

R Development Best Practices (Tools, Conventions)

R Development Best Practices

R packages

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Packages are the fundamental units of reproducible R code.

They include reusable R functions, the documentation that describes how to use them, and sample data.

<https://r-pkgs.org/index.html>

R Coding Style Guide

R-bloggers

<https://www.r-bloggers.com/2019/01/%F0%9F%96%8A-r-coding-style-guide/>

The tidyverse style guide

<https://style.tidyverse.org/>

<https://style.tidyverse.org/main.pdf>

Tidyverse:

<https://www.tidyverse.org/>

- dplyr <https://dplyr.tidyverse.org/>

- tidyr <https://tidyr.tidyverse.org/>

- tibble <https://tibble.tidyverse.org/>

Install and load the set of R packages using function

```
install.packages("tidyverse")
```

Load the tidyverse package using

library(tidyverse), there are six core R packages that load:

readr, for data import.

tidyr, for data tidying.

dplyr, for data wrangling.

ggplot2, for data visualisation.

purrr, for functional programming.

tibble, for tibbles, a modern re-imagining of data frames.

Introduction to dplyr

<https://dplyr.tidyverse.org/articles/dplyr.html>

Data Transformation with dplyr: Cheat Sheet

<https://github.com/rstudio/cheatsheets/blob/master/data-transformation.pdf>

R Development Best Practices: Scientific Community Projects

R Projects to Learn From

rOpenSci Packages: Development, Maintenance, and Peer Review

<https://devguide.ropensci.org/>

rOpenSci Packages: Development, Maintenance

<https://devguide.ropensci.org/>

1 Packaging Guide

<https://devguide.ropensci.org/building.html>

2 Continuous Integration Best Practices

<https://devguide.ropensci.org/ci.html>

rOpenSci Statistical Software Peer Review

2021-03-12

<https://ropenscilabs.github.io/statistical-software-review-book>

Github Actions with R

https://ropenscilabs.github.io/actions_sandbox/

Github Actions with R Examples

<https://github.com/r-lib/actions/tree/master/examples>

useR 2017

<https://r-pkgs.org/release.html#ref-silge-nash-graves>

Earth Data Science / Earth analytics / Time series data / Write Clean Code

Expressive or Literate Programming in R - Data Science for Scientists 101

<https://www.earthdatascience.org/courses/earth-analytics/time-series-data/write-clean-code-with-r/>

Gottardo Lab

Software & Tools

<https://research.fredhutch.org/gottardo/en/software-tools.html>

R Packages

Cytoverse

The Cytoverse is a collection of R packages facilitating all core aspects of cytometry data analysis, including compensation, transformation, manual and automated gating analysis, and visualization. All of these operations are designed for optimal high-throughput efficiency and to scale well for very large datasets stored locally or in the cloud.

<https://cytoverse.org/>

OpenCyto

An R package that providing an automated data analysis pipeline for flow cytometry.

<https://github.com/RGLab/openCyto>

DataPackageR

DataPackageR aims to simplify data package construction.

It provides mechanisms for reproducibility, data processing and tidying raw data into into documented, versioned, and packaged analysis-ready data sets.

<https://github.com/ropensci/DataPackageR>