First R Example

Bayesian Data Analysis

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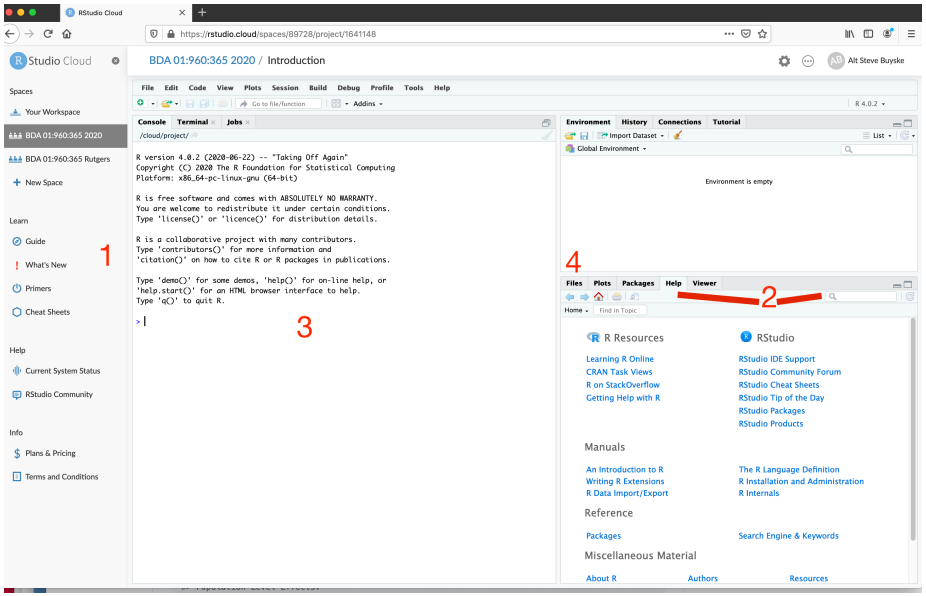
The R Ecosystem

- R is the statistical computing program.
  - It involves code, not point-and-click.
  - For this class, I am assuming you know nothing about R.
- RStudio is the very widely used environment for working with R.
- RStudio Cloud is a cloud-based service for running R and RStudio.
  - The advantage for us is that we will all have the exact same setup for running R.
  - I know some of you have used R and run it on your own computers, but for this class you will still want to use RStudio Cloud.

The RStudio Cloud Page

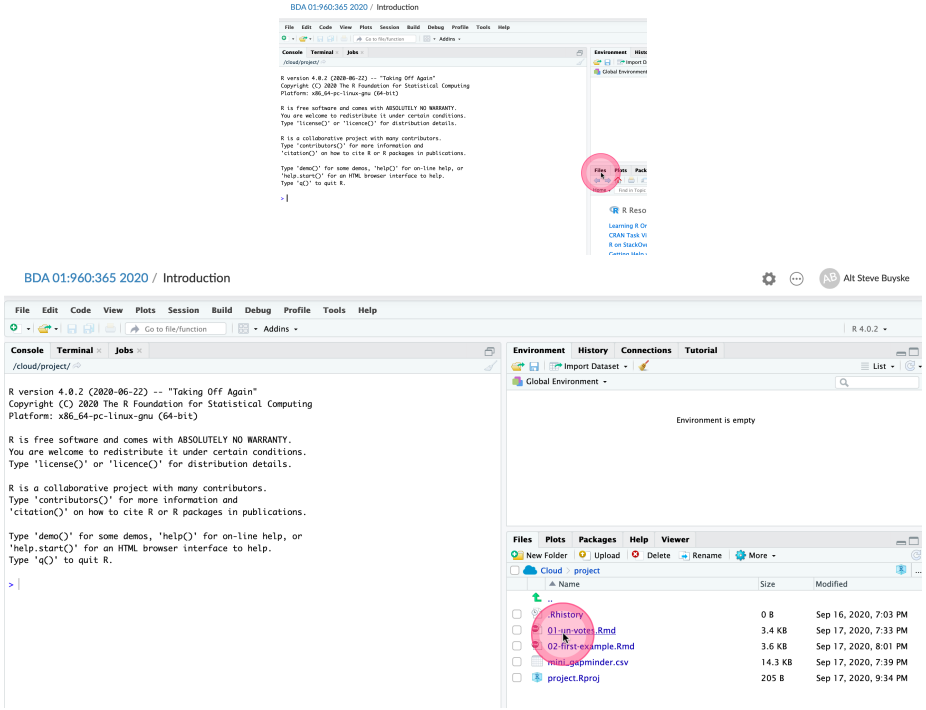
- A blank page is rather intimidating, and we will not actual every start there in this class.
- Before we do get started, note a few things on the screen, though. Notice that the page is divided into panels.

1. There are various general aids to help you learn R over on the left. *You do not need any of them for the course*, but they are an available resource.
2. In the pane at lower right, there are various tabs. The current one is **`Help`**. If you need help with a particular R function, you can navigate to that tab, and then type the function name in the search box.
3. The pane in the middle labeled **`Console`** serves as one way to use R interactively. We will not much use this approach in this course.
4. To get started on the approach we will use, click on the **`Files`** tab.



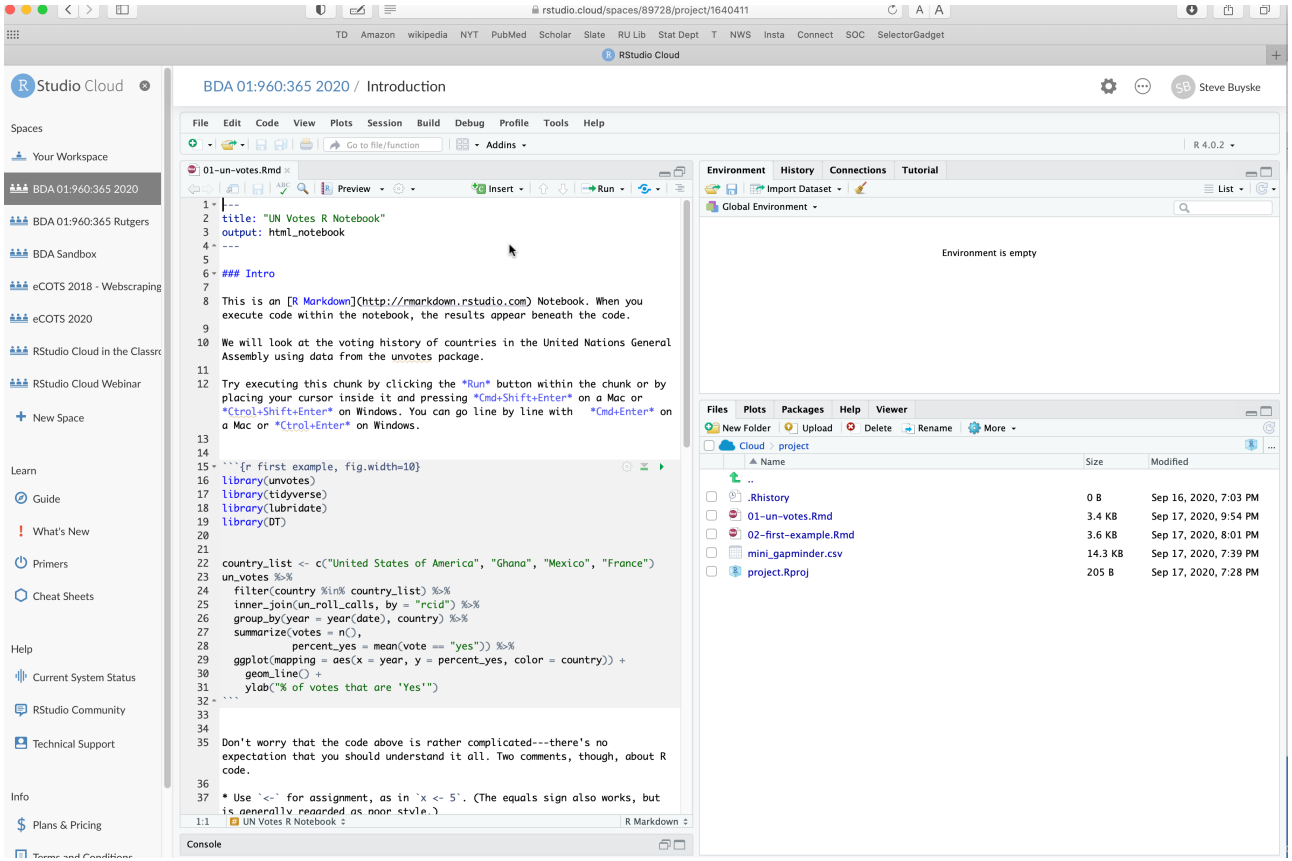
Our First R Example

1. Click on `Files` to see the available files, and then
2. Click on `01-un-votes.Rmd` to open that file. Notice that the pane on the left changes (the `Console` pane slides all the way to bottom).



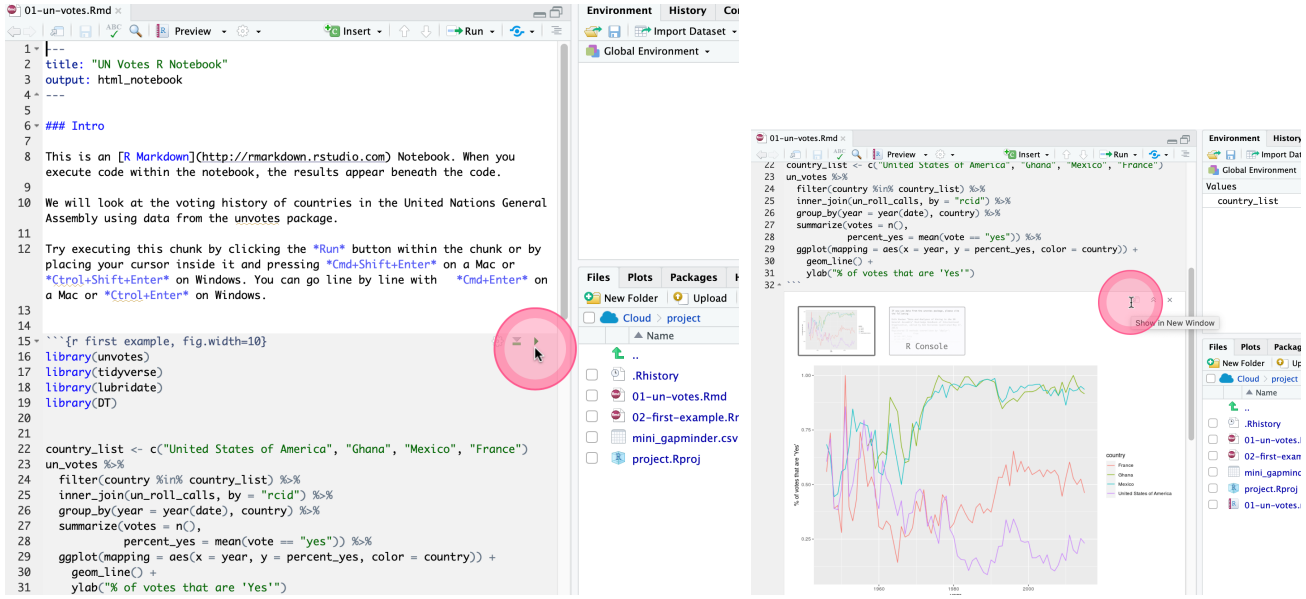
Our First R Example cont.

- Your screen should now look something like this:



- This particular type of file is called a notebook.
  - You can mix text and code within it.
  - I often use a notebook while I am puzzling through the steps of some analysis—among other things, it leaves me with a good record of the code that I settled on.
- The code here is far more complicated than anything I expect you to write just yet—the point now is to get used to the interface.

- Chunks of code start with "```{r}" all the way over on the left, and finish with "```" on a line by itself.
    - Those are called back-ticks, not single quotes, and are probably on the upper left of your keyboard.
- Click on the little green triangle on the upper right of the gray code chunk to run the code in the chunk.
- The results appear right below the code chunk.
- You can expand the plot by clicking on the very faint icon labeled `Show in New Window`



Try it yourself

1. Run the first code chunk as in the previous slide, and then run the next code chunk.
2. Notice that two countries are specified, in quotes. Replace them with two other countries and run the chunk again.
3. The countries names have to be exact, and with no trailing space. You can run the very last code chunk to see a list of the possible country names.
4. Choose `File > Save` from the RStudio menu (*not the browser menu*) to save your new version of the file.
    - It will be saved in the cloud, not on your computer.

Some Managment Items

- You can download a file from the cloud to your computer by
  - clicking on the `Files` tab,
  - clicking the checkbox of the file you want to download, and then
  - at the top of the pane picking `More > Export ...`.
- If you want to run all of the code chunks choose `Run All` at the top of left pane.
- You can get a html (i.e., something that looks nice in a browser) file showing all of your results by clicking on `Preview`.
  - `Preview` doesn't rerun your code—it just shows results that you have already calculated.
  - `Knit to HTML` will run your code, starting from a blank slate, and create an html file.