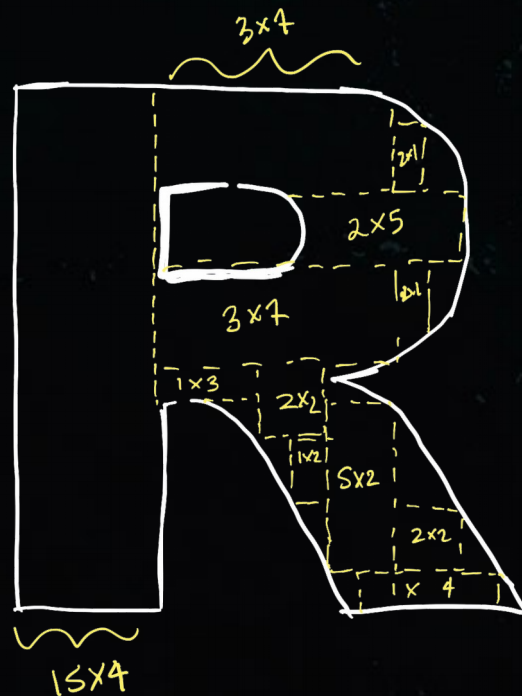
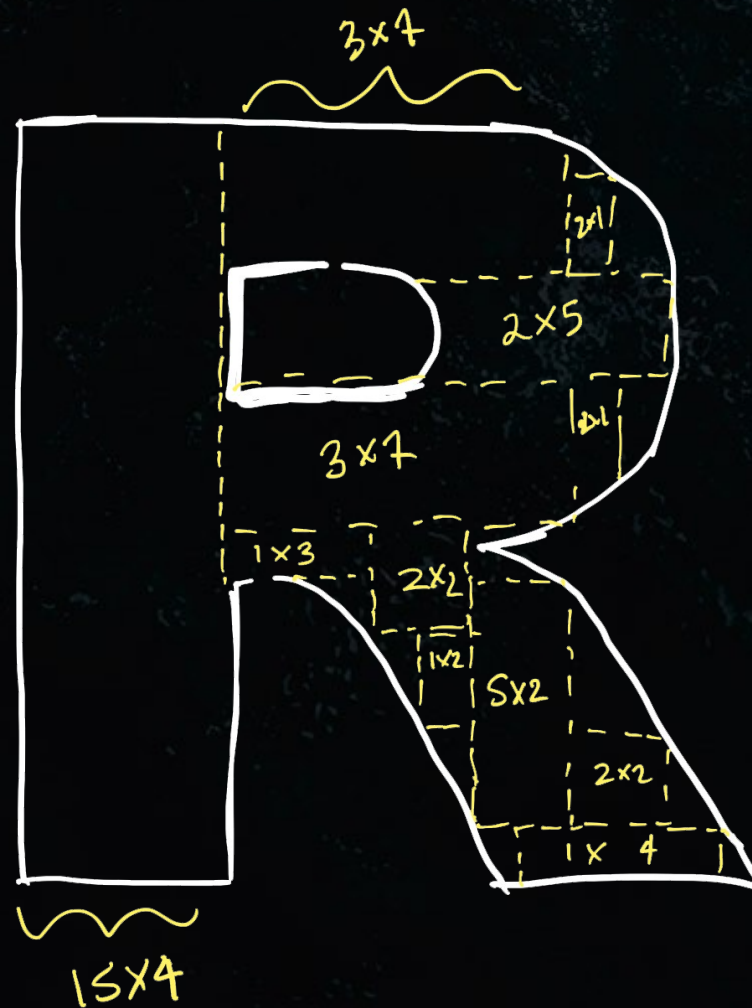


R y Rstudio

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Instituto Argentino de Oceanografía
CONICET-UNS
CCT Bahía Blanca



¿Qué es R?



¿Qué es R?

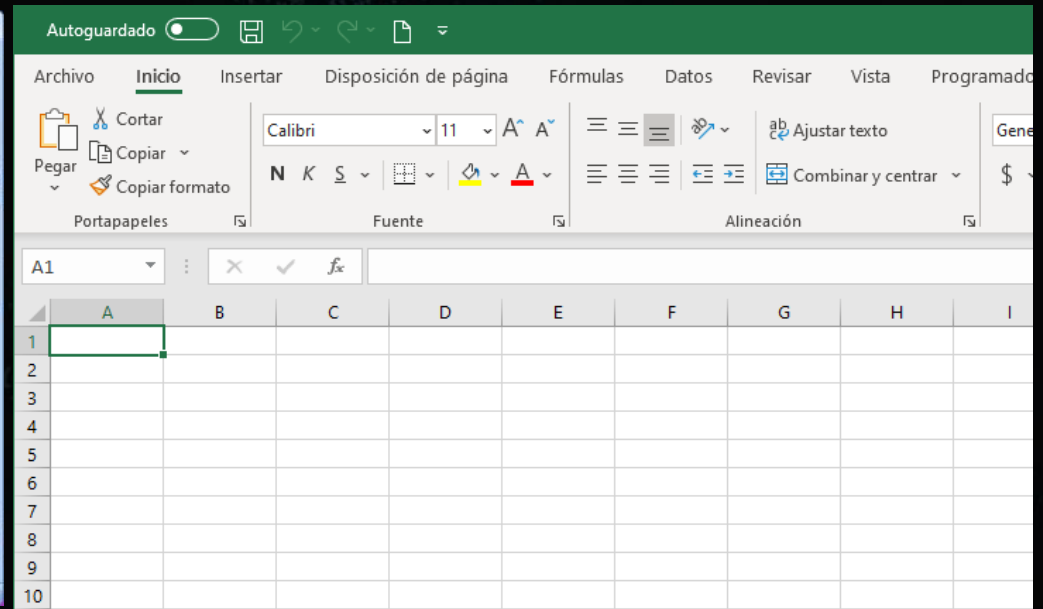
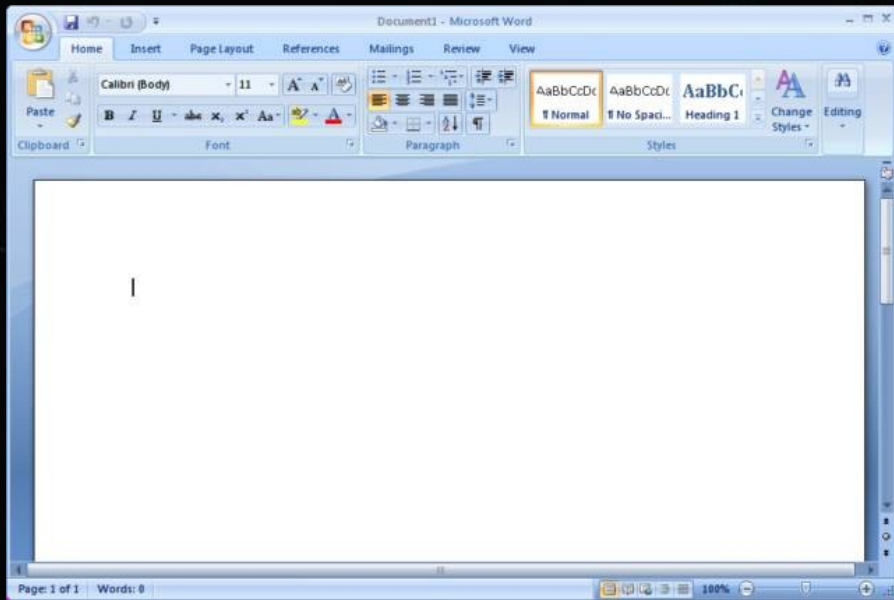
- Software Libre (GNU 1995)
- 1993 (University of Auckland, New Zealand)



- R de Ross y Robert, pero también de Reproducibilidad
- Interfaz de código
- Lenguaje abstracto e interpretado



Wysiwyg



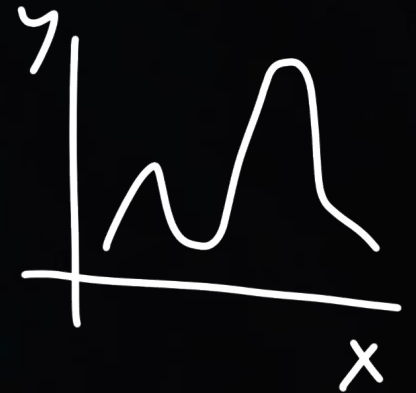
What You See is What You Get

Flujo de trabajo

$f()$

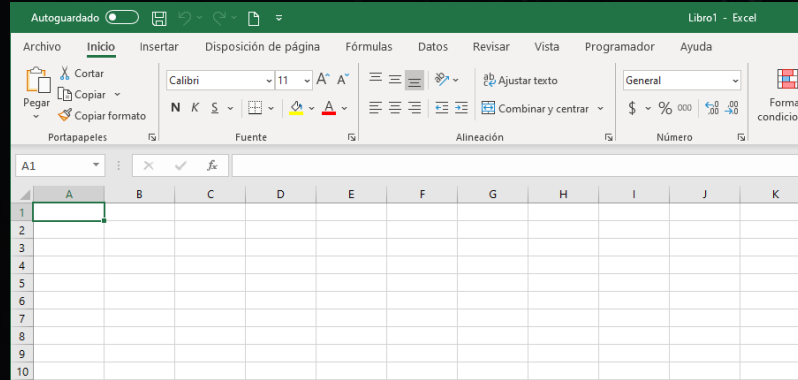


v_1	v_2	v_3	v_4
\vdots	\vdots	\vdots	\vdots
\vdots	\vdots	\vdots	\vdots
\vdots	\vdots	\vdots	\vdots
\vdots	\vdots	\vdots	\vdots

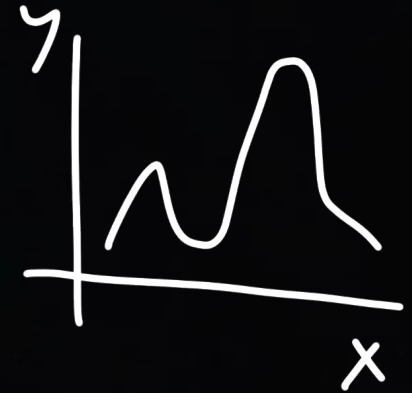


Flujo de trabajo en wysiwyg

$f()$



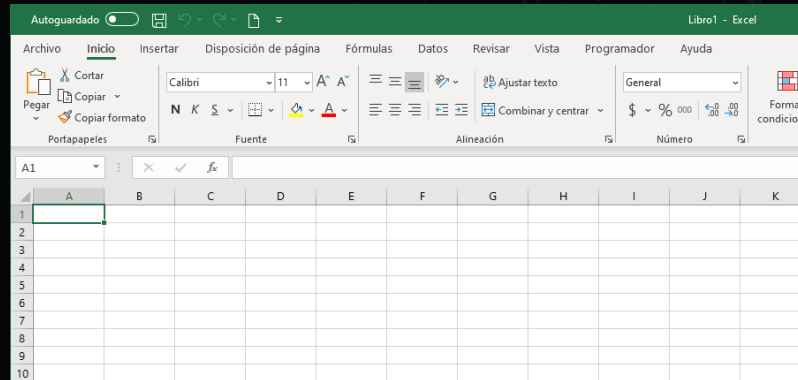
v1	v2	v3	v4
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:



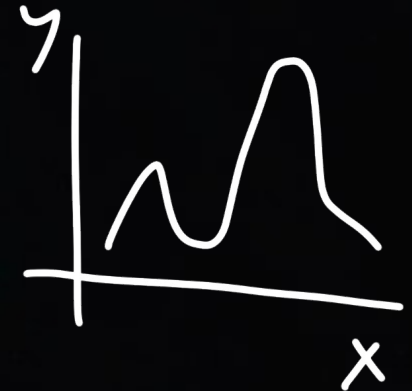
Flujo de trabajo en wysiwyg



$f()$



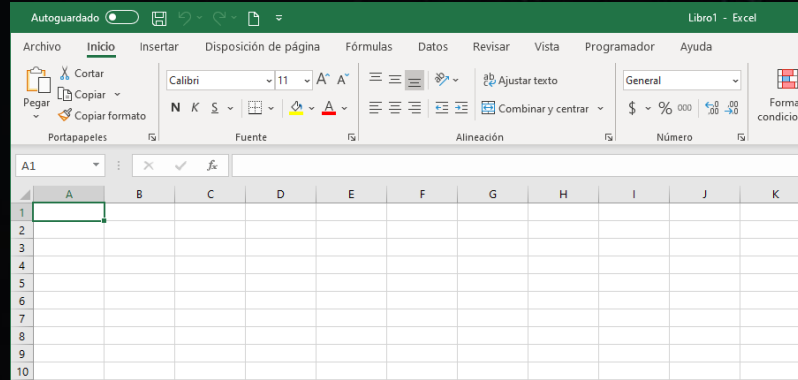
v1	v2	v3	v4
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:



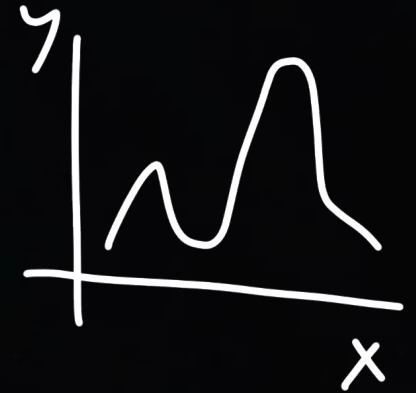
Flujo de trabajo en wysiwyg



$f()$



v1	v2	v3	v4
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.
.	.	.	.



datos_paper.xlsx

datos_analisis_paper1.xlsx

datos_analisis_paper_posta.xlsx

datos_analisis_revisado_posta1.xlsx

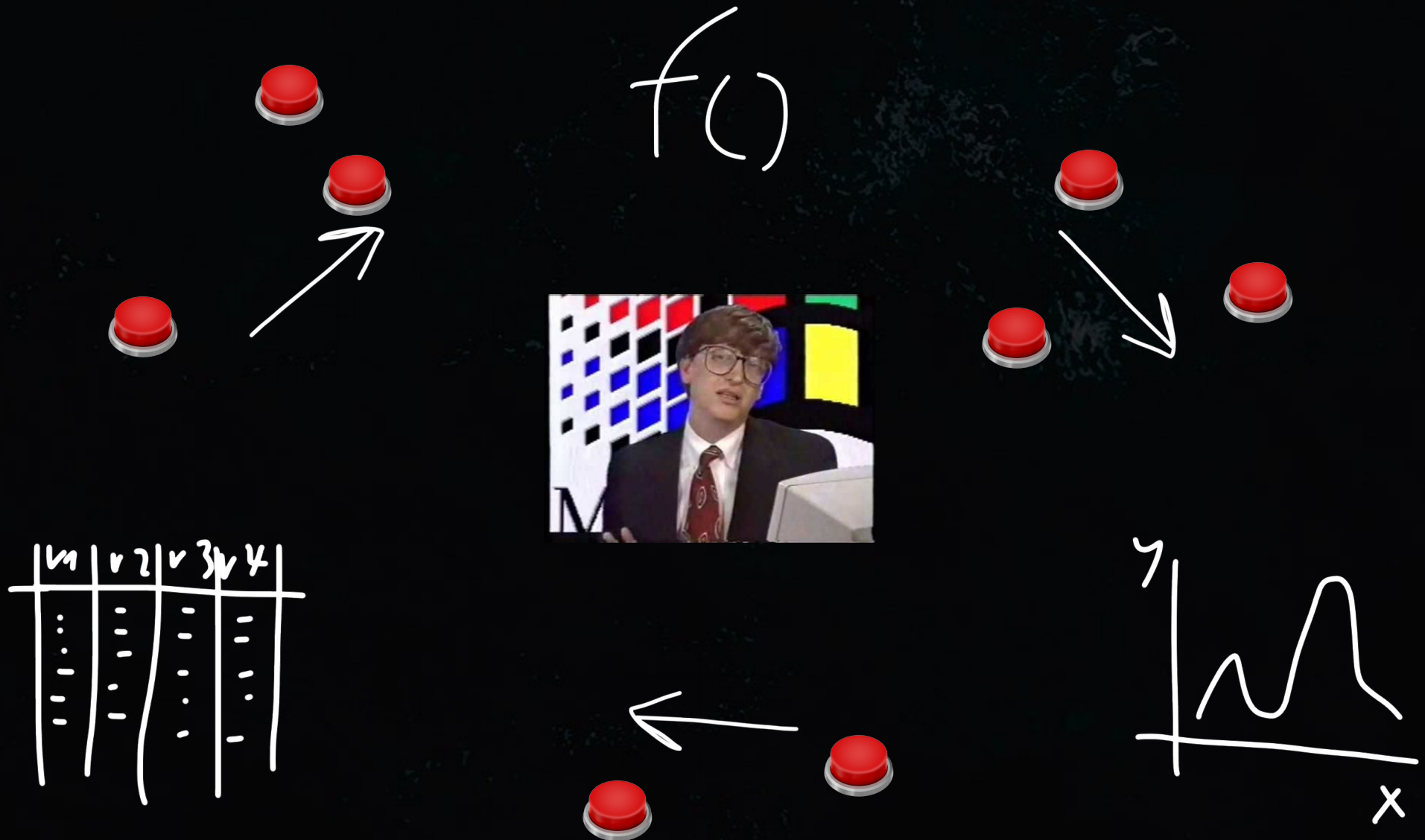
datos_analisis_recontrarevisado_posta_este_sí.xlsx

este_es_el_posta.xlsx

este_es_el_posta_revisado(1).xlsx

iNo seas tan wysiwyg!

Uso doméstico - Uso profesional



Reproducibilidad en la Ciencia



Detrás de un botón...



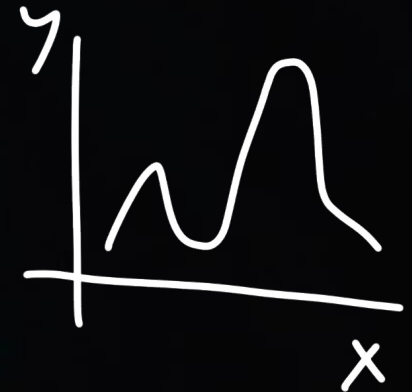
Flujo de trabajo

$f()$

.R



v1	v2	v3	v4
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:



txt, csv, xlsx... geotiff...

csv, jpg, png, pdf, tiff

¿Qué es Rstudio?



¿Qué es Rstudio?

- Otro software que brinda una interfaz organizada y prestaciones
- Software libre (GNU, 2011)
- GUI / IDE

¿Qué es Rstudio?

Interfaz

The screenshot displays the RStudio desktop environment. The top menu bar includes File, Edit, Code, View, Plots, Session, Project, Build, Tools, and Help. The main editor window shows a script titled 'Untitled1*' with the following R code:

```
1  
2 rm(list = ls())  
3 N <- 1000  
4 u <- rnorm(N)  
5 x1 <- -2 + rnorm(N)  
6 x2 <- 1 + x1 + rnorm(N)  
7 y <- 1 + x1 + x2 + u  
8 r1 <- lm(y ~ x1 + x2)  
9  
10 |
```

The console at the bottom shows the execution of the same code, with prompts for plotting and the final model fit:

```
> Tapez <Entrée> pour voir le graphique suivant :  
> Tapez <Entrée> pour voir le graphique suivant :  
> Tapez <Entrée> pour voir le graphique suivant :  
>  
> ?lm  
> rm(list = ls())  
> N <- 1000  
> u <- rnorm(N)  
> x1 <- -2 + rnorm(N)  
> x2 <- 1 + x1 + rnorm(N)  
> y <- 1 + x1 + x2 + u  
> r1 <- lm(y ~ x1 + x2)  
>
```

The right-hand pane is divided into two sections. The top section, 'Workspace', shows the 'Values' of objects in memory:

Object	Value
N	1000
r1	lm[12]
u	numeric[1000]
x1	numeric[1000]
x2	numeric[1000]
y	numeric[1000]

The bottom section, 'Help', displays the documentation for the `lm` function, titled 'Fitting Linear Models'. It includes a description of the function's purpose, usage syntax, and arguments.

Description

`lm` is used to fit linear models. It can be used to carry out regression, single stratum analysis of variance and analysis of covariance (although `aov` may provide a more convenient interface for these).

Usage

```
lm(formula, data, subset, weights,  
   method = "qr", model = TRUE, x =  
   singular.ok = TRUE, contrasts =
```

Arguments

¿Qué es Rstudio?

4 ventanas

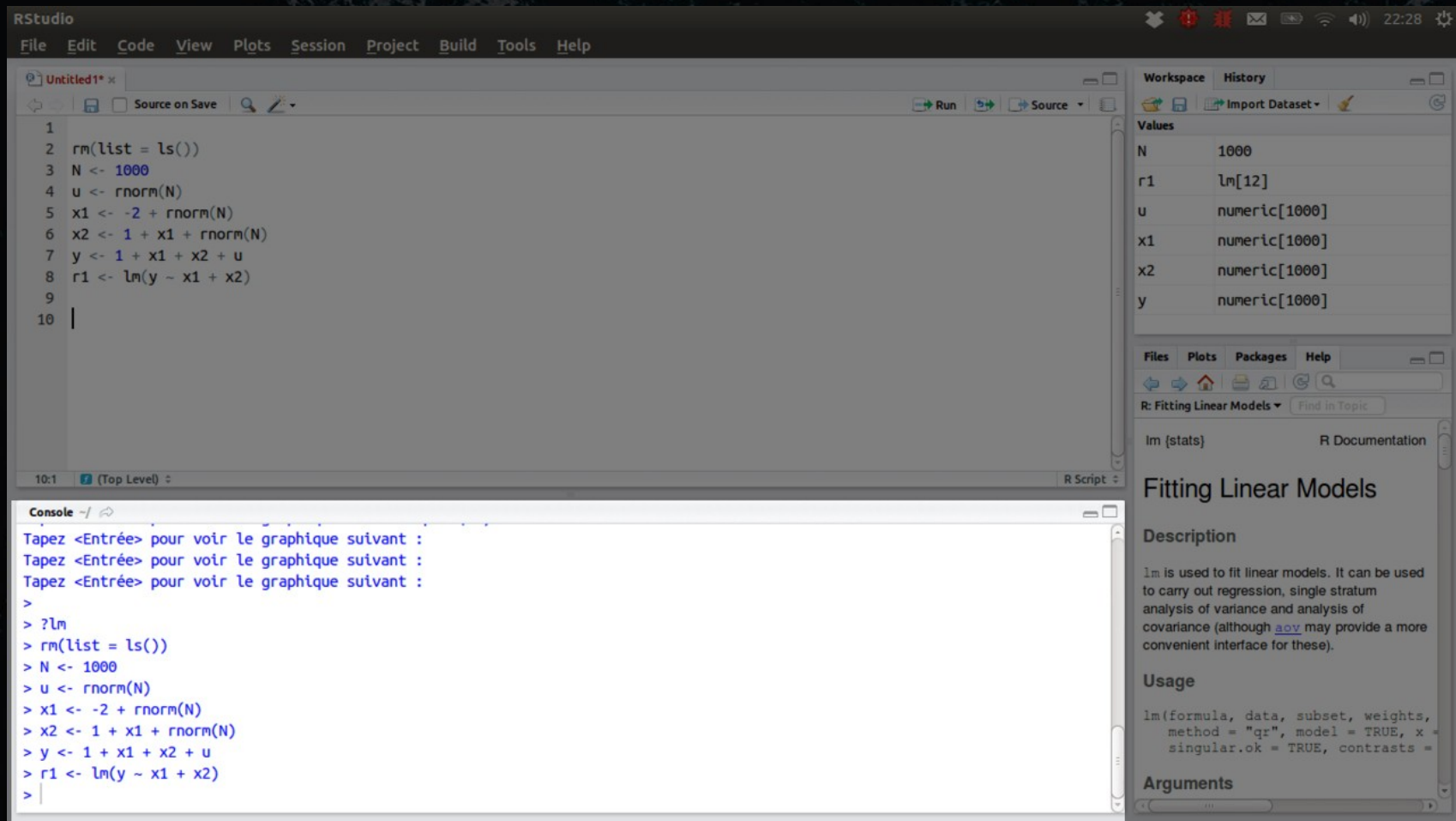
The image shows the RStudio interface with four main panels highlighted by orange lines:

- Editor de Scripts:** The top-left panel where R code is written. It contains the following code:

```
1  
2 rm(list = ls())  
3 N <- 1000  
4 u <- rnorm(N)  
5 x1 <- -2 + rnorm(N)  
6 x2 <- 1 + x1 + rnorm(N)  
7 y <- 1 + x1 + x2 + u  
8 r1 <- lm(y ~ x1 + x2)  
9  
10 |
```
- Workspace (área de trabajo):** The top-right panel showing the current workspace. It lists variables: `lm[12]`, `x1`, `x2`, `y`, and `r1`, all of type `numeric`.
- Consola:** The bottom-left panel showing the R console output. It displays the execution of the code from the script, including the prompt `>` and the output of `?lm`.

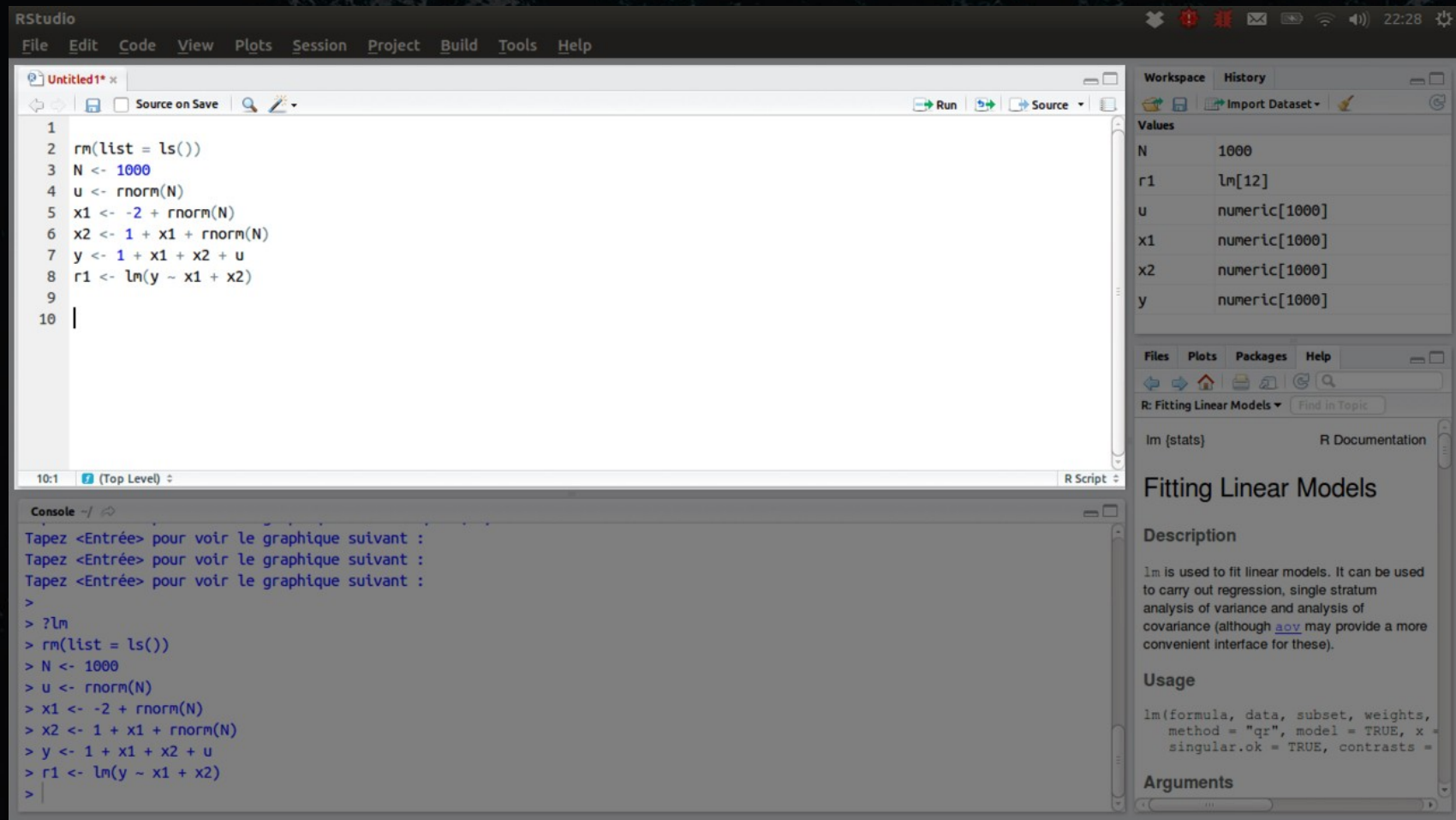
```
>  
> ?lm  
> rm(list = ls())  
> N <- 1000  
> u <- rnorm(N)  
> x1 <- -2 + rnorm(N)  
> x2 <- 1 + x1 + rnorm(N)  
> y <- 1 + x1 + x2 + u  
> r1 <- lm(y ~ x1 + x2)  
>
```
- Panel:** The bottom-right panel showing the help documentation for the `lm` function. It includes the title "Fitting Linear Models", a description of the `lm` function, and its usage.

```
lm(formula, data, subset, weights,  
   method = "qr", model = TRUE, x =  
   singular.ok = TRUE, contrasts =
```



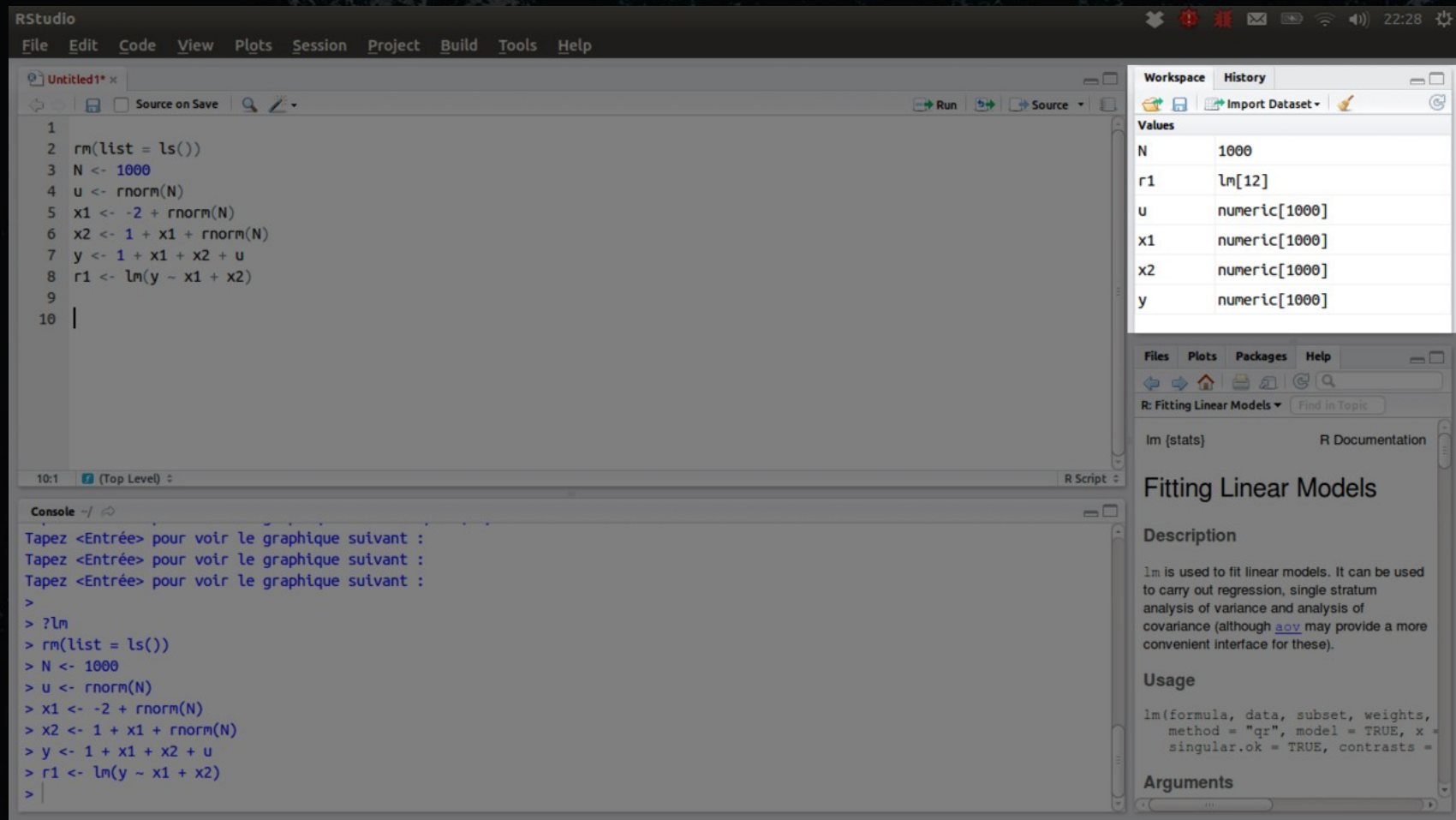
Consola

Ventanilla de atención del banco



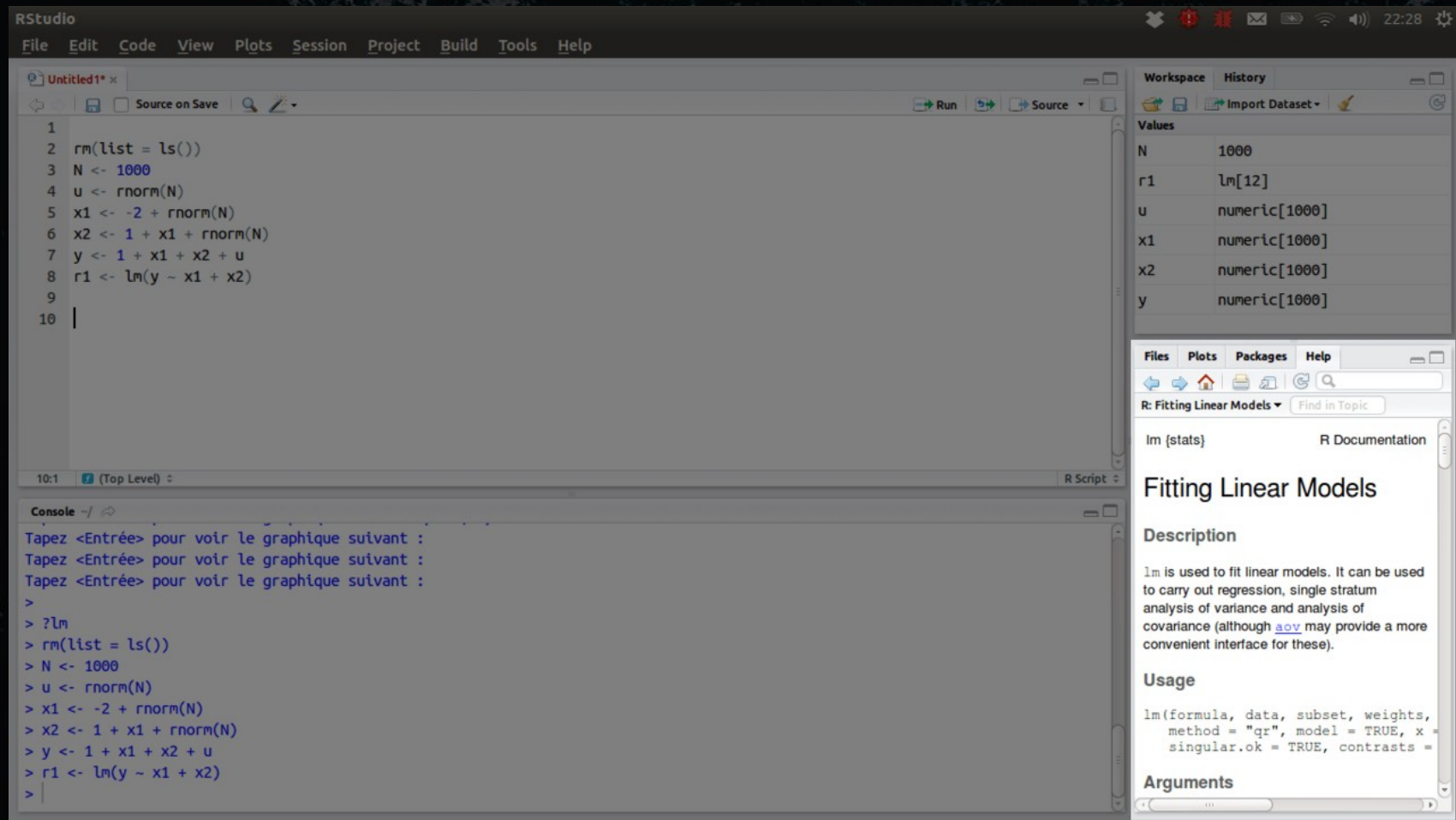
Editor de scripts

Documento de los procesos



Área de trabajo

La memoria de R mientras lo usamos



Panel

Multiples usos: archivos / paquetes / plots / ayuda

R es el motor, Rstudio la interfaz

