
THE UNIVERSITY OF CHICAGO

# R Programming Workshop

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# Workshop Objectives

- Get Comfortable with R
  - For Your Classes
  - Individual Projects
- Learn to Work with Packages
- Learn to Think like a Programmer
- Apply Performance and Optimization Methods
- Sources of Information
- Learn to Collaborate on Data Projects

# Discussion Board

https://www.reddit.com/r/UChicagoRProgramming

# Resources

- Stackoverflow - http://stackoverflow.com/search?q=rstats
- Reddit
  - /r/rstats
  - /r/RStudio
- R Bloggers - http://www.r-bloggers.com/

# Intros

# Today's Objectives

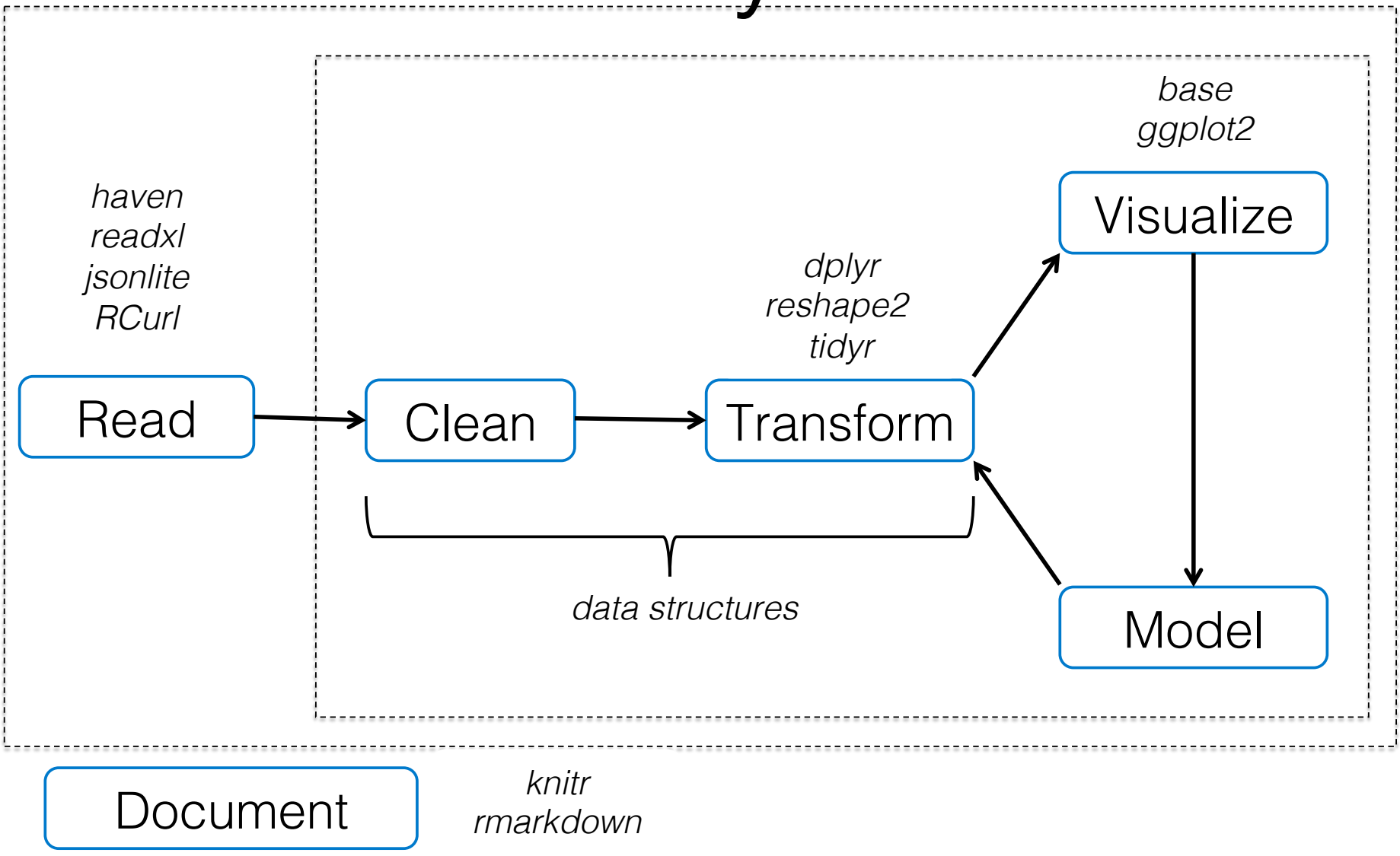
- Discussion of R Features
  - And How They Influence Coding Decisions
- Managing Workflows with Rstudio
- Installing Packages
- Finding Help
- Working with *RMarkdown*

# Why  ?

# Features

- In-Memory Object Storage
- Support for Statistical Packages
- Functional Programming
- Growing Integration Across Data Analysis Value Chain

# Data Analysis Flow



# Working with RStudio

# RStudio Project

- Home Folder
- Enclosing folders
  - Code
  - Data
  - Output

# Working with RStudio GUI

- layout overview
- working directory
  - session > set working directory
- console
- code editor
  - options
- RStudio customizations

# Working with Packages in R

# Installing Packages from CRAN

- Finding a package - rdocumentation.org
- Installing
  - install.packages(“packagename”)
- Loading
  - library(packagename)
  - require(packagename)
- Unloading
  - detach("package:packagename", unload=TRUE)

# Installing Packages From CRAN

- Use console: devtools
- Use Rstudio GUI: ggplot2
- Your choice:
  - dplyr

# Installing Packages From Github

- install_github("ramnathv/slidify")
- devtools::install_github("ramnathv/slidify")
- library(devtools)
  - install_github("ramnathv/slidifyLibraries")

# Looking Under the Hood

- (.packages())
- search()
  - searchpaths()

# Getting Help

# Getting Help

- ? – Exact match
- help
  - help(pnorm)
  - help(stats)
- library(help = “stats”)
- ?? – Fuzzy match

# Vignettes

- ??vignettes
- vignette(all = FALSE) # All *ATTACHED* Packages
- vignette(all = TRUE) # All *INSTALLED* Packages
- vignette(package=“grid”)
  - vignette(“plotexample”)
- browseVignettes()
- browseVignettes(package="httr”)

# R Markdown

# Required Libraries

Within R

- knitr
- rmarkdown

Outside R (for PDF output)

- pandoc
- LaTeX

# Practice Project

http://priceonomics.com/jobs/puzzle/