Managing Data Frames with `dplyr`

December 30, 2014

dplyr

The data frame is a key data structure in statistics and in R.

- There is one observation per row
- Each column represents a variable or measure or characteristic
- Primary implementation that you will use is the default R implementation
- Other implementations, particularly relational databases systems

dplyr

- ▶ Developed by Hadley Wickham of RStudio

- ▶ An optimized and distilled version of `plyr` package (also by Hadley)

- ▶ Does not provide any "new" functionality per se, but **greatly** simplifies existing functionality in R

- ▶ Provides a "grammar" (in particular, verbs) for data manipulation

- ▶ Is **very** fast, as many key operations are coded in C++

dplyr Verbs

- ▶ `select`: return a subset of the columns of a data frame

- ▶ `filter`: extract a subset of rows from a data frame based on logical conditions

- ▶ `arrange`: reorder rows of a data frame

- ▶ `rename`: rename variables in a data frame

- ▶ `mutate`: add new variables/columns or transform existing variables

- ▶ `summarise` / `summarize`: generate summary statistics of different variables in the data frame, possibly within strata

There is also a handy `print` method that prevents you from printing a lot of data to the console.

dplyr Properties

- The first argument is a data frame.

- The subsequent arguments describe what to do with it, and you can refer to columns in the data frame directly without using the $ operator (just use the names).

- The result is a new data frame

- Data frames must be properly formatted and annotated for this to all be useful