

Getting Started with R and RStudio

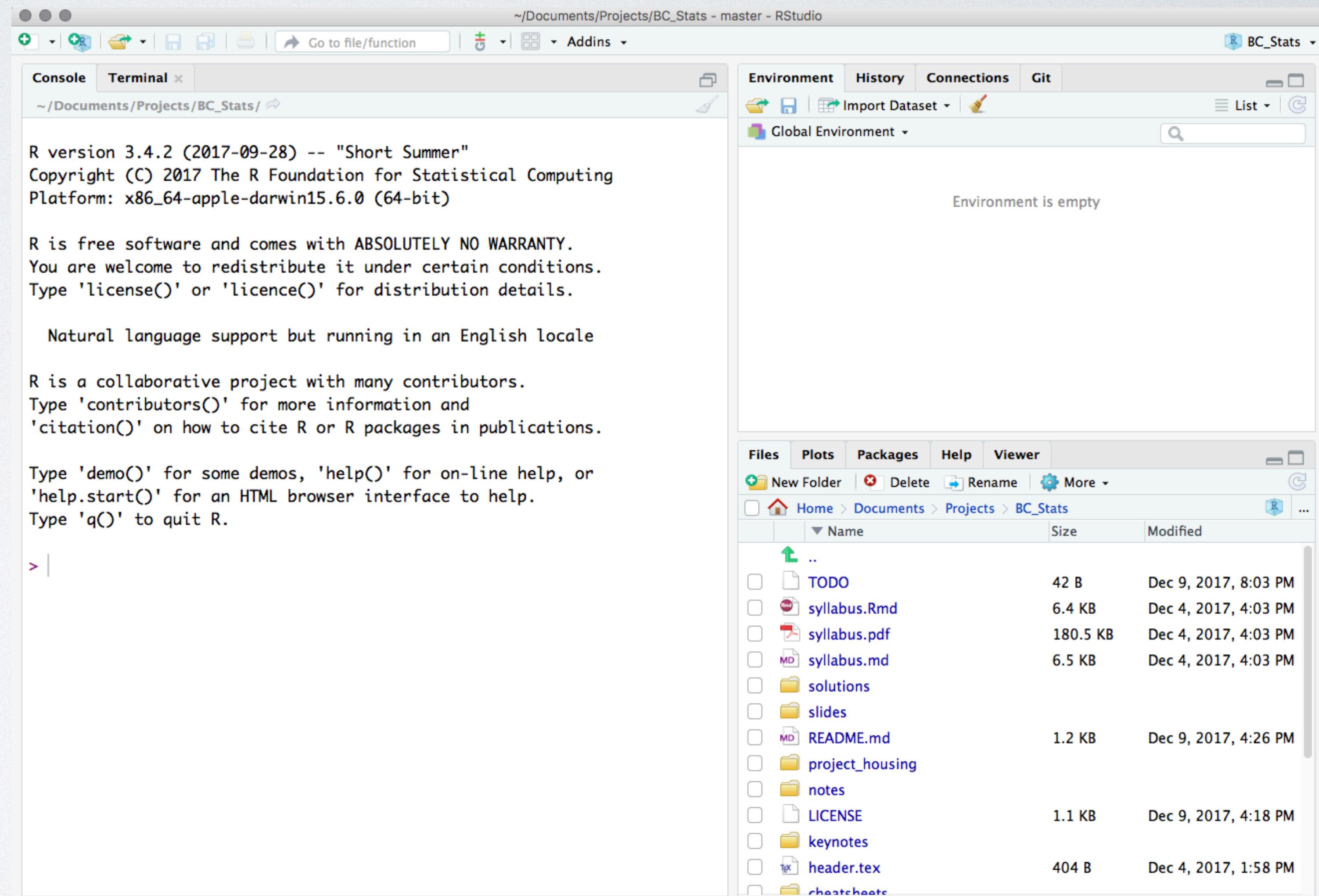
Your Turn

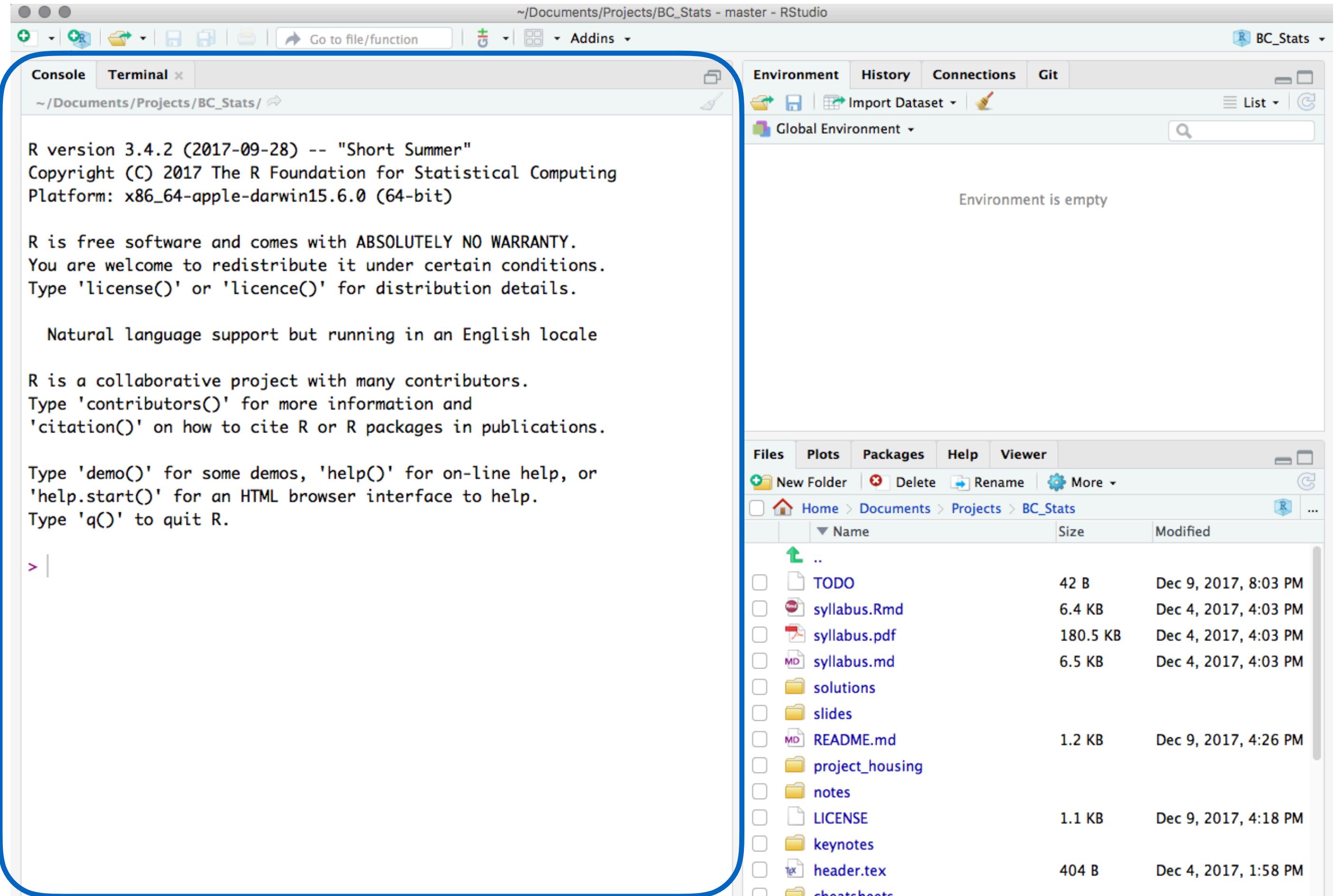
Go back to your web browser
and make sure you can still
see the workshop “project.”

Close the 00-Quick-Data-
Science.Rmd file.

If you closed your browser or
project tab go to:

<http://rstd.io/tidy-atl-cloud>





Console

R is awaiting your instructions

You can type code here, hit Enter, and R will evaluate it,

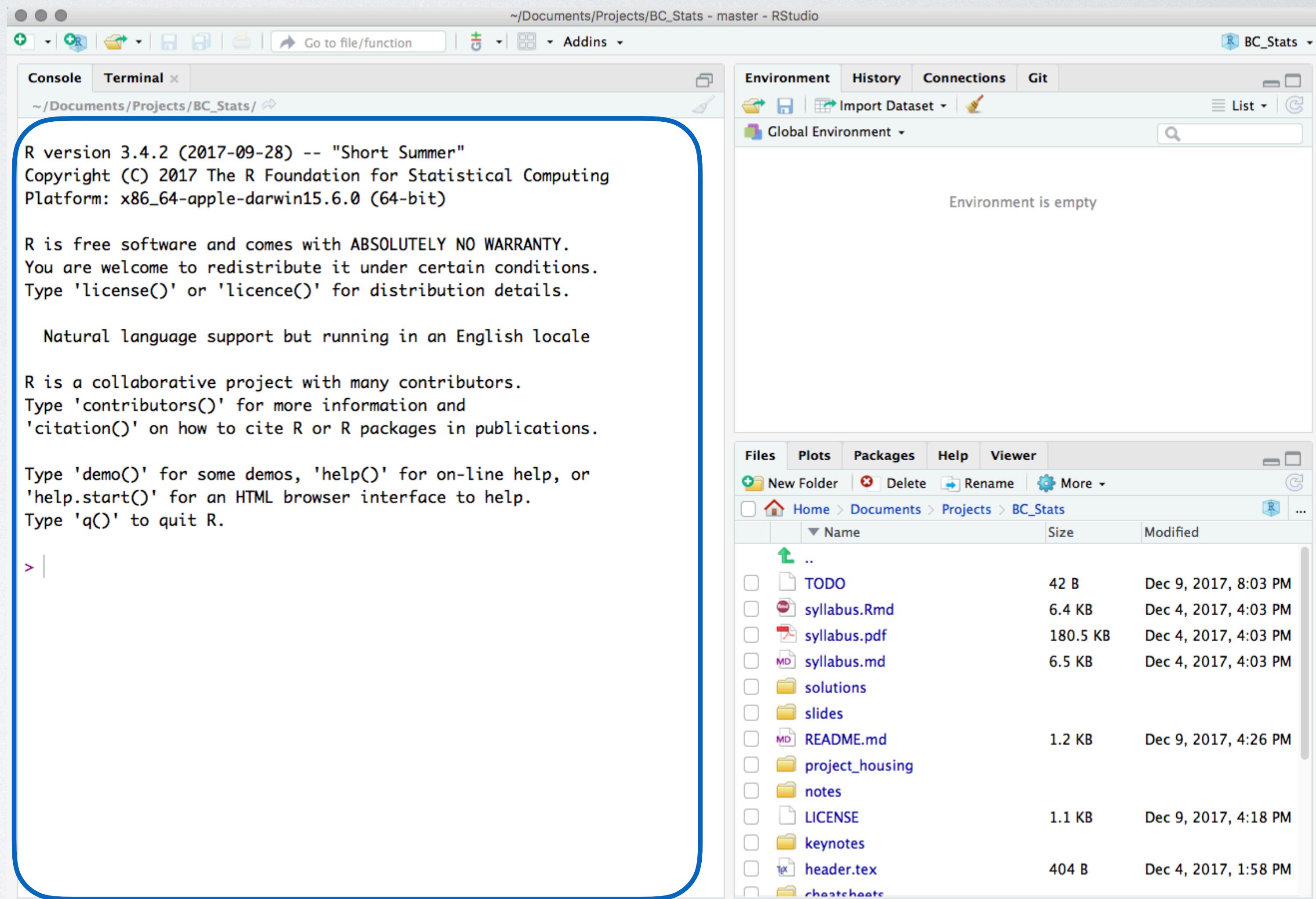
a.k.a "running code"

Your Turn

Into the console, type:

2 + 2

Then hit Enter



```
Console Terminal ×
~/Documents/Projects/BC_Stats/ ↵

R version 3.4.2 (2017-09-28) -- "Short Summer"
Copyright (C) 2017 The R Foundation for Statistical Computing
Platform: x86_64-apple-darwin15.6.0 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

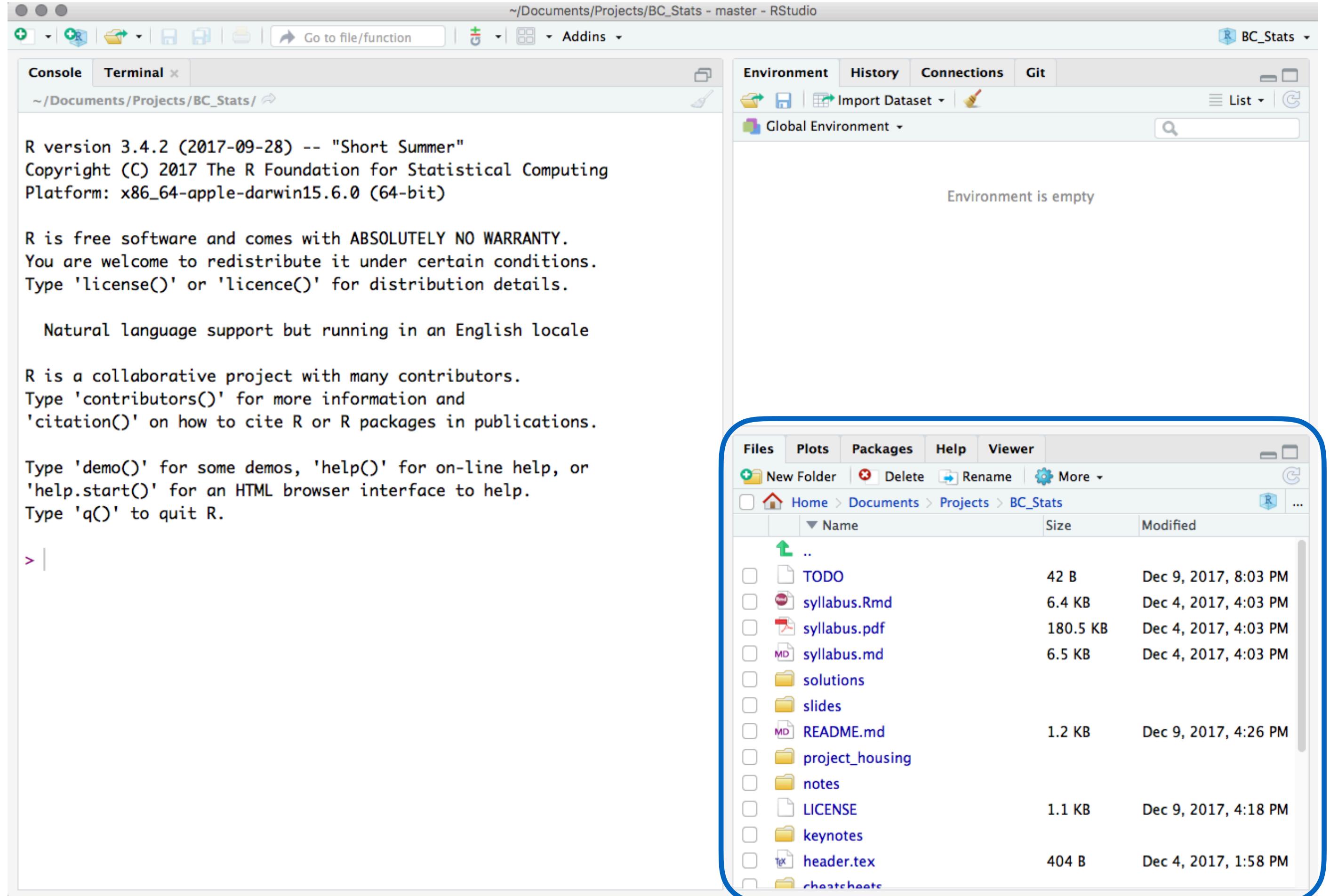
Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> 2 + 2
[1] 4
>
```

```
> 2 + 2
[1] 4
```

You asked, and R answered,
but this is ephemeral.

In practice you'll keep your R code in a
document.



Files Pane

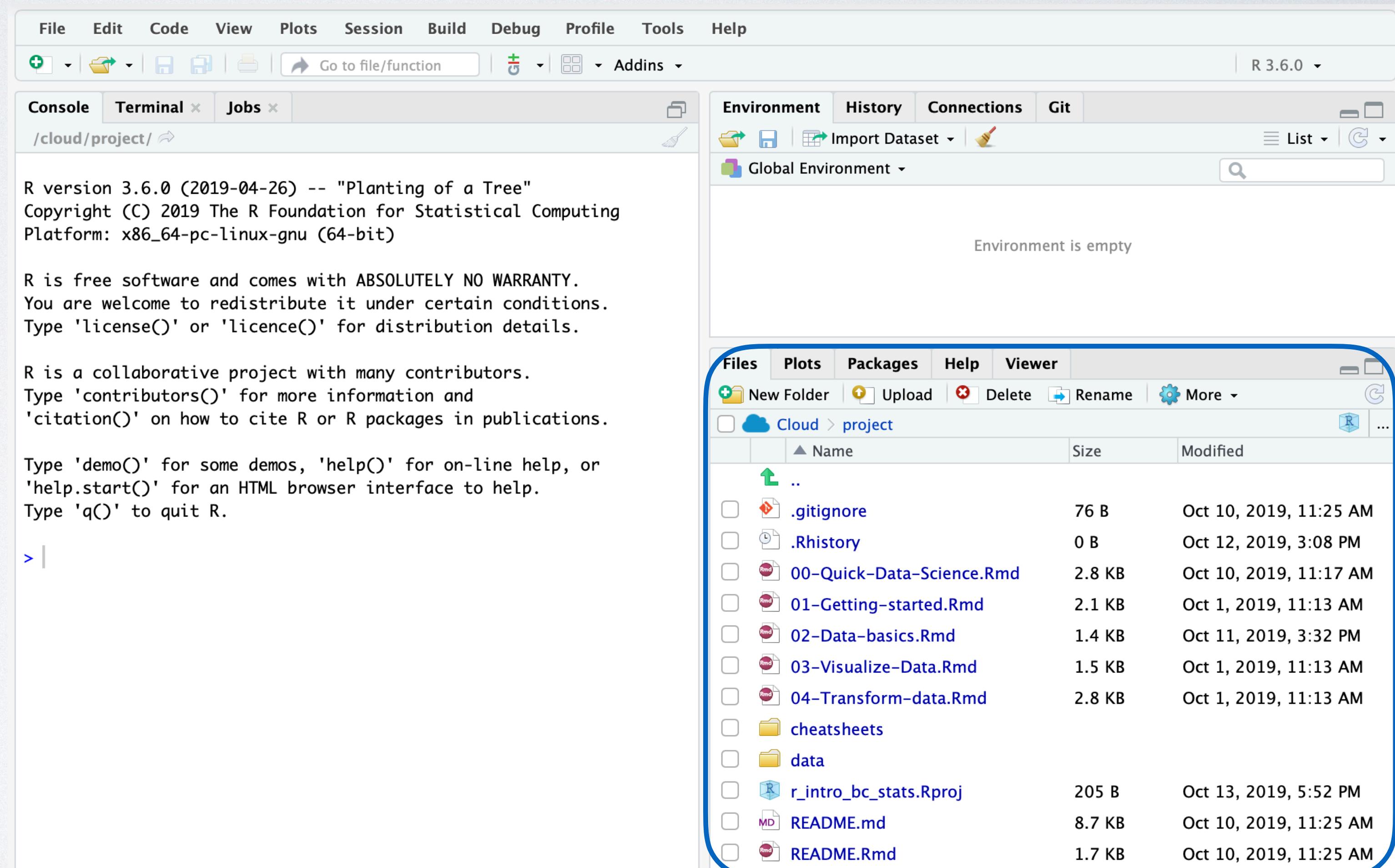
Files in your current working directory.

Your Turn

In the Files Pane,

Find 01-Getting-started.Rmd

Click on its name to open the file.

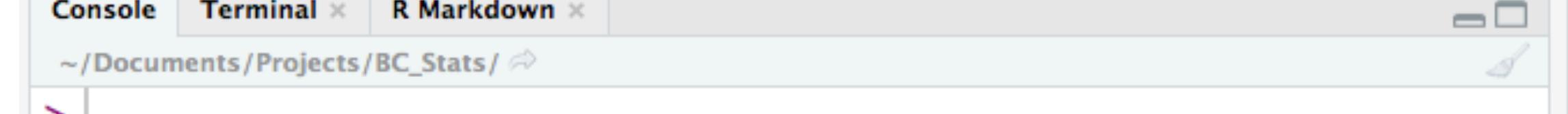


The screenshot shows the RStudio interface with the Source pane highlighted by a blue border. The file is titled '01-Getting-started.Rmd'. The code in the source pane is:

```
1 ---  
2 title: "Getting Started with R and RStudio"  
3 output: html_document  
4 ---  
5  
6 <!-- This file by Charlotte Wickham is licensed under a Creative  
7 Commons Attribution 4.0 International License. -->  
8 `r setup`  
9 library(tidyverse)  
10 ...  
11  
12 ## R Markdown  
13  
14 This is an [R Markdown](http://rmarkdown.rstudio.com) file (it  
has a .Rmd file extension). When you execute code within the  
file, the results appear beneath the code.  
15  
16 R code goes in **code chunks**, denoted by three backticks. Try  
executing this chunk by clicking the *Run* button (a small green  
triangle) within the chunk or by placing your cursor inside it  
and pressing *Ctrl+Shift+Enter* (or *Cmd+Shift+Enter* on Mac).  
17  
18 `r`  
19 ggplot(data = mpg) +  
20   geom_point(mapping = aes(x = cty, y = hwy), alpha = 0.2)  
21 ...
```

Source Pane

Documents open up here.



```
01-Getting-started.Rmd x
ABC Knit Insert Run

1 ---  
2 title: "Getting Started with R and RStudio"  
3 output: html_document  
4 ---  
5  
6 <!-- This file by Charlotte Wickham is licensed under a Creative  
7 Commons Attribution 4.0 International License. -->  
8  
9 `r setup`  
10 library(tidyverse)  
11 ...  
12  
13 ## R Markdown  
14  
15 This is an [R Markdown](http://rmarkdown.rstudio.com) file (it  
16 has a .Rmd file extension). When you execute code within the  
17 file, the results appear beneath the code.  
18  
19 R code goes in **code chunks**, denoted by three backticks. Try  
20 executing this chunk by clicking the *Run* button (a small green  
21 triangle) within the chunk or by placing your cursor inside it  
and pressing *Ctrl+Shift+Enter* (or *Cmd+Shift+Enter* on Mac).  
22  
23  
24 `r`  
25 ggplot(data = mpg) +  
26   geom_point(mapping = aes(x = cty, y = hwy), alpha = 0.2)  
27 ...
```

37:1 C Chunk 4

Console Terminal R Markdown

~/Documents/Projects/BC_Stats/ ↵

RMarkdown

An authoring format for
Data Science

01-Getting-started.Rmd is
an RMarkdown file.

```
01-Getting-started.Rmd x
ABC Knit Insert Run

1 ---  
2 title: "Getting Started with R and RStudio"  
3 output: html_document  
4 ---  
5  
6 <!-- This file by Charlotte Wickham is licensed under a Creative  
Commons Attribution 4.0 International License. -->  
7  
8 ```{r setup}  
9 library(tidyverse)  
10 ````  
11  
12 ## R Markdown  
13  
14 This is an [R Markdown](http://rmarkdown.rstudio.com) file (it  
has a .Rmd file extension). When you execute code within the  
file, the results appear beneath the code.  
15  
16 R code goes in **code chunks**, denoted by three backticks. Try  
executing this chunk by clicking the *Run* button (a small green  
triangle) within the chunk or by placing your cursor inside it  
and pressing *Ctrl+Shift+Enter* (or *Cmd+Shift+Enter* on Mac).  
17  
18 ```{r}  
19 ggplot(data = mpg) +  
20   geom_point(mapping = aes(x = cty, y = hwy), alpha = 0.2)  
21 ````
```

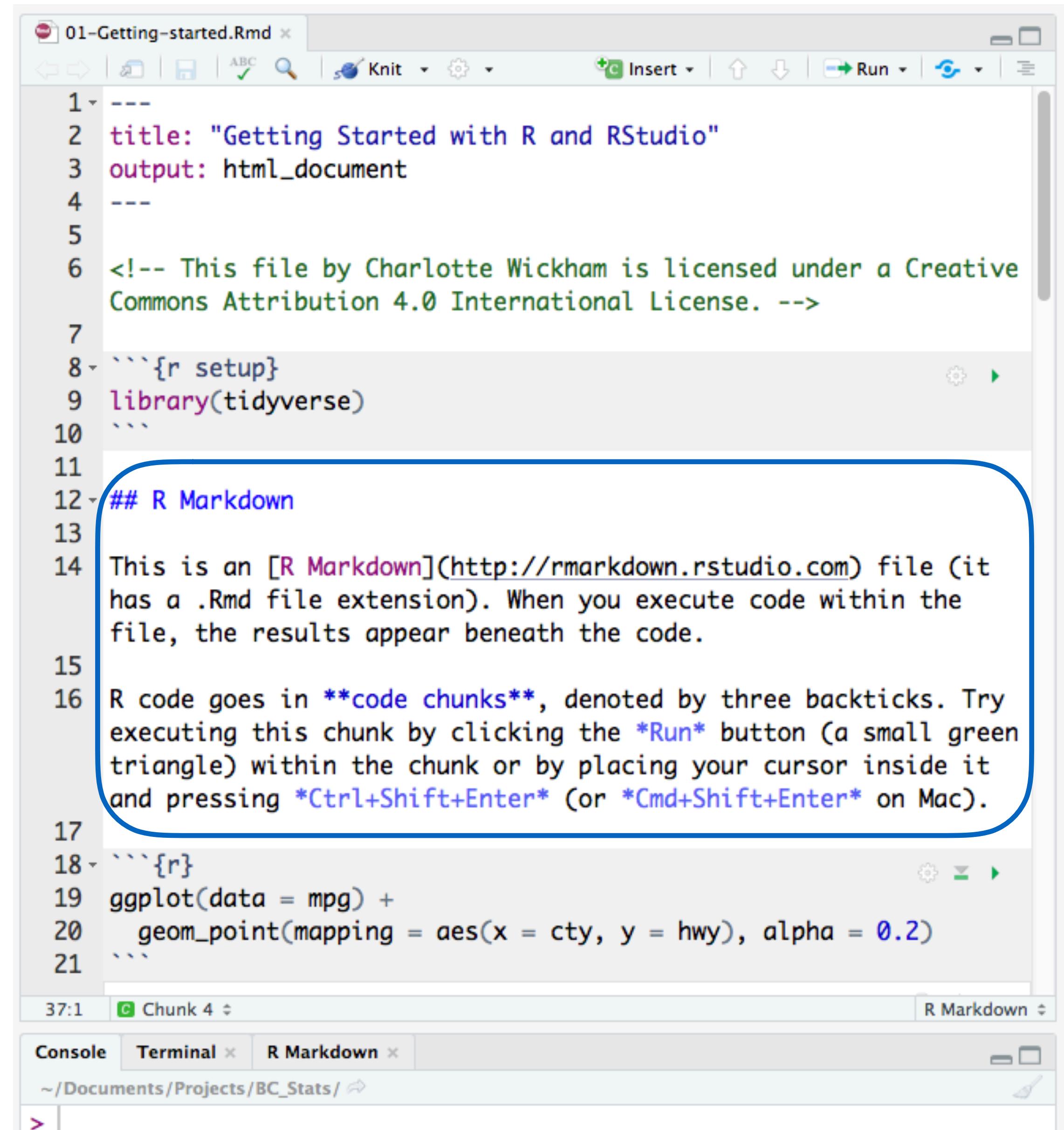
RMarkdown

An authoring format for
Data Science

01-Getting-started.Rmd is
an RMarkdown file.

Integrates:

- Code



```
01-Getting-started.Rmd x
ABC Knit Insert Run

1 ---  
2 title: "Getting Started with R and RStudio"  
3 output: html_document  
4 ---  
5  
6 <!-- This file by Charlotte Wickham is licensed under a Creative  
Commons Attribution 4.0 International License. -->  
7  
8 ```{r setup}  
9 library(tidyverse)  
10 ...  
11  
12 ## R Markdown  
13  
14 This is an [R Markdown](http://rmarkdown.rstudio.com) file (it  
has a .Rmd file extension). When you execute code within the  
file, the results appear beneath the code.  
15  
16 R code goes in **code chunks**, denoted by three backticks. Try  
executing this chunk by clicking the *Run* button (a small green  
triangle) within the chunk or by placing your cursor inside it  
and pressing *Ctrl+Shift+Enter* (or *Cmd+Shift+Enter* on Mac).  
17  
18 ```{r}  
19 ggplot(data = mpg) +  
20   geom_point(mapping = aes(x = cty, y = hwy), alpha = 0.2)  
21 ...
```

37:1 C Chunk 4 R Markdown

Console Terminal R Markdown

~/Documents/Projects/BC_Stats/ ↵

RMarkdown

An authoring format for
Data Science

01-Getting-started.Rmd is
an RMarkdown file.

Integrates:

- Code
- Text

```
01-Getting-started.Rmd x
ABC Knit Insert Run

1 ---  
2 title: "Getting Started with R and RStudio"  
3 output: html_document  
4 ---  
5  
6 <!-- This file by Charlotte Wickham is licensed under a Creative  
7 Commons Attribution 4.0 International License. -->  
8 `r setup`  
9 library(tidyverse)  
10 ...  
11  
12 ## R Markdown  
13  
14 This is an [R Markdown](http://rmarkdown.rstudio.com) file (it  
has a .Rmd file extension). When you execute code within the  
file, the results appear beneath the code.  
15  
16 R code goes in **code chunks**, denoted by three backticks. Try  
executing this chunk by clicking the *Run* button (a small green  
triangle) within the chunk or by placing your cursor inside it  
and pressing *Ctrl+Shift+Enter* (or *Cmd+Shift+Enter* on Mac).  
17  
18 `r`  
19 ggplot(data = mpg) +  
20   geom_point(mapping = aes(x = cty, y = hwy), alpha = 0.2)  
21 ...
```

37:1 C Chunk 4 R Markdown

Console Terminal R Markdown

~/Documents/Projects/BC_Stats/

RMarkdown

An authoring format for
Data Science

01-Getting-started.Rmd is
an RMarkdown file.

Integrates:

- Code
- Text
- Output

Your Turn

Read the instructions.

Run the code by hitting
the play button,

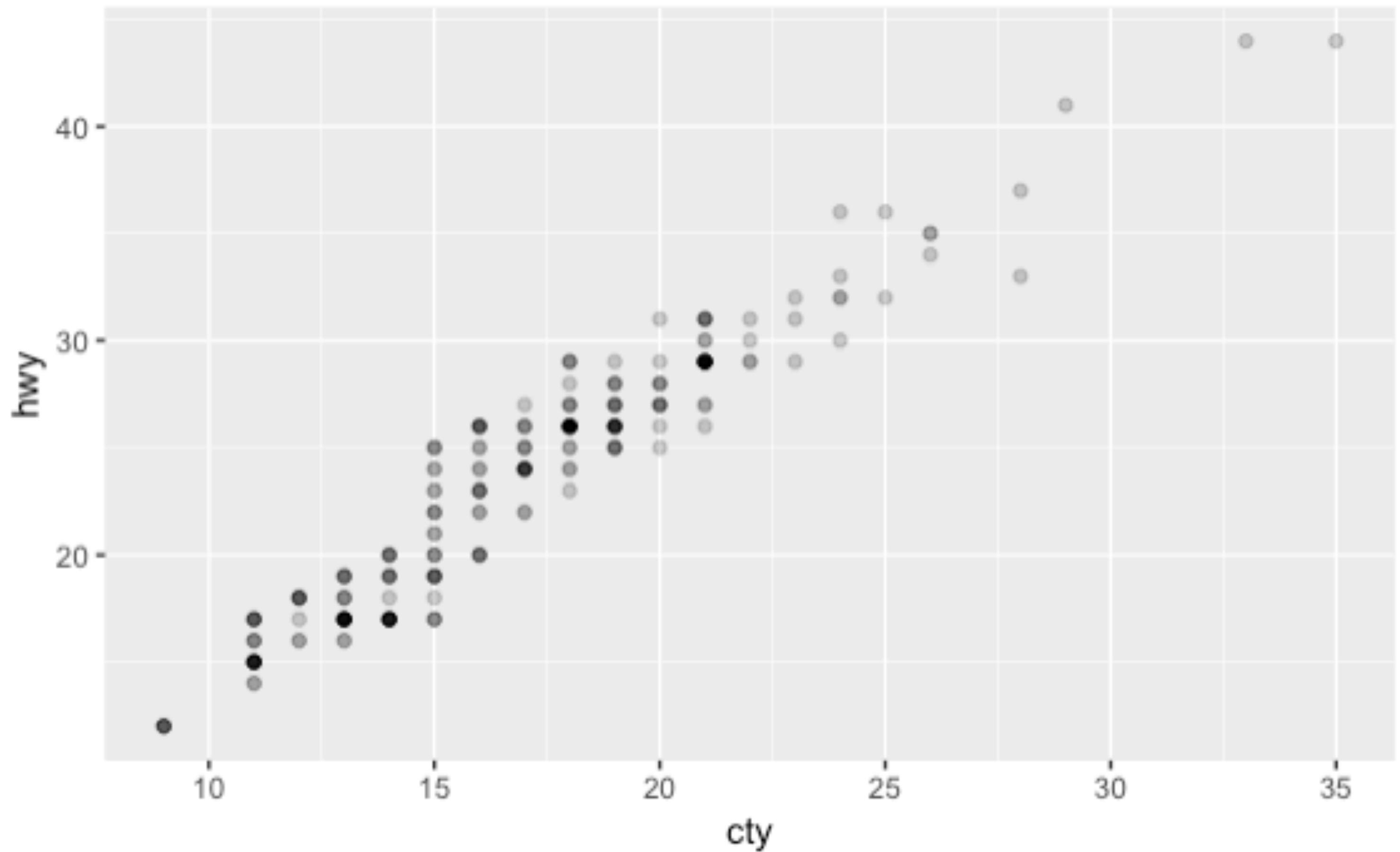
or using the keyboard
shortcut.

The screenshot shows the RStudio interface with the file '01-Getting-started.Rmd' open. The code editor displays the following R Markdown code:

```
1 ---  
2 title: "Getting Started with R and RStudio"  
3 output: html_document  
4 ---  
5  
6 <!-- This file by Charlotte Wickham is licensed under a Creative  
Commons Attribution 4.0 International License. -->  
7  
8 ```{r setup}  
9 library(tidyverse)  
10 ```  
11  
12 ## R Markdown  
13  
14 This is an [R Markdown](http://rmarkdown.rstudio.com) file (it  
has a .Rmd file extension). When you execute code within the  
file, the results appear beneath the code.  
15  
16 R code goes in **code chunks**, denoted by three backticks. Try  
executing this chunk by clicking the *Run* button (a small green  
triangle) within the chunk or by placing your cursor inside it  
and pressing *Ctrl+Shift+Enter* (or *Cmd+Shift+Enter* on Mac).  
17  
18 ```{r}  
19 ggplot(data = mpg) +  
20   geom_point(mapping = aes(x = cty, y = hwy), alpha = 0.2)  
21 ...
```

A blue rounded rectangle highlights the explanatory text between lines 14 and 16. A black arrow points from the start of this highlighted text to the green 'Run' button in the RStudio toolbar. Another black arrow points from the end of the highlighted text to the green triangle icon at the end of the code chunk on line 18.

```
```{r}
ggplot(data = mpg) +
 geom_point(mapping = aes(x = cty, y = hwy), alpha = 0.2)
```
```



Click to run code
in chunk

Click to run all
code chunks
above

Code result

Your Turn

Keep going!

Add a new code chunk.

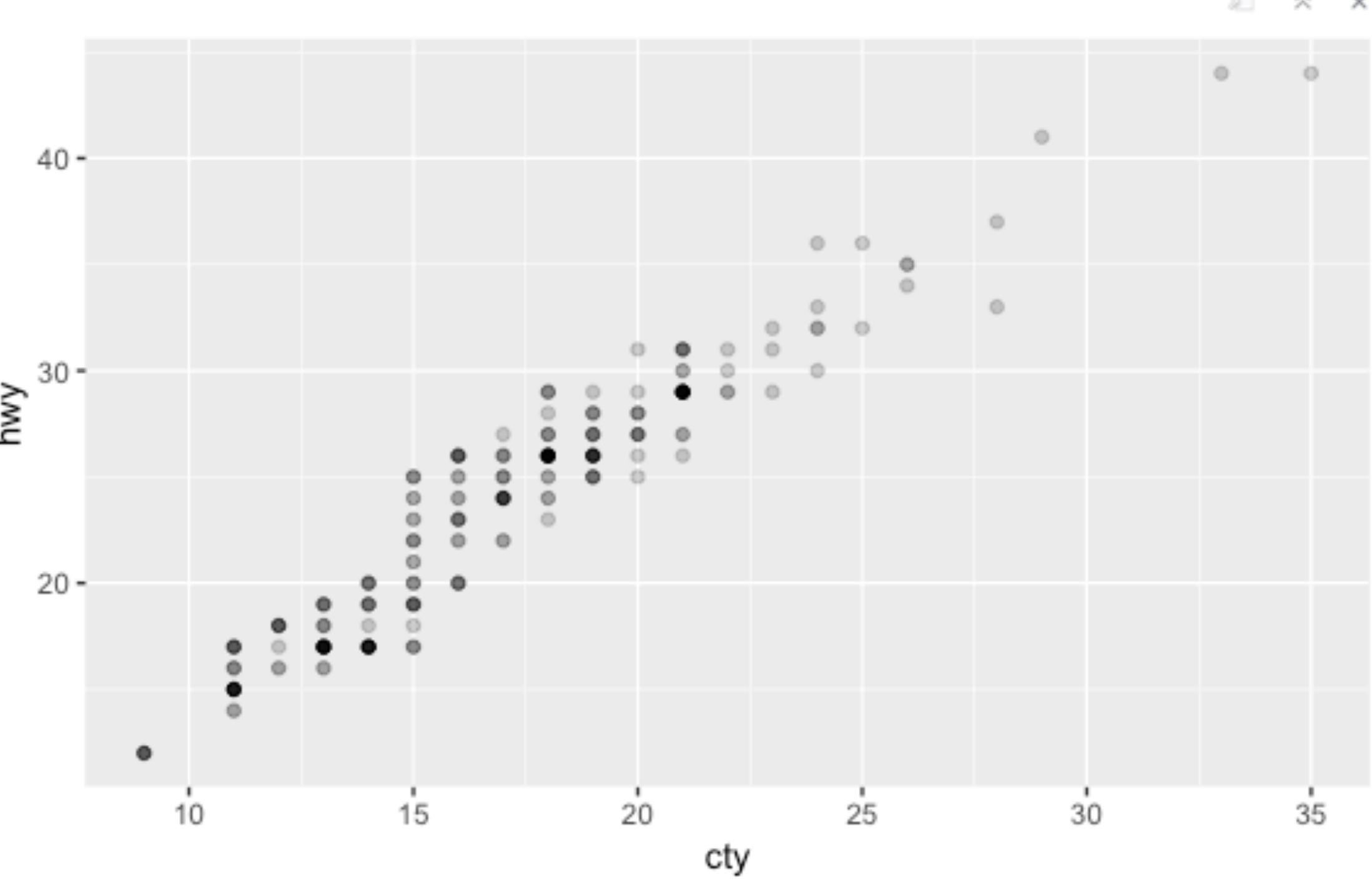
Put:

$$2 + 2$$

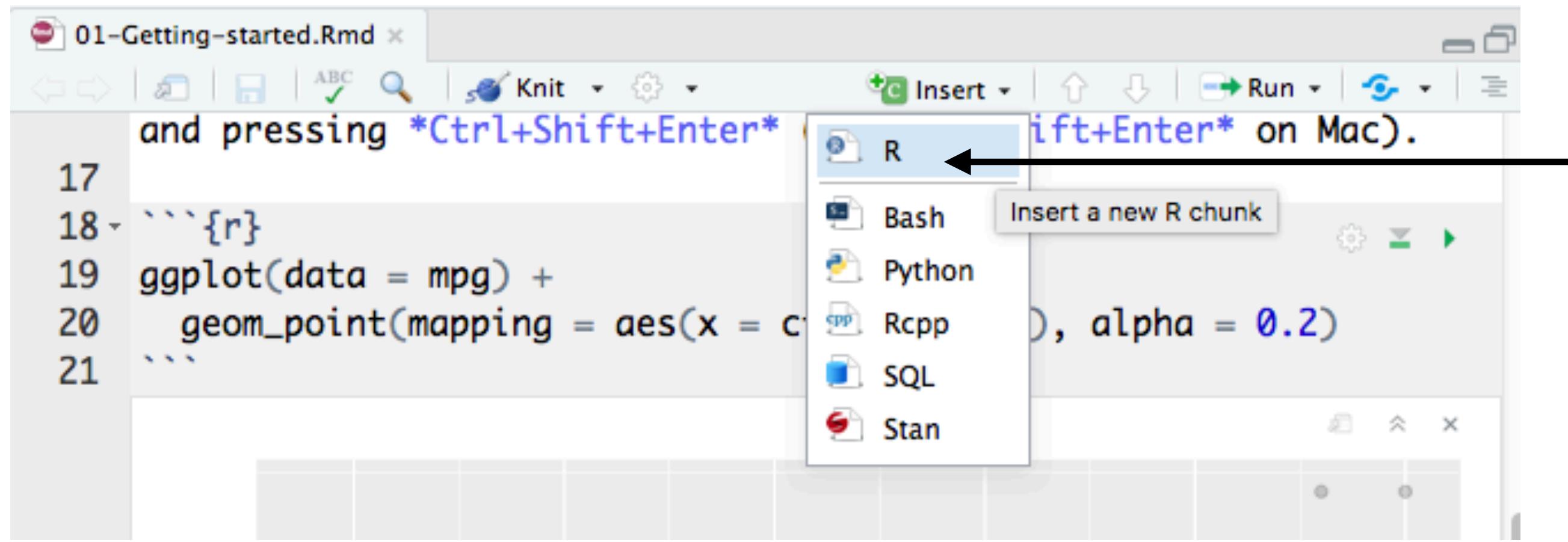
in your new chunk and run it.

executing this chunk by clicking the ***Run*** button (a small green triangle) within the chunk or by placing your cursor inside it and pressing ***Ctrl+Shift+Enter*** (or ***Cmd+Shift+Enter*** on Mac).

```
17  
18 - ``{r}  
19 ggplot(data = mpg) +  
20   geom_point(mapping = aes(x = cty, y = hwy), alpha = 0.2)  
21 ...
```



```
22  
23 - ## Add a new code chunk  
24  
25 Add a new code chunk by clicking the *Insert Chunk* button on the  
toolbar or by pressing *Cmd/Ctrl+Option+I*.  
26  
27 Put 2 + 2 in your new code chunk and run it.  
28
```

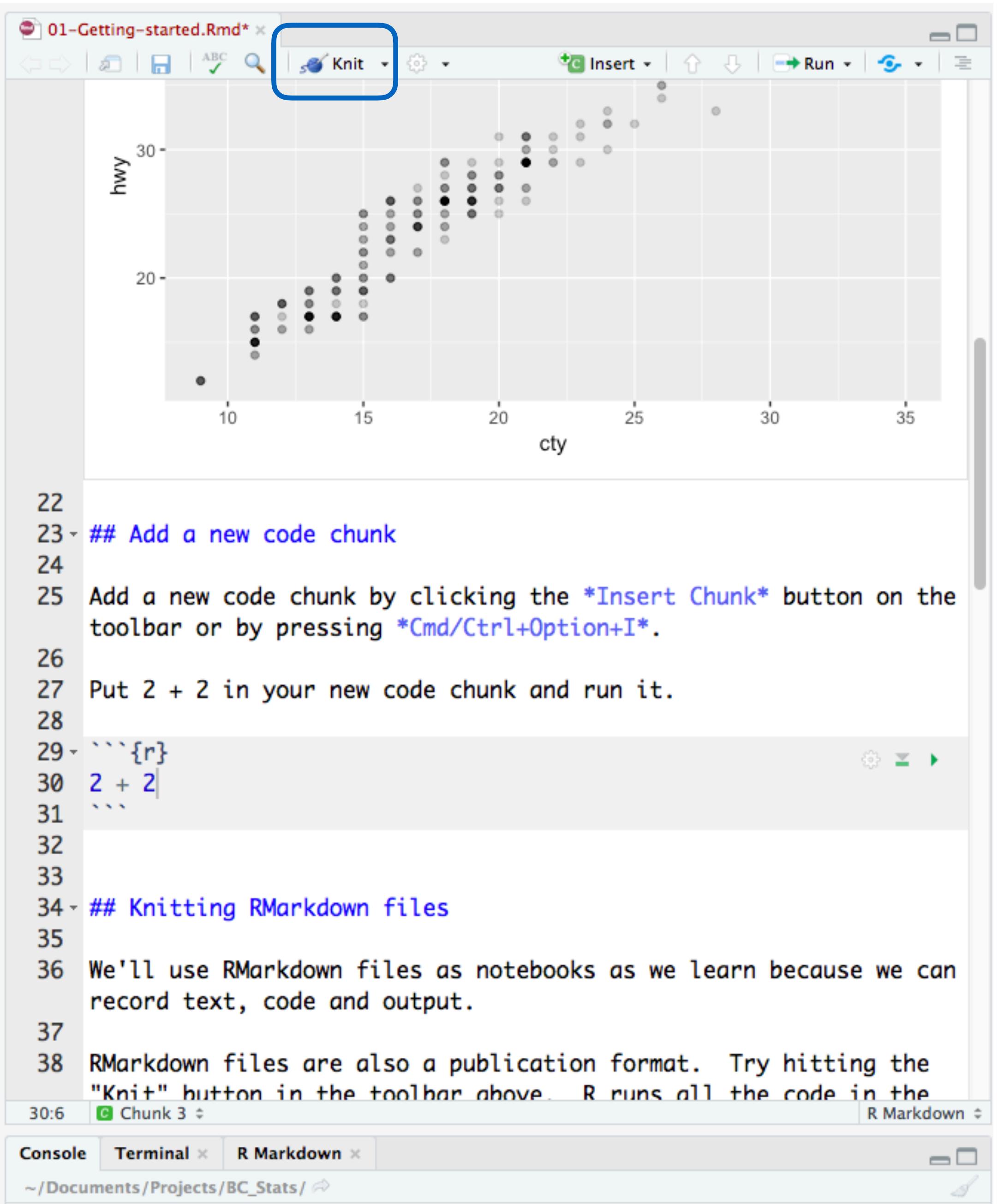


Insert new code chunk

Ctrl + Alt + I (Windows)

Cmd + Option + I (Mac)

```
27 Put 2 + 2 in your new code chunk and run it.  
28  
29 ```{r}  
30 2 + 2  
31 ```  
32  
33
```



RMarkdown

Also a way publish your work. You can create an HTML version, by hitting Knit.

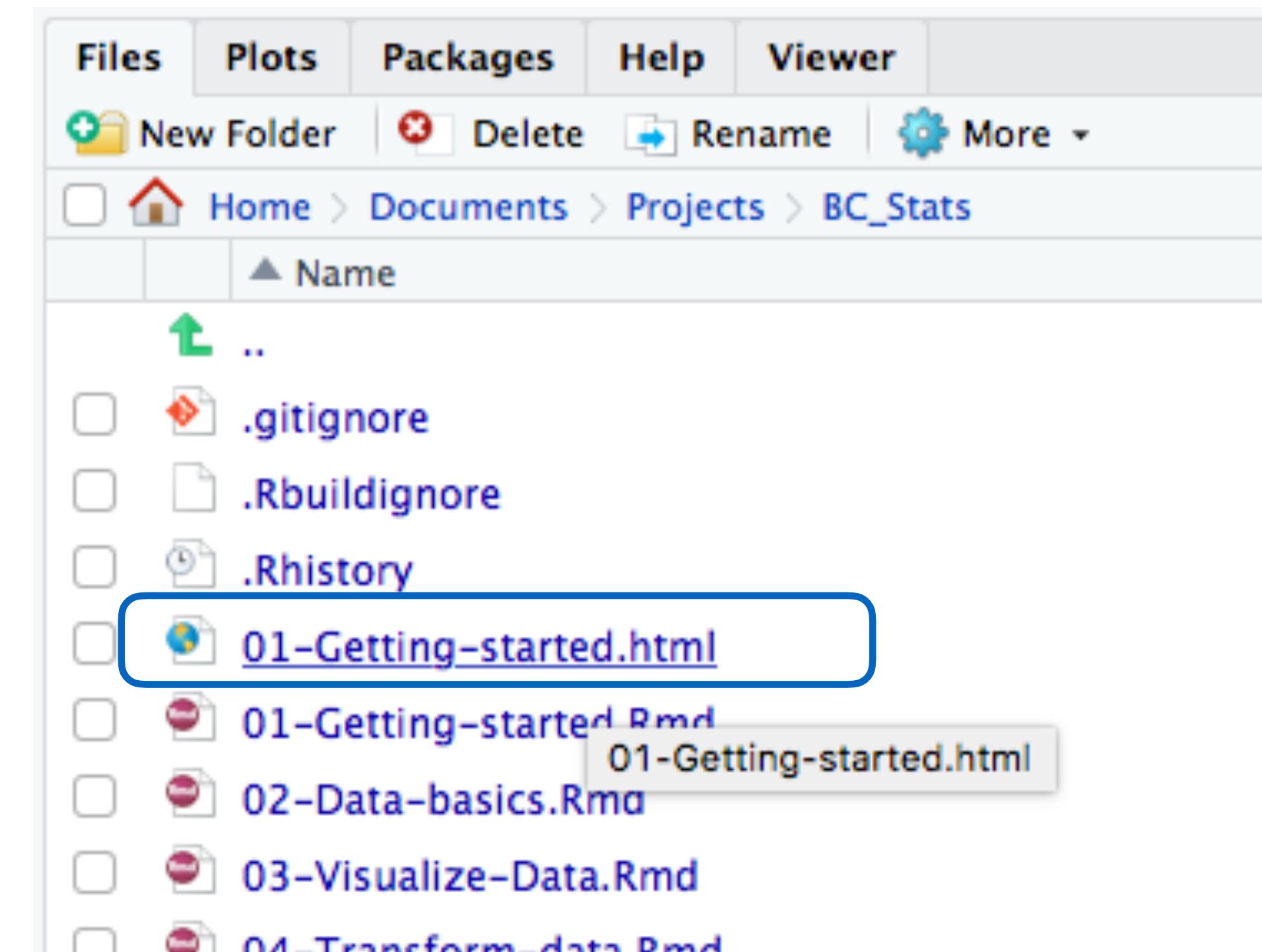
The screenshot shows the RStudio interface. At the top, there's a toolbar with various icons. A blue box highlights the "Knit" button, which is located next to the "Insert" and "Run" buttons. Below the toolbar is a scatter plot with "hwy" on the y-axis (ranging from 10 to 35) and "cty" on the x-axis (ranging from 10 to 35). The plot area contains numerous small gray dots representing data points. Below the plot is a code editor window displaying R Markdown code. The code includes several chunks of text and code, such as:

```
22
23 ## Add a new code chunk
24
25 Add a new code chunk by clicking the *Insert Chunk* button on the
26 tool or by pressing *Cmd/Ctrl+Option+I*.
27 Put 2 + 2 in your new code chunk and run it.
28
29 ```{r}
30 2 + 2
31 ```
32
33
34 ## Knitting RMarkdown files
35
36 We'll use RMarkdown files as notebooks as we learn because we can
37 record text, code and output.
38 RMarkdown files are also a publication format. Try hitting the
39 "Knit" button in the toolbar above. R runs all the code in the
```

At the bottom of the code editor, there's a status bar with tabs for "Console", "Terminal", and "R Markdown". The "R Markdown" tab is active. The status bar also shows the path: " ~/Documents/Projects/BC_Stats/".

RMarkdown

The result is stand-alone,
you can email it to your
friends.



RMarkdown

An easy way to combine R code and narrative

Useful for us:

- I'll provide starter code
- You can complete "Your Turns"
- At the end, a useful record for you

Your Turn

1. Spot the difference

```
filter(mtcars, cyl == 4)
```

```
four_cyls <- filter(mtcars, cyl == 4)
```

2. Find these chunks in the notebook and run them, what's different about what happens?

```
30
31 ## Assigning variables
32
33 What's the difference between the code in this
34 chunk:
35 ```{r}
36 filter(mtcars, cyl == 4)
37 ...
38 And the code in this chunk?
39 ```{r}
40 four_cyls <- filter(mtcars, cyl == 4)
41 ...
42
```

```
filter(mtcars, cyl == 4)
```

Does something (?) and output
is displayed

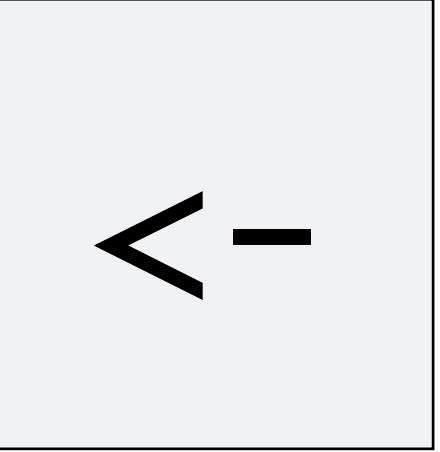
```
four_cyls <- filter(mtcars, cyl == 4)
```

Does the exact same thing but
output is stored in variable
four_cyls

Assignment

```
four_cyls <- filter(mtcars, cyl == 4)
```

Assign the output from the right hand side,
to a variable with the name on the left hand side



<-

The assignment operator, 'less than symbol' 'dash'

The screenshot shows the RStudio interface. The top bar displays the project path: ~/Documents/Projects/BC_Stats - master - RStudio. The code editor pane contains a file named '01-Getting-started.Rmd' with the following content:

```
27 When you save the notebook, an HTML file
28 containing the code and output will be saved
29 alongside it (click the *Preview* button or
30 press *Cmd+Shift+K* to preview the HTML
31 file).
32
33 The preview shows you a rendered HTML copy of
34 the contents of the editor. Consequently,
35 unlike *Knit*, *Preview* does not run any R
36 code chunks. Instead, the output of the chunk
37 when it was last run in the editor is
38 displayed.
39
40 ## Assigning variables
41
42 What's the difference between the code in
43 this chunk?
44
45 ```{r}
46 filter(mtcars, cyl == 4)
47
48 And the code in this chunk?
49
50 ```{r}
51 four_cyls <- filter(mtcars, cyl == 4)
```

The viewer pane below the code editor shows a rendered HTML preview of the code. It includes instructions for running code chunks and a code chunk with the following R code:

```
ggplot(data = mpg) +
  geom_point(aes(x = displ, y = hwy))
```

Environment

All the variables you have stored

The screenshot shows the RStudio interface with the 'Environment' tab selected in the top navigation bar. The global environment contains a single dataset named 'four_cyls'. The data summary is shown as:

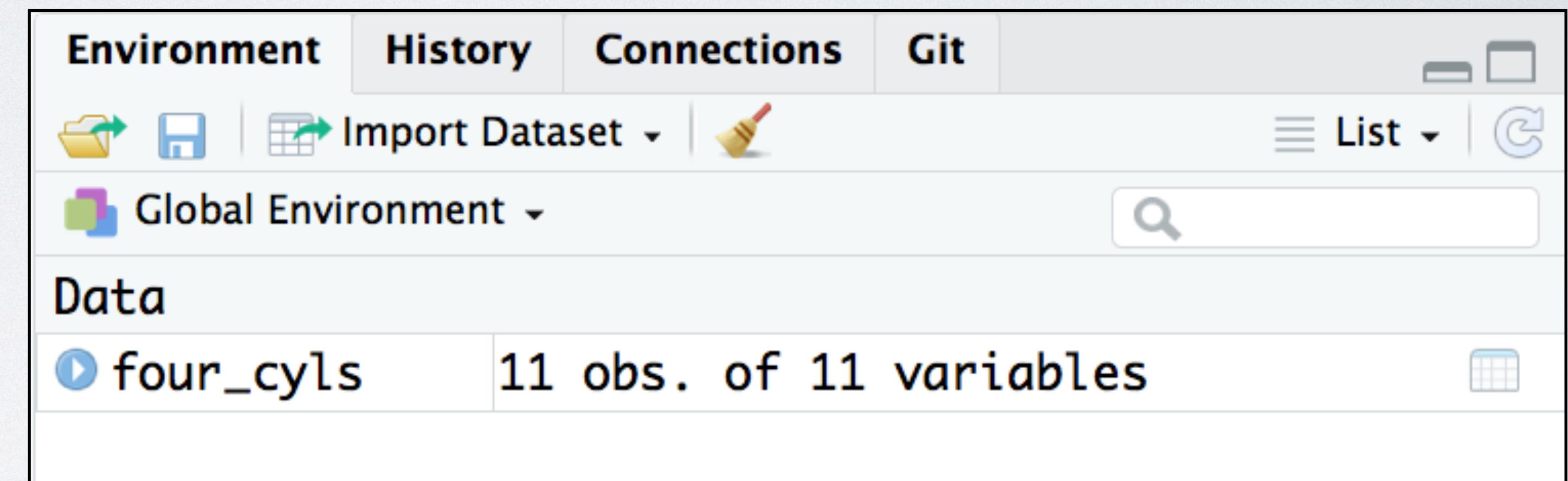
| | |
|-----------|-------------------------|
| four_cyls | 11 obs. of 11 variables |
|-----------|-------------------------|

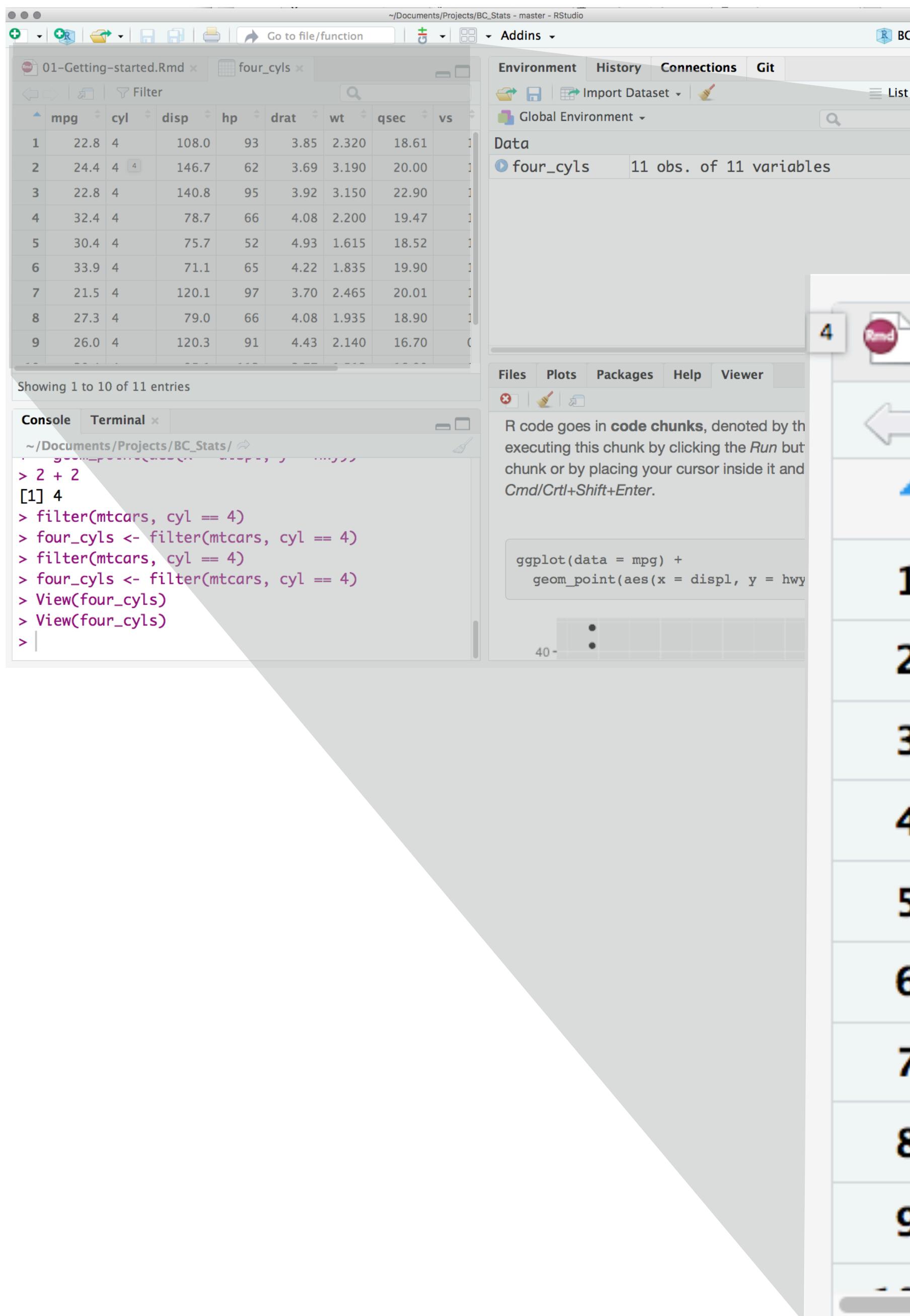
Your Turn

Find `four_cyls` in the environment pane.

Click on the name `four_cyls`.

What happens? What is this object?





Clicking on an object in the Environment will open an interactive Viewer

Basic Syntax

```
four_cyls <- filter(mtcars, cyl == 4)
```

A function

Functions **do** things in R

Functions take arguments, and output results

If you want to keep the output, you assign it to a variable

Basic Syntax

```
four_cyls <- filter(mtcars, cyl == 4)
```

To *call* a function, you need to know its [name](#),

and the [arguments](#) it is expecting.

Arguments are comma separated and go inside the parenthesis following the function name.

?

for help on functions

To get help on a function in R, on the **Console**,
type

`?function_name`

Your Turn

Try
?filter

The screenshot shows the RStudio interface with the 'filter' function help page open in the 'Viewer' tab. The 'filter' function is described as returning rows with matching conditions. It notes that unlike base subsetting, rows where the condition evaluates to NA are dropped. The 'Usage' section shows the syntax: filter(.data, ...). The 'Arguments' section is partially visible at the bottom.

Help on topic 'filter' was found in the following packages:

[Return rows with matching conditions](#)
(in package [dplyr](#) in library /Users/wickhamc/R)
[Linear Filtering on a Time Series](#)
(in package [stats](#) in library
/Library/Frameworks/R.framework/Versions/3.4/Resources

filter {dplyr}

R Documentation

Return rows with matching conditions

Description

Use `filter()` find rows/cases where conditions are true. Unlike base subsetting, rows where the condition evaluates to `NA` are dropped.

Usage

```
filter(.data, ...)
```

Arguments

Return rows with matching conditions

Description

Use `filter()` find rows/cases where conditions are true. Unlike base subsetting, rows where the condition evaluates to `NA` are dropped.

Usage

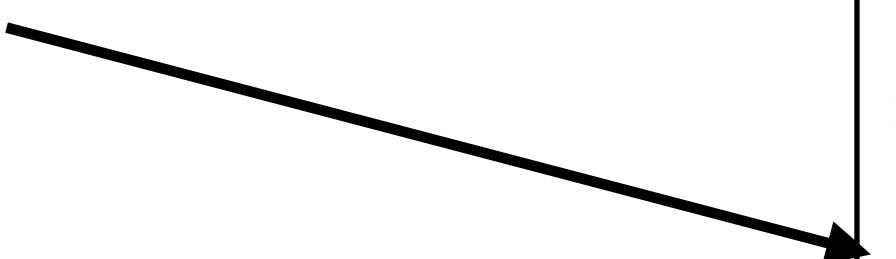
```
filter(.data, ...)
```

Arguments

Arguments

A named argument `.data`

... Some other
unnamed arguments



Return rows with matching conditions

Description

Use `filter()` find rows/cases where conditions are true. Unlike base subsetting, rows where the condition evaluates to `NA` are dropped.

Usage

```
filter(.data, ...)
```

Arguments

`.data` A `tbl`. All main verbs are S3 generics and provide methods for [`tbl_df\(\)`](#), [`dplyr::tbl_dt\(\)`](#) and [`dbplyr::tbl_dbi\(\)`](#).

`...` Logical predicates defined in terms of the variables in `.data`. Multiple conditions are combined with `&`. Only rows where the condition evaluates to `TRUE` are kept.

These arguments are automatically [quoted](#) and [evaluated](#) in the context of the data frame. They support [unquoting](#) and splicing. See `vignette("programming")` for an introduction to these concepts.

Details

Note that `dplyr` is not yet smart enough to optimise filtering optimisation on grouped datasets that don't need grouped calculations. For this reason, filtering is often considerably faster on [`ungroup\(\)`](#)ed data.

Naming arguments is optional,
unnamed arguments are used in the order they are given

```
four_cyls <- filter(mtcars, cyl == 4)
```

the first argument should take
the value mtcars

```
four_cyls <- filter(.data = mtcars, cyl == 4)
```

the .data argument should
take the value mtcars

Your Turn

Take a look at the next chunk.

1. What functions are being called?
2. What arguments do they take?
3. What values are being passed as which arguments?

```
46
47 - `}`{r}
48 heights <- pull(.data = starwars, var = height)
49 mean(heights, na.rm = TRUE)
50 ...
51 |
```

```
heights <- pull(.data = starwars, var = height)
```

pull() is being called with the **.data** argument being **starwars**,
and the **var** argument being **height**

```
mean(heights, na.rm = TRUE)
```

mean() is being called with the **x** argument being **heights**, and the
na.rm argument being **TRUE**

Common Syntax problem #1

Missing closing parenthesis or quotes

```
mean(heights)
```

```
"Oops I'm stuck in a string
```

Common Syntax problem #2

Surrounding something in quotes, when R expected something else (or vice versa), e.g.

```
> mean("heights")
[1] NA

Warning message:
In mean.default("heights") :
  argument is not numeric or logical: returning NA
```

Your Turn

There are three chunks under "Syntax gone wrong".

Run each, read the error message, and try to fix the syntax.

```
sd(pull(.data = starwars, var = weight))
```

```
my_name <- "Charlotte"
```

```
pull(.data = starwars, var = height)
```



Getting Started with R and RStudio

Summary

Use RMarkdown to keep together code, output and text.

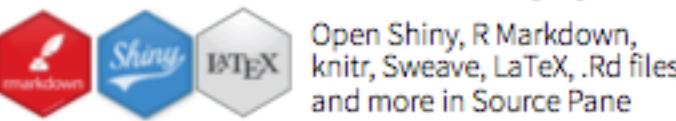
If you need to use output, assign it to a variable <--

Get help on a function with ?

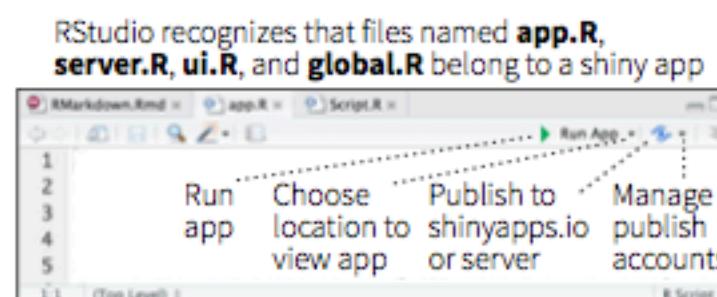
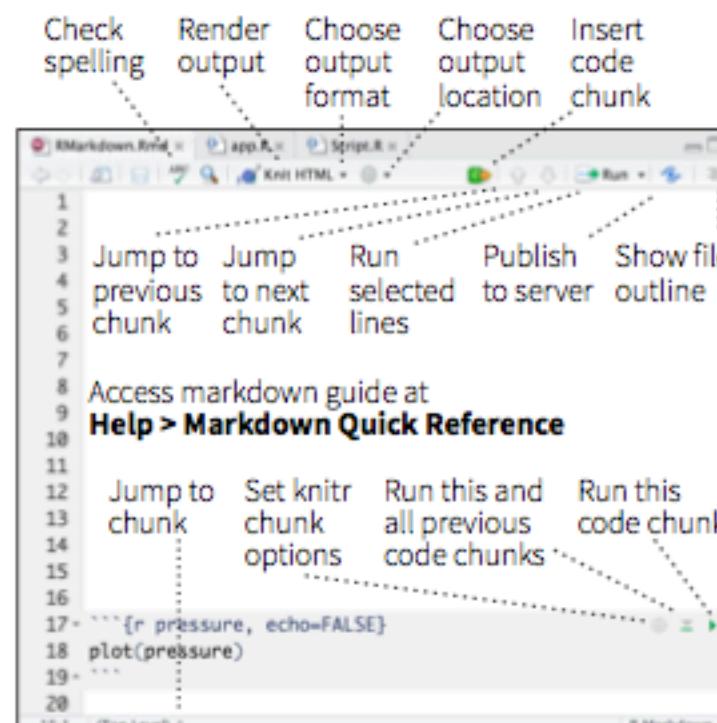
Watch your C , "

RStudio IDE :: CHEAT SHEET

Documents and Apps

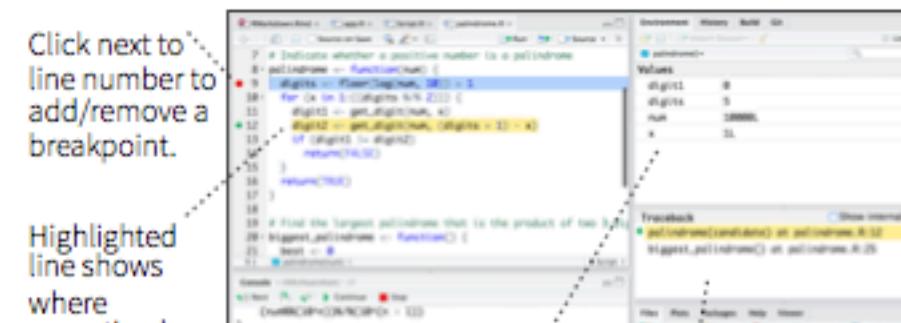


Open Shiny, R Markdown, knitr, Sweave, LaTeX, .Rd files and more in Source Pane



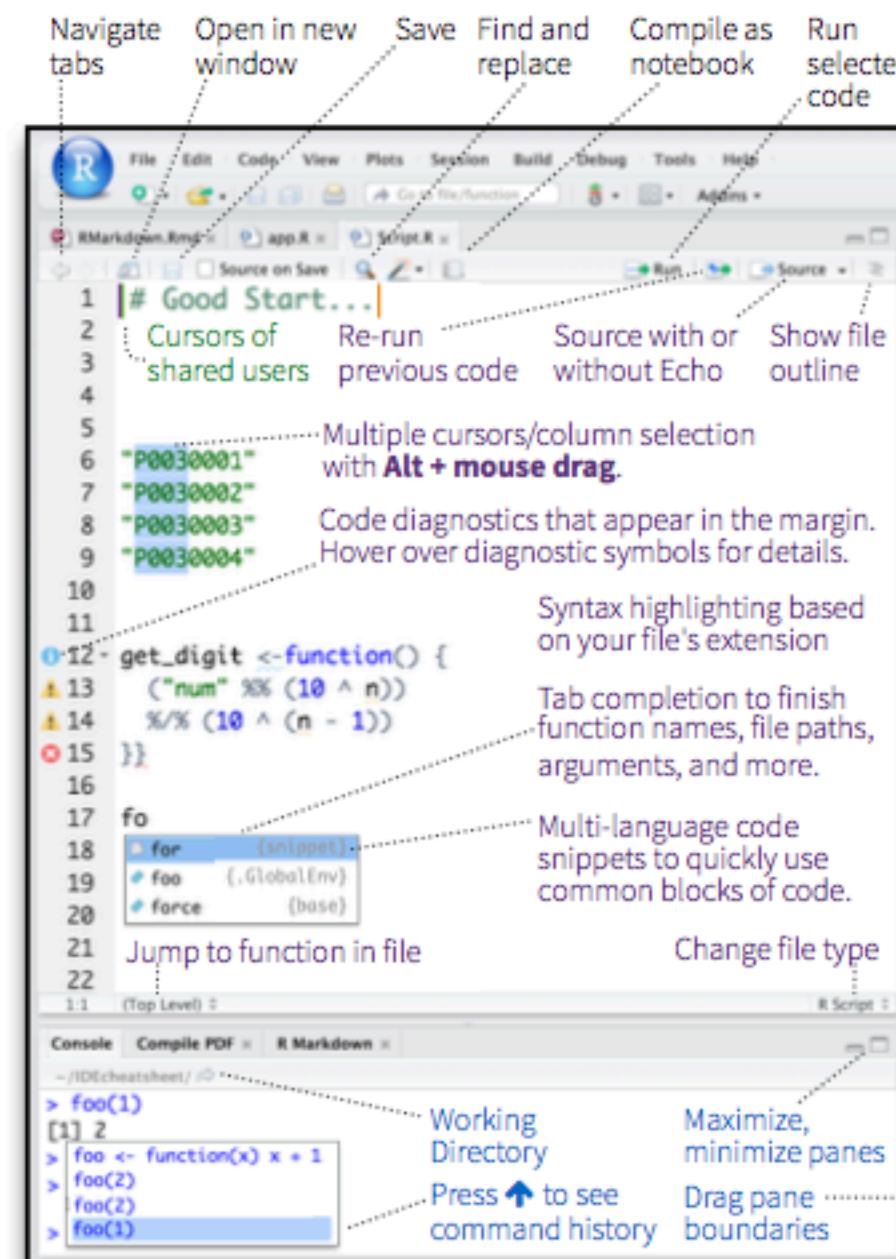
Debug Mode

Open with `debug()`, `browse()`, or a breakpoint. RStudio will open the debugger mode when it encounters a breakpoint while executing code.



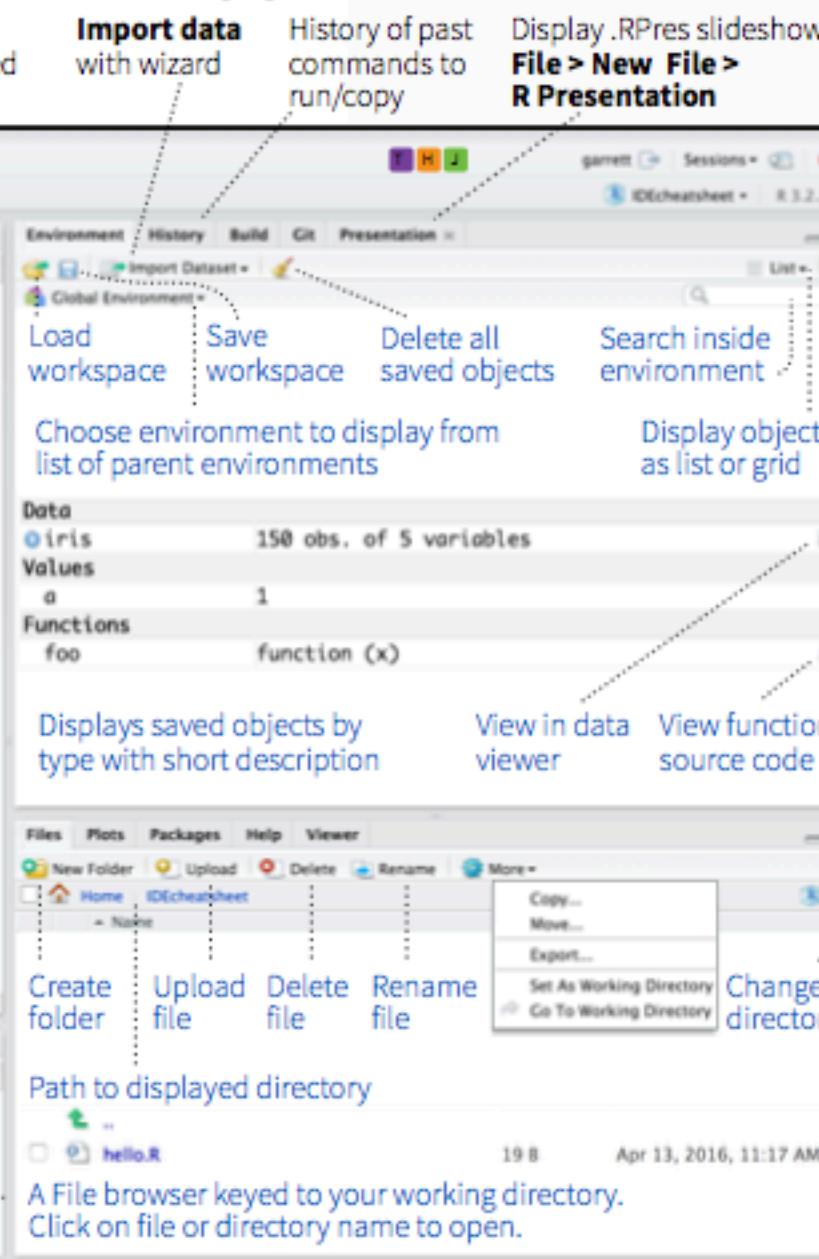
Run commands in environment where execution has paused
Examine variables in executing environment
Select function in traceback to debug

Write Code

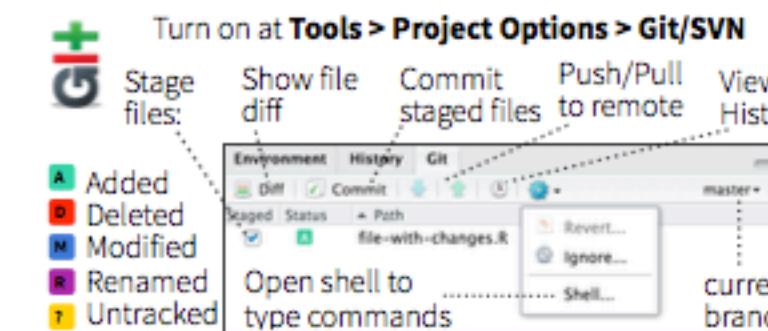


Launch debugger mode from origin of error
Open traceback to examine the functions that R called before the error occurred
Step through code one line at a time
Step into and out of function to run

R Support



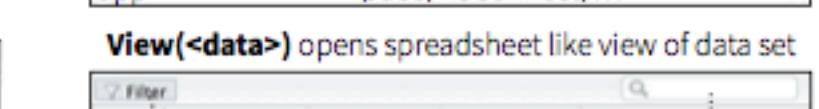
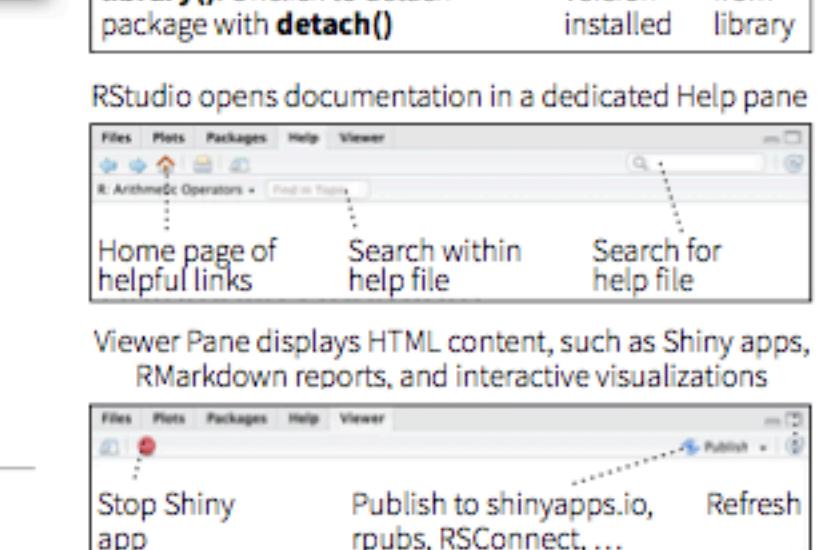
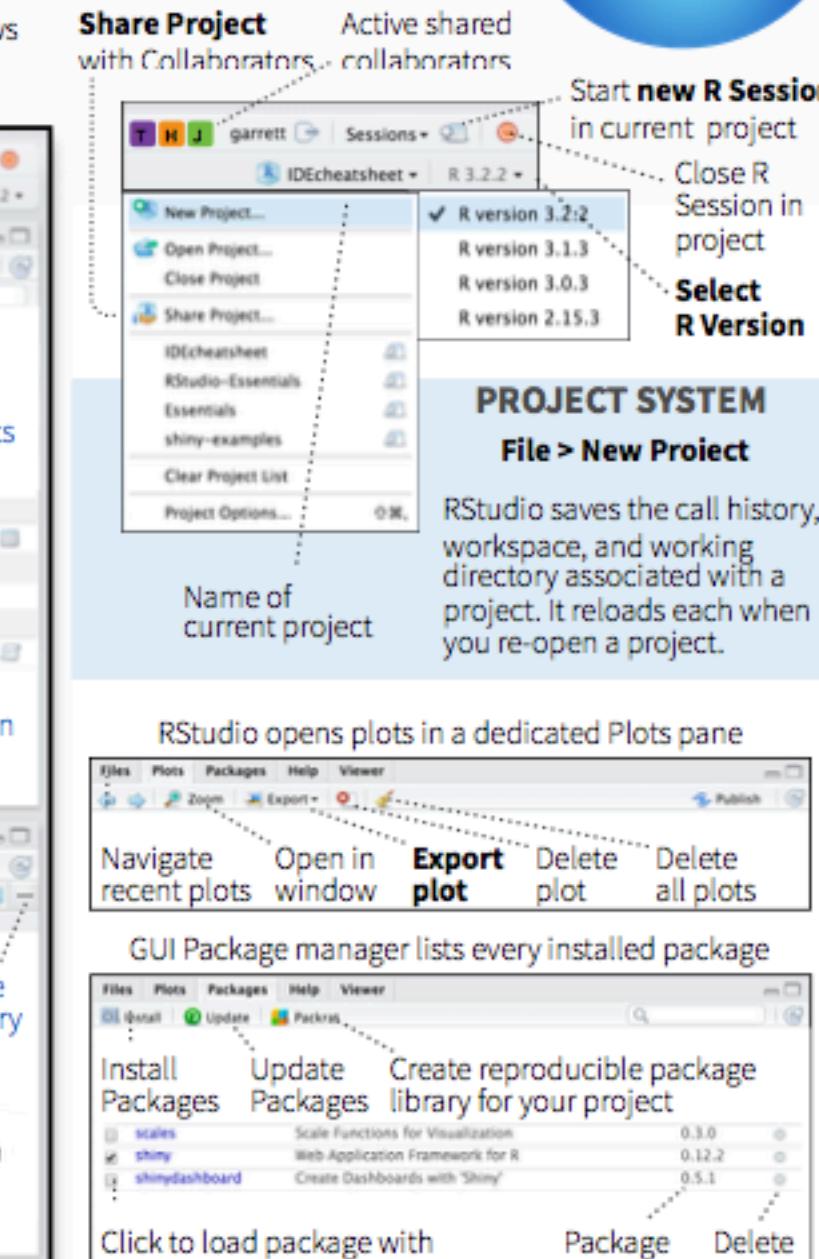
Version Control with Git or SVN



Package Writing

File > New Project > New Directory > R Package

Pro Features



In cheatsheets/rstudio-ide.pdf



RStudio® is a



| | | | | | | |
|-----------------------------------|------------------------|----------------------|--------------------------|--------------------------|-------------------------|--|
| 1 LAYOUT | Windows/Linux | Mac | 4 WRITE CODE | Windows /Linux | Mac | WHY RSTUDIO SERVER PRO? |
| Move focus to Source Editor | Ctrl+1 | Ctrl+1 | Attempt completion | Tab or Ctrl+Space
↑/↓ | Tab or Cmd+Space
↑/↓ | RSP extends the open source server with a commercial license, support, and more: |
| Move focus to Console | Ctrl+2 | Ctrl+2 | Navigate candidates | Enter, Tab, or → | Enter, Tab, or → | <ul style="list-style-type: none"> open and run multiple R sessions at once |
| Move focus to Help | Ctrl+3 | Ctrl+3 | Accept candidate | Esc | Esc | <ul style="list-style-type: none"> tune your resources to improve performance |
| Show History | Ctrl+4 | Ctrl+4 | Dismiss candidates | Ctrl+Z | Cmd+Z | <ul style="list-style-type: none"> edit the same project at the same time as others |
| Show Files | Ctrl+5 | Ctrl+5 | Undo | Ctrl+Shift+Z | Cmd+Shift+Z | <ul style="list-style-type: none"> see what you and others are doing on your server |
| Show Plots | Ctrl+6 | Ctrl+6 | Redo | Ctrl+X | Cmd+X | <ul style="list-style-type: none"> switch easily from one version of R to a different version |
| Show Packages | Ctrl+7 | Ctrl+7 | Cut | Ctrl+C | Cmd+C | <ul style="list-style-type: none"> integrate with your authentication, authorization, and audit practices |
| Show Environment | Ctrl+8 | Ctrl+8 | Copy | Ctrl+V | Cmd+V | |
| Show Git/SVN | Ctrl+9 | Ctrl+9 | Paste | Ctrl+A | Cmd+A | |
| Show Build | Ctrl+0 | Ctrl+0 | Select All | Ctrl+D | Cmd+D | |
| | | | Delete Line | | | |
| 2 RUN CODE | Windows/Linux | Mac | Select | Shift+[Arrow] | Shift+[Arrow] | |
| Search command history | Ctrl+↑ | Cmd+↑ | Select Word | Ctrl+Shift+↔/↔ | Option+Shift+↔/↔ | |
| Navigate command history | ↑/↓ | ↑/↓ | Select to Line Start | Alt+Shift+← | Cmd+Shift+← | 5 DEBUG CODE |
| Move cursor to start of line | Home | Cmd+← | Select to Line End | Alt+Shift+→ | Cmd+Shift+→ | Windows/Linux |
| Move cursor to end of line | End | Cmd+→ | Select Page Up/Down | Shift+PageUp/Down | Shift+PageUp/Down | Mac |
| Change working directory | Ctrl+Shift+H | Ctrl+Shift+H | Select to Start/End | Shift+Alt+↑/↓ | Cmd+Shift+↑/↓ | |
| Interrupt current command | Esc | Esc | Delete Word Left | Ctrl+Opt+Backspace | Ctrl+Opt+Backspace | |
| Clear console | Ctrl+L | Ctrl+L | Delete Word Right | Option+Delete | Option+Delete | |
| Quit Session (desktop only) | Ctrl+Q | Cmd+Q | Delete to Line End | Ctrl+K | Ctrl+K | |
| Restart R Session | Ctrl+Shift+F10 | Cmd+Shift+F10 | Delete to Line Start | Option+Backspace | Option+Backspace | |
| Run current line/selection | Ctrl+Enter | Cmd+Enter | Indent | Tab (at start of line) | Tab (at start of line) | 6 VERSION CONTROL |
| Run current (retain cursor) | Alt+Enter | Option+Enter | Outdent | Shift+Tab | Shift+Tab | Windows/Linux |
| Run from current to end | Ctrl+Alt+E | Cmd+Option+E | Yank line up to cursor | Ctrl+U | Ctrl+U | Mac |
| Run the current function | Ctrl+Alt+F | Cmd+Option+F | Yank line after cursor | Ctrl+K | Ctrl+K | |
| Source a file | Ctrl+Alt+G | Cmd+Option+G | Insert yanked text | Ctrl+Y | Ctrl+Y | |
| Source the current file | Ctrl+Shift+S | Cmd+Shift+S | Insert <- | Alt+- | Option+- | |
| Source with echo | Ctrl+Shift+Enter | Cmd+Shift+Enter | Insert %>% | Ctrl+Shift+M | Cmd+Shift+M | |
| 3 NAVIGATE CODE | Windows /Linux | Mac | Show help for function | F1 | F1 | 7 MAKE PACKAGES |
| Goto File/Function | Ctrl+. | Ctrl+. | Show source code | F2 | F2 | Windows/Linux |
| Fold Selected | Alt+L | Cmd+Option+L | New document | Ctrl+Shift+N | Cmd+Shift+N | Mac |
| Unfold Selected | Shift+Alt+L | Cmd+Shift+Option+L | New document (Chrome) | Ctrl+Alt+Shift+N | Cmd+Shift+Opt+N | |
| Fold All | Alt+O | Cmd+Option+O | Open document | Ctrl+O | Cmd+O | |
| Unfold All | Shift+Alt+O | Cmd+Shift+Option+O | Save document | Ctrl+S | Cmd+S | |
| Go to line | Shift+Alt+G | Cmd+Shift+Option+G | Close document | Ctrl+W | Cmd+W | |
| Jump to | Shift+Alt+J | Cmd+Shift+Option+J | Close document (Chrome) | Ctrl+Alt+W | Cmd+Option+W | |
| Switch to tab | Ctrl+Shift+. | Ctrl+Shift+. | Close all documents | Ctrl+Shift+W | Cmd+Shift+W | |
| Previous tab | Ctrl+F11 | Ctrl+F11 | Extract function | Ctrl+Alt+X | Cmd+Option+X | |
| Next tab | Ctrl+F12 | Ctrl+F12 | Extract variable | Ctrl+Alt+V | Cmd+Option+V | |
| First tab | Ctrl+Shift+F11 | Ctrl+Shift+F11 | Reindent lines | Ctrl+I | Cmd+I | |
| Last tab | Ctrl+Shift+F12 | Ctrl+Shift+F12 | (Un)Comment lines | Ctrl+Shift+C | Cmd+Shift+C | 8 DOCUMENTS AND APPS |
| Navigate back | Ctrl+F9 | Cmd+F9 | Reflow Comment | Ctrl+Shift+/ | Cmd+Shift+/ | Windows/Linux |
| Navigate forward | Ctrl+F10 | Cmd+F10 | Reformat Selection | Ctrl+Shift+A | Cmd+Shift+A | Mac |
| Jump to Brace | Ctrl+P | Ctrl+P | Select within braces | Ctrl+Shift+E | Ctrl+Shift+E | |
| Select within Braces | Ctrl+Shift+Alt+E | Ctrl+Shift+Option+E | Show Diagnostics | Ctrl+Shift+Alt+P | Cmd+Shift+Opt+P | |
| Use Selection for Find | Ctrl+F3 | Cmd+E | Transpose Letters | Ctrl+T | Ctrl+T | |
| Find in Files | Ctrl+Shift+F | Cmd+Shift+F | Move Lines Up/Down | Alt+↑/↓ | Option+↑/↓ | |
| Find Next | Win: F3, Linux: Ctrl+G | Cmd+G | Copy Lines Up/Down | Shift+Alt+↑/↓ | Cmd+Option+↑/↓ | |
| Find Previous | W: Shift+F3, L: | Cmd+Shift+G | Add New Cursor Above | Ctrl+Alt+Up | Ctrl+Option+Up | |
| Jump to Word | Ctrl+↔/↔ | Option+↔/↔ | Add New Cursor Below | Ctrl+Alt+Down | Ctrl+Option+Down | |
| Jump to Start/End | Ctrl+↑/↓ | Cmd+↑/↓ | Move Active Cursor Up | Ctrl+Alt+Shift+Up | Ctrl+Option+Shift+Up | |
| Toggle Outline | Ctrl+Shift+O | Cmd+Shift+O | Move Active Cursor Down | Ctrl+Alt+Shift+Down | Ctrl+Opt+Shift+Down | |
| | | | Find and Replace | Ctrl+F | Cmd+F | |
| | | | Use Selection for Find | Ctrl+F3 | Cmd+E | |
| | | | Replace and Find | Ctrl+Shift+J | Cmd+Shift+J | |
| | | | | | | Show Keyboard Shortcuts |
| | | | | | | Alt+Shift+K |
| | | | | | | Option+Shift+K |



Your Turn

Open 02-Data-basics.Rmd