

# battlebots

## EI2001 Taller de Proyecto

María José Alfaro, Fernanda Sanchirico, Salvador Alveal  
(ft. Felipe Higuera, Gustavo Holmberg, Cristóbal Mesías)  
Matías Mattamala

Otoño 2019

# agenda

1. qué se viene
2. tutorial de git

	L	M	M	J	V	S	D
semana 11		28	29	30	31	1	2
semana 12	3	4	<b>5</b>	6	7	8	9
semana 13	10	11	<b>12</b>	13	14	15	16
semana 14	17	18	<b>19</b>	20	21	22	23
semana 15	24	25	<b>26</b>	27	28	29	30
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	1	2	3	4
	5	6	7	8	9	10	11

junio

julio

agosto

	L	M	M	J	V	S	D
semana 11		28	29	30	31	1	2
semana 12	3	4	5	6	7	8	9
semana 13	10	11	12	13	14	15	16
semana 14	17	18	19	20	21	22	23
semana 15	24	25	26	27	28	29	30
	1	2	3	4	5	6	7
	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
	29	30	31	1	2	3	4
	5	6	7	8	9	10	11

**junio**

**julio**

**agosto**

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semana 11		28	29	30	31	1	2
semana 12	3	4	5	6	7	8	9
semana 13	10	11	12	13	14	15	16
semana 14	17	18	19	20	21	22	23
semana 15	24	25	26	27	28	29	30
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	8	9	10	11	12	13	14
	15	16	17	18	19	20	21
	22	23	24	25	26	27	28
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**junio**

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julio

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junio



julio

agosto























	L	M	M	J	V	S	D
semana 11		28	29	30	31	1	2
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semana 13	10	11	12	13	14	15	16
semana 14	17	18	19	20	21	22	23
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junio



julio

agosto

	L	M	M	J	V	S	D	
semana 11		28	29	30	31	1	2	
semana 12 tutorial git	3	4	5	6	7	8	9	junio
semana 13 tutorial esquemas	10	11	12	13	14	15	16	
semana 14	17	18	19	20	21	22	23	
semana 15 presentaciones	24	25	26	27	28	29	30	
	1 	2 	3 	4 	5 	6 	7 	
	8 	9 	10 	11 	12 	13 	14 	julio
								
	29	30	31	1	2	3	4	
	5	6	7	8	9	10	11	agosto

# qué se viene

1. evaluar mejoras en sus battlebots
  - a. rediseñar armas
  - b. incluir sensores
  - c. cambiar sistemas de radiocontrol
2. documentar
  - a. todo en github
  - b. diagramas eléctricos
  - c. diagramas funcionales
  - d. documentar código

# tutorial de git (al fin)

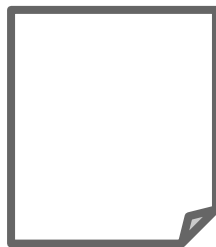
# Tutorial de Git

Control de versiones, Git, GitHub

Matías Mattamala

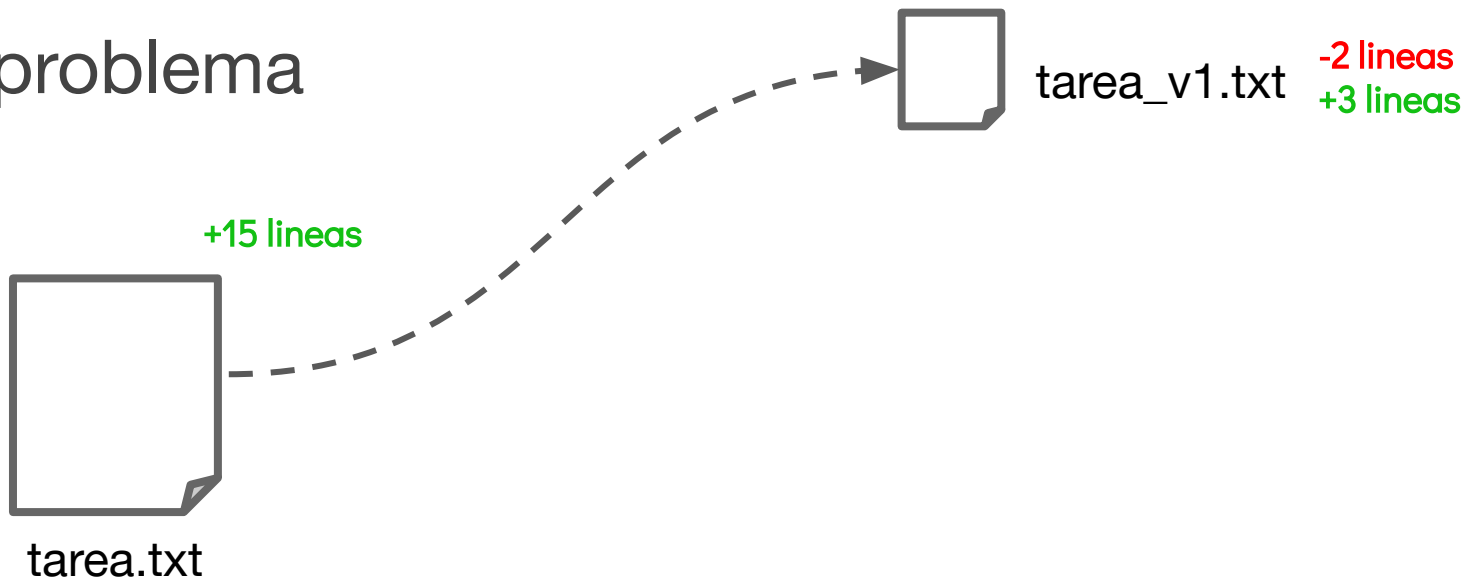
Junio 2019

# El problema



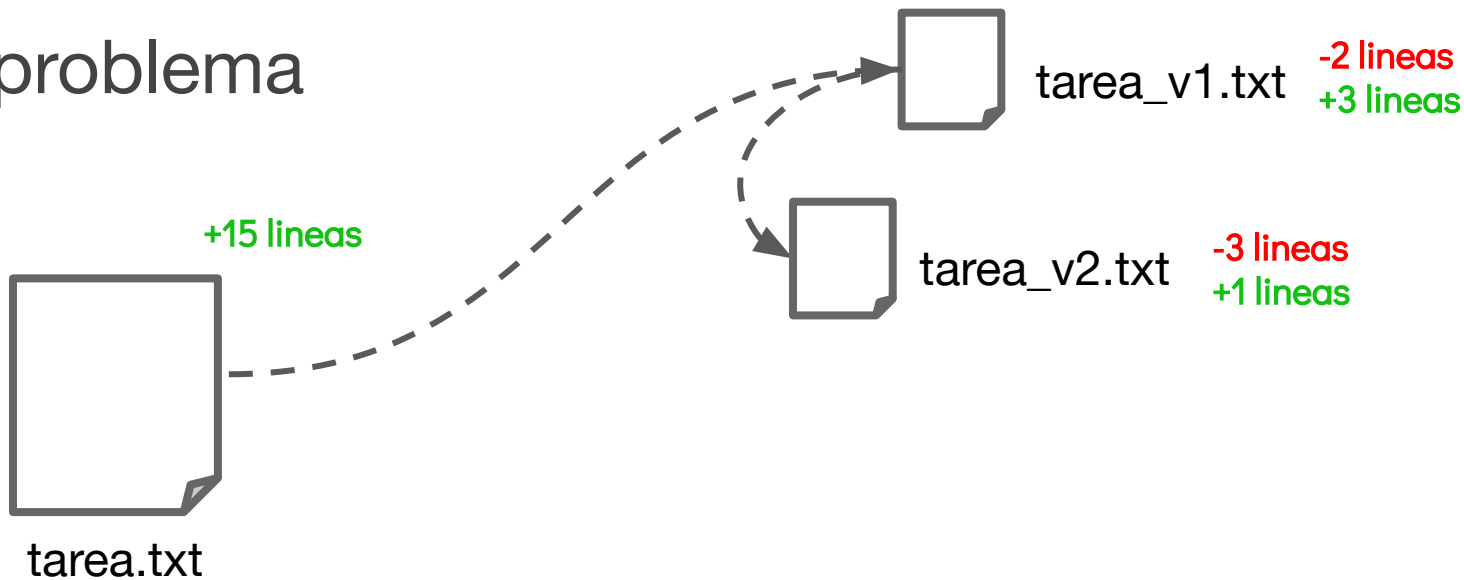
tarea.txt

# El problema

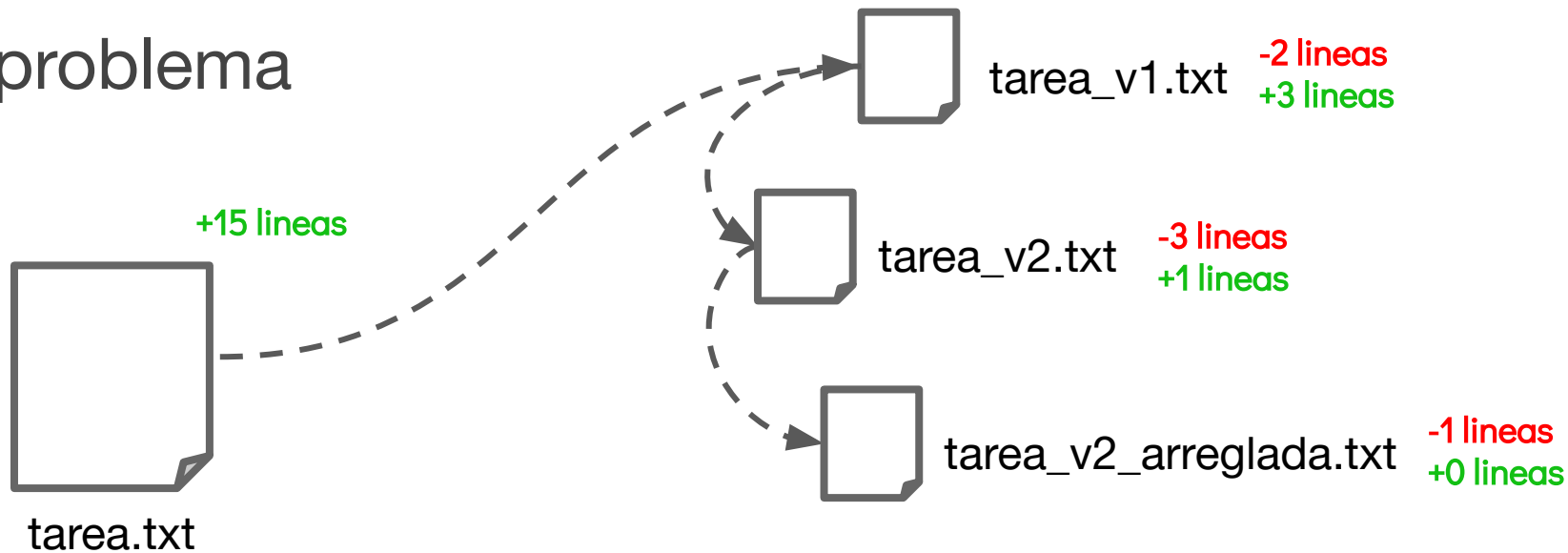




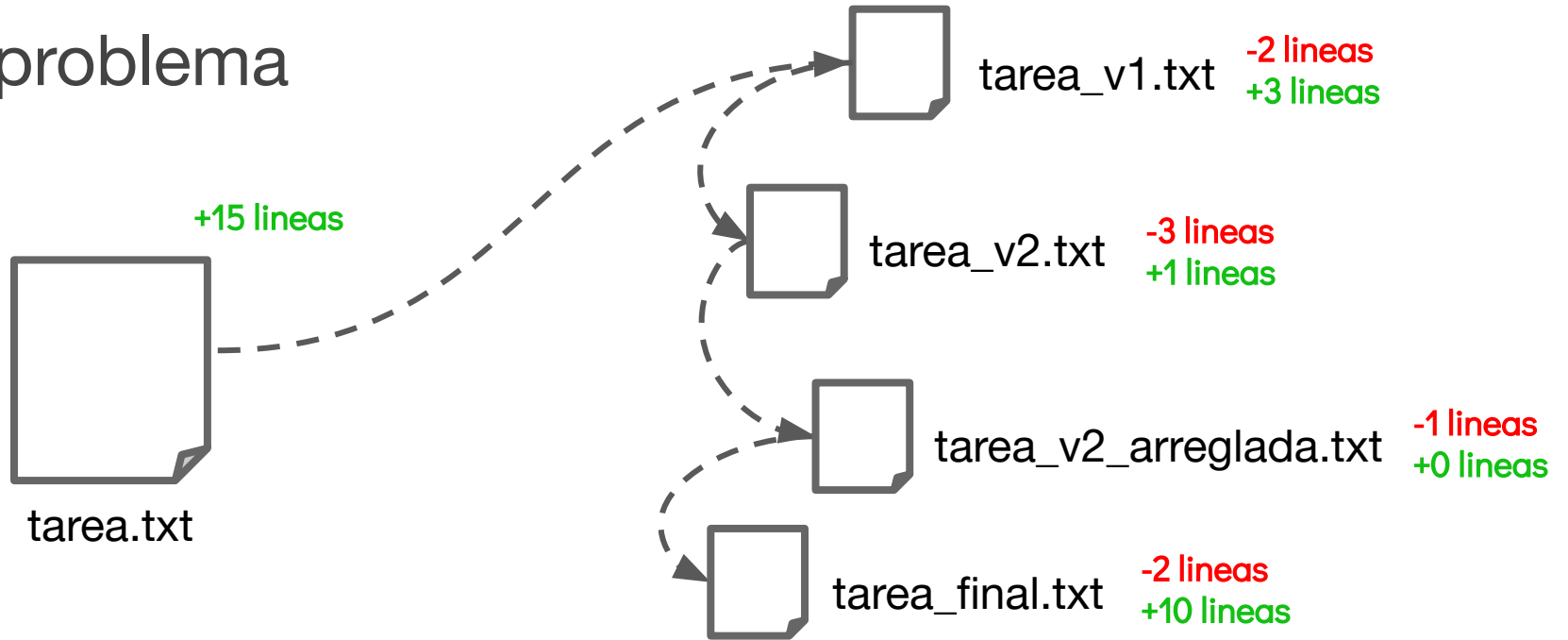
# El problema



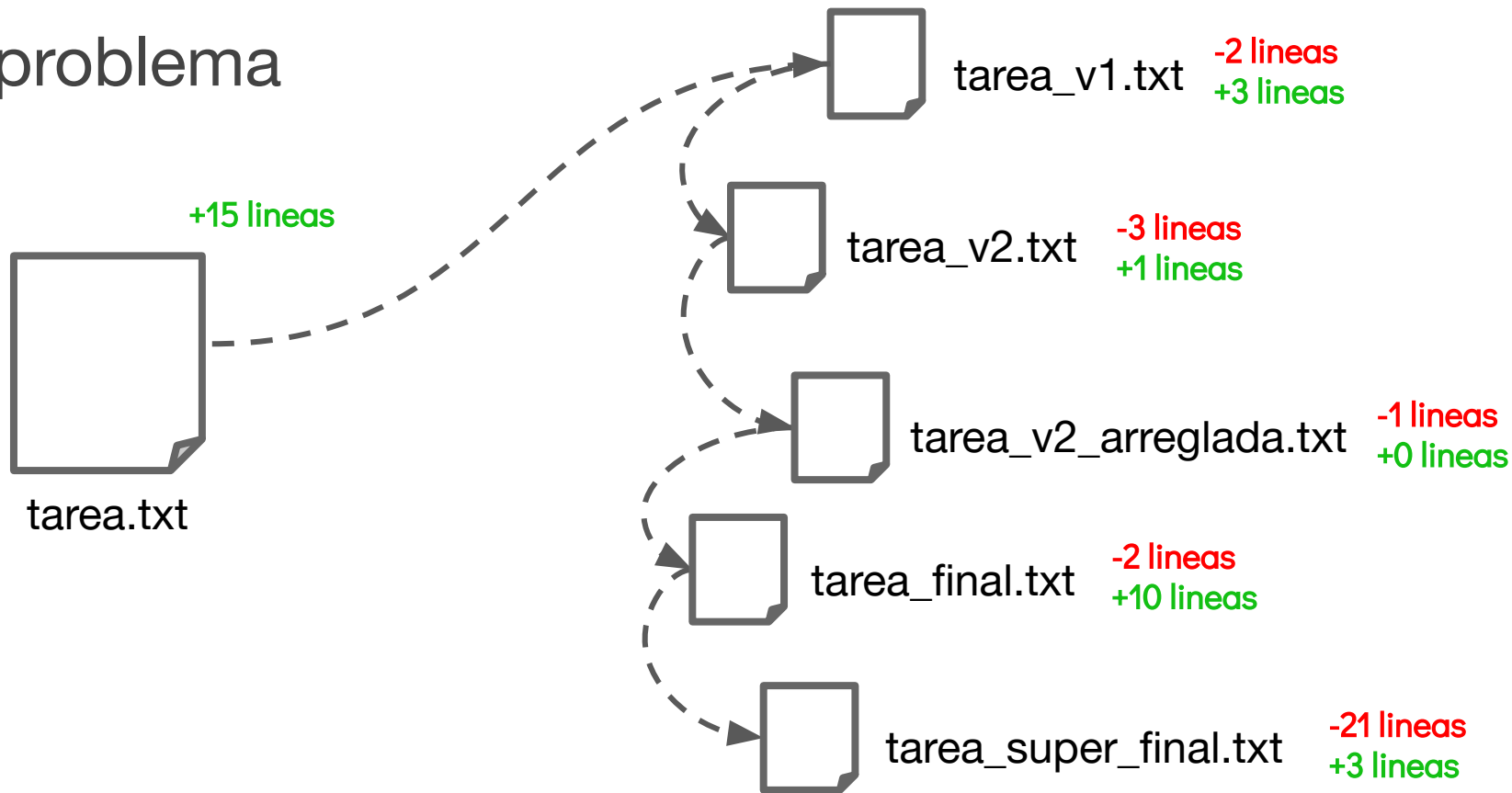
# El problema



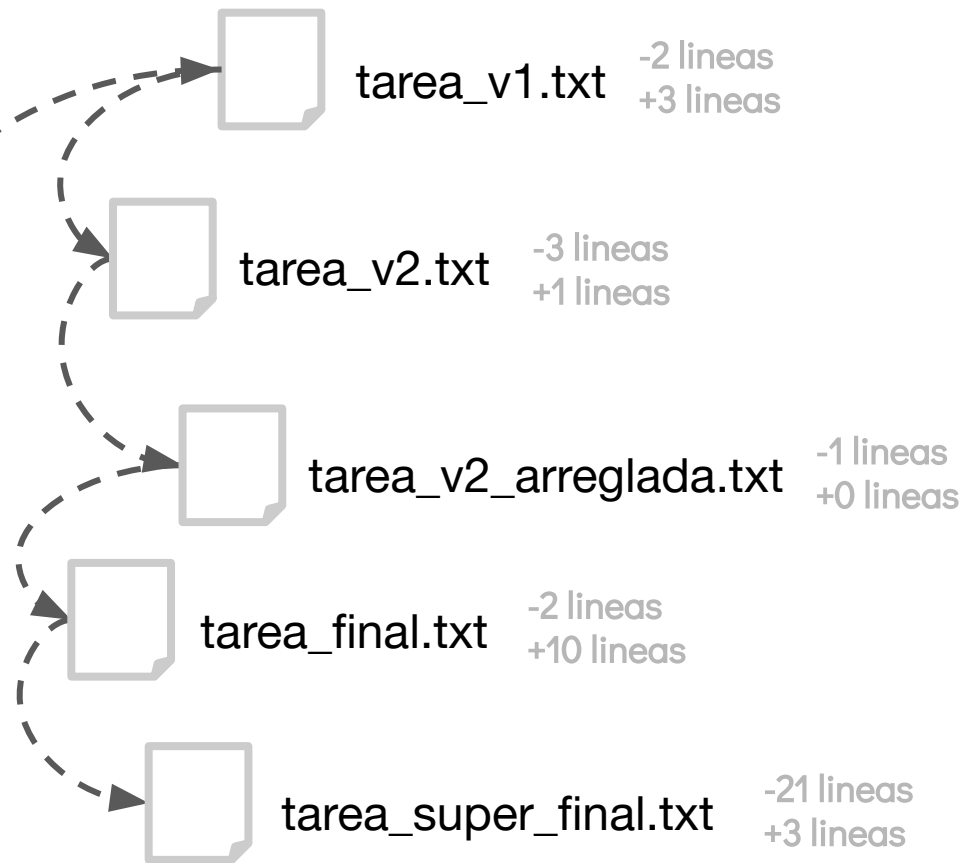
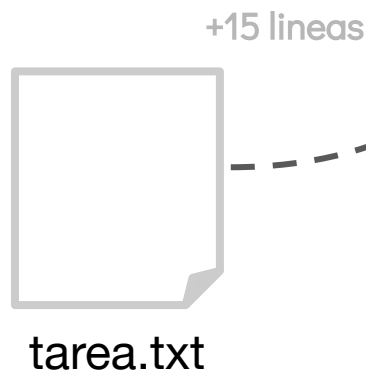
# El problema



# El problema



# El problema



Problema del Control de Versiones (VC)

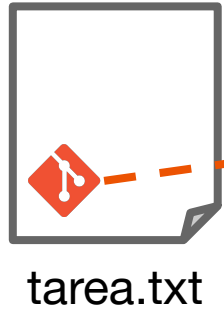
# Git soluciona el problema de Control de Versiones








**Sistema** de Control de Versiones

\*Hay más sistemas (SVN, Mercurial), pero Git es usado por Microsoft, Google, Facebook, Netflix, etc

# Qué hace Git

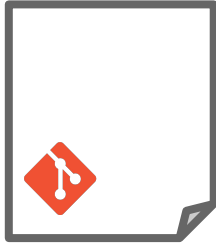


## Historial de versiones

versión	archivo	cambios
V1	 tarea_v1.txt	-2 líneas +3 líneas
V2	 tarea_v2.txt	-3 líneas +1 líneas
V3	 tarea_v2_arreglada.txt	-1 líneas +0 líneas
V4	 tarea_final.txt	-2 líneas +10 líneas
V5	 tarea_super_final.txt	-21 líneas +3 líneas



# Ventajas de usar Git



tarea.txt

1. Administración ordenada de **respaldos**
2. Permite la **colaboración** de varias personas
3. Es **gratis**, así que sólo hay que aprender a usarlo

# Aspectos prácticos de Git

# Quiero usar Git, ¿cómo lo hago?

1

**Carpeta con código que queremos respaldar**

En jerga de git, es lo que conformará un **repositorio**

# Quiero usar Git, ¿cómo lo hago?

1

Carpeta con  
código que  
queremos  
respaldar

En jerga de git, es  
lo que conformará  
un **repositorio**

2

Git (software)

Descargarlo e  
instalarlo de  
[git-scm.com](https://git-scm.com)

# Quiero usar Git, ¿cómo lo hago?

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Carpeta con  
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respaldar

En jerga de git, es lo que conformará un **repositorio**

2

Git (software)

Descargarlo e instalarlo de [git-scm.com](https://git-scm.com)

3

**Decidir cómo usarlo**

Decidir si se usará Git de forma **local** o **remota**

# Uso de Git: Local

El repositorio queda **guardado en nuestros computadores**

Se debe **configurar manualmente** el repositorio

**No requiere conexión** a internet

PC personal



Repositorio

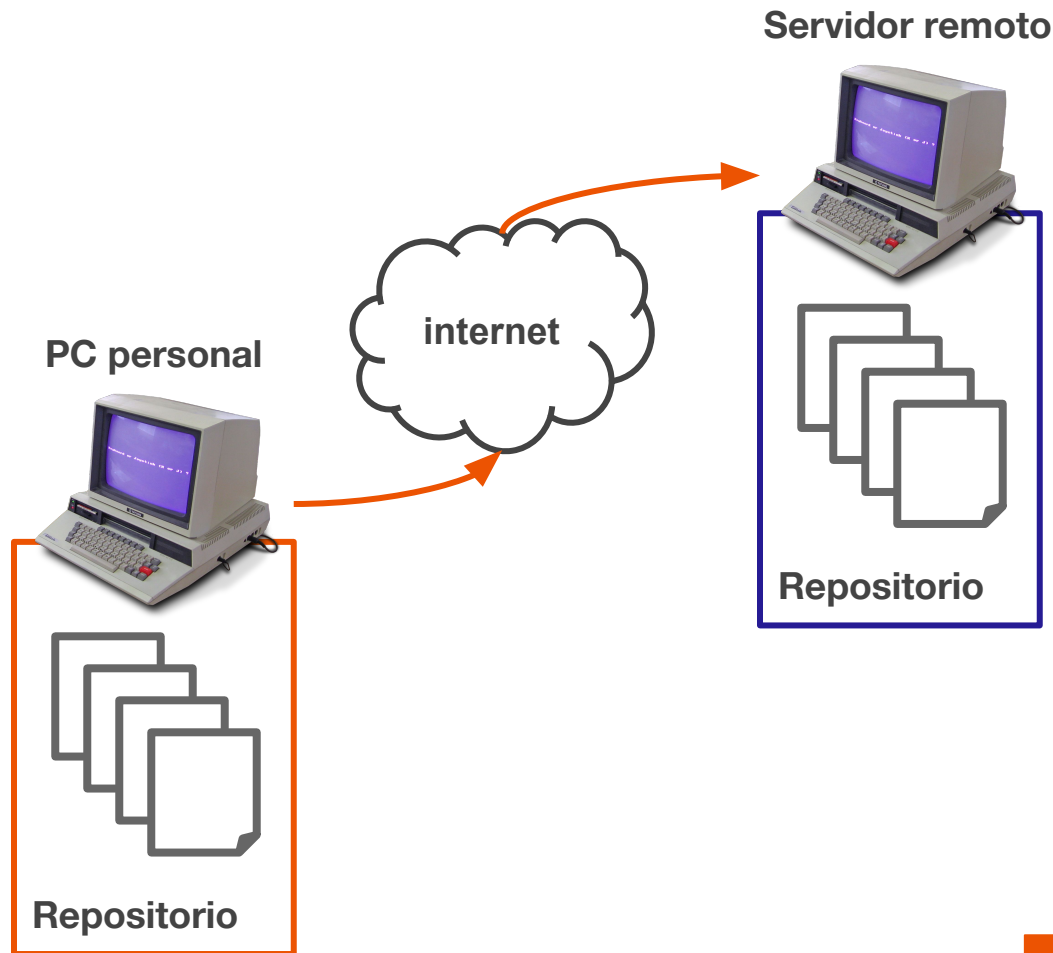
# Uso de Git: Remoto

El repositorio queda guardado en **nuestros pcs** y en **servidor remoto**

Podemos **configurar el repositorio remotamente** y **clonarlo** en nuestros pcs

**Requiere conexión** a internet

**Método recomendado**





# Uso de Git con un servidor remoto

# Servidores remotos de Git



**Popular en general**

A veces requerido en **entrevistas laborales**

Repositorios:

- públicos por defecto
- privados con cuenta educacional



Popular en **proyectos empresariales**

Repositorios:

- públicos y privados



Popular como **alternativa abierta a GitHub**

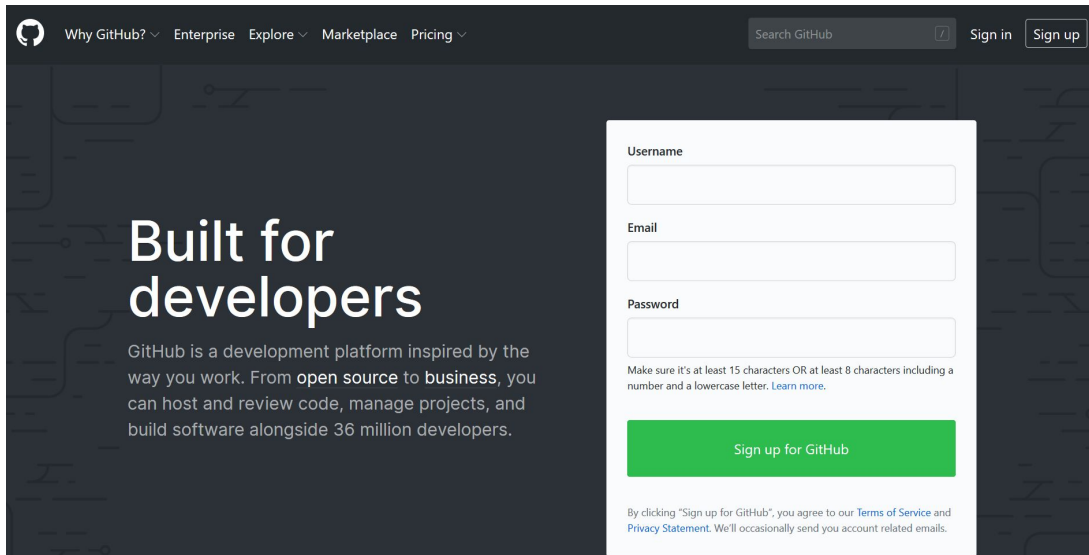
Repositorios:

- públicos por defecto
- privados (con limitaciones)

# Caso de estudio: GitHub

GitHub requiere **crear un usuario** en su sitio [www.github.com](https://www.github.com)

El usuario da acceso a **crear repositorios**, participar en **proyectos** y **organizaciones**, y tener un **perfil público**



The screenshot shows the GitHub sign-up page. At the top, there is a navigation bar with links for 'Why GitHub?', 'Enterprise', 'Explore', 'Marketplace', and 'Pricing'. A search bar and 'Sign in' / 'Sign up' buttons are also present. The main content area features the headline 'Built for developers' and a sub-headline: 'GitHub is a development platform inspired by the way you work. From open source to business, you can host and review code, manage projects, and build software alongside 36 million developers.' Below this is a sign-up form with three input fields: 'Username', 'Email', and 'Password'. A green button labeled 'Sign up for GitHub' is positioned below the form. At the bottom of the form, there is a small disclaimer: 'By clicking "Sign up for GitHub", you agree to our Terms of Service and Privacy Statement. We'll occasionally send you account related emails.'

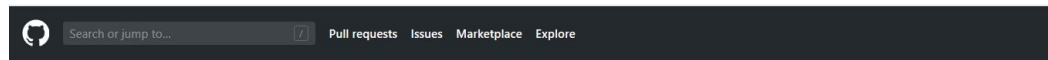
# GitHub: Perfiles de usuario

The screenshot shows the GitHub profile page for Matias Mattamala. At the top, there is a navigation bar with the GitHub logo, a search bar, and links for Pull requests, Issues, Marketplace, and Explore. The user's profile header includes a profile picture, the name "Matias Mattamala", and the username "mmattamala". Below the name, there is a "PRO" badge and an "Edit profile" button. The bio states "M.Sc. in Electrical Engineering. I work with robots" and lists the user's affiliation as "University of Chile" in "Santiago, Chile", along with an email address and a website link. The "Organizations" section displays logos for various groups. The main content area is titled "Overview" and shows statistics: 66 Repositories, 0 Projects, 197 Stars, 40 Followers, and 49 Following. A "Pinned" section features three repositories: "LogosFCFM", "Duckietown-Chile/Software", and "uchile-robotics/nao-backpack". Below this is a "124 contributions in the last year" heatmap, which is a grid showing activity from June to May across the days of the week. To the right of the heatmap is a vertical list of years from 2015 to 2019, with 2019 selected. At the bottom, there is an "Activity overview" section showing a vertical bar chart for "Code review" activity.

# GitHub: Perfiles de usuario

Foto, nombre real, nombre de usuario, datos de contacto

Repositorios, proyectos, repositorios destacados (starred), etc



Working in several stuff

**Matias Mattamala**  
mmattamala

★ PRO

Edit profile

M.Sc. in Electrical Engineering. I work with robots

University of Chile  
Santiago, Chile  
mmattamala@ug.uchile.cl  
http://mmattamala.github.io

Overview Repositories 66 Projects 0 Stars 197 Followers 40 Following 49

Pinned

- LogosFCFM  
Logos de la Facultad de Ciencias Físicas y Matemáticas (FCFM) de la Universidad de Chile  
★ 60 🗲 39
- Duckietown-Chile/Software  
Forked from duckietown/Software  
In this repository we will collect all the software, middleware, drivers, ROS modules, and so on, that would allow to run our cars.  
Python ★ 2 🗲 52
- uchile-robotics/nao-backpack  
The NAO Backpack project  
C++ ★ 7

124 contributions in the last year

Contribution settings

2019

	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May
Mon												
Tue												
Wed												
Thu												
Fri												
Sat												
Sun												

Learn how we count contributions.

Less More

@astrodatos @Duckietown-Chile @Battlebots-UChile

Activity overview

Contributed to mmattamala/tesis-uchile, mmattamala/google\_colab\_tests, mmattamala/robot\_gatito and 5 other repositories

1% Code review

Organizations

Organizaciones asociadas

Contribuciones

# GitHub: Dashboard

The screenshot displays the GitHub dashboard for user **mmattamala**. The interface includes a top navigation bar with links for Pull requests, Issues, Marketplace, and Explore. The left sidebar shows the user's profile, a list of repositories (including `google_colab_tests`, `minitarea1`, and `StanfordDoggoProject`), and a section for "Your teams" with links to `duckietown` and `spl-soccer-team`.

The main content area features a feed of recent activity:

- nmartcorena** pushed to `uchile-robotics/uchile_perception` 3 hours ago, with 1 commit to `feat-vision` (fix bug with normalize depth image).
- nmartcorena** pushed to `uchile-robotics/uchile_high` 3 hours ago, with 2 commits to `feat-find-mates` (Merge branch 'feat-find-mates' and Add `GoPersonYolo` for testing purposes).
- ristofer** pushed to `uchile-robotics/maqui_bringup` 4 hours ago, with 2 commits to `develop` (fix navigation and fix a mviz).
- dbarrientosa** starred `elegant-scipy/elegant-scipy` 5 hours ago, the 1st Edition of `Elegant SciPy` (Python, 280 stars, updated Jun 4).
- ristofer** pushed to `uchile-robotics/uchile_perception` 6 hours ago, with 1 commit to `develop` (cosas que pille en el pc sin commitear).

On the right side, there are promotional cards for the **GitHub Sponsors Matching Fund** and a welcome message for the new dashboard. Below these is a "Discover repositories" section listing `ethz-adi/control-toolbox`, `mfe7/cadrl_ros`, and `pypeit/Pypeit`.

# GitHub: Dashboard

Search or jump to... Pull requests Issues Marketplace Explore

mmattamala

Repositories New

Find a repository...

- mmattamala/google\_colab\_tests
- astrodatos/minitarea1
- astrodatos/proyecto\_iluminatiuwu
- Nate711/StanfordDoggoProject
- mmattamala/LogosFCFM
- astrodatos/proyecto\_jabpipol
- astrodatos/proyecto\_smpin

Show more

Últimos repositorios

- robotics/duckietown
- robotics/uchile-spl-soccer-team

nmartcorena pushed to uchile-robotics/uchile\_perception 3 hours ago

- 1 commit to [feat-vision](#)
- d4eb73c fix bug with normalize depth image

nmartcorena pushed to uchile-robotics/uchile\_high 3 hours ago

- 2 commits to [feat-find-mates](#)
- 07Feb2b Merge branch 'feat-find-mates' of https://github.com/uchile-robotics/...
- 4d544ab Add GoPersonYolo, for testing purposes
- 2 more commits »

ristofer pushed to uchile-robotics/maqui\_bringup 4 hours ago

- 2 commits to [develop](#)
- b97eeb5 fix navegacion ahora esta pulento
- 3d3b65d fix a mviz

dbarrientosa starred elegant-scipy/elegant-scipy 5 hours ago

**elegant-scipy/elegant-scipy** ★ Star

1st Edition of Elegant SciPy (O'Reilly Publishers)

- Python ★ 280 Updated Jun 4

ristofer pushed to uchile-robotics/uchile\_perception 6 hours ago

- 1 commit to [develop](#)
- fe2d581 cosas que pille en el pc sin commitear

## Actividad en repositorios relevantes

### Discover repositories

**ethz-adi/control-toolbox**  
The Control Toolbox - An Open-Source C++ Library for Robotics, Optimal and Model Predictive Control  
C++ ★ 41

**mfe7/cadrl\_ros**  
ROS package for dynamic obstacle avoidance for ground robots trained with deep RL  
Python ★ 137

**pypeit/Pypeit**  
The Python Spectroscopic Data Reduction Pipeline  
Python ★ 31  
[Go to Explore →](#)



# GitHub: Organizaciones

The screenshot shows the GitHub organization page for Battlebots UChile. The organization is located in Santiago, Chile, and has 7 repositories, 3 people, 0 teams, and 0 projects. The page displays a list of repositories, each with a language icon (C++), a shield icon, a star icon, a clock icon, and a lock icon, along with the update date. The repositories listed are battlebot-sherman, battlebot-el\_diablo, battlebot-perdix, battlebot-pipo, and battlebot-cucaracha. A sidebar on the right shows the top languages (C++) and the people associated with the organization: cmesiasd (Cristóbal Mesías), majoalfaro (María José Alfaro), and mmattamala (Matias Mattamala). There is an 'Invite someone' button at the bottom of the sidebar.

Search or jump to... Pull requests Issues Marketplace Explore

**BATTLEBOTS** UChile  
Agrupación de Battlebots de la Universidad de Chile  
Santiago, Chile

Repositories 7 People 3 Teams 0 Projects 0 Settings

Find a repository... Type: All Language: All Customize pins New

**battlebot-sherman**  
C++ 0 0 0 Updated on 4 Sep 2018

**battlebot-el\_diablo**  
C++ 0 2 0 Updated on 2 Sep 2018

**battlebot-perdix**  
C++ 1 1 0 Updated on 2 Sep 2018

**battlebot-pipo**  
C++ 0 0 0 Updated on 2 Sep 2018

**battlebot-cucaracha**  
C++ 0 0 0 Updated on 2 Sep 2018

Top languages  
C++

People 3 >

**cmesiasd**  
Cristóbal Mesías

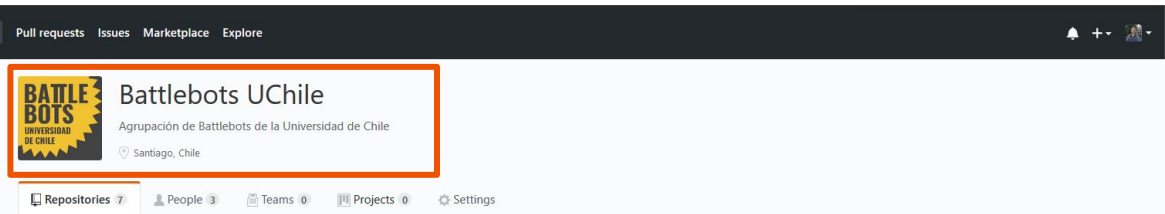
**majoalfaro**  
María José Alfaro

**mmattamala**  
Matias Mattamala

Invite someone

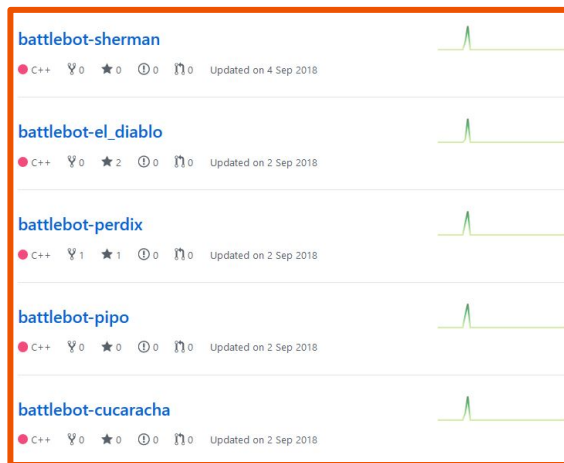
# GitHub: Organizaciones

Información de la organización



The screenshot shows the GitHub organization page for "Battlebots UChile". The organization's name and logo are highlighted with an orange box. The logo features the text "BATTLEBOTS UNIVERSIDAD DE CHILE". Below the name, it says "Agrupación de Battlebots de la Universidad de Chile" and "Santiago, Chile". The navigation bar includes "Repositories 7", "People 3", "Teams 0", "Projects 0", and "Settings".

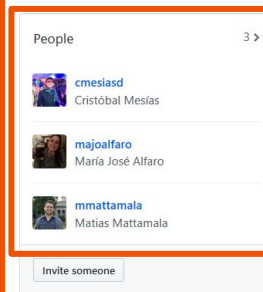
Repositorios de la organización



The screenshot displays a list of repositories for the organization, with the list itself highlighted by an orange box. The repositories listed are:

- battlebot-sherman**: C++, 0 forks, 0 stars, 0 issues, 0 pull requests. Updated on 4 Sep 2018.
- battlebot-el\_diablo**: C++, 0 forks, 2 stars, 0 issues, 0 pull requests. Updated on 2 Sep 2018.
- battlebot-perdix**: C++, 1 fork, 1 star, 0 issues, 0 pull requests. Updated on 2 Sep 2018.
- battlebot-pipo**: C++, 0 forks, 0 stars, 0 issues, 0 pull requests. Updated on 2 Sep 2018.
- battlebot-cucaracha**: C++, 0 forks, 0 stars, 0 issues, 0 pull requests. Updated on 2 Sep 2018.

Integrantes de la organización



The screenshot shows the "People" section of the organization, which is highlighted with an orange box. It lists three members:

- cmesiad**: Cristóbal Mesías
- majoalfaro**: María José Alfaro
- mmattamala**: Matias Mattamala

There is a "3 >" link next to the "People" header and an "invite someone" button at the bottom.

# GitHub: Repositorios

The screenshot shows the GitHub interface for the repository 'Battlebots-UChile / battlebot-pipo'. At the top, there is a navigation bar with links for 'Pull requests', 'Issues', 'Marketplace', and 'Explore'. Below this, the repository name is displayed along with statistics: 3 Unwatch, 0 Stars, and 0 Forks. A secondary navigation bar includes 'Code', 'Issues 0', 'Pull requests 0', 'Projects 0', 'Wiki', 'Security', 'Insights', and 'Settings'. The main content area features a description field with the text 'No description, website, or topics provided.' and an 'Edit' button. Below the description, there are statistics for '58 commits', '1 branch', '0 releases', and '4 contributors'. A 'Branch: master' dropdown and a 'New pull request' button are visible. A list of files is shown, including 'codigos', 'diagrama', 'lluvia de ideas', 'multimedia', 'planos', and 'README.md', each with a brief description and a timestamp of '9 months ago'. The 'README.md' file is selected, showing its content: 'PIPO, el prototipo - 2018'. The text in the README describes a character named PIPO, a 'hijo de luchadores' (son of warriors) destined to rise with 'imponencia' (imponence) and mentions 'Escocia Occidental' (Western Scotland) and 'Wakanda'.

Search or jump to... Pull requests Issues Marketplace Explore

Battlebots-UChile / battlebot-pipo Unwatch 3 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Security Insights Settings

No description, website, or topics provided. Edit

Manage topics

58 commits 1 branch 0 releases 4 contributors

Branch: master New pull request Create new file Upload files Find File Clone or download

SanquirinoB Update README.md Latest commit 82f9435 on 2 Sep 2018

codigos	Add files via upload	9 months ago
diagrama	Hay escritos que no se escanearon completos	9 months ago
lluvia de ideas	Update README.md	9 months ago
multimedia	Add files via upload	9 months ago
planos	Add files via upload	9 months ago
README.md	Update README.md	9 months ago

README.md

## PIPO, el prototipo - 2018

Nadie pudo presagiar la llegada de un grande, un hijo de luchadores, destinado a caer para luego elevarse con imponencia (Sí Cris y Majo, a ustedes les hablo), nacido en semana 15, creado a partir del MDF más fino extraído de los altos árboles milenarios del norte de Escocia Occidental, talado por Odin, forjado por Thor, cables unidos por la abrazadora aleación entre adamantium y vibranium extraídos de las inospitas profundidades de las minas subterráneas a tajo abierto de Wakanda, así es... estaño. Preparense, tomen su mejor mantita, abracen muy bien a su mamá, porque aquí viene el temor del este, la razón

# GitHub: Repositorios

The screenshot shows the GitHub interface for the repository 'Battlebots-UChile / battlebot-pipo'. Red boxes highlight several key elements:

- Repository Information:** The repository name and navigation tabs (Code, Issues, Pull requests, Projects, Wiki, Security, Insights, Settings).
- Actions:** Unwatch (3), Star (0), and Fork (0) buttons.
- Statistics:** 58 commits, 1 branch, 0 releases, and 4 contributors.
- Files:** A list of files including 'codigos', 'diagrama', 'lluvia de ideas', 'multimedia', 'planos', and 'README.md', each with a description and the time since the last commit (9 months ago).
- README Visualization:** The content of the README.md file, titled 'PIPO, el prototipo - 2018', which describes a character named Pipo.

Información del repositorio

Acciones (seguir, starrear, forkear)

Archivos del repositorio

Estadísticas del repositorio

Visualización del README (léeme)

## PIPO, el prototipo - 2018

Nadie pudo presagiar la llegada de un grande, un hijo de luchadores, destinado a caer para luego elevarse con imponencia (Si Cris y Majo, a ustedes les hablo), nacido en semana 15, creado a partir del MDF más fino extraído de los altos árboles milenarios del norte de Escocia Occidental, talado por Odin, forjado por Thor, cables unidos por la abrazadora aleación entre adamantium y vibranium extraídos de las inospitas profundidades de las minas subterráneas a tajo abierto de Wakanda, así es... estaño. Preparense, tomen su mejor mantita, abracen muy bien a su mamá, porque aquí viene el temor del este, la razón

# Creando repositorios en GitHub

# Paso 1: Ir al Dashboard

The screenshot shows the GitHub dashboard for user **mmattamala**. The top navigation bar includes a search field, a home icon, and links for Pull requests, Issues, Marketplace, and Explore. The left sidebar contains the user's profile, a 'New' repository button, a search for repositories, a list of repositories (including `google_colab_tests`, `minitarea1`, `proyecto_iluminatiuu`, `StanfordDoggoProject`, `LogosFCFM`, `proyecto_jabpipol`, and `proyecto_smpin`), and a section for 'Your teams' with a search field and two team entries: `uchile-robotics/duckietown` and `uchile-robotics/uchile-spl-soccer-team`.

The main content area displays a list of recent activity:

- nmartcorena pushed to uchile-robotics/uchile\_perception** 3 hours ago: 1 commit to `feat-vision` by `d4eb73c` (fix bug with normalize depth image).
- nmartcorena pushed to uchile-robotics/uchile\_high** 3 hours ago: 2 commits to `feat-find-mates` by `07Feb2b` (Merge branch 'feat-find-mates') and `40544ab` (Add GoPersonYolo). Includes a link to the repository.
- ristofer pushed to uchile-robotics/maqui\_bringup** 4 hours ago: 2 commits to `develop` by `b97eeb5` (fix navegacion ahora esta pulento) and `63db05d` (fix a mviz). Includes a link to the repository.
- dbarrientosa starred elegant-scipy/elegant-scipy** 5 hours ago: `elegant-scipy/elegant-scipy` (1st Edition of Elegant SciPy). Includes a 'Star' button, language (Python), and star count (280).
- ristofer pushed to uchile-robotics/uchile\_perception** 6 hours ago: 1 commit to `develop` by `fe2d581` (cosas que pille en el pc sin commitear). Includes a link to the repository.

On the right side, there are two notification boxes: 'GitHub Sponsors Matching Fund' and 'Welcome to the new dashboard'. Below these is a 'Discover repositories' section listing `ethz-adi/control-toolbox`, `mfe7/cadrl_ros`, and `pypeit/Pypeit` with their respective languages and star counts.

# Paso 2: Seleccionar “New”

The screenshot shows the GitHub web interface. At the top, there is a search bar and navigation links for Pull requests, Issues, Marketplace, and Explore. On the left sidebar, the user profile 'mmattamala' is shown, followed by a 'Repositories' section with a search input and a list of repositories. A green 'New' button is highlighted with a red rectangular box. Below the repositories list, there are sections for 'Your teams' and 'Discover repositories' which lists several repositories like 'ethz-adi/control-toolbox', 'mfe7/cadrl\_ros', and 'pypeit/Pypeit'. The main content area displays a list of recent activity, including push events and a starred repository 'elegant-scipy/elegant-scipy'.

# Paso 3: Configurar opciones básicas


Dónde se va a alojar el repositorio  
(**usuario u organización**)

## Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere?

[Import a repository.](#)

Owner

 mmattamala

Repository name \*

repositorio-prueba

**Nombre del repositorio** (sin espacios)

Great repository names are short and memorable. Need inspiration? How about [upgraded-octo-doodle?](#)

Description (optional)

Este repositorio es para el tutorial de GitHub

**Descripción** (recomendada)

**Público o privado**



Public

Anyone can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.

Inicializar con **README**



Initialize this repository with a README

This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: **None**

Add a license: **None**



**Crear**

Create repository



# Paso 4: Revisar el repositorio creado

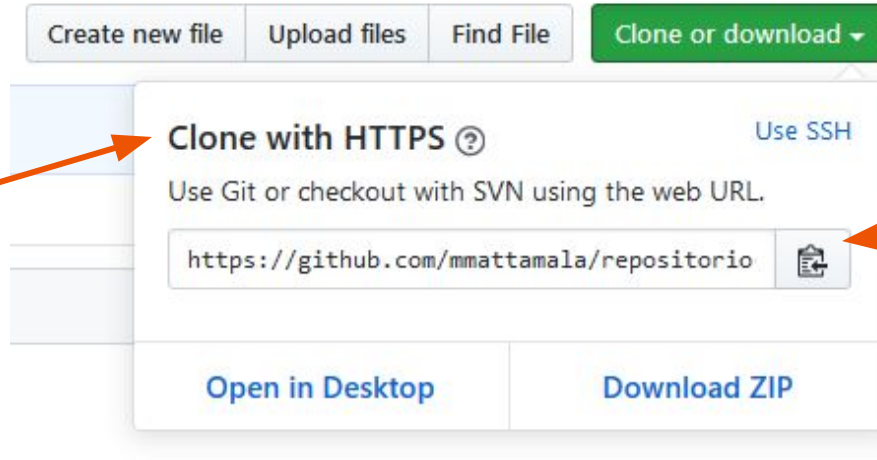
The screenshot shows the GitHub interface for a repository named 'repositorio-prueba' by user 'mmattamala'. At the top, there are buttons for 'Watch', 'Star', and 'Fork', each with a count of 0. Below this is a navigation bar with links for 'Code', 'Issues', 'Pull requests', 'Projects', 'Wiki', 'Security', 'Insights', and 'Settings'. The main content area includes a description: 'Este repositorio es para el tutorial de GitHub' with an 'Edit' button. Below the description are statistics: '1 commit', '1 branch', '0 releases', and '1 contributor'. There are also buttons for 'Branch: master', 'New pull request', 'Create new file', 'Upload files', 'Find File', and 'Clone or download'. A commit history table shows one commit by 'mmattamala' with the message 'Initial commit' and a file named 'README.md'. Below the table, the content of the 'README.md' file is displayed, enclosed in an orange border. The content includes the repository name 'repositorio-prueba' and the same description: 'Este repositorio es para el tutorial de GitHub'.

Archivo  
**README**

Contenidos  
del **README**

## Paso 5: Obtener la dirección para clonar el repo

Asegurar que la opción con **HTTPS** esté seleccionada



Copiar la dirección del repositorio

Clonando repositorios en nuestros pcs

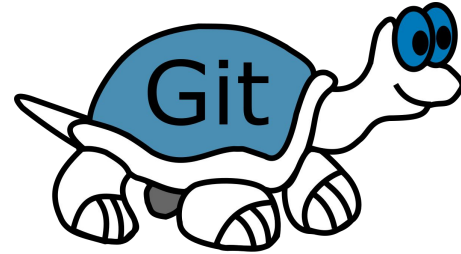
# Dos formas: Git Bash o Tortoise Git



**Git Bash**

**Viene instalado** con Git

Operación por **línea de comandos** (similar a Linux y MacOS)



**Tortoise Git**

**Requiere instalación**  
([tortoisegit.org/](http://tortoisegit.org/))

Operación con **interfaz gráfica (GUI)**

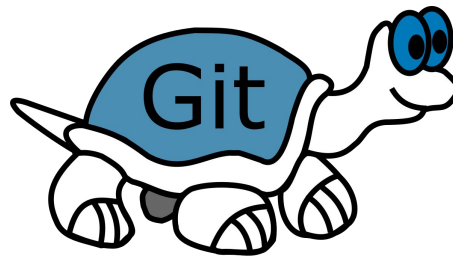
## Dos formas: Git Bash o Tortoise Git



**Git Bash**

**Viene instalado** con Git

Operación por **línea de comandos** (similar a Linux y MacOS)

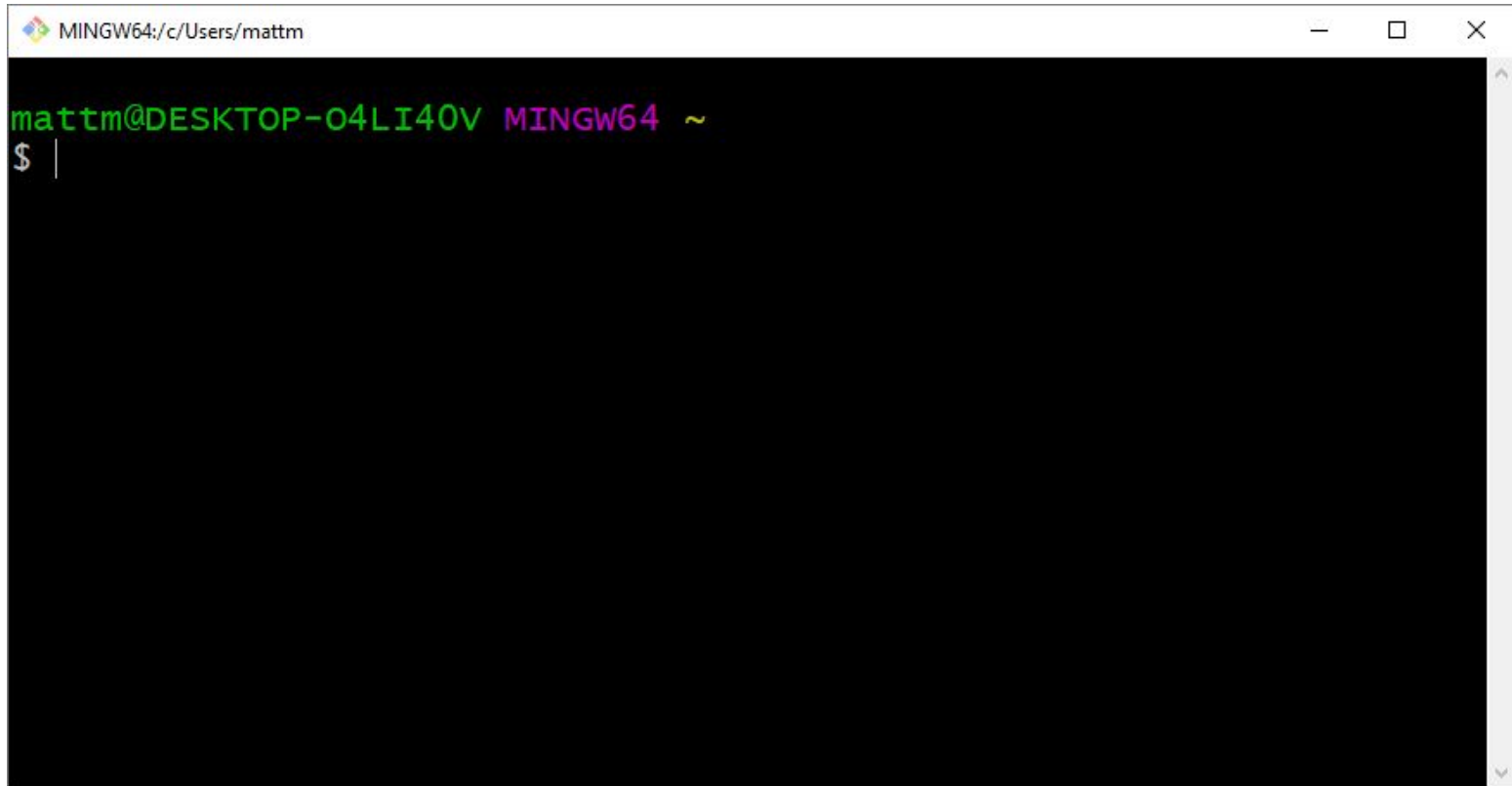


**Tortoise Git**

**Requiere instalación**  
([tortoisegit.org/](http://tortoisegit.org/))

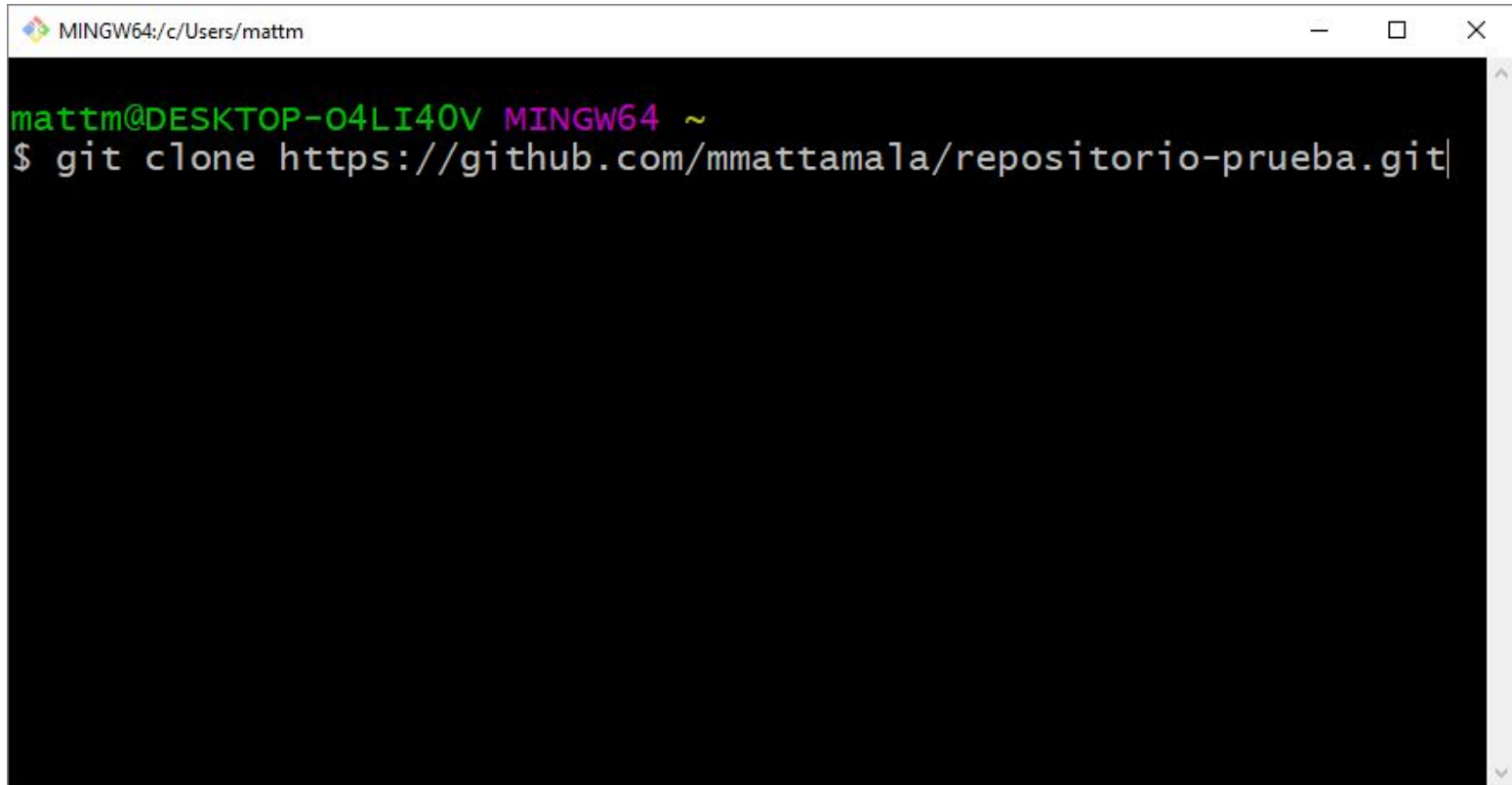
Operación con **interfaz gráfica (GUI)**

# Paso 1: Abrir Git Bash en el pc



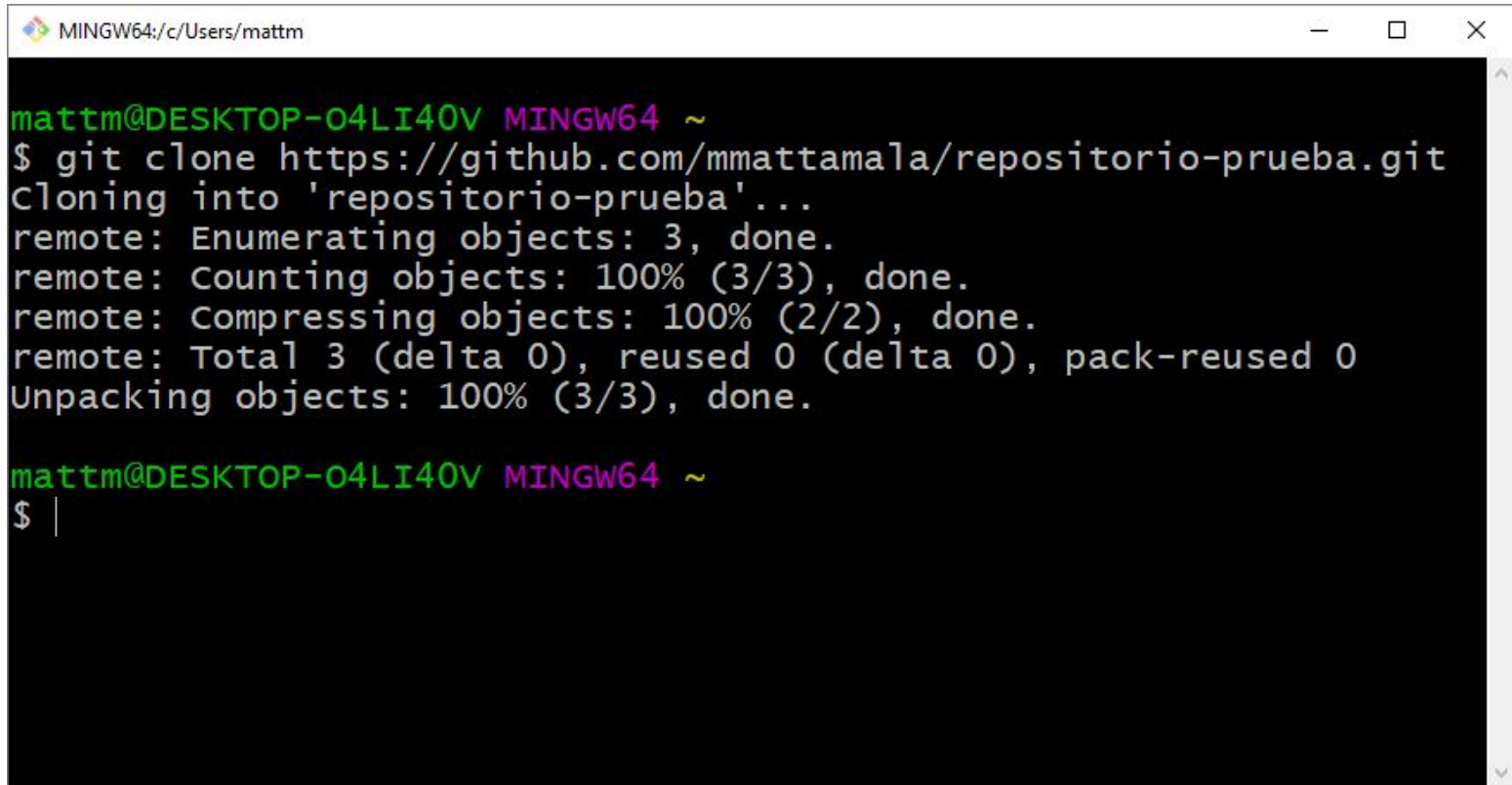
```
MINGW64:/c/Users/mattm  
mattm@DESKTOP-O4LI40V MINGW64 ~  
$ |
```

## Paso 2: Clonar el repositorio

A screenshot of a terminal window titled "MINGW64:/c/Users/mattm". The prompt is "mattm@DESKTOP-O4LI40V MINGW64 ~". The command being entered is "\$ git clone https://github.com/mmattamala/repositorio-prueba.git".

```
MINGW64:/c/Users/mattm  
mattm@DESKTOP-O4LI40V MINGW64 ~  
$ git clone https://github.com/mmattamala/repositorio-prueba.git
```

## Paso 3: Clonar el repositorio



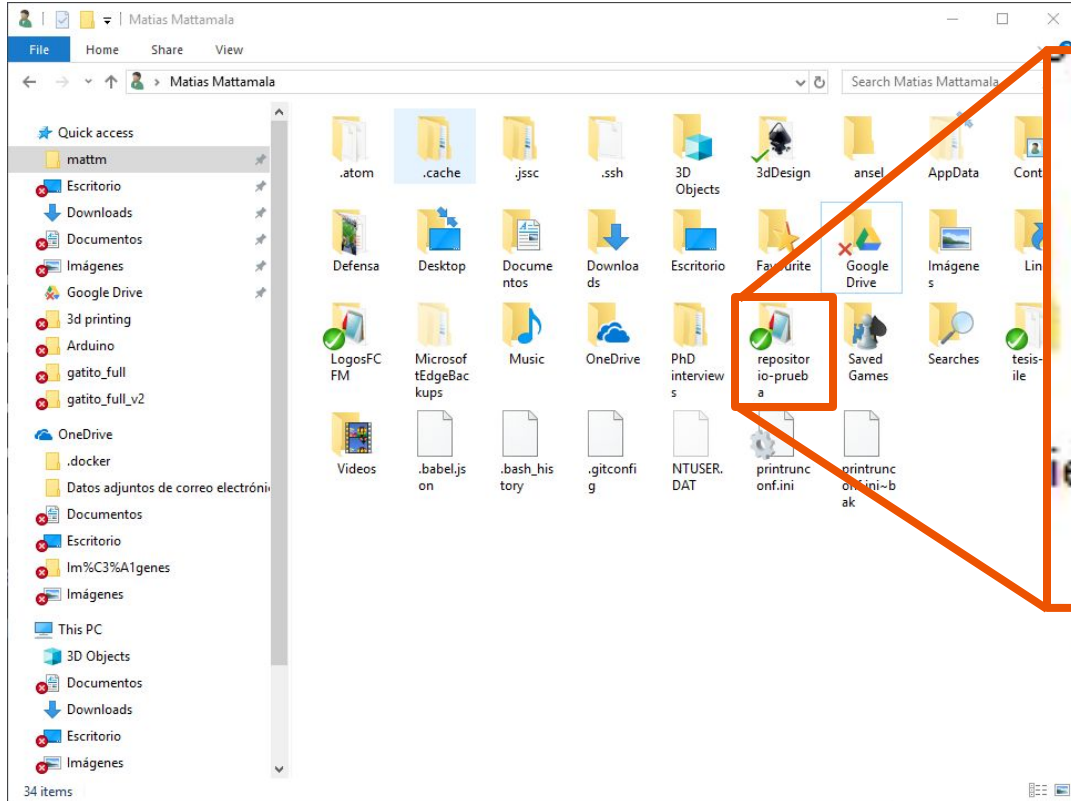
```
MINGW64:/c/Users/mattm

mattm@DESKTOP-O4LI40V MINGW64 ~
$ git clone https://github.com/mmattamala/repositorio-prueba.git
Cloning into 'repositorio-prueba'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), done.

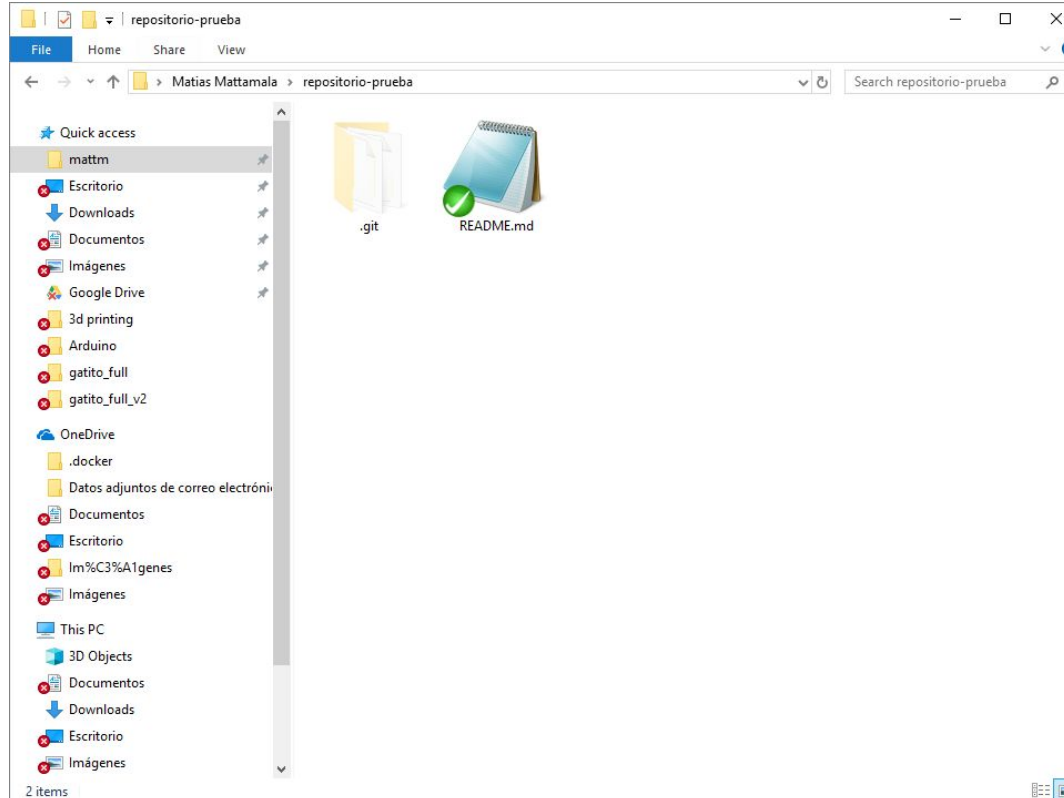
mattm@DESKTOP-O4LI40V MINGW64 ~
$ |
```



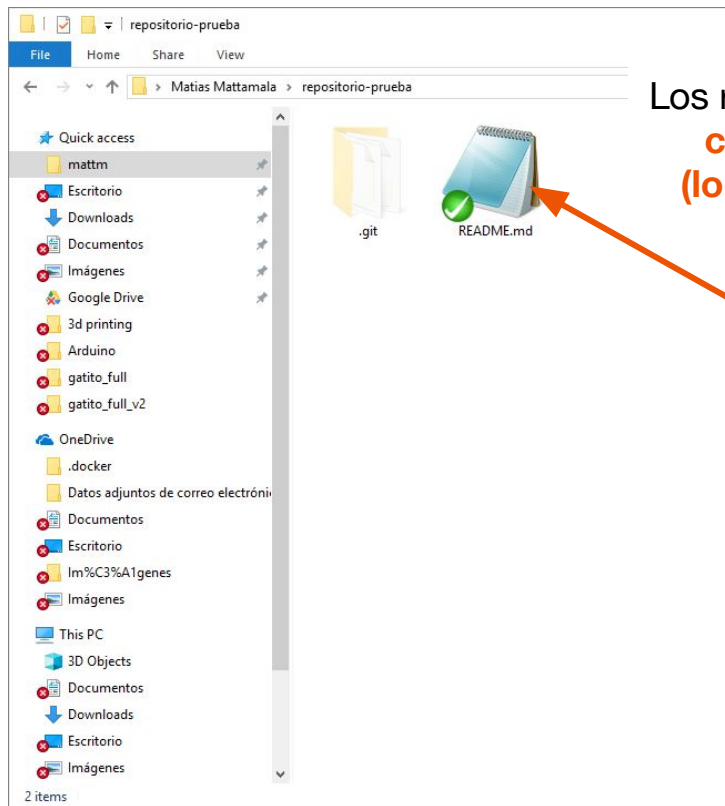
# Paso 4: Revisar que el repositorio esté creado



# Paso 5: Revisar dentro de la carpeta



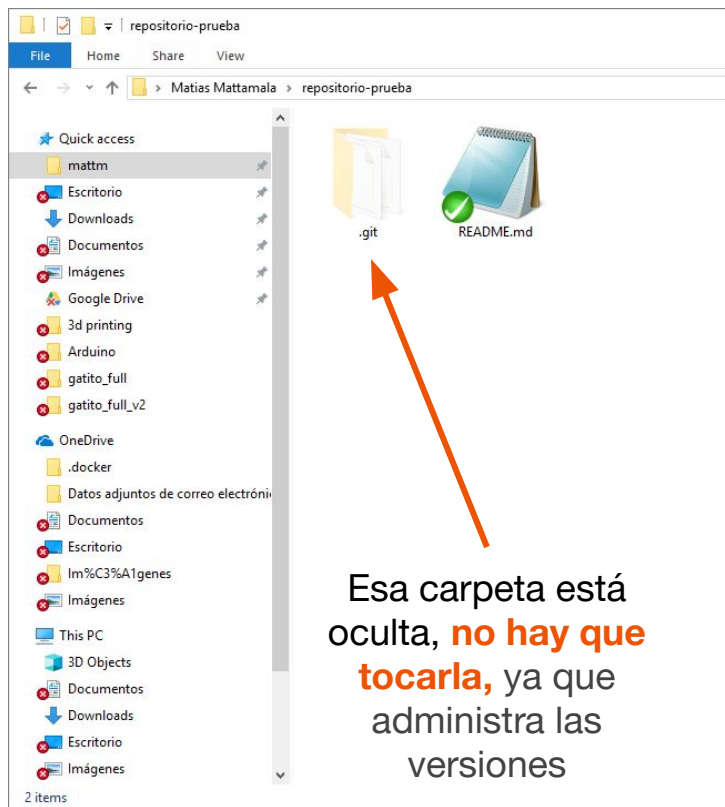
# Paso 5: Revisar dentro de la carpeta



Los repositorios son  
**consistentes**  
**(local y remoto)**



# Paso 5: Revisar dentro de la carpeta **(Importante)**



# Actualizando archivos en el repositorio (local)

# Formas de editar un repositorio

1

**Editar un archivo**

Genera cambios en el historial de cambios del archivo

2

**Eliminar un archivo**

Modifica la estructura del repositorio

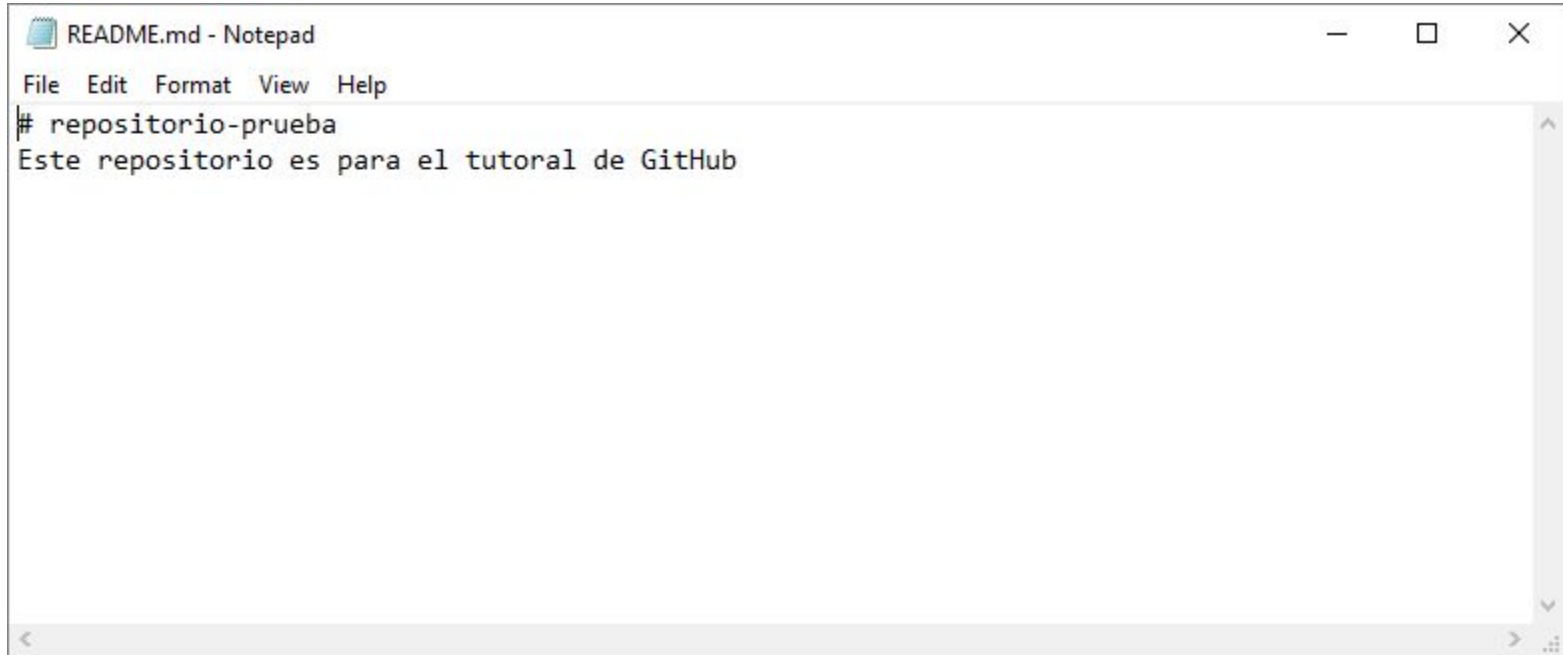
3

**Crear un archivo**

Genera nueva información en la estructura del repositorio

Todo cambio sigue una **secuencia de pasos similar** para actualizar el repositorio local y remoto

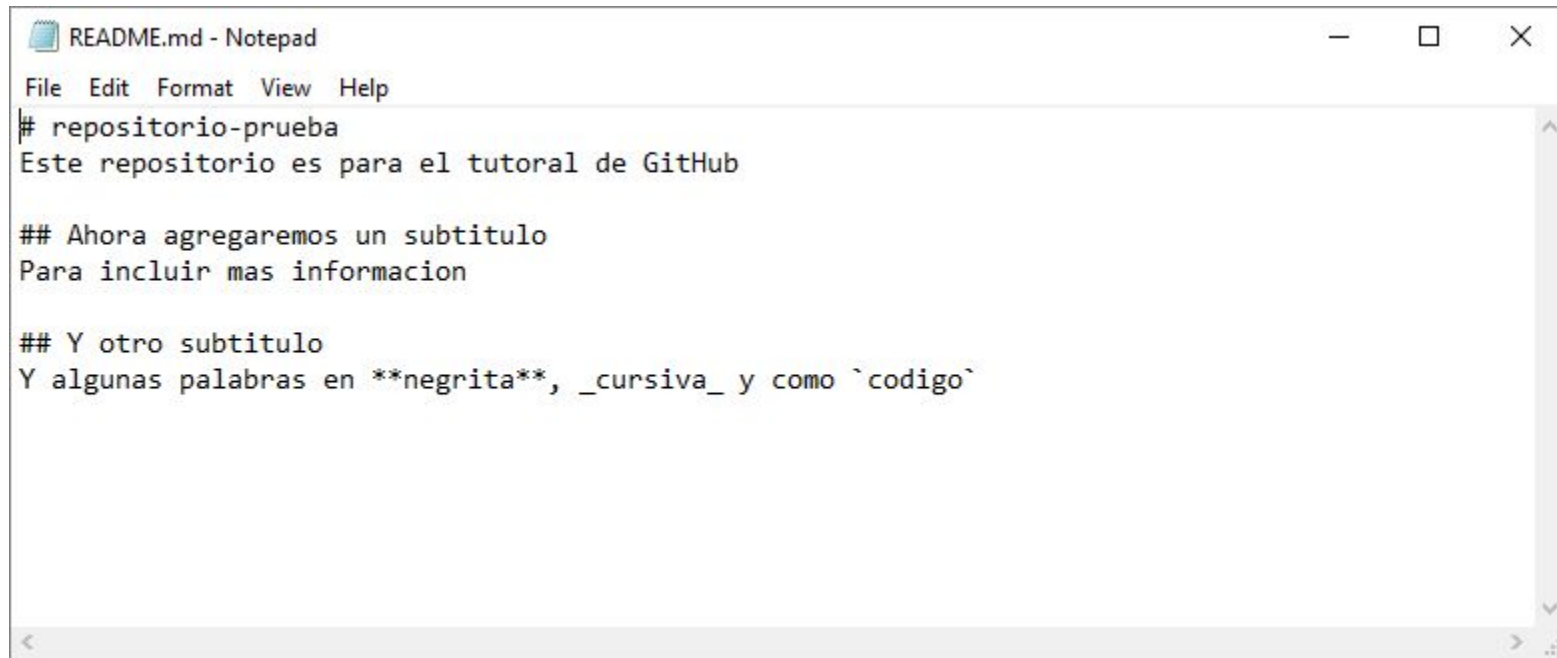
# Caso 1: Modificar archivo (notepad)



A screenshot of a Notepad window titled "README.md - Notepad". The window has a standard menu bar with "File", "Edit", "Format", "View", and "Help". The text content of the file is as follows:

```
# repositorio-prueba
Este repositorio es para el tutorial de GitHub
```

# Paso 1: Agregar nuevas líneas



```
README.md - Notepad
File Edit Format View Help
# repositorio-prueba
Este repositorio es para el tutorial de GitHub

## Ahora agregaremos un subtítulo
Para incluir mas informacion

## Y otro subtítulo
Y algunas palabras en negrita, cursiva y como codigo
```



## Paso 2: Revisar los cambios usando **git status**

```
MINGW64:/c/Users/mattm/repositorio-prueba
mattm@DESKTOP-O4LI40V MINGW64 ~
$ cd repositorio-prueba/
mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working
directory)

        modified:   README.md

no changes added to commit (use "git add" and/or "git commit -a")
mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
```

Nos movemos dentro de la carpeta

Este comando revisa qué archivos cambiaron

Acá vemos que cambió README.md

## Paso 3: Registrar los archivos con cambios (**git add**)

```
MINGW64:/c/Users/mattm/repositorio-prueba
no changes added to commit (use "git add" and/or "git commit -a")
mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ git add README.md
mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

   modified:   README.md
mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ |
```

Añadimos el archivo

Revisamos si cambió el estado con **git status**

El color verde indica que está listo para respaldar

## Paso 4: Crear un respaldo (**git commit**)

```
MINGW64:/c/Users/mattm/repositorio-prueba
modified: README.md

mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ git commit -m "Nuevos cambios en README"
[master 1065950] Nuevos cambios en README
1 file changed, 6 insertions(+)

mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
(use "git push" to publish your local commits)

nothing to commit, working tree clean

mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ |
```

Hacemos un commit para respaldarlo. **-m** permite **escribir un mensaje indicativo** de lo que respaldamos (entre comillas)

Revisamos si cambió el estado con **git status**

No hay cambios, porque está respaldado

# Qué acabamos de hacer



**git add**  
**git commit**

Historial de versiones		
versión	archivo	cambios
V0	 README.md	-0 líneas +2 líneas
V1	 README.md	-0 líneas +6 líneas

Observación: Para ver el historial se puede usar el comando **git log**, que además muestra los **mensajes de cada commit**

# Qué cambia si creamos archivos

```
MINGW64:/c/Users/mattm/repositorio-prueba
nothing to commit, working tree clean

mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

Untracked files:
  (use "git add <file>..." to include in what will be committed)

README2.md

nothing added to commit but untracked files present (use "git add
" to track)

mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ |
```

README2.md



Al escribir **git status** indica que hay archivos sin “trackear”

# Qué cambia si **eliminamos** archivos

```
MINGW64:/c/Users/mattm/repositorio-prueba
mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working
directory)

        deleted:    README.md

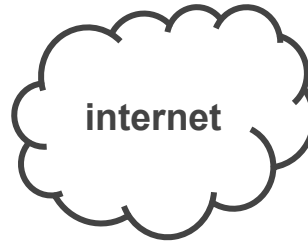
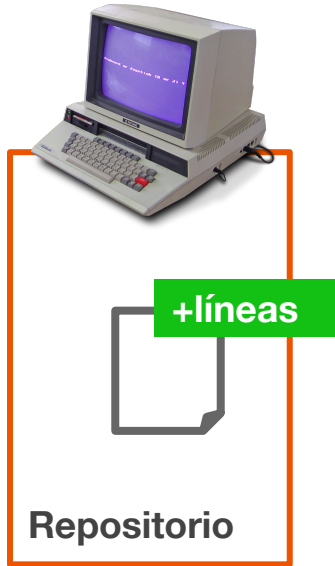
no changes added to commit (use "git add" and/or "git commit -a")
mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ |
```

Al escribir **git status** indica que se borró el archivo



# Estos cambios solamente están en nuestros pcs

PC personal (local)



Servidor remoto (origin)



# Actualizando archivos en el repositorio remoto (GitHub)



# Paso 1: Asegurar que todo esté “**commiteado**”

**git status**

**git add** archivo1 archivo2 ... archivoN

**git commit** -m *“Mensaje explicativo de los nuevos archivos/cambios”*

## Paso 2: **Push**ear los cambios

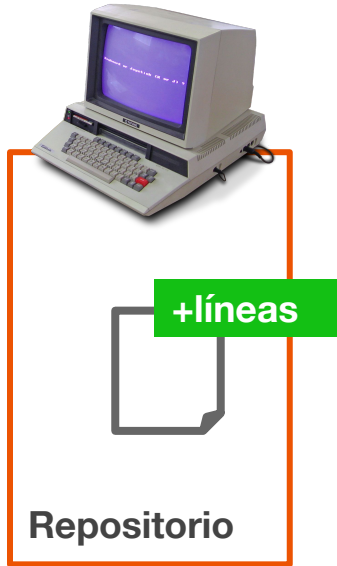
```
MINGW64:/c/Users/mattm/repositorio-prueba
mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ git push
Enumerating objects: 3, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 407 bytes | 203.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0)
To https://github.com/mmattamala/repositorio-prueba.git
   d0d0a8e..1065950  master -> master

mattm@DESKTOP-O4LI40V MINGW64 ~/repositorio-prueba (master)
$ |
```

**git push** actualiza los cambios en el servidor

# Qué acabamos de hacer

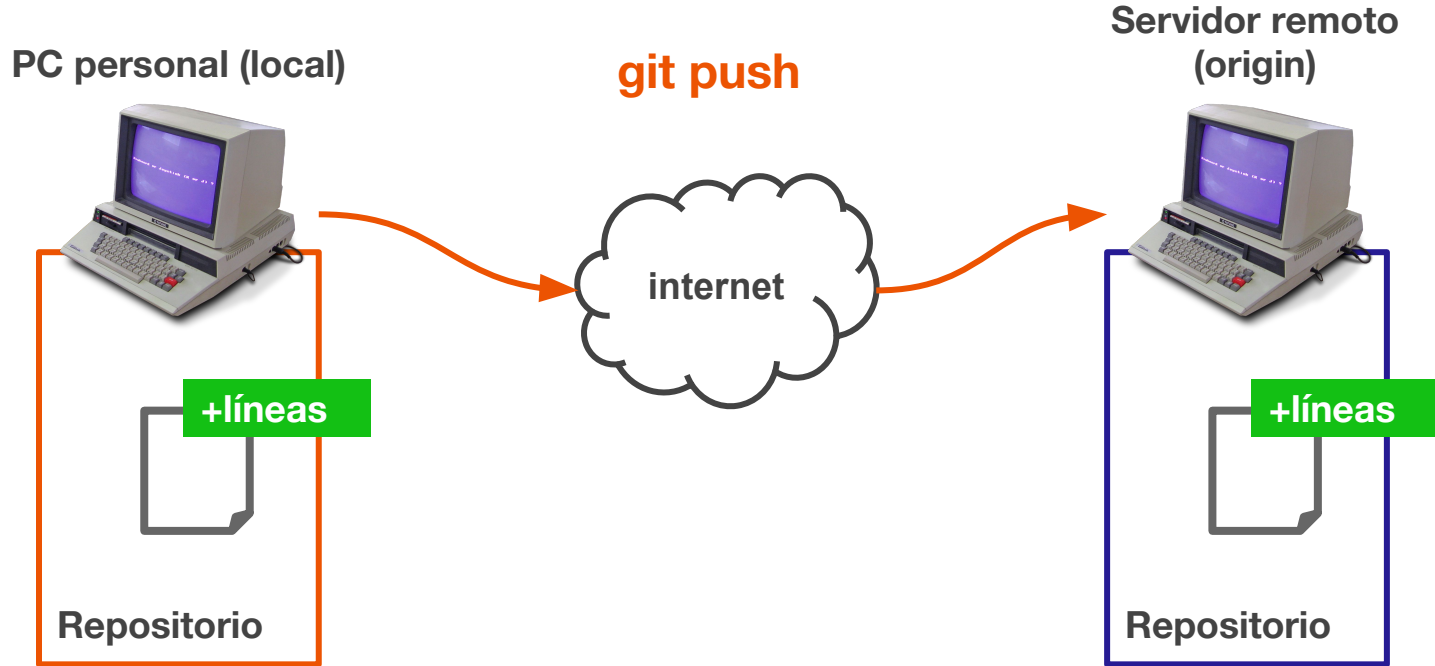
PC personal (local)



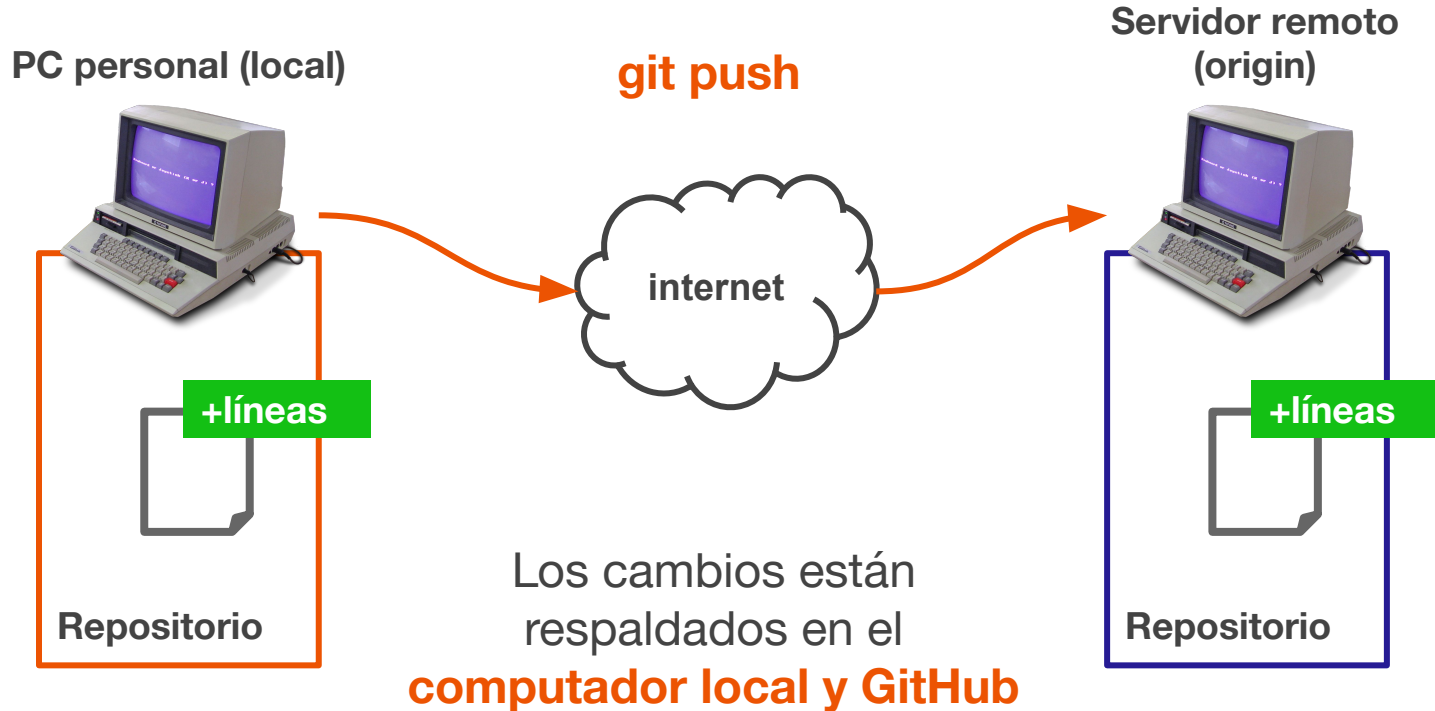
Servidor remoto (origin)



# Qué acabamos de hacer

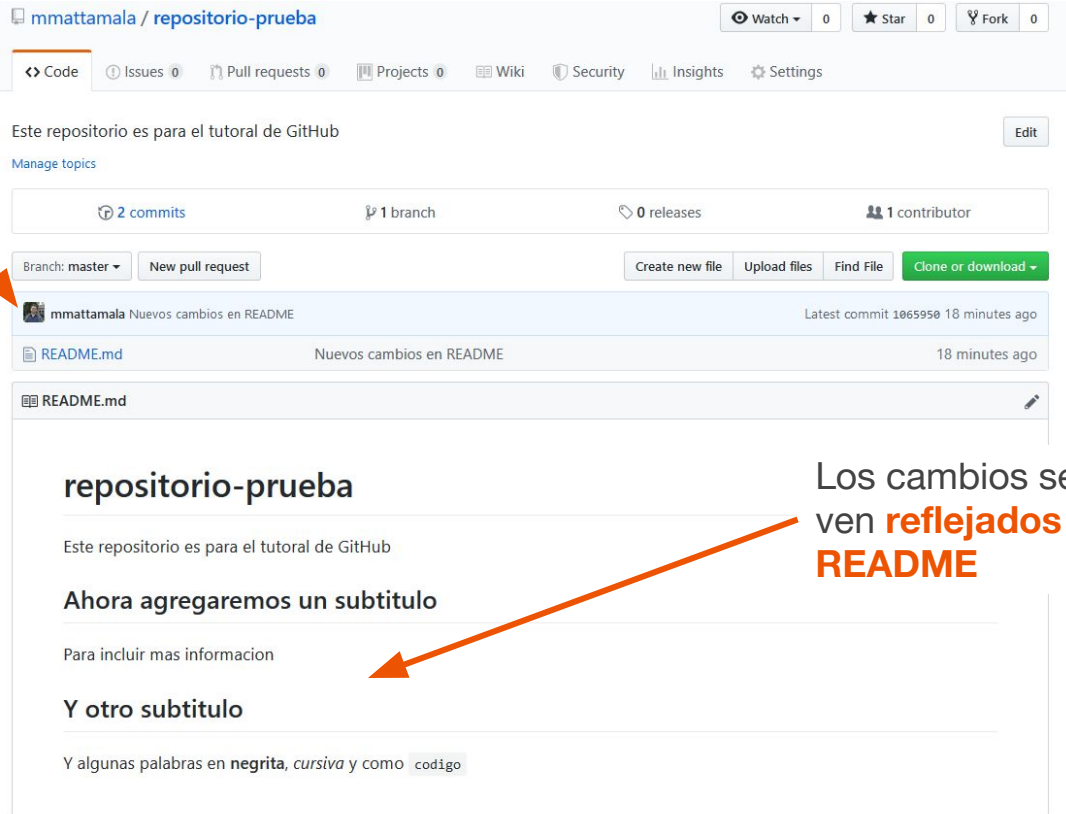


# Qué acabamos de hacer



# ¿Cómo confirmarlo?

Aparece el mensaje que escribimos



The screenshot shows a GitHub repository page for 'mmattamala / repositorio-prueba'. At the top, there are navigation links for Code, Issues (0), Pull requests (0), Projects (0), Wiki, Security, Insights, and Settings. Below this, it states 'Este repositorio es para el tutorial de GitHub' with an 'Edit' button. A summary bar shows '2 commits', '1 branch', '0 releases', and '1 contributor'. The current branch is 'master', and there is a 'New pull request' button. Action buttons include 'Create new file', 'Upload files', 'Find File', and 'Clone or download'. A commit by 'mmattamala' is shown with the message 'Nuevos cambios en README' and a timestamp of '18 minutos ago'. Below the commit, the 'README.md' file is listed with the same message and timestamp. The file content is displayed in a preview mode, showing the repository name 'repositorio-prueba', the same introductory text, and a new subtitle 'Ahora agregaremos un subtítulo'. Below the subtitle, there is a line of text: 'Para incluir mas informacion' followed by a horizontal line. Another subtitle 'Y otro subtítulo' is shown below another horizontal line. At the bottom, there is a line of text: 'Y algunas palabras en **negrita**, *cursiva* y como `codigo`'.

Los cambios se ven **reflejados en README**

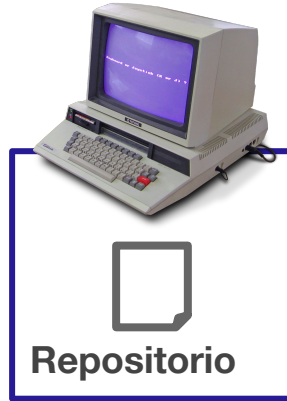
# Temas avanzados I: Sincronización entre varios pcs usando GitHub

# Trabajo con múltiples pcs

PC personal (local)



Servidor remoto  
(origin)



PC personal (local)





# Trabajo con múltiples pcs

PC personal (local)



**git push**

Servidor remoto  
(origin)

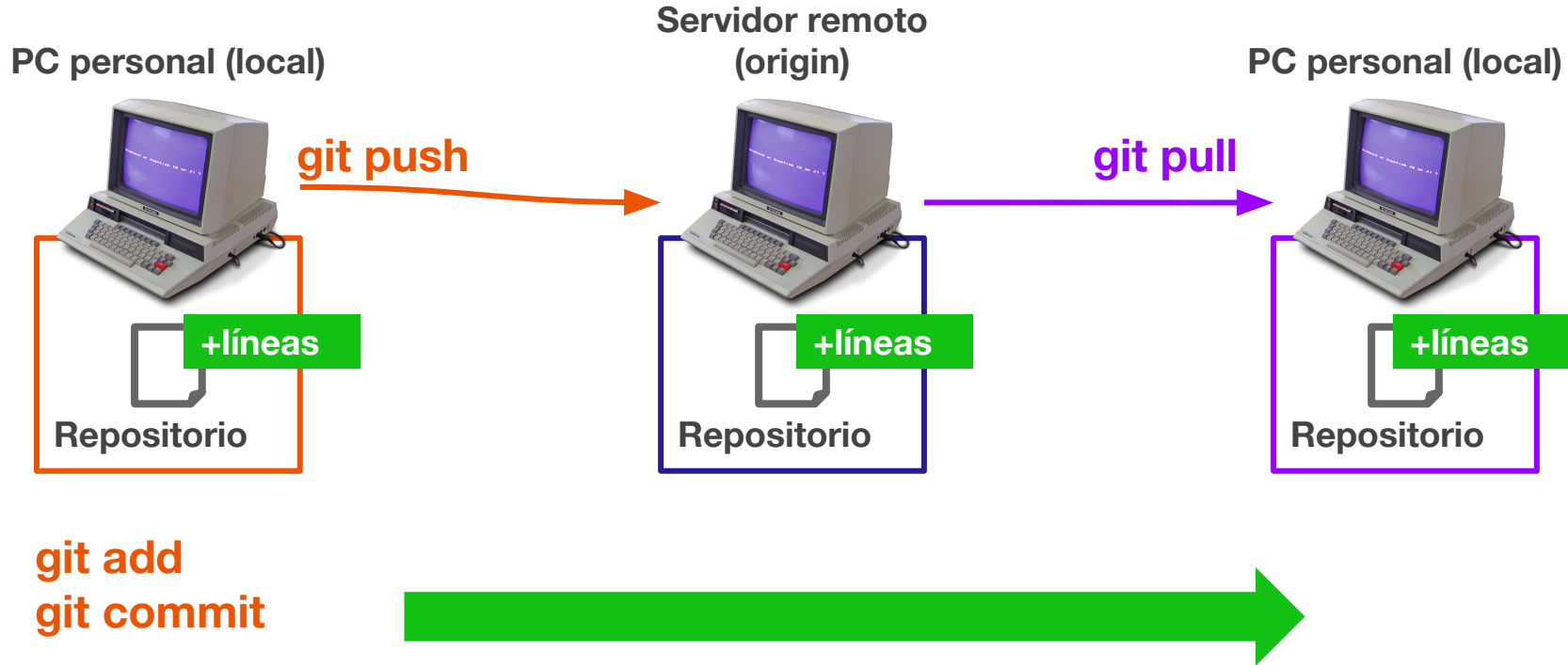


PC personal (local)



**git add**  
**git commit**

# Trabajo con múltiples pcs



# Trabajo con múltiples pcs

PC personal (local)



Servidor remoto  
(origin)



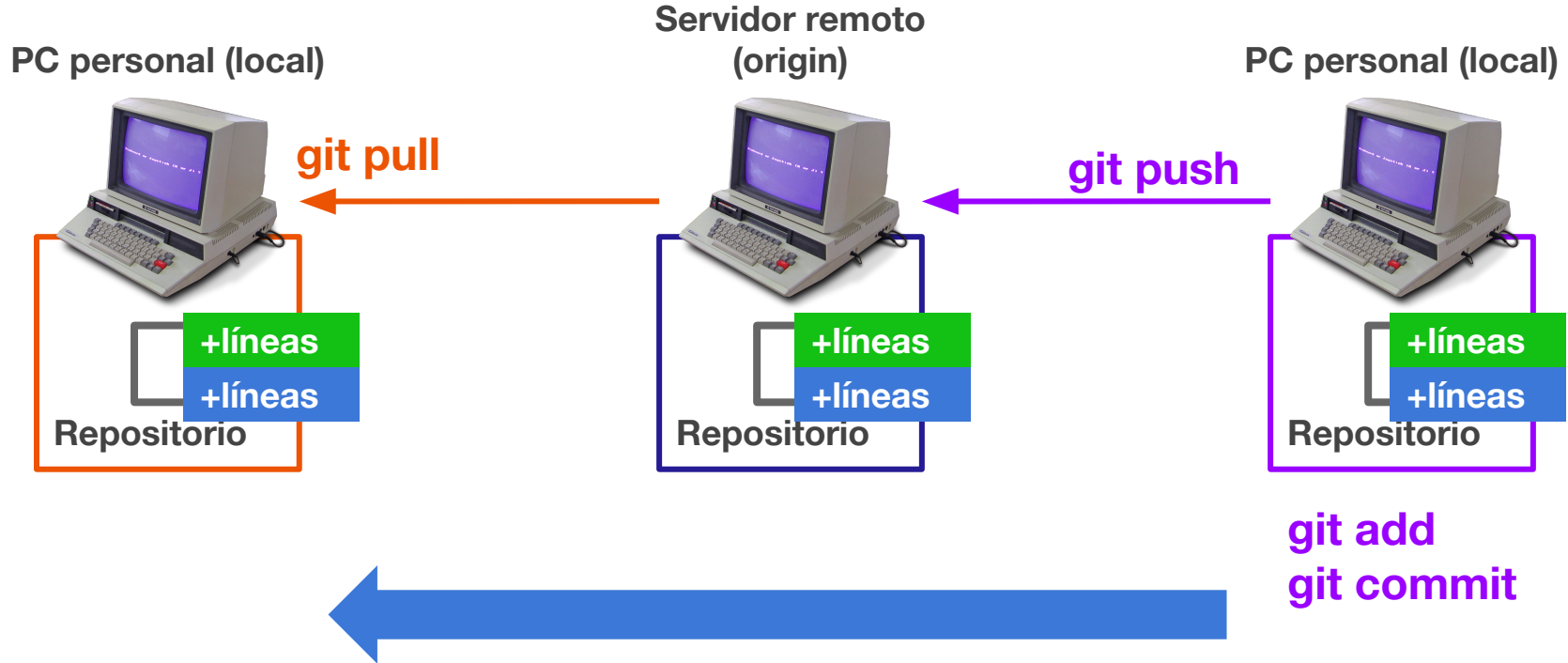
PC personal (local)



git push

git add  
git commit

# Trabajo con múltiples pcs



# Temas avanzados: Trabajo con ramas (branches)



# Pendiente