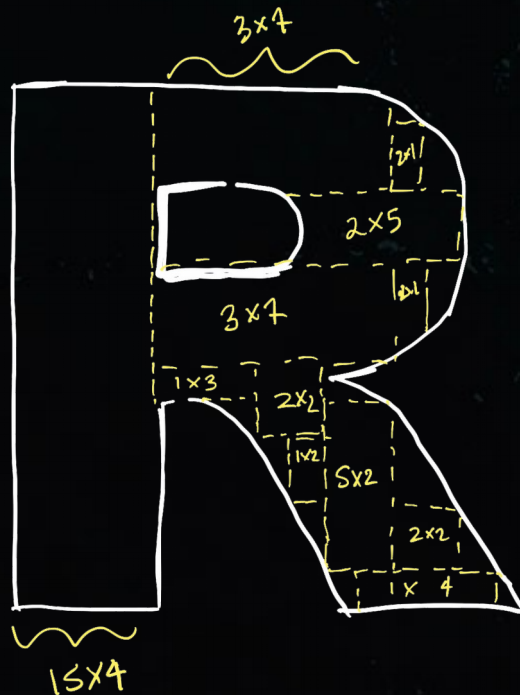
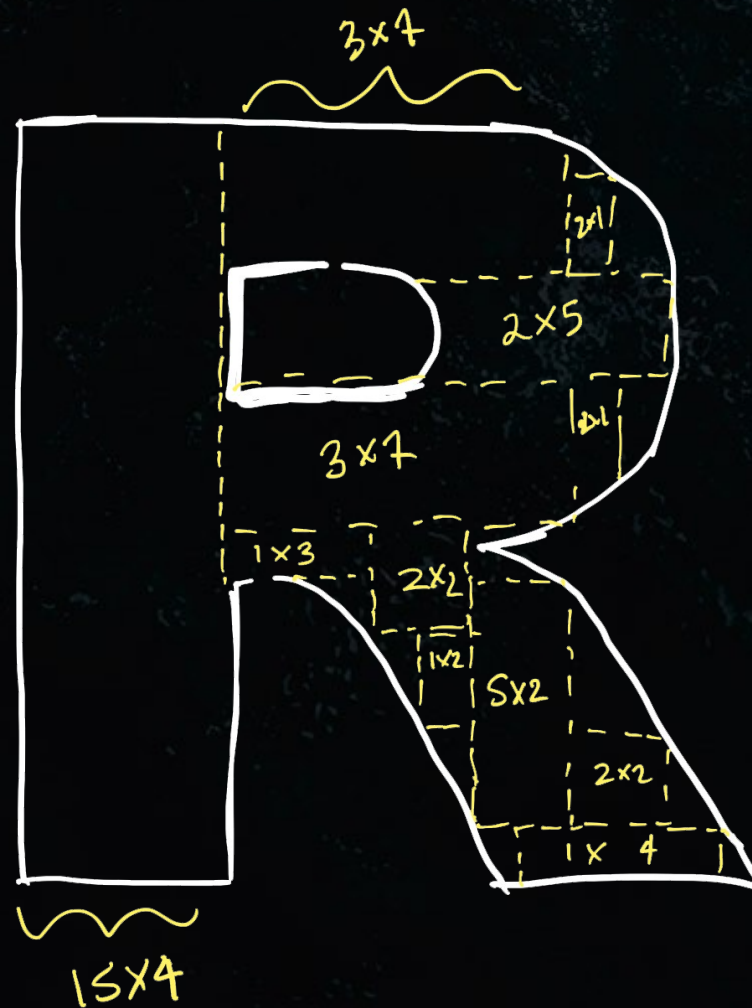


R y Rstudio

Martín Amodeo
DBBF, UNS
IADO CONICET-UNS
CCT Bahía Blanca



¿Qué es R?



¿Qué es R?

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

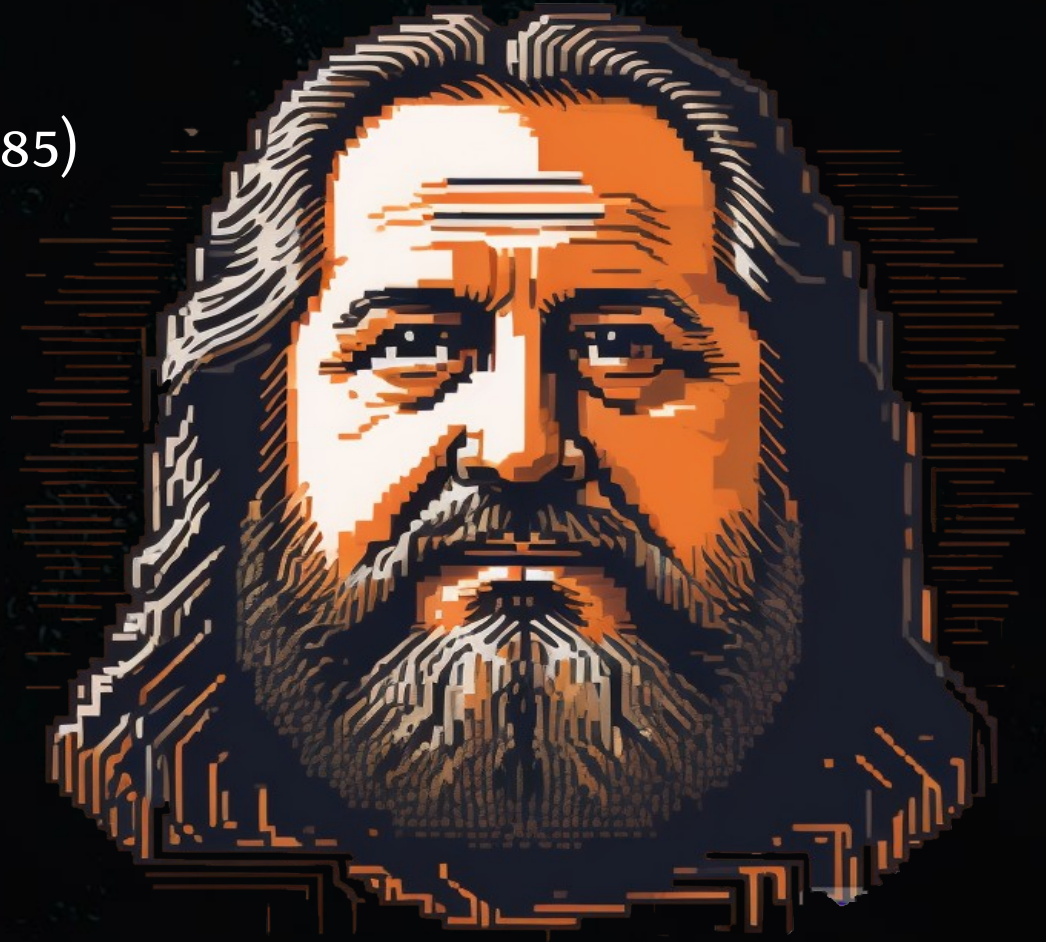


- R de Ross y Robert, pero también de Reproducibilidad
- Interfaz de código
- Lenguaje abstracto e interpretado

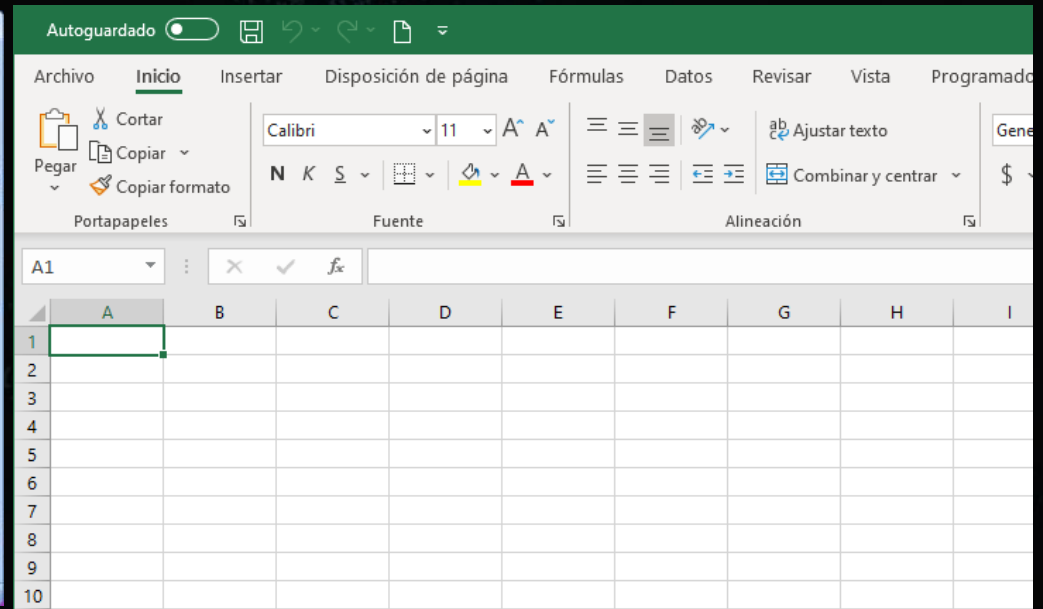
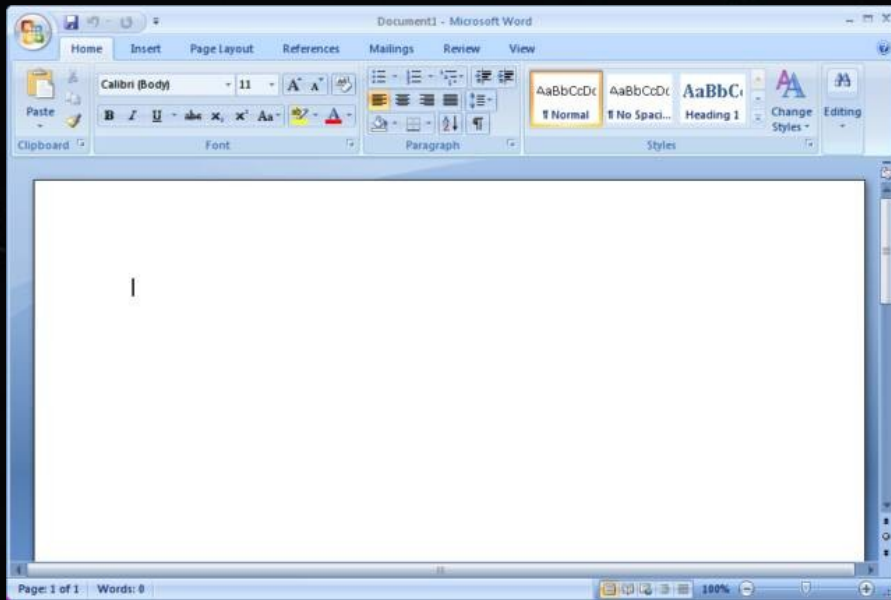


Software Libre

- Richard Stallman
- Free Software Foundation (1985)
- Libre ≠ Gratis
- Uso / Desarrollo
- ~~Copyright~~ / Copyleft



Wysiwyg



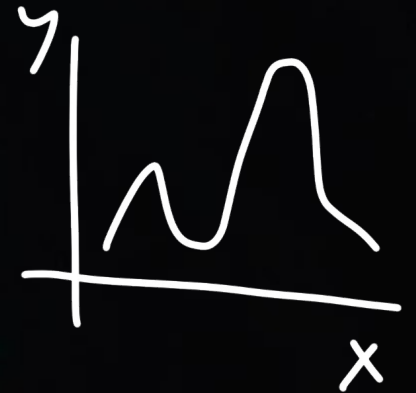
What You See is What You Get

Flujo de trabajo

$f()$

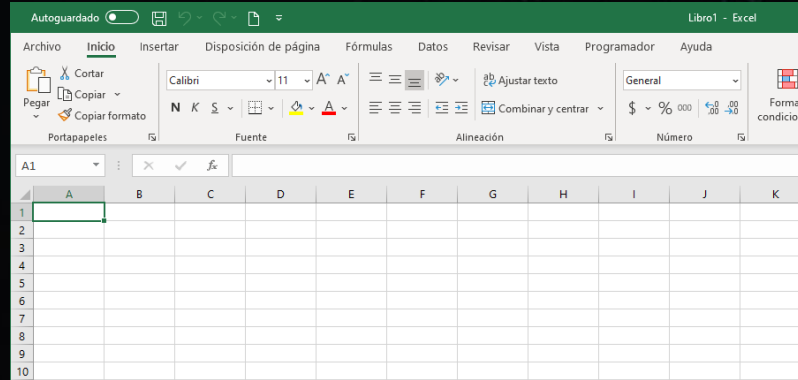


v_1	v_2	v_3	v_4
\vdots	\vdots	\vdots	\vdots
\vdots	\vdots	\vdots	\vdots
\vdots	\vdots	\vdots	\vdots
\vdots	\vdots	\vdots	\vdots

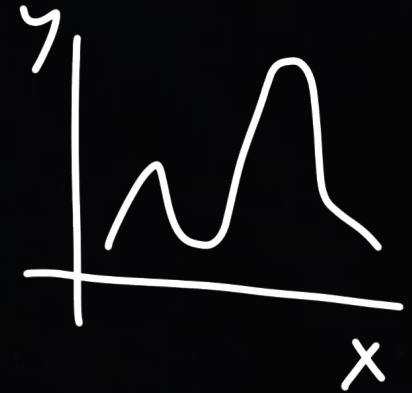


Flujo de trabajo en wysiwyg

$f()$



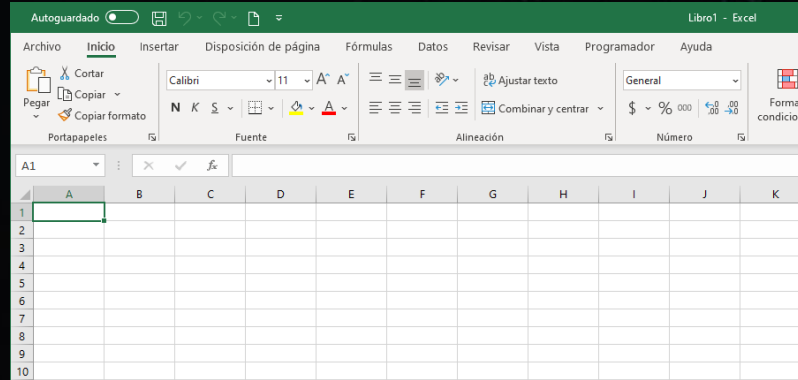
v1	v2	v3	v4
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:



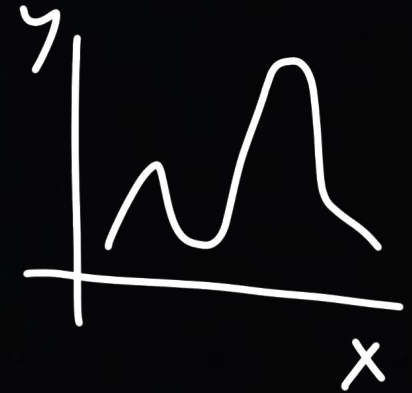
Flujo de trabajo en wysiwyg



$f()$



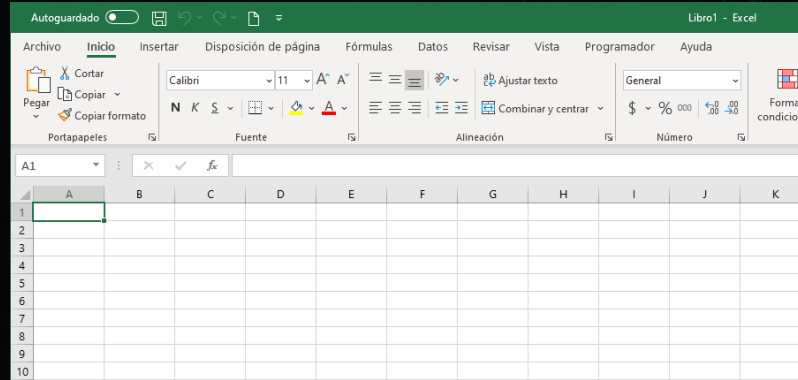
v1	v2	v3	v4
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:
:	:	:	:



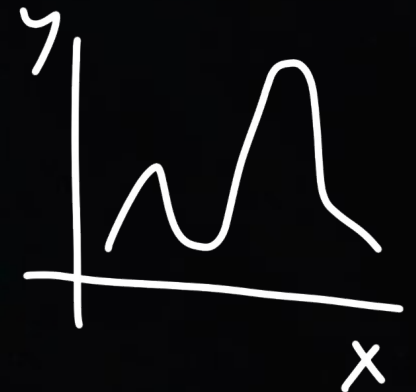
Flujo de trabajo en wysiwyg



$f()$



v1	v2	v3	v4
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮
⋮	⋮	⋮	⋮



datos_paper.xlsx

datos_analisis_paper1.xlsx

datos_analisis_paper_posta.xlsx

datos_analisis_revisado_posta1.xlsx

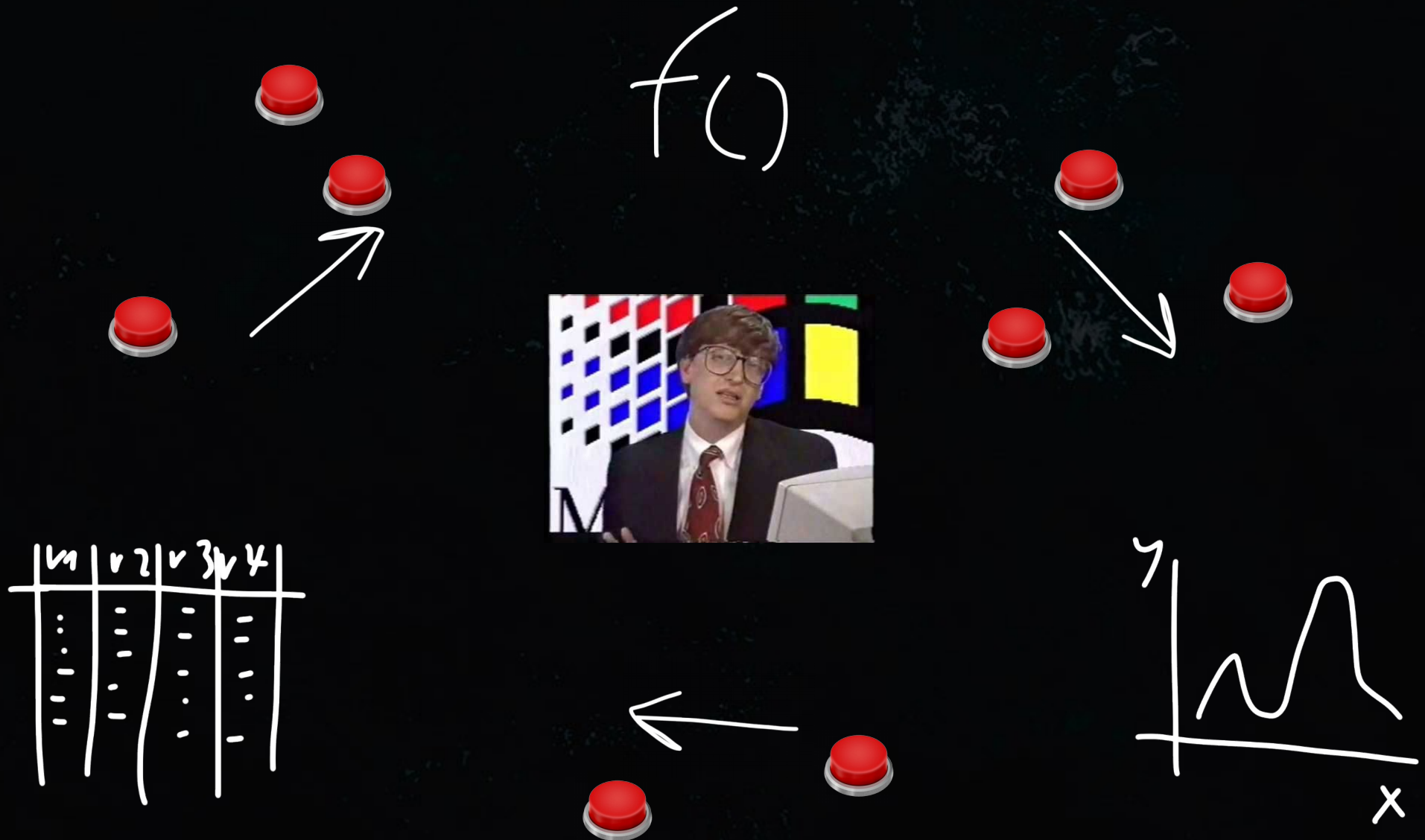
datos_analisis_recontrarevisado_posta_este_sí.xlsx

este_es_el_posta.xlsx

este_es_el_posta_revisado(1).xlsx

iNo seas tan wysiwyg!

Uso doméstico - Uso profesional



Reproducibilidad en la Ciencia



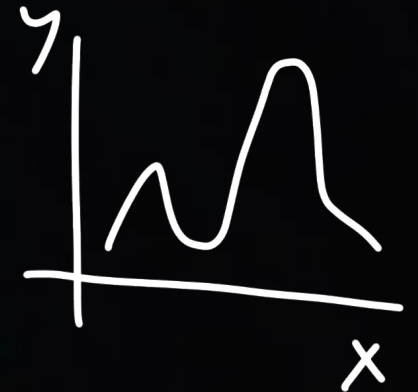
Flujo de trabajo

$f()$

.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 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, titled 'Workspace', shows the 'Values' of the objects created in the script:

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

The bottom section of the right-hand pane shows the 'R: Fitting Linear Models' help page, which includes a description of the `lm` function and its usage.

Fitting Linear Models

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

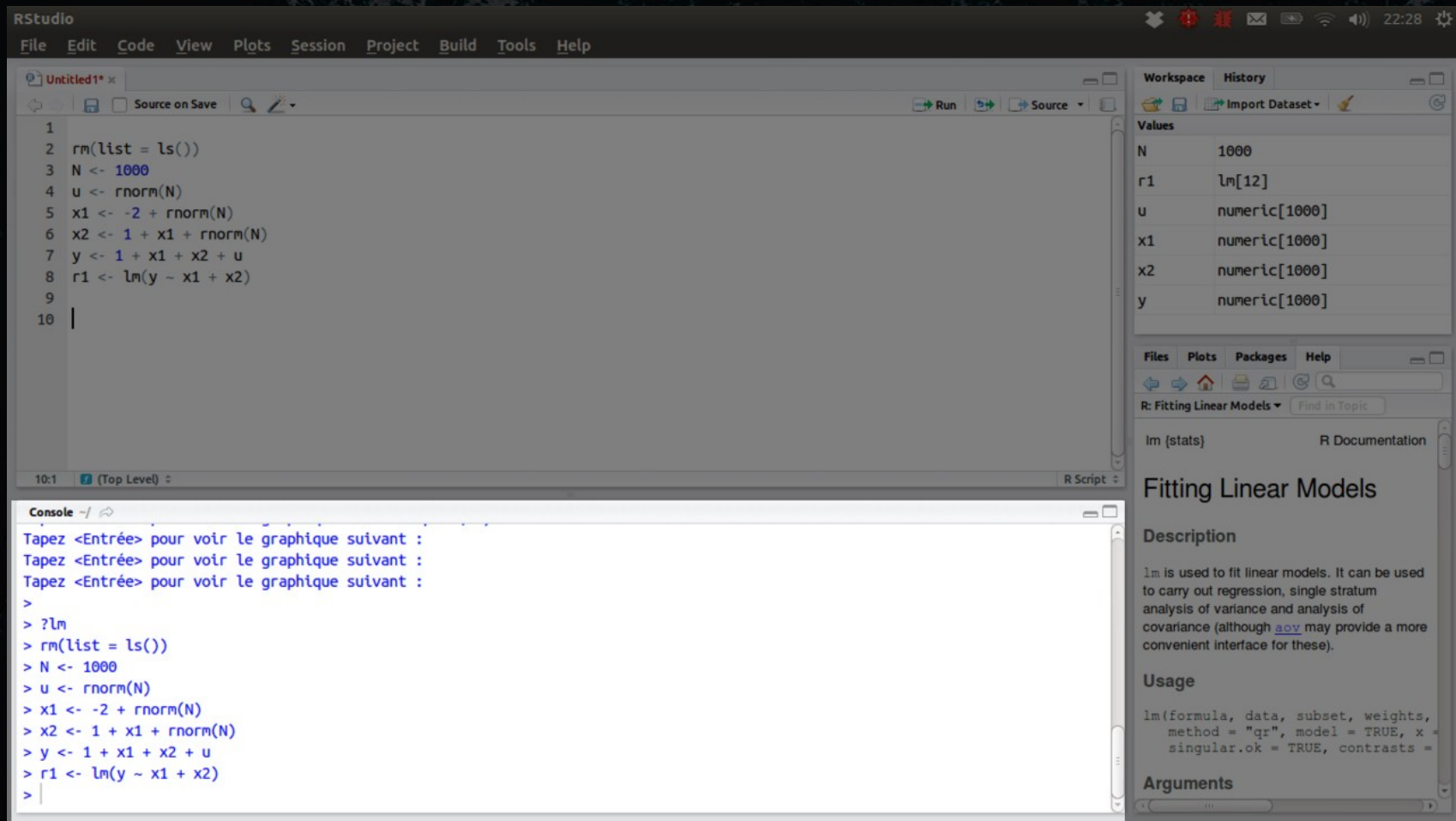
```
lm(formula, data, subset, weights,  
   method = "qr", model = TRUE, x =  
   singular.ok = TRUE, contrasts =
```

Arguments

¿Qué es Rstudio?

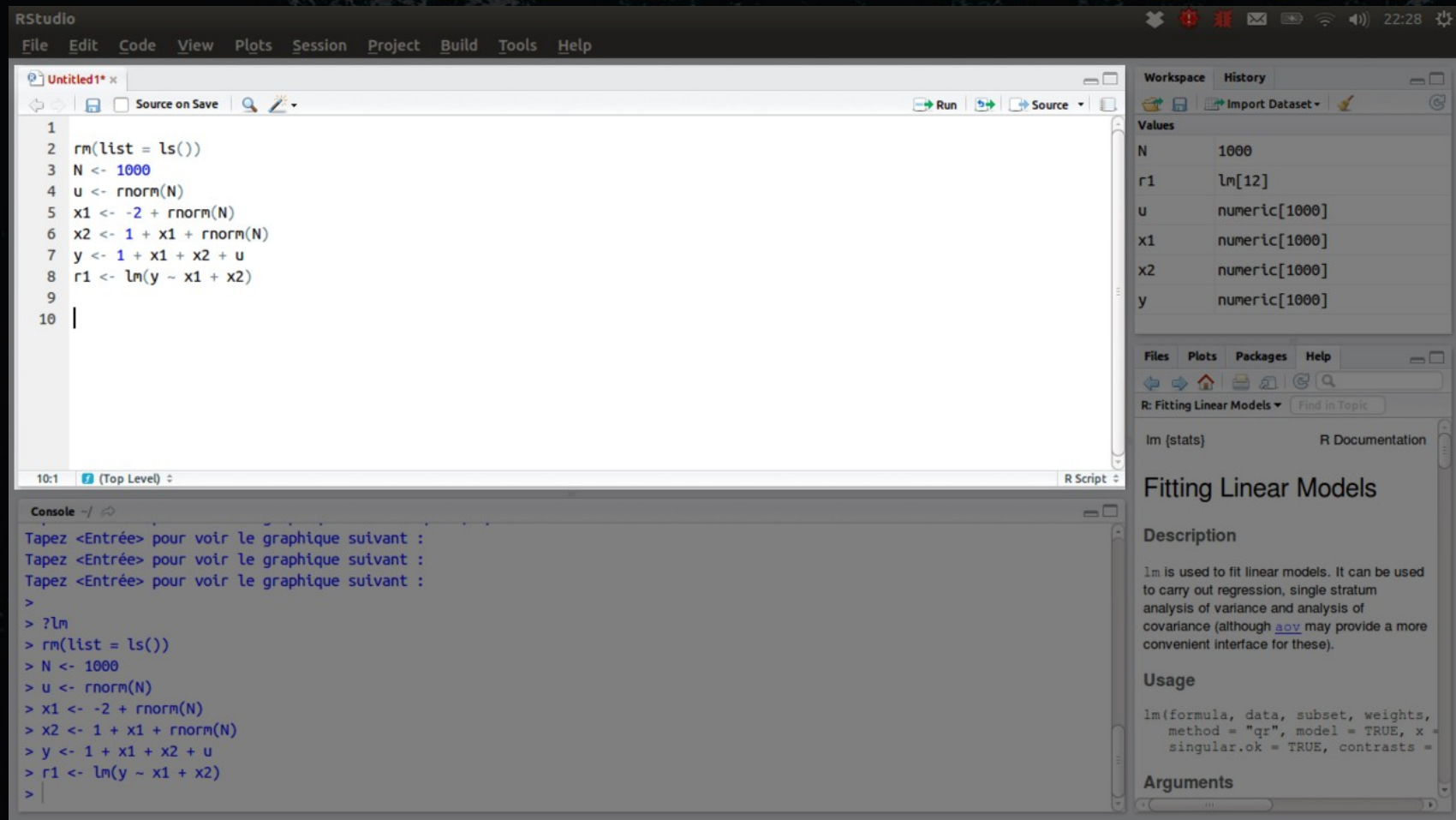
4 ventanas





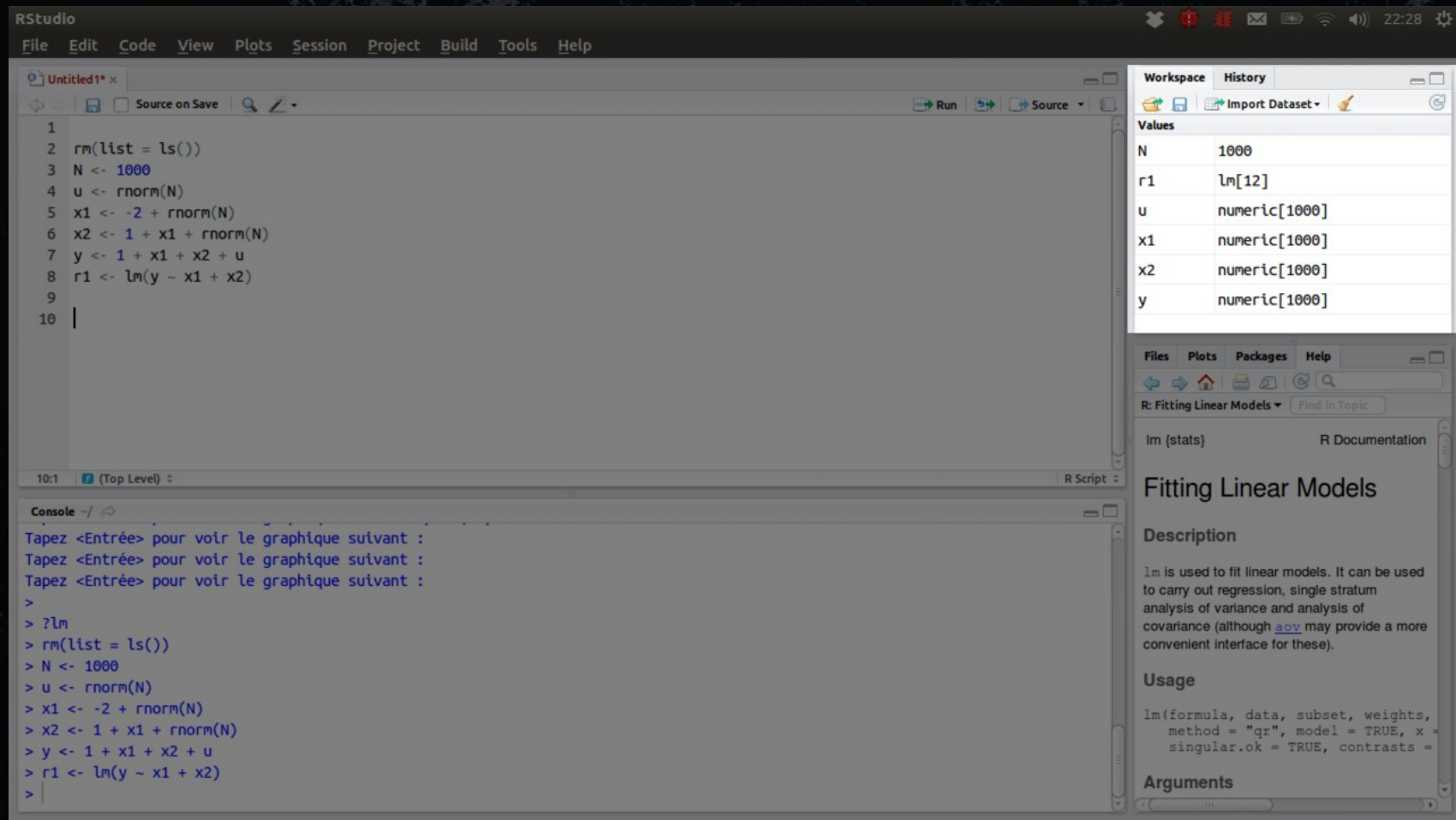
Consola

Ventanilla de comunicación



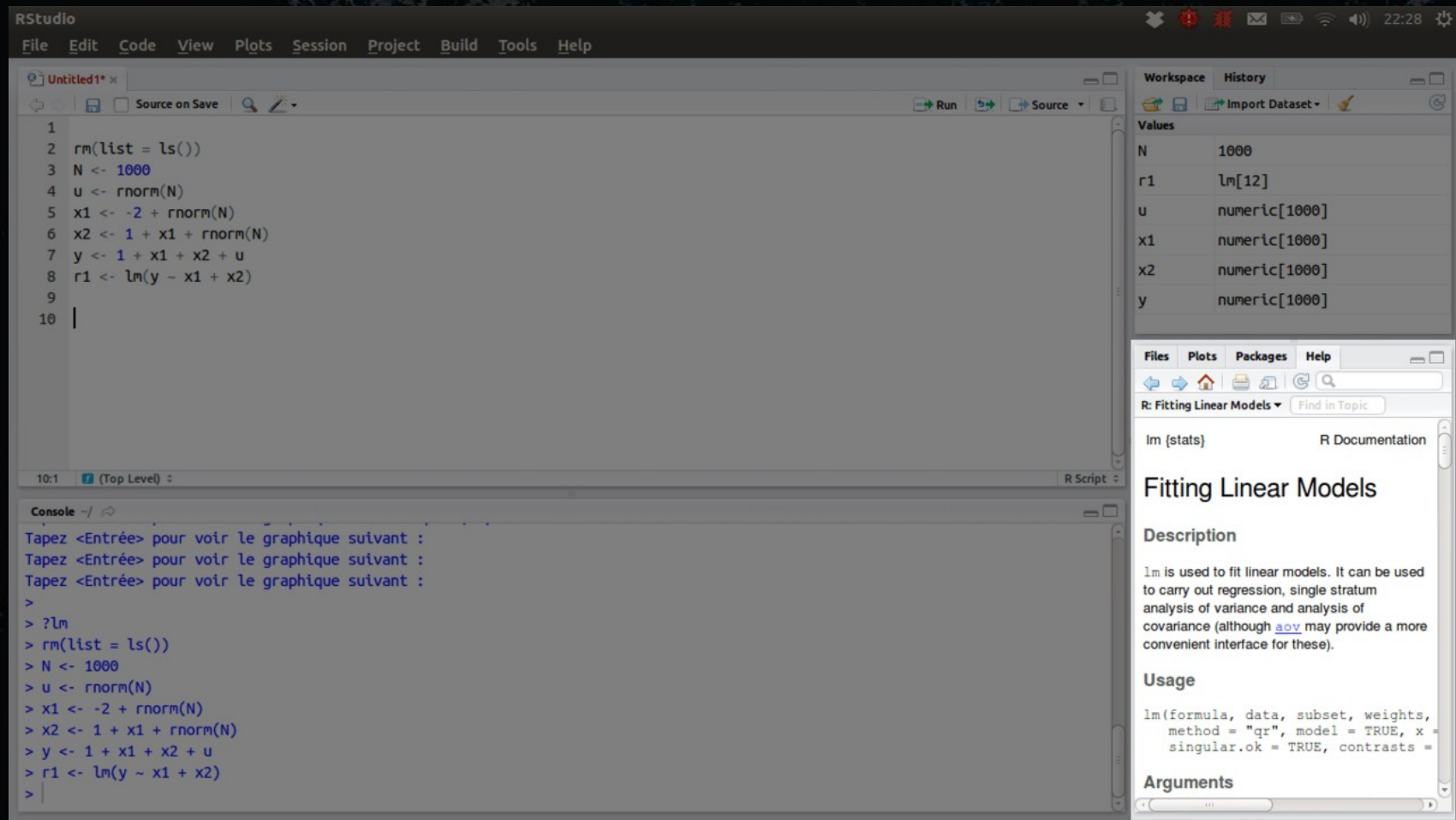
Editor de scripts

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

