



Found on Twitter...

R, with a little help from five* friends

* -ish

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R can do anything



Picture found by Steve Bentley,
somewhere in New Mills near Manchester

I may be completely wrong

Find me during the break with your best tips

- I have no idea if I pitched this well
- R is very dynamic and very broad
- Community is awesome
- StackOverflow may be too much if you don't know what you are looking for but all your answers and mistakes are already there
- #rstats on Twitter/Mastodon is best to stay on top of developments/tips and tricks
- Follow someone else's rstats Twitter list (e.g. <https://twitter.com/i/lists/884113215638175744>)

Use projects + here + Rmd/Qmd

For everything

- Portability and reproducibility!
- Quarto is the new king (also for Pythonistas/Javascibes)
- Books, presentations, websites, reports etc. - everything can be built based on a single pandoc-based platform with massive support from Posit (formerly rstudio)

Name things well

Most importantly, be consistent

naming things

prepared by Jenny Bryan for

Reproducible Science Workshop

Name things well

Most importantly, be consistent

awesome file names :)

- 2013-06-26_BRAFWTNEGASSAY_Plasmid-Cellline-100-1MutantFraction_H01.csv
- 2013-06-26_BRAFWTNEGASSAY_Plasmid-Cellline-100-1MutantFraction_H02.csv
- 2013-06-26_BRAFWTNEGASSAY_Plasmid-Cellline-100-1MutantFraction_H03.csv
- 2013-06-26_BRAFWTNEGASSAY_Plasmid-Cellline-100-1MutantFraction_platefile.csv
- 2014-02-26_BRAFWTNEGASSAY_FFPEDNA-CRC-1-41_A01.csv
- 2014-02-26_BRAFWTNEGASSAY_FFPEDNA-CRC-1-41_A02.csv
- 2014-02-26_BRAFWTNEGASSAY_FFPEDNA-CRC-1-41_A03.csv
- 2014-02-26_BRAFWTNEGASSAY_FFPEDNA-CRC-1-41_A04.csv

Name things well

Deliberate use of “_” and “-” allows us to recover meta-data from the filenames.

```
2013-06-26_BRAFWTNEGASSAY_Plasmid-Cellline-100-1MutantFraction_H01.csv
2013-06-26_BRAFWTNEGASSAY_Plasmid-Cellline-100-1MutantFraction_H02.csv
2013-06-26_BRAFWTNEGASSAY_Plasmid-Cellline-100-1MutantFraction_H03.csv
2013-06-26_BRAFWTNEGASSAY_Plasmid-Cellline-100-1MutantFraction_platefile.csv
```

```
> flist <- list.files(pattern = "Plasmid") %>% head
```

```
> stringr::str_split_fixed(flist, "[_\\.]", 5)
```

```
  [,1]      [,2]      [,3]      [,4]  [,5]
[1,] "2013-06-26" "BRAFWTNEGASSAY" "Plasmid-Cellline-100-1MutantFraction" "A01" "csv"
[2,] "2013-06-26" "BRAFWTNEGASSAY" "Plasmid-Cellline-100-1MutantFraction" "A02" "csv"
[3,] "2013-06-26" "BRAFWTNEGASSAY" "Plasmid-Cellline-100-1MutantFraction" "A03" "csv"
[4,] "2013-06-26" "BRAFWTNEGASSAY" "Plasmid-Cellline-100-1MutantFraction" "B01" "csv"
[5,] "2013-06-26" "BRAFWTNEGASSAY" "Plasmid-Cellline-100-1MutantFraction" "B02" "csv"
[6,] "2013-06-26" "BRAFWTNEGASSAY" "Plasmid-Cellline-100-1MutantFraction" "B03" "csv"
```

date

assay

sample set

well

This happens to be R but also possible in the shell, Python, etc.

Packages

These should help with basic data wrangling

- janitor (*janitor::clean_names()*, *janitor::get_dupes()*, *janitor::tabyl()*)
- datapasta (R Studio addin)
- broom (*broom::tidy()*, *broom::augment()*)
- rstatix and easystats
- forcats (*forcats::fct_infreq()*, *forcats::fct_reorder()*)

Know your interface

Keyboard shortcuts, etc.

- Uncheck saving history and environment
- Keyboard shortcuts:
 - Option-shift-K to view all shortcuts
 - Shortcuts to insert chunk, pipe symbol, run line/chunk, switch between panes, move lines of code up/down
 - Multi-cursor and rename-in-scope
 - Multi-file find and replace
 - Cheatsheets

What lies beyond



- Version control of your project files
- Useful also if you work alone
- Sort of a backup if you set up a remote repository (e.g. on Github)
- Can be set up from within R Studio, during project setup
- purrr package and the *list-column nest-map* workflow for loops and iteration
- Use it instead of *apply functions in base R for better consistency of outputs and their easier storage inside data frames

A few well chosen links

- <https://jarekbryk.github.io/compbioftw/>
- <https://happygitwithr.com/>
- <https://djnavarro.net/slides-project-structure/#1>
- <https://bookdown.org/IndrajeetPatil/R-Function-A-Day-book/january-2021.html>
- <https://bookdown.org/>

Good luck.

How to actually learn any new programming concept



Essential

Changing Stuff and
Seeing What Happens