STAT540: Computing in Statistics
Getting Started

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Objectives

- ▶ Why R?
- ▶ The R Environment (Console and Scripts)
- ▶ RStudio
- ▶ Installing R packages

Origins of R

- ▶ S language - developed by John Chambers of Bell Labs[1].
- ▶ Commercial implementation: S-plus
- ▶ Free software implementation: R (named in honor of founders Robert Gentleman and Ross Ihaka)
- ▶ Object-oriented language
- ▶ Each object has a "type" (vector, factor, matrix, function, data frame, etc..)
- ▶ Important to be aware of what type each object is.

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[1]Becker, Richard A. "A brief history of S." Computational statistics (1994): 81-110.

Business Computing

Data Analysts Captivated by R's Power

Left, Stuart Isett for The New York Times; right, Kieran Scott for The New York Times

R first appeared in 1996, when the statistics professors Robert Gentleman, left, and Ross Ihaka released the code as a free software package.

By ASHLEE VANCE
Published: January 6, 2009

To some people R is just the 18th letter of the alphabet. To others, it's the rating on racy movies, a measure of an attic's insulation or what pirates in movies say.

R is also the name of a popular
programming language used by a

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GOOGLE+

SAVE

Related

R computing & graphics package

- ▶ R is free and open source[2].
- ▶ It runs on all major platforms: Windows, Mac OS, UNIX/Linux.
- ▶ Popular with many researchers due to contributed packages: R functions to do specialized, advanced, & often complex statistical analysis.
- ▶ R can also do many important, routine calculations, analysis, and provide common graphical displays used in this course.
- ▶ Installed in several of the computing labs across campus, e.g. Sloan 108 & 109, Gambrell 003.
- ▶ You can download it and install it from CRAN: http://cran.r-project.org/

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[2]https://opensource.org/history

R: Pros and Cons

Pros
+ Free
+ Available for all major platforms
+ Powerful graphics
+ Comprehensive
+ Easy interface with other languages (such as C, Fortran)
+ Well-designed programming language (object-oriented)
+ Unlimited extensibility
+ Widely used by statisticians
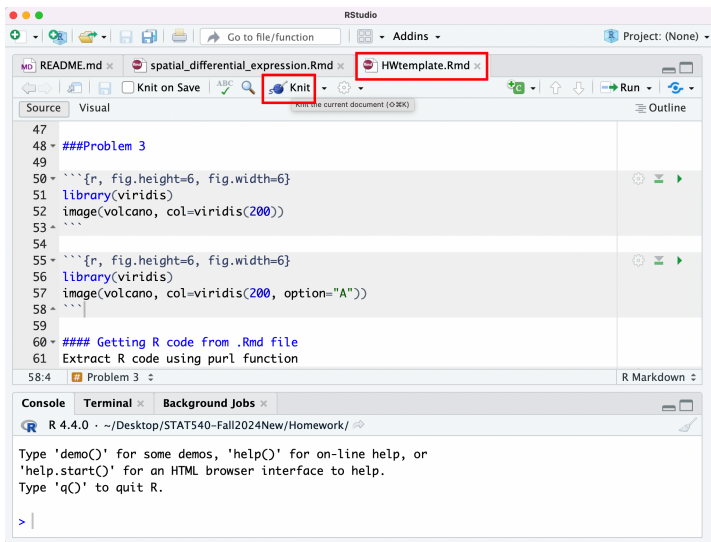+ Increasingly used for genomic analyses (Bioconductor)

Cons
- No dedicated support
- Complex Syntax

- Not point-and-click
- No warranty

- Relatively slow

R Console

As a quick example, try using the console to calculate a 15% tip on a meal that cost $19.71.

R Studio: Do this now!!!

Global options Installing R packages

Objects