Lecture 1.4 – Intro to R and RStudio

Specific Learning Objectives:

- 1.1.1 Understand how to use the command line.
- 1.1.2 Understand how to use the help function of R.
- 1.1.3 Understand the basic syntax of the R language.
- 1.1.4 Execute inbuilt mathematical functions to perform calculations in R.
- 1.1.5 Learn how to assign variables.
- 1.1.6 Understand the basic syntax of functions in R.
- 1.1.7 Open, edit, and save a script in RStudio's editor.
- 2.2.1 Create reproducible scripts in R.

Downloading R and RStudio



Download R: https://www.rproject.org/



Download RStuido: products/rstudio/ download/

- 1. Go to https://cloud.r-project.org/
- 2. Select your operating system.
- 3. Select the latest release that is "notarized and signed."
- 4. Save and open the file, follow the instructions to install.

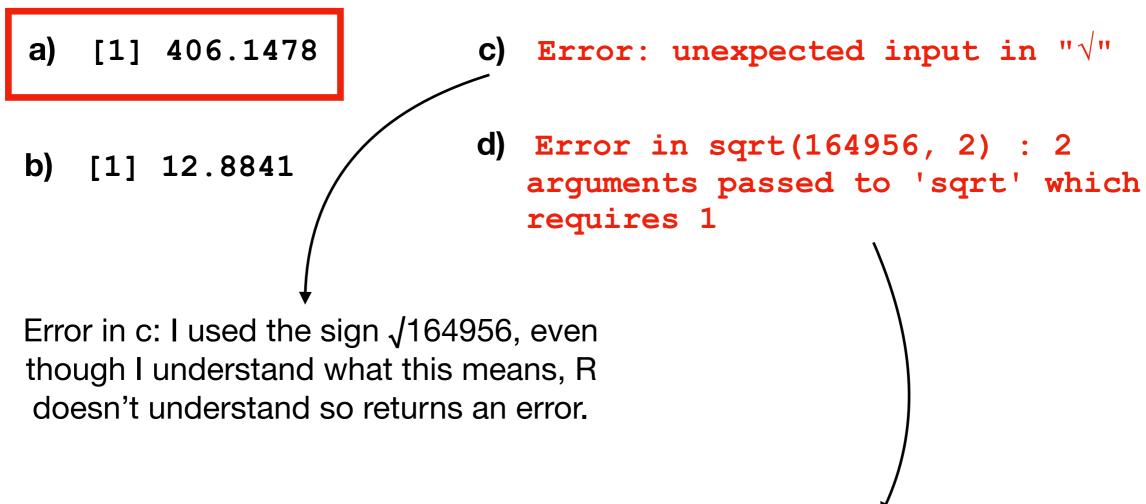
- 1. Select the RStudio Desktop version.
- 2. Download, open, and follow instructions to install.
- 3. Open RStudio to get started!

Check Your Understanding

Have R calculate the square root of 164956 using the sqrt() function.

What is the correct output?

Correct answer



Error in d: I put too many numbers (or arguments) in the sqrt() function so it's telling you you need one argument only!

Check Your Understanding

Syntax is important here! Using a space between the < and - will change the meaning of the command.

Try these: do they all have the same result? Why or why not?

a)
$$x < -2$$

b)
$$x < -2$$

c)
$$x < -2$$

Does it matter which way the arrow points?

Try these: which work and which produce errors?

c)
$$j -> 7$$

Functions in R

Check your understanding!

What happens if you enter the numbers into mean without the **c()**? Or like this:

Why does it do this?



Why would the mean not calculate correctly based on the help documentation for **mean()**?

About R assignments

- You will be turning in assignments in R as R scripts

- Scripts must have the extension ".R"
- Please include the assignment number in the script name
- Include your name, course number, section number, date, and assignment number as a comment at the top of the script.
- For each question, please start the answer with a comment:
 # question a:
 answer code
- Any written text should be included as a comment in the script.

How your scripts will be scored:

- Grader will download your script and hit "source" on top, then evaluate output based on the assignment question.
- If there is an error on source, it will be scored 0 (unless that's part of the assignment!) Please CHECK FIRST that it will run by starting a new R session and then sourcing your script!

For the rest of the class...

- In-class exercises:
 - 1. Write a short explanation about how to install a package using:
 - a) RStudio's GUI package manager
 - b) command line in R
 - 2. Exercise 2.2 in Davies (End of Chapter 2 section 2, page 22).

- Then, start on Assignment 1.5

Action Items

1. Complete Assignment 1.5

2. Read Davies Chapter 4 for next time.