Introduction to R Software

Introduction

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Command line, Data Editor and R Studio

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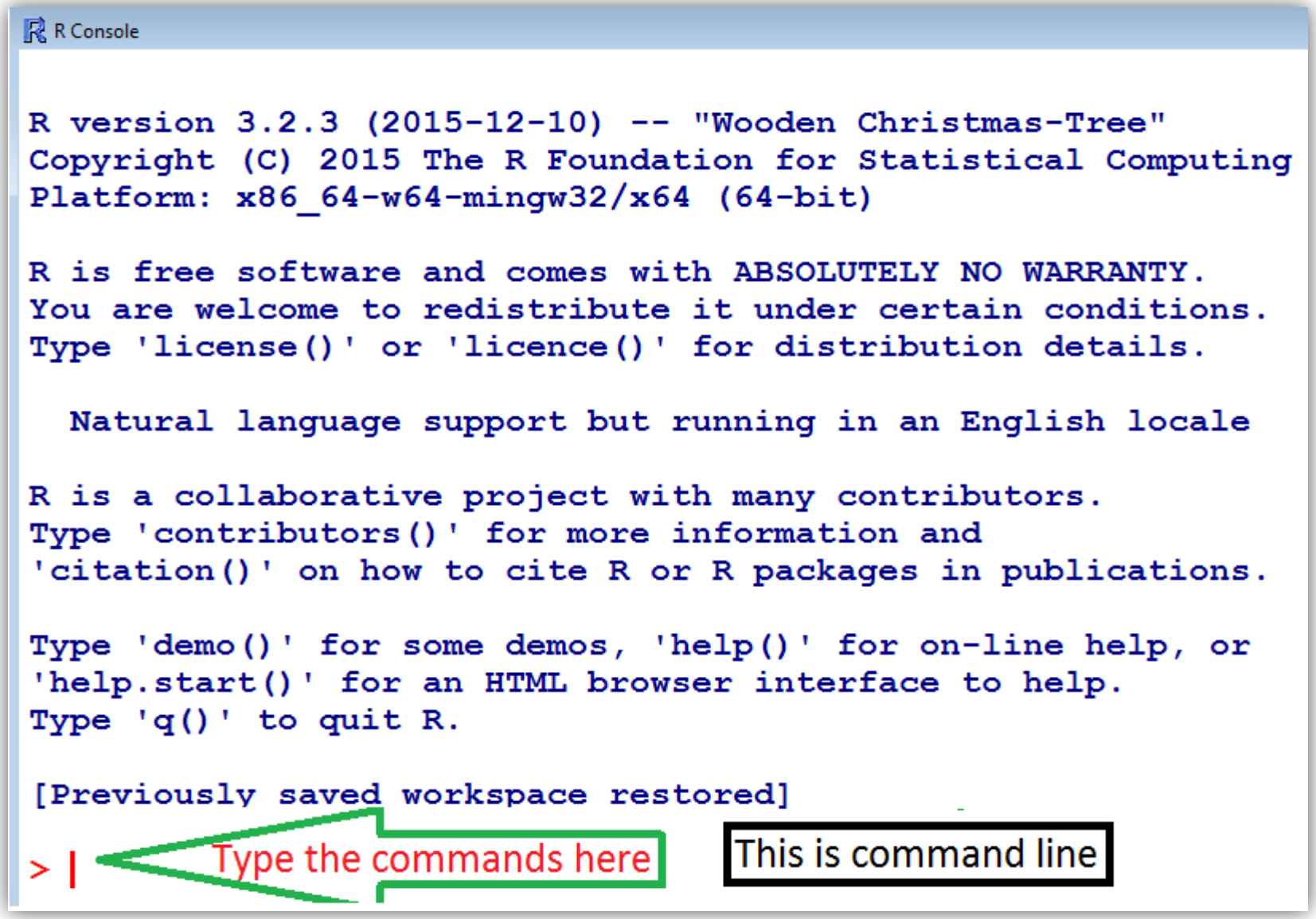
Command Line versus Scripts

What is command line?



Command Line versus Scripts

Execution of commands in R is not menu driven.

(Not like Clicking over buttons to get outcome)

We need to type the commands.

Single line and multi line commands are possible to write.

When writing multi-line programs, it is useful to use a text editor rather than execute everything directly at the command line.

Command Line versus Scripts

Option 1:

One may use R's own built-in editor.

It is accessible from the `RGui` menu bar.

Click `File` and then click on `New script`.

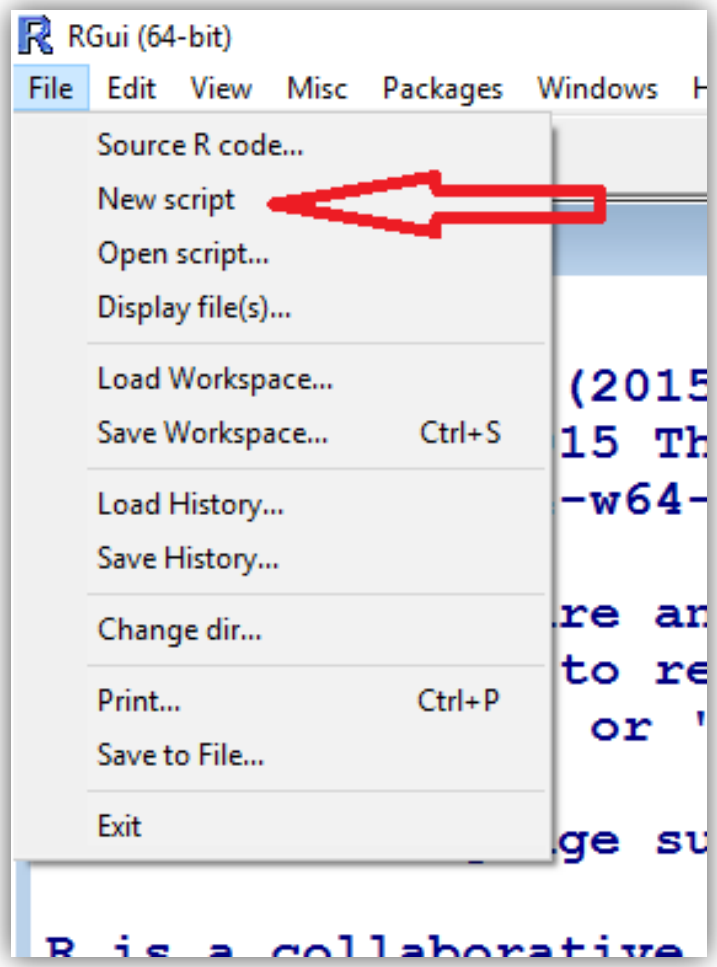
Command Line versus Scripts

At this point R will

open a window entitled

`Untitled-R Editor.`

We may type and edit in this.

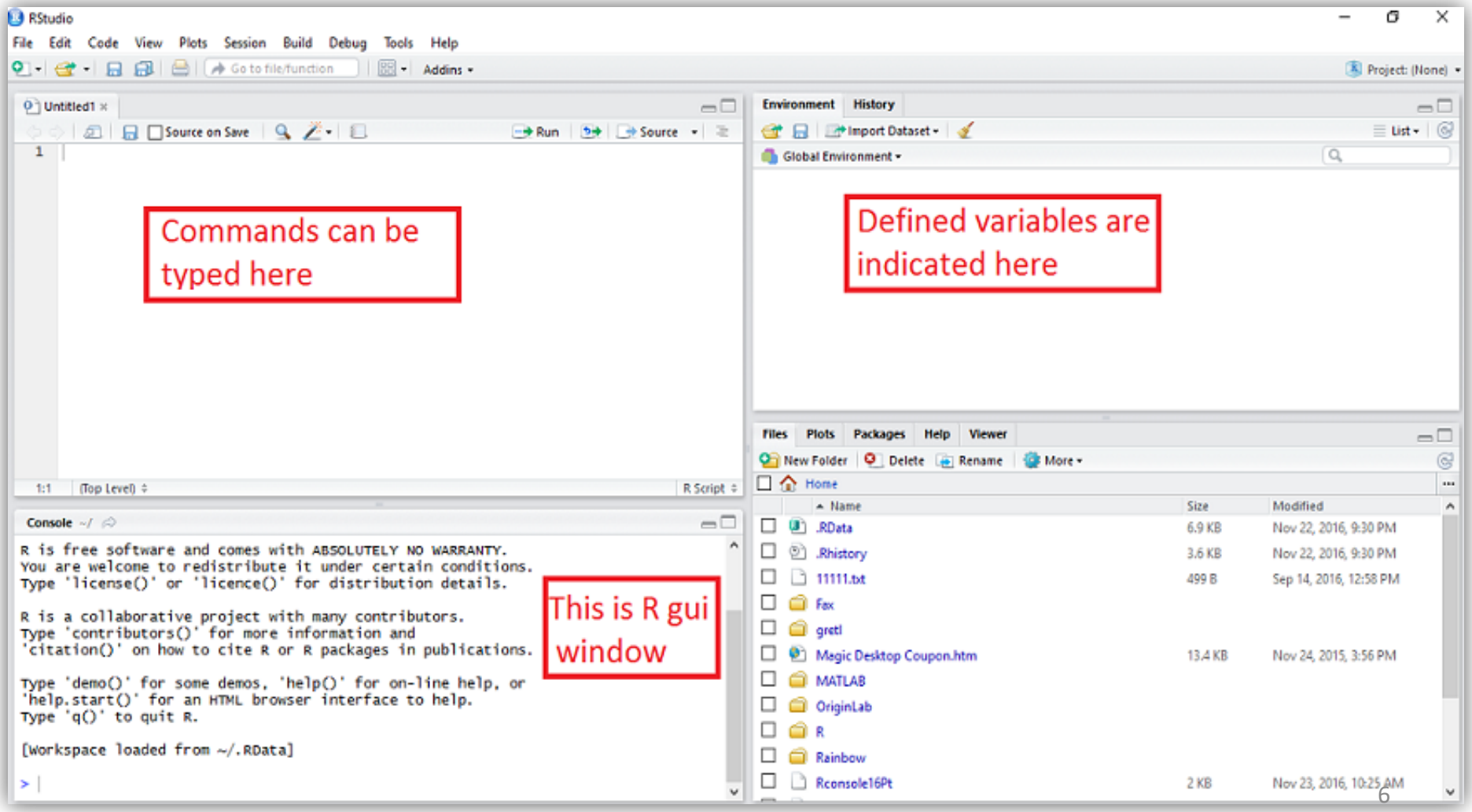


If we want to execute a line or a group of lines, just highlight them and press `Ctrl+R`.

Command Line versus Scripts

Option 2:

Use R studio software.



Command Line versus Scripts

Suppose we want to use following three functions:

Type them.

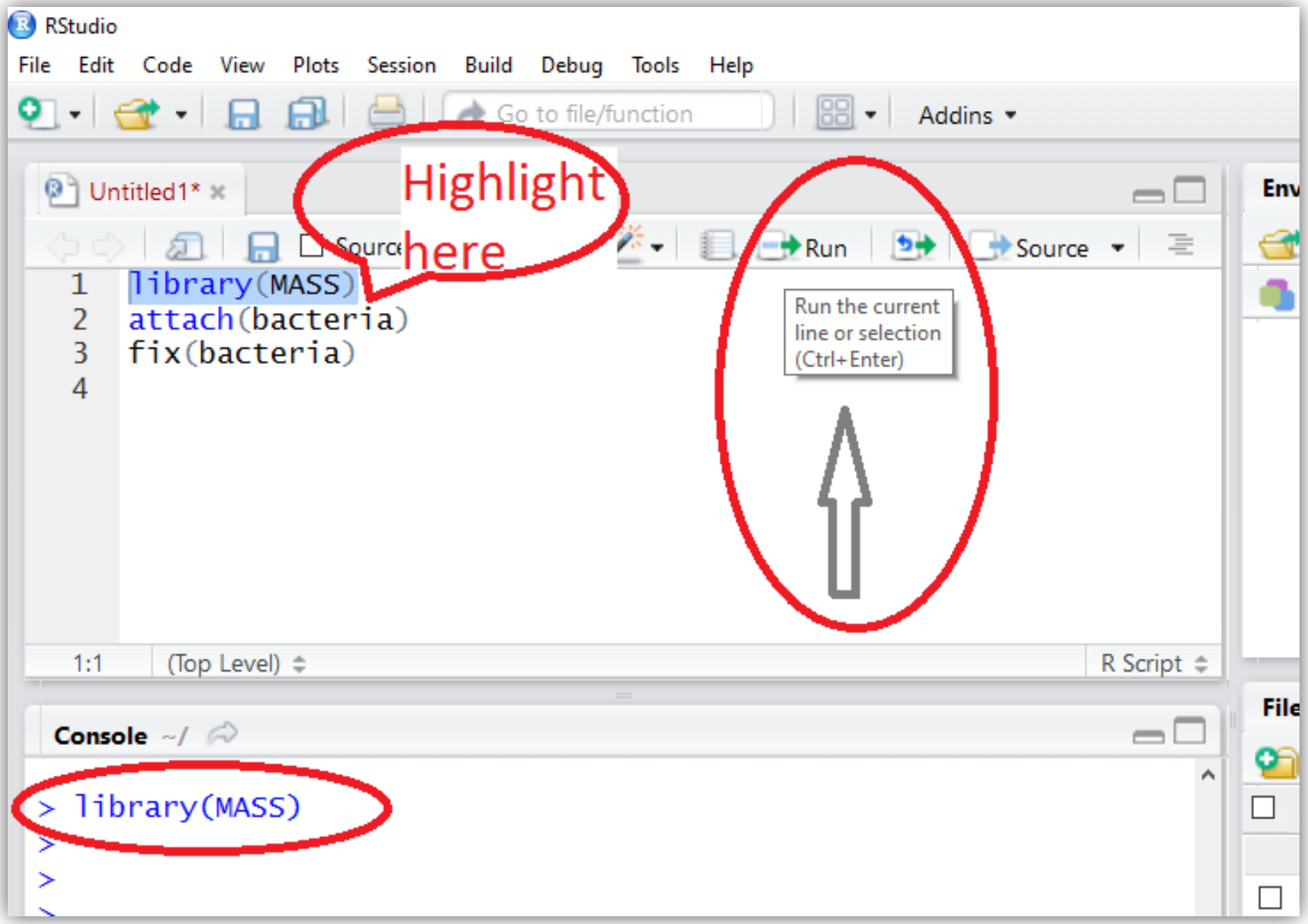
```
library(MASS)
attach(bacteria)
fix(bacteria)
```

Suppose we want to run only function: `library(MASS)`

Highlight it and click on Run

Then we get….

Command Line versus Scripts



Data Editor

There is a data editor within R that can be accessed from the menu bar by selecting Edit/Data editor.

Provide the name of the matrix or data frame that we want to edit and a `Data Editor` window appears.

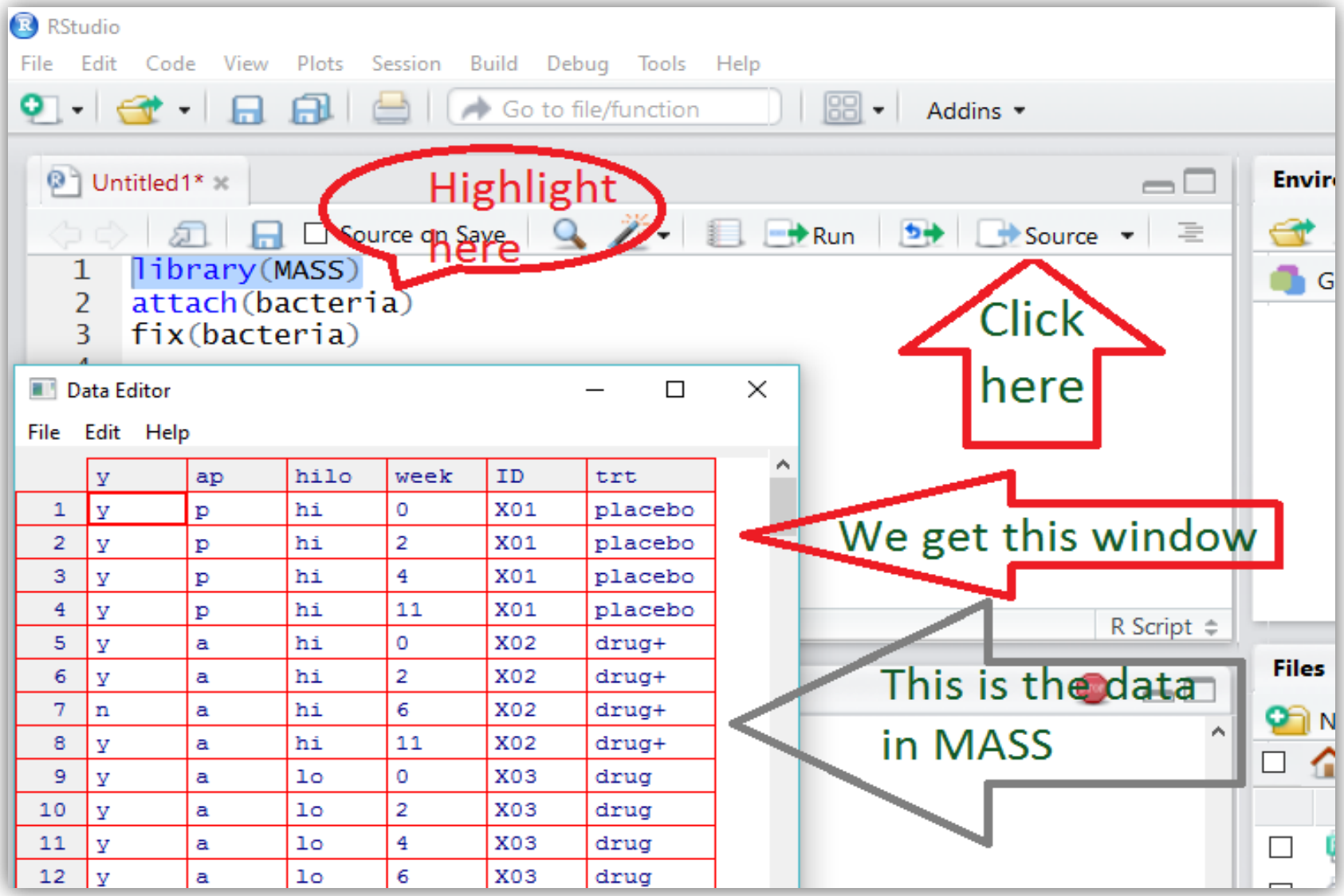
Alternatively we can do this from the command line using the `fix` function.

Example:

```
library(MASS)
attach(bacteria)
fix(bacteria)
```

Data Editor

We can do it in R Studio as follows :



	y	ap	hilo	week	ID	trt
1	y	p	hi	0	X01	placebo
2	y	p	hi	2	X01	placebo
3	y	p	hi	4	X01	placebo
4	y	p	hi	11	X01	placebo
5	y	a	hi	0	X02	drug+
6	y	a	hi	2	X02	drug+
7	n	a	hi	6	X02	drug+
8	y	a	hi	11	X02	drug+
9	y	a	lo	0	X03	drug
10	y	a	lo	2	X03	drug
11	y	a	lo	4	X03	drug
12	y	a	lo	6	X03	drug

Cleaning up the Windows

We assign names to variables when analyzing any data.

It is good practice to remove the variable names given to any data frame at the end each session in R.

This way, variables with same names but different properties will not get in each others way in subsequent work.

`rm()` **command removes variable names**

For example,

`rm(x,y,z)` **removes the variables x, y and z.**

Cleaning up the Windows

`detach()` command detaches objects from the Search Path

It removes it from the `search()` path of available R objects.

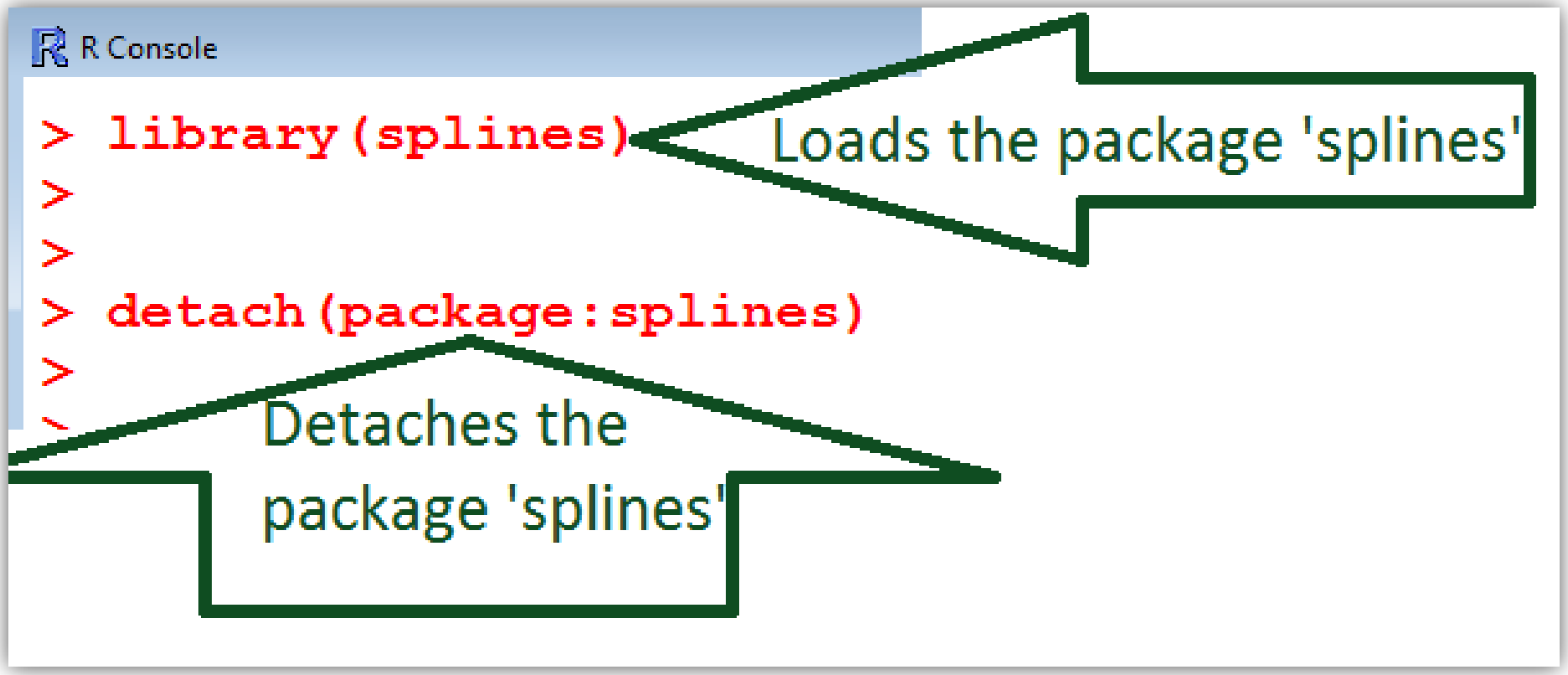
Usually this is either a `data.frame` which has been attached or a package which was attached by `library`.

To get rid of everything, including data frames, type

```
rm(list=ls())
```

Then we get….

Cleaning up the Windows



Introduction to R Studio

It is an interface between R and us.

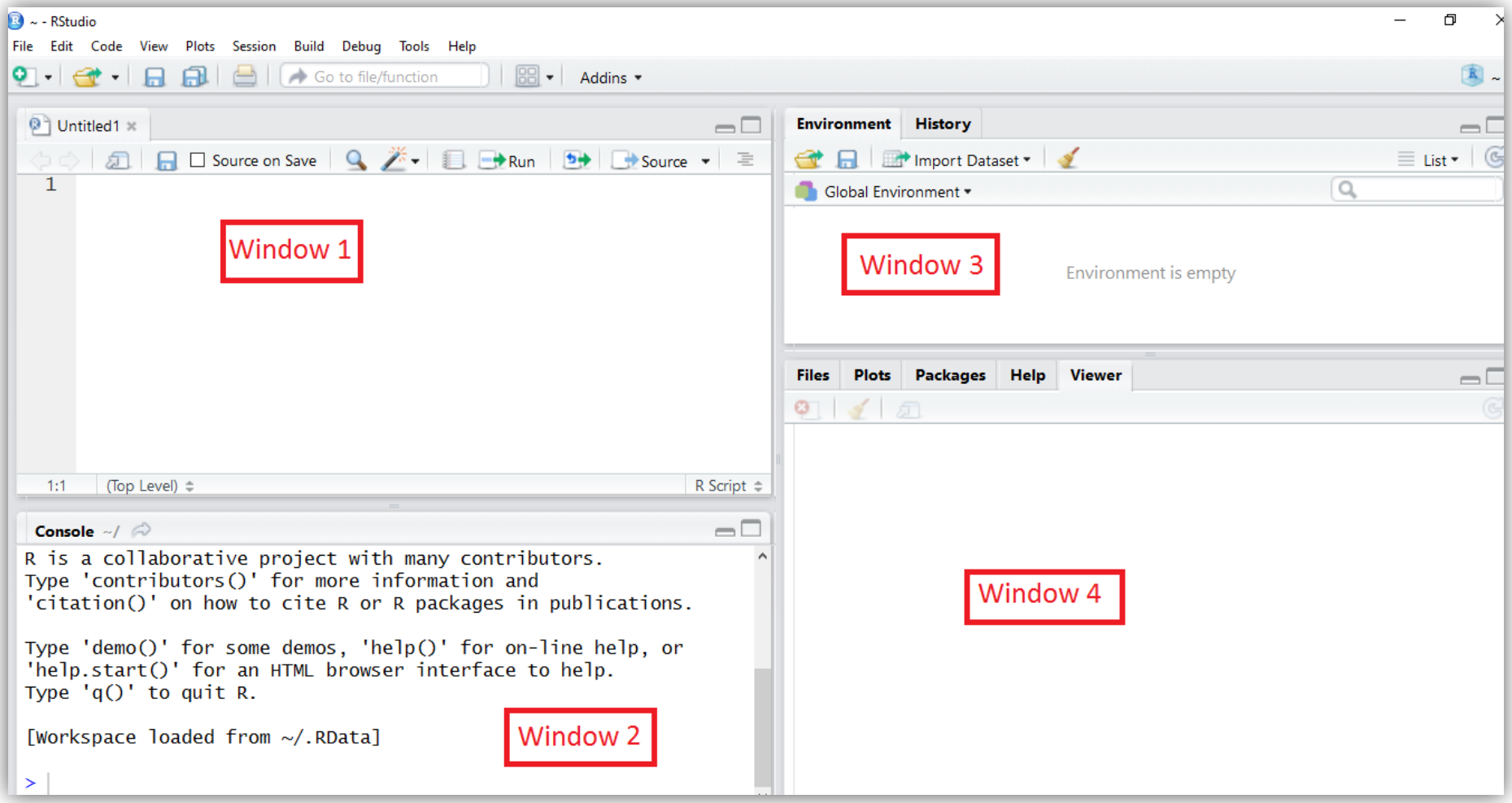
More useful for beginners.

It makes coding easier.

When we start R studio, we see 4 windows

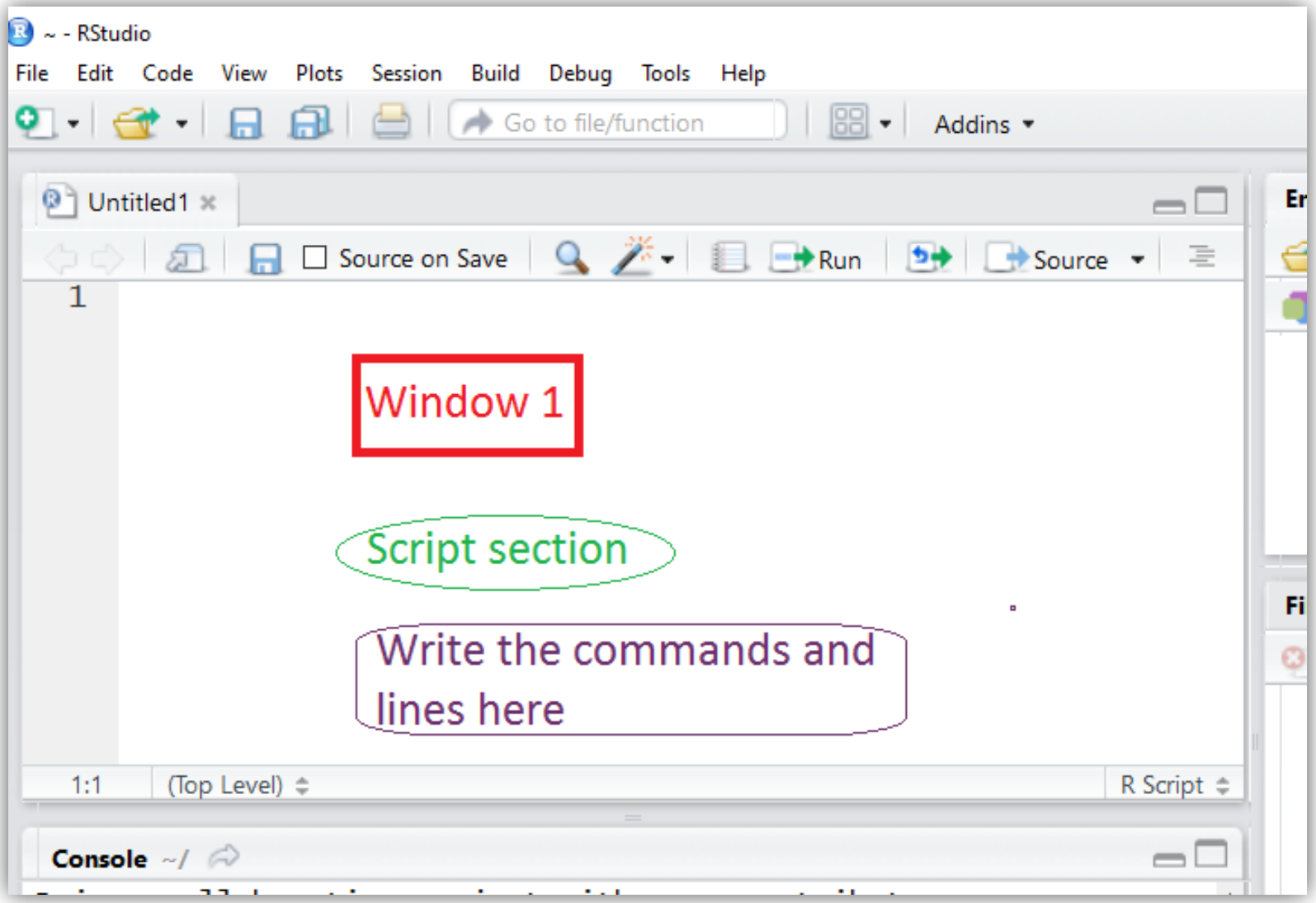
Introduction to R Studio

First opening window of Rstudio is as follows having four windows.



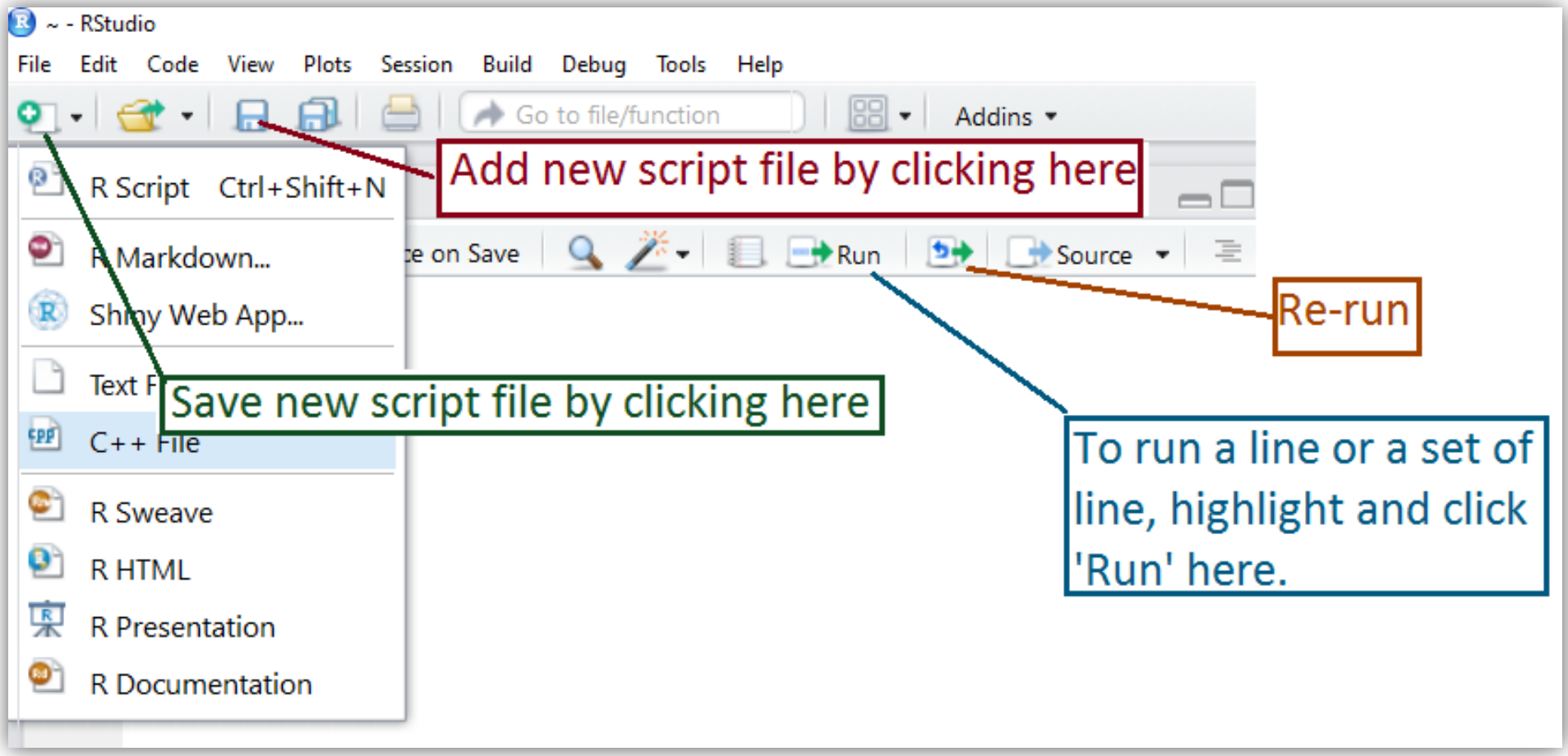
Introduction to R Studio

Description of Window 1



Introduction to R Studio

Description of Window 1



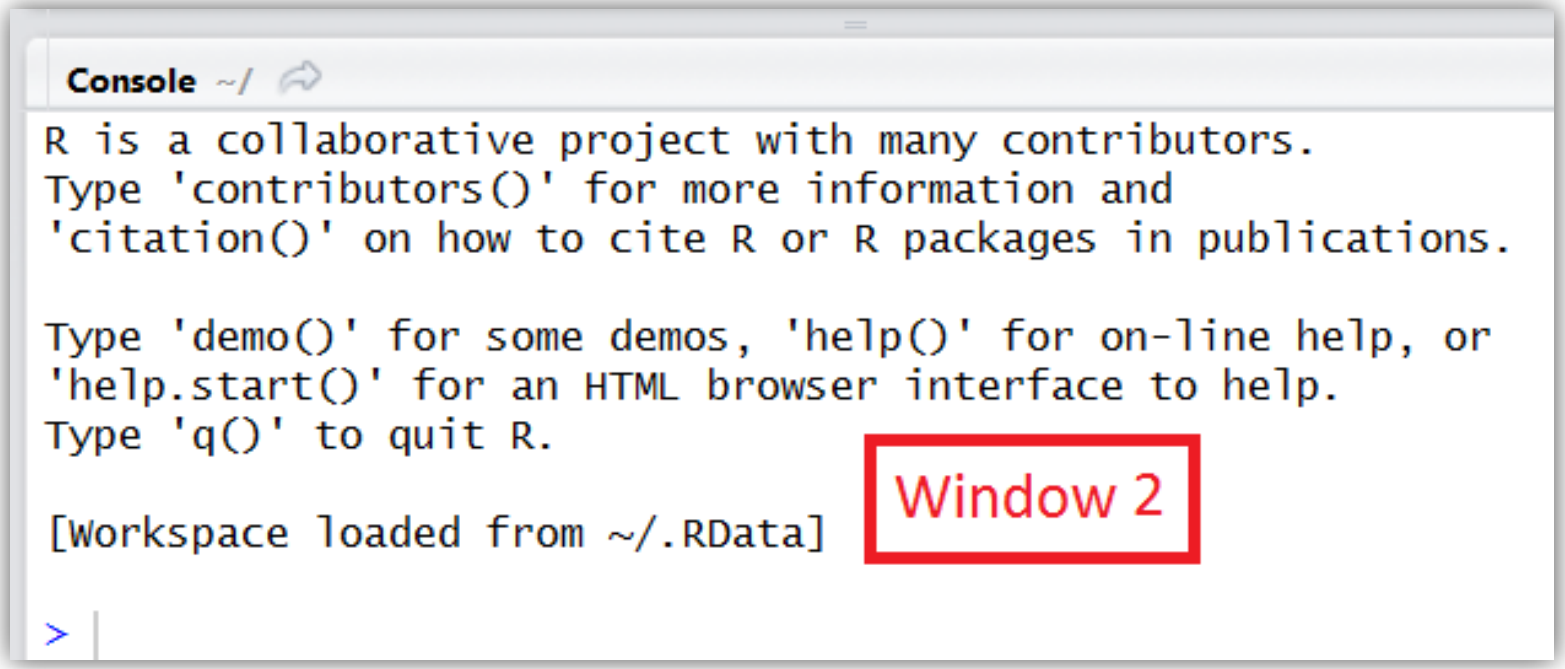
Introduction to R Studio

Description of Window 2 : Console

R program window appears here.

Calculations take place inconsole window.

One can write programmes in console also but it is hard to make corrections and experiments with the coding.

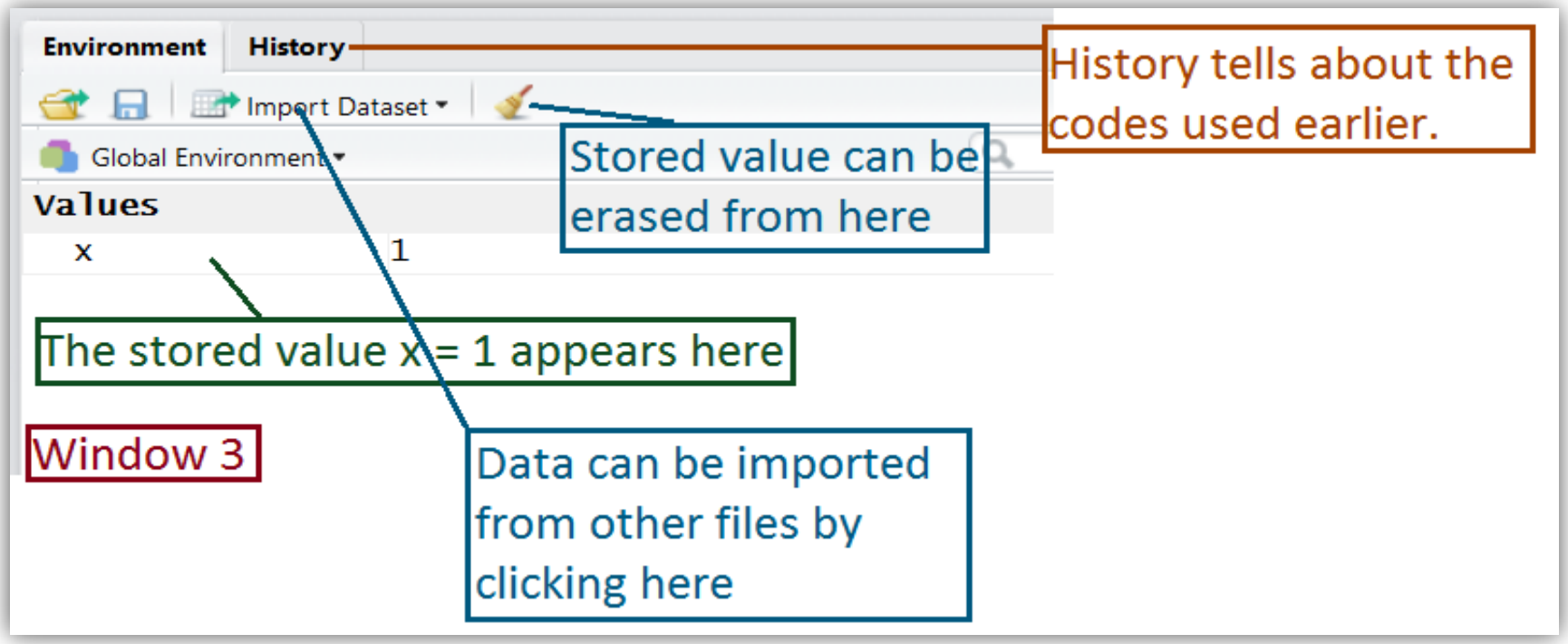


Introduction to R Studio

Description of Window 3 : Environment window

All the variables and objects used in the programme appear here.

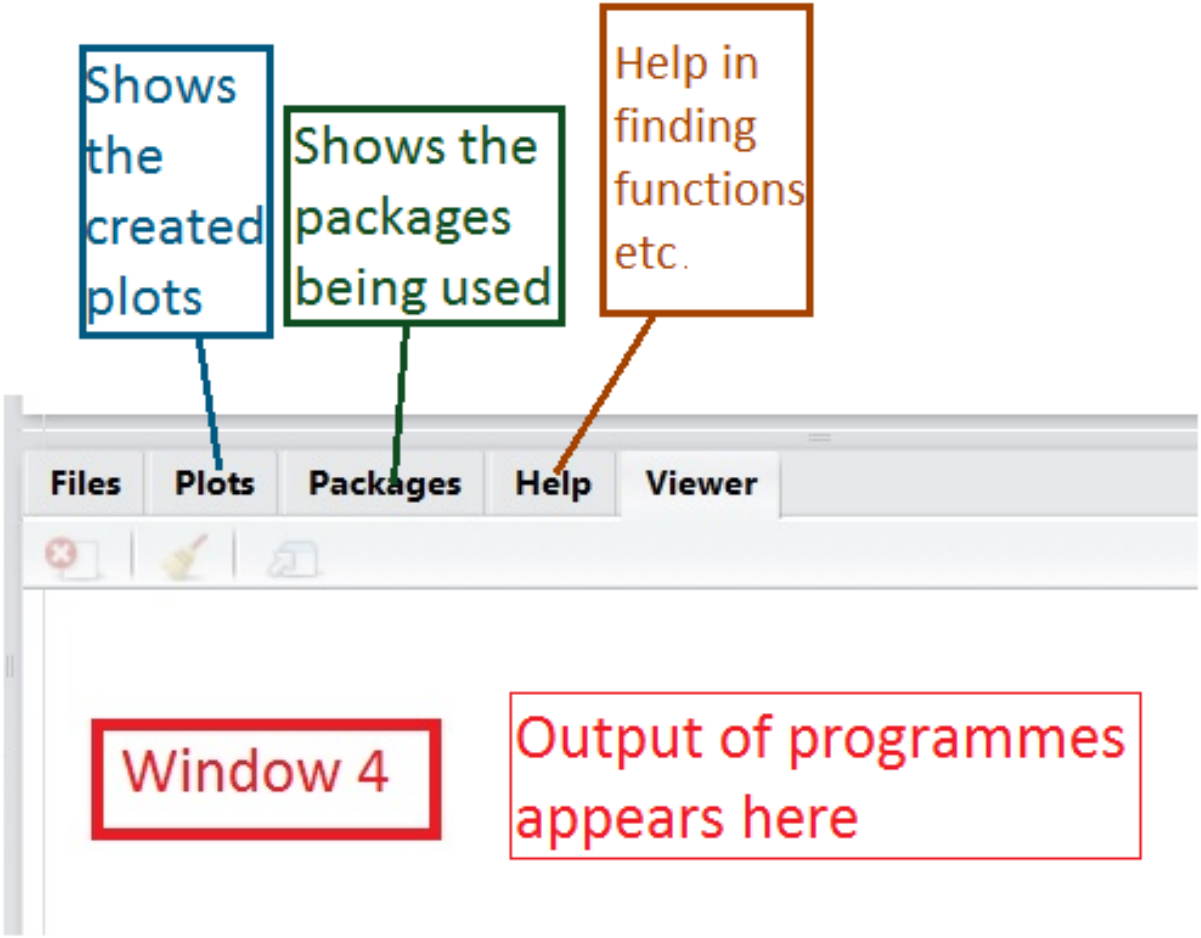
The nature and values of variables and objects also appear here.



Introduction to R Studio

Description of Window 4 : Output window

The output of programmes appears in this window.



Introduction to R Studio

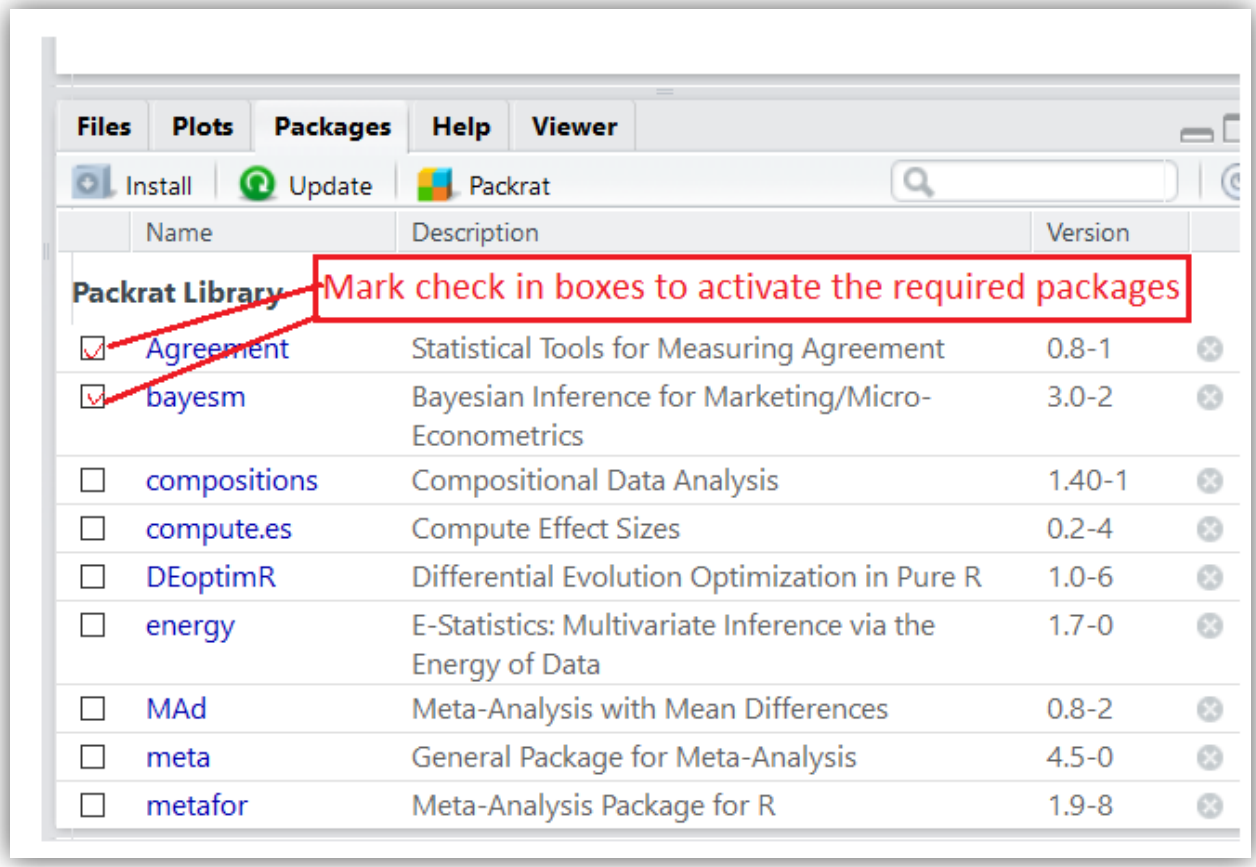
Description of Window 4 : Output window

Packages:

All the packages being installed appear here.

Packages are not active.

Check mark in the boxes to activate them.



Introduction to R Studio

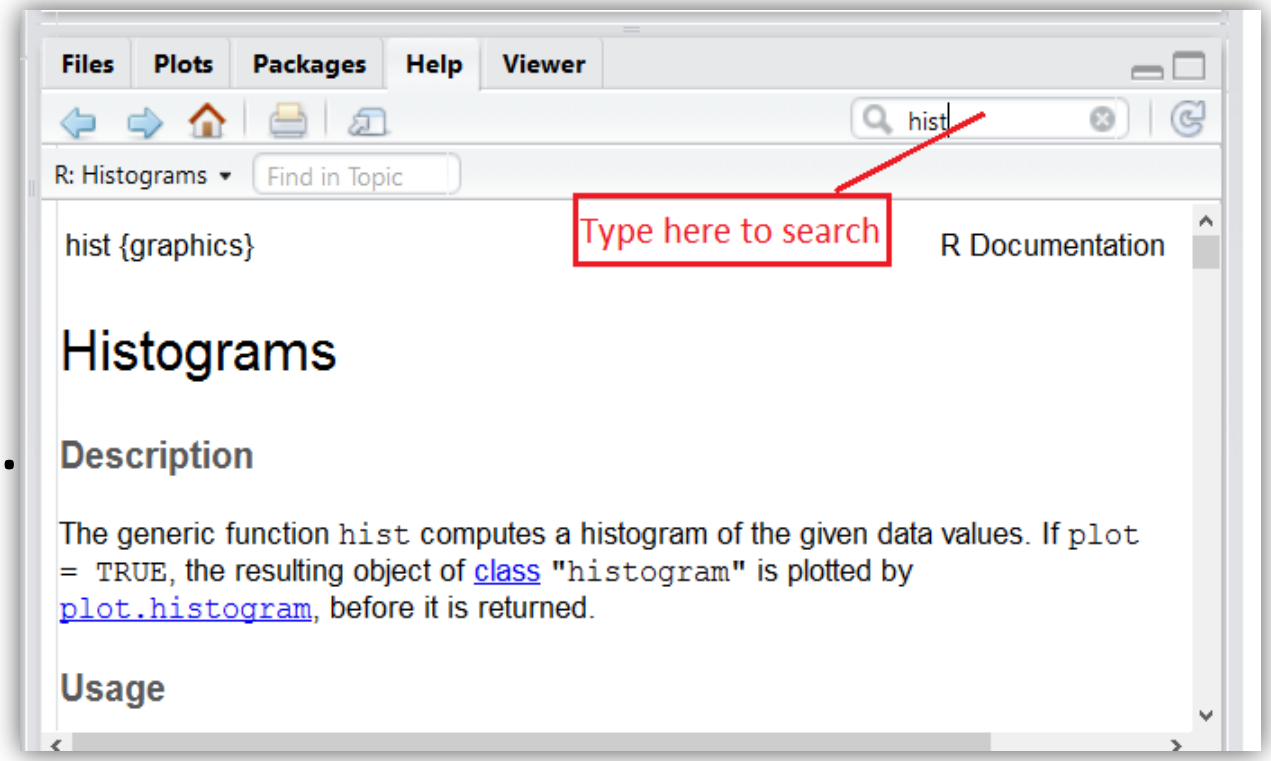
Window 4 : Output window

Help:

Various types of help can be asked.

E.g., to know about histogram, type hist.

Information appears.

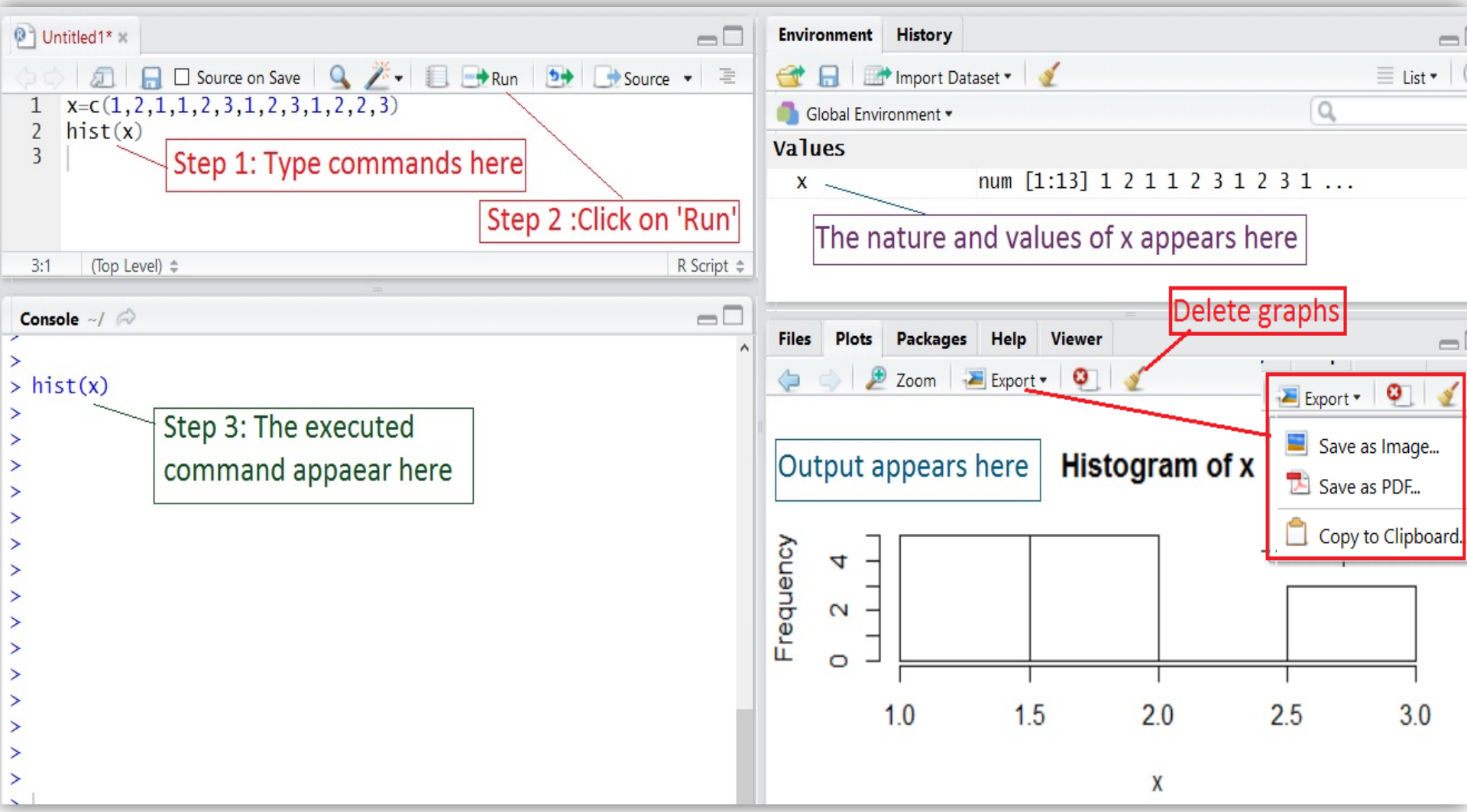


Introduction to R Studio

Example:

Histogram of values 1,2,1,1,2,3,1,2,3,1,2,2,3

R studio has following operation and output:


Untitled1*
Source on Save
Run
Source
1 x=c(1,2,1,1,2,3,1,2,3,1,2,2,3)
2 hist(x)
3
Step 1: Type commands here
Step 2 :Click on 'Run'
3:1
(Top Level)
R Script
Console ~/
> hist(x)
Step 3: The executed command appaear here
Environment
History
Import Dataset
List
Global Environment
Values
x num [1:13] 1 2 1 1 2 3 1 2 3 1 ...
The nature and values of x appears here
Delete graphs
Files
Plots
Packages
Help
Viewer
Zoom
Export
Save as Image...
Save as PDF...
Copy to Clipboard...
Output appears here
Histogram of x
Frequency
0
2
4
1.0
1.5
2.0
2.5
3.0
x