DSI Data Science: Introduction to R
Tutorial 1: Get set-up!

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Introduction and Goals

Read all instructions carefully.

Welcome to Introduction to R! We're excited to have you join us on this learning journey. In this course, we will explore the programming language and statistical computing environment known as R (R Core Team, 2022). R was originally developed by Ross Ihaka and Robert Gentleman in the early 1990s (Ihaka, R. and Gentleman, R., 1996). Presently, it is maintained by the R Core Team and the R Foundation for Statistical Computing. R is a free, open-source, and cross-platform language, known for its immense popularity and vibrant community. You can find the official R homepage at https://www.r-project.org/. While there are multiple ways to use R, we will primarily use RStudio, an integrated development environment (IDE) designed specifically for R (RStudio Team, 2022). RStudio offers a range of user-friendly features, including a console, syntax-highlighting editor, direct code execution, plotting tools, history viewer, debugging capabilities, and workspace management options (RStudio Team, 2022). Additionally, RStudio facilitates interactive data analysis. We will be using the free, open-source version of RStudio for this course. The purpose of this tutorial will be to that learners have:

• Downloaded and installed R and RStudio.
• Have access to RStudio to run simple commands.

Steps

1. R Download

To participate in this course, it is necessary to have access to a computer running either the Mac, Windows, or Linux operating system, and you should have administrative privileges on that computer. Please ensure that you are using an administrative account rather than a Guest account, as the latter may limit your ability to download software or R packages later in the course. Let's begin by downloading R. The Comprehensive R Archive Network (CRAN) is a repository that stores different versions of code and documentation for R. When downloading R, you have the option to choose a specific CRAN mirror, which determines the source from which you will download R. If you want to explore all available mirrors, you can visit https://cran.r-project.org/mirrors.html. For this course, we will be using the 0-Cloud CRAN mirror. Please follow this link to access the appropriate download page for your operating system: https://cloud.r-project.org/. After the download is complete, you should be able to locate the R icon, as shown in **Figure 1**. Clicking on this opens up what is called the R Graphical User Interface (GUI), however, we will not use the R GUI in this course.

2. RStudio Desktop Download

Please visit the following link to access the appropriate FREE version of RStudio for your operating system (refer to the "All Installers and Tarballs" section):

https://posit.co/download/rstudio-desktop/. In RStudio, you will find various features that enhance the user experience of programming, including a console where you can enter commands. To practice running commands in RStudio, type the commands directly into the console. **Figure 2** provides a visual reference to help you locate the console. When you see a blue greater-than symbol (>) in the console, you can input your commands. Enter the following command as shown in **Figure 3**:

```
>R.Version()$version.string
```

Then press <ENTER> to run the command.
R.Version()$version.string provides detailed information about the version of R you are running in the current computer. Next enter:

```
>RStudio.Version()$version
```

Again press <ENTER> to run the command. RStudio.Version()$version provides the version of RStudio you are running in the current computer. Next enter:

```
>sessionInfo()
```

Again press <ENTER> to run the command. sessionInfo() provides details about R, the operating system, and attached or loaded packages in the current session. These details may not make a lot of sense right now. Not to worry; you'll learn by the end of the course. You may play around with more commands or close the RStudio.

Final Notes

The course instructor will be utilizing R version 4.2.1 and RStudio Desktop version 2022.06.23 throughout the course. Not to worry if you have a different version, although there may be slight variations in our output as a result of version discrepancies. Should you have any questions or encounter any problems during the installation of R or RStudio, please make sure to attend the tutorial. During the tutorial, you can share the exact error message or even screenshare the issue for assistance. We encourage you to try resolving the issue before the tutorial commences. However, if the problem persists, there is no need to worry as we will address it together.

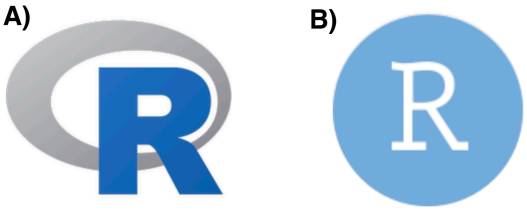

Figure 1: A) Icon of R Graphical User Interface. B) Icon of RStudio. We'll be using RStudio in this course.

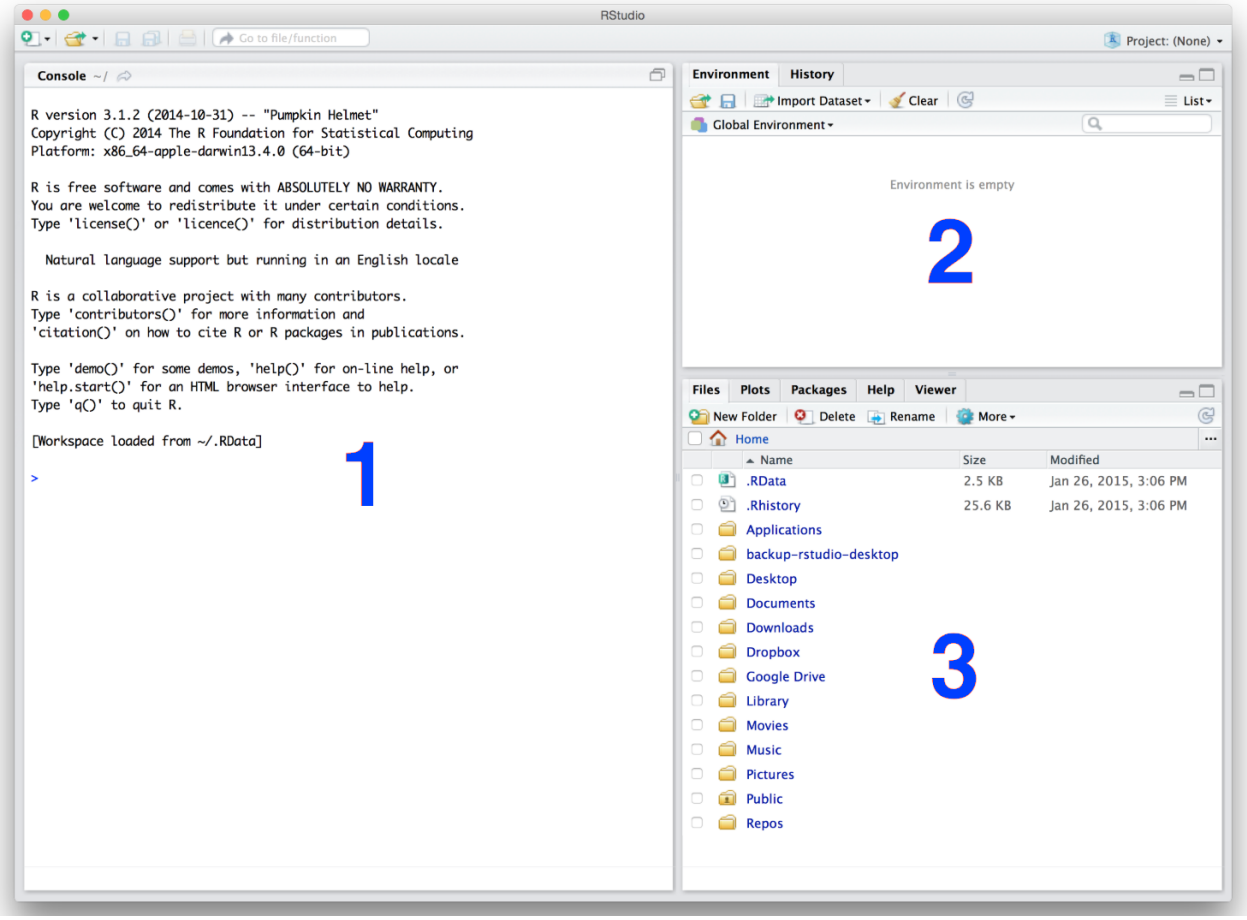

Figure 2: For interactive analysis of data, we'll use RStudio in this course. Anatomy of default RStudio is shown. 1. This is the Console. 2. Environment and History. 3. Files, Plots, Packages, Help and Viewer. If a script is opened up, it will appear on top of Console.

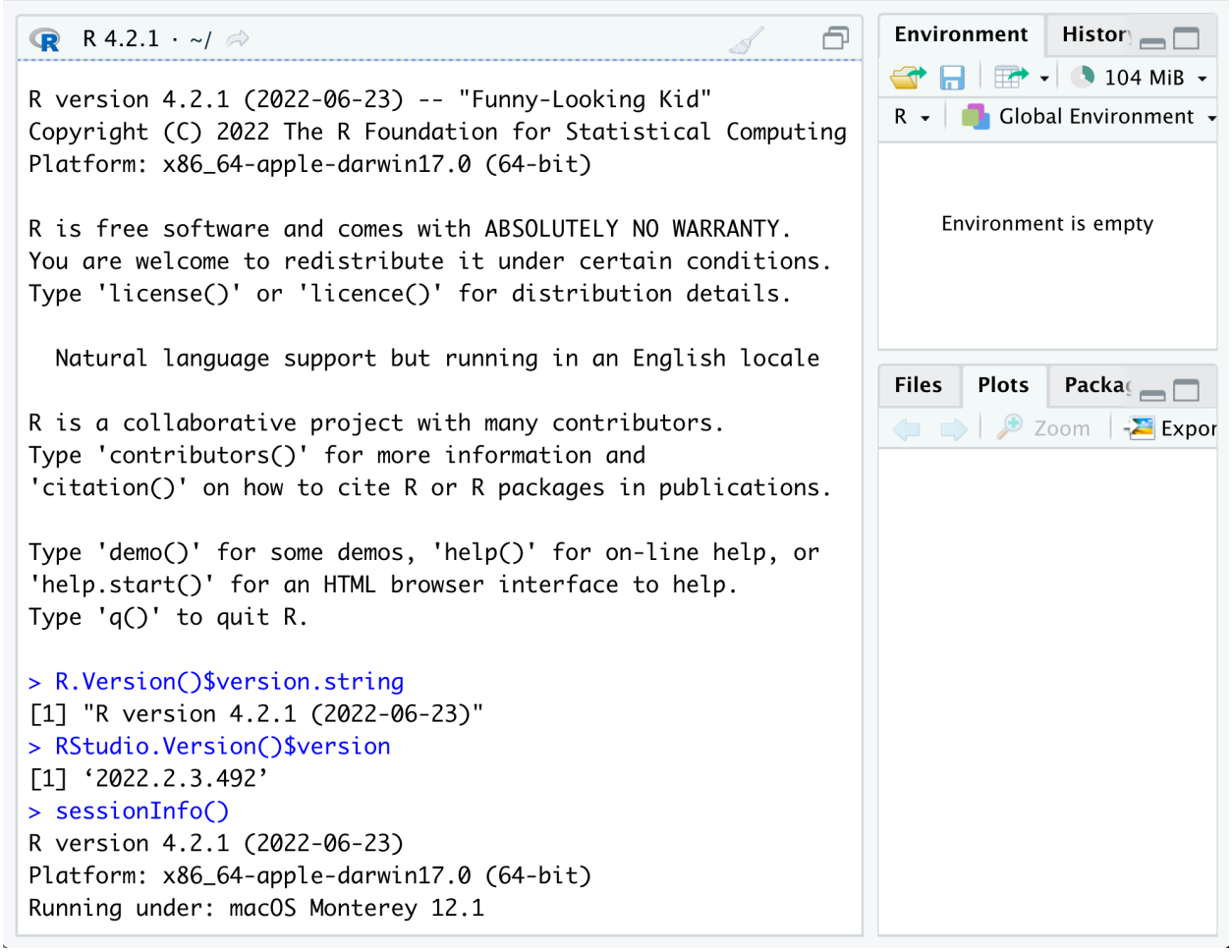

Figure 3: In the console, where a blue greater than symbol > appears, a user may enter commands. After entering a single command, press <ENTER> to run the command. Then enter the next command.