R Basics using RStudio

Hands on Lab:R Basics using RStudio

Estimated time needed: 15 minutes

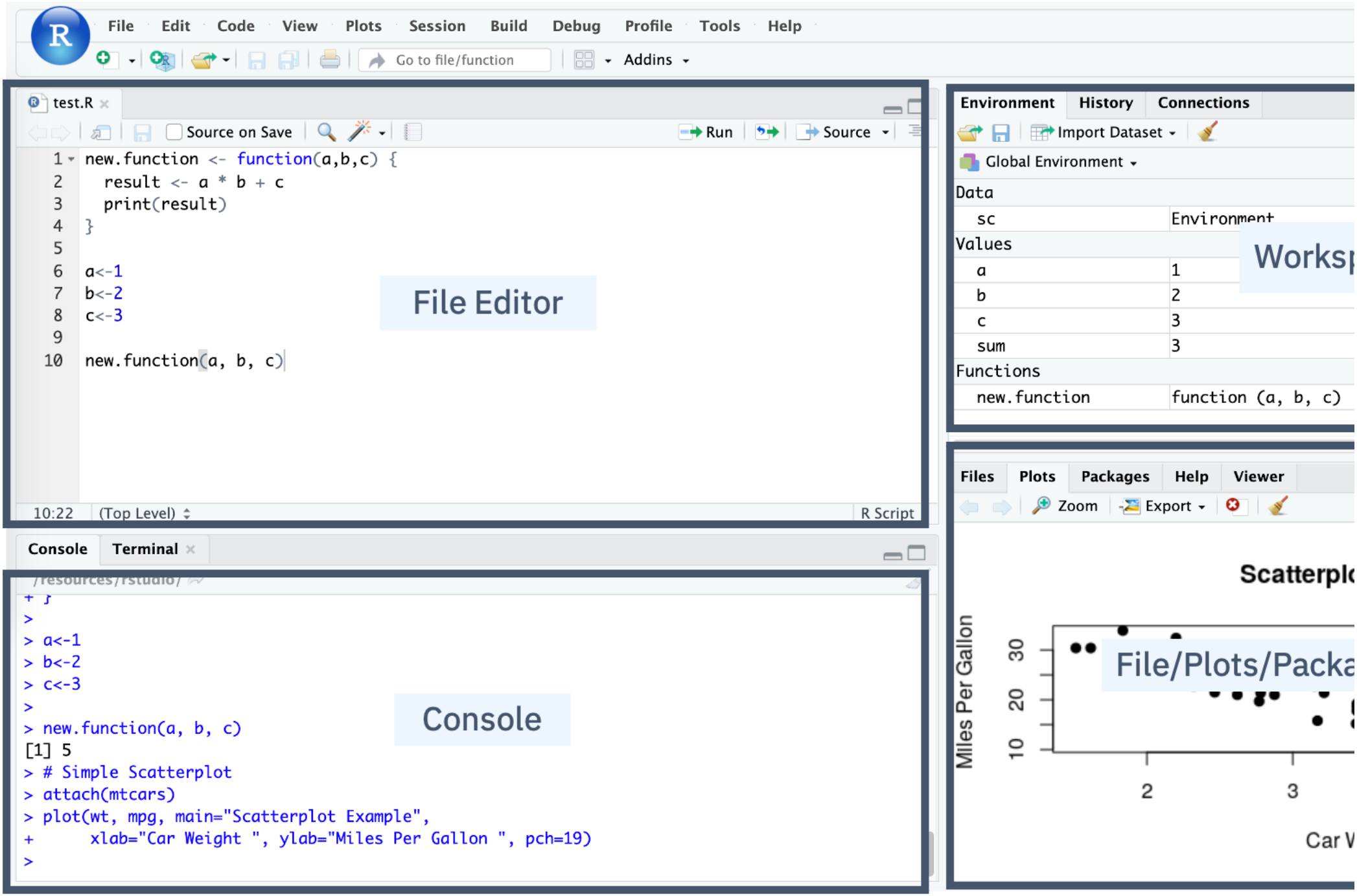
Learning Objectives

- Get familiar with RStudio
- Write your first R code snippet in RStudio

RStudio main UI

In this lab, you will be introduced to RStudio, the most popular and powerful IDE for developing R projects.

The main UI of RStudio is shown here:



- In the `Console` panel, you can quickly try some R commands and see the results immediately.

- In the `File Editor` panel, you can write your R code or other text files with the help of syntax highlighting and auto completion.
- In the `Workspace` panel, you can review and manage the created objects.
- In the `File/Plots/Package` Explorer panel, you can manage your files and other assets, such as plots or packages.

Write the first Hello World code snippet in the Console

Let us write your first **Hello World** in RStudio Console.

- Find the blinking cursor in the Console panel, type an incomplete `prin` or `print` and pause a little bit for RStudio to show a pop-up suggestion list:

The auto-complete feature of RStudio can help avoid the need for memorizing the code details and reducing keystrokes by just selecting from a suggestion list.

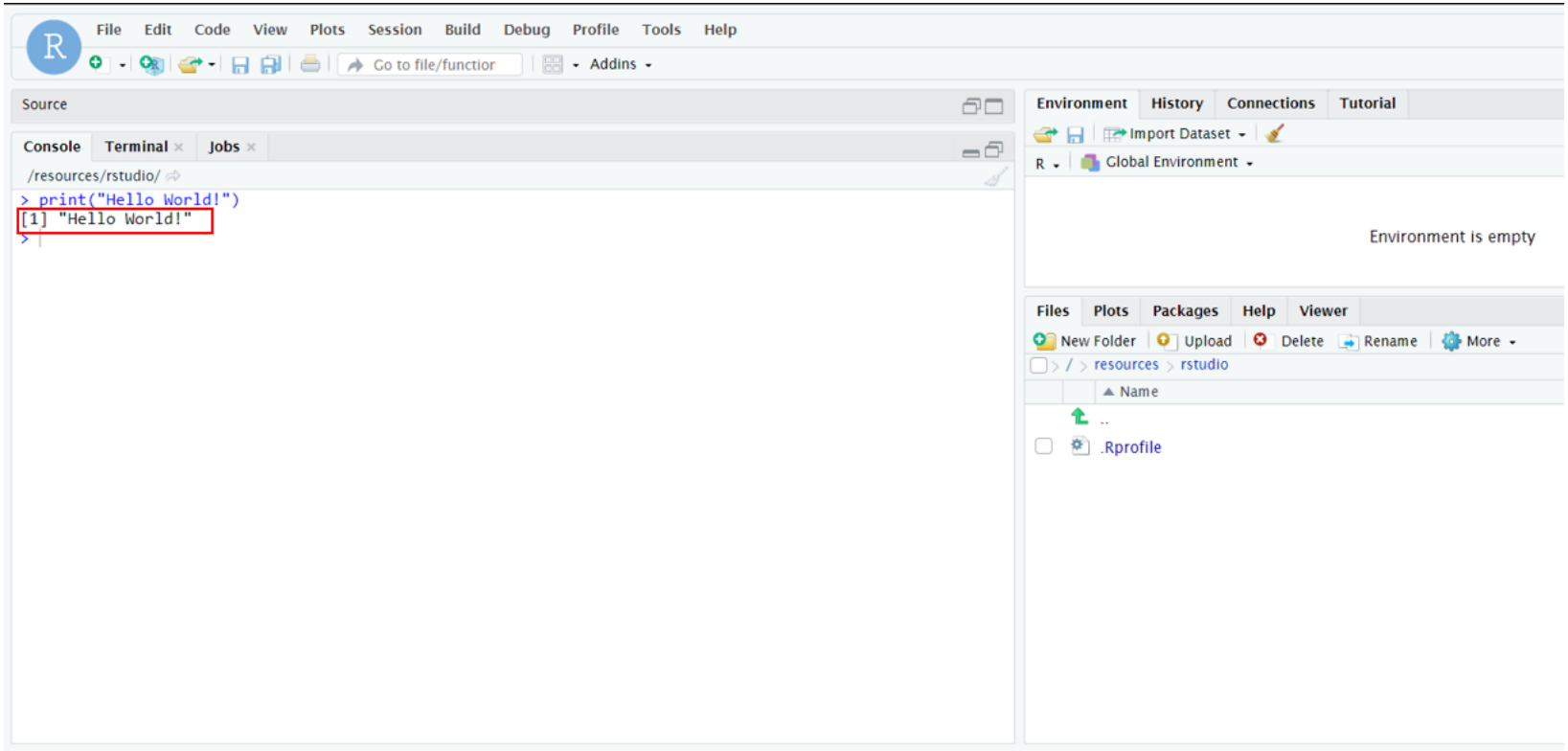
- Select the `print` function and add a character input `Hello World!`, then press the Enter key:

```
1. 1
```

```
1. print("Hello World!")
```

Copied!

You should see `Hello World!` printed on the console.



That's it, you have written your first Hello World code snippet in RStudio.

For practice, you can play with the console by typing anything you have learned so far, such as creating variables and doing basic math operations.

If you want to clear the console, you can press `Ctrl` or `Control` + `L` key combination.

Review R objects in the Environment panel

Now let's try the Environment panel to review the R objects we created in the console.

- Type and run the following three lines of code in the console:

```
1. 1
```

```
1. x<-1
```

Copied!

```
1. 1
```

```
1. y<-2
```

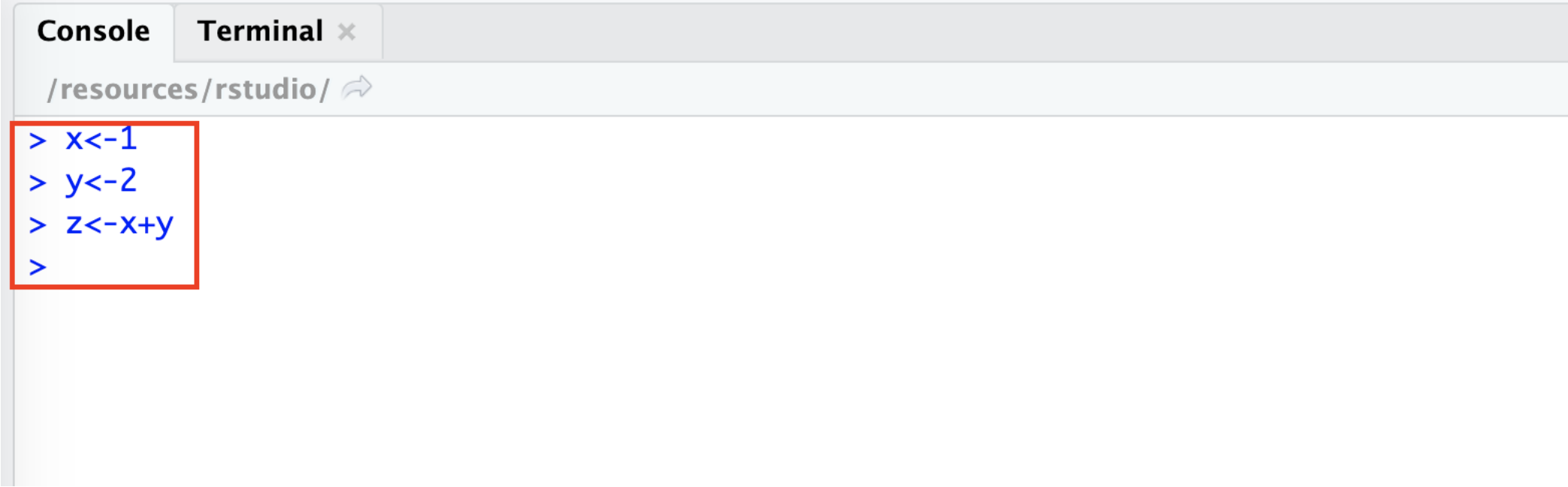
Copied!

```
1. 1
```

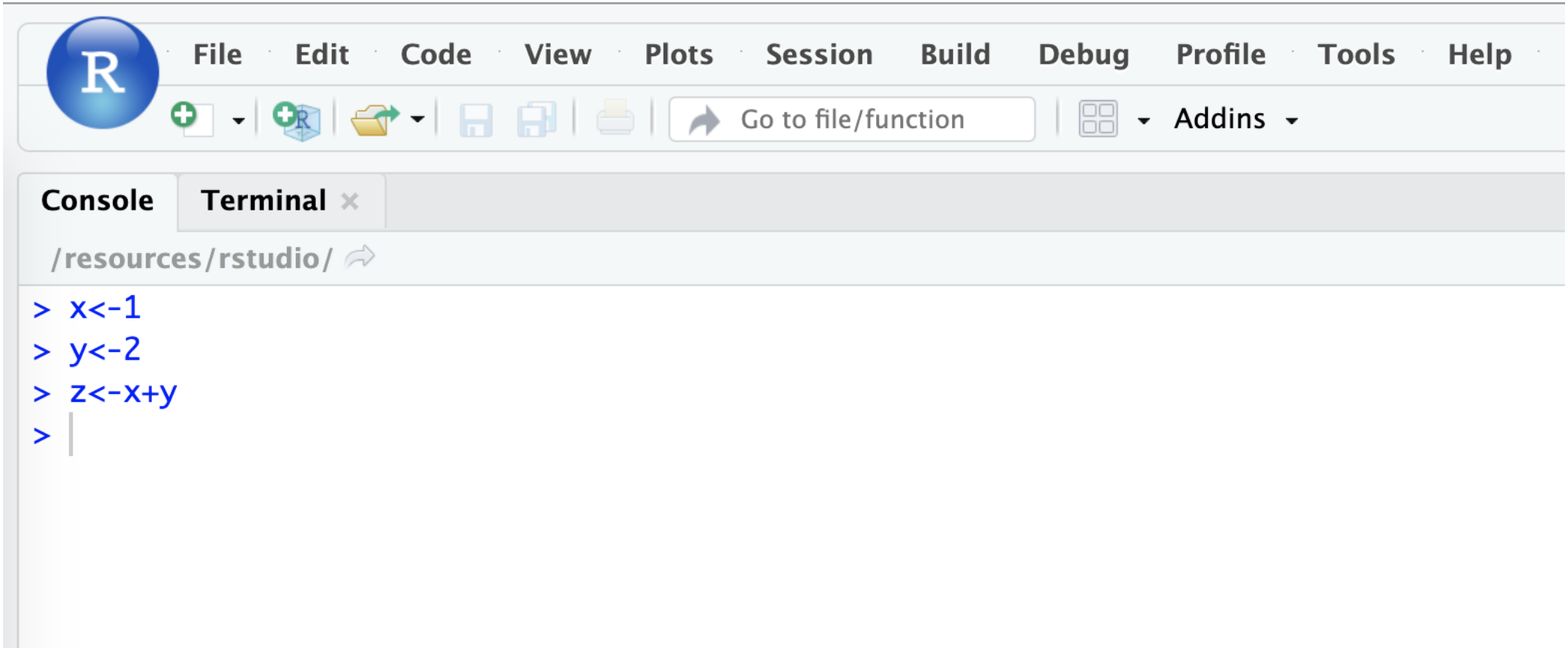
```
1. z<-x+y
```

Copied!

You should see three variables `x`, `y`, `z` with assigned values in the Environment panel.



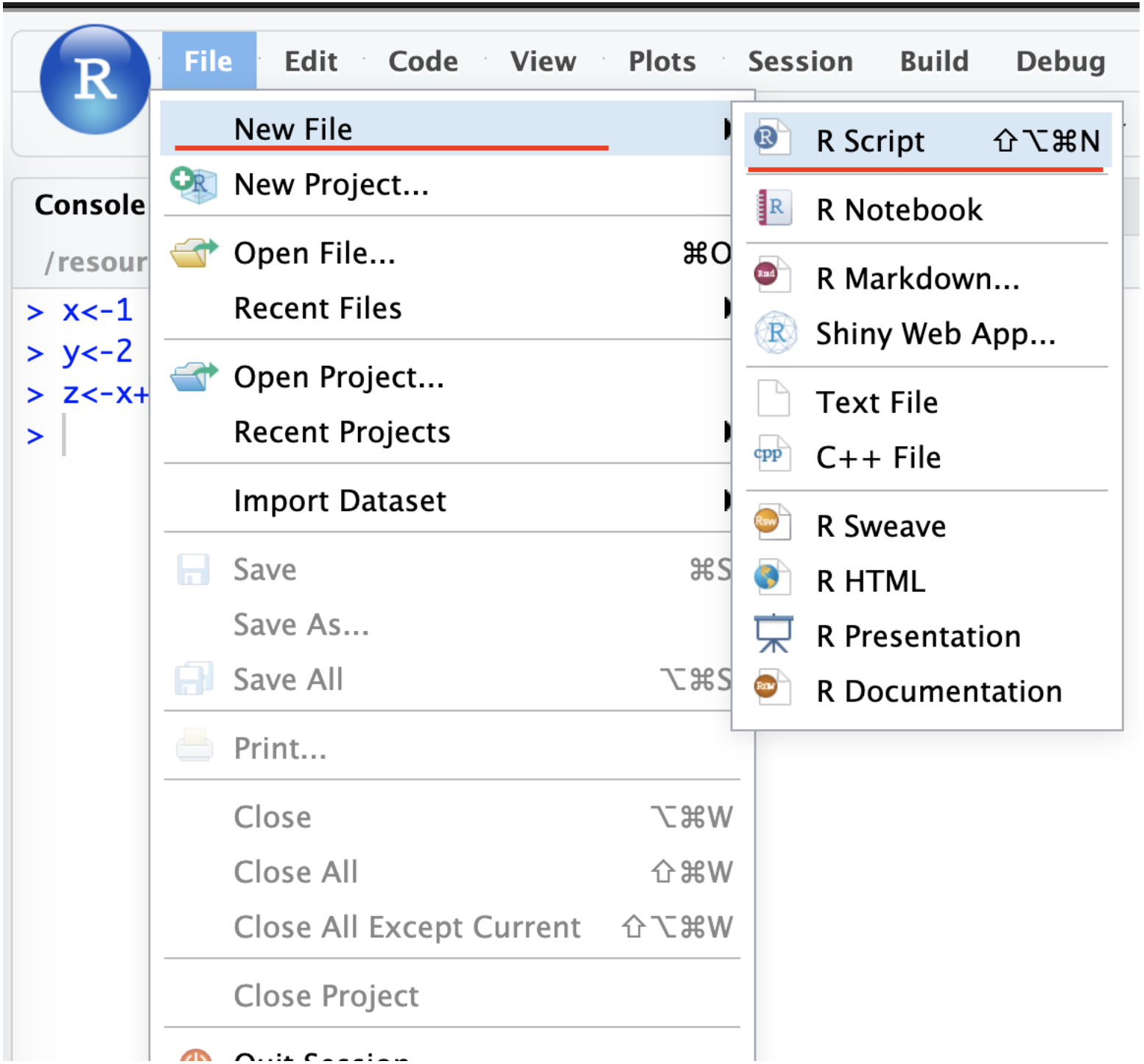
- To clean the workspace, you can click the `Broom` icon as shown below:

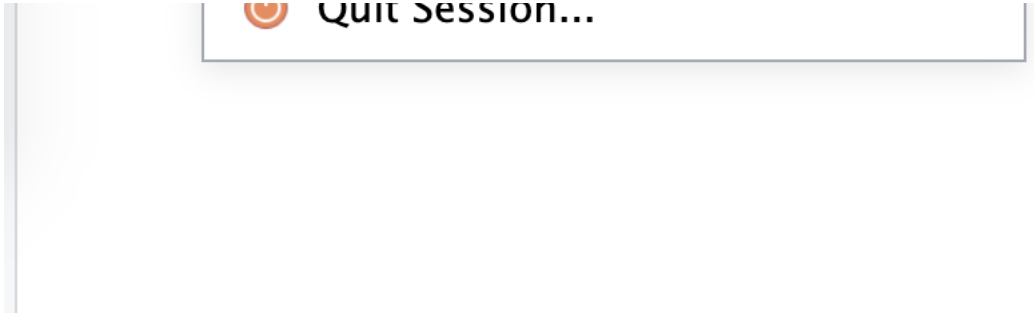


Create your first R script file

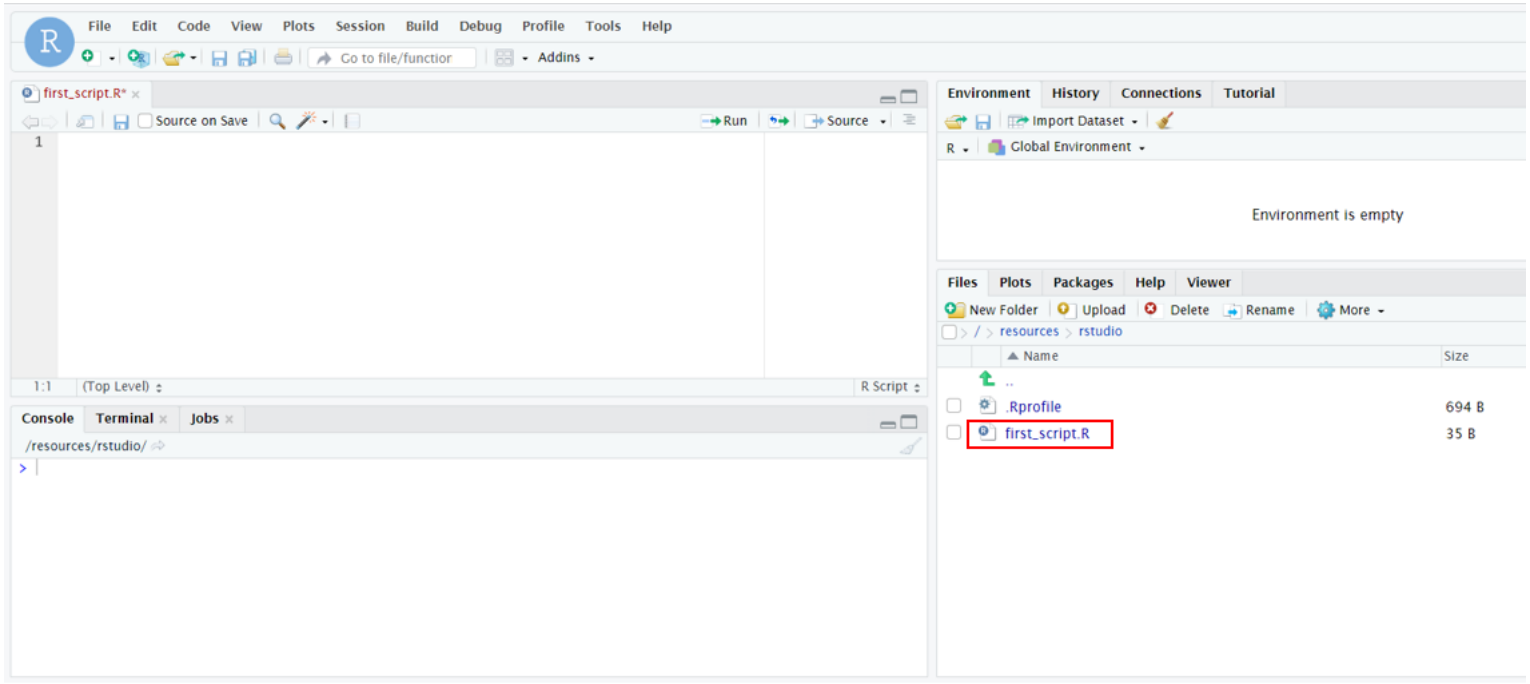
By now, you have written some simple R code in the console interactively. Next, create an R script file with multiple lines of code and run them in batch mode.

- First, from the menu click `File > New File > R Script`.


File
Edit
Code
View
Plots
Session
Build
Debug
New File
New Project...
Open File...
Recent Files
Open Project...
Recent Projects
Import Dataset
Save
Save As...
Save All
Print...
Close
Close All
Close All Except Current
Close Project
R Script
R Notebook
R Markdown...
Shiny Web App...
Text File
C++ File
R Sweave
R HTML
R Presentation
R Documentation
Console
> x<-1
> y<-2
> z<-x+
>



- Then click `File` > `Save`, and name the file something like `first_script`. After the script file is saved, you can see an empty file called `first_script.R` file created in your working directory.



- Next, click `first_script.R` file to add the following code snippet:

```
1. 1
2. 2
3. 3
4. 4
```

```
1. x <- 3
2. y <- 4
3. z <- x + y
4. print(z)
```

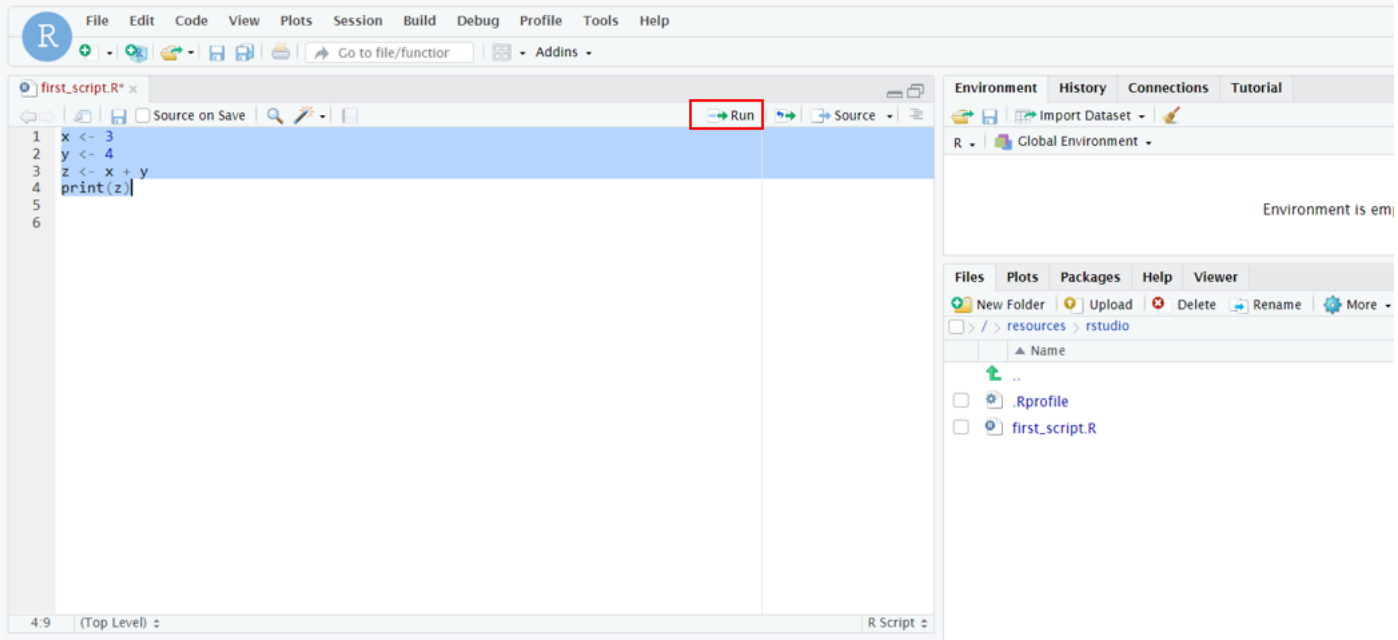
Copied!

You need to make sure the last line of the file is a new empty line.

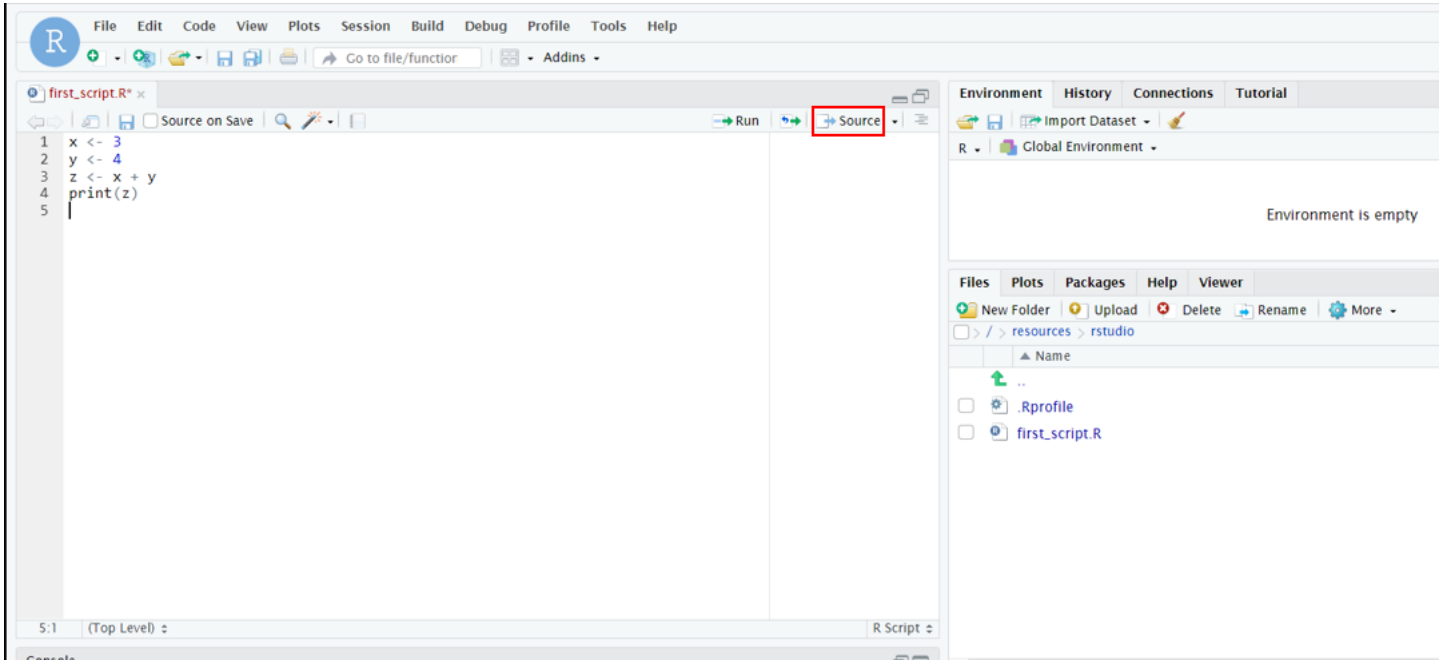
So after copying the code snippet above, press the `Enter` key to start a new line in the script file.

Now, you can run the code in the script file, there are two running modes:

- The first mode is called `Run the current line or selection`. You can click and drag your mouse or use `Shift + Up/Down keys` to select all lines and then click the following `Run` icon to run them:



- The second mode is called `Source` where it runs all lines of code in the file by clicking the following `Source` icon:

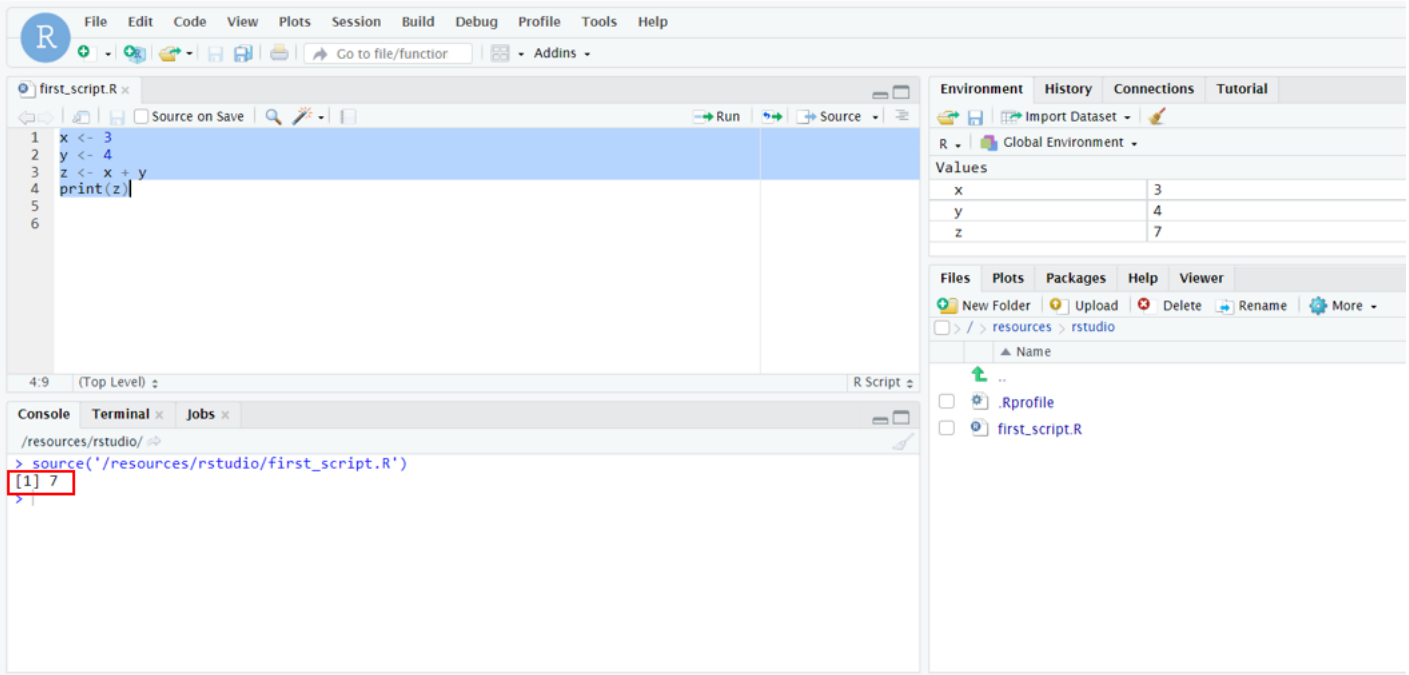


You should see the results in the console:

```
1. 1
2. 2
```

```
1. source('/resources/rstudio/first_script.R')
2. [1] 7
```

Copied!



That’s it about creating and running the R script file!

Exercise: Practice Tasks

Task 1: Create a new R script

- Assign two variables where `x = 10` and `y = 20`.
- Save the file as **Subtract.R**.

▶ Click here for solution

Task 2: Subtract x from y. Store in variable `result` and print the output.

▶ Click here for solution

Summary

In this lab, you have been introduced to RStudio. You have practiced how to write and run R code in both the console and in R script files. You used the Environment panel to review the R objects in your workspace.

Thank you for completing this lab!

Author(s)

Pratiksha Verma

Changelog

Date	Version	Changed by	Change Description
2022-12-20	1.1	Steve Hord	QA pass
24-08-2022	1.0	Pratiksha	Initial version created