COMP4030

DATA MODELLING AND ANALYSIS

Lecture 1: Intro to R
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LECTURE OUTLINE

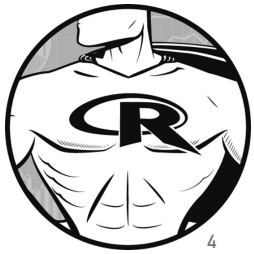
1. Basics of R
2. How do you R?
    1. Resources:
    2. Editors
    3. RStudio: Scripts
    4. Rstudio: R Notebooks
3. What to do next?

WHAT IS R?

- R is a high-level programming language and software environment designed for:
  - data manipulation
  - statistical computing
  - graphics

WHAT IS R?

- Some characteristics:
  - Loosely (dynamically) typed, interpreted language
  - Data manipulation and full programming capabilities
  - Easy data import / export capabilities
  - Huge range of built-in and contributed functions - CRAN
  - Professional, reliable, open source, **FREE!**



HOW DO YOU R? RESOURCES

- For more information, see

http://cran.r-project.org/doc/manuals/R-intro.html

  - Using R:

http://www.sr.bham.ac.uk/~ajrs/R

    - [Using R]/r-getting_started.html
    - [Using R]/r-access_data.html
  - http://data.princeton.edu/R

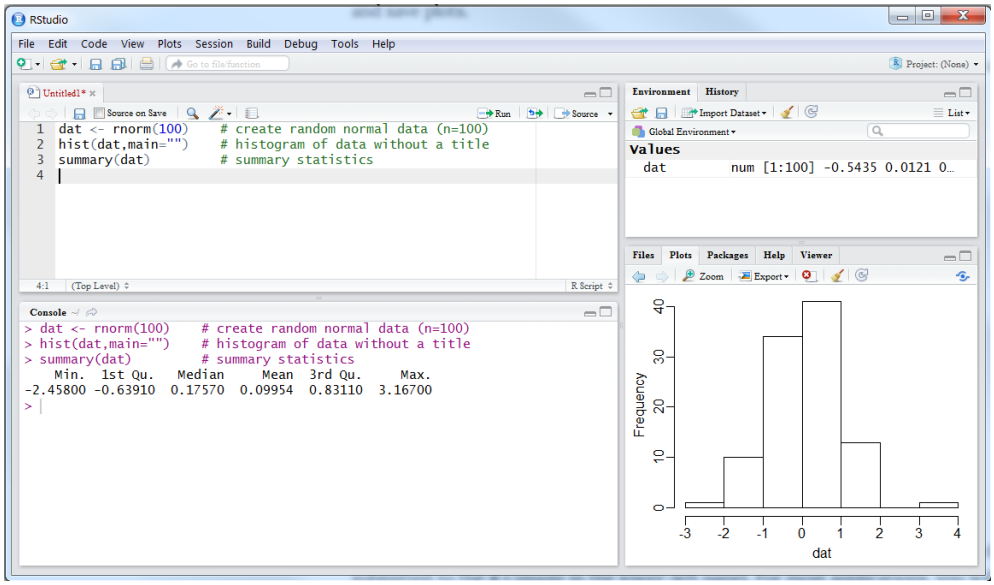
HOW DO YOU R? EDITORS

- Basic editor available from:

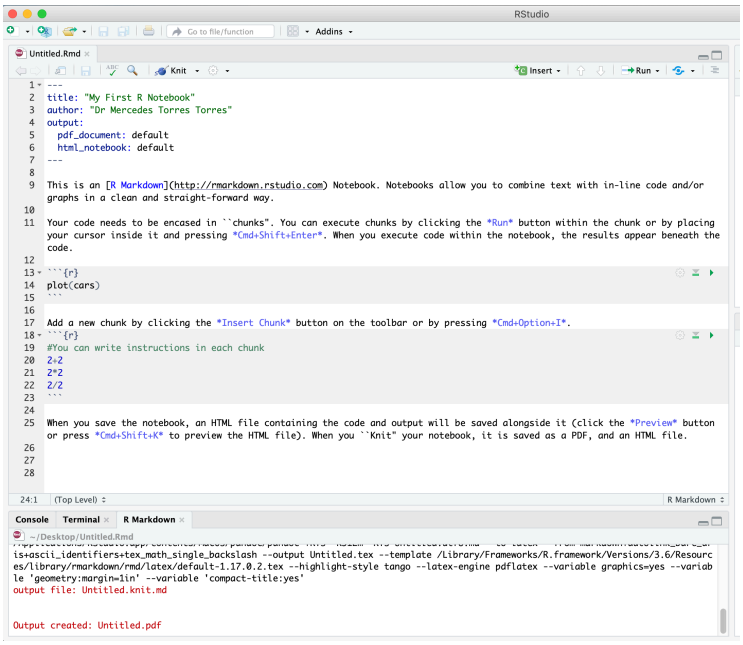
  http://www.r-project.org
- On LHS, under 'Download, Packages'
  - select a CRAN mirror, e.g. University of Bristol
- Download a binary package for your platform
  - Windows, MacOS X, Linux
- The editor we will use:

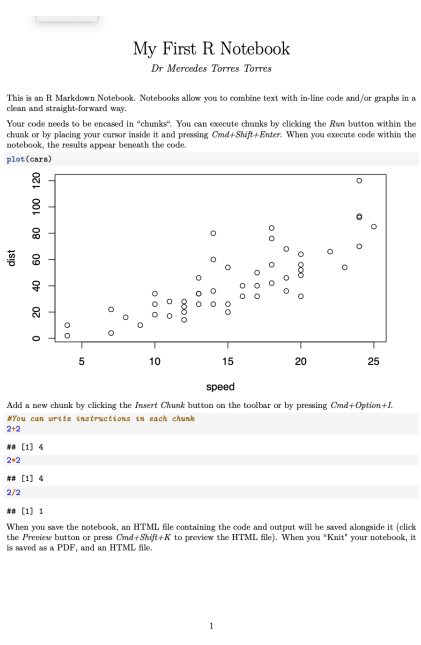
  https://www.rstudio.com

HOW TO USE R STUDIO? SCRIPTS



HOW TO USE R STUDIO? NOTEBOOKS





EXERCISE

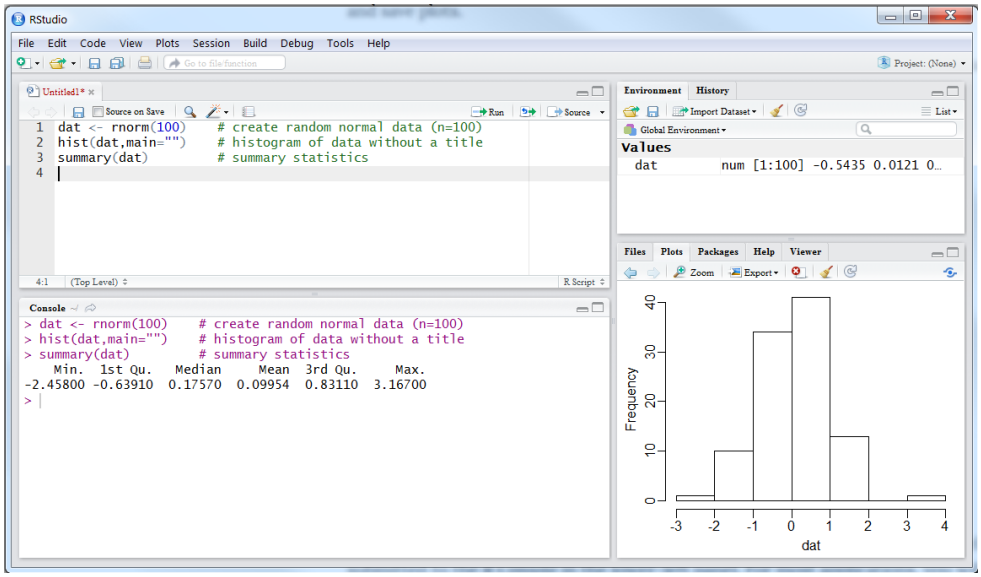
- Background reading
  - http://www.stats.bris.ac.uk/R/
    - FAQs and manuals
  - http://cran.r-project.org/doc/manuals/R-intro.html
  - http://www.sr.bham.ac.uk/~ajrs/R
  - http://manuals.bioinformatics.ucr.edu/home
    - Programming in R
  - http://zoonek2.free.fr/UNIX/48_R/all.html

EXERCISE

- To do ahead of the first lab session:
  1. If you are using your own computer: download and install R and RStudio in your computer.
  2. If you are using remote computers: check that RStudio has been installed correctly and that you can execute simple operations.
     1. A32 computers' should have RStudio.
  3. Read brief R guide that has been uploaded to Moodle.
  4. Read Chapter 1 and 2 of: An Introduction to R
  5. Knit .Rmd: Questions form Lab 1.

This guide is extremely useful. You may want to print/save it, and refer back to it as you work through the lab exercises.

LET'S SEE A SIMPLE EXAMPLE!



THE END

Questions