Setting up

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What is R? And why should it matter to you?

R is a programming language, increasingly used for statistical analysis and data visualization. There are four main reasons R is a suitable and appealing program:

1. We live in an age of data and evidence-based arguments. We can learn about concepts and theories in our courses, but where do these conceptual constructs and theories come from? Many times they come from qualitative research, which requires a specific set of methodological techniques and tools (including skills in qualitative analysis software such as NVivo), but this is a conversation for another time. Other times they come from quantitative research. R has been increasingly used in academia, think tanks, newsrooms data teams (e.g. click here to see what the BBC data team is doing), and governmental statistical agencies to process quantitative data and visualization.

2. R is free!

3. The R community is very accomodating, and many of us are trying to make it more inclusive. There are several online resources where you can get your questions answered. It is not uncommon to meet random people who are willing to help you solve practical or technical problems. If you have a Twitter account, for example, you can pose a question with famous hashtags. Chances are someone will talk to you. Here are some commonly hashtags: #rtats, #rladies.

Figure 1: The R community, figure by Allison Horst

4. And las, but not least, R is a powerful tool to analyze data and generate compelling data visualization.

Where can you download R?

First, you have to visit the R project website: Link here.

The homepage will ask you to choose a CRAN mirror*. It is advisable that you choose the location closest to you. Because I live in Ottawa, I chose http://cran.utstat.utoronto.ca/. You can find this link on the left of your window, under Canada.

*CRAN refers to Comprehensive R Archive Network.

After you choose yor mirror, just follow the steps that we usually follow to download any program. If you have problems, please let me know.

But what about RStudio? Do you really need it? Where do you download it?

Once you have installed R in your computer, you will get the usual R GUI (Graphic User Interface). It is absolutely possible to work with R GUI. However, I highly recommend you also download RStudio. Why? RStudio is an open-source IDE, that is, an Integrated Development Environment. It facilitates working with R because it is more user-friendly. RStudio integrates all the tools you use with R into a single environment. It makes easier and faster to navigate to files and functions, start or open existing project files, and creating HTML, PDF, Word documents and slide presentations seamlessly.

You can download RStudio here.

But hey! There is an alternative. If you don't want to download RStudio and have access to the Internet, you can use RStudio through your browser. All you need is to use a cloud-based option called RStudio Cloud: link here. However, you must make an account. If you choose this alternative, all your calculations will be done in a server. I have nerver used it, but I've heard it works fine. It is just a bit slower.

What to expect when you open RStudio?

When you download R and R Studio, and open the software, you will find an interface like this:
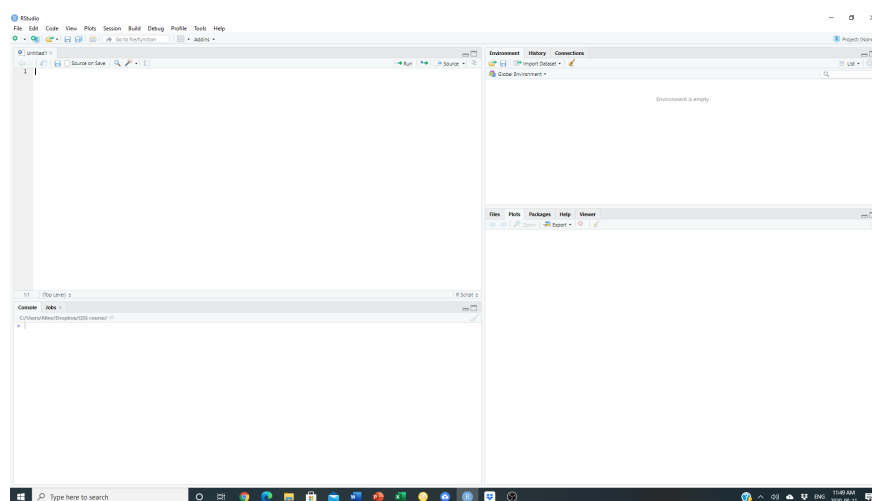

Figure 2: The RStudio interface

1) You will write your codes on the top left window, called *the code window*.
2) The bottom left window is called *the console*, and it is here we see what is happening in R.

3) The top right window is calle *the environment*. There you will find your datasets, the objects you create (we will talk more about it later on), the values of these objects, and so on.
4) Finally, the bottom righ is *the output* of your codes. It is also there where you will find information about packages, help requests, and the files you have.

You are now all set! Remember, there is a learning curve. Don't give up. You will soon realize you will never stop learning. But the journey pays off handsomely.
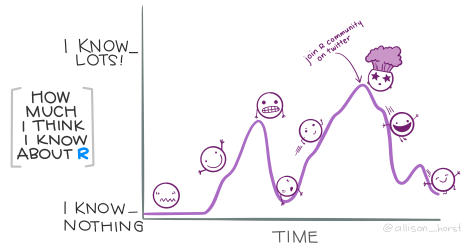

Figure 3: R Knowledge Rollercoaster, by Allison Horst

Complementary material

Grolemund, Garrett, and Hadley Wickham. 2017. R for Data Science. First. Sebastopol, CA: O'Reilly Media. https://r4ds.had.co.nz/.

Ismay, Chester, and Patrick C. Kennedy. 2016. Getting Used to R, RStudio, and R Markdown. https://rbasics.netlify.com.