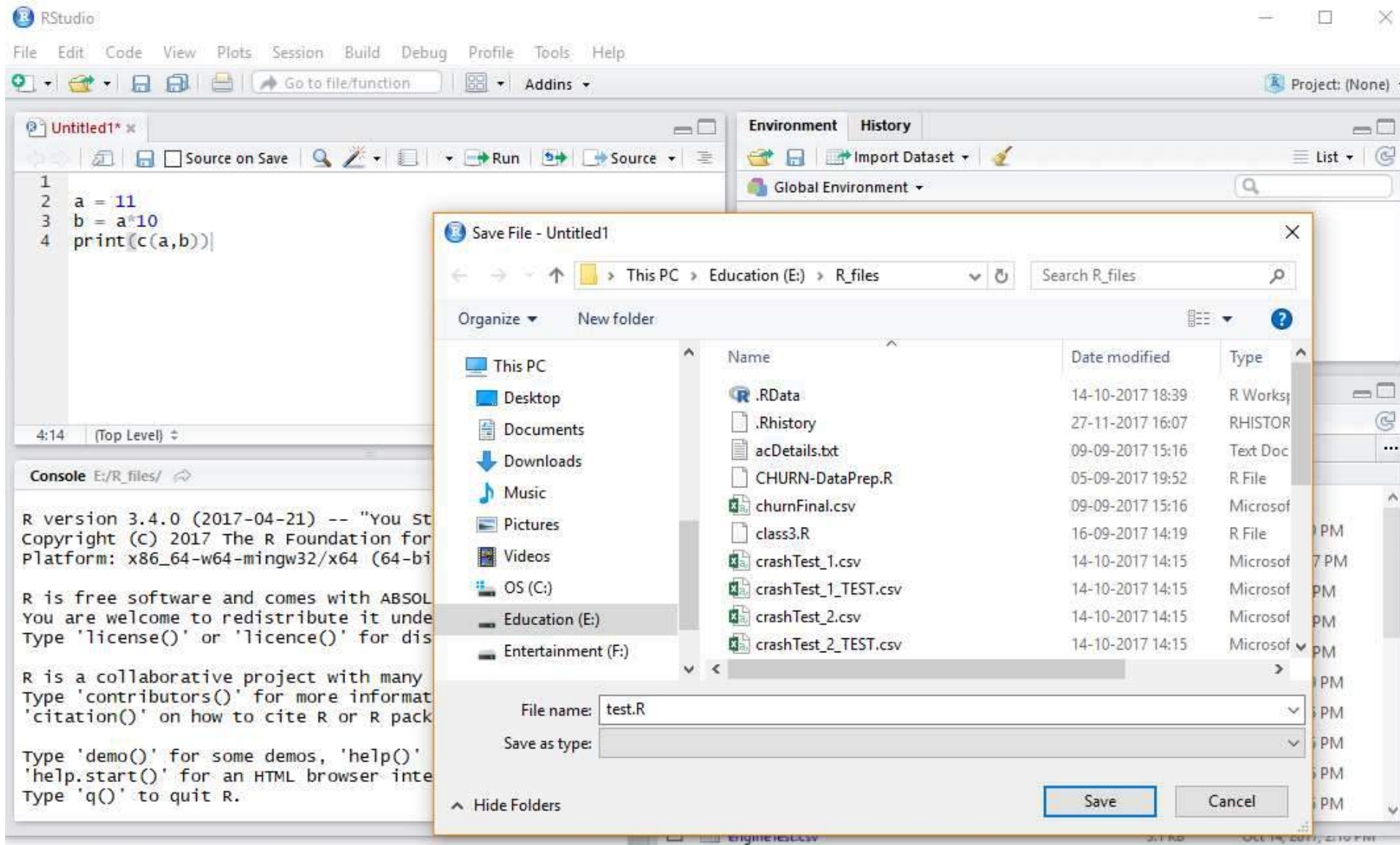
Name	Size	Modified
..		
.RData	40 B	Oct 14, 2017, 6:39 PM
.Rhistory	2 KB	Nov 27, 2017, 4:07 PM
acDetails.txt	432.3 KB	Sep 9, 2017, 3:16 PM
CHURN-DataPrep.R	8.3 KB	Sep 5, 2017, 7:52 PM
churnFinal.csv	954.6 KB	Sep 9, 2017, 3:16 PM
class3.R	4.3 KB	Sep 16, 2017, 2:19 PM
crashTest_1.csv	3 KB	Oct 14, 2017, 2:15 PM
crashTest 1 TEST.csv	777 B	Oct 14, 2017, 2:15 PM



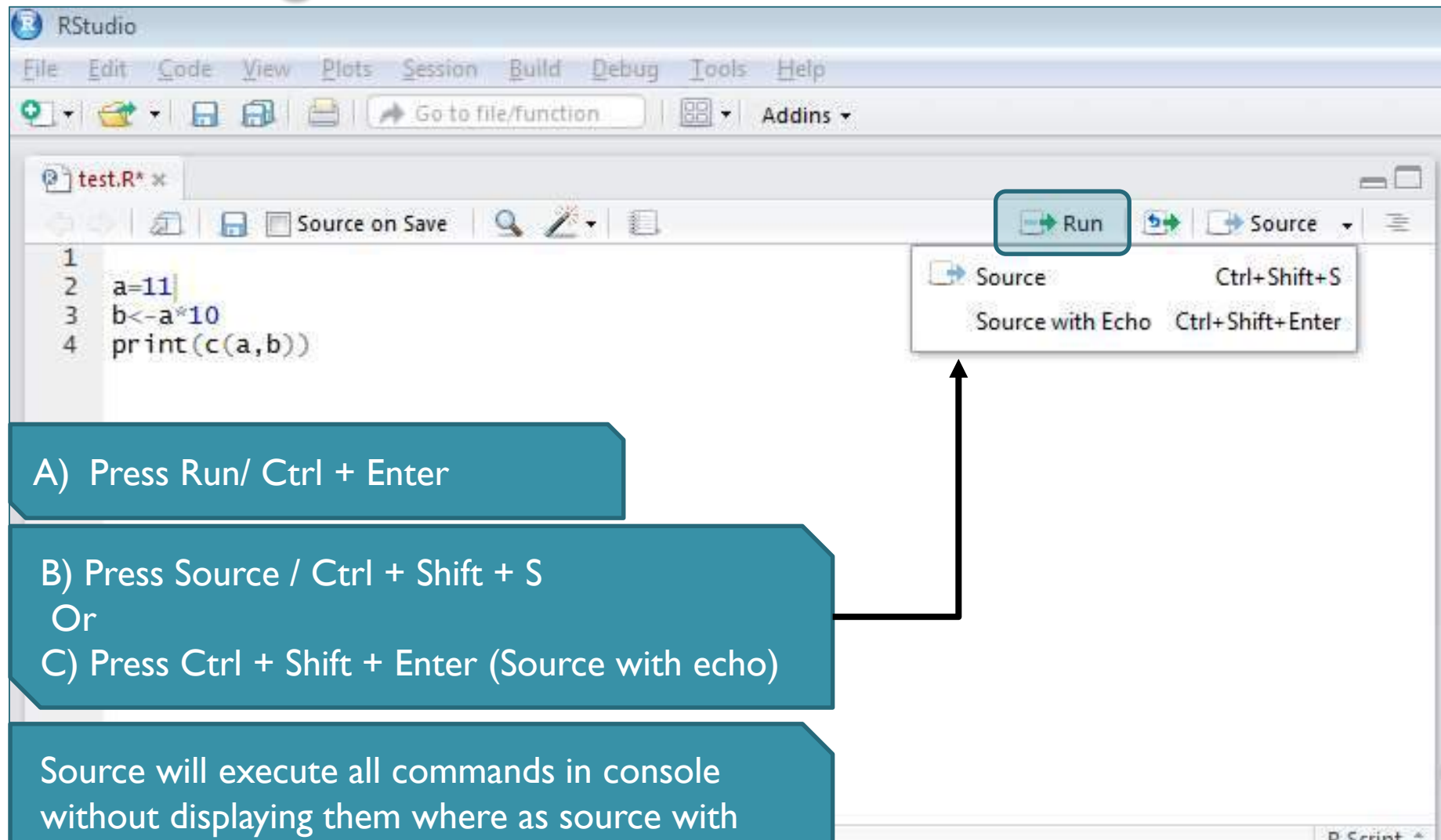
# Saving R script file



# Saving R script file



# Executing an R file



A) Press Run/ Ctrl + Enter

B) Press Source / Ctrl + Shift + S

Or

C) Press Ctrl + Shift + Enter (Source with echo)

Source will execute all commands in console without displaying them where as source with echo will execute and print automatically

# Executing an R file: Example

RStudio

File Edit Code View Plots Session Build Debug Profile Tools Help

Go to file/function Addins Project: (None)

test.R ×

Source on Save Source

```

1
2 a = 11
3 b = a*10
4 print(c(a,b))

```

4:14 (Top Level) R Script

Console E:/R\_files/

OR  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.

[workspace loaded from E:/R\_files/.RData]

```

> source('E:/R_files/test.R', echo=TRUE)
> a = 11
> b = a*10
> print(c(a,b))
[1] 11 110
>

```

**RESULT**

Environment History

Global Environment

values

name	value
a	11
b	110

Files Plots Packages Help Viewer

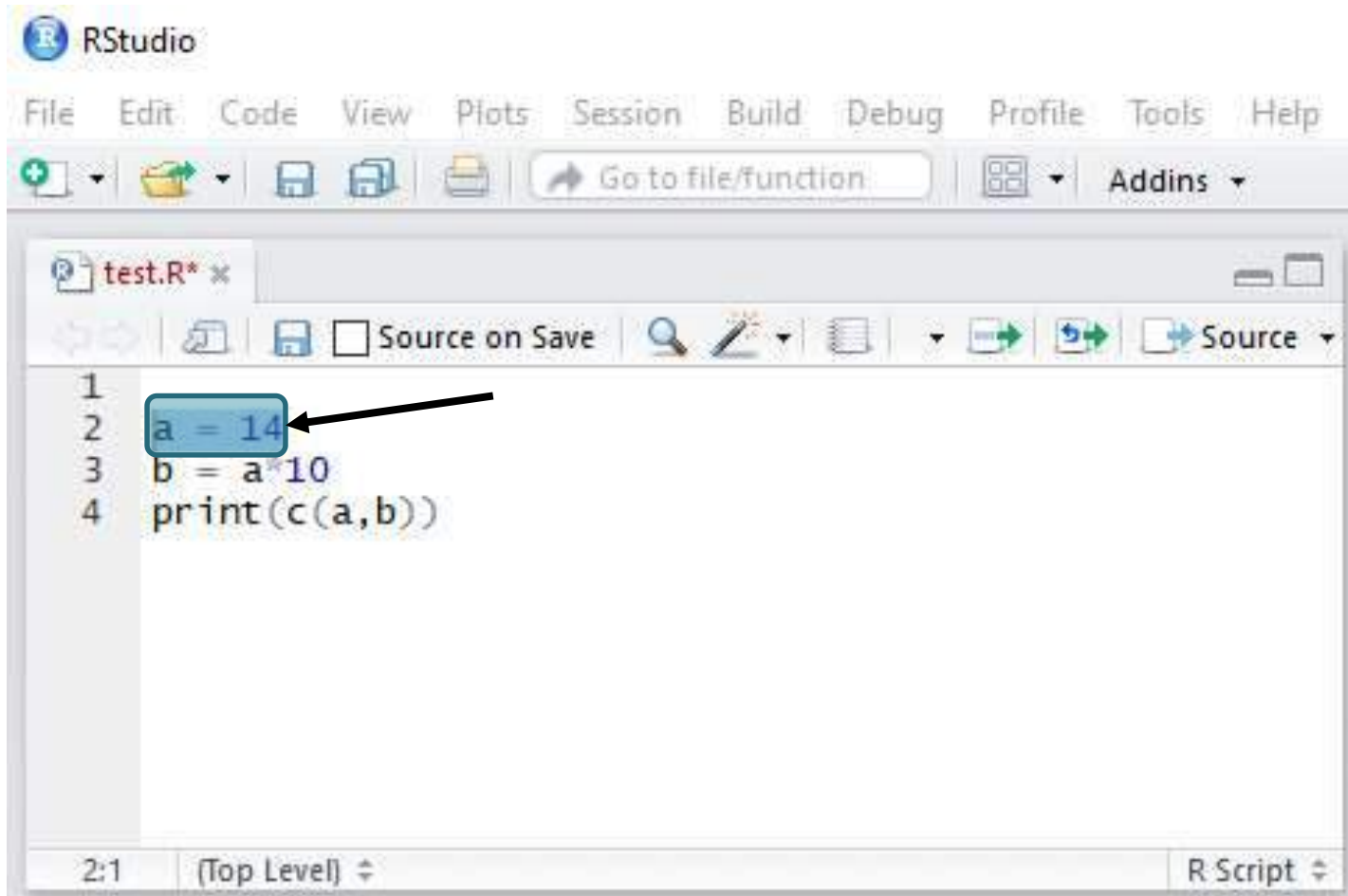
New Folder Delete Rename More

E: > R\_files

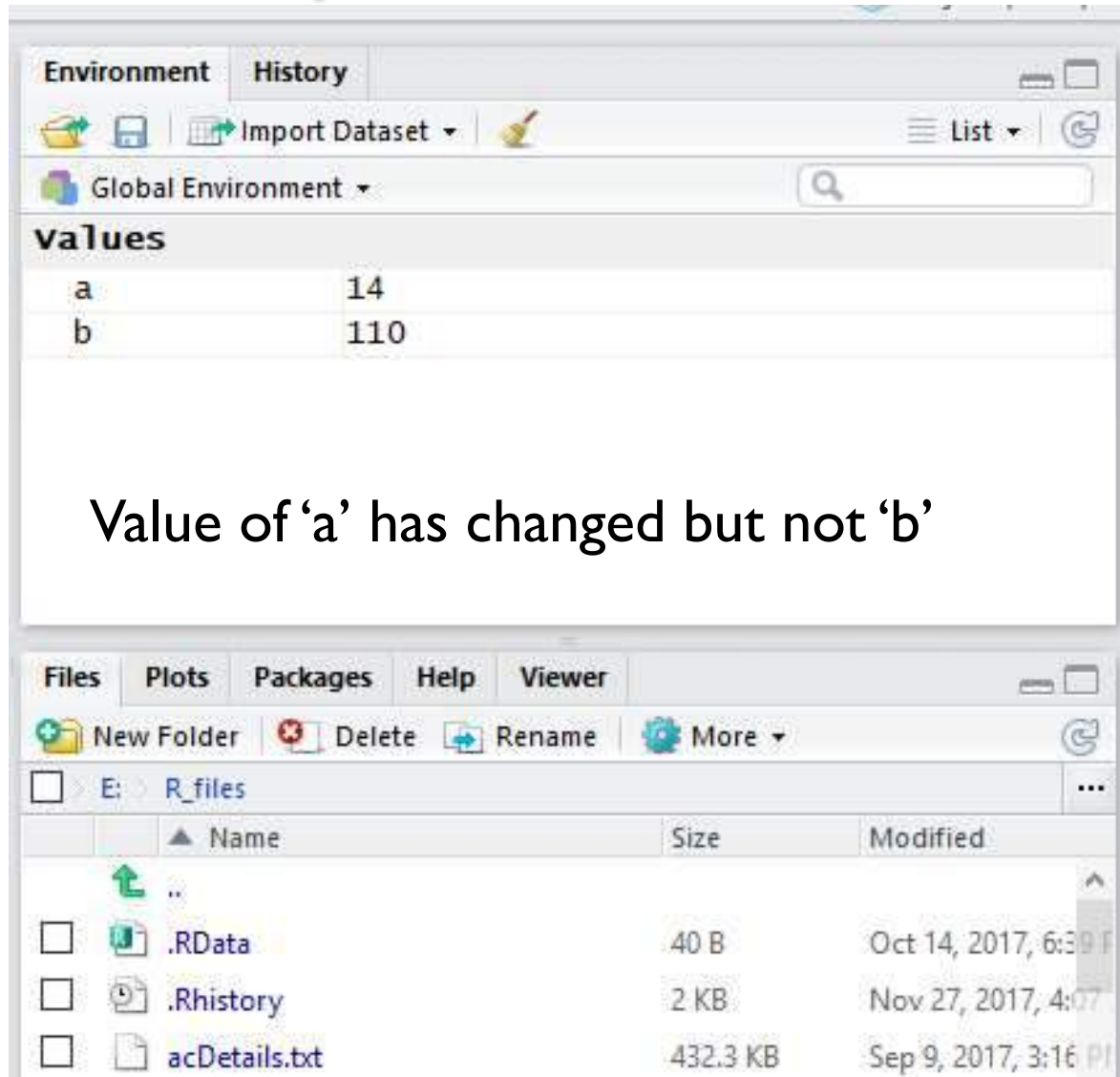
Name	Size	Modified
..		
.RData	40 B	Oct 14, 2017, 6:39 P
.Rhistory	2 KB	Nov 27, 2017, 4:07
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class3.R	4.3 KB	Sep 16, 2017, 2:19 P
crashTest_1.csv	3 KB	Oct 14, 2017, 2:15 P
crashTest_1_TEST.csv	777 B	Oct 14, 2017, 2:15 P
crashTest_2.csv	2.4 KB	Oct 14, 2017, 2:15 P



# Execute pieces of code – Run



# Execute pieces of code – Run



The screenshot shows the RStudio interface. The top pane, titled 'Environment', displays the 'Global Environment' with a search bar and a table of values. The table has two rows: 'a' with value 14 and 'b' with value 110. The bottom pane, titled 'Files', shows the file explorer for the directory 'E:\R\_files'. It contains a table with columns 'Name', 'Size', and 'Modified'. The files listed are '..' (parent directory), '.RData' (40 B, Oct 14, 2017, 6:39 PM), '.Rhistory' (2 KB, Nov 27, 2017, 4:07 PM), and 'acDetails.txt' (432.3 KB, Sep 9, 2017, 3:16 PM).

values	
a	14
b	110

Value of 'a' has changed but not 'b'

Name	Size	Modified
..		
.RData	40 B	Oct 14, 2017, 6:39 PM
.Rhistory	2 KB	Nov 27, 2017, 4:07 PM
acDetails.txt	432.3 KB	Sep 9, 2017, 3:16 PM

# Executing R files – Summary

- Run can be used to execute selected lines
- Source/ Source with echo is for a whole file
- Advantages – using Run :
  - troubleshooting/debugging
- Disadvantages – using Run :
  - For large section, console will be over populated and messy