

```
library(dplyr)

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



# Cross Meetup *R-Ladies* *Concepción* + Power BI

# ¿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.

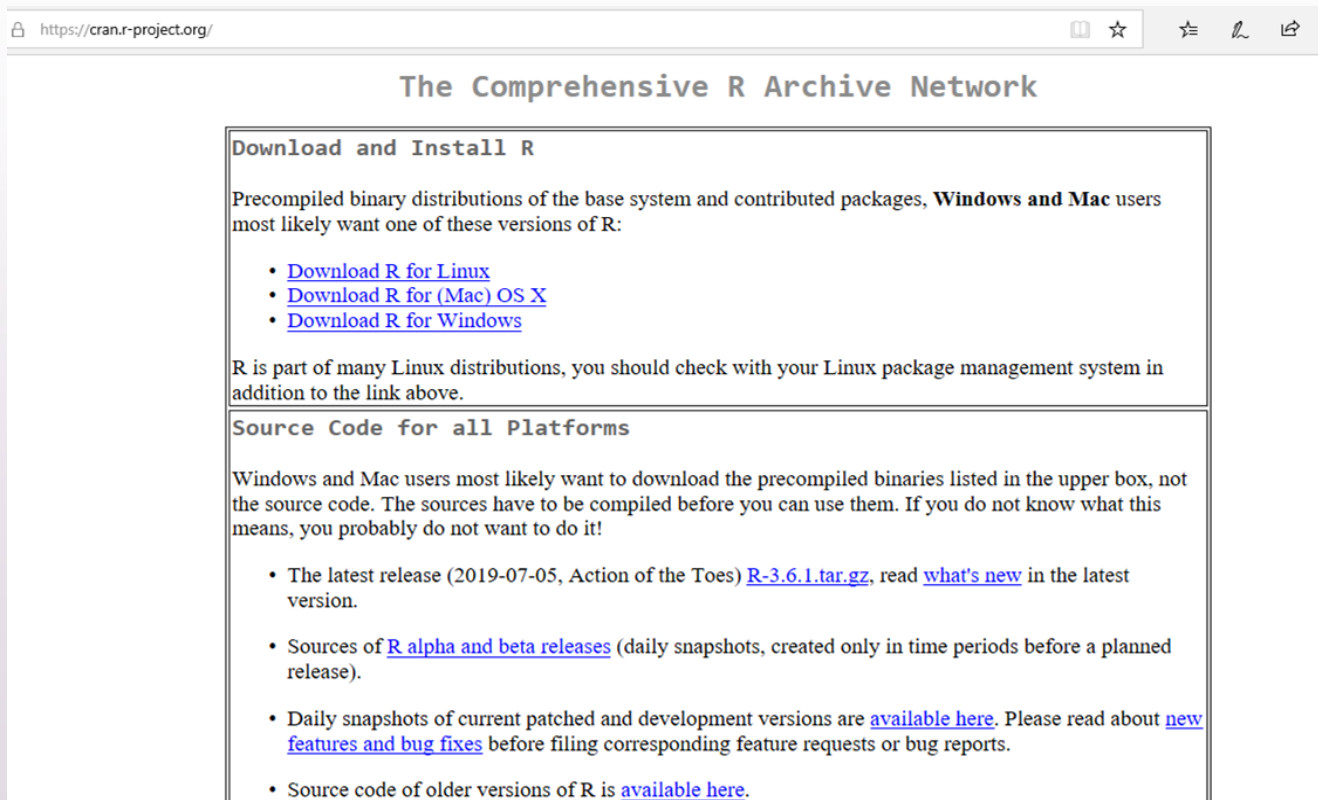
Sólo existe una forma de aprender R. ¡Utilizarlo!

# ¡Ahora ustedes!

1. Descarga e instala R
2. Descarga e instala RStudio
3. Descarga e instala Power BI
4. Crea una carpeta en tu Laptop con el nombre de “**RLadies + Power BI**”.

# Instalación de R:

## <https://cran.r-project.org/>

A screenshot of the CRAN website in a web browser. The browser's address bar shows 'https://cran.r-project.org/'. The page title is 'The Comprehensive R Archive Network'. The main content is divided into two sections: 'Download and Install R' and 'Source Code for all Platforms'. The first section provides precompiled binary distributions for Windows and Mac users, with links to download R for Linux, Mac OS X, and Windows. The second section provides source code for all platforms, with links to the latest release, alpha and beta releases, daily snapshots, and older versions of R.

https://cran.r-project.org/

### 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.

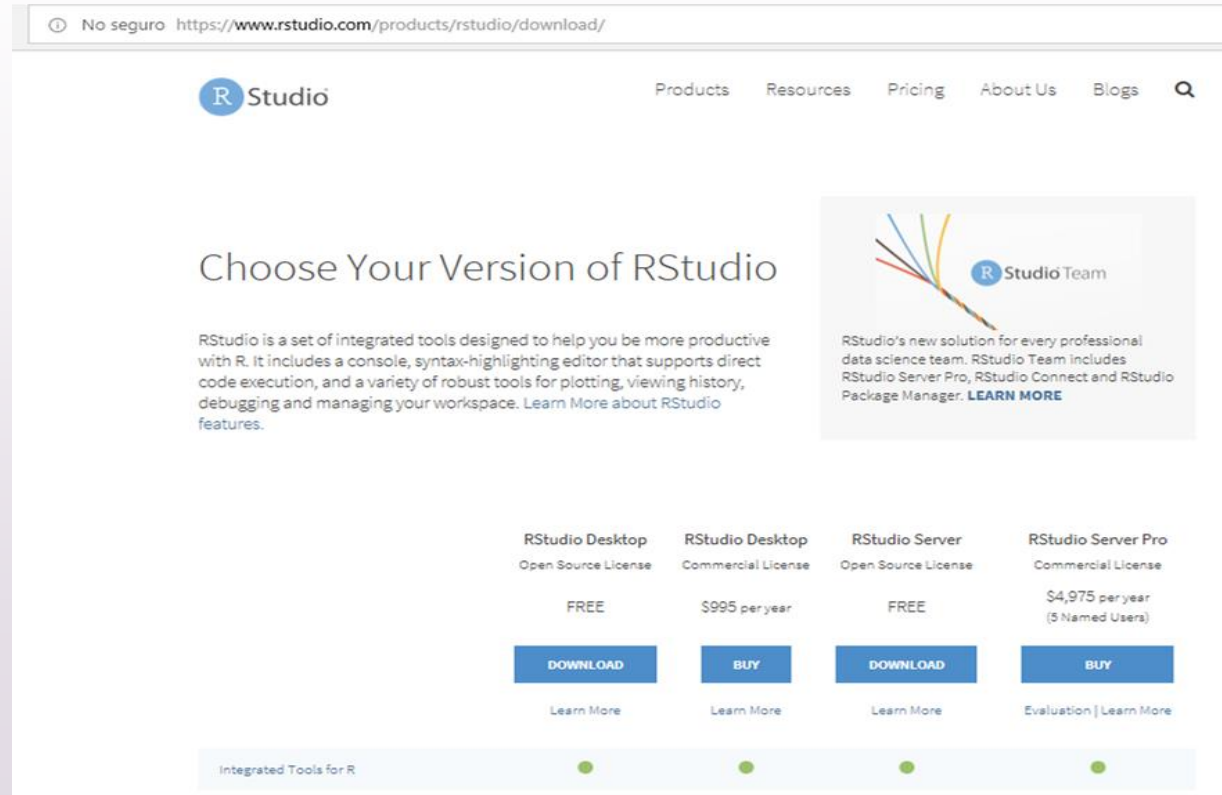
#### Source Code for all Platforms

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 (2019-07-05, Action of the Toes) [R-3.6.1.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](#).

# Instalación de R Studio:

<https://www.rstudio.com/products/rstudio/download/>



The screenshot shows the RStudio website's download page. At the top, there's a navigation bar with links for Products, Resources, Pricing, About Us, and Blogs. The main heading is "Choose Your Version of RStudio". Below this, a paragraph describes RStudio as a set of integrated tools for R. To the right, there's a section for "RStudio Team" with a "LEARN MORE" link. The bottom section features four product cards: RStudio Desktop (Open Source License, FREE), RStudio Desktop (Commercial License, \$995 per year), RStudio Server (Open Source License, FREE), and RStudio Server Pro (Commercial License, \$4,975 per year for 5 named users). Each card has a "BUY" or "DOWNLOAD" button and a "Learn More" link. A footer bar indicates "Integrated Tools for R" with four green dots.


No seguro <https://www.rstudio.com/products/rstudio/download/>

R Studio

Products Resources Pricing About Us Blogs

## Choose Your Version of RStudio

RStudio is a set of integrated tools designed to help you be more productive with R. 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. [Learn More](#) about RStudio features.

 R Studio Team

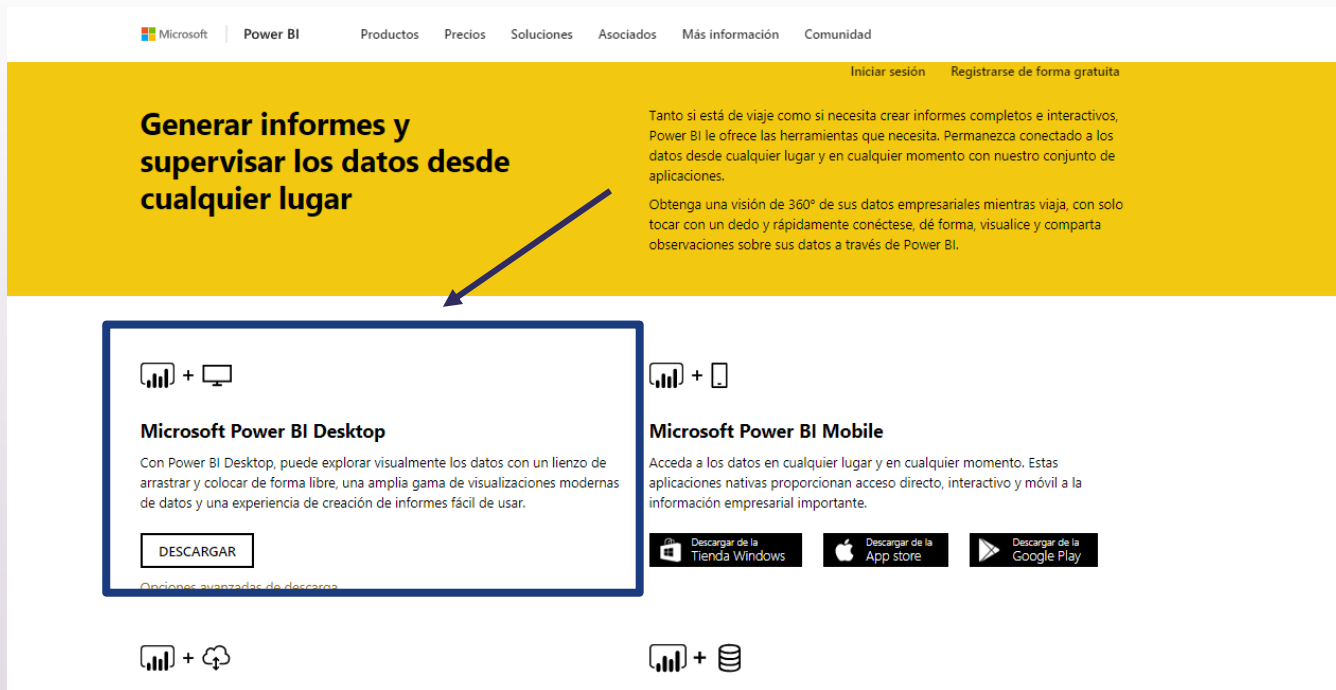
RStudio's new solution for every professional data science team. RStudio Team includes RStudio Server Pro, RStudio Connect and RStudio Package Manager. [LEARN MORE](#)

RStudio Desktop Open Source License	RStudio Desktop Commercial License	RStudio Server Open Source License	RStudio Server Pro Commercial License
FREE	\$995 per year	FREE	\$4,975 per year (5 Named Users)
<a href="#">DOWNLOAD</a>	<a href="#">BUY</a>	<a href="#">DOWNLOAD</a>	<a href="#">BUY</a>
<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Learn More</a>	<a href="#">Evaluation   Learn More</a>

Integrated Tools for R

# Instalación de Power BI:

<https://powerbi.microsoft.com/es-es/downloads/>




Microsoft | Power BI | Productos | Precios | Soluciones | Asociados | Más información | Comunidad

Iniciar sesión | Registrarse de forma gratuita

## Generar informes y supervisar los datos desde cualquier lugar

Tanto si está de viaje como si necesita crear informes completos e interactivos, Power BI le ofrece las herramientas que necesita. Permanezca conectado a los datos desde cualquier lugar y en cualquier momento con nuestro conjunto de aplicaciones.

Obtenga una visión de 360° de sus datos empresariales mientras viaja, con solo tocar con un dedo y rápidamente conéctese, dé forma, visualice y comparta observaciones sobre sus datos a través de Power BI.




### Microsoft Power BI Desktop

Con Power BI Desktop, puede explorar visualmente los datos con un lienzo de arrastrar y colocar de forma libre, una amplia gama de visualizaciones modernas de datos y una experiencia de creación de informes fácil de usar.

DESCARGAR



Opciones avanzadas de descarga



### Microsoft Power BI Mobile

Acceda a los datos en cualquier lugar y en cualquier momento. Estas aplicaciones nativas proporcionan acceso directo, interactivo y móvil a la información empresarial importante.

Descargar de la Tienda Windows | Descargar de la App store | Descargar de la Google Play



Descargar API:

<http://datos.energiaabierta.cl/dataviews/235786/precio-petroleo-wti/>



Una iniciativa de la  
Comisión Nacional de Energía

[Inicio](#)
[Estadísticas](#)
[Centro de información](#)
[Blockchain](#)
[API](#)
[Cómo sumarse](#)
[Qué es Energía Abierta](#)
[Otros Sitios](#)

*i* Información

*↺* Recargar

*⌵* Filtrar

*⌵* Ordenar

*↗* Pivotear

*<>* Insertar

*⚙* API

*📄* Exportar

HIDROCARBUROS

Precio Petróleo WTI

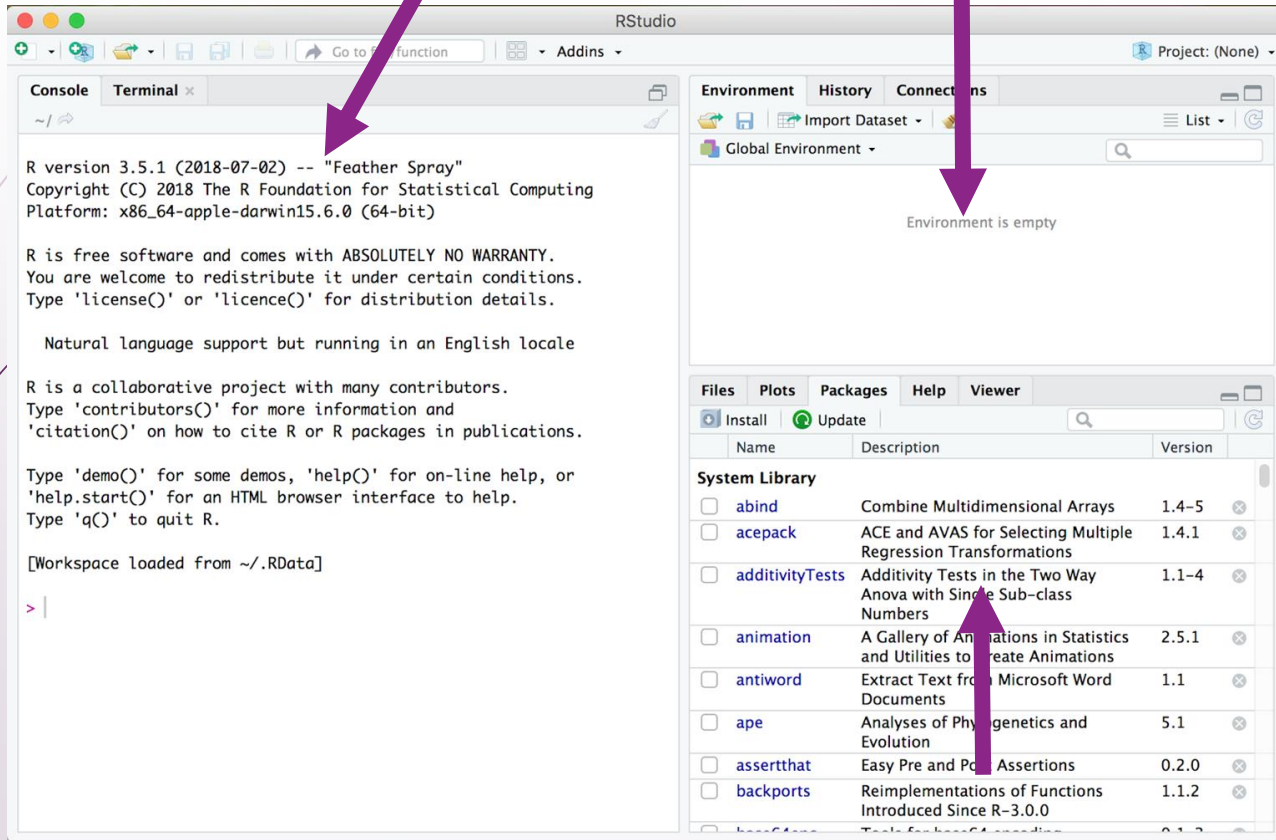
Serie histórica, en USD/bbl., del precio del petróleo WTI.

fecha	índice	valor	unidades
01/01/2002	PRECIO_CRUDO_WTI	19,68	USD/bbl.
01/02/2002	PRECIO_CRUDO_WTI	20,66	USD/bbl.
01/03/2002	PRECIO_CRUDO_WTI	24,35	USD/bbl.
01/04/2002	PRECIO_CRUDO_WTI	26,26	USD/bbl.
01/05/2002	PRECIO_CRUDO_WTI	27,06	USD/bbl.
01/06/2002	PRECIO_CRUDO_WTI	25,50	USD/bbl.
01/07/2002	PRECIO_CRUDO_WTI	26,92	USD/bbl.
01/08/2002	PRECIO_CRUDO_WTI	28,34	USD/bbl.
01/09/2002	PRECIO_CRUDO_WTI	29,71	USD/bbl.
01/10/2002	PRECIO_CRUDO_WTI	28,87	USD/bbl.
01/11/2002	PRECIO_CRUDO_WTI	26,29	USD/bbl.
01/12/2002	PRECIO_CRUDO_WTI	29,45	USD/bbl.







The screenshot shows the RStudio interface with two purple arrows pointing to specific areas. One arrow points to the Console window, and the other points to the Environment window.

**Console Window:**

```
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 Window:**

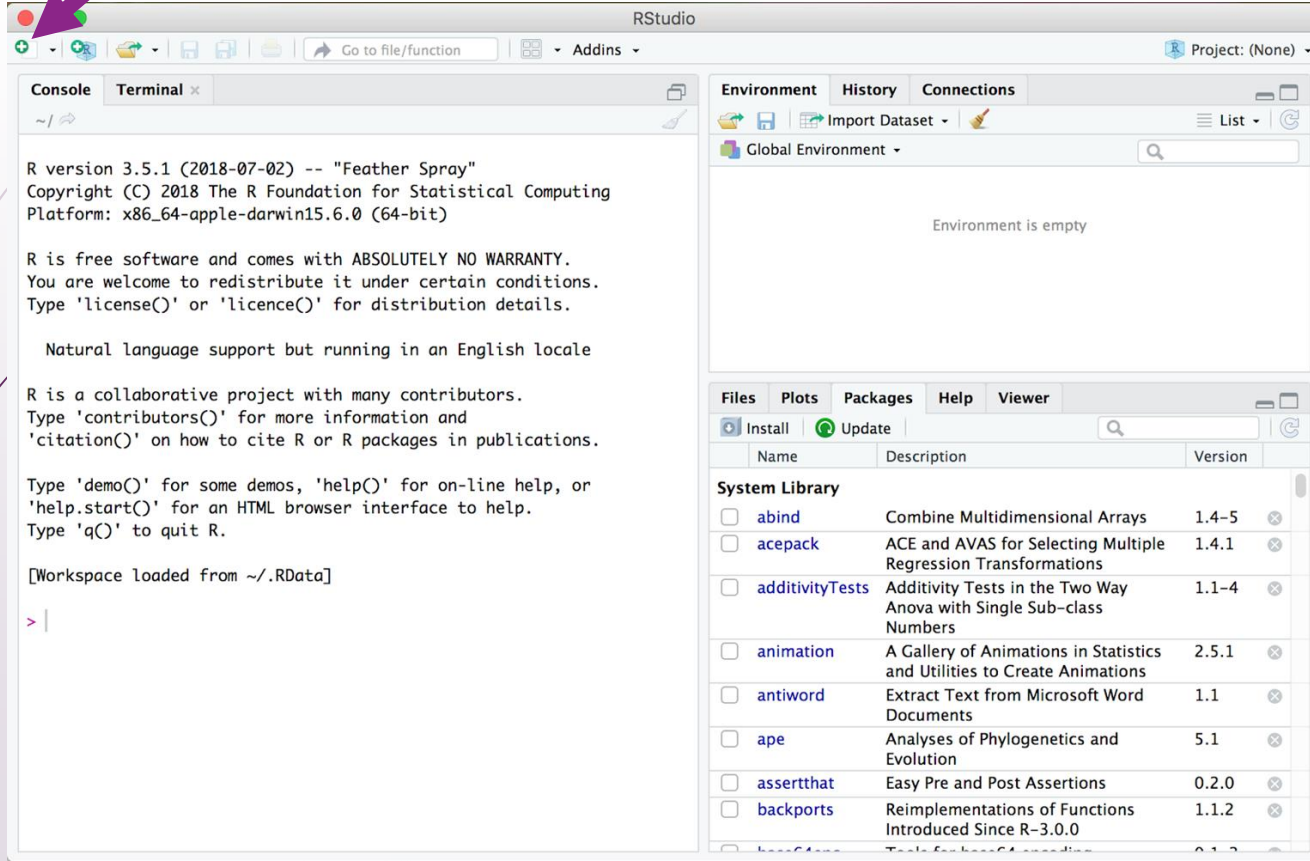
Environment is empty

**Packages Window:**

Name	Description	Version
<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 + Power BI”.
2. Descarga ahí el documento que te enviamos.
3. Abre R Studio.



A screenshot of the RStudio application window. A large purple arrow points to the top-left corner of the window, specifically to the standard macOS window control buttons (red, yellow, and green). The RStudio interface is divided into several panes. The top pane shows the 'RStudio' title bar and a toolbar with icons for file operations and a search bar. Below the toolbar, there are tabs for 'Console', 'Terminal', and 'Addins'. The 'Console' tab is active, displaying the R version 3.5.1 (2018-07-02) and copyright information. The right pane contains tabs for 'Environment', 'History', and 'Connections'. The 'Environment' tab is active, showing an empty global environment. The bottom pane contains tabs for 'Files', 'Plots', 'Packages', 'Help', and 'Viewer'. The 'Packages' tab is active, displaying a list of installed and available packages. A purple arrow points to the top-left corner of the RStudio window, specifically to the window control buttons (red, yellow, and green).

RStudio

Go to file/function

Addins

Project: (None)

Environment History Connections

Import Dataset

Global Environment

Environment is empty

Files Plots Packages Help Viewer

Install Update

Name	Description	Version
<input type="checkbox"/> abind	Combine Multidimensional Arrays	1.4-5
<input type="checkbox"/> acepack	ACE and AVAS for Selecting Multiple Regression Transformations	1.4.1
<input type="checkbox"/> additivityTests	Additivity Tests in the Two Way Anova with Single Sub-class Numbers	1.1-4
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Console

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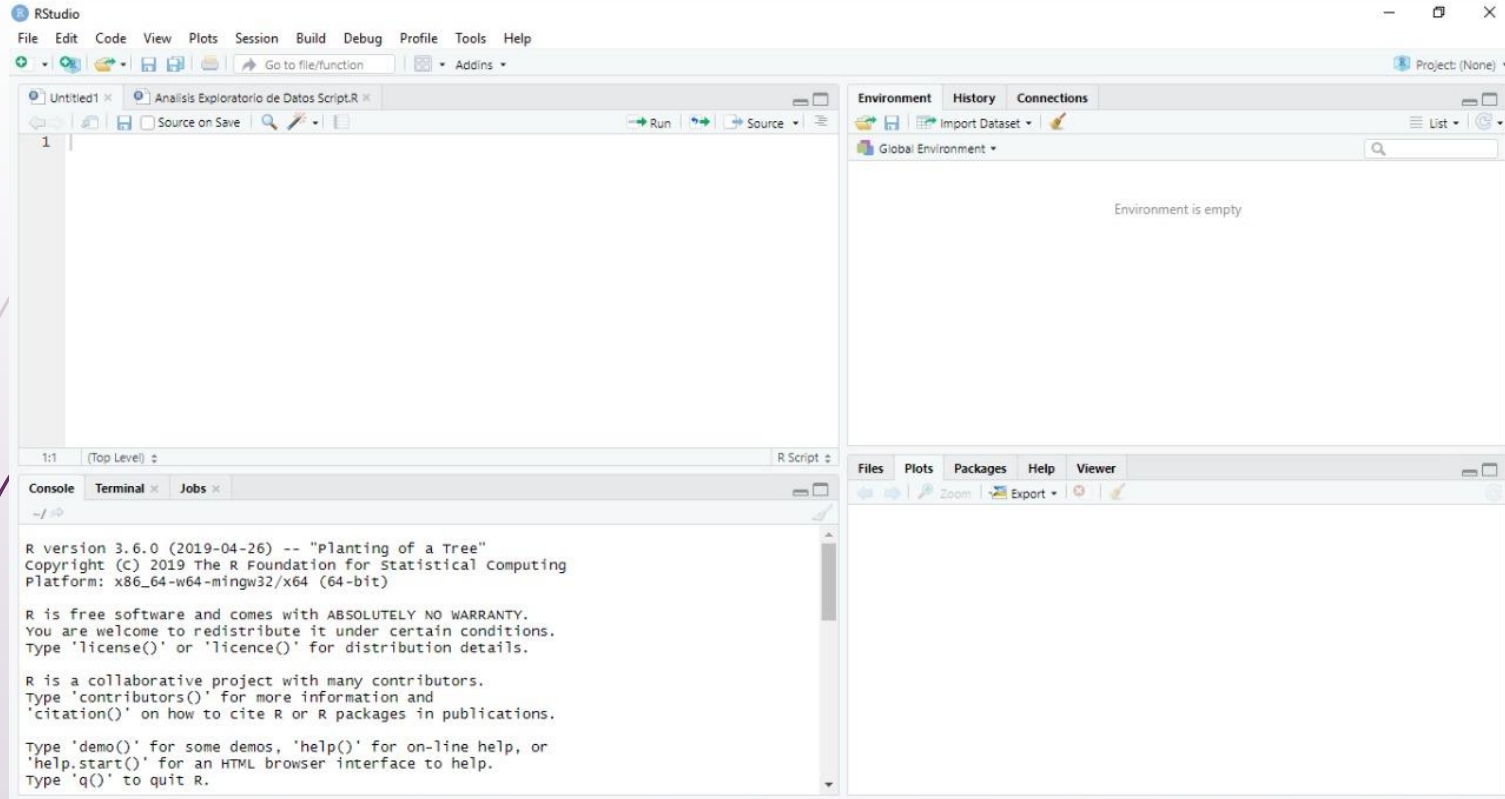
Type 'demo()' for some demos, 'help()' for on-line help, or

'help.start()' for an HTML browser interface to help.

Type 'q()' to quit R.

[Workspace loaded from ~/.RData]

>

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 saving, running, and other functions. The main editor window shows a script titled 'Untitled1' with a single line of code: '1'. The right-hand pane is divided into three tabs: Environment, History, and Connections. The Environment tab is active, showing 'Global Environment' and the message 'Environment is empty'. The bottom pane is divided into three tabs: Console, Terminal, and Jobs. The Console tab is active, displaying the R version 3.6.0 (2019-04-26) -- "Planting of a Tree" copyright notice and welcome message. The console text includes: '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.', and '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())
```



# Cross Meetup *R-Ladies* *Concepción* + Power BI