Navigating R Studio for programming

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1 The four panes of RStudio

By default, RStudio opens with four panes. All but the top left one even have several tabs with their own menu bars. In this tutorial, I will call the panes with the names of the tabs in focus.

2 Console

- Command line of the bare R
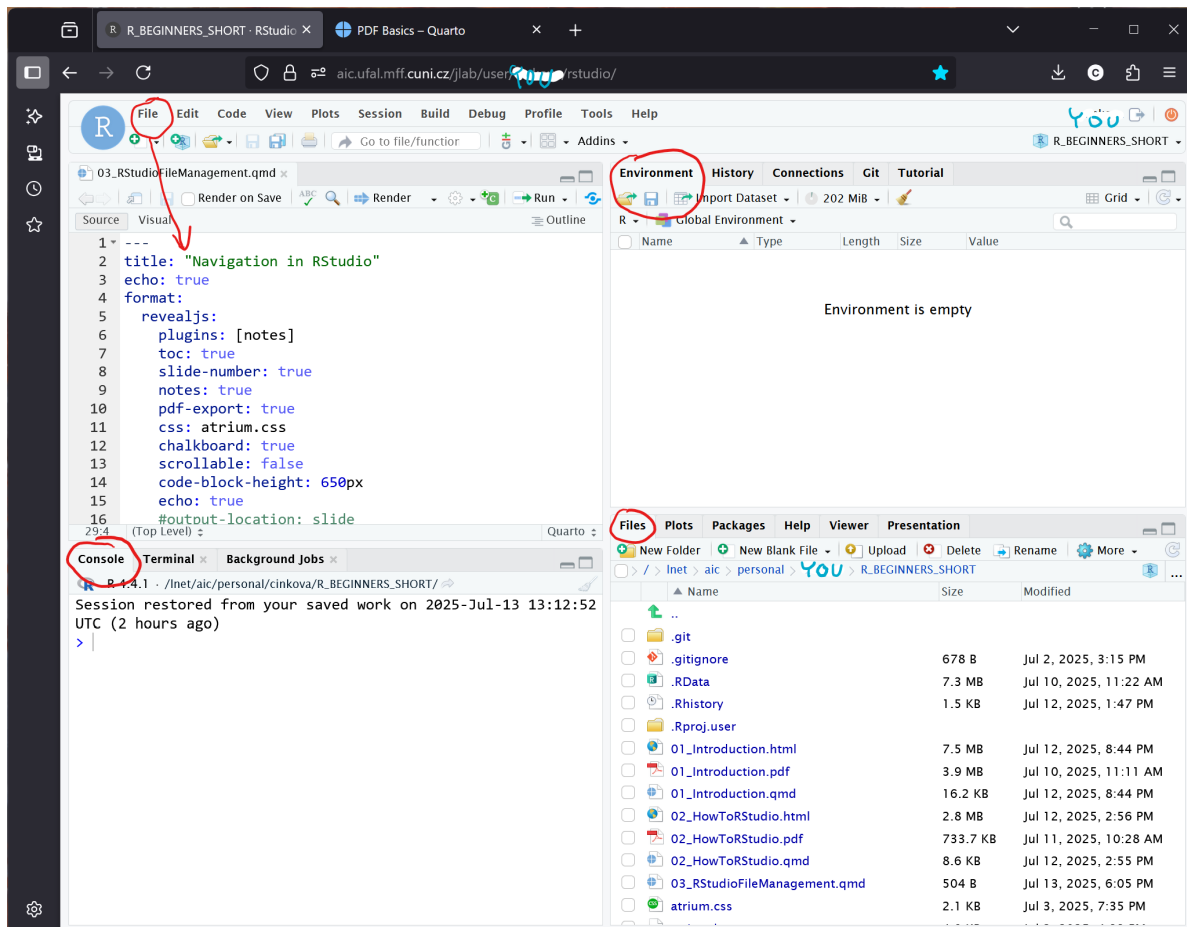- Type a command (e.g. `1 + 1`) and hit Enter to execute it.

Figure 1: `File`, `Console`, `Environment`, and `Files` tabs

- Console displays the output.

- `>` at line start: R is ready to accept your next command

- Console does not save your scripts. Use files to save your work.

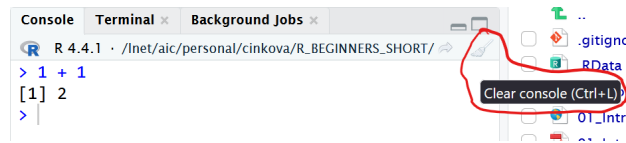- Clear Console: hit the broom icon or `Ctrl + L`.

Figure 2: De-clutter the Console with the broom icon.
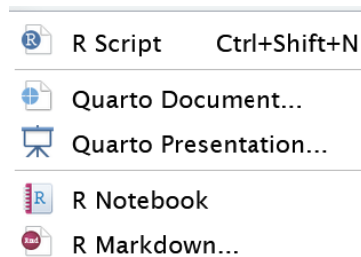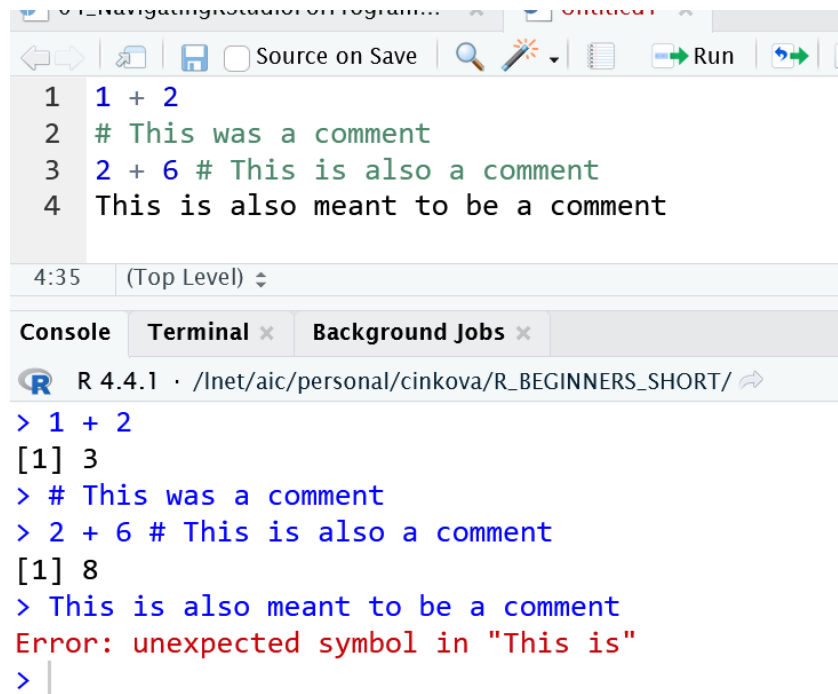
3 File formats for writing scripts

Figure 3: File formats for writing R scripts

Quarto, R Notebook, and R Markdown are markdown-based formats you have learned about. They are fantastic when you need to accompany your code with text and report the results in a single file. But not all scripts require fancy presentation. If you just want to do something quick (but still worth saving for later reuse), you may prefer the bare R Script file (`.R`). It comes as an empty plain text file with the `.R` suffix.

4 Run a script with comments

In this format, R reads each line as a command and will throw an error and stop at each line it cannot execute. When you want (you should) comment your code, you must put a fence `#` before the text to tell R to ignore it.

```
1   1 + 2
2   # This was a comment
3   2 + 6 # This is also a comment
4   This is also meant to be a comment

4:35   (Top Level) ⇕

Console   Terminal ×   Background Jobs ×

R  R 4.4.1 · /lnet/aic/personal/cinkova/R_BEGINNERS_SHORT/

> 1 + 2
[1] 3
> # This was a comment
> 2 + 6 # This is also a comment
[1] 8
> This is also meant to be a comment
Error: unexpected symbol in "This is"
>
```
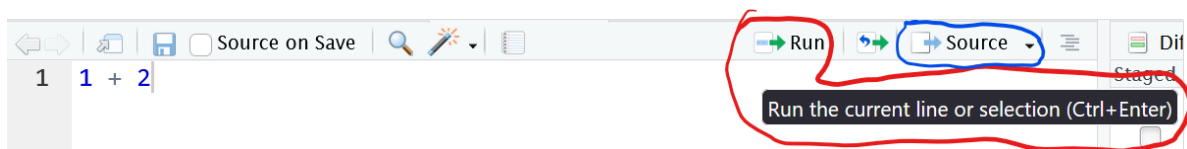
Figure 4: Comment your code correctly.

Figure 5: Highlight and *run* a line or several lines or *source* the whole file at once.

5 Environment pane

- lists objects currently loaded in R

  - variables

  - functions you have written

- Delete objects with the broom icon.

  - Toggle List and Grid view.

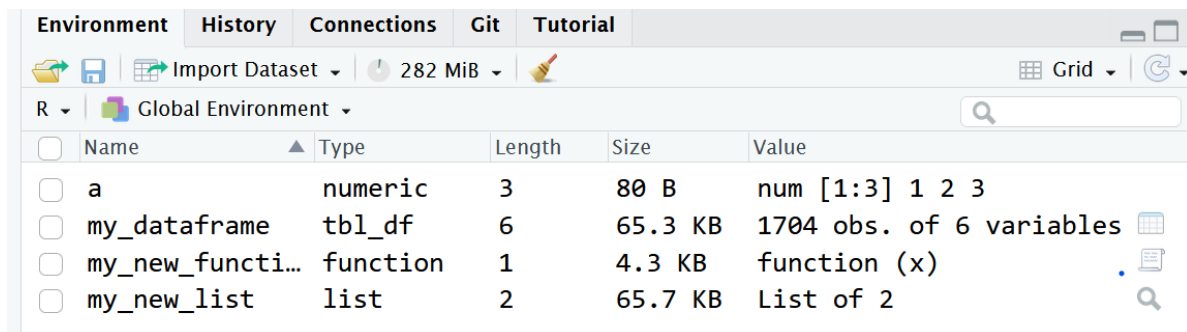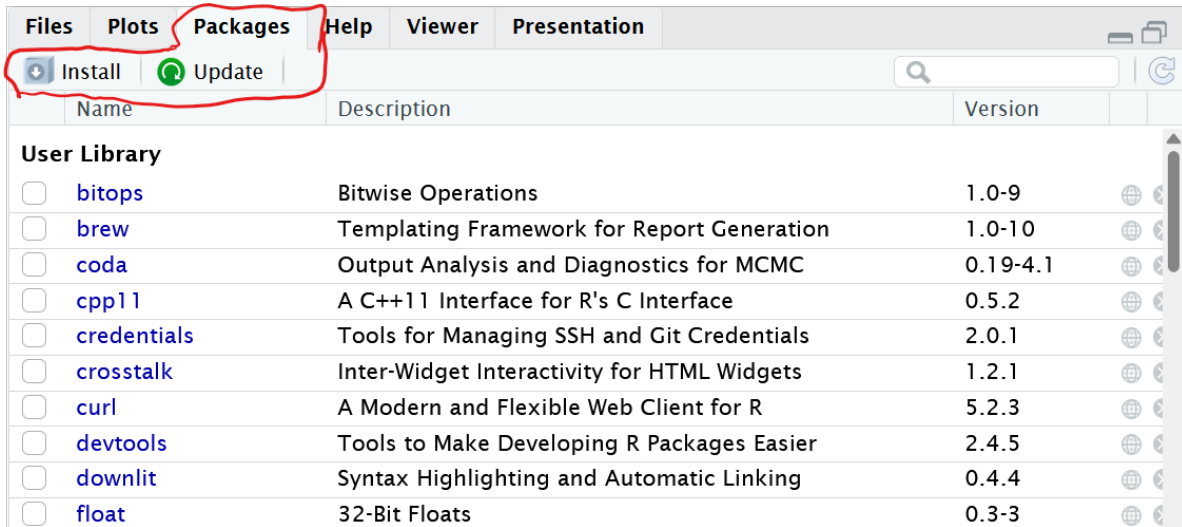 - Grid view can mark individual objects for deletion.

Figure 6: Environment with objects in Grid View

What you see is the so-called Global Environment. Each software library (aka software package) that you load (more later) will create its own environment. In this course, we will only consider the Global Environment.
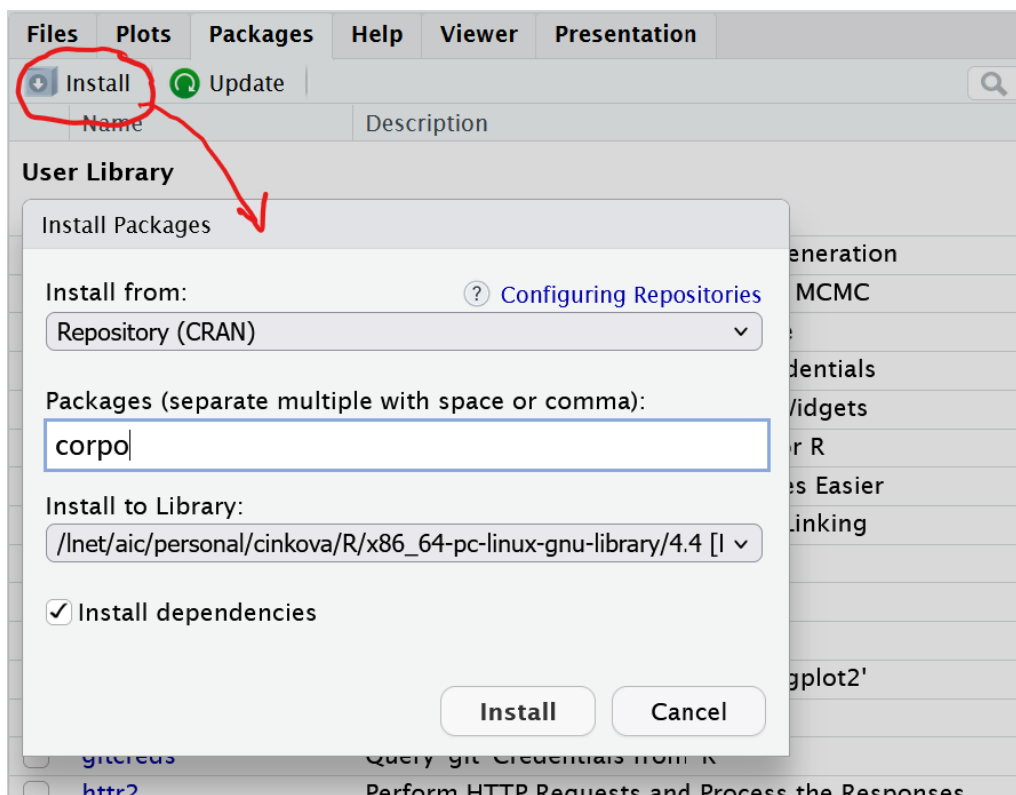
6 Packages pane

You typically install packages from https://cran.r-project.org/

Figure 7: Install packages

A package sometimes has dependencies; i.e., requires other packages to work correctly. When you check `Install dependencies`, R will load all missing dependent packages automatically. CRAN is the official repository of R packages. But you can as well download a package from GitHub or elsewhere. You just adjust the source with `Configuring Repositories` in the `Install` menu.

7 Get Help

- Roll down menu top left pane
- Help tab in bottom right pane
- https://stackoverflow.com/questions
- MS Copilot, ChatGPT & Co. quite good.
- Wickham et al.: *R for Data Science*
- Grolemund: *Hands-On Programming with R*
- https://www.tidyverse.org/

8 Plots pane

- plots output from Console/R file
- you can export them interactively

Figure 8: `Plots` pane