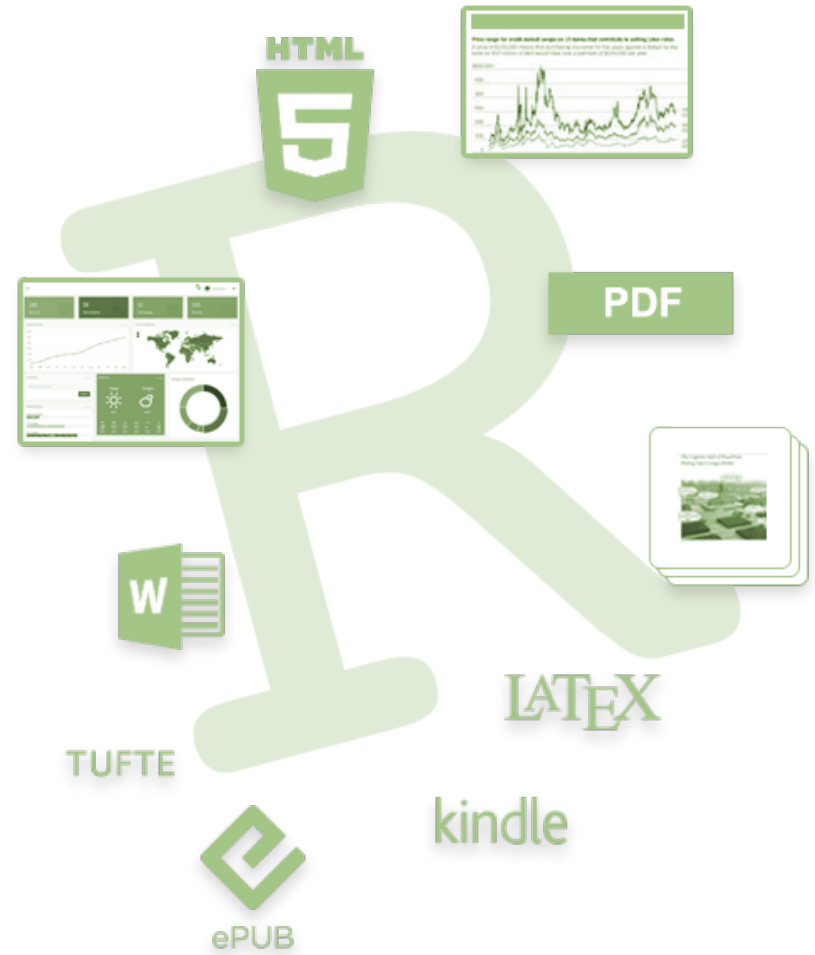
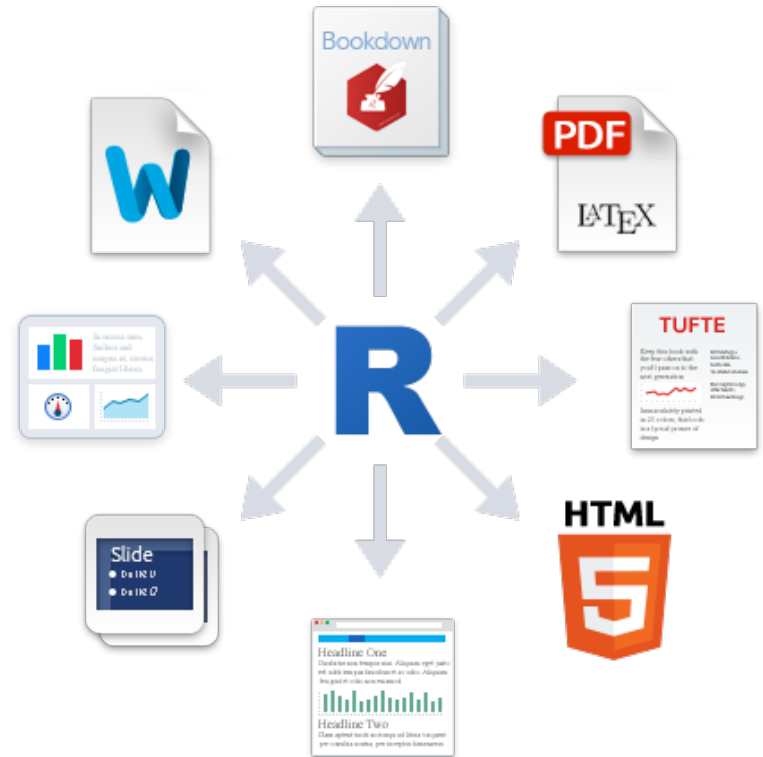


- Hacer informes con R Markdown



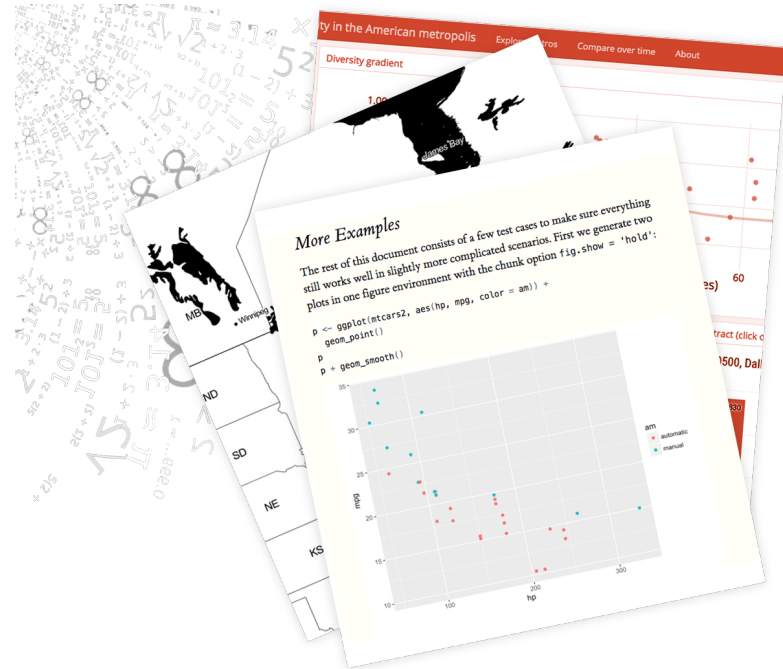
# Qué es R Markdown?

- R Markdown es una forma de hacer documentos con R.
- Puede crear documentos que tengan **código R Y texto** (imágenes, enlaces, etc.).
- Puede generar documentos de Markdown como tipos de archivos convenientes como .html .pdf o presentaciones!



# ¿Por qué R Markdown es ideal para los informes?

- **Forma típica de hacer el informe:**  
Gráficar, guardar el archivo, copiar, pegar...etc
- **In R Markdown:**
  - Cada informe contiene el código necesario para crear sus propios gráficos, tablas, números, etc. Independiente!



# Razones por las que podrías usar Rmarkdown



- Hacer una presentación para una reunión de laboratorio, reunión del comité o reunión con su asesor
- Mantener un registro personal de lo que hizo
- Enviar sus análisis a un coautor

# Instalación de R Markdown

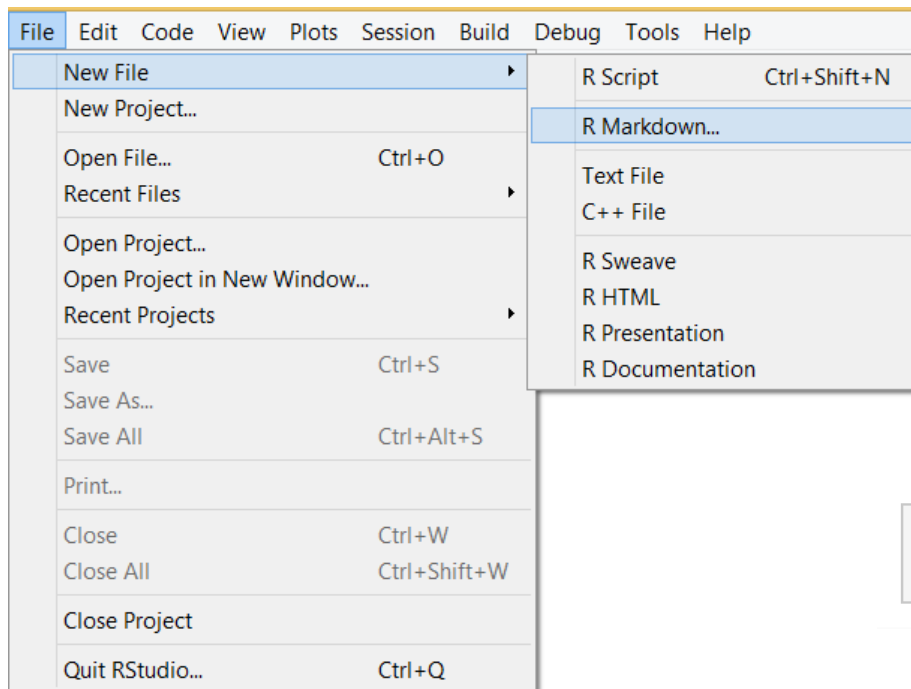
- R markdown debería haber sido instalado con R Studio...
- Pero también podría instalarlo:

```
install.packages("rmarkdown")
```

# Cómo funciona:

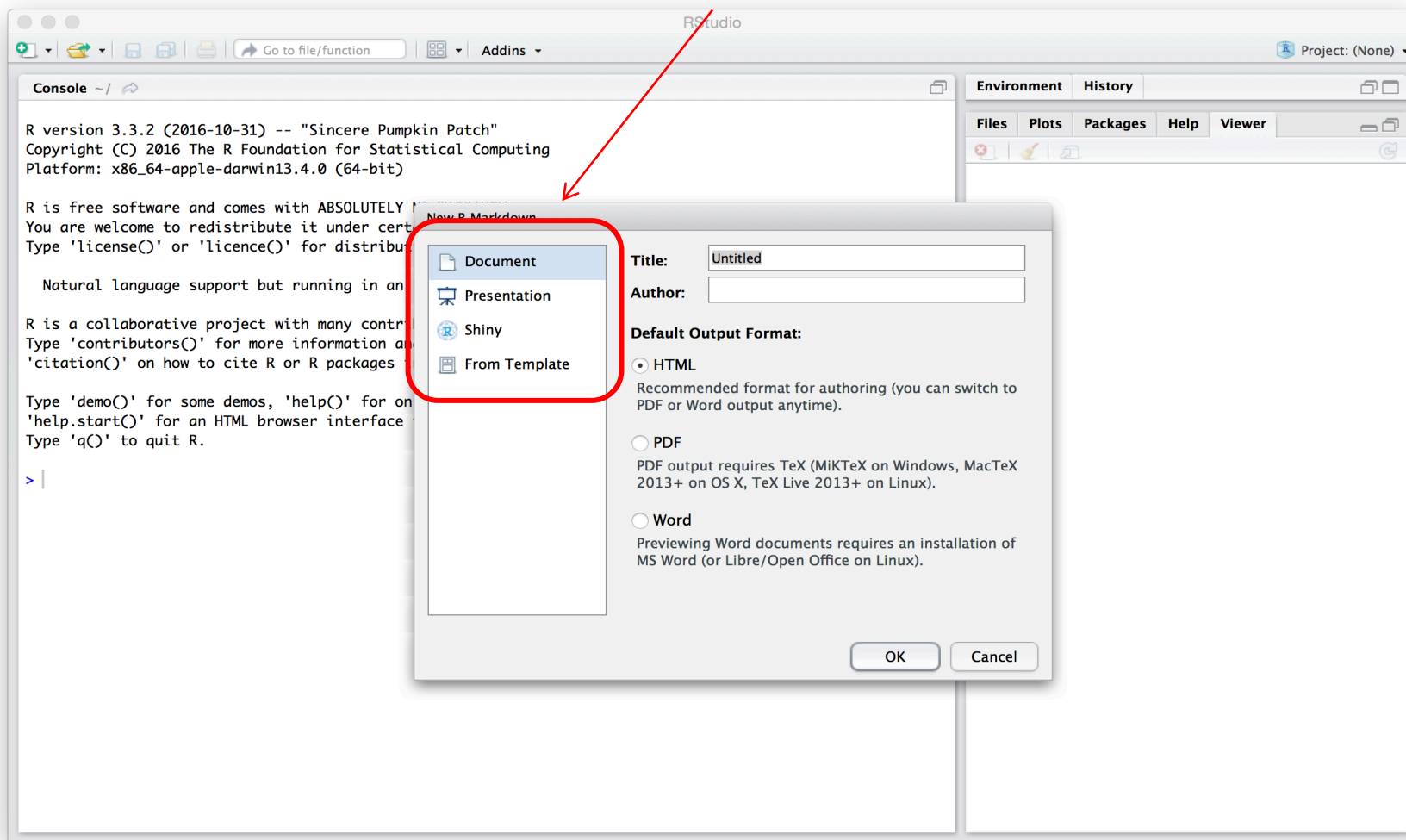
- Primero inicia un archivo R Markdown
  - extensión . Rmd
- Vamos a abrir un nuevo archivo R Markdown!

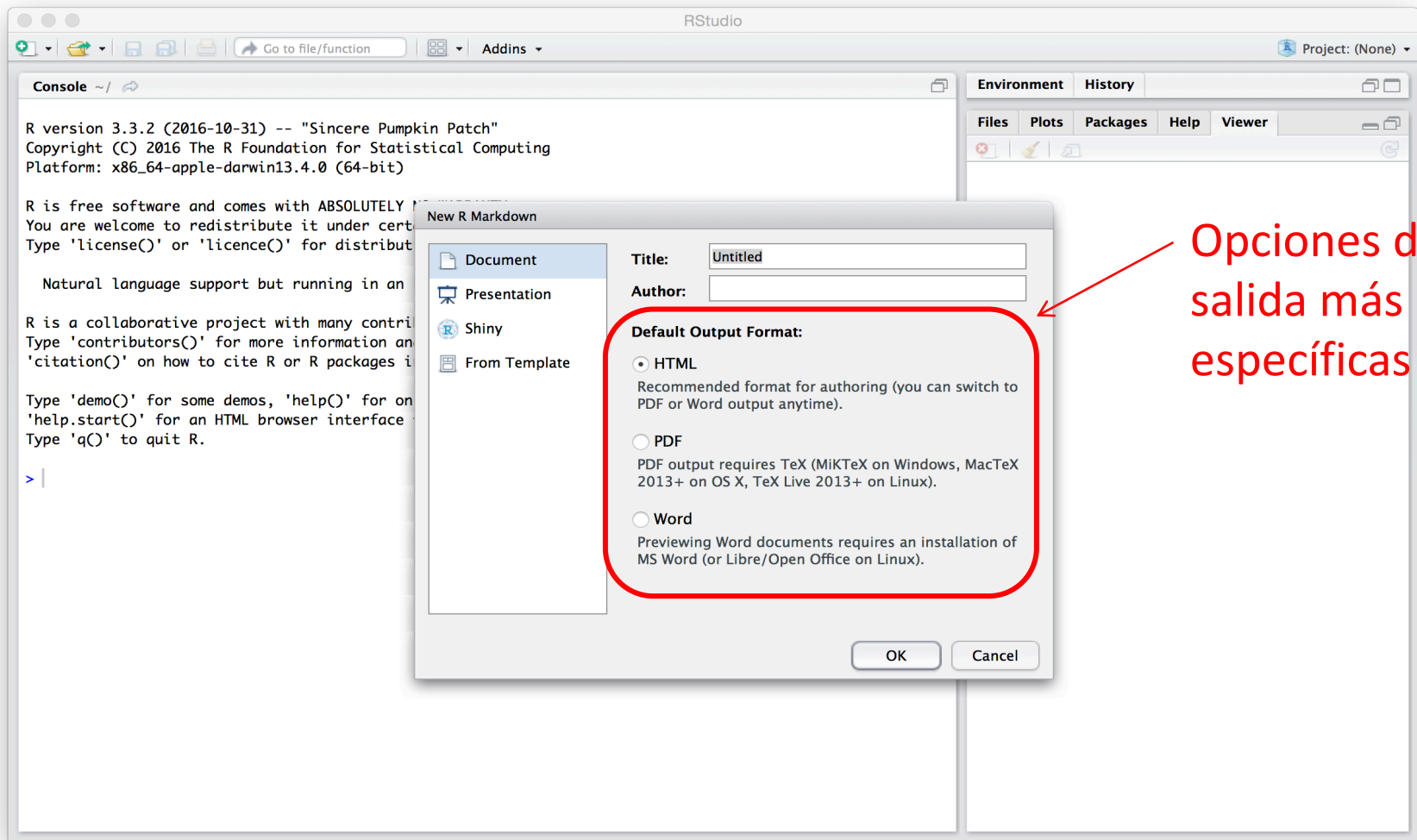
**R Studio: File > New File > R Markdown**



```
install.packages("rmarkdown")
```

## ¿Qué tipo de archivo?

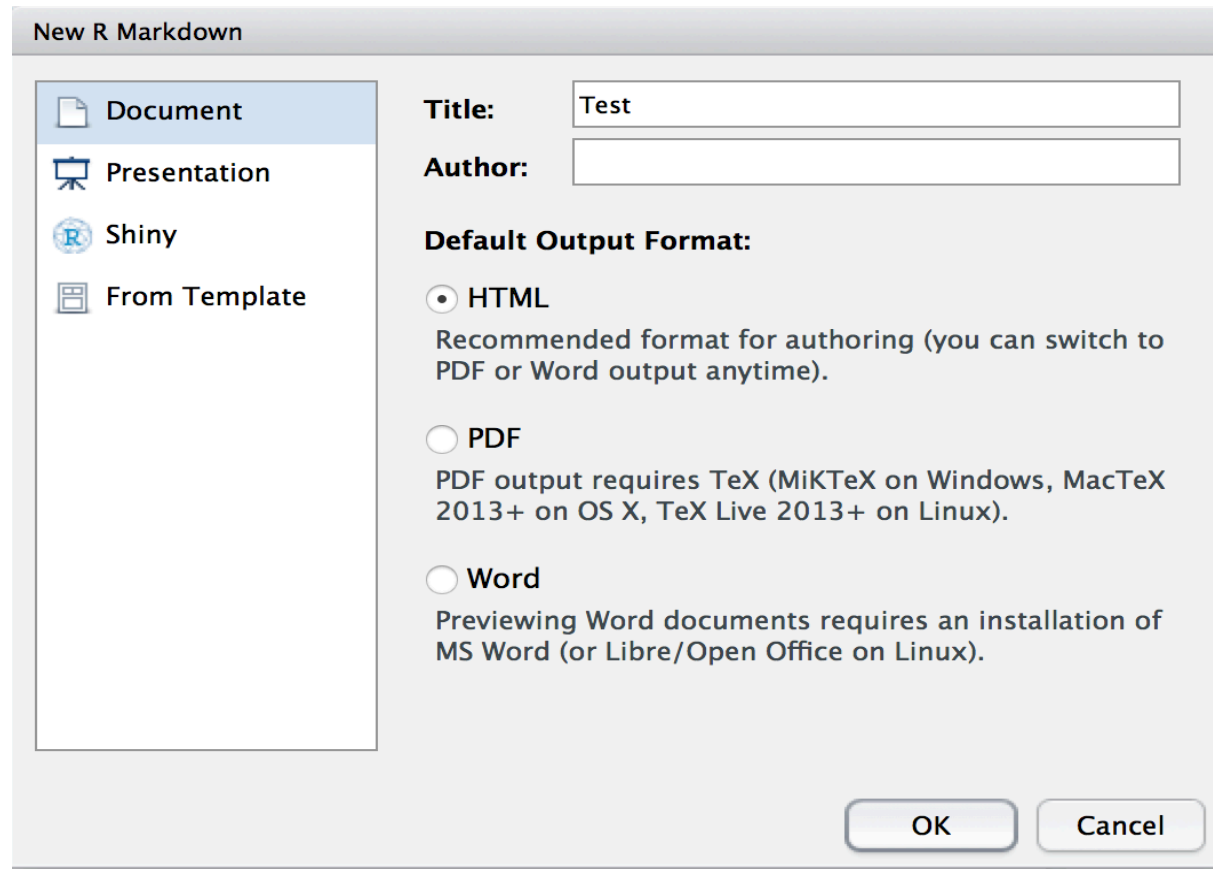




Opciones de salida más específicas





# Practiquemos con un documento en formato HTML





Los otros formatos también son buenos.. Pero pueden requerir la descarga de algunos otros paquetes

New R Markdown

 Document

 Presentation

 Shiny

 From Template

**Title:**

**Author:**

**Default Output Format:**

HTML

Recommended format for authoring (you can switch to PDF or Word output anytime).

PDF

PDF output requires TeX (MiKTeX on Windows, MacTeX 2013+ on OS X, TeX Live 2013+ on Linux).

Word

Previewing Word documents requires an installation of MS Word (or Libre/Open Office on Linux).

 **OK!**

OK

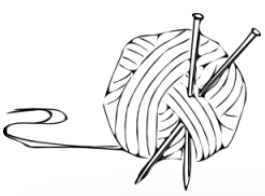
Cancel

# Nuevo script de R Markdown (.rmd) ... Contiene código de ejemplo..

The screenshot displays the RStudio interface with a new R Markdown script open. The script content is as follows:

```
1 ---  
2 title: "Untitled"  
3 author: "Paulo"  
4 date: "1/8/2021"  
5 output: html_document  
6 ---  
7  
8 ```{r setup, include=FALSE}  
9 knitr::opts_chunk$set(echo = TRUE)  
10 |  
11 ```  
12  
13 ## R Markdown  
14  
15 This is an R Markdown document. Markdown is a simple formatting  
16 syntax for authoring HTML, PDF, and MS Word documents. For more  
17 details on using R Markdown see <http://rmarkdown.rstudio.com>.  
18  
19 When you click the Knit button a document will be generated  
20 that includes both content as well as the output of any embedded
```

The interface includes a top toolbar with 'Go to file/function' and 'Addins' menus, a 'Knit' button, and a 'Run' button. The right-hand side shows the 'Console', 'Terminal', and 'R Markdown' tabs, with the 'R Markdown' tab active, displaying the file path: `~/Desktop/Work - Quarantine - 2020/YBC/YBC-phenotype-2020/`. The bottom panel shows the 'Environment' tab with 'Global Environment' selected and the message 'Environment is empty'.



'Knit' su R Markdown en el formato de salida (HTML)

```
1 ---
2 title: "Test"
3 output: html_document
4 ---
5
6 ```{r setup, include=FALSE}
7 knitr::opts_chunk$set(echo = TRUE)
8 ```
9
10 ## R Markdown
11
12 This is an R Markdown document. Markdown is a simple formatting syntax for
13 authoring HTML, PDF, and MS Word documents. For more details on using R
14 Markdown see <http://rmarkdown.rstudio.com>.
15
```

Guárdelo en una ubicación fácil de encontrar en su computadora

# My first Rmarkdown

Paulo

1/8/2021

## R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed      dist
## Min.   : 4.0    Min.   : 2.00
## 1st Qu.:12.0    1st Qu.: 26.00
## Median :15.0    Median : 36.00
## Mean   :15.4    Mean   : 42.98
## 3rd Qu.:19.0    3rd Qu.: 56.00
## Max.   :25.0    Max.   :120.00
```

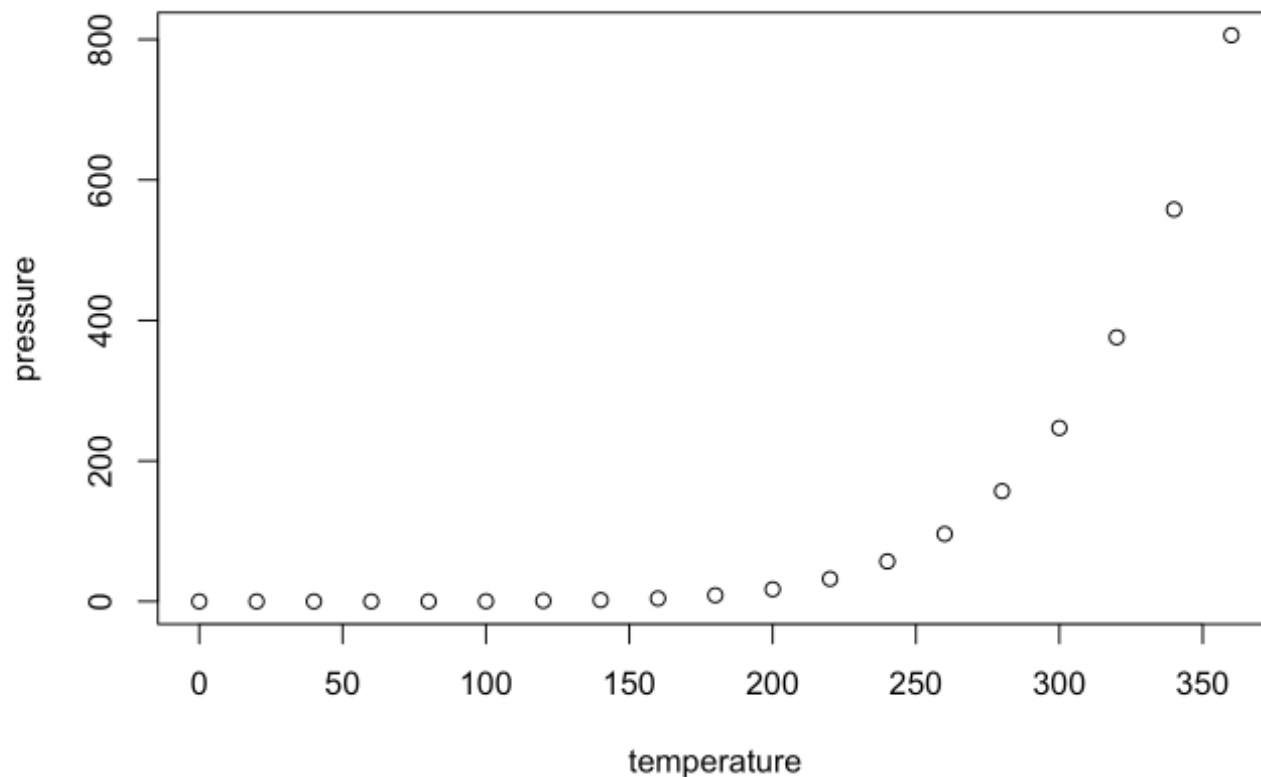
## Including Plots

You can also embed plots, for example:

```
## Max. :25.0 Max. :120.00
```

## Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.

# Preview options

Preview en "Viewer" panel

The screenshot shows the RStudio interface with the Knit menu open. The menu options are:

- Preview in Window
- Preview in Viewer Pane
- (No Preview)
- Preview Images and Equations
- Show Previews Inline
- Chunk Output Inline
- Chunk Output in Console
- Expand All Output
- Collapse All Output
- Clear Output
- Clear All Output
- Output Options...

The "Preview in Viewer Pane" option is selected, and a red arrow points from the text "Preview en 'Viewer' panel" to it. Another red arrow points from the text "Preview options" to the Knit menu icon. The background shows the R Markdown editor with the following code:

```
1 ---
2 title: "Test"
3 output: html_document
4 ---
5
6 ```{r setup, include=FALSE}
7 knitr::opts_chunk$set(echo =
8
9
10 ## R Markdown
11
12 This is an R Markdown document
13 authoring HTML, PDF, and MS Word
14 documents. To learn more about R
15 Markdown see <http://rmarkdown.rstudio.com>
16
17 >>>
```

The console output shows the R startup message and the R Markdown document content:

```
Copyright (C) 2016 The R Foundation
Platform: x86_64-apple-darwin13.4.0 (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.

> |
```

Ooooo!

The image shows the RStudio interface with an R Markdown document open. The editor on the left contains the following code:

```
1 ---
2 title: "Test"
3 output: html_document
4 ---
5
6 ```{r setup, include=FALSE}
7 knitr::opts_chunk$set(echo = TRUE)
8 ```
9
10 ## R Markdown
11
12 This is an R Markdown document. Markdown is a simple formatting syntax for
13 authoring HTML, PDF, and MS Word documents. For more details on using R
14 Markdown see <http://rmarkdown.rstudio.com>.
```

The console at the bottom displays the R startup message:

```
Platform: x86_64-apple-darwin13.4.0 (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.
> |
```

The viewer on the right shows the rendered output:

# Test

## R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

| ## | speed         | dist           |
|----|---------------|----------------|
| ## | Min. : 4.0    | Min. : 2.00    |
| ## | 1st Qu.: 12.0 | 1st Qu.: 26.00 |
| ## | Median : 15.0 | Median : 36.00 |
| ## | Mean : 15.4   | Mean : 42.98   |
| ## | 3rd Qu.: 19.0 | 3rd Qu.: 56.00 |
| ## | Max. : 25.0   | Max. : 120.00  |

## Including Plots

You can also embed plots, for example:



# 3 partes principales de un R Markdown script

1

## Un encabezado (YAML)

- Rodeado `---`
- Meta-datos en tu script

```
---  
title: "My first Rmarkdown"  
author: "Paulo Izquierdo"  
date: "1/8/2021"  
output: html_document  
---
```

2

## Normal Text

- Cosas como títulos, instrucciones, etc..
- Puede tener formato

```
This is an R Markdown document.
```

3

## Fragmentos de código

- Comience con ```{r}`
- Código en el medio
- terminar con `````

```
```${r}  
summary(cars)  
```
```

# Algunos conceptos básicos de R Markdown: Formato

*Puede utilizar R Markdown para hacer:*

- Encabezados
- Listas
- Enlaces
- Imágenes
- Ecuaciones
- Tablas
- Notas
- Referencias
- Diapositivas
- Texto en cursiva
- Texto en negrita
- Superíndices
- Subíndices
- Texto tachado

# R Markdown Cheat Sheet

learn more at [rmarkdown.rstudio.com](http://rmarkdown.rstudio.com)

rmarkdown 0.2.50 Updated: 8/14



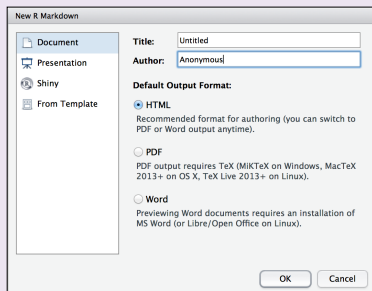
**1. Workflow** R Markdown is a format for writing reproducible, dynamic reports with R. Use it to embed R code and results into slideshows, pdfs, html documents, Word files and more. To make a report:

- i. Open** - Open a file that uses the .Rmd extension.
- ii. Write** - Write content with the easy to use R Markdown syntax
- iii. Embed** - Embed R code that creates output to include in the report
- iv. Render** - Replace R code with its output and transform the report into a slideshow, pdf, html or ms Word file.



**2. Open File** Start by saving a text file with the extension .Rmd, or open an RStudio Rmd template

- In the menu bar, click **File ► New File ► R Markdown...**
- A window will open. Select the class of output you would like to make with your .Rmd file
- Select the specific type of output to make with the radio buttons (you can change this later)
- Click OK



**3. Markdown** Next, write your report in plain text. Use markdown syntax to describe how to format text in the final report.

### syntax

Plain text  
 End a line with two spaces to start a new paragraph.  
 \*italics\* and *italics*  
 \*\*bold\*\* and **bold**  
 superscript<sup>2</sup>  
 ~strikethrough~  
 [Link](www.rstudio.com)

# Header 1  
 ## Header 2  
 ### Header 3  
 #### Header 4  
 ##### Header 5  
 ##### Header 6

endash: --  
 emdash: ---  
 ellipsis: ...  
 inline equation:  $A = \pi r^2$   
 image: 

horizontal rule (or slide break):

\*\*\*  
 > block quote

\* unordered list  
 \* item 2  
 + sub-item 1  
 + sub-item 2

1. ordered list  
 2. item 2  
 + sub-item 1  
 + sub-item 2

| Table Header | Second Header |
|--------------|---------------|
| Table Cell   | Cell 2        |
| Cell 3       | Cell 4        |

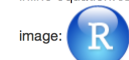
### becomes

Plain text  
 End a line with two spaces to start a new paragraph.  
*italics* and *italics*  
**bold** and **bold**  
 superscript<sup>2</sup>  
~~strikethrough~~  
[link](#)

Header 1  
 Header 2  
 Header 3

Header 4  
 Header 5  
 Header 6

endash: --  
 emdash: ---  
 ellipsis: ...  
 inline equation:  $A = \pi r^2$



horizontal rule (or slide break):

block quote

- unordered list
- item 2
  - sub-item 1
  - sub-item 2

1. ordered list  
 2. item 2
 

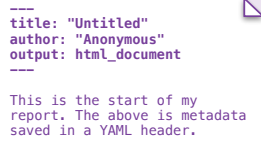
- sub-item 1
- sub-item 2

| Table Header | Second Header |
|--------------|---------------|
| Table Cell   | Cell 2        |
| Cell 3       | Cell 4        |

**4. Choose Output** Write a YAML header that explains what type of document to build from your R Markdown file.

### YAML

A YAML header is a set of key: value pairs at the start of your file. Begin and end the header with a line of three dashes (---)



The RStudio template writes the YAML header for you

The output value determines which type of file R will build from your .Rmd file (in Step 6)

- output: html\_document** ..... html file (web page)
- output: pdf\_document** ..... pdf document
- output: word\_document** ..... Microsoft Word .docx
- output: beamer\_presentation** ..... beamer slideshow (pdf)
- output: ioslides\_presentation** ..... ioslides slideshow (html)



# markdown syntax describe el formato de texto en el reporte final

## syntax

Plain text  
End a line with two spaces to start a new paragraph.  
*\*italics\** and `_italics_`  
**\*\*bold\*\*** and `__bold__`  
superscript<sup>^2^</sup>  
~~~strikethrough~~~  
[\[link\]\(www.rstudio.com\)](#)

# Header 1

## Header 2

### Header 3

#### Header 4

##### Header 5

##### Header 6

## becomes

Plain text  
End a line with two spaces to start a new paragraph.  
*italics* and *italics*  
**bold** and **bold**  
superscript<sup>2</sup>  
~~strikethrough~~  
[link](#)

# Header 1

## Header 2

### Header 3

#### Header 4

##### Header 5

###### Header 6

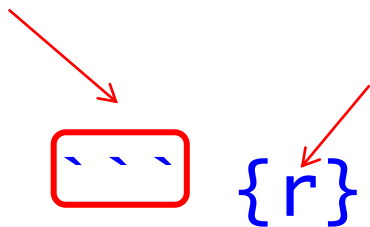
Esto está en tu  
R Markdown  
Cheat Sheet!

# R Markdown : fragmentos de código

## R

Indica a Rmarkdown que el código se está iniciando

{r} le dice a R Markdown que este código es de R



```
\\\\ {r}
```

#code that does stuff ← Code



```
\\\\
```

Indica a Rmarkdown que el código está terminando

# Argumentos opcionales

Separate multiple arguments by commas

```
``` {r argumentos opcionales}  
#code that does stuff  
```
```

# Puede dar nombres de fragmentos de código (opcional)

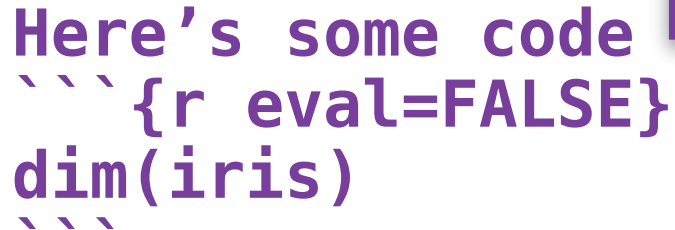
```
```{r chunk_name}  
#code  
```
```

- Es útil para encontrar errores

```
```{r cars}  
summary(cars)  
```
```

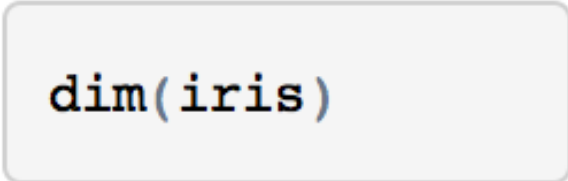
# Argumento de fragmento de código: `eval`

`eval = FALSE` significa no evaluar el código  
(no mostrar salida)



```
Here's some code  
`` `{r eval=FALSE}  
dim(iris)  
```
```

Here's some code



```
dim(iris)
```



# Argumento del fragmento de código: echo

**echo = FALSE** significa no mostrar el código, sólo mostrar el resultado!

```
Here's some code  
```${r echo=FALSE}  
dim(iris)  
```
```

Here's some code

```
## [1] 150 5
```

Good idea if you want to show your output, but code is messy

| option                  | default  | effect                                                    |
|-------------------------|----------|-----------------------------------------------------------|
| <code>eval</code>       | TRUE     | Whether to evaluate the code and include its results      |
| <code>echo</code>       | TRUE     | Whether to display code along with its results            |
| <code>warning</code>    | TRUE     | Whether to display warnings                               |
| <code>error</code>      | FALSE    | Whether to display errors                                 |
| <code>message</code>    | TRUE     | Whether to display messages                               |
| <code>tidy</code>       | FALSE    | Whether to reformat code in a tidy way when displaying it |
| <code>results</code>    | "markup" | "markup", "asis", "hold", or "hide"                       |
| <code>cache</code>      | FALSE    | Whether to cache results for future renders               |
| <code>comment</code>    | "##"     | Comment character to preface results with                 |
| <code>fig.width</code>  | 7        | Width in inches for plots created in chunk                |
| <code>fig.height</code> | 7        | Height in inches for plots created in chunk               |

**Esto está en su  
R Markdown  
Cheat Sheet!**

# Opciones predeterminadas

Para cambiar los valores predeterminados del documento, puede editar esta línea de código en la parte superior:

```
```{r setup, include=FALSE}  
knitr::opts_chunk$set(echo = TRUE)  
```
```

---

Esto le da algunas instrucciones generales a R Markdown sobre qué valores predeterminados desea

# Diferentes formas de usarlo



# Hacer informes

## My First Rmarkdown

Marjorie Weber

9/30/2018

### R Markdown

This is an R Markdown document. Markdown is a simple formatting syntax for authoring HTML, PDF, and MS Word documents. For more details on using R Markdown see <http://rmarkdown.rstudio.com>.

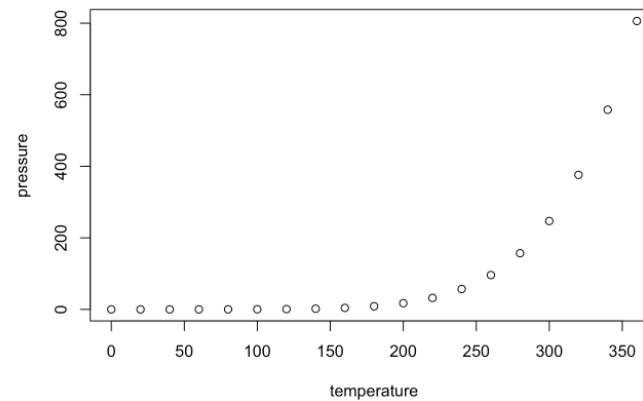
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

```
##      speed      dist
## Min.   : 4.0    Min.   : 2.00
## 1st Qu.:12.0    1st Qu.: 26.00
## Median :15.0    Median : 36.00
## Mean   :15.4    Mean   : 42.98
## 3rd Qu.:19.0    3rd Qu.: 56.00
## Max.   :25.0    Max.   :120.00
```

### Including Plots

You can also embed plots, for example:



Note that the `echo = FALSE` parameter was added to the code chunk to prevent printing of the R code that generated the plot.



# Puedes hacer mucho mas!

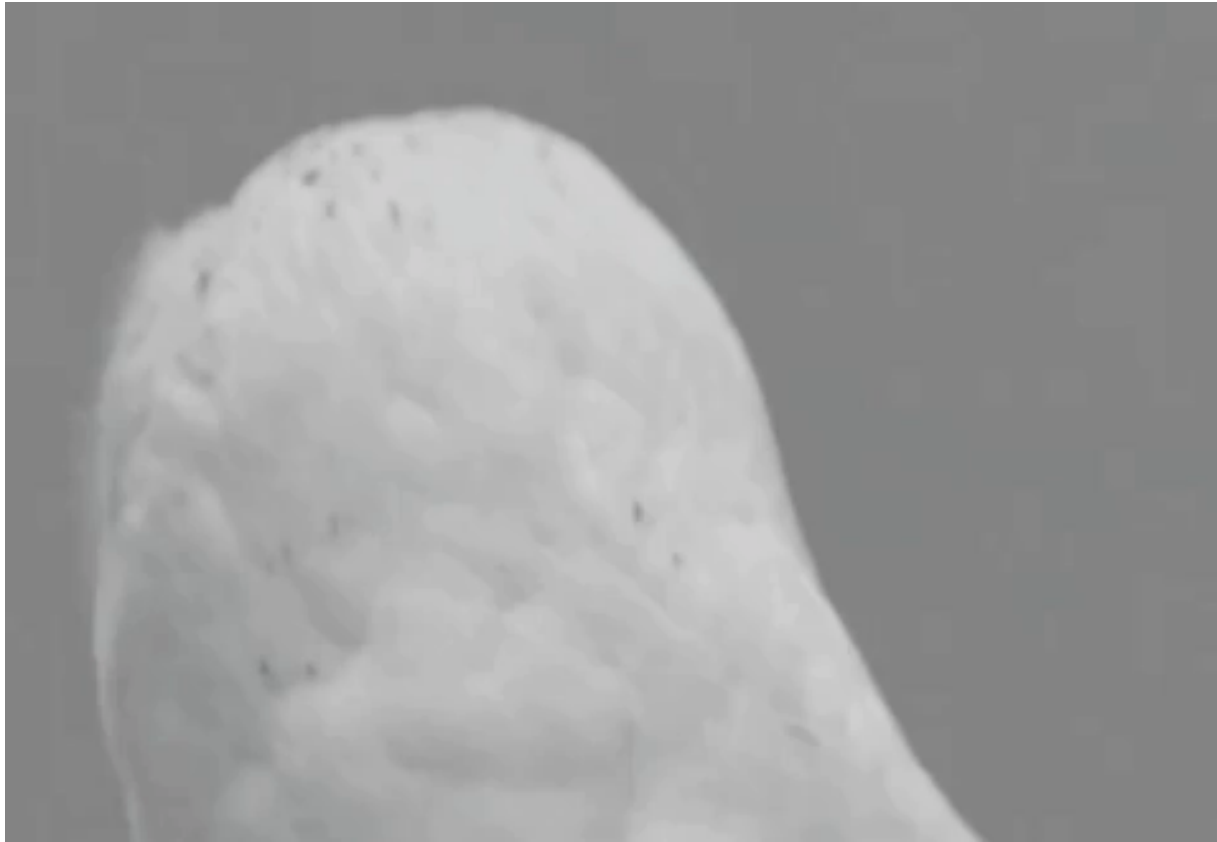
## *R Markdown*

R Markdown from  Studio

### Gallery

Check out the range of outputs and formats you can create using R Markdown.

- <http://rmarkdown.rstudio.com/gallery.html>

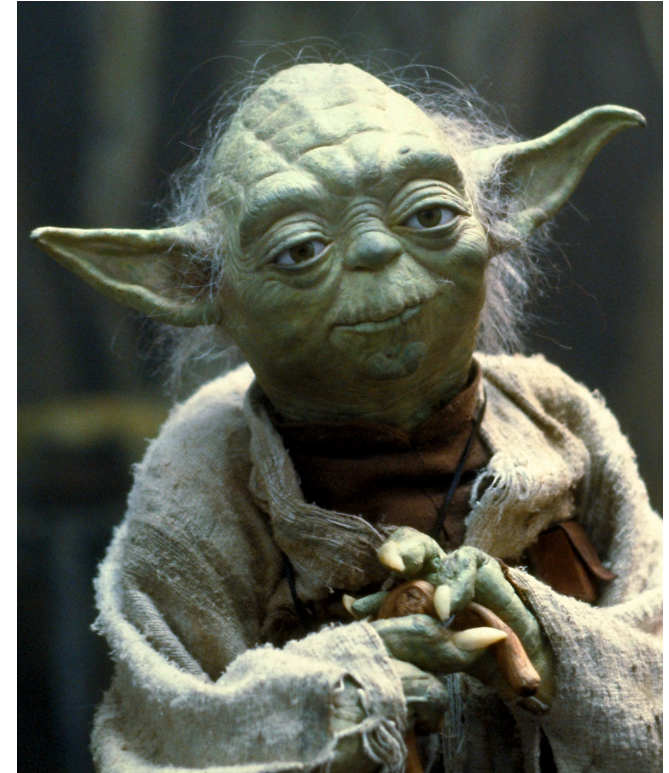


AHH! Es la ultima presentacion de  
introduccion a R!

# Su kit de herramientas de R es vasto... joven Jedi

## Ahora puede:

- Cargar sus datos en R
- Organizarlos usando R o dplyr
- Escribir código que incluya:
  - Sus propias funciones
  - Bucles con for y while
  - Usar if/else
  - Usar apply
  - Escribir reportes en R Markdown





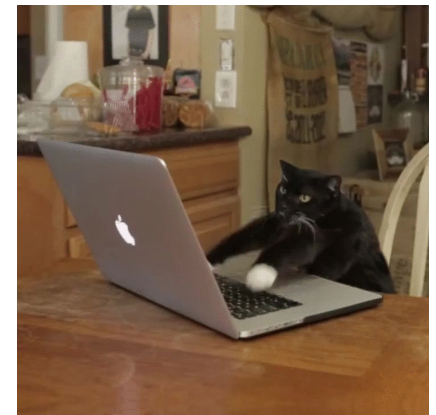
¡Tienes las habilidades!  
¡Sigue practicando!

- ¡No olvides que estas diapositivas están aquí para ayudarte
- También las cheat sheets!
- También sus compañeros!
- También google!

Bienvenido al mundo del big data.



# **AHORA TE GRADUASTE DE Introducción a R!**



# ¡Ha sido genial!



<https://forms.gle/kH4sUKQHJ84WZ9Dw9>

