



THE UNIVERSITY OF
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Introduction to R

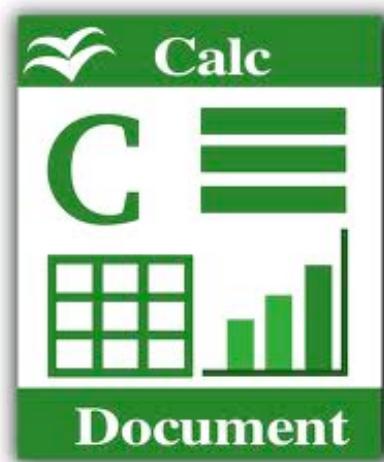
Sebastian Duchene, Simon Ho, and Frank Jia
University of Sydney



github.com/sebastianduchene/intro_to_r

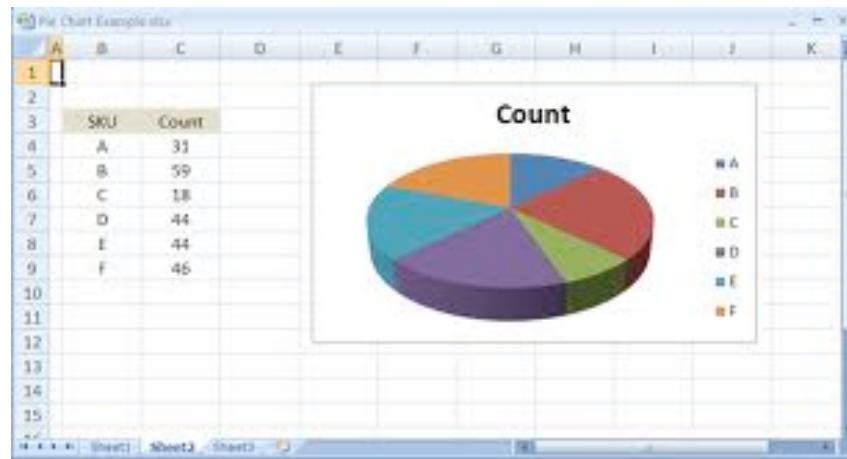
Introduction to Scientific Computing and R

Sebastian Duchene
University of Sydney



F16 ▾ $\sum =$

	A	B	C	D	E	F
1						
2						
3	Date	Start time	End time	Pause	Sum	Comment
4	2007-05-07	9:25	10:25	0	1	Task 1
5	2007-05-07	10:25	12:50	0	1.75	Task 1
6	2007-05-07	13:00	19:00	0	1	Task 2
7	2007-05-08	9:25	10:25	0	1	Task 2
8	2007-05-08	14:50	15:50	0	1	Task 3
9	2007-05-08	6:25	9:25	0	0.5	Task 3
10	2007-05-14	21:25	22:25	0	0.5	Task 3
11	2007-05-14	22:50	23:00	0	0.5	Task 3
12	2007-05-15	11:25	12:25	0	1	Task 3
13						
14						
15						
16						
17						
18						



Contingency Table for Hosmer and Lemeshow Test

		Committed to Hospital = No		Committed to Hospital = Yes		Total
		Observed	Expected	Observed	Expected	
Step	1	30	26.273	0	3.727	30
1	2	36	29.785	0	6.215	36
	3	36	28.227	0	7.773	36
	4	18	25.593	17	9.417	35
	5	18	23.258	19	13.742	37
	6	24	19.943	12	16.057	36
	7	12	17.529	23	17.471	35
	8	12	14.364	25	22.636	37
	9	0	6.935	36	29.065	36
	10	6	102	30	35.898	36

Does Water pH Affect Tadpoles?

pH of Water Number of Tadpoles

8.0 45

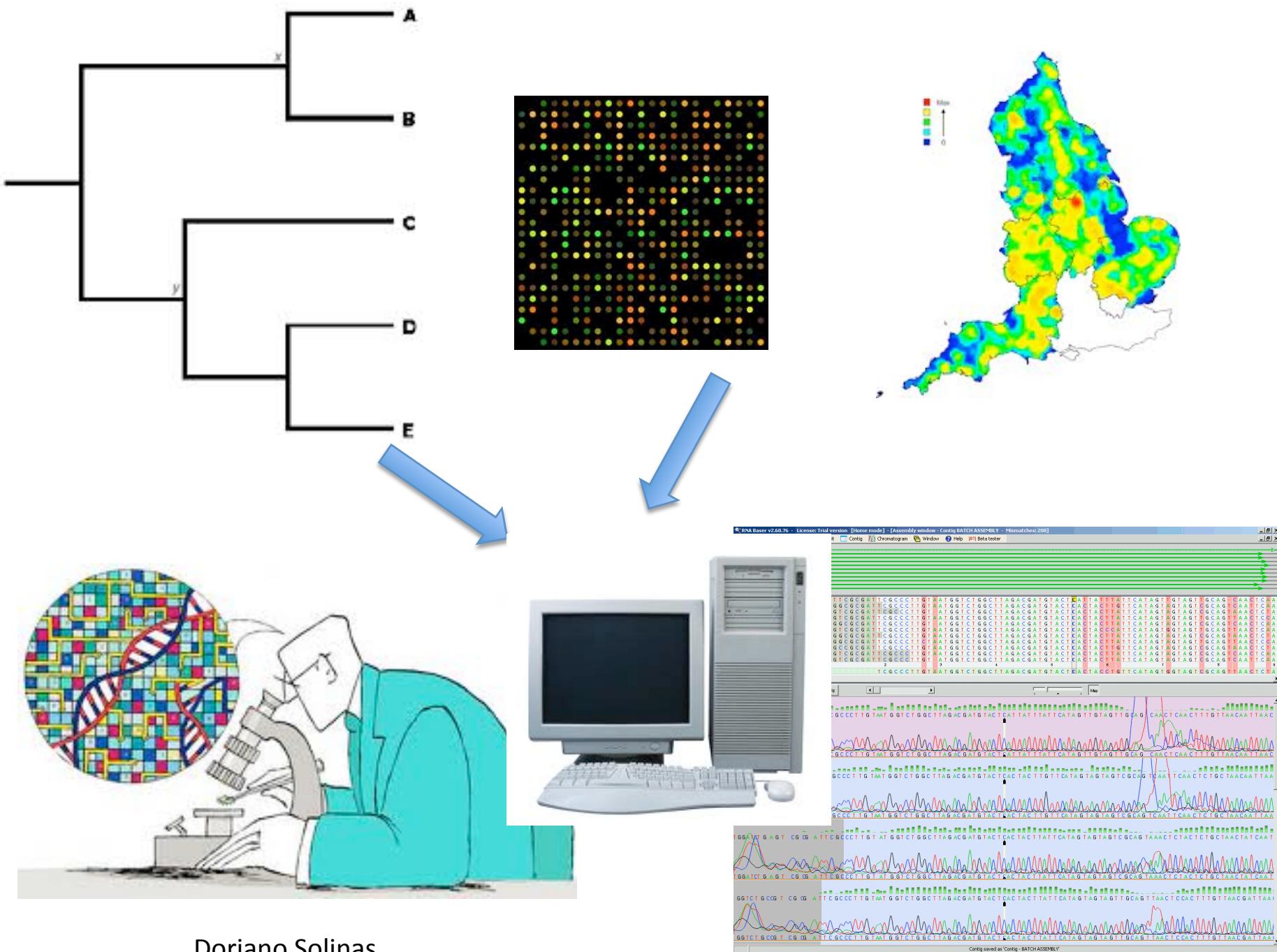
7.5 69

7.0 78

6.5 88

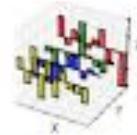
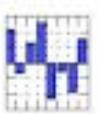
6.0 43

5.5 23



pandas

$$y_{it} = \beta x_{it} + \mu_i + \epsilon_{it}$$

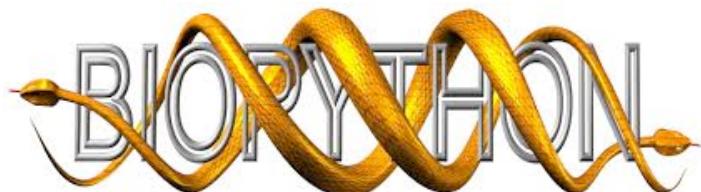


[overview](#) // [get pandas](#) // [documentation](#) // [community](#)

Python Data Analysis Library

pandas is an open source, BSD-licensed library providing high-performance, easy-to-use data structures and data analysis tools for the [Python](#) programming language.

 python





BioPerl

 perl

MATLAB®

The Language of Technical Computing

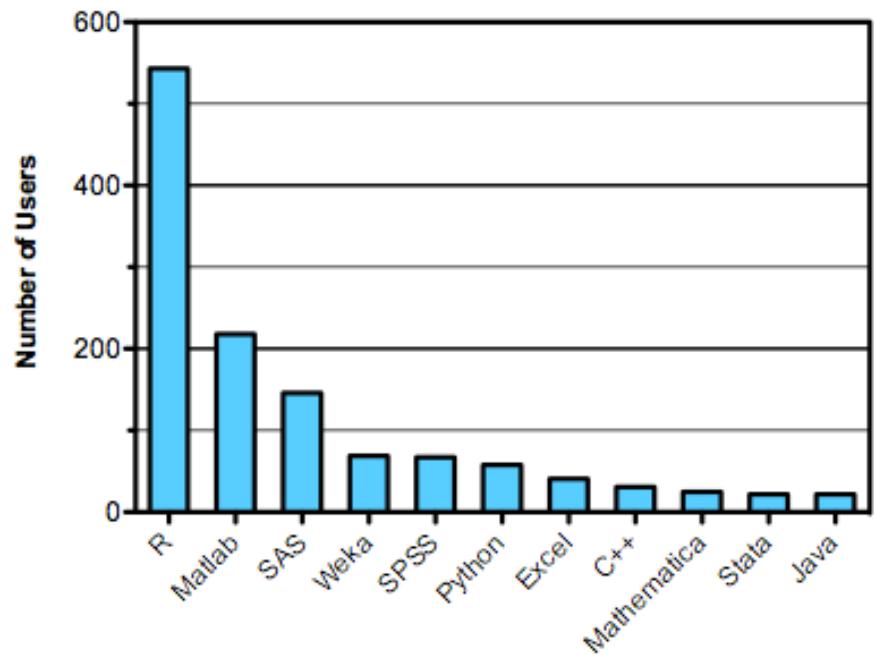
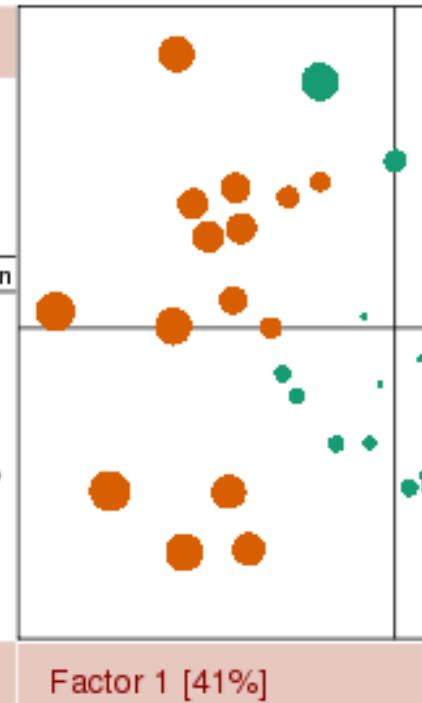
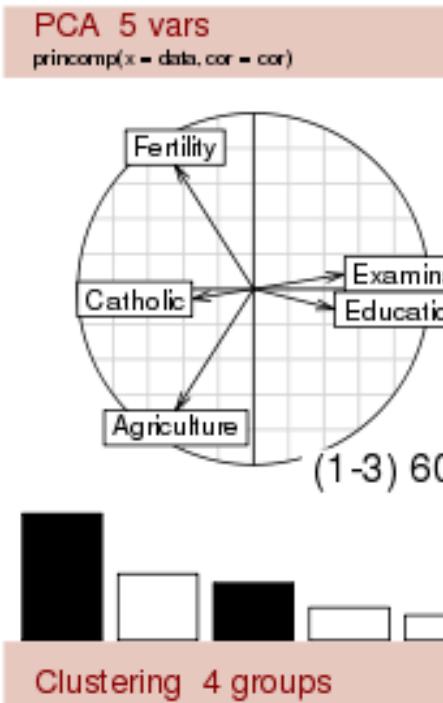






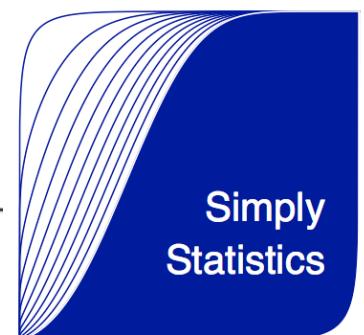
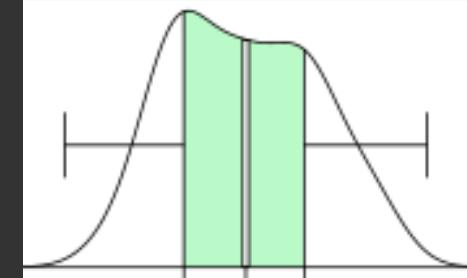
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OPEN SOURCE SOFTWARE FOR BIOINFORMATICS

The R Project for Statistical Computing



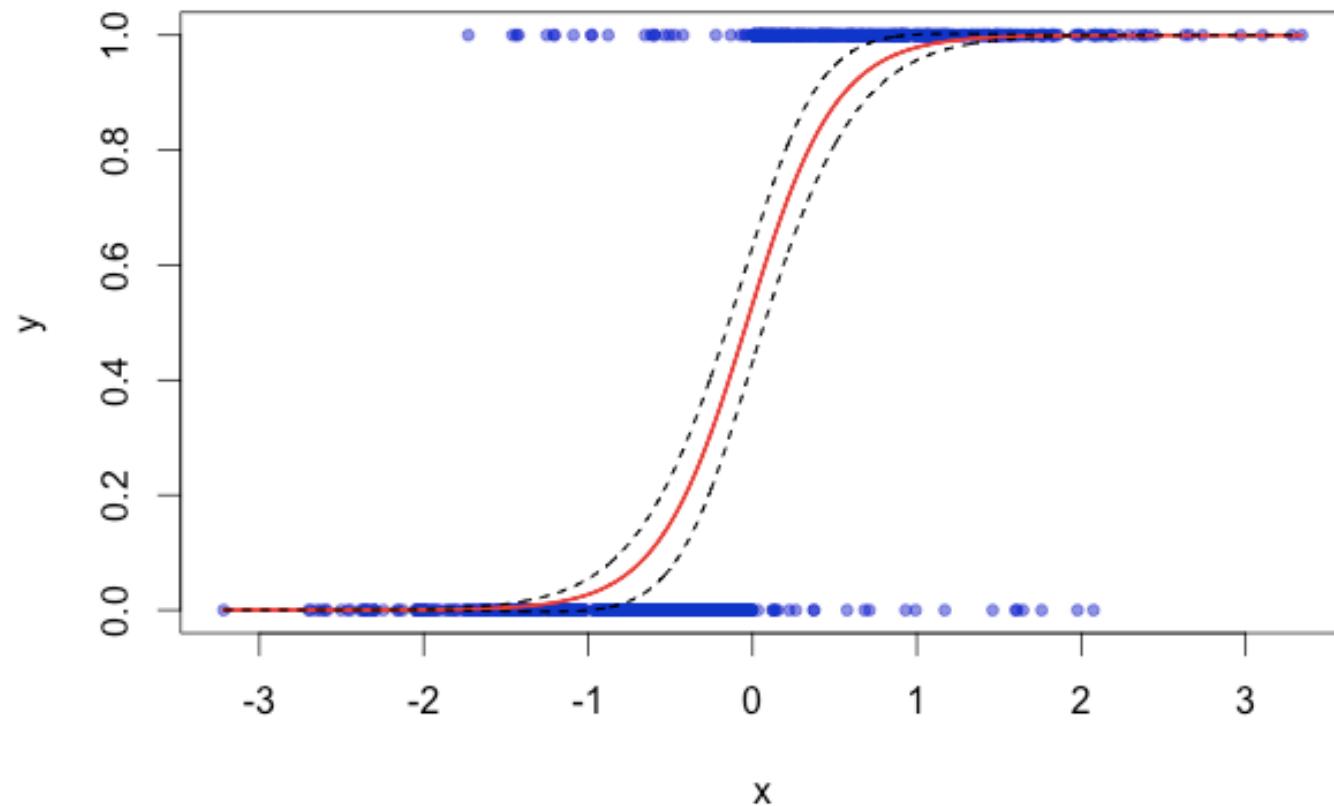
inside-R

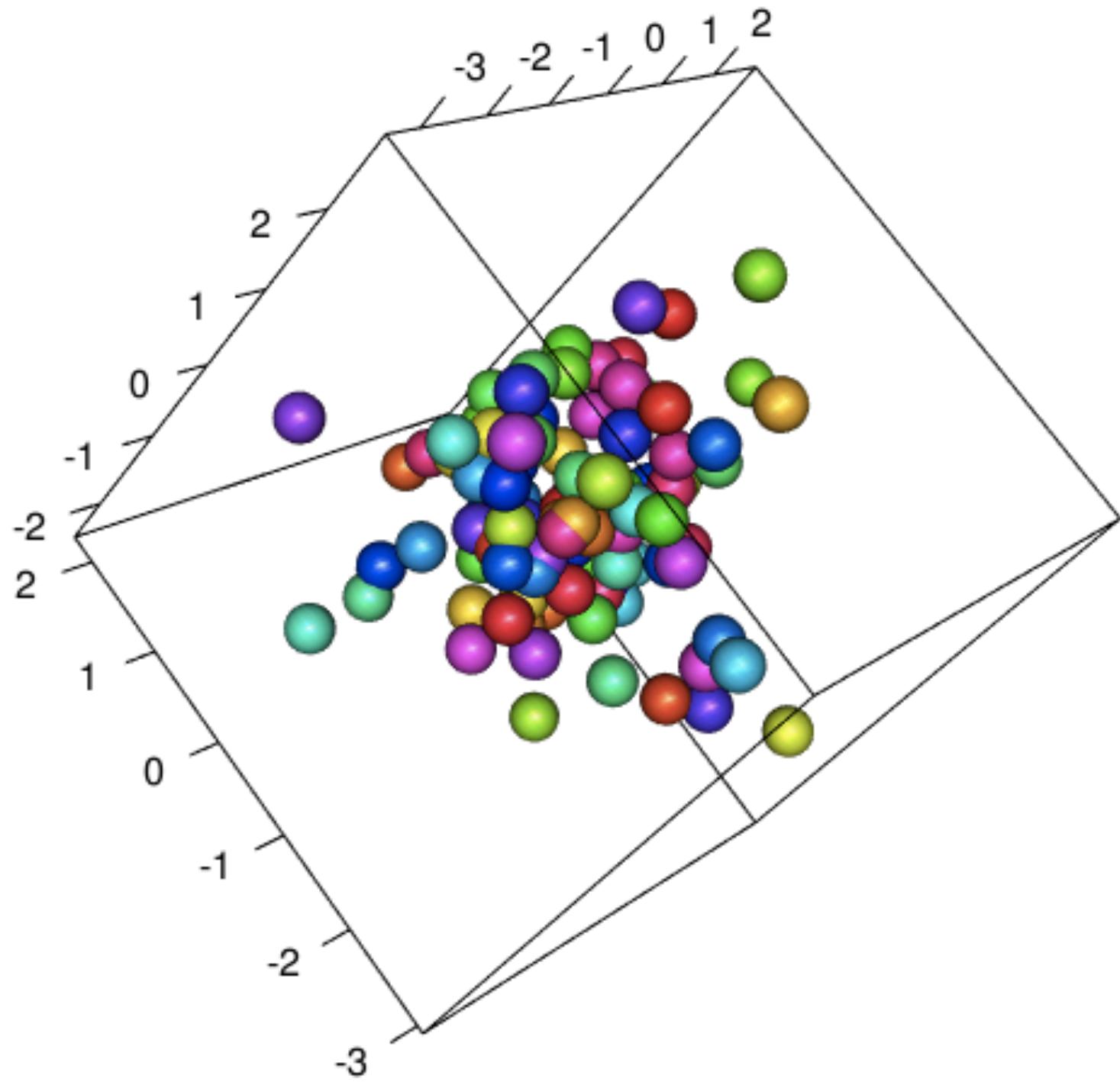
A Community Site for R – Sponsored by Revolution Analytics

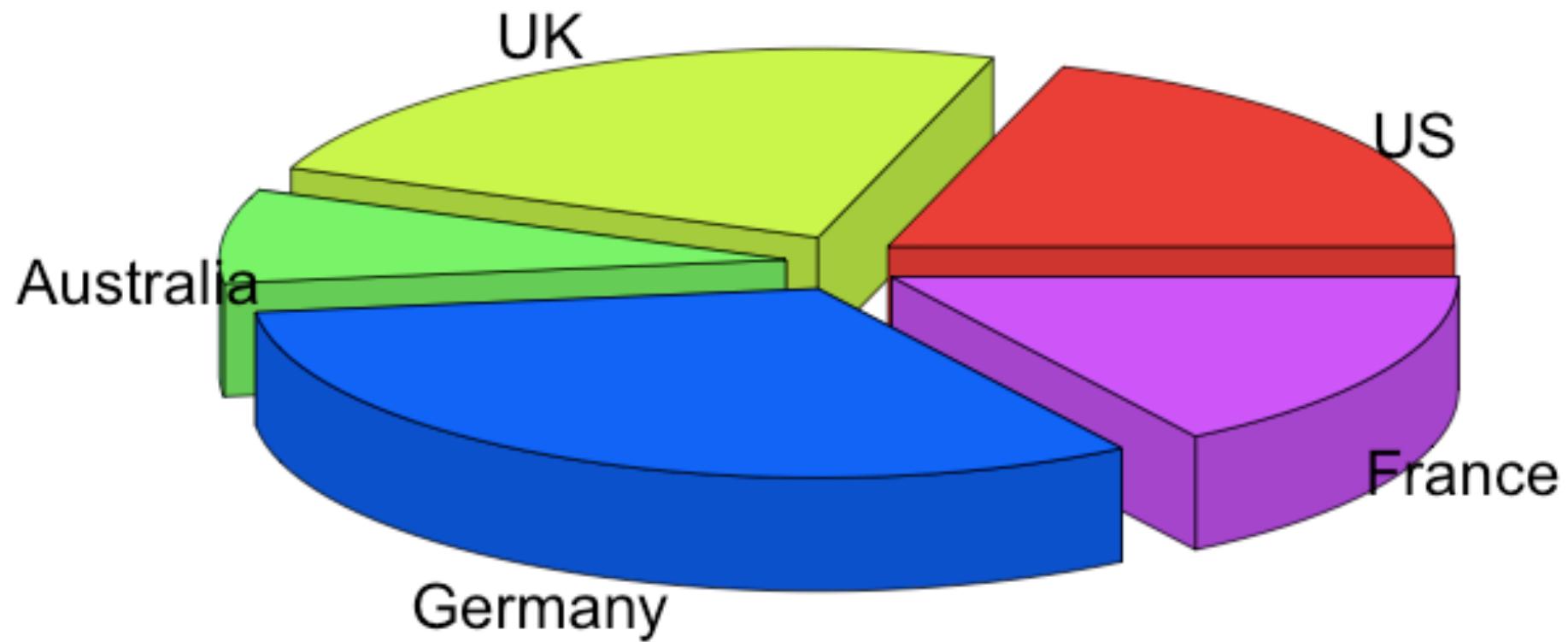


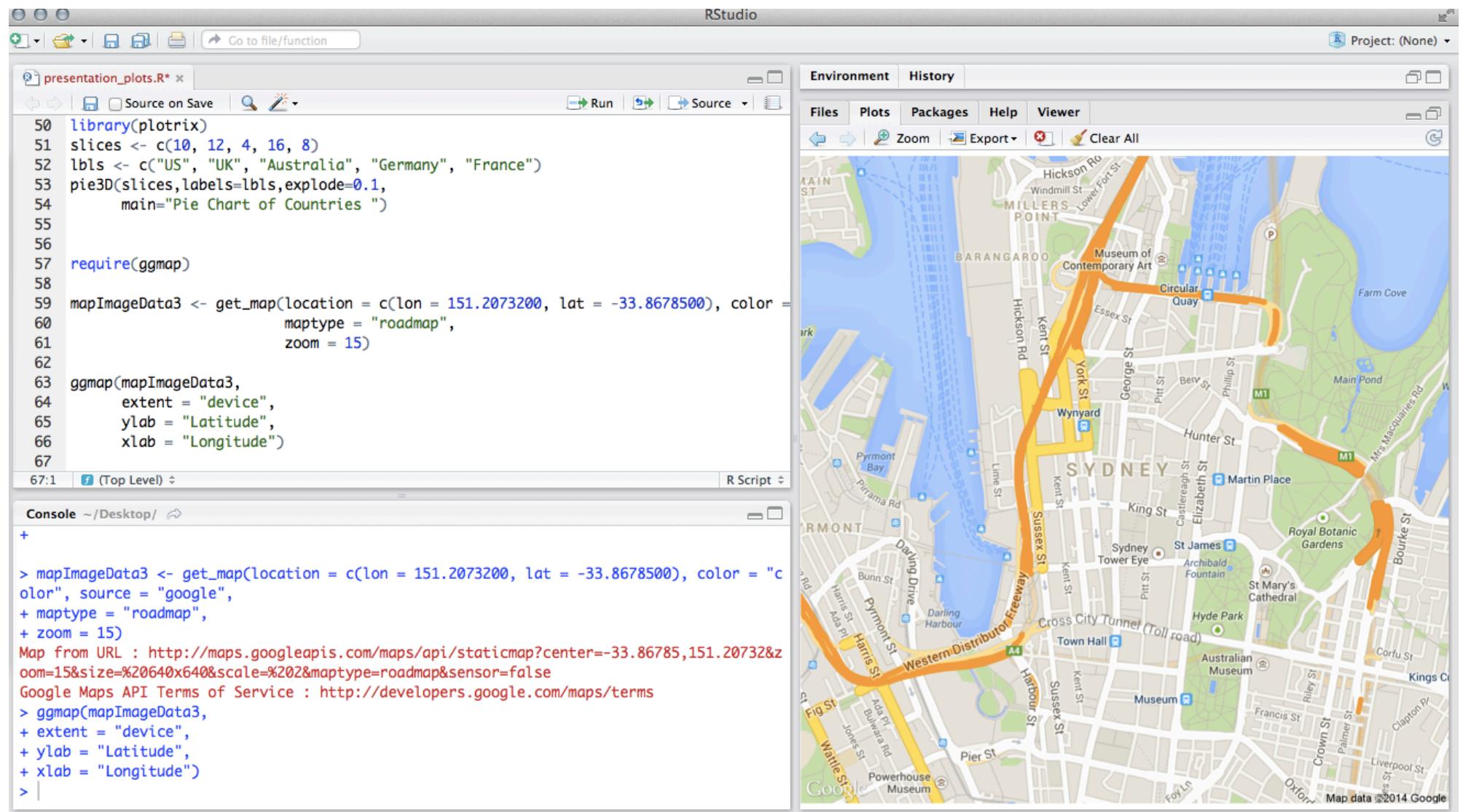
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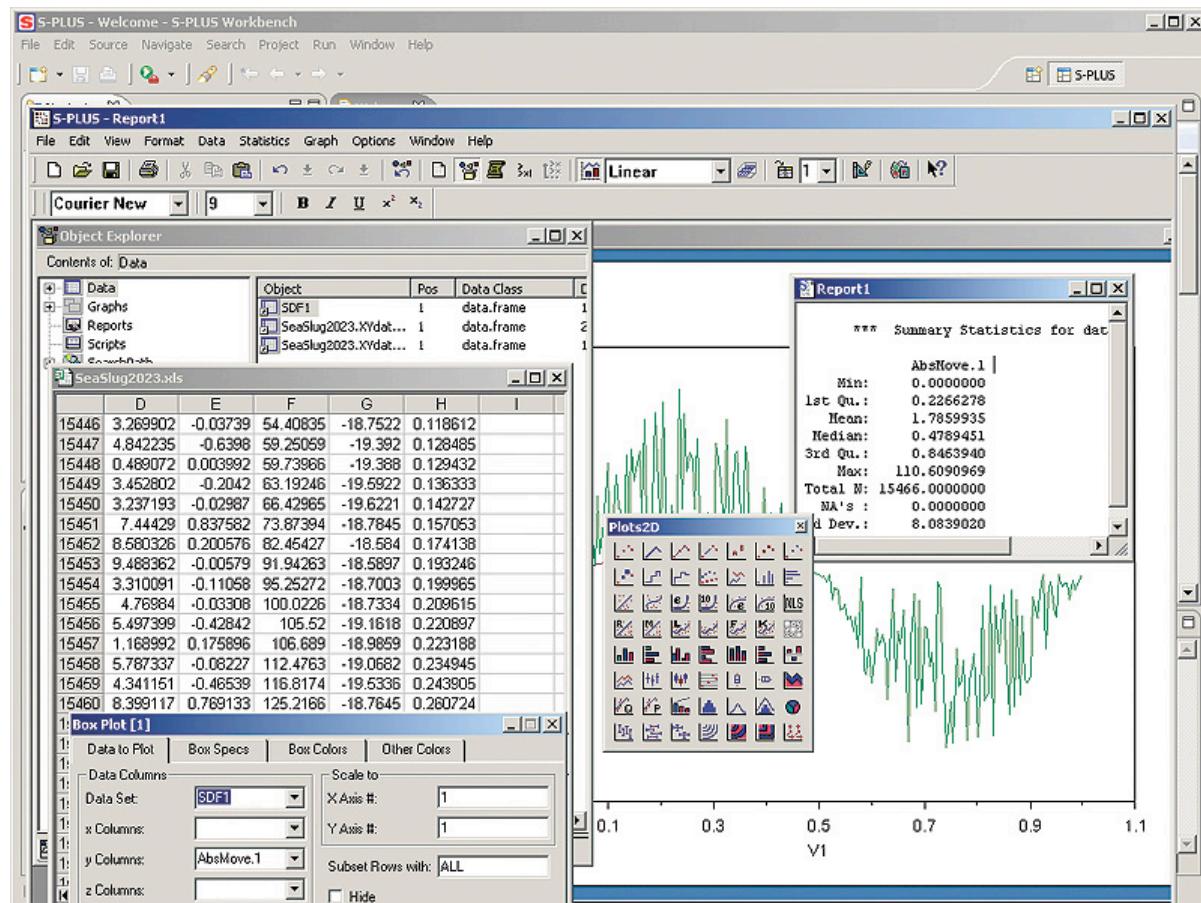
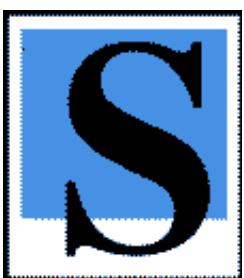
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```
[root@localhost ~]# ping -q fa.wikipedia.org
PING text.pmta.wikimedia.org (208.80.152.2) 56(84) bytes of data.
^C
--- text.pmta.wikimedia.org ping statistics ---
1 packets transmitted, 1 received, 0% packet loss, time 0ms
rtt min/avg/max/mdev = 540.528/540.528/540.528/0.000 ms
[root@localhost ~]# pwd
/root
[root@localhost ~]# cd /var
[root@localhost var]# ls -la
total 72
drwxr-xr-x. 18 root root 4096 Jul 30 22:43 .
drwxr-xr-x. 23 root root 4096 Sep 14 20:42 ..
drwxr-xr-x. 2 root root 4096 May 14 00:15 account
drwxr-xr-x. 11 root root 4096 Jul 31 22:26 cache
drwxr-xr-x. 3 root root 4096 May 18 16:03 db
drwxr-xr-x. 3 root root 4096 May 18 16:03 empty
drwxr-xr-x. 2 root root 4096 May 18 16:03 games
drwxrwx--T. 2 root gdm 4096 Jun 2 18:39 gdm
drwxr-xr-x. 38 root root 4096 May 18 16:03 lib
drwxr-xr-x. 2 root root 4096 May 18 16:03 local
lrwxrwxrwx. 1 root root 11 May 14 00:12 lock -> ../run/lock
drwxr-xr-x. 14 root root 4096 Sep 14 20:42 log
lrwxrwxrwx. 1 root root 10 Jul 30 22:43 mail -> spool/mail
drwxr-xr-x. 2 root root 4096 May 18 16:03 nis
drwxr-xr-x. 2 root root 4096 May 18 16:03 opt
drwxr-xr-x. 2 root root 4096 May 18 16:03 preserve
drwxr-xr-x. 2 root root 4096 Jul 1 22:11 report
lrwxrwxrwx. 1 root root 6 May 14 00:12 run -> ../run
drwxr-xr-x. 14 root root 4096 May 18 16:03 spool
drwxrwxrwt. 4 root root 4096 Sep 12 23:50 tmp
drwxr-xr-x. 2 root root 4096 May 18 16:03 yp
[root@localhost var]# yum search wiki
Loaded plugins: langpacks, presto, refresh-packagekit, remove-with-leaves
rpmfusion-free-updates
rpmfusion-free-updates/primary_db
rpmfusion-nonfree-updates
updates/metalink
updates
updates/primary_db
| 2.7 kB 00:00
| 206 kB 00:04
| 2.7 kB 00:00
| 5.9 kB 00:00
| 4.7 kB 00:00
73% [=====] 62 kB/s 2.6 MB 00:15 ETA
```







R: A Language for Data Analysis and Graphics

Ross IHAKA and Robert GENTLEMAN

In this article we discuss our experience designing and implementing a statistical computing language. In developing this new language, we sought to combine what we felt were useful features from two existing computer languages. We feel that the new language provides advantages in the areas of portability, computational efficiency, memory management, and scoping.

Key Words: Computer language; Statistical computing.



THE UNIVERSITY OF AUCKLAND
NEW ZEALAND



R (r-project.org)



RStudio (rstudio.com)



Text editor

- TextWrangler (Unix and Unix-like)
- Notepad++ (Windows)



Etherpad and github



Class Tutorial 0

- Check that your machine has a text editor and R / R studio installed
- Open the MoPad for the workshop
- R as a calculator
- R objects in memory
- Code, commands, and scripts

We learned...

- Commands and code
- What is a script
- Running scripts
- R can be used as a calculator
- R can store data

Some tips

- We can code.
- But we need to practice
- Don't copy and paste the code
- Errors are OK. Coding takes patience