

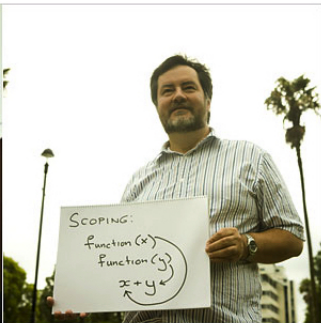
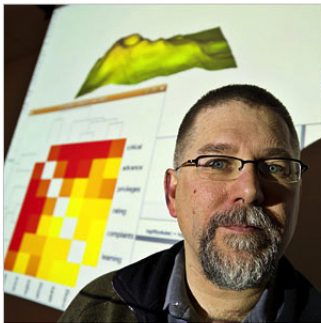
Introduction to R

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- R is a powerful, free statistical computing and graphics package.
- 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.
- You can download it and install it from CRAN:
`http://cran.r-project.org/`

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.

Related

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

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- Companies as diverse as Google, Pfizer, Merck, Bank of America, the InterContinental Hotels Group, Shell, and more use it.
- R is really important to the point that its hard to overvalue it, said Daryl Pregibon, a research scientist at Google, which uses the software widely. It allows statisticians to do very intricate and complicated analyses without knowing the blood and guts of computing systems.
- It is free.
- You can download it and install it from CRAN:
`http://cran.r-project.org/`

The Comprehensive R Archive Network



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The Comprehensive R Archive Network

Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Download R for Linux](#)
- [Download R for \(Mac\) OS X](#)
- [Download R for Windows](#)

R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

Source Code for all Platforms

Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

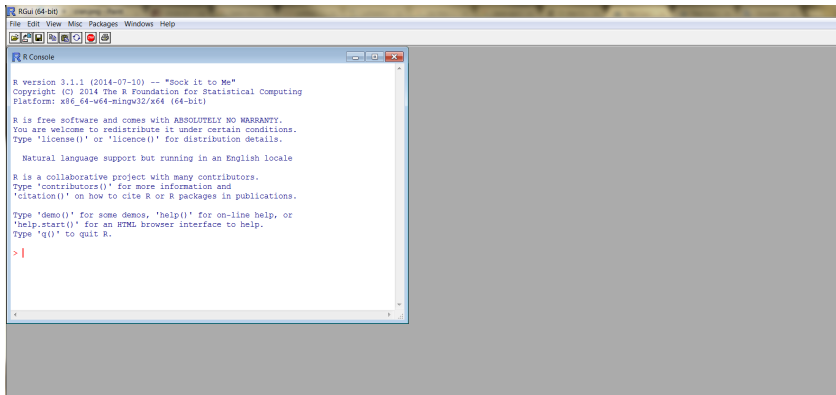
- The latest release (Monday 2016-10-31, Sincere Pumpkin Patch) [R-3.3.2.tar.gz](#), read [what's new](#) in the latest version.
- Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).
- Daily snapshots of current patched and development versions are [available here](#). Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.

where you can download R.

Installing R

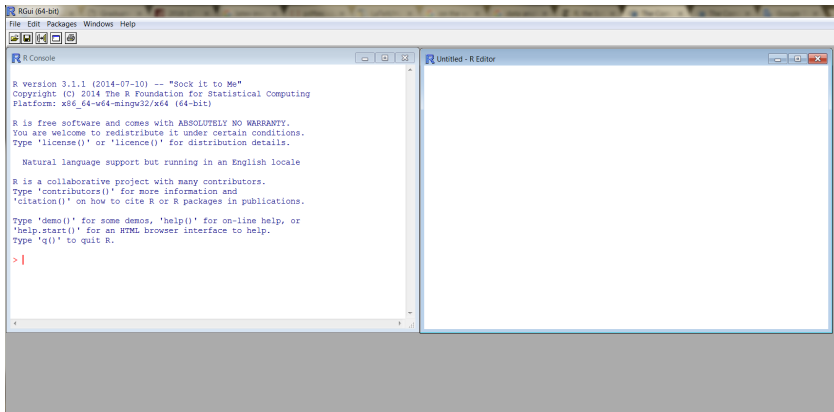
- From `http://cran.r-project.org/`, under **Download and Install R** click on your platform (Linux, MacOS X, or Windows).
- **for Windows** click on **Download R for Windows**, and followed by `base`.
- Click **Download R 3.4.0 for Windows** and when it's done downloading run the executable by clicking on it.
- The installation program will ask you a series of questions; choose the defaults. (e.g. English language, the suggested installation folder, the checked selected components to install, not to customize startup options, shortcut in the Start Menu, and additional tasks).
- When it's done, click on the new R desktop icon. Click on the console. This is where you will type commands to R.

The R interface



Initially, there is only the console window open. If you make plots, other windows will open too.

The R interface



Usually we open a script window (File - New script), and program everything in the script window.

Some code to try

Note that the # sign is a “comment” – R ignores anything after #.

```
# calculate 3 times 4
3 * 4
# generate a sequence of integers from 1 to 8
seq(from=1, to=8, by=1)
# generate 100 random normal data
data=rnorm(100)
# look at a histogram and a boxplot
hist(data)
boxplot(data)
# compute the sample mean, median, variance, standard deviation
mean(data)
median(data)
var(data)
sd(data)

# if you have a question about a command, preface it with ?
?hist
```