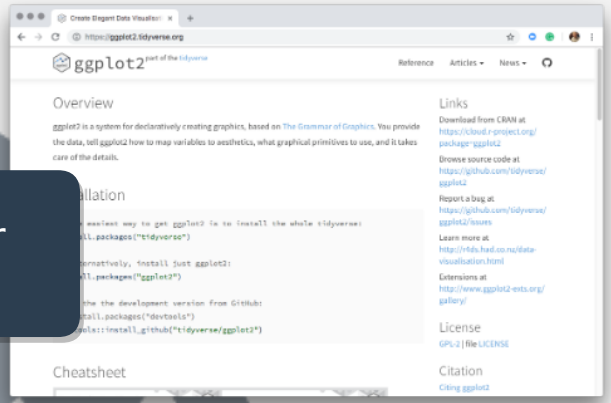
Data Science with R Workflow

The Data Science With R Workflow is available in the book: R For Data Science. If you want to learn R and this workflow ***for business analysis***, take the **R For Business Analysis (DS4B 101-R) course through Business Science University.**



Click the links for Documentation

ggplot2 (CS)

dplyr (CS)
stringr (CS)
lubridate (CS)
forcats (CS)
Base R (CS)

Import → **Tidy** → **Transform** → **Visualize** → **Model** → **Communicate**

readr (CS)
readxl / writexl
odbc / DBI
rvest

tibble (CS)
tidyr (CS)

purrr (CS)
(iteration)

recipes
rsample
parsnip

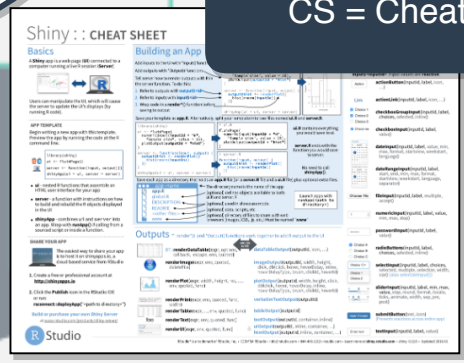
broom
yardstick
dials

RMarkdown (CS)
Shiny (CS)

RStudio IDE (CS)

fs (file system)

CS = Cheat Sheet



Important Resources

- **R For Data Science Book:** http://r4ds.had.co.nz/
- **Rmarkdown Book:** https://bookdown.org/yihui/rmarkdown/
- **Data Visualization Book**: https://rkabacoff.github.io/datavis/
- **More Cheatsheets:** https://www.rstudio.com/resources/cheatsheets/
- **tidyverse packages:** https://www.tidyverse.org/
- **Connecting to databases:** https://db.rstudio.com/
- **RMarkdown website:** https://rmarkdown.rstudio.com/
- **Shiny web applications website:** http://shiny.rstudio.com/
- **Jenny Bryan's purrr tutorial:** https://jennybryan.org/

"Data Science Courses for Business"

Business Science University
university.business-science.io

version: 1.2

Data Science with R

Special Topics

Text Analysis & NLP

- Text Mining with R (Book): tidytext
- NLP:
  - H2O word2vec: Word embeddings
  - text2vec: fast vectorization, topic modeling
  - udpipe: UDPipe C++ lib in R

Machine Learning

- Multi-Threaded/Scalable/Production ML:
  - H2O (CS)
  - Extreme Gradient Boosting: xgboost
  - R + Spark: sparklyr (CS)
  - Sparkling Water (Spark + H2O): rsparkling
- ML (Tidy): parsnip
- ML: caret (CS)

Deep Learning

- R Interface to TensorFlow Homepage:
  - Keras (CS)
  - TF Estimators
  - TensorFlow (Core)

Time Series Analysis

- Time-aware tibbles: tibbletime & tsibble
- Convert between classes: timetk & tsbox
- Time Series Index Summary: timetk
- Generating Future Series: timetk

Forecasting

- ARIMA, ETS, etc: forecast & fable
- Tidy, glance, augment for forecast models: sweep
- Converting forecast prediction to tibble: sweep

Anomaly Detection

- Identify anomalies: anomalize

Network Analysis

- Network Data Transformations (Tidy): tidygraph
- Network Data Transformations: igraph

Network Viz

- Static:
  - ggraph - Graph plotting utilities for ggplot2
- Interactive (JavaScript):
  - networkD3 - D3 Networks in R
  - plotly (CS) - plotly.js (network graphs) in R

Speed & Scale

- Fastest Single-Node Speed: data.table (CS)
- Distributed Cluster (Spark): sparklyr (CS)
- Parallel Processing: furrr

Geospatial Analysis

- Geocoding (getting lat/long, bboxes, & sf's):
  - ggmap - Google API (requires key)
  - osmdata - OpenStreet Overpass API
  - tmaptools - OpenStreet Nominatum API
- Simple Features (sf objects): sf (CS) (tidy)
- Spatial Objects (sp objects): sp (non-tidy)

Interoperability

- Java: rJava
- Python: reticulate
- C++: Rcpp

Financial Analysis

- Getting financial data: tidyquant & quantmod
- Quantitative Analysis: tidyquant & xts/TTR
- Portfolio Analysis: tidyquant & PerformanceAnalytics

Financial & Time Viz

- Static:
  - tidyquant - Financial ggplot2 geoms
- Interactive:
  - highcharter - highchart.js in R
  - dygraphs - xts plotting
  - plotly (CS) - plotly.js (financial) in R

Geospatial Viz

- Static:
  - ggmap - Google API (requires key)
  - osmplotr - Impressive Maps via OSM
  - tmap - Thematic Maps
  - cartography (CS) - Thematic Maps
- Interactive (JavaScript):
  - leaflet (CS) - leaflet.js in R
  - plotly (CS) - plotly.js (maps) in R

Miscellaneous Tools

- **Interactive Plotting:** htmlwidgets for R
- **Building R Packages:** R packages Book
  - Pkg Development Tools: devtools (CS)
  - R Templates: usethis
  - Build Web Doc's: pkgdown
- **Advanced Concepts** (Advanced R Book)
  - rlang & Tidy Evaluation (CS)
- **Making Blogs & Books:**
  - blogdown, bookdown
- **Posting Code (GitHub, Stack Overflow):** reprex