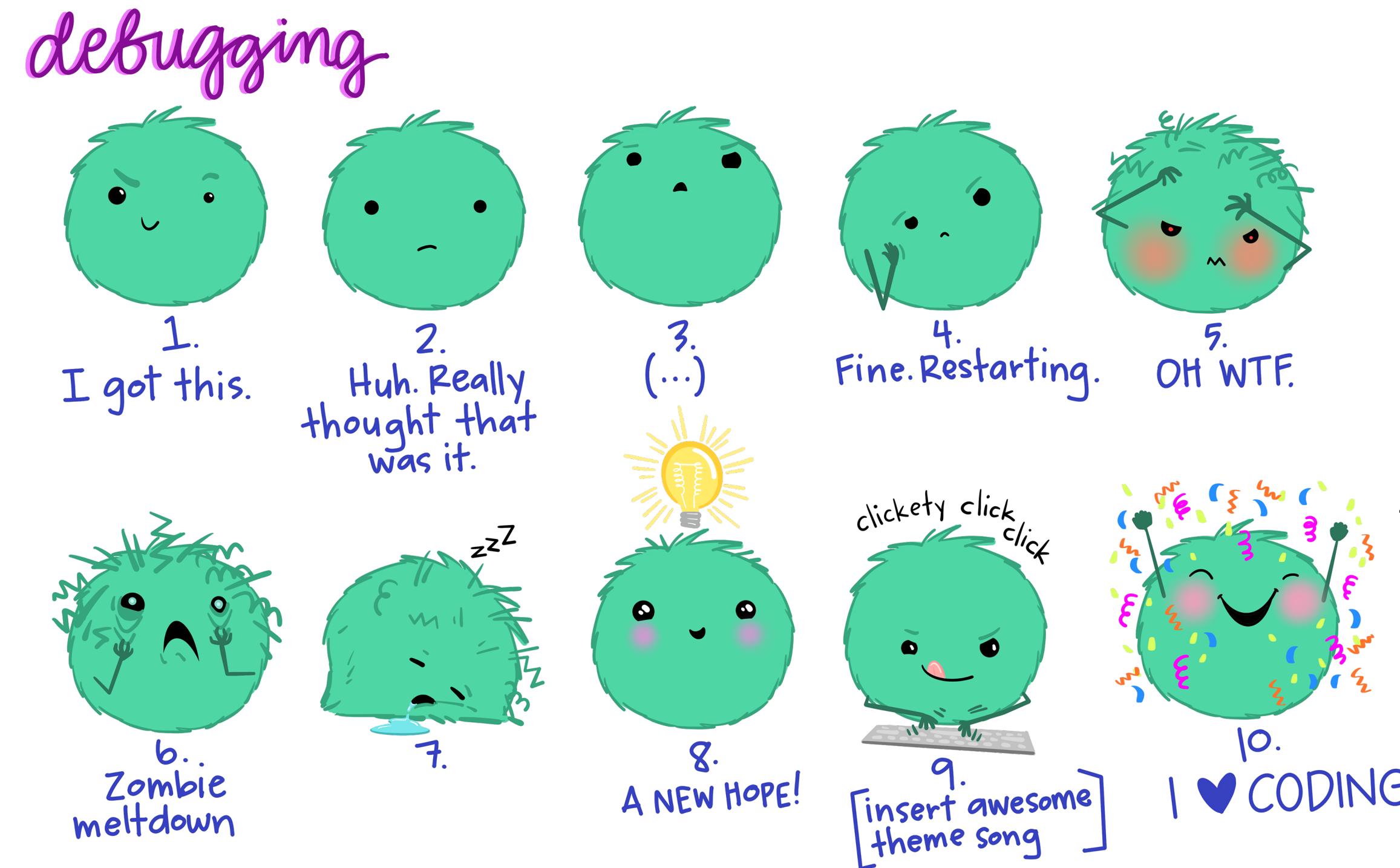


# Solving problems in R

## Week 6 (11/05/25)



Stepfanie M. Aguillon



Artwork by Allison Horst

# Outline of today's class

- Introduce some common coding problems
- Introduce some good coding practices and general troubleshooting approaches
- Collective brainstorm a “decision tree” for troubleshooting

# Common coding problems

# How do you know if there's a problem?

RStudio Source

```
5  
✖ 6 my_variable <- c(1, 2, 3, 4, 5)  
7
```

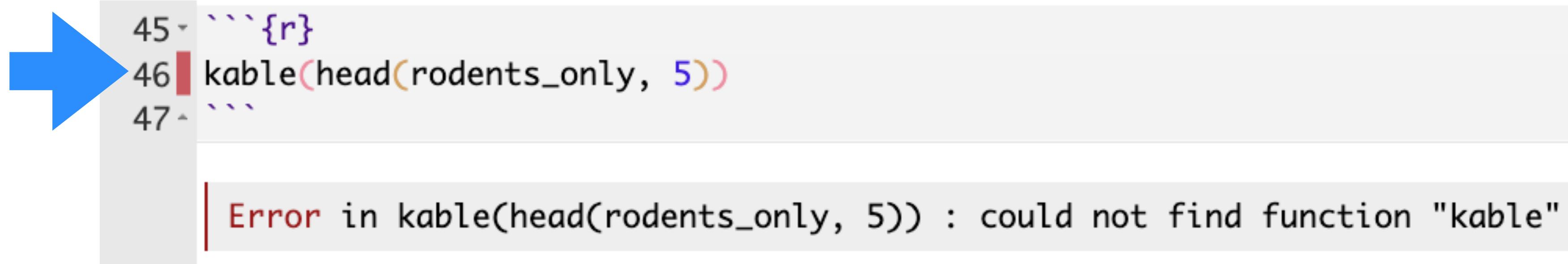


RStudio Console

```
Error: unexpected ')' in "my_variable <- c(1, 2, 3, 4, 5))"
```

Quarto Document

```
45 ````{r}  
46 kable(head(rodents_only, 5))  
47 ````
```



```
Error in kable(head(rodents_only, 5)) : could not find function "kable"
```

# Types of error messages

- 1 **Fatal Error:** Your code has an error that prevented it from running at all. You'll need to fix the error to get the code to run.
- 2 **Warning:** There's an error, but your code still ran successfully. This often indicates a potential problem that you may need to solve.
- 3 **Message:** Helpful information about the running of your code. This may indicate an underlying assumption the code is making that you should be aware of.

**Read the error message!**

# R can't find a function

## Error message:

```
Error in _____ : could not find function _____
```

## Potential issue:

- Library for the function hasn't been loaded (missing or wasn't run)
- Typo

# R can't find a variable

## Error message:

```
Error in _____ : object _____ not found
```

## Potential issue:

- The variable hasn't been created
- The variable hasn't been stored
- Typo

# R can't find the pipe operator

## Error message:

```
Error in ____ %>% ____ : could not find function %>%
```

## Potential issue:

- The tidyverse hasn't been loaded (missing or wasn't run)
- Typo

# R ignores something in your function

## Error message:

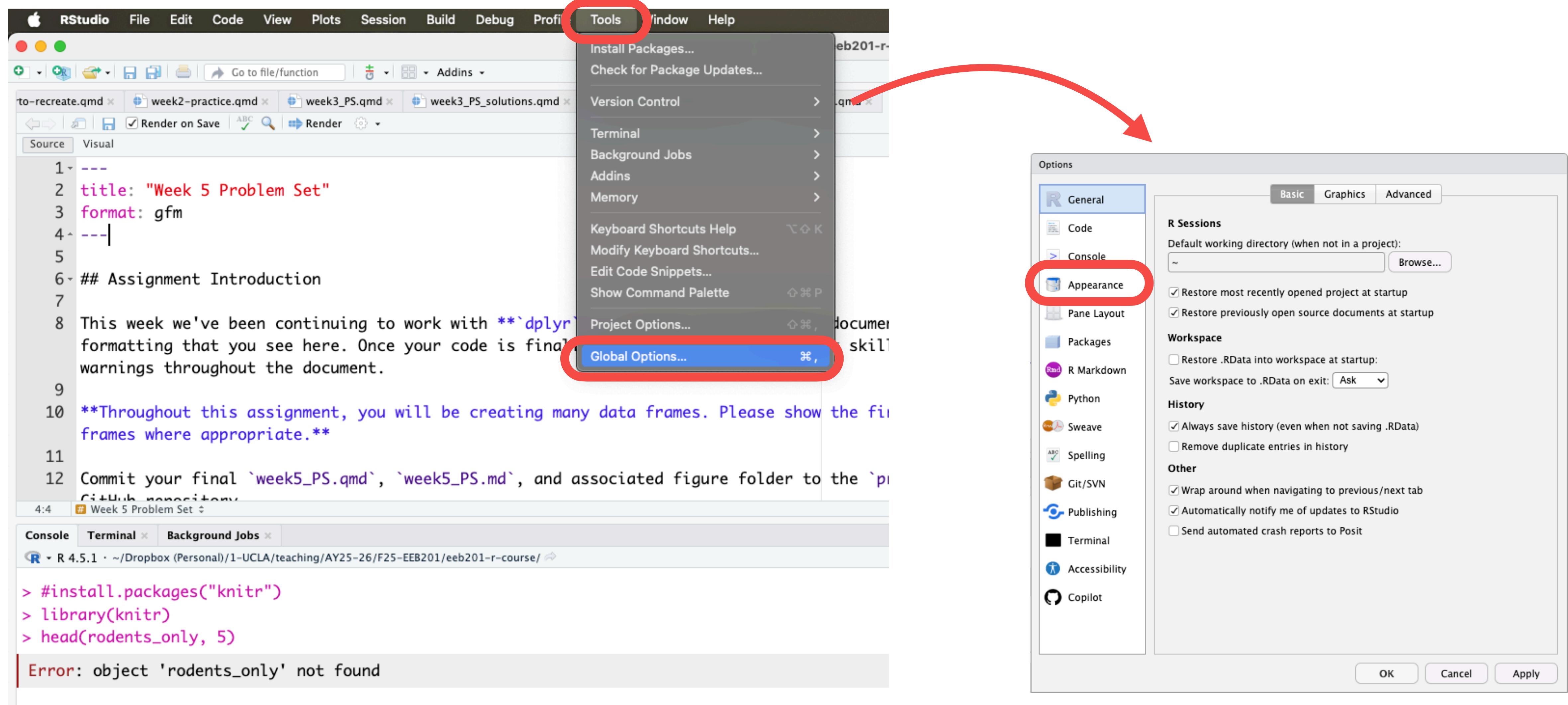
Warning: Ignoring unknown parameters: \_\_\_\_\_

## Potential issue:

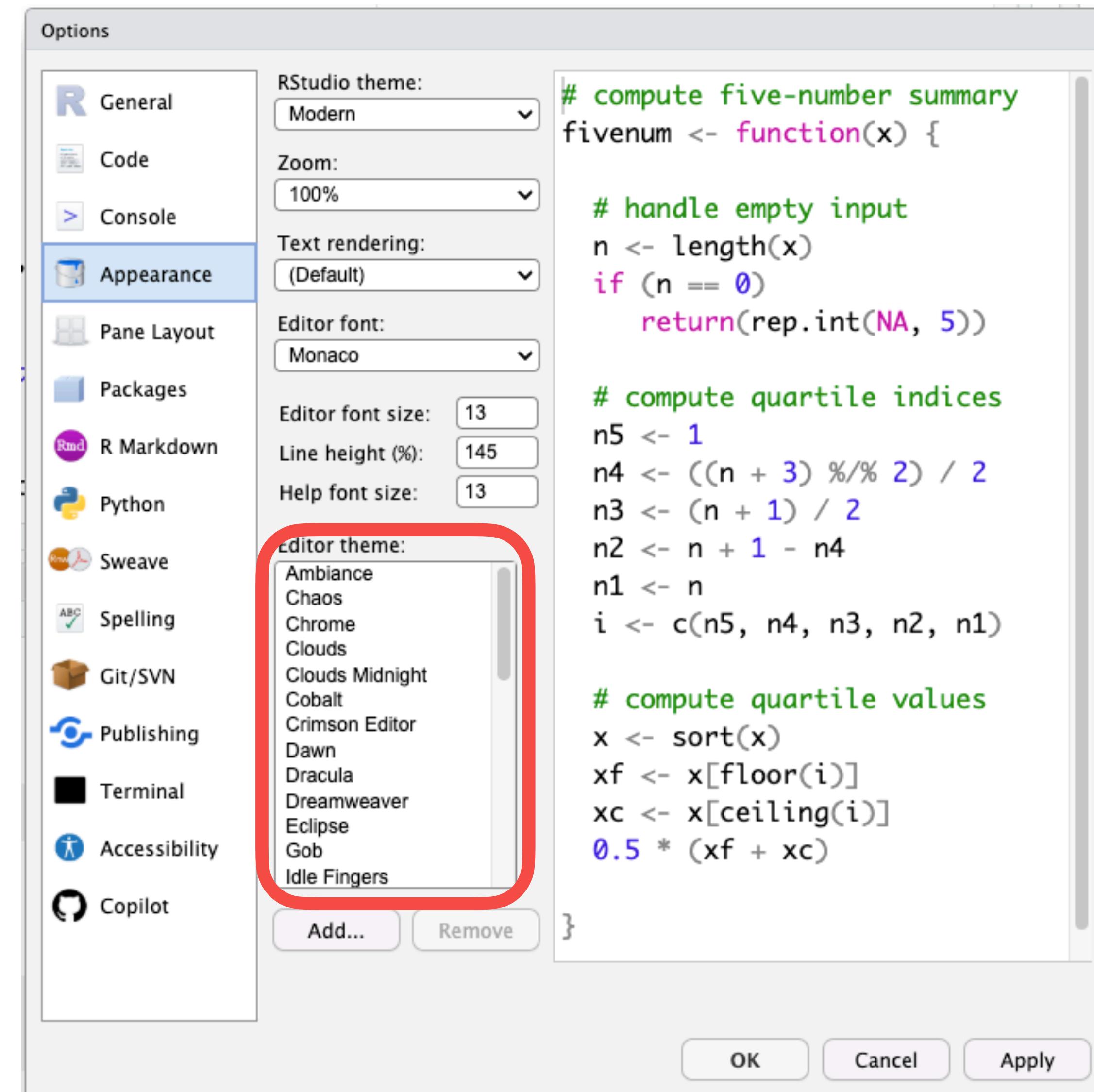
- You've included an argument that your function can't/doesn't use
- Typo

# Good coding practices

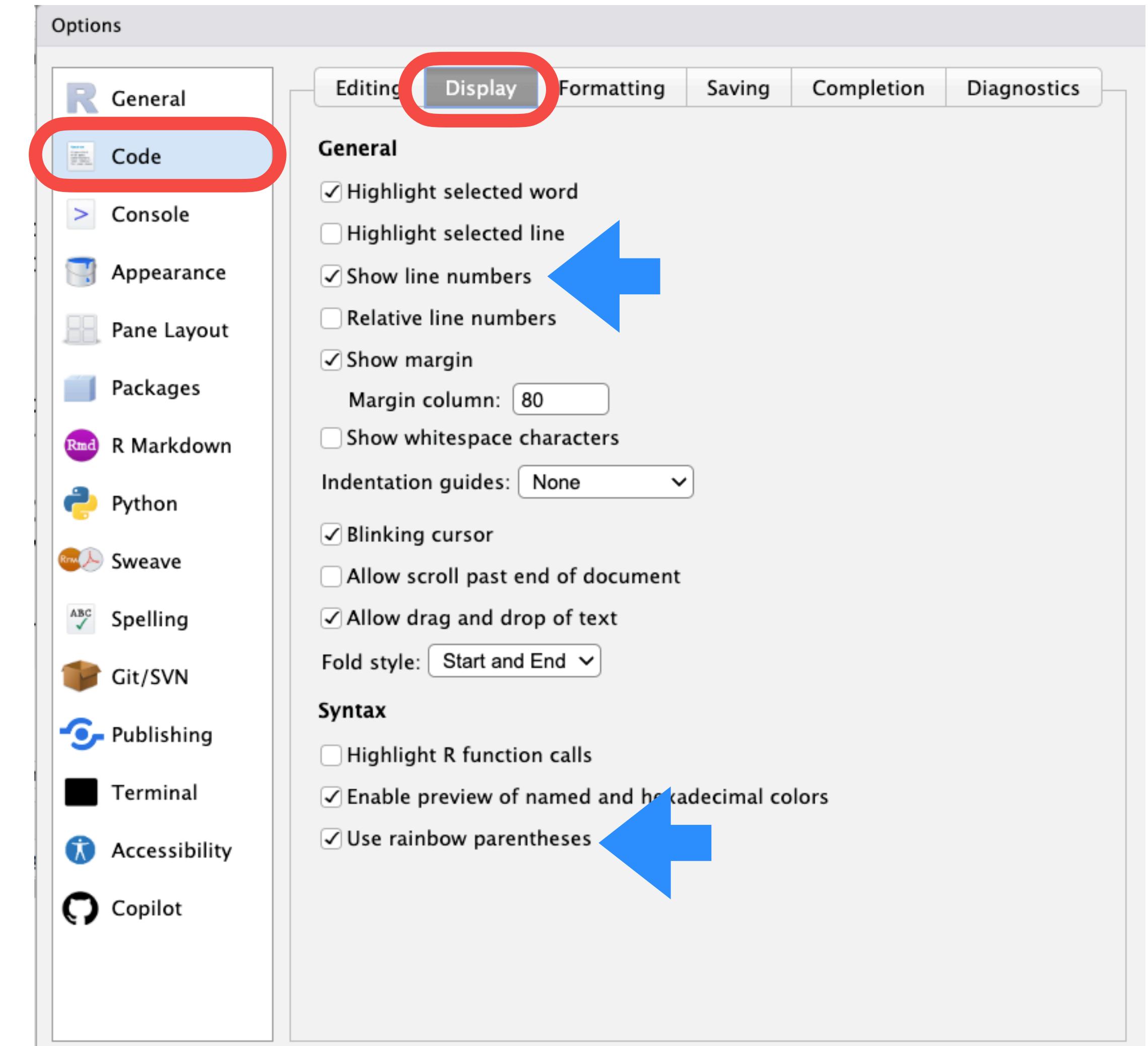
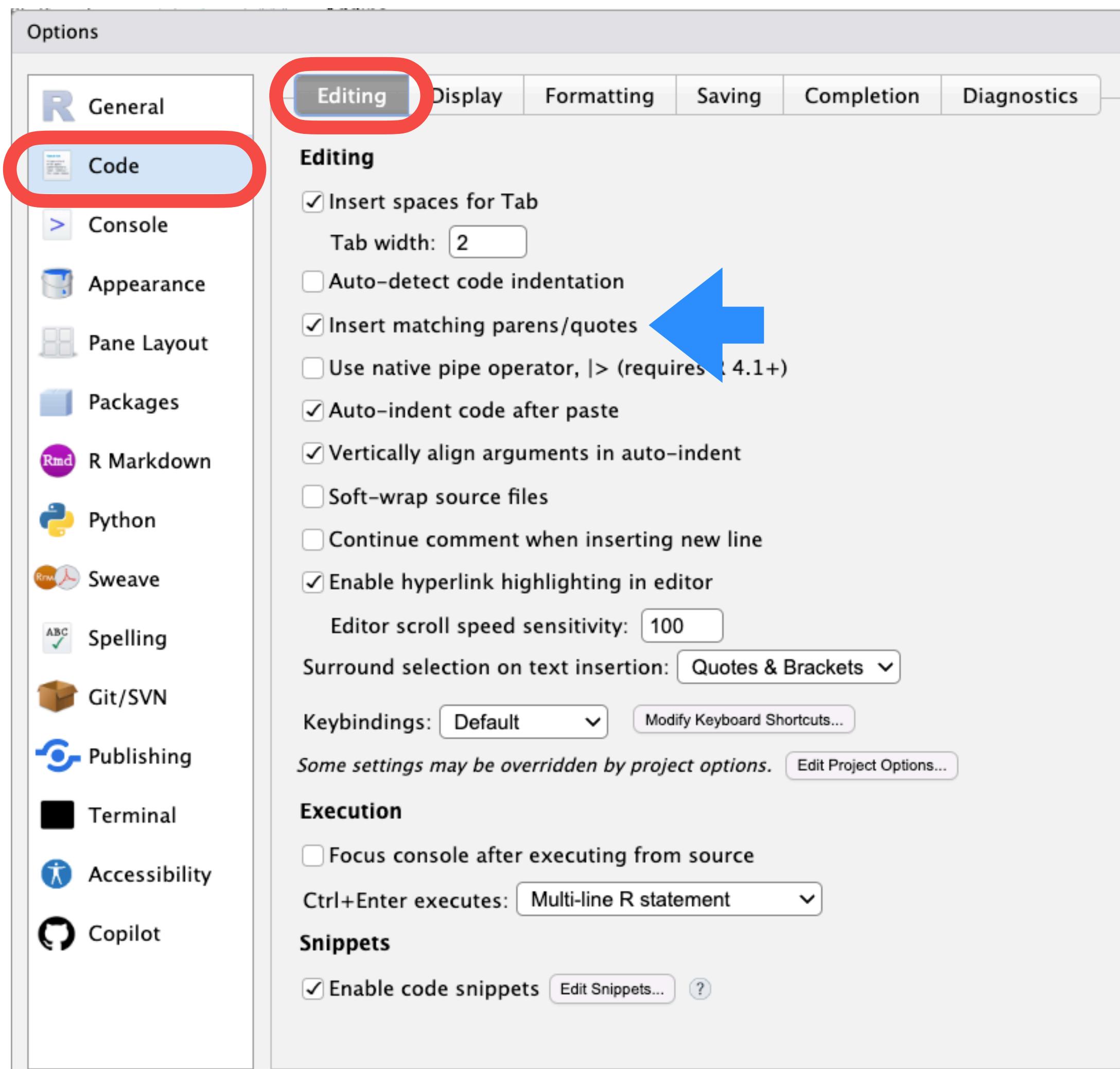
# RStudio Tips: Code Appearance



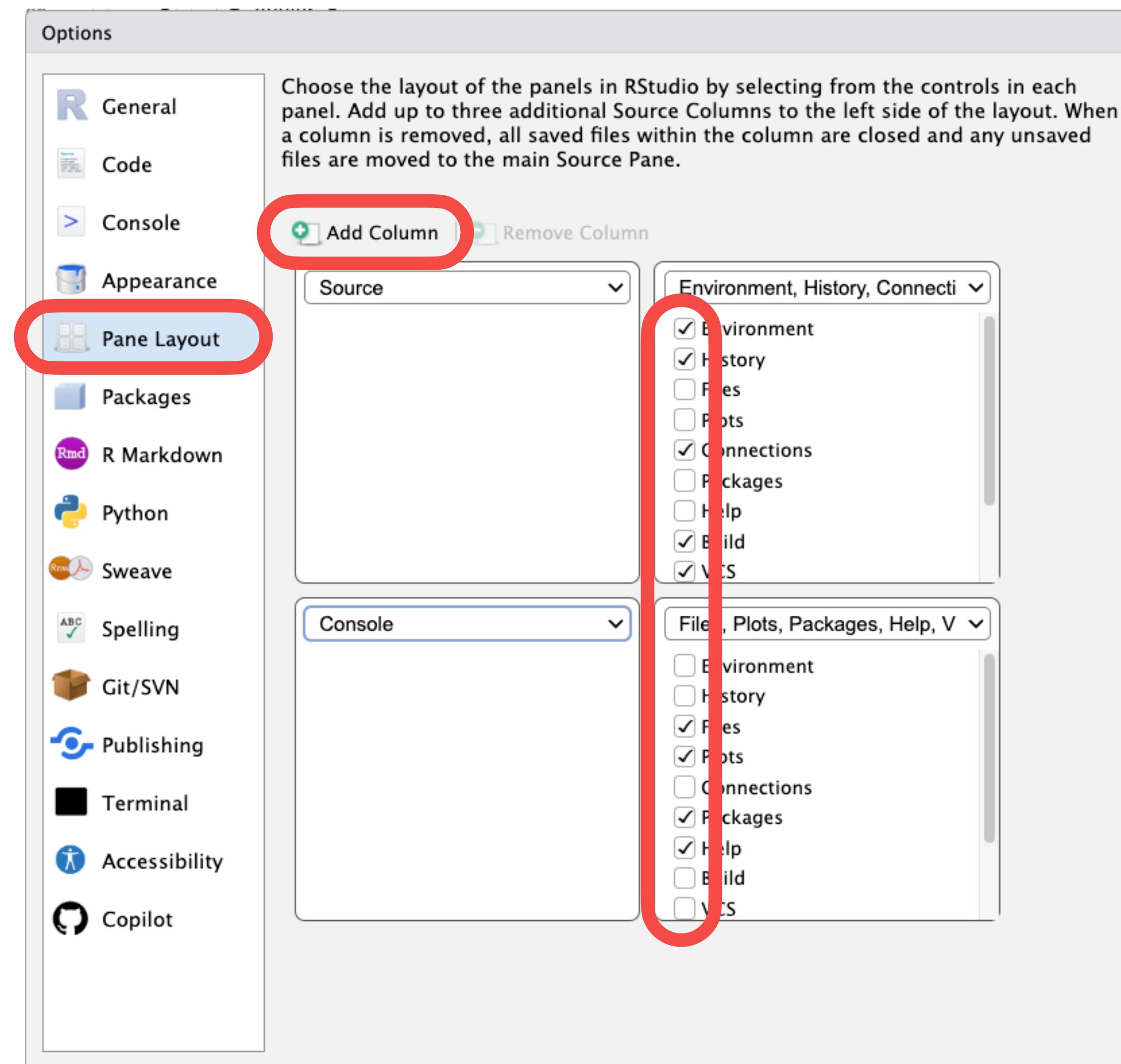
# RStudio Tips: Code Appearance



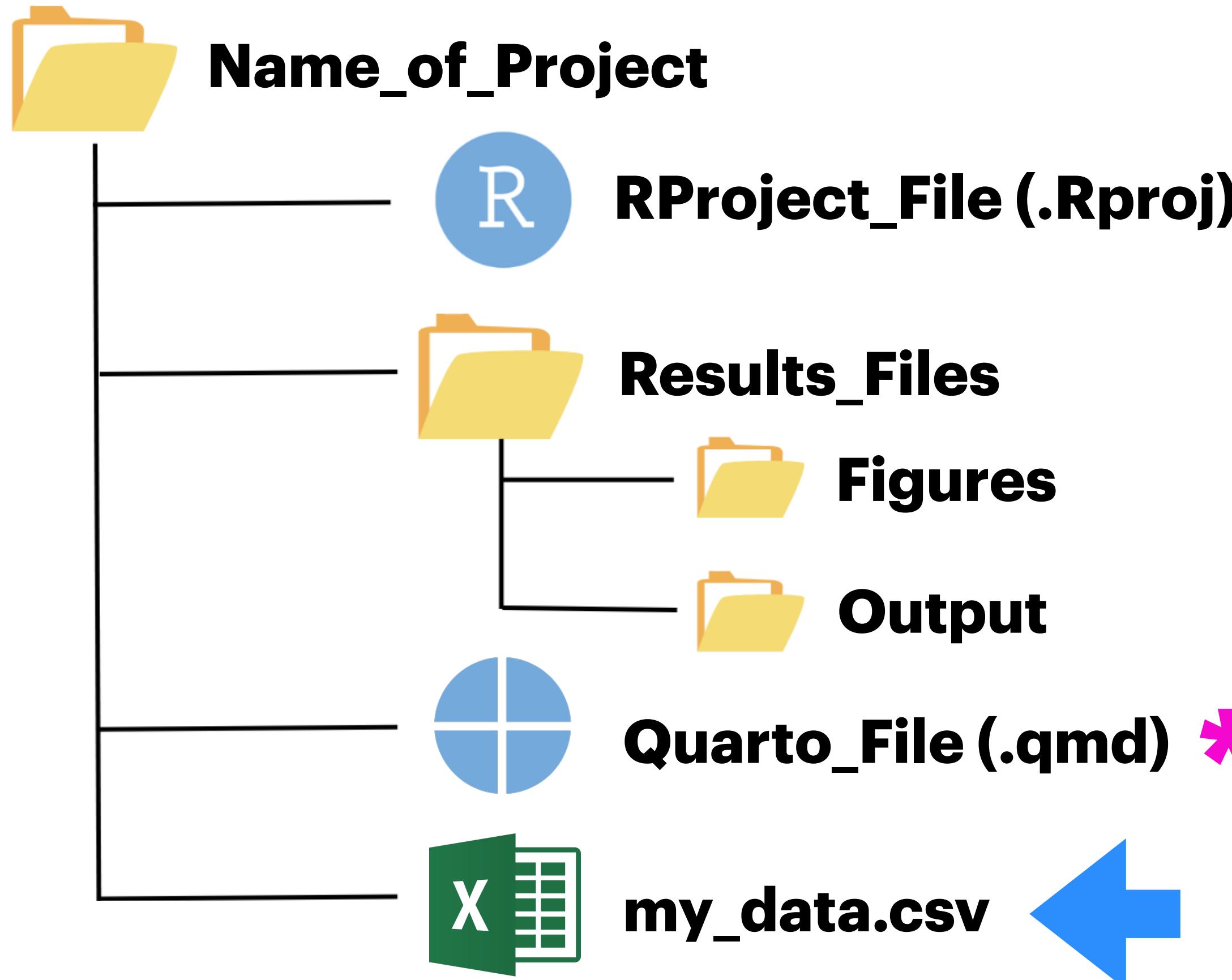
# RStudio Tips: Code Appearance



# RStudio Tips: RStudio Appearance



# RProject Tips: File Paths

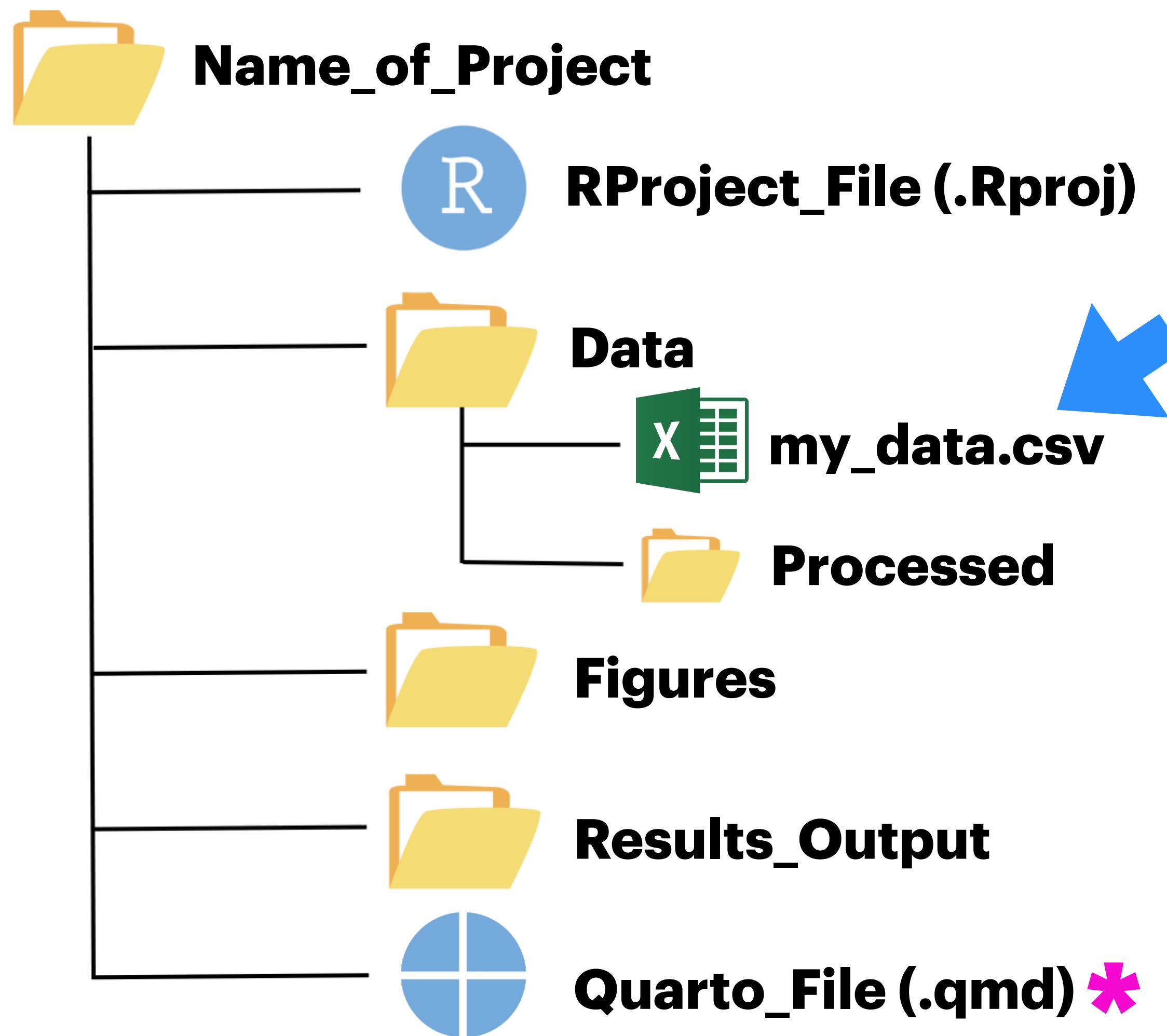


Easy referencing of file paths!

```
read_csv("my_data.csv")
```

```
read_csv("./my_data.csv")
```

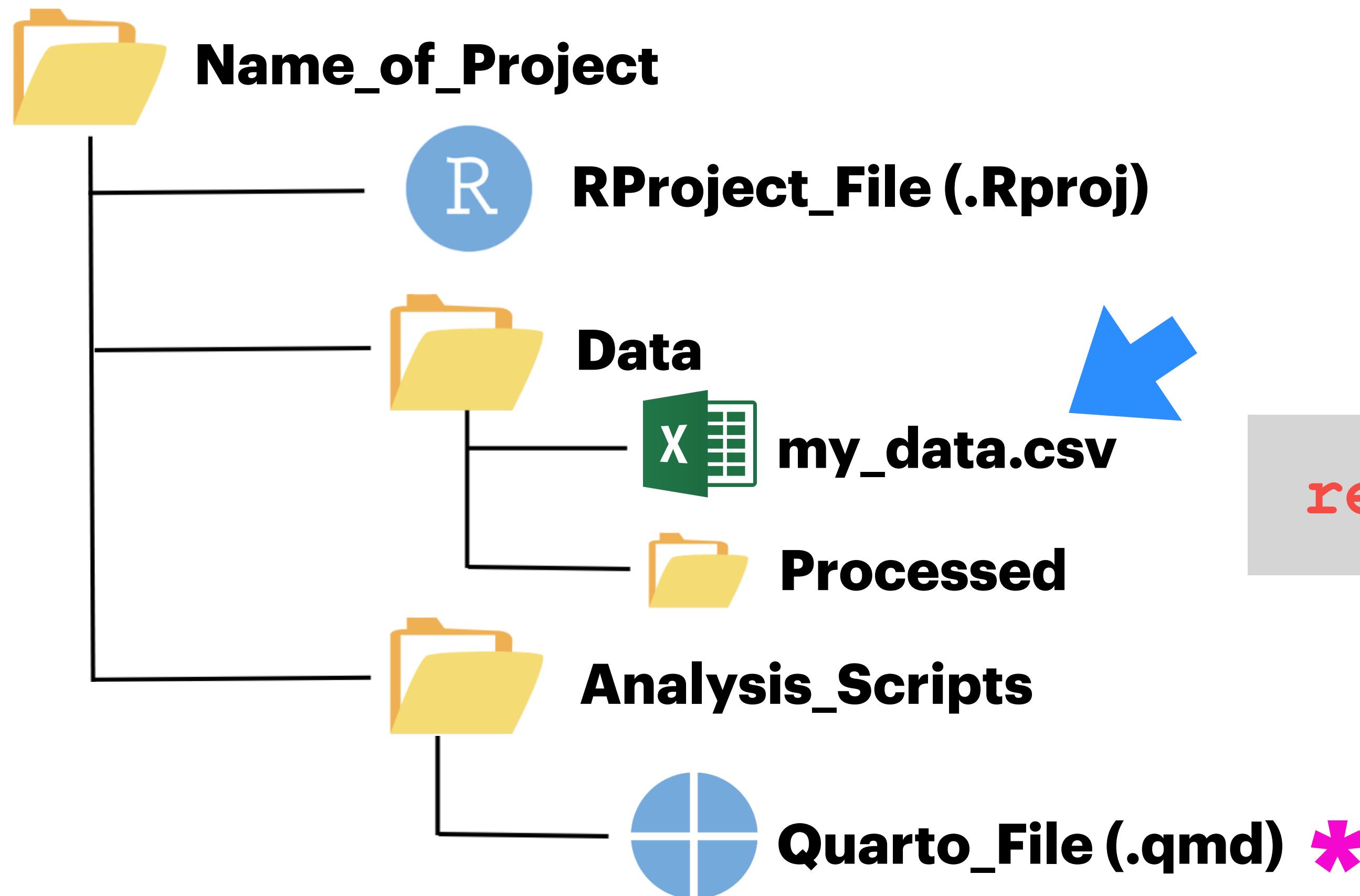
# RProject Tips: File Paths



Easy referencing of file paths!

```
read_csv("Data/my_data.csv")
```

# RProject Tips: File Paths



Easy referencing of file paths!

```
read_csv("../Data/my_data.csv")
```

# RProject Tips: File Paths

RProjects let you use *relative* (rather than absolute) paths

- 1 File in same directory as Quarto/Script

```
"file_name"
```

```
". /file_name"
```

- 2 File is one level down from the Quarto/Script

```
"/folder_name/file_name"
```

- 3 File is one level up from the Quarto/Script

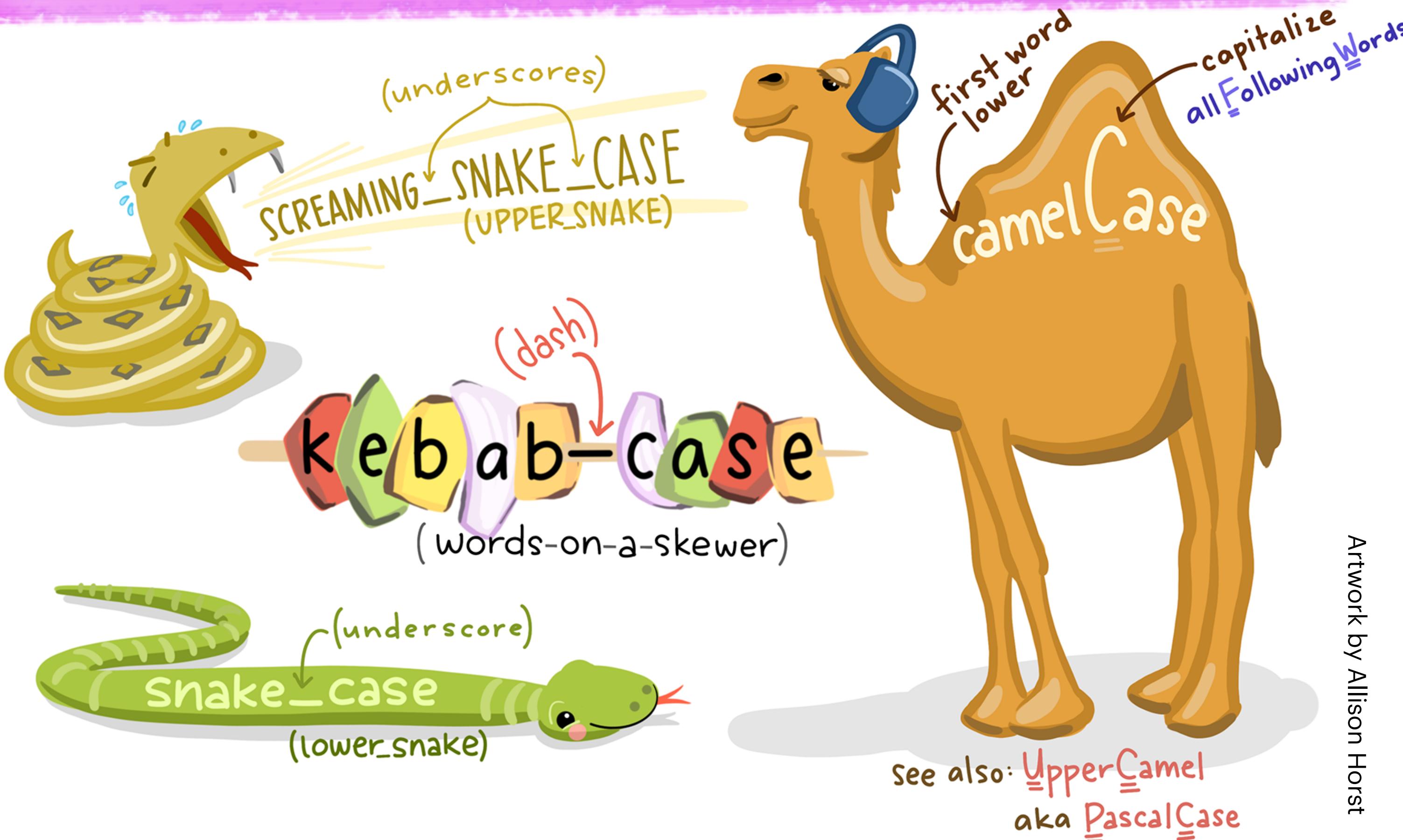
```
" ../file_name"
```

# Other good coding practices

- Comment often!
- Style code consistently
  - Use spaces, tabs, line breaks, etc.

# Other good coding practices

in that case...



**ThisIsPascalCase**

**thisIsCamelCase**

**this\_is\_snake\_case**

**Xthis-is-kebab-case**

**Xthisisflatcase**

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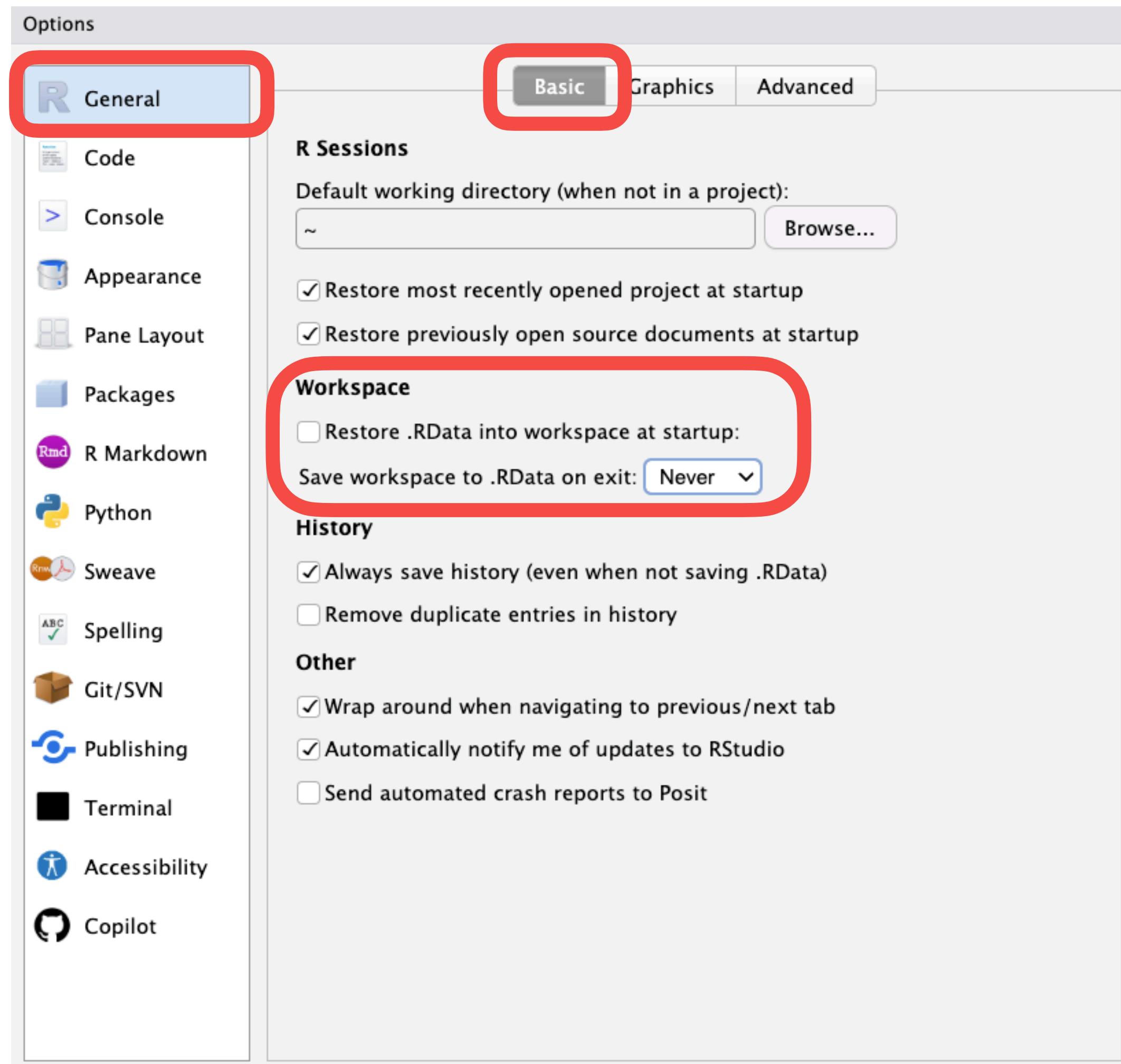
@allison\_horst

# Other good coding practices

- Comment often!
- Style code consistently
  - Use spaces, tabs, line breaks, etc.
  - Use descriptive variable names
  - Always start with a “clean” environment (don’t save the workspace)

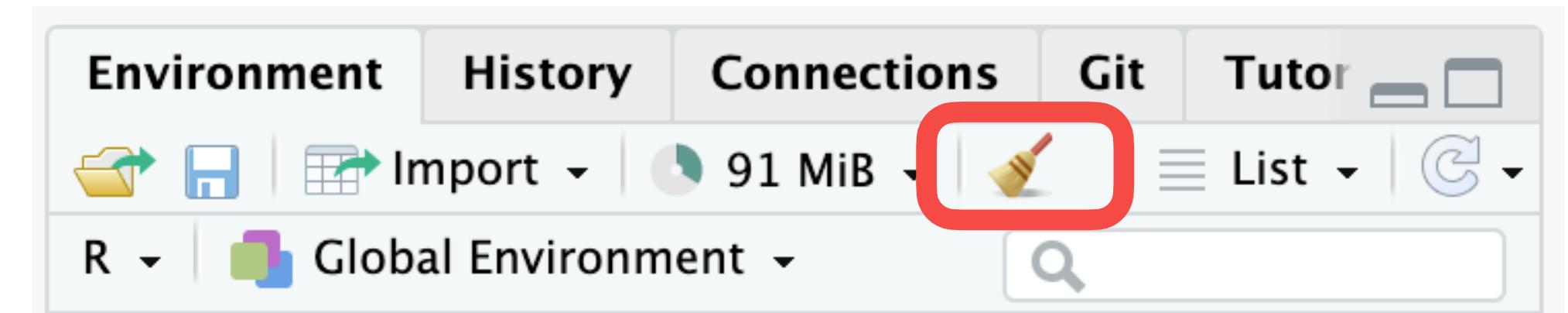
# Other good coding practices

## For all RStudio sessions



## Or within a session

### Clear entire environment



### Remove a specific variable

```
rm(variable_name)
```

# Other good coding practices

- Comment often!
- Style code consistently
  - Use spaces, tabs, line breaks, etc.
  - Use descriptive variable names
  - Always start with a “clean” environment (don’t save the workspace)
  - Clear your environment and make sure your code still runs

# Troubleshooting approaches

# R help pages (“documentation”)

general  
description

additional  
details

sd {stats}

R Documentation

Standard Deviation

Description

This function computes the standard deviation of the values in `x`. If `na.rm` is TRUE then missing values are removed before computation proceeds.

Usage

`sd(x, na.rm = FALSE)`

Arguments

`x` a numeric vector or an R object but not a [factor](#) coercible to numeric by `as.double(x)`.

`na.rm` logical. Should missing values be removed?

Details

Like [var](#) this uses denominator  $n - 1$ .

The standard deviation of a length-one or zero-length vector is NA.

See Also

[var](#) for its square, and [mad](#), the most robust alternative.

Examples

[Run examples](#)

`sd(1:2) ^ 2`

function syntax

run examples

details on the  
function options

# Searching for help

*The internet will make those bad words go away*



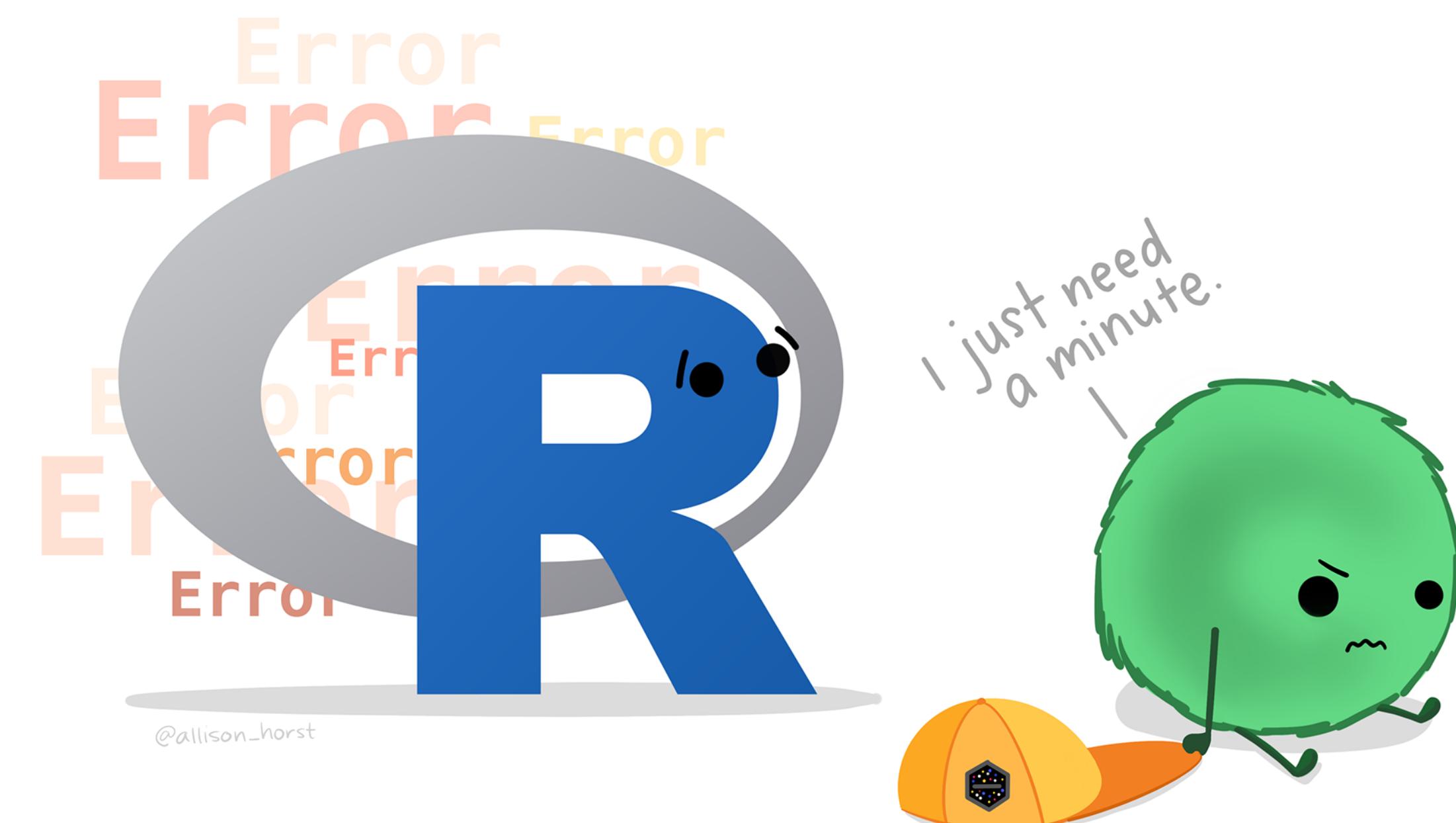
*Essential*

Googling the  
Error Message

- Copy and paste the error into Google
- Look for folks that have experienced the same error (e.g., Stack Overflow)
- Consider including this in your search:  
`package_name::function_name()`
- Consider including “tidyverse” in your search

# Other strategies

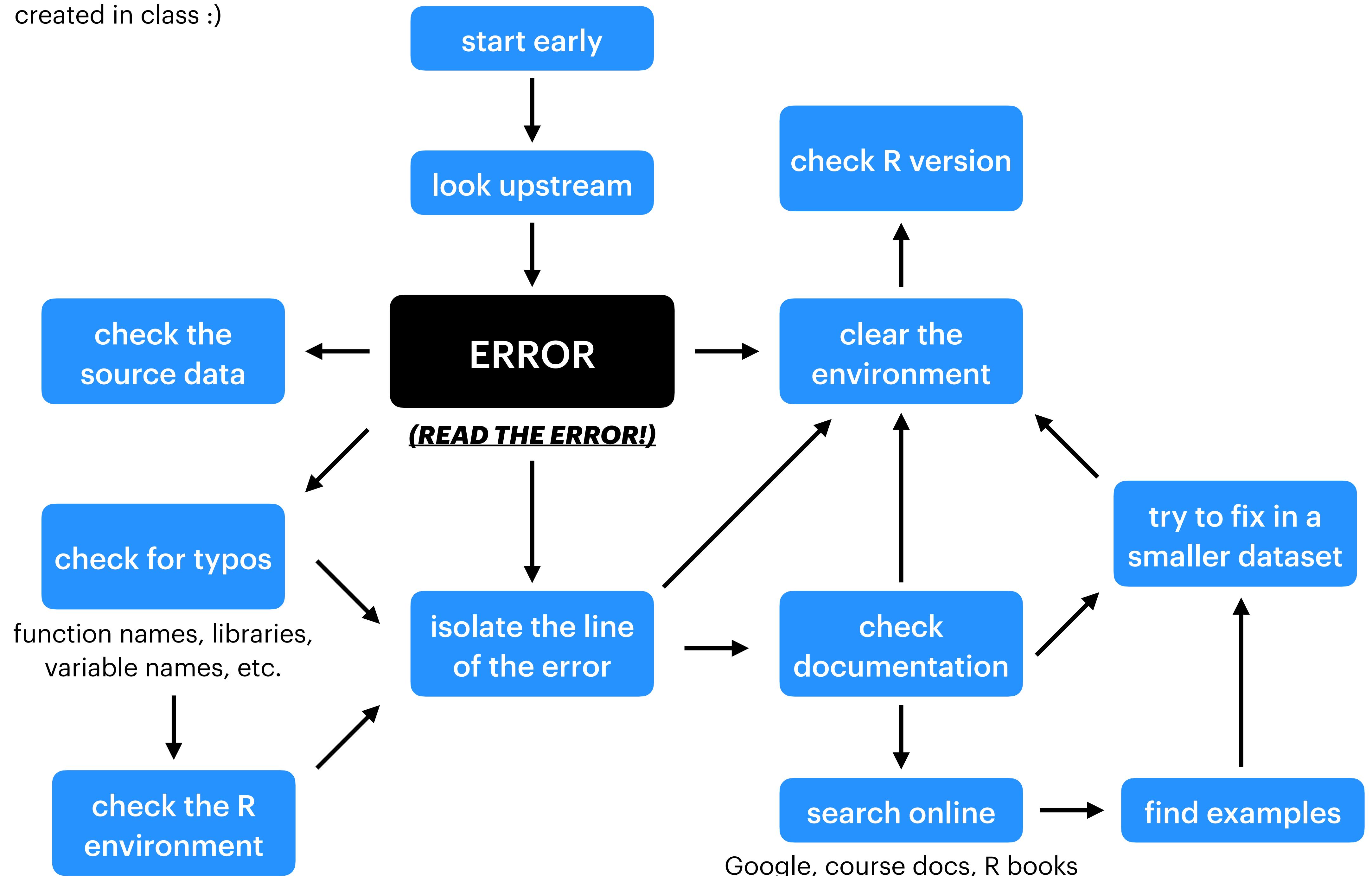
- Take code line-by-line
- Turn it off and on again
- Take a break and come back to it



Artwork by Allison Horst

**Just because it runs,  
doesn't mean it's working!**

created in class :)



take a break!

# Further reading

- Lecture 2 of ESM 206 (Statistics and Data Analysis in Environmental Science and Management) by Allison Horst
- Wickham 2019, *Advanced R*, Chapter 22
- Wickham & Grolemund 2017, *R for Data Science*, Section 27.5
- Wickham & Grolemund 2017, *R for Data Science*, Chapter 8
- Tidyverse Style Guide