

R: A Hitchhikers Guide to Reproducible Research

- Message in a bottle

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Daily overview

09.30 **Practical**

- Catch up on Day 1 and walkthroughs

10.30 **Coffee break**

11.00 **Lecture/Practical**

- Introduction to the core tidyverse packages, demonstrations and walkthroughs

13.00 **Lunch break**

14.00 **Practical session**

- Worksheet

15.00 **Lecture/Practical**

- Lecture and demonstration of ggplot2 for data analysis

15.30 **Practical session**

- Worksheet

16.30 **Finish**

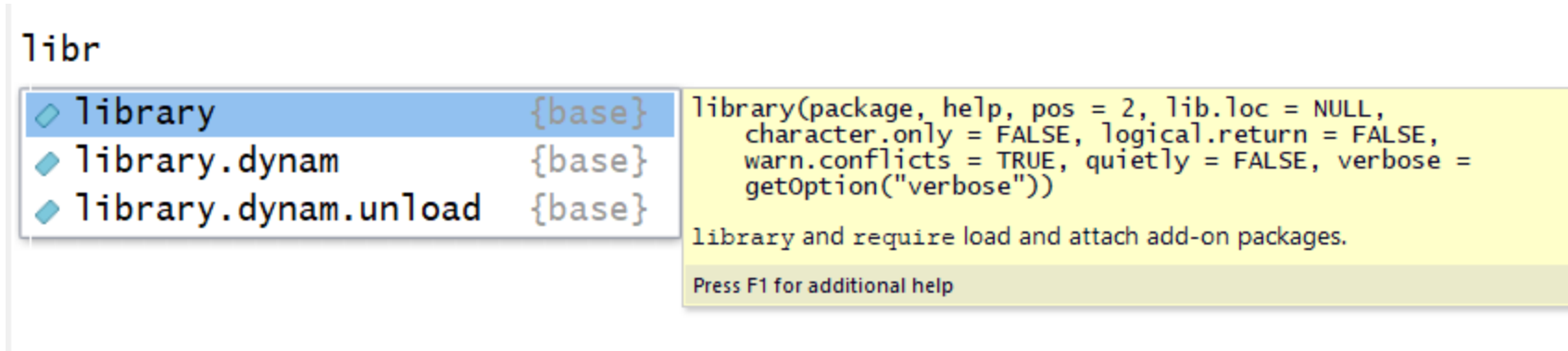
Rewind

- We took a dive into base R code on Day 1
- Open `Day_1/scripts07_practice_worksheet_solutions.R`
- Questions from Day 1 material?

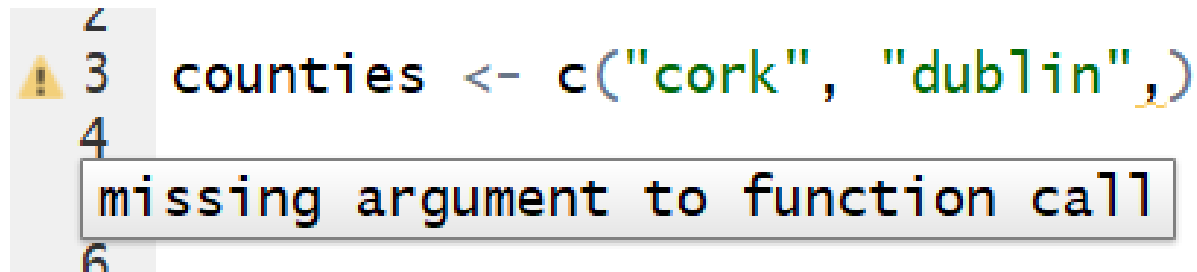


Levels of help within RStudio

1. Let R help you write your code using Tab



2. Hover over the error symbols to identify what the error is



```
> counties <- c("cork", "dublin",)
Error in c("cork", "dublin", ) : argument 3 is empty
> |
```

Levels of help within RStudio

3. Watch out for capitalisation and naming errors as the code might run, but all the arguments supplied may return "FALSE"

```
> counties <- c("cork", "dublin")
> cork_dublin_df <- house_reg_df %>%
+   filter(county %in% counties)
> |

> ncol(cork_dublin_df)
[1] 3
> nrow(cork_dublin_df)
[1] 0
> unique(hse_df$county)
 [1] "Carlow"      "Cavan"      "Clare"      "Cork"      "Donegal"    "Dublin"     "Galway"
 [8] "Kerry"      "Kildare"    "Kilkenny"   "Laois"     "Leitrim"    "Limerick"   "Longford"
[15] "Louth"      "Mayo"      "Meath"      "Monaghan"  "Offaly"     "Roscommon"  "Sligo"
[22] "Tipperary"  "Waterford" "Westmeath"  "Wexford"   "Wicklow"
> |

> unique(hse_df$county) %in% counties
 [1] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
[15] FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE
> |
```

Levels of help within RStudio

4. `> ?gather`

- If you're unsure about a function, place the question mark before it to retrieve some help documentation
- describes the various arguments to the function
- provides useful examples to guide you through common operations

Walkthrough

- 01_correct_the_errors

Package Cheatsheets

- Cheatsheets are available for commonly used packages
 - c.f. last week we explored the baseR cheatsheet
- Useful for quick reference to the most commonly used functions for that package
 - <https://www.rstudio.com/resources/cheatsheets/>

Package Vignettes

- A vignette is a long-form guide to your package
- Before R version 3.0, vignettes were standard pdfs
 - The development of R Markdown has made vignette building and navigation more accessible
- A vignette should divide functions into useful categories, and demonstrate how to coordinate multiple functions to solve problems (but this may not always be the case)
- You can see all the installed vignettes with;
`browseVignettes()`

Package Webpages

- Many packages are one offs;
 - developed by individuals/labs to solve specific problems
 - once funding expires, package development ends
 - may get released but never updated
- Many of the commonly used packages are updated regularly;
 - new versions released periodically
 - dedicated webpages
 - e.g. lets now explore <http://ggplot2.tidyverse.org>

Navigating RStudio – some useful tips

- Open the script `02_rstudio_ide_tricks.R`