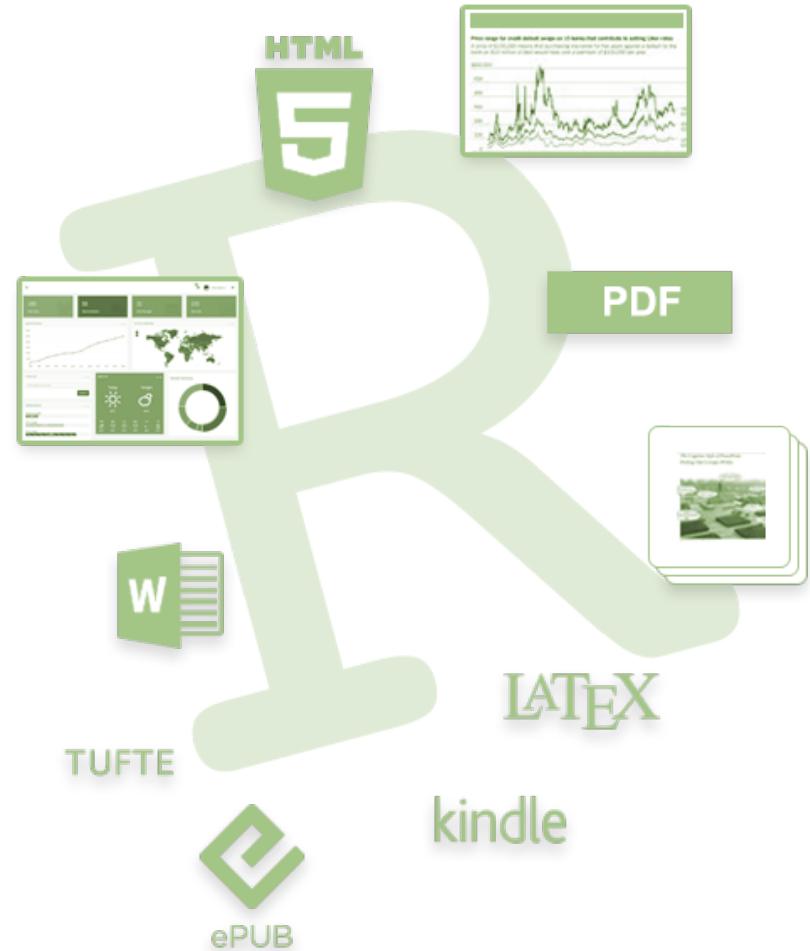
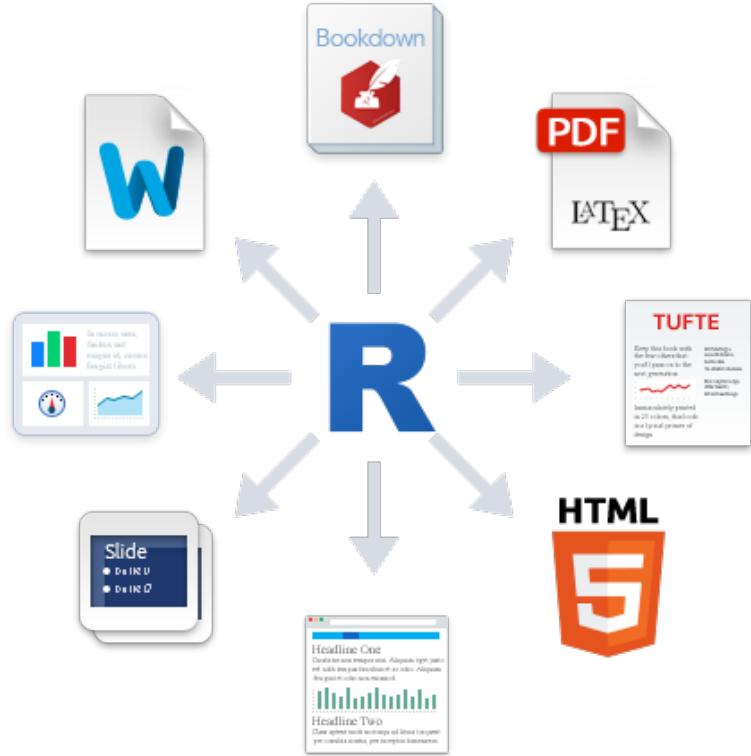


- Hacer informes con R Markdown



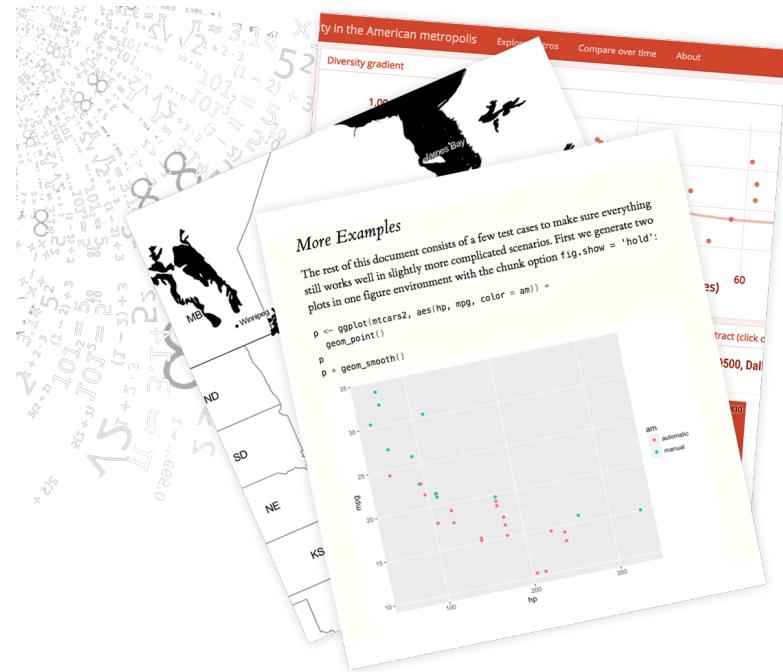
# Qué es R Markdown?

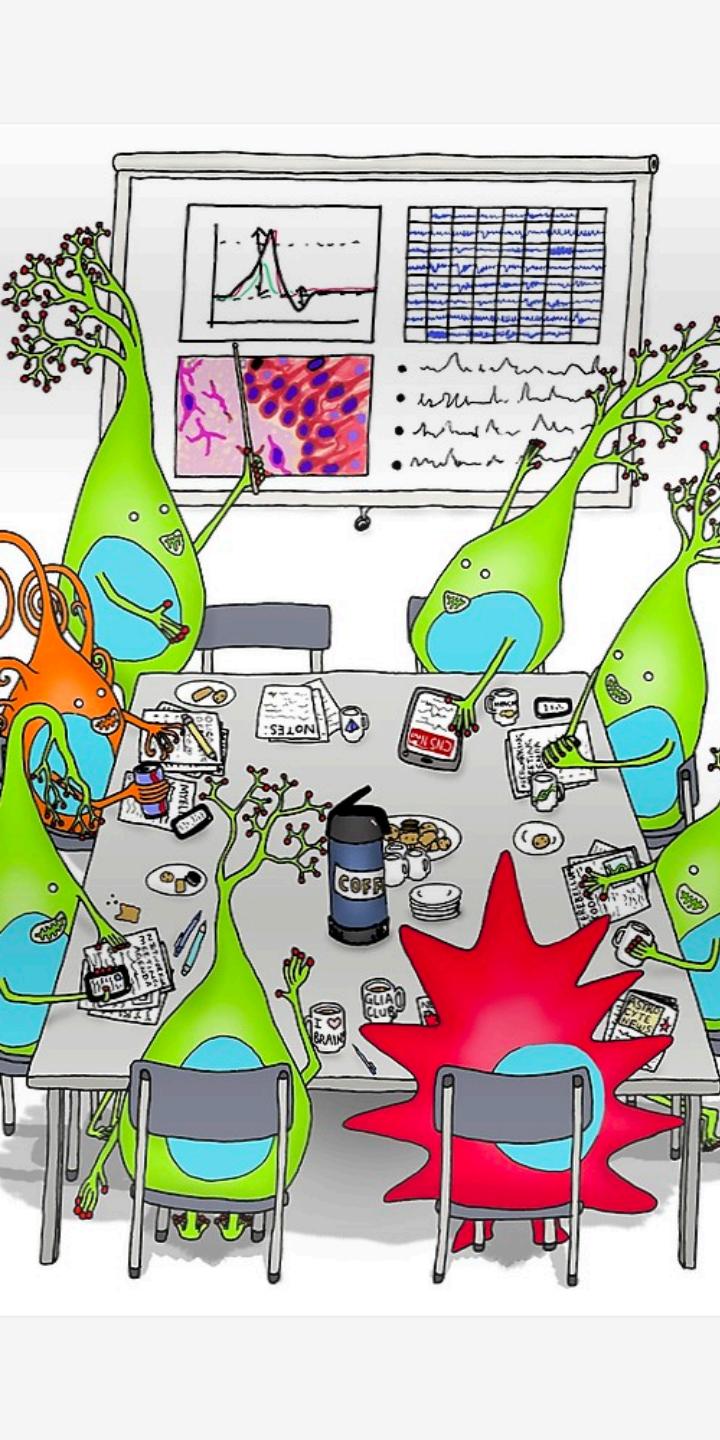
- R Markdown es una forma de hacer documentos con R.
- Puede crear documentos que tengan **código R Y texto** (imágenes, enlaces, etc.).
- Puede generar documentos de Markdown como tipos de archivos convenientes como .html .pdf o presentaciones!



# ¿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

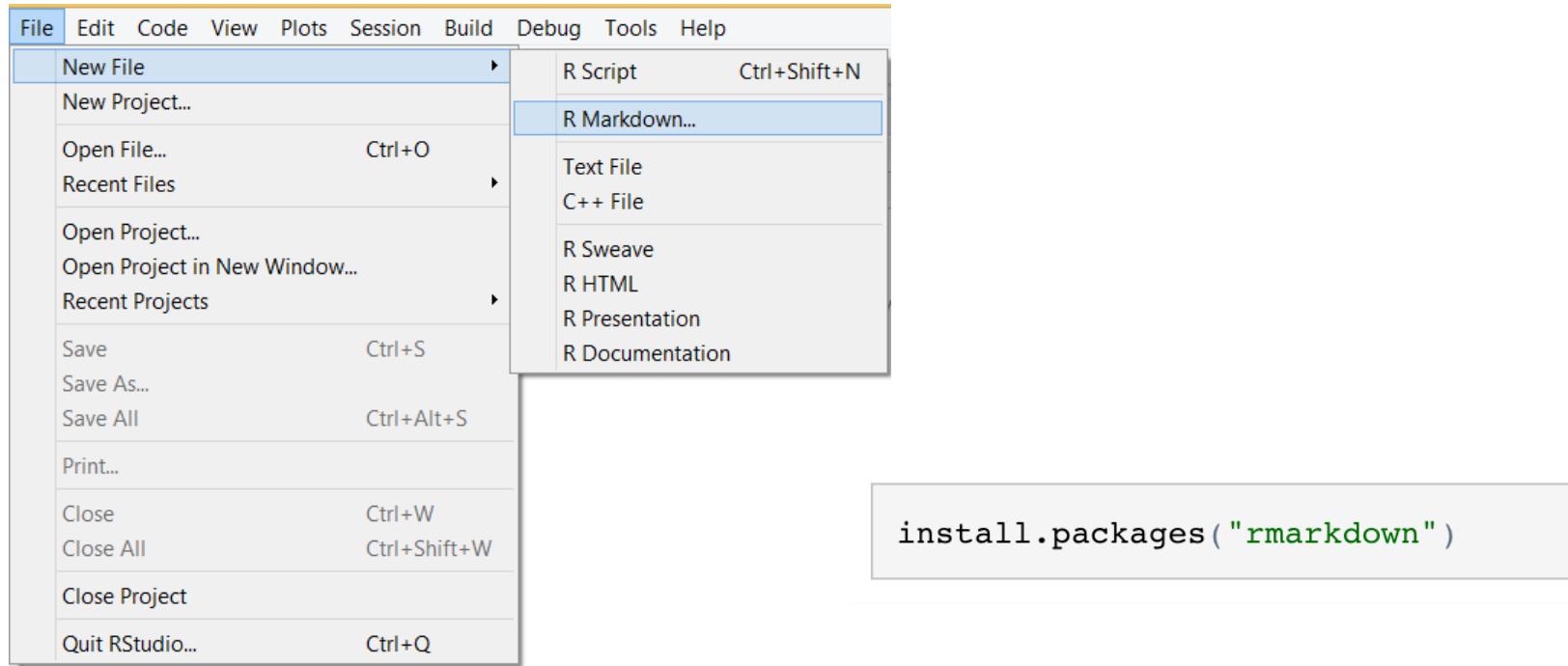
- R markdown debería haber sido instalado con R Studio...
- Pero también podría instalarlo:

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

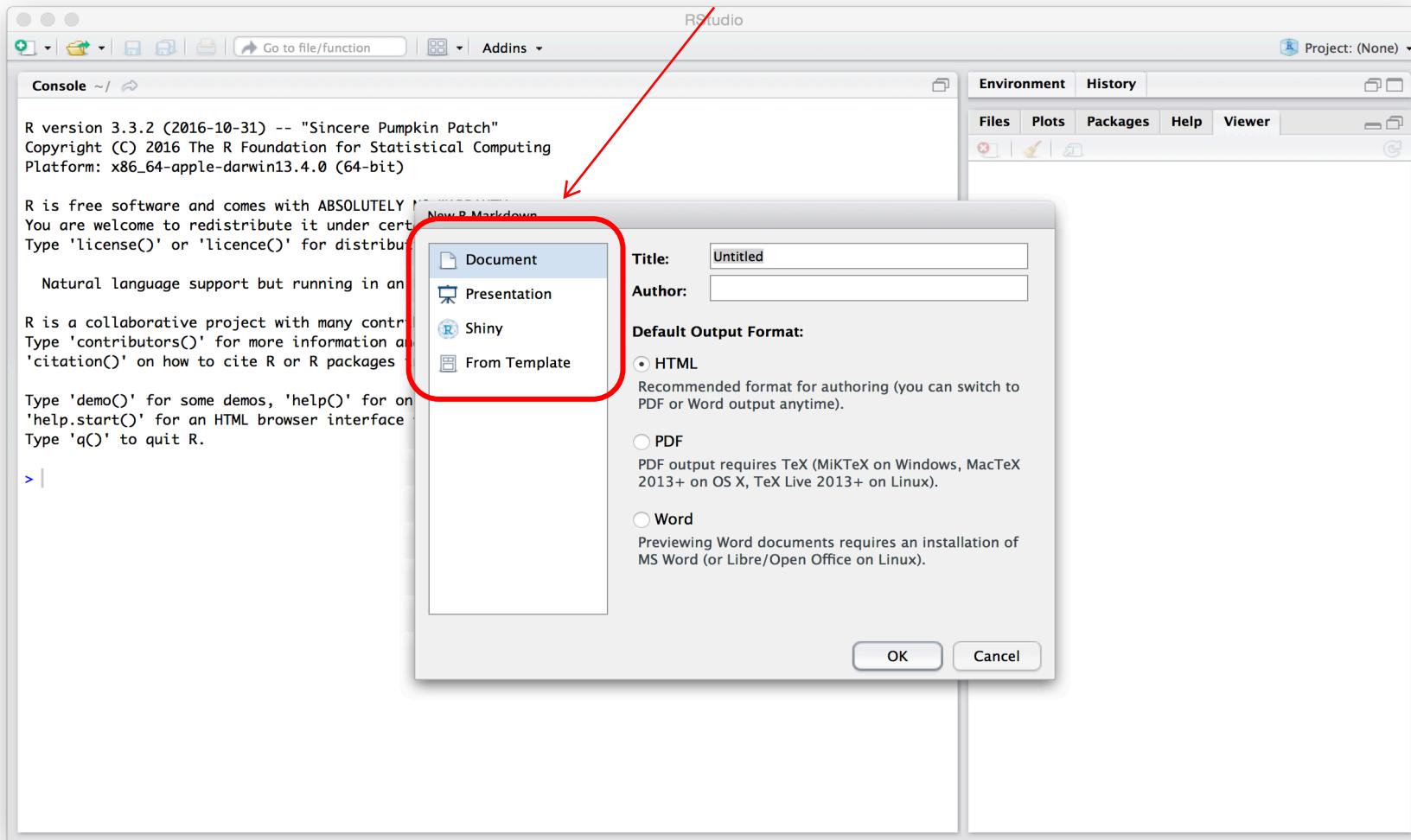
# Cómo funciona:

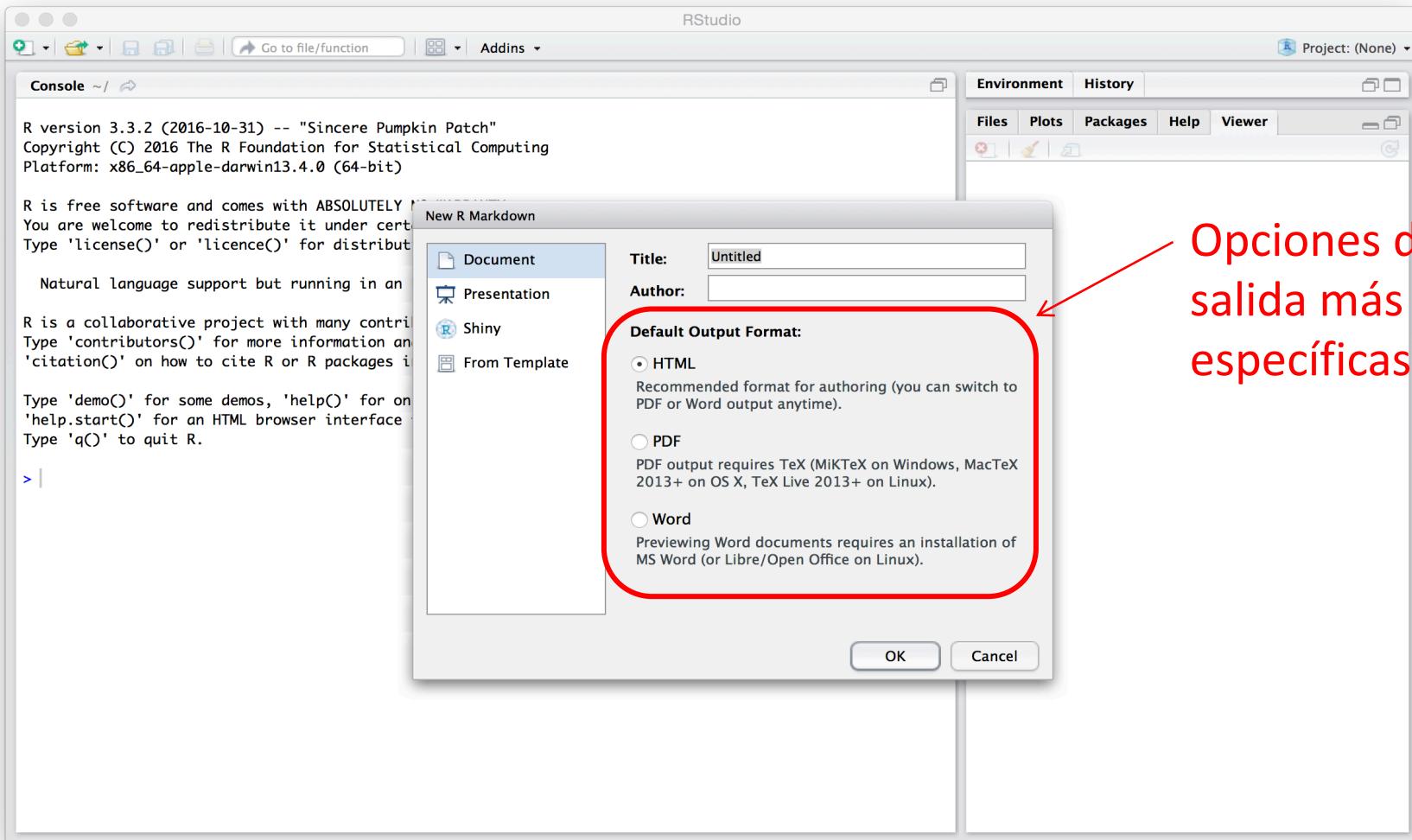
- Primero inicia un archivo R Markdown
  - extensión . Rmd
- Vamos a abrir un nuevo archivo R Markdown!

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

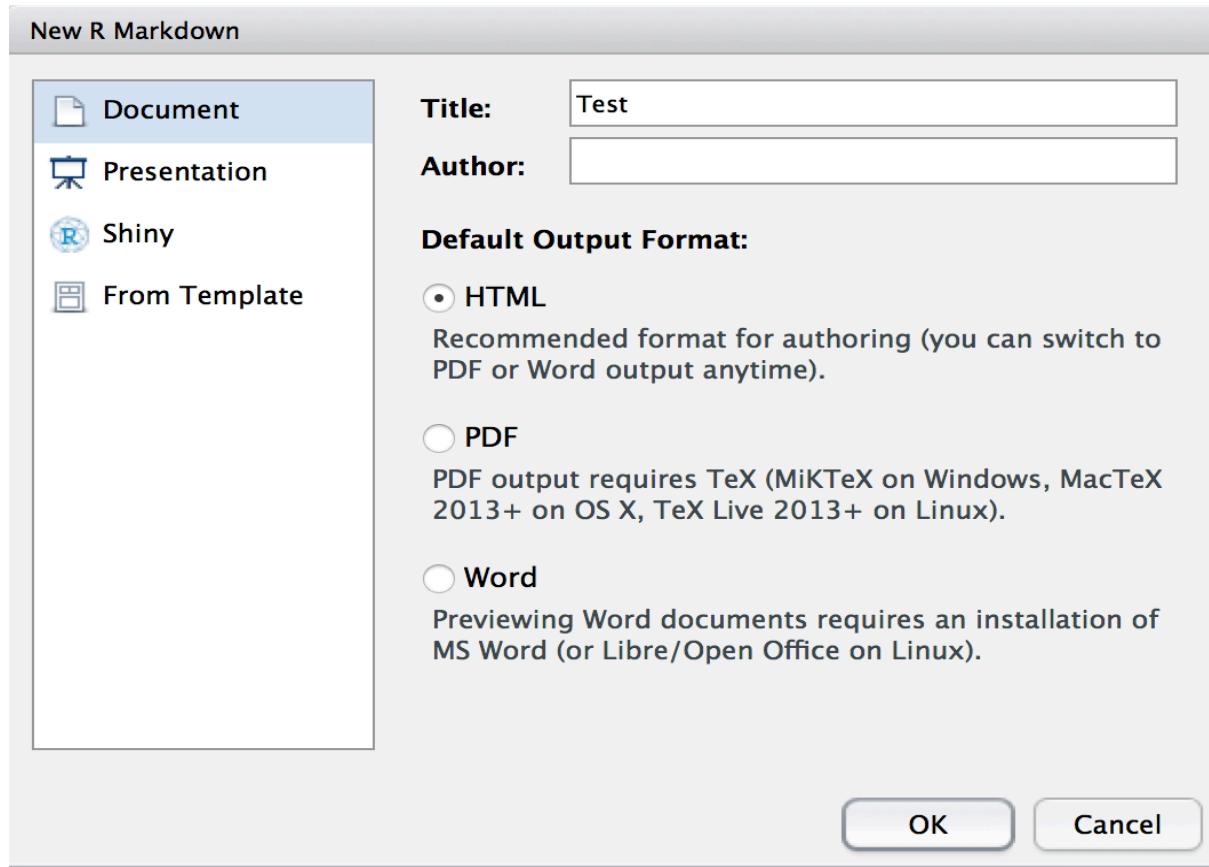


# ¿Qué tipo de archivo?



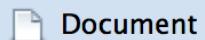


# Practiquemos con un documento en formato HTML

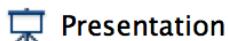


Los otros formatos también son buenos.. Pero pueden requerir la descarga de algunos otros paquetes

## 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..

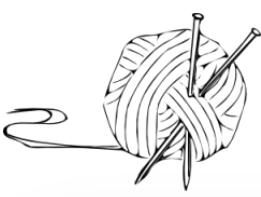
The screenshot shows the RStudio interface with a new R Markdown script open. The script content is as follows:

```
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  
syntax for authoring HTML, PDF, and MS Word documents. For more  
details on using R Markdown see <http://rmarkdown.rstudio.com>.  
16  
17 When you click the **Knit** button a document will be generated  
that includes both content as well as the output of any embedded
```

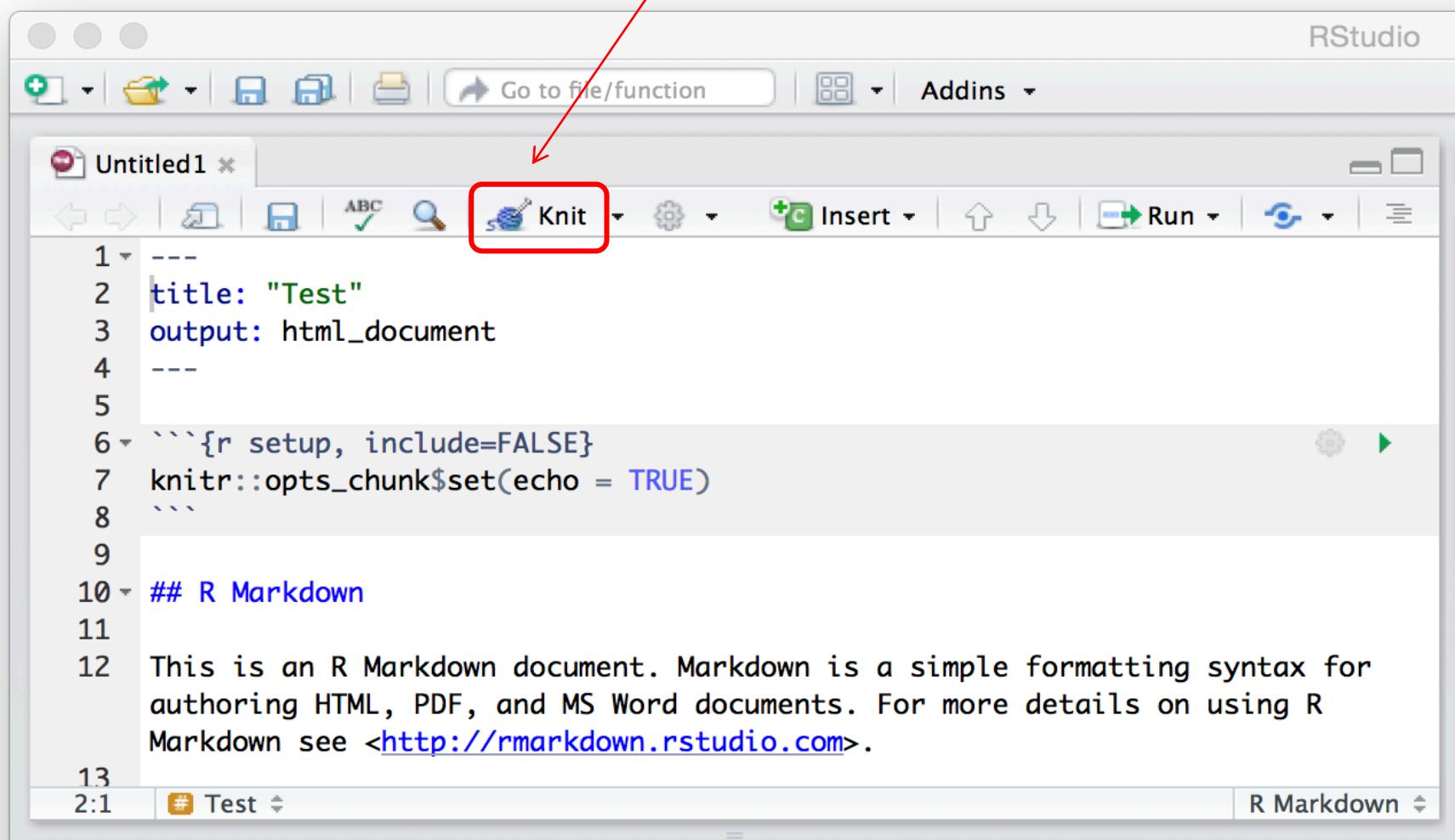
A red arrow points from the text "... Contiene código de ejemplo.." to the line `8 ```{r setup, include=FALSE}`.

The RStudio interface includes:

- Top bar: Go to file/function, Addins, Insert, Run, Knit (highlighted).
- Console tab: Shows the command `~/Desktop/Work - Quarantine - 2020/YBC/YBC-phenotype-2020/`.
- Terminal tab: Shows the command `>`.
- R Markdown tab: Shows the command `R Markdown`.
- Bottom tabs: Files, Plots, Packages, Help, Viewer.
- Environment tab: Shows "Environment is empty".
- Global Environment tab: Shows "Import Dataset".



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



The screenshot shows the RStudio interface with an R Markdown document titled "Untitled1". The toolbar at the top includes various icons for file operations, search, and code execution. The "Knit" button, which is highlighted with a red box, is located in the toolbar. A red arrow points from the word "Knit" in the title to this button. The main pane displays the R Markdown 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  
authoring HTML, PDF, and MS Word documents. For more details on using R  
Markdown see <http://rmarkdown.rstudio.com>.  
13
```

The status bar at the bottom indicates the file is "Test" and the mode is "R Markdown".

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
```

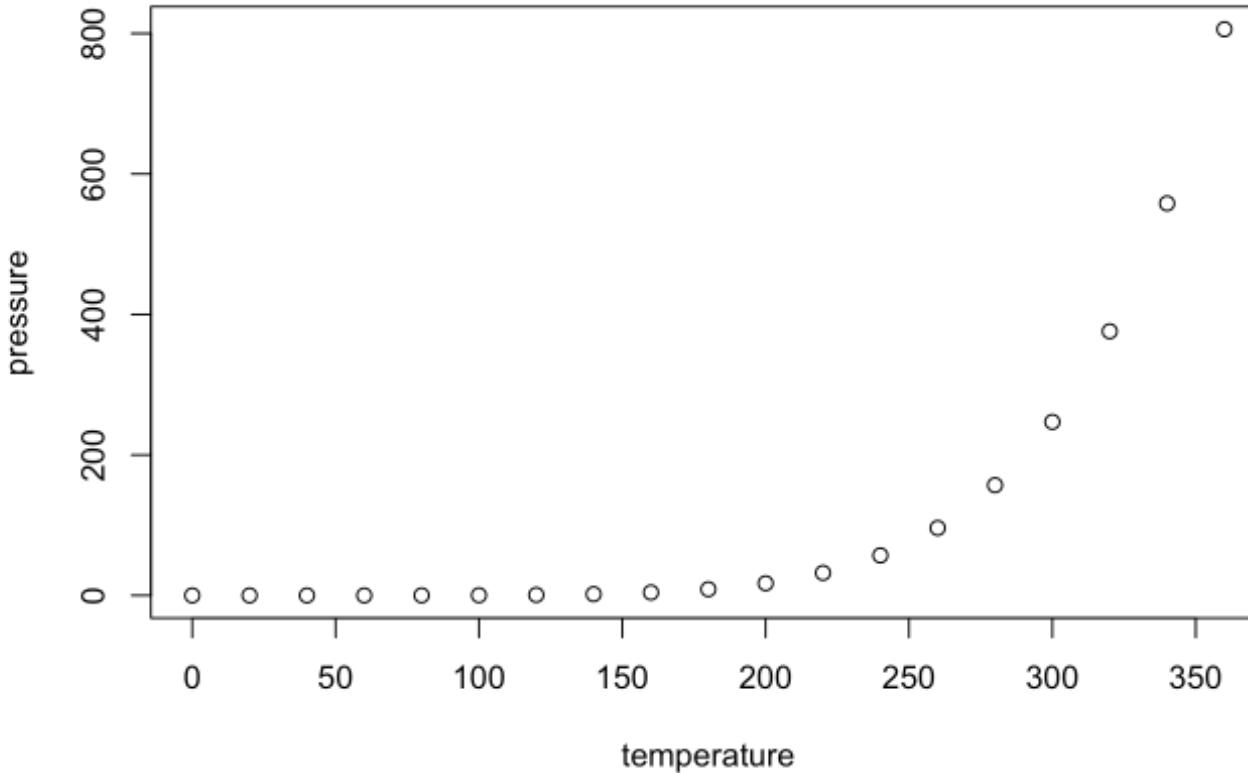
## Including Plots

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 a focus on previewing R Markdown documents.

**Left Panel (Code Editor):** Displays an R Markdown file named "Untitled1". The code includes a YAML front matter section and several R chunks. A red arrow points from the "Knit" button in the toolbar to a context menu that is open over the code editor. This menu contains options for previewing the document.

**Context Menu:** The menu is titled "Output Options...". It includes the following items:

- 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...

**Right Panel (Viewer):** Shows the "Viewer" tab selected in the tab bar. The panel is currently empty, indicating no preview is active.

**Toolbar:** The toolbar includes standard icons for file operations (New, Open, Save, Print), Go to file/function, Addins, and a Knit button.

**Console:** Displays the R startup message and license information.

Ooooo!

RStudio

Project: (None)

Untitled.Rmd

```
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  
authoring HTML, PDF, and MS Word documents. For more details on using R  
Markdown see <http://rmarkdown.rstudio.com>.  
13  
2:1
```

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 ---s
- 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

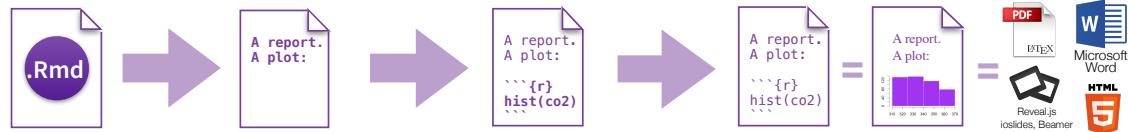
learn more at [rmarkdown.rstudio.com](http://rmarkdown.rstudio.com)

rmarkdown 0.2.50 Updated: 8/14



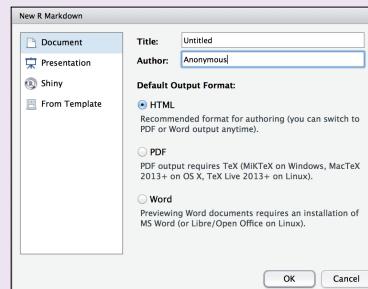
**1. Workflow** R Markdown is a format for writing reproducible, dynamic reports with R. Use it to embed R code and results into slideshows, pdfs, html documents, Word files and more. To make a report:

- 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



**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 (---)

```
---  
title: "Untitled"  
author: "Anonymous"  
output: html_document  
---
```

This is the start of my report. The above is metadata saved in a YAML header.

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)



**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](http://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:  $A = \pi * r^2$

image:

horizontal rule (or slide break):

block quote

- unordered list

- item 2
  - sub-item 1
  - sub-item 2

- ordered list

- item 2
  - sub-item 1
  - sub-item 2

| Table Header | Second Header |
|--------------|---------------|
|--------------|---------------|

|            |        |
|------------|--------|
| Table Cell | Cell 2 |
|------------|--------|

|        |        |
|--------|--------|
| Cell 3 | Cell 4 |
|--------|--------|

# 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^2^

~~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

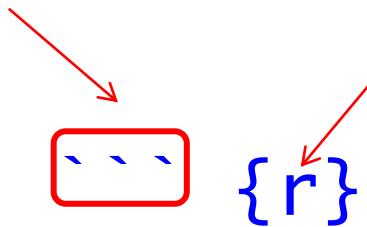
Esto está en tu  
R Markdown  
Cheat Sheet!

# R Markdown : fragmentos de código

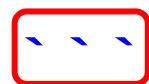
R

Indica a Rmarkdown que el código se está iniciando

{r} le dice a R Mardown que este codigo es de R



#code that does stuff ← Code



Indica a Rmarkdown que el código está terminando

# Argumentosopcionales

```
``` {r argumentosopcionales}  
#code that does stuff  
```
```

Separate multiple arguments by commas

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

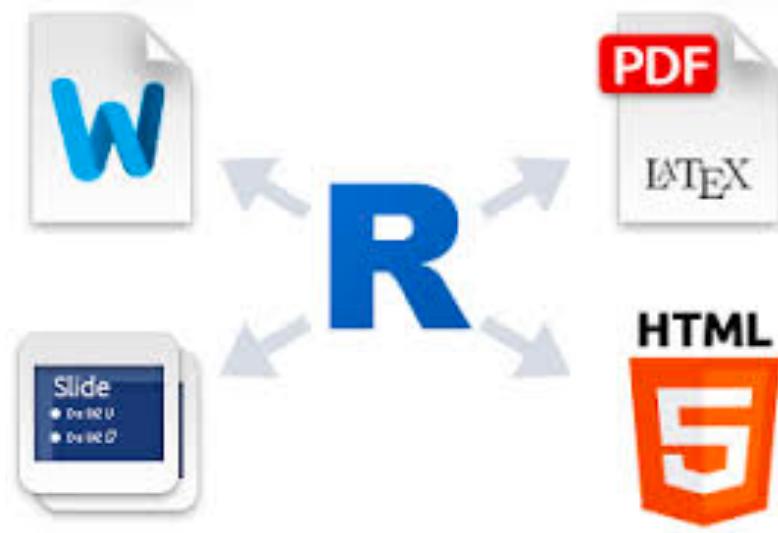
```
```{r setup, include=FALSE}
knitr::opts_chunk$set(echo = TRUE)
```

```

---

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>.

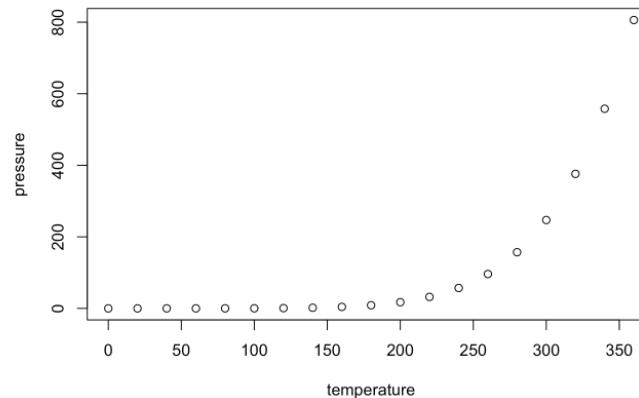
When you click the **Knit** button a document will be generated that includes both content as well as the output of any embedded R code chunks within the document. You can embed an R code chunk like this:

```
summary(cars)
```

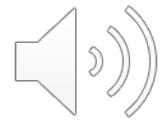
```
##      speed          dist
##  Min.   : 4.0   Min.   : 2.00
##  1st Qu.:12.0   1st Qu.: 26.00
##  Median :15.0   Median : 36.00
##  Mean   :15.4   Mean   : 42.98
##  3rd Qu.:19.0   3rd Qu.: 56.00
##  Max.   :25.0   Max.   :120.00
```

### 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>

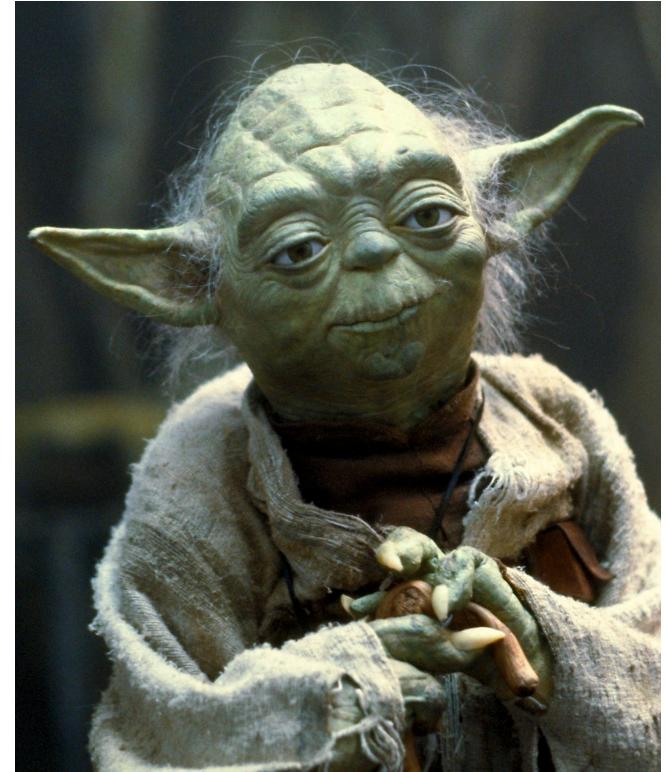


AHH! Es la ultima presentacion de  
introduccion a R!

# 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>

Universidad  
Industrial de  
Santander

