

```
library(dplyr)

rladies_global %>%
  filter(city == 'Concepción') %>%
  group_by(University) %>%
  summarise(n())
```

# Introducción a R

# ¿Qué es R?



Muchas **empresas** y **universidades** están utilizando el **software R** para sus análisis, además es uno de los lenguajes más utilizados en **investigación científica**, pero... ¿Sabemos qué es realmente R?, ¿Por qué me debería interesar? ¿Cómo me puede ayudar con mis análisis de datos?

# ¿Qué es **R**?



❖ Un lenguaje de programación

□ ¿Qué es un lenguaje de programación?

Lenguaje formal que proporciona una serie de instrucciones que permiten a un programador escribir órdenes en secuencias y algoritmos.

# Ejemplo en el lenguaje de programación Java



```
1  // class declaration
2  public class ProgrammingExample {
3
4      // method declaration
5      public void sayHello() {
6
7          // method output
8          System.out.println("Hello World!");
9      }
10 }
```

# ¿Qué es R?



- ❖ Una herramienta estable, confiable y que se encuentra en permanente actualización, para siempre estar a la vanguardia.
- ❖ Muy poderoso para todo tipo de procesamiento y manipulación de datos.
- ❖ Permite crear gráficos de alta calidad, exportables en diversos formatos.
- ❖ Disponible para todos los sistemas operativos.

# ¿Ventajas?



- ❖ Se vincula fácilmente con otros lenguajes y/o softwares como SPSS, SAS, Excel, Python, etc.
- ❖ Se pueden crear aplicaciones web interactivas (Shiny).
- ❖ Puedes crear informes directos, dinámicos, en varios formatos.



# ¿Desventajas?

- ❖ R utiliza una consola de comandos en lugar de una interfaz gráfica.
- ❖ Requiere de mucha práctica, ¡No te desanimes! Es complicado al principio, pero serás recompensada/o cuando veas tus análisis o gráficos aparecer sin problemas.

# ¿Qué es RStudio?

RStudio es un entorno de desarrollo integrado para el lenguaje de programación **R**, dedicado a la computación estadística y gráficos. Incluye una **consola** y **editor de sintaxis** que apoya la ejecución de código.





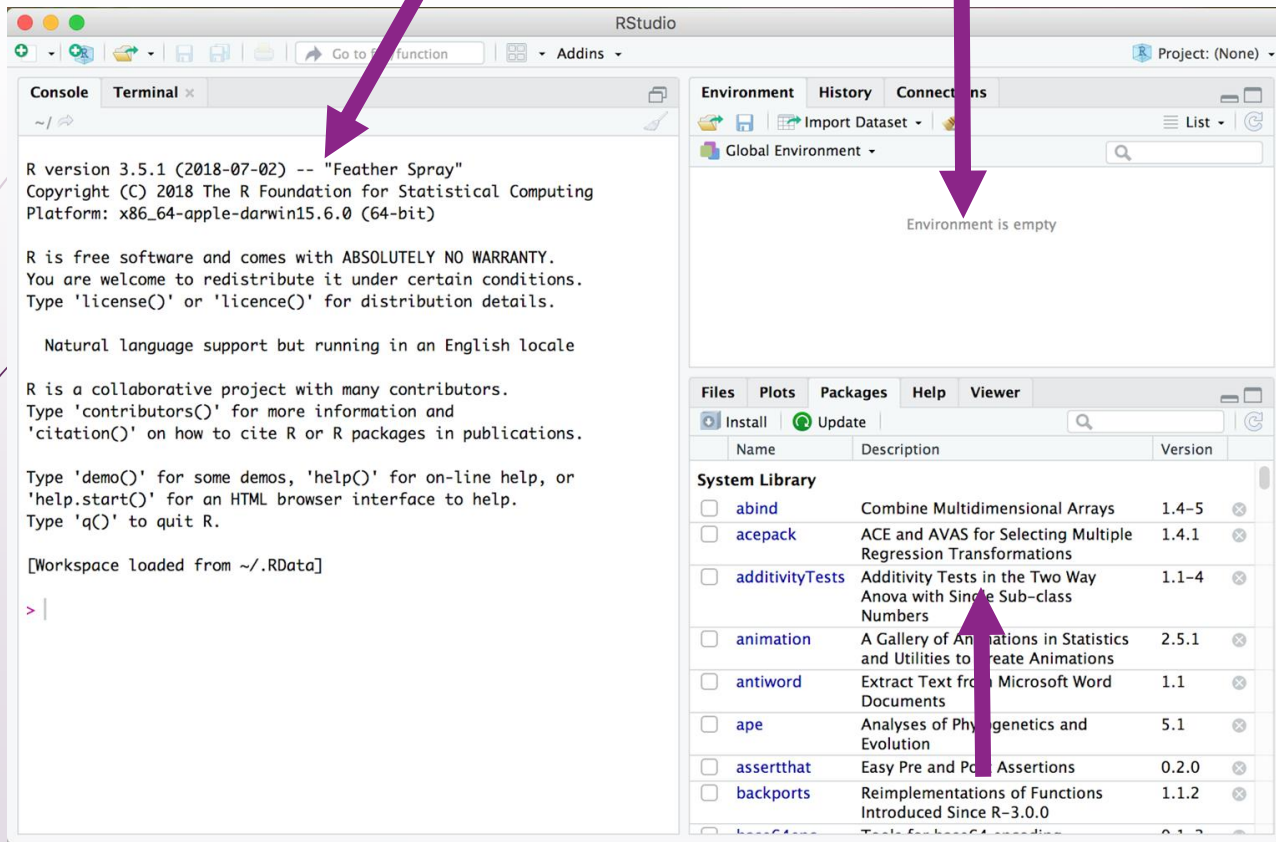
- ❖ Te ayudaremos paso a paso el funcionamiento de R y todo lo que puedes hacer con el.
- ❖ Practicaremos con códigos de ejemplo y casos reales 😊

La práctica hace al maestro.

Sólo existe una forma de aprender R. ¡Utilizarlo!

# ¡Ahora ustedes!

1. Crea una carpeta en tu Laptop con el nombre de “**RLadies**”.
2. Descarga ahí el documento que te enviamos.
3. Abre RStudio.

A screenshot of the RStudio application window. The title bar says 'RStudio'. The top toolbar includes icons for file operations and a 'Go to function' dropdown. The left pane has tabs for 'Console' and 'Terminal'. The 'Console' tab is active, showing the R startup message and a prompt '>'. A purple arrow points from the top-left towards the console. The right pane has tabs for 'Environment', 'History', and 'Connections'. The 'Environment' tab is active, showing 'Global Environment' and 'Environment is empty'. A purple arrow points from the top-right towards the environment pane. The bottom pane has tabs for 'Files', 'Plots', 'Packages', 'Help', and 'Viewer'. The 'Packages' tab is active, showing a list of installed packages. A purple arrow points from the bottom-right towards the 'additivityTests' package entry.

R version 3.5.1 (2018-07-02) -- "Feather Spray"  
Copyright (C) 2018 The R Foundation for Statistical Computing  
Platform: x86\_64-apple-darwin15.6.0 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.

[Workspace loaded from ~/.RData]

> |

Environment History Connections

Global Environment

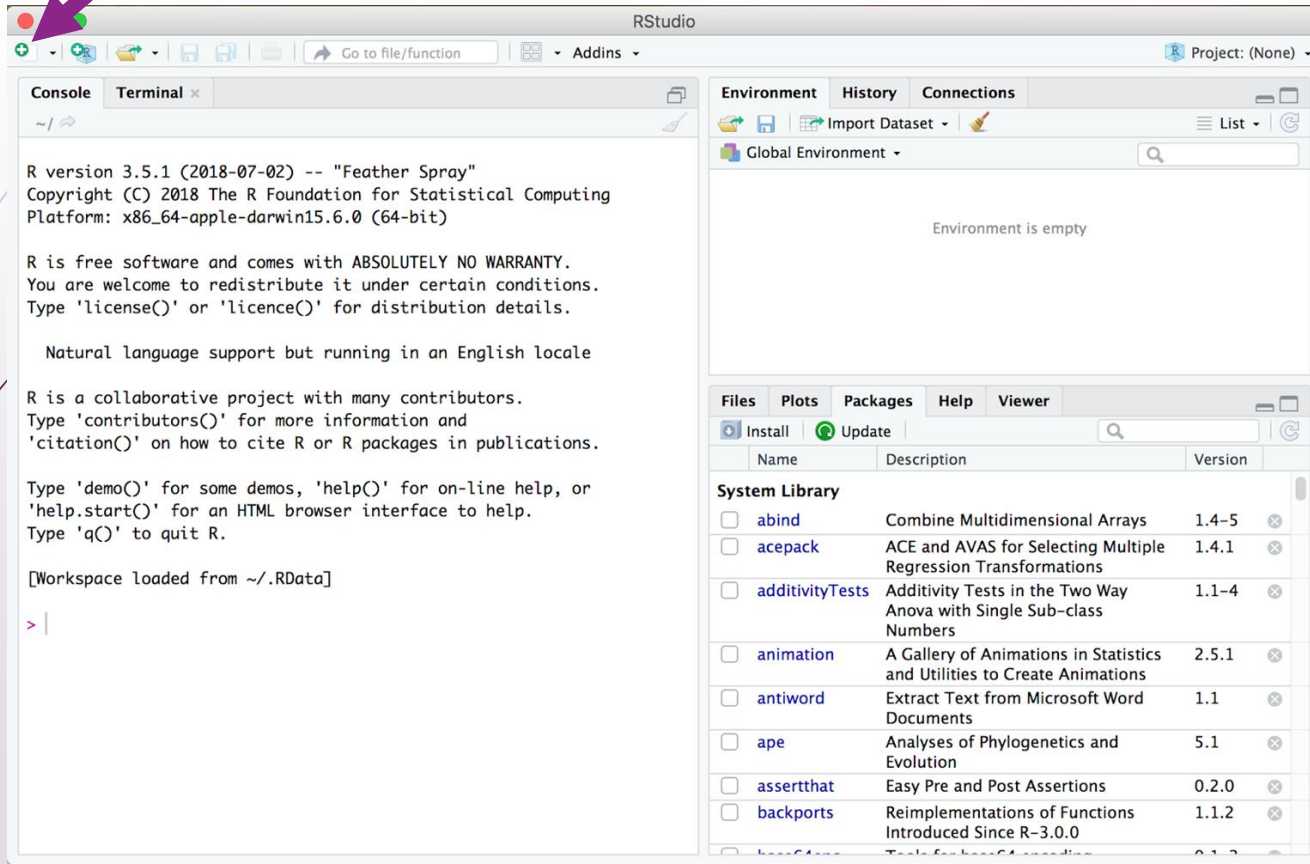
Environment is empty

Files Plots Packages Help Viewer

Install Update

Name	Description	Version
<input type="checkbox"/> <b>System Library</b>		
<input type="checkbox"/> <b>abind</b>	Combine Multidimensional Arrays	1.4-5
<input type="checkbox"/> <b>acepack</b>	ACE and AVAS for Selecting Multiple Regression Transformations	1.4.1
<input type="checkbox"/> <b>additivityTests</b>	Additivity Tests in the Two Way Anova with Single Sub-class Numbers	1.1-4
<input type="checkbox"/> <b>animation</b>	A Gallery of Animations in Statistics and Utilities to Create Animations	2.5.1
<input type="checkbox"/> <b>antiword</b>	Extract Text from Microsoft Word Documents	1.1
<input type="checkbox"/> <b>ape</b>	Analyses of Phylogenetics and Evolution	5.1
<input type="checkbox"/> <b>assertthat</b>	Easy Pre and Post Assertions	0.2.0
<input type="checkbox"/> <b>backports</b>	Reimplementations of Functions Introduced Since R-3.0.0	1.1.2

1. Crea una carpeta en tu Laptop con el nombre de “RLadies”.
2. Descarga ahí el documento que te enviamos.
3. Abre R Studio.
4. Abre desde R Studio el script “Introduccion-a-R-Parte1”



RStudio

Go to file/function Addins Project: (None)

**Console** **Terminal**

```
R version 3.5.1 (2018-07-02) -- "Feather Spray"
Copyright (C) 2018 The R Foundation for Statistical Computing
Platform: x86_64-apple-darwin15.6.0 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

Natural language support but running in an English locale

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

[Workspace loaded from ~/.RData]

> |
```

**Environment** **History** **Connections**

Import Dataset

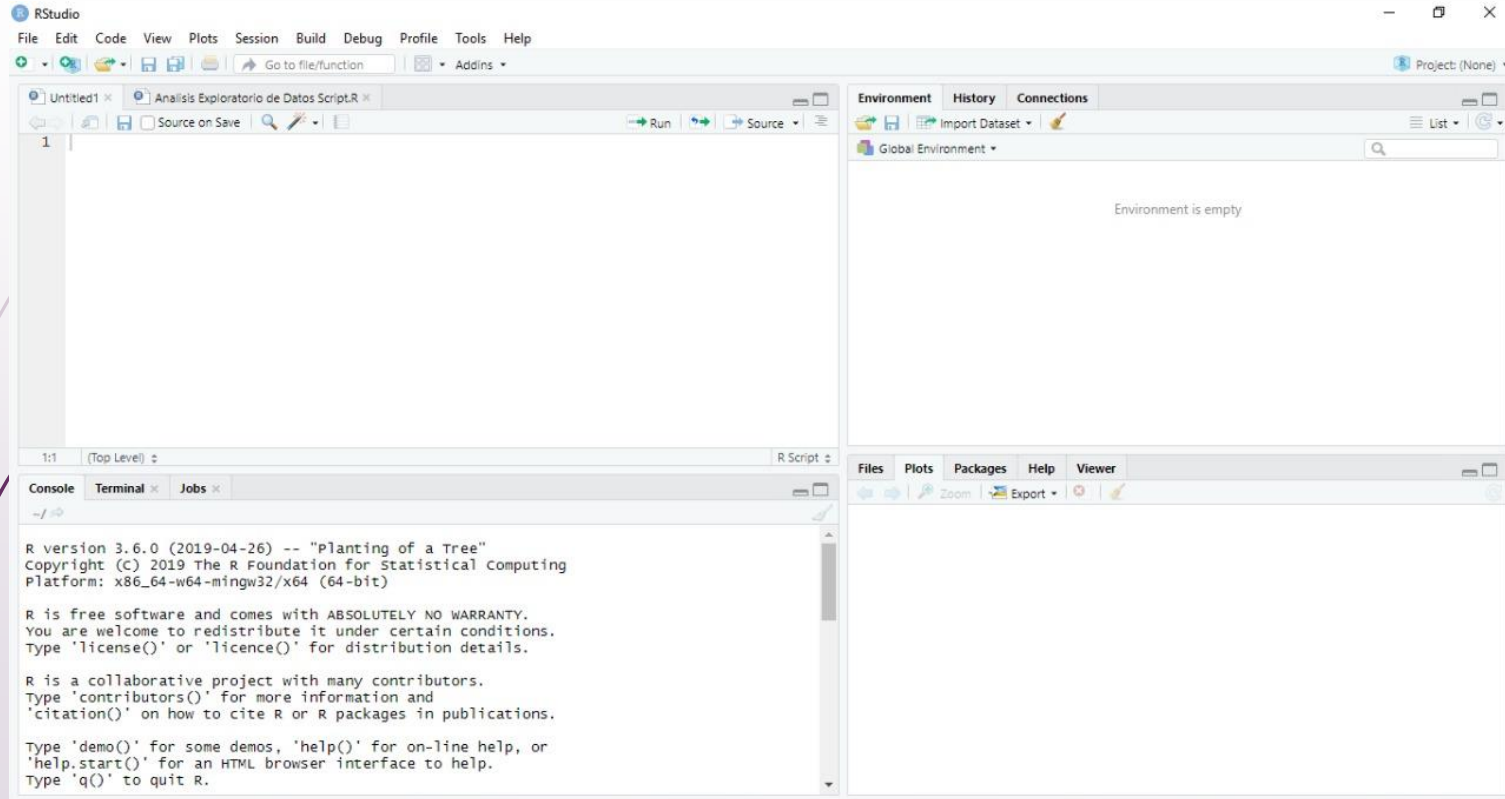
Global Environment

Environment is empty

**Files** **Plots** **Packages** **Help** **Viewer**

Install Update

Name	Description	Version
<b>System Library</b>		
<input type="checkbox"/> <a href="#">abind</a>	Combine Multidimensional Arrays	1.4-5
<input type="checkbox"/> <a href="#">acepack</a>	ACE and AVAS for Selecting Multiple Regression Transformations	1.4.1
<input type="checkbox"/> <a href="#">additivityTests</a>	Additivity Tests in the Two Way Anova with Single Sub-class Numbers	1.1-4
<input type="checkbox"/> <a href="#">animation</a>	A Gallery of Animations in Statistics and Utilities to Create Animations	2.5.1
<input type="checkbox"/> <a href="#">antiword</a>	Extract Text from Microsoft Word Documents	1.1
<input type="checkbox"/> <a href="#">ape</a>	Analyses of Phylogenetics and Evolution	5.1
<input type="checkbox"/> <a href="#">assertthat</a>	Easy Pre and Post Assertions	0.2.0
<input type="checkbox"/> <a href="#">backports</a>	Reimplementations of Functions Introduced Since R-3.0.0	1.1.2

A screenshot of the RStudio IDE interface. The top menu bar includes File, Edit, Code, View, Plots, Session, Build, Debug, Profile, Tools, and Help. Below the menu is a toolbar with icons for file operations and a 'Go to file/function' search bar. The main editor window shows a script titled 'Untitled1' with a single line of code '1'. The right-hand pane has tabs for Environment, History, and Connections, with the Environment tab active showing 'Global Environment' and the message 'Environment is empty'. The bottom pane has tabs for Console, Terminal, and Jobs, with the Console tab active showing the R startup message.

```
R version 3.6.0 (2019-04-26) -- "Planting of a Tree"
Copyright (C) 2019 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.
```

# Síguenos en...



r-ladies-concepcion



@R-LadiesConce



/RLadiesConcepcion



rladiesconce



concepcion@rladies.org

# Patrocinadores



**CFM** FACULTAD  
DE CIENCIAS FÍSICAS  
Y MATEMÁTICAS



```
library(dplyr)

rladies_global %>%
  filter(city == 'Concepción') %>%
  group_by(University) %>%
  summarise(n())
```

# Introducción a R