Institución de Educación Superior
UCEVA
Unidad Central del Valle del Cauca

Programación en R para el uso en ciencias agropecuarias

Luis Fernando Delgado Muñoz

BIENVENIDOS

Luis Fernando Delgado Muñoz

Ing. Agroindustrial MSc.

Statistical data analyst Cassava program CIAT

Docente Universitario de Unidad Central del Valle UCEVA

Docente Universitario Universidad Nacional de Colombia.

www.linkedin.com/in/lfdelgadom

Alianza

R es gratis!!

- R es un lenguaje de programación especializado para la estadística computacional (R project).

- En Agosto de 1993 fue diseñado por:

Ross Ihaka
(New Zealand Statistician)

Robert Gentleman
(Canadian Statistician)

Descargar R desde CRAN

CRAN
Mirrors
What's new?
Search

About R
R Homepage
The R Journal

Software
R Sources
R Binaries
Packages
Task Views
Other

Documentation
Manuals
FAQs
Contributed

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 (Debian, Fedora/Redhat, Ubuntu)
- Download R for macOS
- 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 (2022-06-23, Funny-Looking Kid) R-4.2.1.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.
- Source code of older versions of R is available here.
- Contributed extension packages

Questions About R

- If you have questions about R like how to download and install the software, or what the license terms are, please read our answers to frequently asked questions before you send an email.

La consola de R

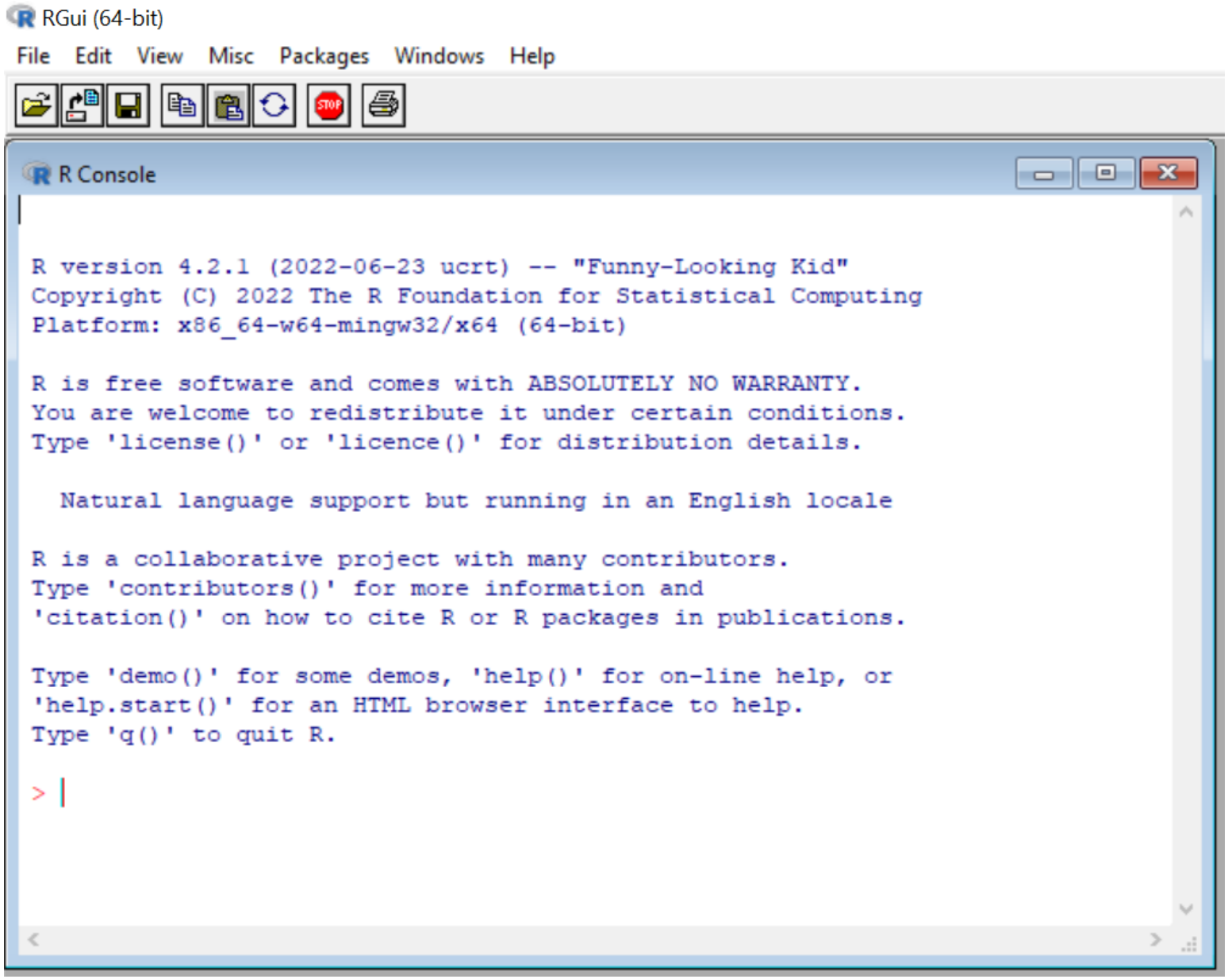
- R version

- R name

- R licence

- prompt >

(Símbolo que se encuentra antes del cursor)



Never Save R "Workspace Image":

- "Confía más en tu script que en tu memoria".

Using R: Don't save your workspace

Posted on April 2, 2017 by **mrtnj** in **R bloggers** | 0 Comments

[This article was first published on **R – On unicorns and genes**, and kindly contributed to R-bloggers]. (You can report issue about the content on this page here)

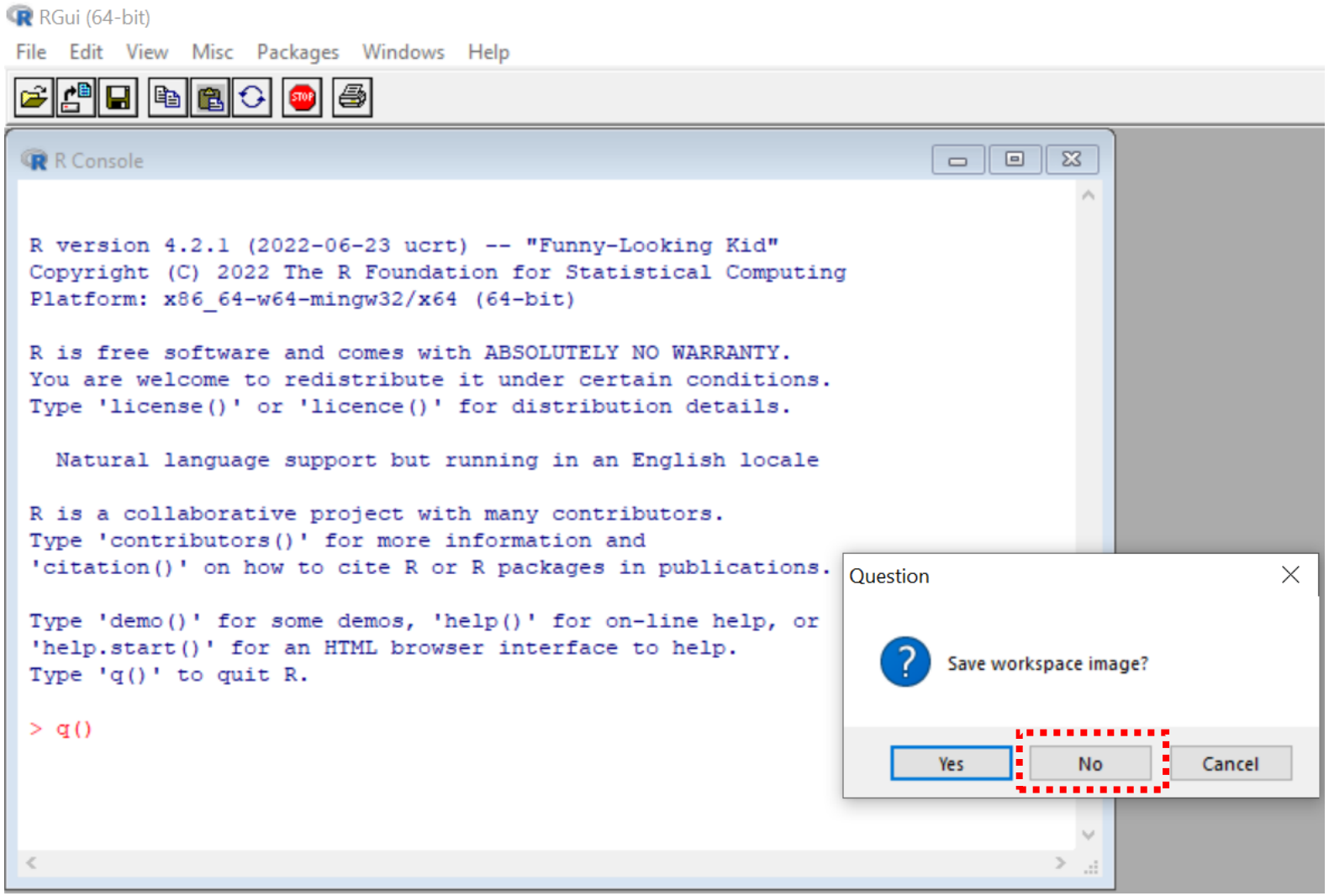
Want to share your content on R-bloggers? click here if you have a blog, or here if you don't.

Share Tweet

To everyone learning R: Don't save your workspace.

When you exit an R session, you're faced with the question of whether or not to save your workspace. You should almost never answer yes. Saving your workspace creates an image of your current variables and functions, and saves them to a file called ".RData". When you re-open R from that working directory, the workspace will be loaded, and all these things will be available to you again. But you don't want that, so don't save your workspace.

Fuente



R como una calculadora

```
1
```

```
## [1] 1
```

R como una calculadora

```
1
1 + 1
```

```
## [1] 1
## [1] 2
```

R como una calculadora

```
1
1 + 1
34 / 40
```

```
## [1] 1
## [1] 2
## [1] 0.85
```

R como una calculadora

```
1
1 + 1
34 / 40
5 < 4
```

```
## [1] 1
## [1] 2
## [1] 0.85
## [1] FALSE
```

R como una calculadora

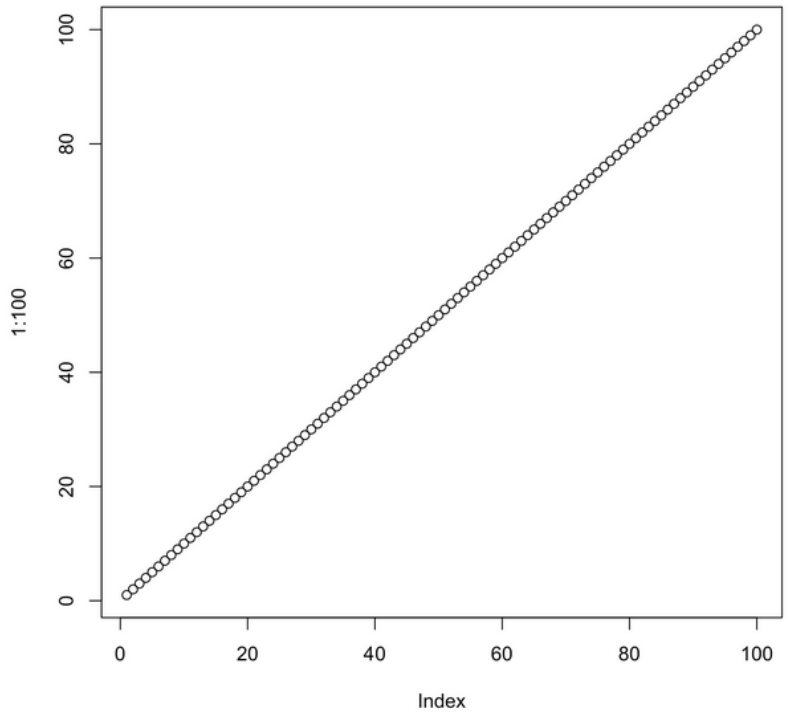
```
1
1 + 1
34 / 40
5 < 4
16 == 16
```

```
## [1] 1
## [1] 2
## [1] 0.85
## [1] FALSE
## [1] TRUE
```

Graficando con R

Code Output

```
plot(1:100)
```



Funciones en R

Funciones en R

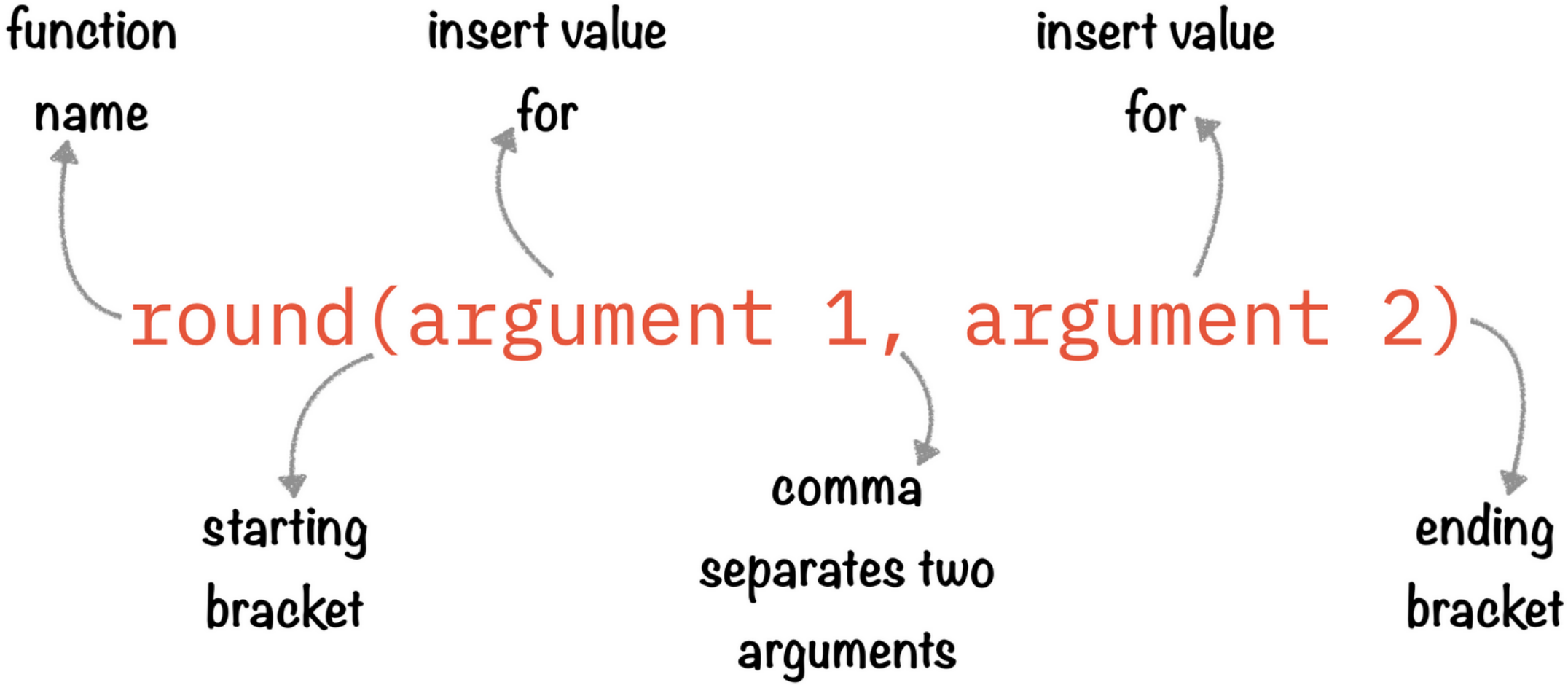
Una función, en un entorno de programación, es un conjunto de instrucciones. Un programador construye una función para evitar la repetición de la misma tarea, o para reducir la complejidad

Code Output

```
round(9.1565, 2)
```

```
## [1] 9.16
```

Estructura de una función en R



Función round

Code Output

```
round(x = 564.56743, digits = 2)
```

```
## [1] 564.57
```

Función raíz cuadrada

Code Output

```
sqrt(x = 9)
```

```
## [1] 3
```

Función secuencia

Code Output

```
seq.int(from = 10, to = 30, by = 5)
```

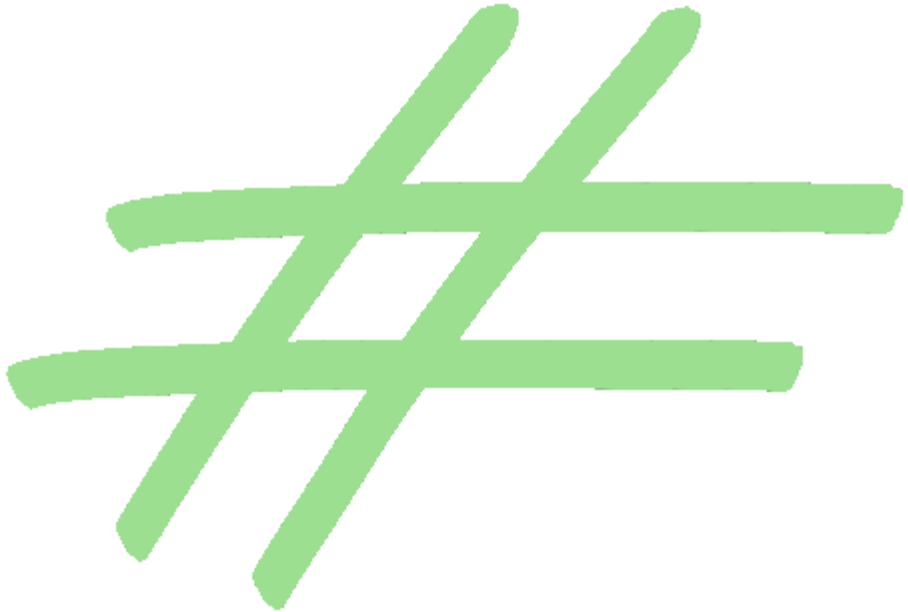
```
## [1] 10 15 20 25 30
```

Comentarios en R

Comentarios en R

- Los humanos podemos leer los comentarios, pero nuestro ordenador pasará por encima de estos.

- En R, # es usado como el símbolo comentarios



Como agregar un comentario?

Code Output

```r
# secret code of happiness

(1 + 4) - (3 * 5) / 10

## r does not evaluate this
# all these are comments
# comments are very important
```

```
## [1] 3.5
```

Hasta ahora todo esta muy bonito pero…..

- R puede combinar graficas, tablas e imágenes en un solo archivo (R markdown).

- Publicar trabajos online o convertirlos en archivos word, pdf o html.

- Trabajar eficientemente con diferentes proyectos, guardarlos, compartirlos y rastrearlos.

Y para todo lo anterior necesitamos…..

Institución de Educación Superior
UCEVA
Unidad Central del Valle del Cauca

RStudio®

R Studio

- 2009, Joseph J. Allaire fundo RStudio.
- 2011, fue lanzado RStudio IDE para R.
- "RStudio es usado como software libre y de acceso abierto enfocado hacia la ciencia de datos" (16 Jan 2022)

Joseph J. Allaire

RStudio is becoming Posit

Jul 27

R y R Studio

R: Engine

RStudio: Dashboard

RStudio is becoming Posit. Learn more at **posit.co**

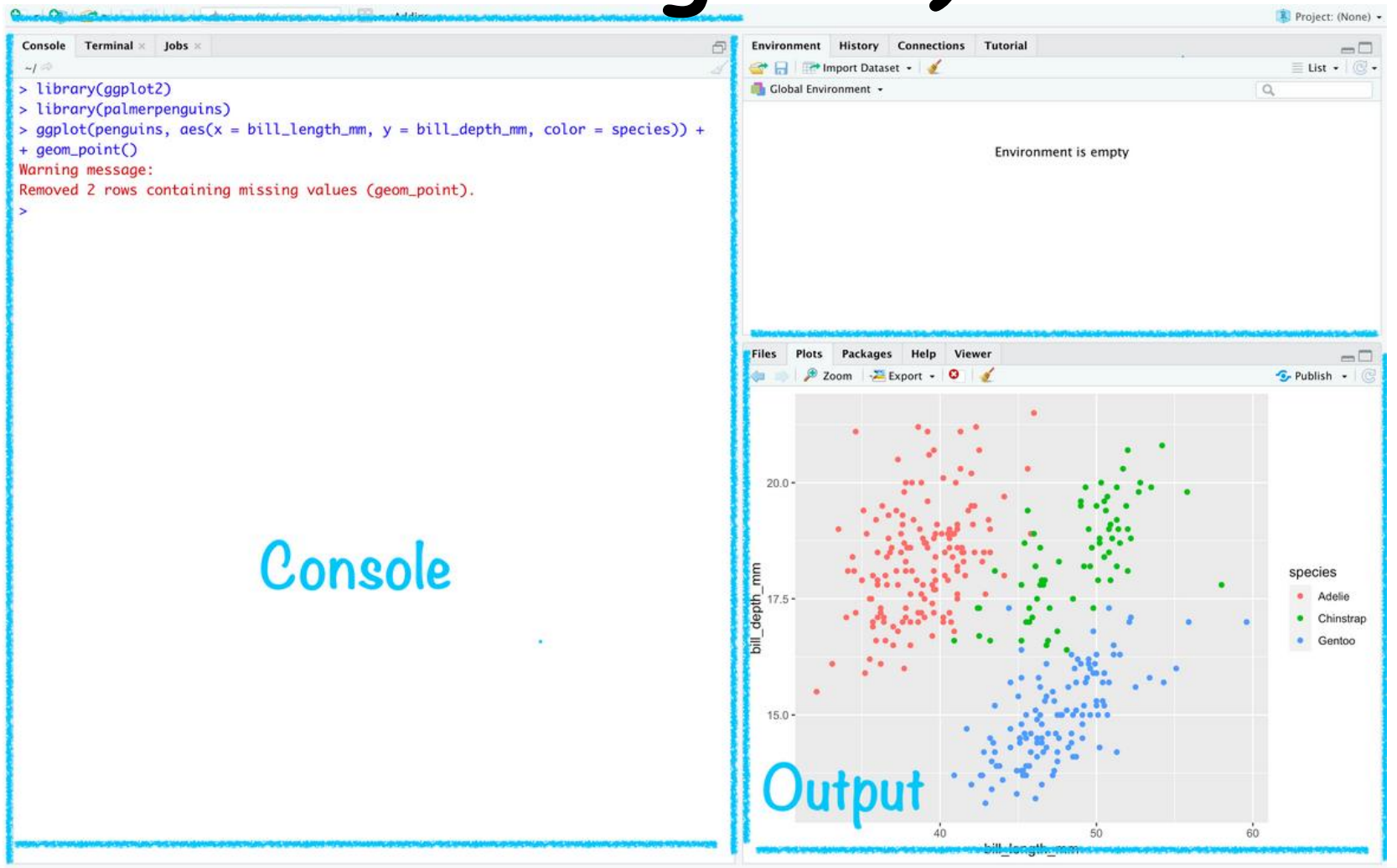
Download the RStudio IDE

Choose Your Version

The RStudio IDE is a set of integrated tools designed to help you be more productive with R and Python. It includes a console, syntax-highlighting editor that supports direct code execution, and a variety of robust tools for plotting, viewing history, debugging and managing your workspace.

RStudio's recommended professional data science solution for every team. RStudio

R Studio (IDE: entorno de desarrollo integrado)



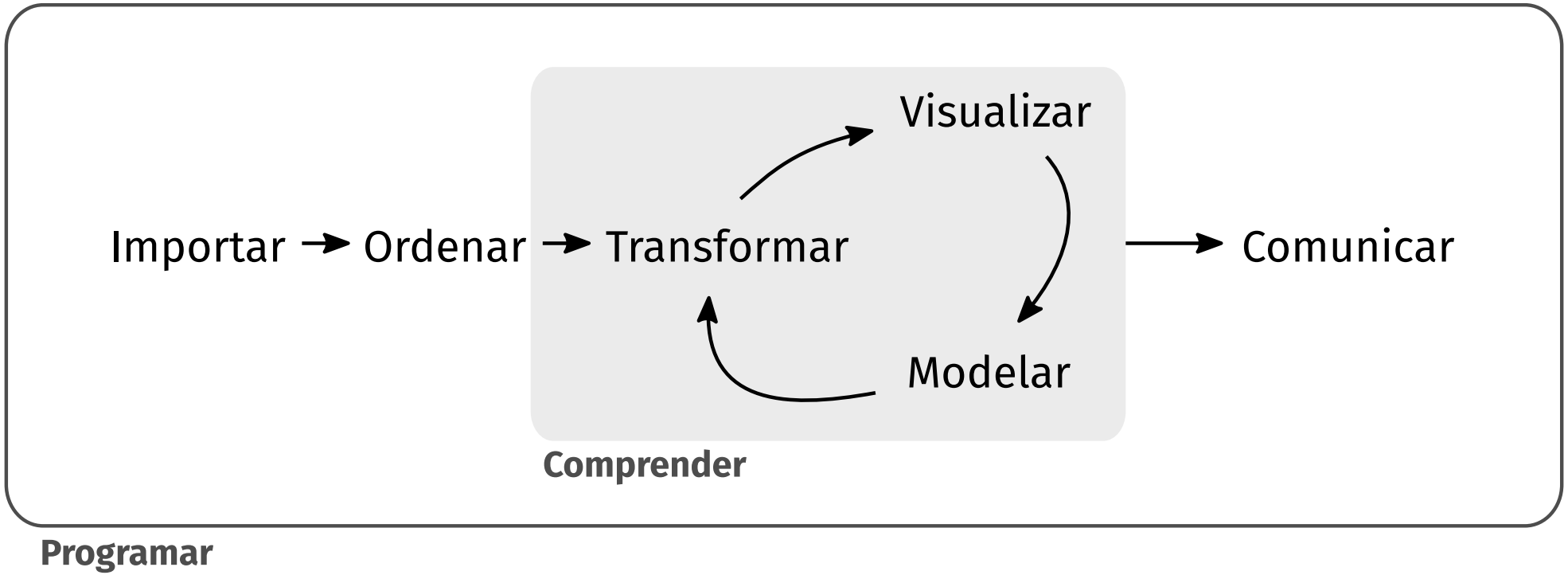
We all want to learn.

No one is born a data scientist. Every person who works with R today was once a complete beginner. No matter how much you know about the R ecosystem already, you'll always have more to learn.

At RStudio, we know that everyone is at a different stage in learning the vast ecosystem of R, ranging from rank beginner to seasoned data scientists to professional educators. Choose a starting point below, or catch up with us on our blog.

Fuente

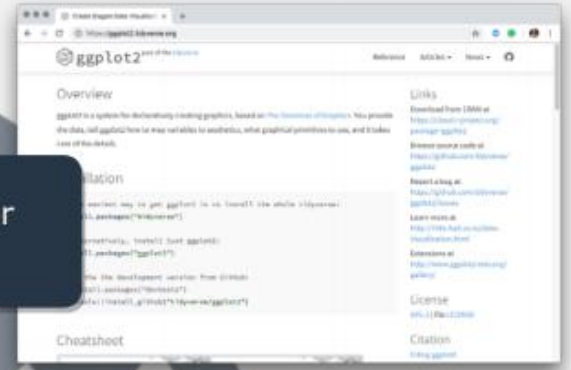
R para ciencia de datos



R para ciencia de datos

Data Science with R Workflow

The Data Science With R Workflow is available in the book: R For Data Science. If you want to learn R and this workflow *for business*, take the **R For Business Analysis (DS4B 101-R) course** through Business Science University.



Click the links for Documentation

ggplot2 (CS)

dplyr (CS)
stringr (CS)
lubridate (CS)
forcats
Base R (CS)

Import → Tidy → Transform → Visualize → Model → Communicate

readr (CS)
readxl / writexl
odbc / DBI

tibble (CS)
tidyr (CS)

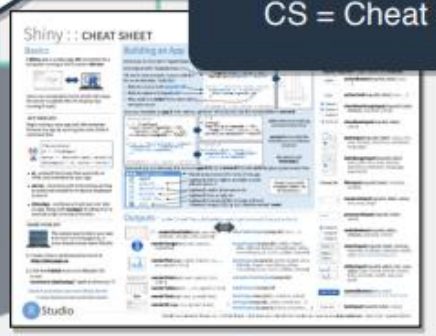
purrr (CS)
(iteration)

recipes
rsample
parsnip
broom
yardstick
dials

RMarkdown (CS)
Shiny (CS)

RStudio IDE (CS)

fs (file system)



CS = Cheat Sheet

Important Resources

- **R For Data Science Book:** http://r4ds.had.co.nz/
- **Rmarkdown Book:** https://bookdown.org/yihui/rmarkdown/
- **Data Visualization Book:** https://rkabacoff.github.io/datavis/
- **More Cheatsheets:** https://www.rstudio.com/resources/cheatsheets/
- **tidyverse packages:** https://www.tidyverse.org/
- **Connecting to databases:** https://db.rstudio.com/
- **RMarkdown website:** https://rmarkdown.rstudio.com/
- **Shiny web applications website:** http://shiny.rstudio.com/
- **Jenny Bryan's purrr tutorial:** https://jennybryan.org/

"Business Science University:
Enterprise-Grade Data Science Education"

Business Science University
university.business-science.io

Fuente:

Paquetes de R

Paquetes de R

- Al 9 de Agosto de 2022, 18375 paquetes de R estan disponibles en el CRAN

- "Un paquete de R es una coleccion de funciones, datos y documentación que amplia las capacidades de R. El uso de paquetes es la clave para el éxito en el uso de R."

- Ranking de los paquetes mas descargados en el mundo. Fuente

Función para descargar paquetes

```
install.packages("tidyverse")
```

Función para usar paquetes

```
library(tidyverse)
```

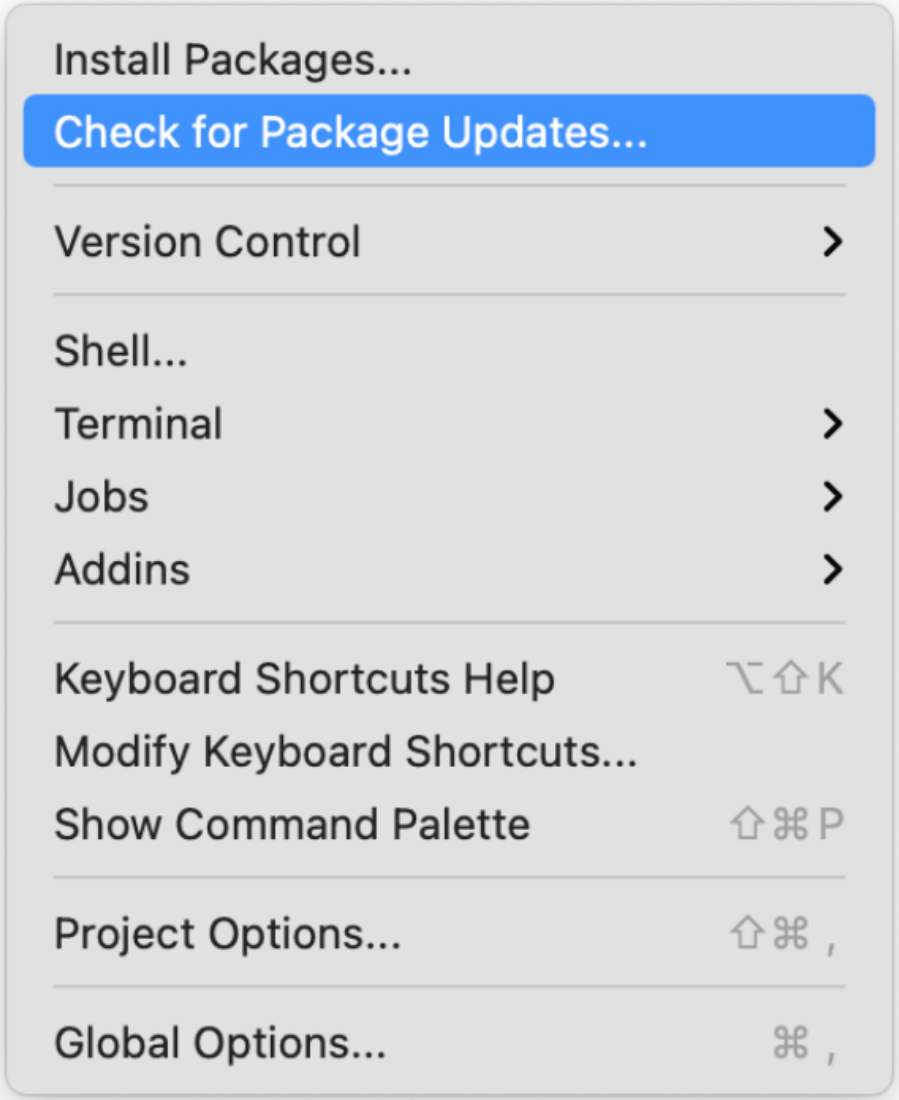
Algo sobre los paquetes de R

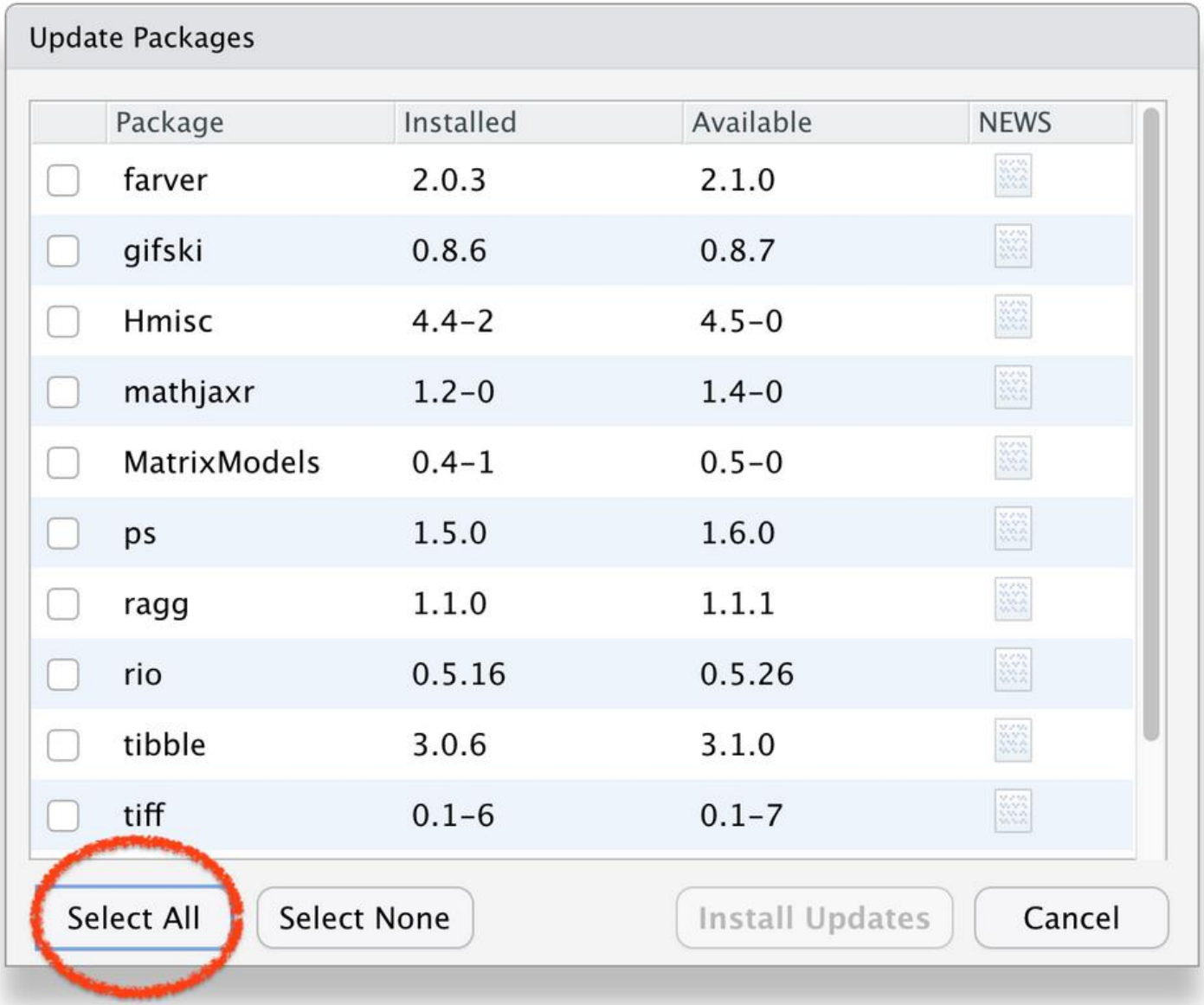
- Solo necesitas instalar los paquetes una sola vez.

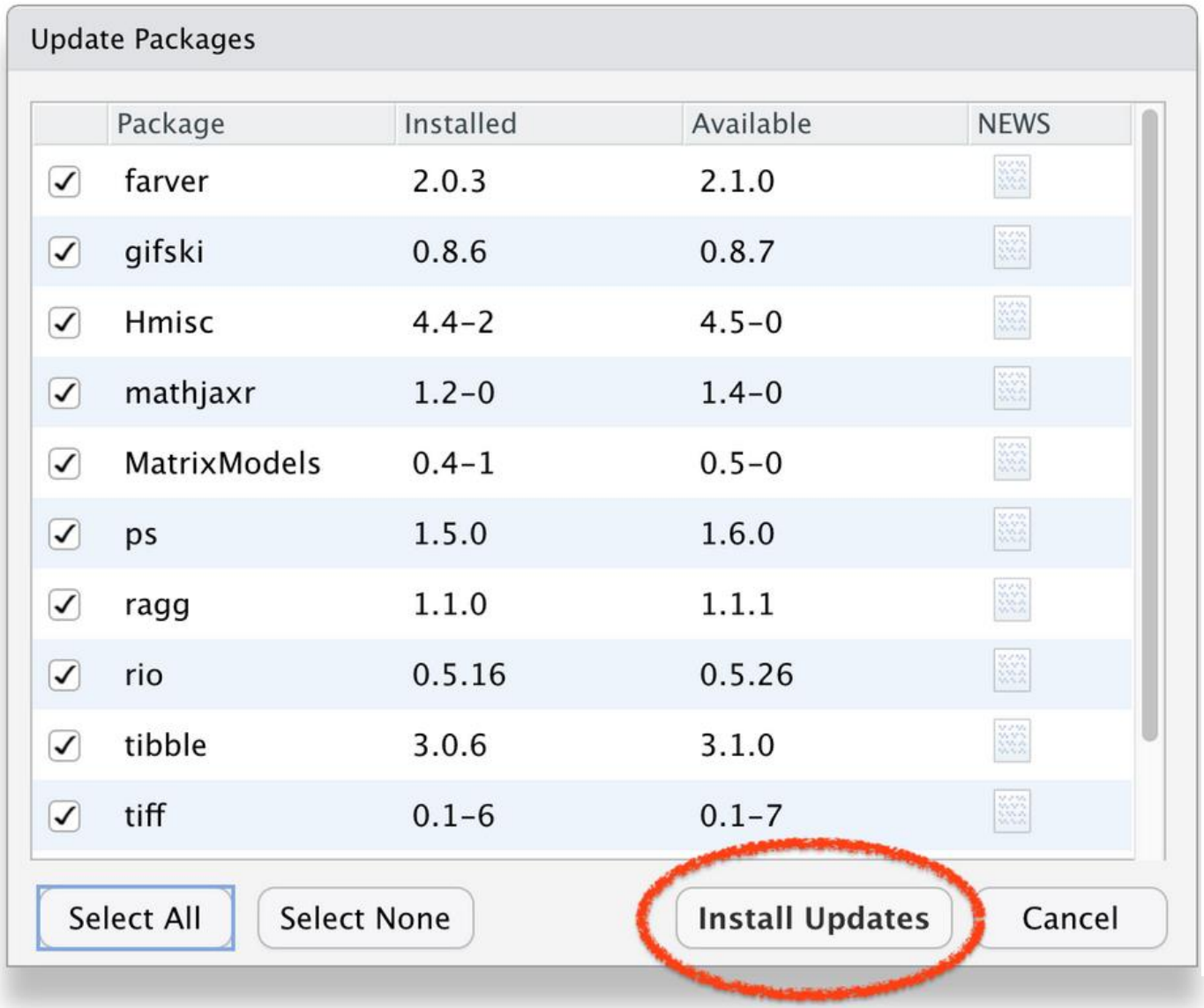
- En cada documento de R, es necesario "llamar" una vez con la función library(), por ejemplo: library(ggplot2)

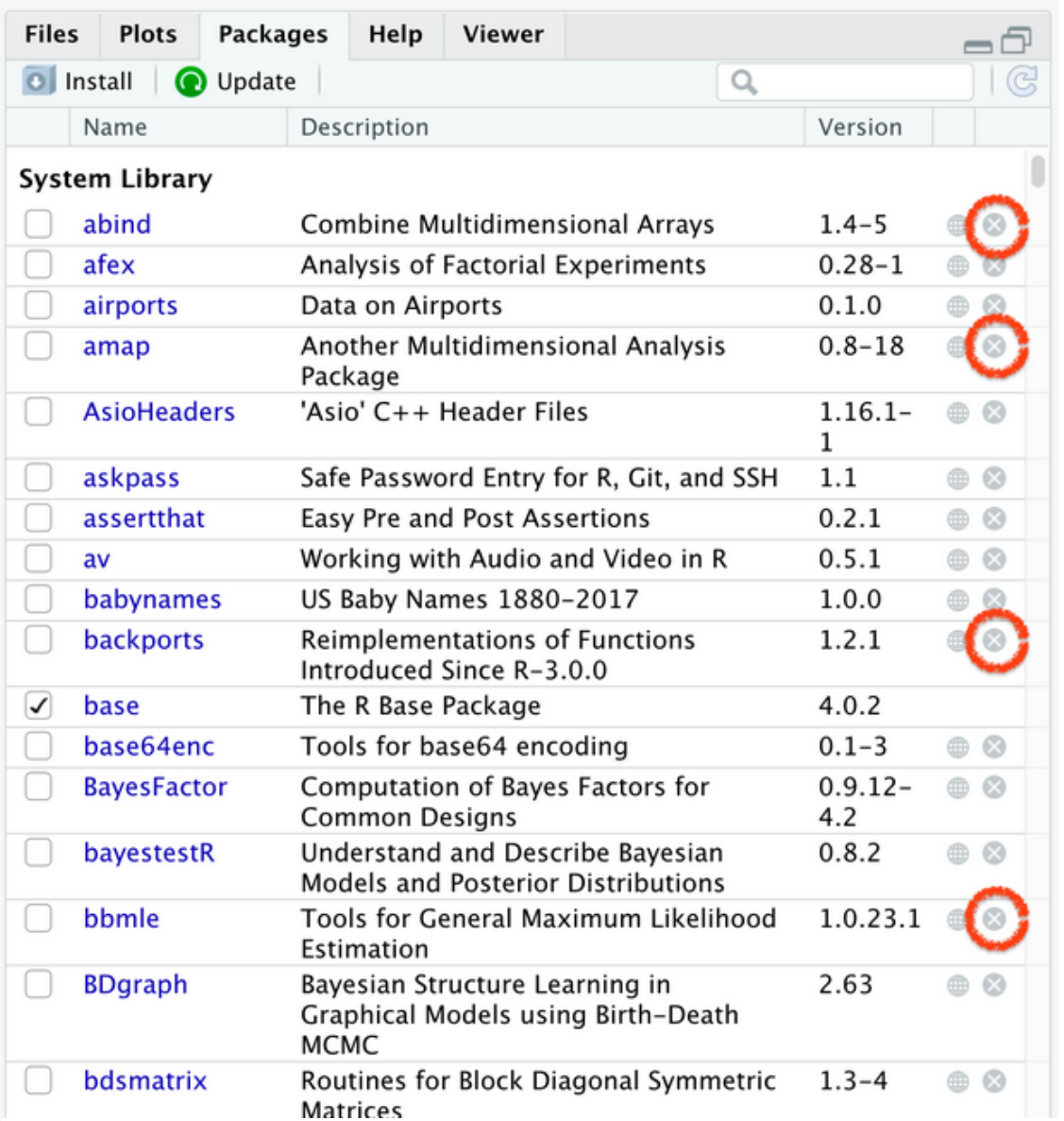
- Una vez instalados, luego de algún tiempo será necesario actualizar los paquetes.

- Si se desinstala R, automáticamente se pierden todos los paquetes.


Install Packages...
Check for Package Updates...
Version Control
Shell...
Terminal
Jobs
Addins
Keyboard Shortcuts Help ⌥⇧K
Modify Keyboard Shortcuts...
Show Command Palette ⇧⌘P
Project Options... ⇧⌘,
Global Options... ⌘,


Update Packages
Package
Installed
Available
NEWS
farver 2.0.3 2.1.0
gifski 0.8.6 0.8.7
Hmisc 4.4-2 4.5-0
mathjaxr 1.2-0 1.4-0
MatrixModels 0.4-1 0.5-0
ps 1.5.0 1.6.0
ragg 1.1.0 1.1.1
rio 0.5.16 0.5.26
tibble 3.0.6 3.1.0
tiff 0.1-6 0.1-7
Select All
Select None
Install Updates
Cancel


Update Packages
Package
Installed
Available
NEWS
farver 2.0.3 2.1.0
gifski 0.8.6 0.8.7
Hmisc 4.4-2 4.5-0
mathjaxr 1.2-0 1.4-0
MatrixModels 0.4-1 0.5-0
ps 1.5.0 1.6.0
ragg 1.1.0 1.1.1
rio 0.5.16 0.5.26
tibble 3.0.6 3.1.0
tiff 0.1-6 0.1-7
Select All
Select None
Install Updates
Cancel


Files
Plots
Packages
Help
Viewer
Install
Update
Name
Description
Version
System Library
abind Combine Multidimensional Arrays 1.4-5
afex Analysis of Factorial Experiments 0.28-1
airports Data on Airports 0.1.0
amap Another Multidimensional Analysis Package 0.8-18
AsioHeaders 'Asio' C++ Header Files 1.16.1-1
askpass Safe Password Entry for R, Git, and SSH 1.1
assertthat Easy Pre and Post Assertions 0.2.1
av Working with Audio and Video in R 0.5.1
babynames US Baby Names 1880-2017 1.0.0
backports Reimplementations of Functions Introduced Since R-3.0.0 1.2.1
base The R Base Package 4.0.2
base64enc Tools for base64 encoding 0.1-3
BayesFactor Computation of Bayes Factors for Common Designs 0.9.12-4.2
bayestestR Understand and Describe Bayesian Models and Posterior Distributions 0.8.2
bbmle Tools for General Maximum Likelihood Estimation 1.0.23.1
BDgraph Bayesian Structure Learning in Graphical Models using Birth-Death MCMC 2.63
bdsmatrix Routines for Block Diagonal Symmetric Matrices 1.3-4

Tipos de objetos

Objetos

- Solo un nombre que se puede utilizar para llamar a los datos almacenados

Creación de un objeto

```
salary <- c(20, 30, 40, 50, -10)
salary
```

```
## [1]  20  30  40  50 -10
```

Creación de un objeto

```
name <- c("Ram", "Rani", "Ali", "Preeti", "John")
name
```

```
## [1] "Ram"    "Rani"   "Ali"    "Preeti"
## [5] "John"
```

Creación de un objeto

```
place <- c("ny", "ber", "dhl", "tko", "lon")
place
```

```
## [1] "ny"  "ber" "dhl" "tko" "lon"
```

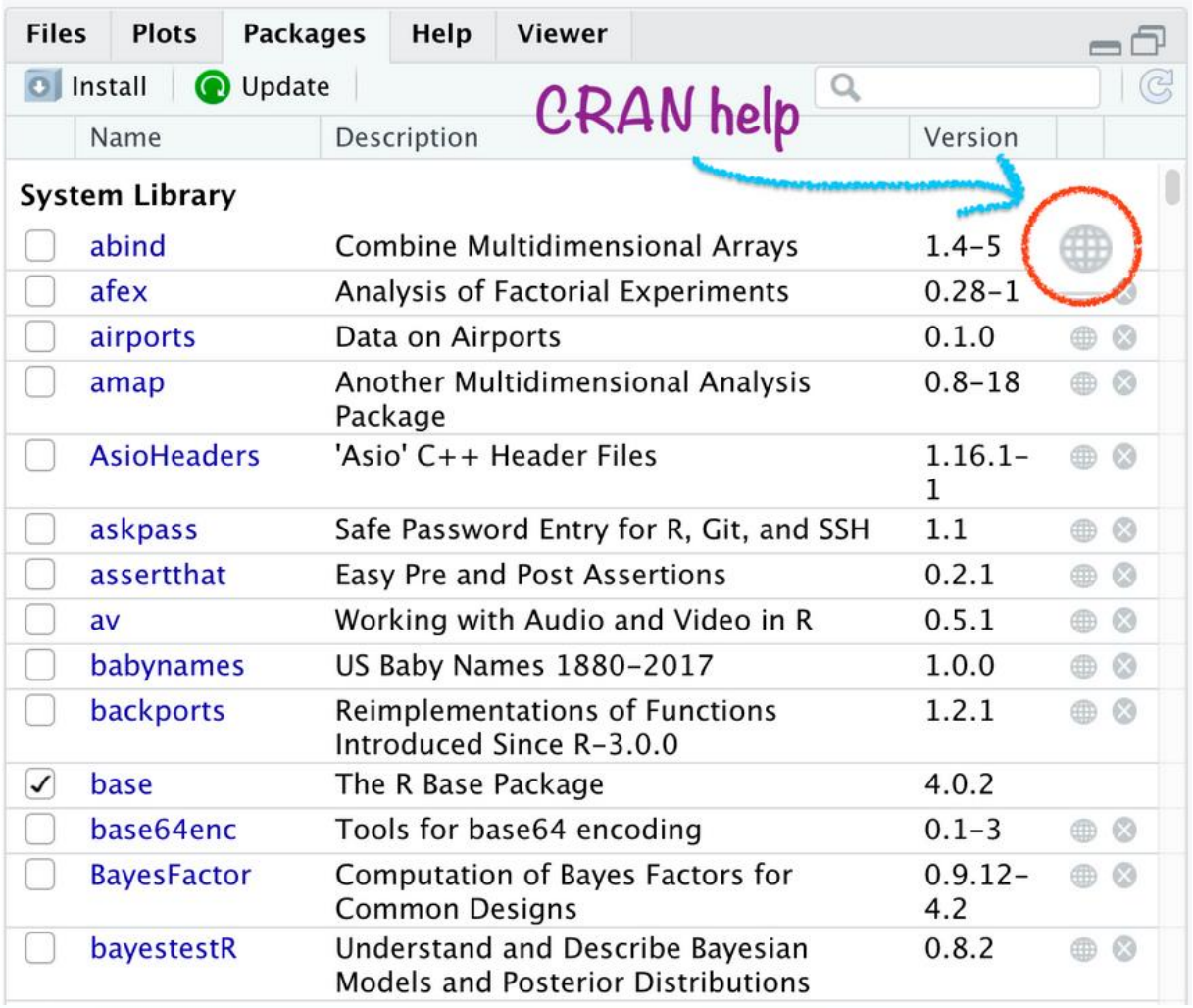
Ayuda en R

Using Console >

in console type `?your query`

for example `?ggplot`

RStudio: pkg Help Docs



all categories ▸ all tags ▸ Latest Activity New (69) Unread (1) Categories Top + New Topic

Topic	Replies	Views	Activity
Problem in predict.fregre.fd function: could not find function "is.na.fdata" • General	3	34	16m
Shiny performing long-running calculations	11	90	31m
Help please new to R • General rstudio ggplot2	5	75	1h
Desperate for help! Adding count to bins using gghistogram() •	0	20	1h
MosaicMiss option • General vim	0	31	2h
Hi , can any one help me out from this issue when i try to save the file in Rstudio it will save in .R format but when i try to open in folder where it as saved. it is saved in PDF format i want to save the file in .R format only please help me • RStudio IDE rstudio	0	13	2h
last visit			
Summing columns for habitat selection test • General rstudio dplyr	3	55	3h
Try Catch R SHiny show modal does not pop up • shiny modaldialog	1	31	3h

Home

PUBLIC
Stack Overflow
Tags
Users

FIND A JOB
Jobs
Companies

TEAMS What's this?
Free 30 Day Trial

Plotting several jpeg images in a single display

Ask Question

Asked 10 years, 2 months ago Active 10 years, 2 months ago Viewed 10k times

7

I need to plot and display several jpeg images in a single combined display (or canvas?). For example, suppose I have images {a,b,c,d}.jpg, each of different size, and I would like to plot them on one page in a 2x2 grid. It would be also nice to be able to set a title for each subplot.

I've been thoroughly looking for a solution, but couldn't find out how to do it, so any ideas would really help. I would preferably use a solution that is based on the EBImage package.

1

image r plot

share improve this question follow

asked Sep 8 '10 at 13:16
user442446
979 ● 2 ● 10 ● 13

Thanks for the answers. The real problem was handling image data, with the rimage package I got the image data from the EBImage package to display better. I still get terribly large margins when organizing the plots with the mfrow() parameter, although I've played a lot with with the oma and mar parameters. – user442446 Sep 13 '10 at 7:52

add a comment

3 Answers

Active Oldest Votes

4

There are two ways how to arrange several plots with base graph functions, namely `par(mfrow=c(rows,columns))` (substitute `rows` and `columns` with integers) and `layout(mat)` where `mat` is a matrix like `matrix(c(1,2,3,4))`.

The Overflow Blog

The Loop: Adding review guidance to the help center

Podcast 288: Tim Berners-Lee wants to put you in a pod. A web pod.

Featured on Meta

A big thank you, Tim Post

"Question closed" notifications experiment results and graduation

37 people chatting

R Public
2 hours ago - Natty

Linked

0 Size comparison in R(data-visualization)

#rstats

Top | Latest | People | Photos | Videos

R Weekly
@rweekly_org

Follow

#rstats Weekly Updates from the R Community. Real-time updates @rweekly_live , submit with rweekly.org/submit or github.com/rweekly/rweekl...

R4DS online learning community
@R4DScommunity

Follow

A community of #rstats learners at all skill levels working together to improve our skills. Join our slack: r4ds.io/join

David Smith
@revodavid

Follow

Cloud Advocate at Microsoft. Tweets about AI, Data Science, R #rstats and other things I love: culture, politics, gaming, my husband @nonfamousjay. He/him.

Meghan Hall
@MeghanMHall

Follow

Data analyst by day, hockey nerd by night. Likes: goalie pulling, penalty

Paquetes de R para ciencias agropecuarias

Map of Australia as R package hex stickers; image credit: Mitchell O'Hara-Wild

Questions?

GRACIAS

Institución de Educación Superior
UCEVA
Unidad Central del Valle del Cauca

www.uceva.edu.co