Versionado de Software Git Branches

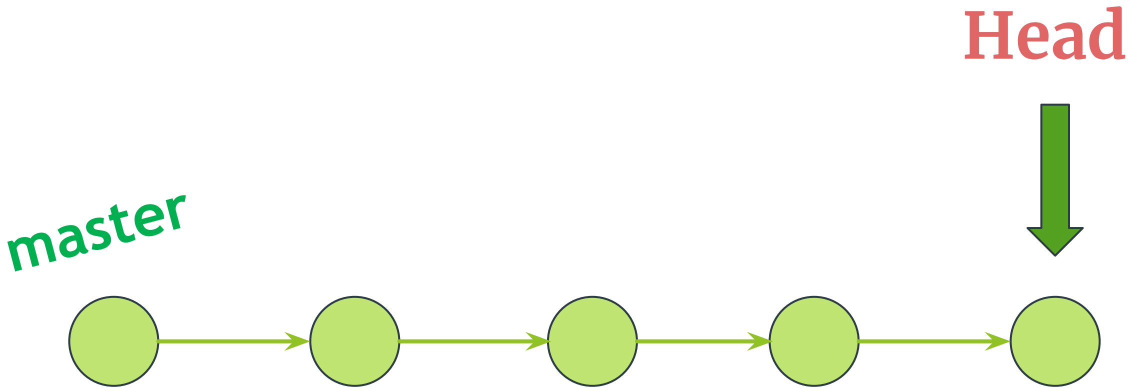
Tecnología de la Información en las Organizaciones

2020

Agenda

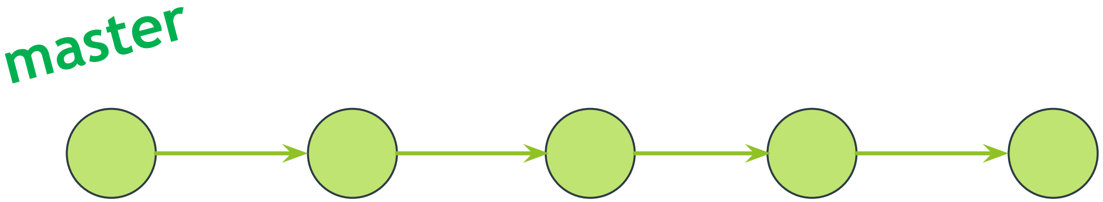
- Qué es una rama?
- Para qué utilizar ramas?
- Operaciones
  - Listar ramas
  - Crear rama
  - Fusionar ramas
  - Resolución de conflictos
  - Borrar ramas
- Ejemplo práctico
- Herramienta gráfica

Head

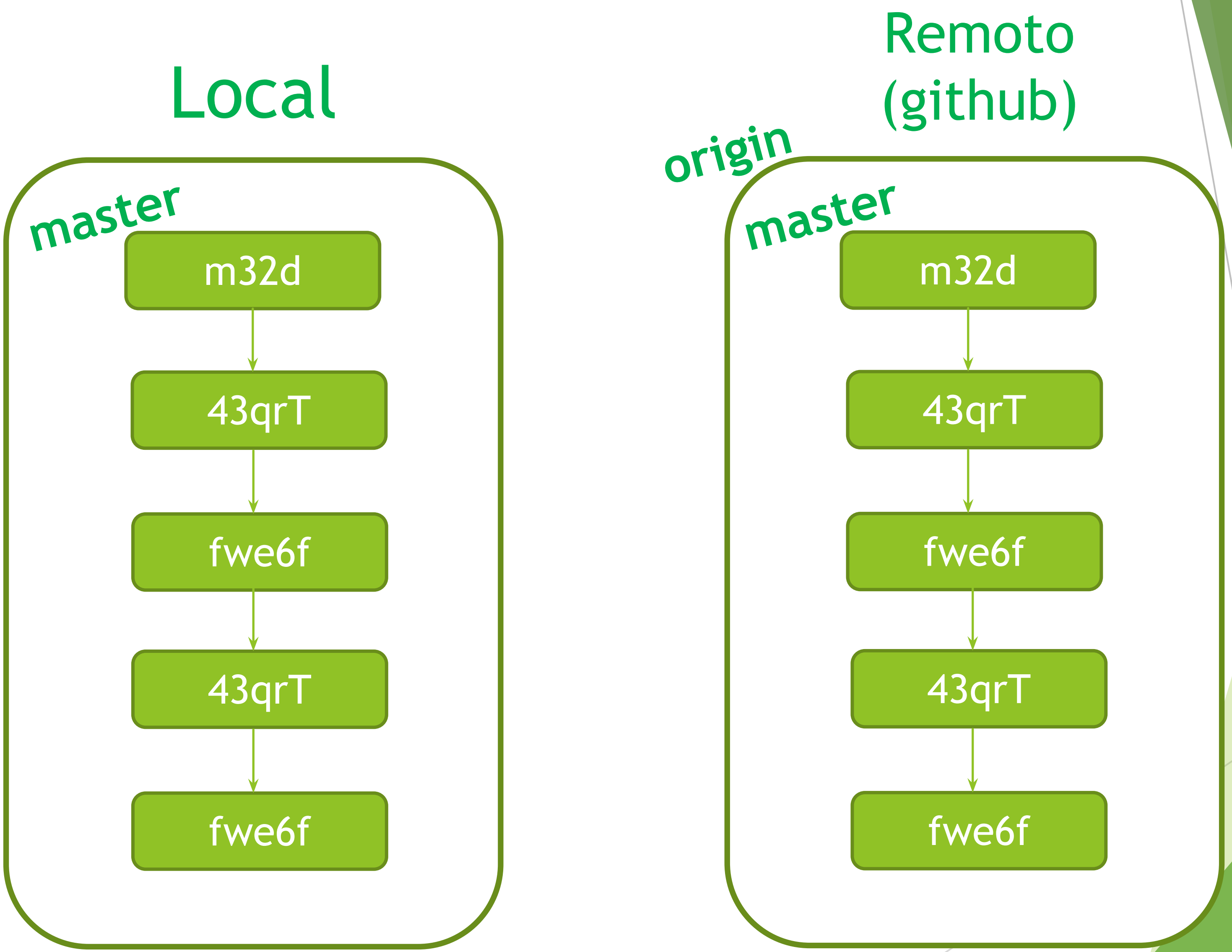


- Es el commit donde nos encontramos actualmente

Qué es una rama?



- Es una línea de tiempo en nuestro proyecto
- Se compone de una secuencia de commits
- Se utilizan para desarrollar nueva funcionalidad, corregir errores, realizar pruebas, etc.



Local

master

m32d

43qrT

fwe6f

43qrT

fwe6f

Remoto (github)

origin

master

m32d

43qrT

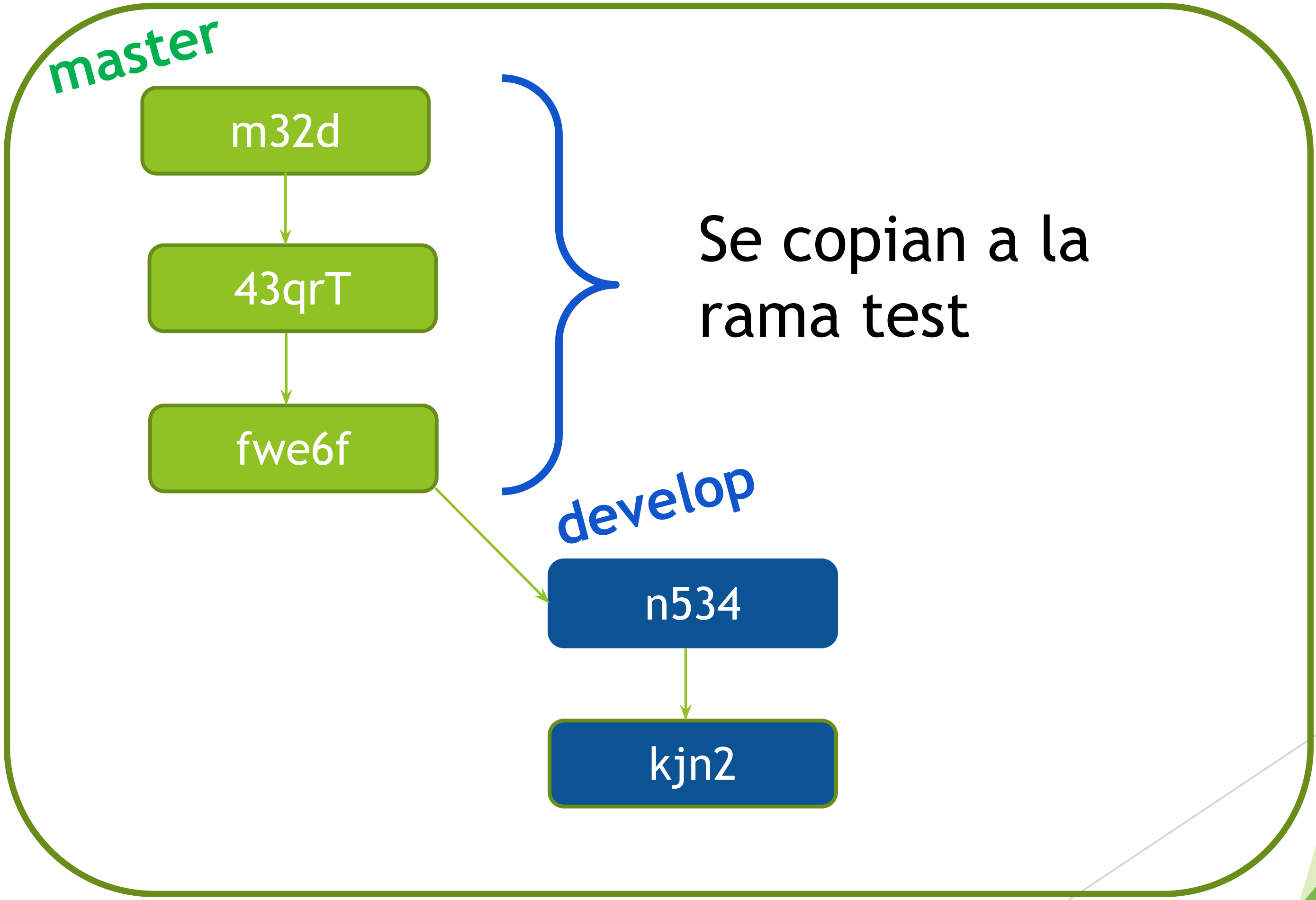
fwe6f

43qrT

fwe6f

Git permite múltiples ramas

Local



master

m32d

43qrT

fwe6f

Se copian a la rama test

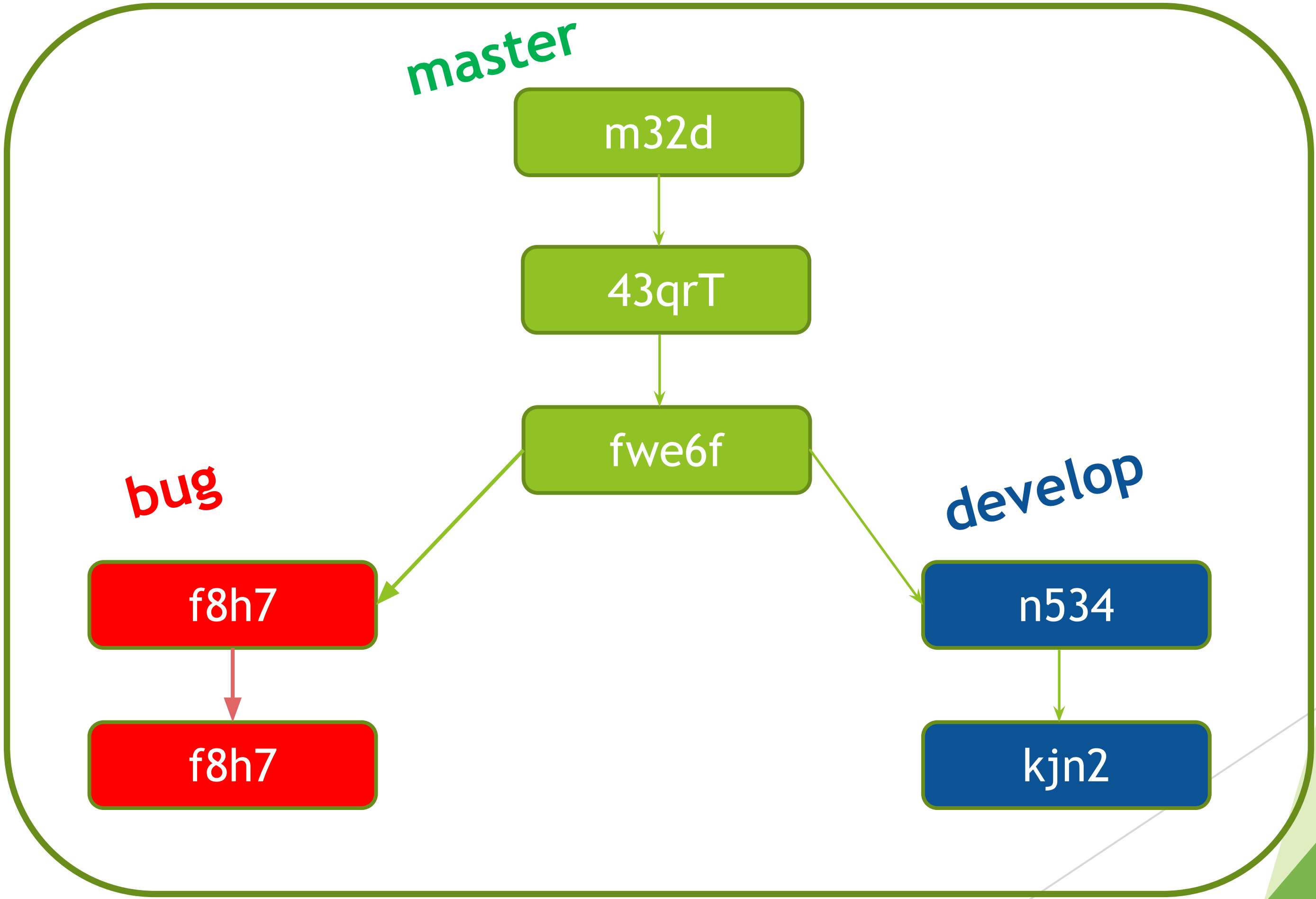
develop

n534

kjn2

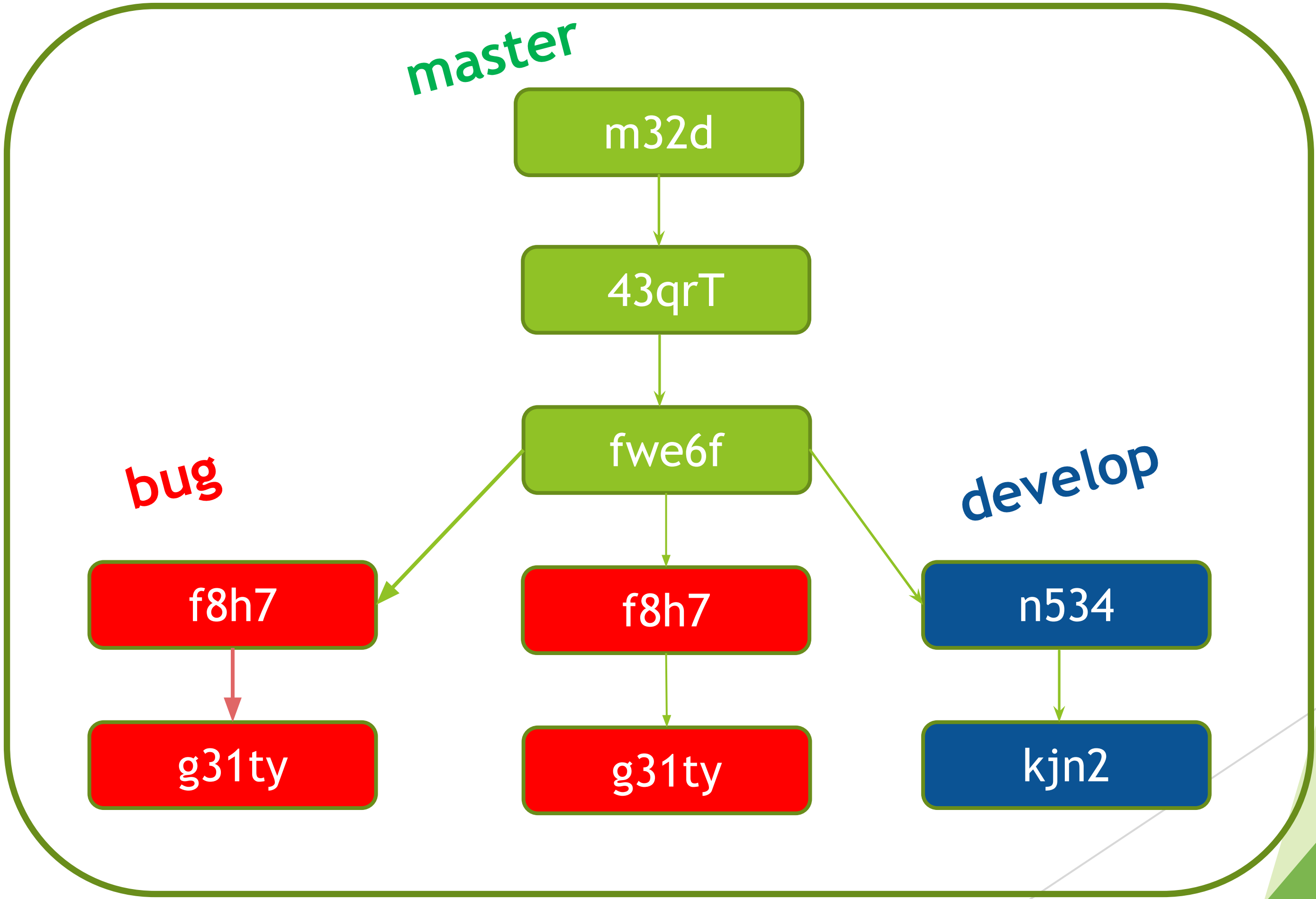
Git permite múltiples ramas

Local



Git permite múltiples ramas

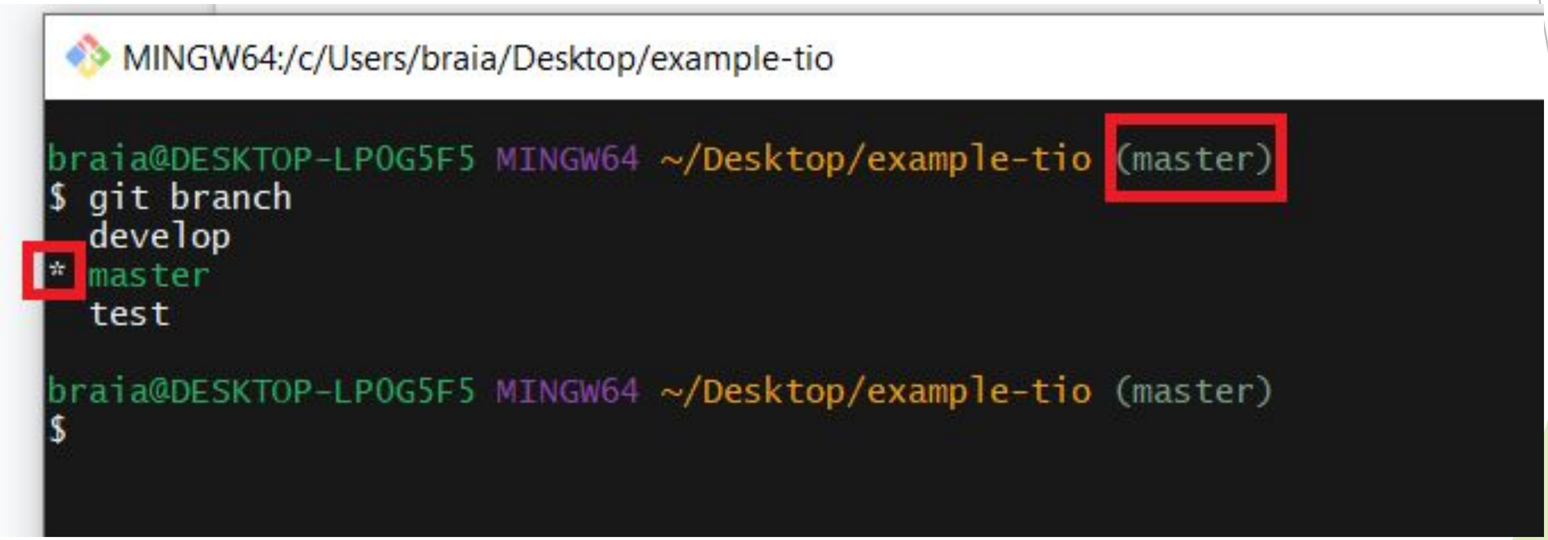
Local



Operaciones básicas

Listar las ramas locales

git branch



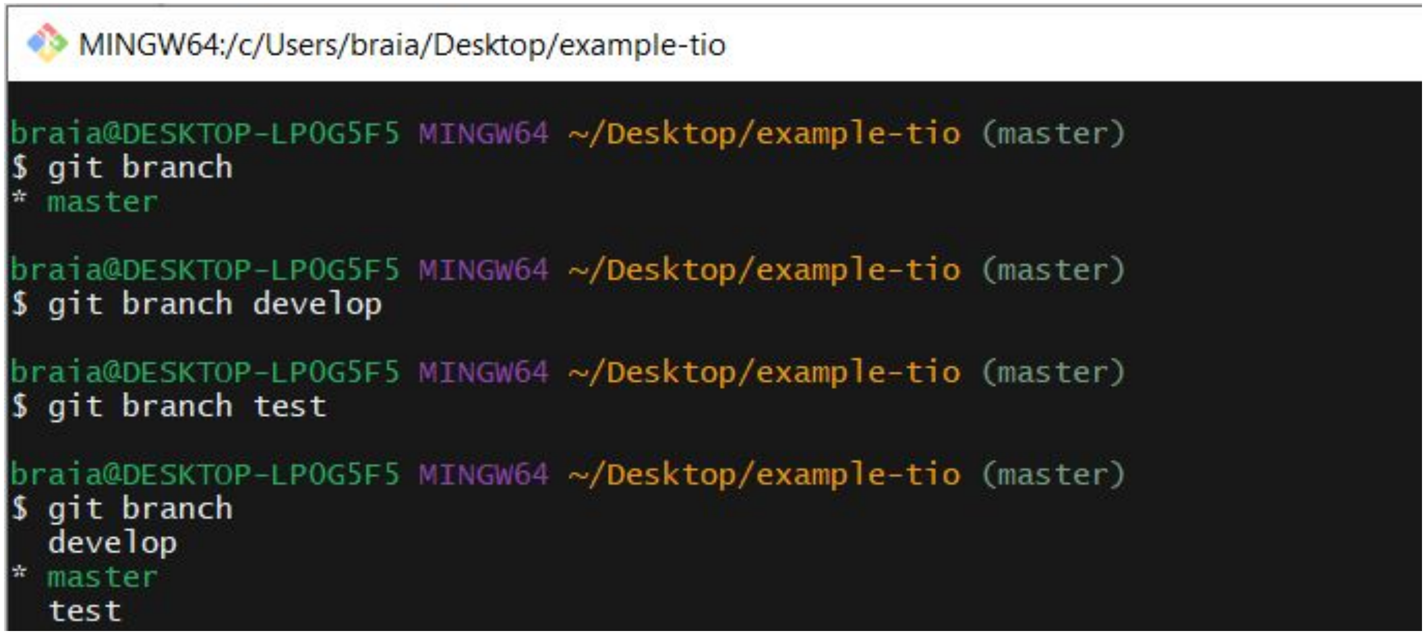
MINGW64:/c/Users/braia/Desktop/example-tio

```
braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/example-tio (master)
$ git branch
  develop
* master
  test

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/example-tio (master)
$
```

- El * indica la rama a la que apunta el HEAD

Crear rama local

git branch <NAME>

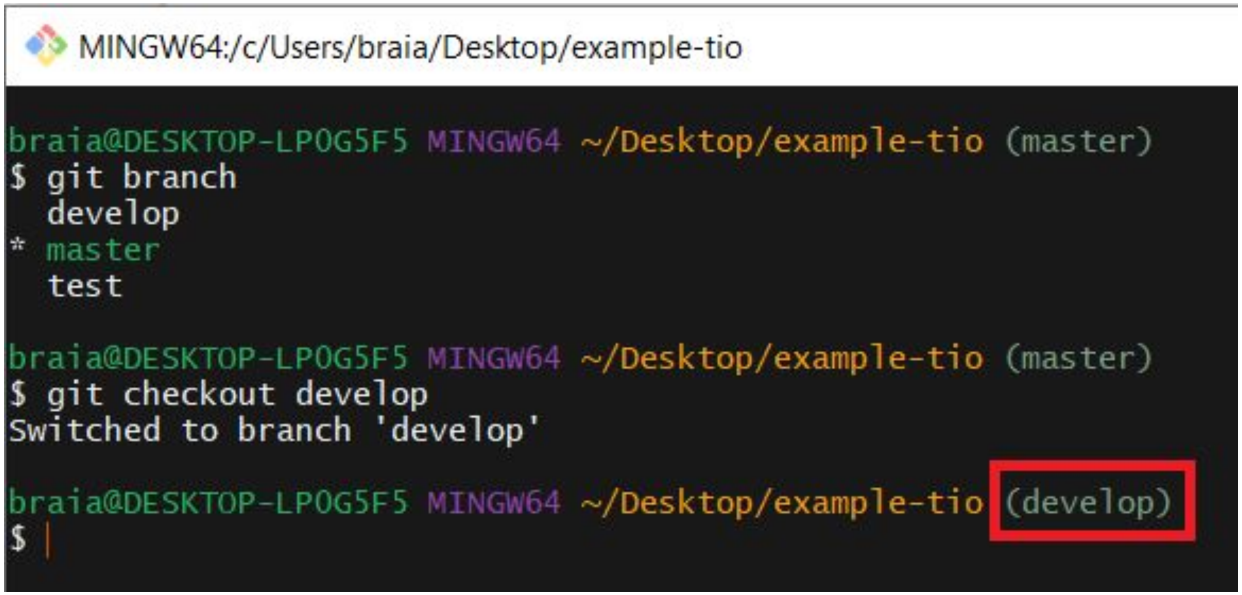


```
braia@DESKTOP-LP0G5F5 MINGW64 ~/Desktop/example-tio (master)
$ git branch
* master

braia@DESKTOP-LP0G5F5 MINGW64 ~/Desktop/example-tio (master)
$ git branch develop

braia@DESKTOP-LP0G5F5 MINGW64 ~/Desktop/example-tio (master)
$ git branch test

braia@DESKTOP-LP0G5F5 MINGW64 ~/Desktop/example-tio (master)
$ git branch
  develop
* master
  test
```

- Se crea la rama, pero no se cambia el HEAD

Cambiar de rama

git checkout <NAME>



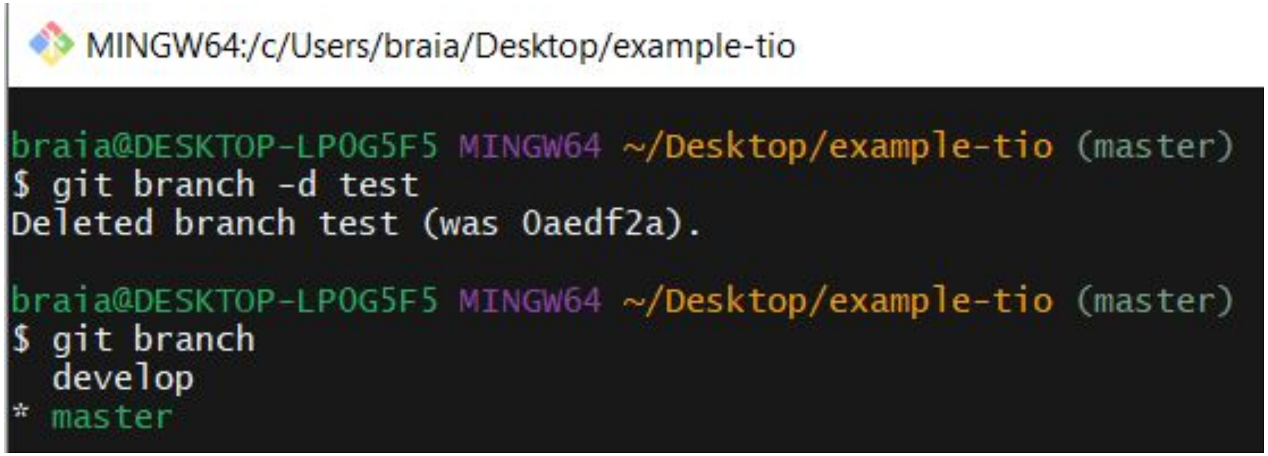
MINGW64:/c/Users/braia/Desktop/example-tio

```
braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/example-tio (master)
$ git branch
  develop
* master
  test

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/example-tio (master)
$ git checkout develop
Switched to branch 'develop'

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/example-tio (develop)
$ |
```

- Si utilizamos **git checkout -b <NAME>**, creamos la rama y nos situamos en ella

Eliminar rama

git branch -d <NAME>



MINGW64:/c/Users/braia/Desktop/example-tio

```
braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/example-tio (master)
$ git branch -d test
Deleted branch test (was 0aedf2a).

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/example-tio (master)
$ git branch
  develop
* master
```

- La rama se puede borrar si todas sus confirmaciones han sido absorbidas
- Para forzar el borrado de una rama debemos utilizar el parámetro **-D**

Ejemplo práctico

Pantalla de login

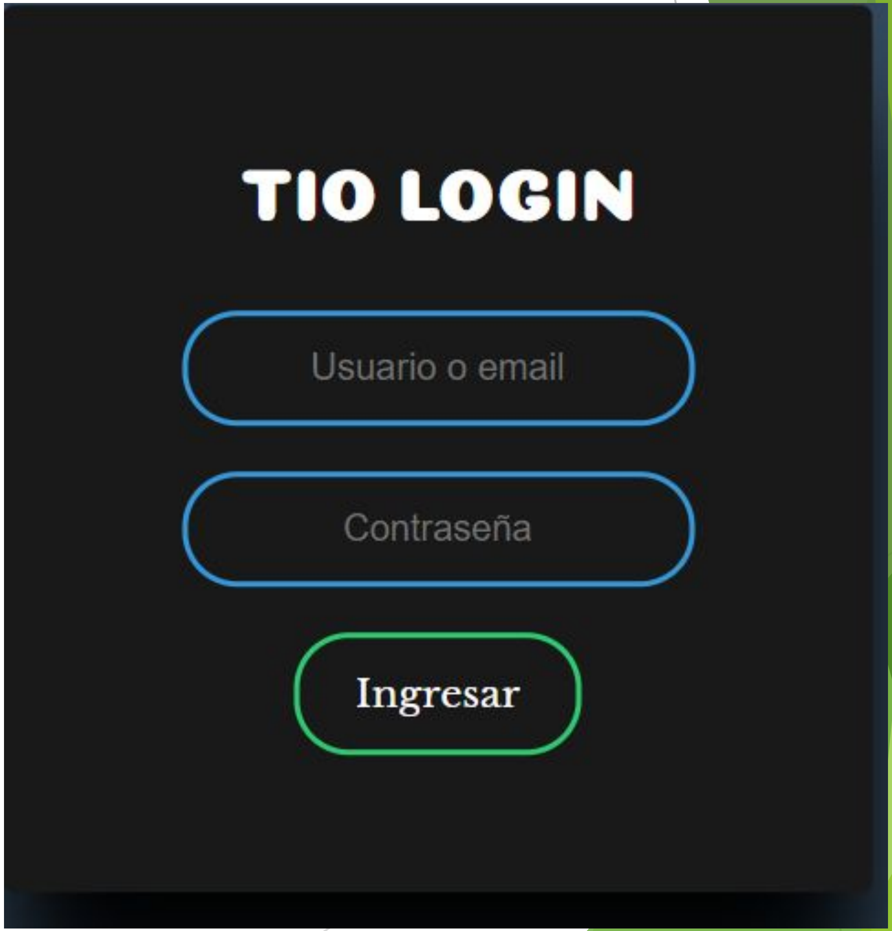
https://github.com/brvarona/tio-login

Pantalla de login

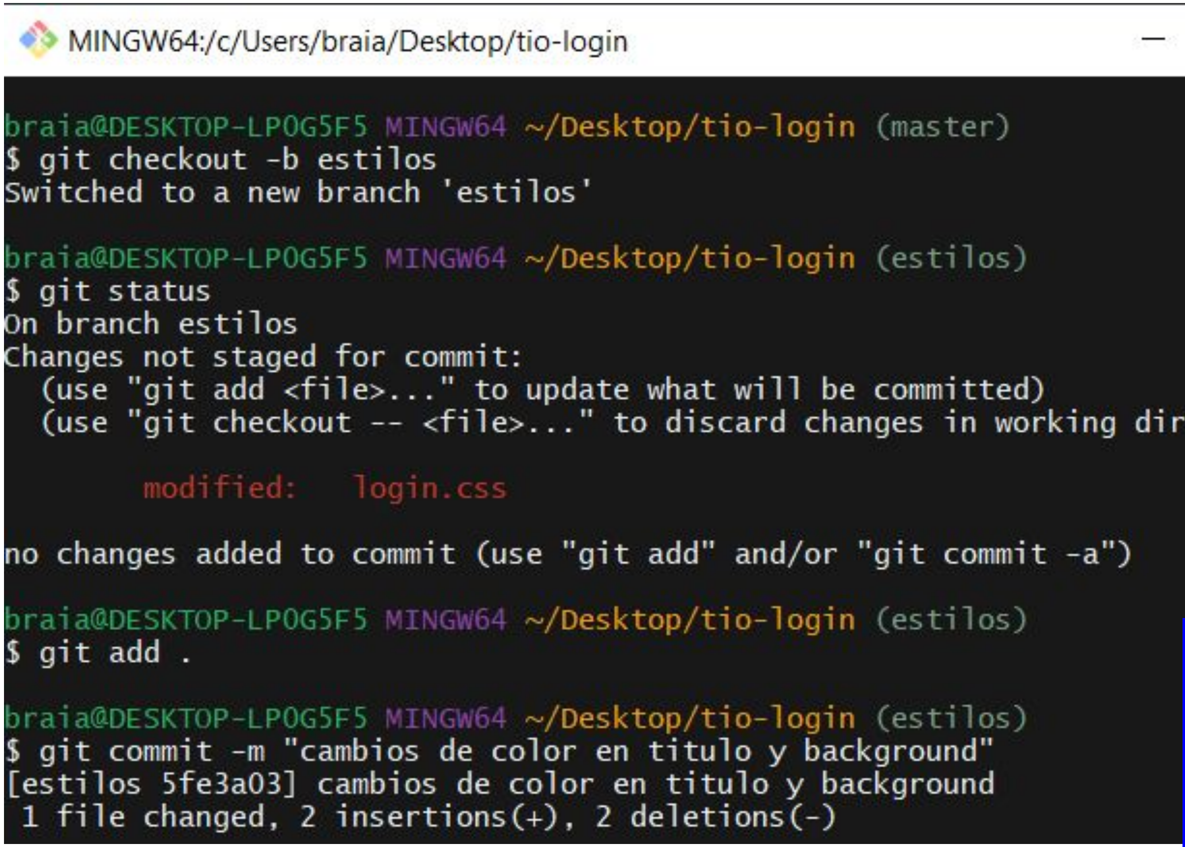
Actividades

- Realizar cambios de color en el título y el background

- Cambiar texto botón a mayúsculas

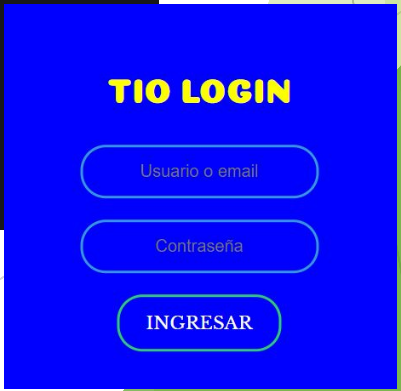


Realizamos cambios en rama “estilos”



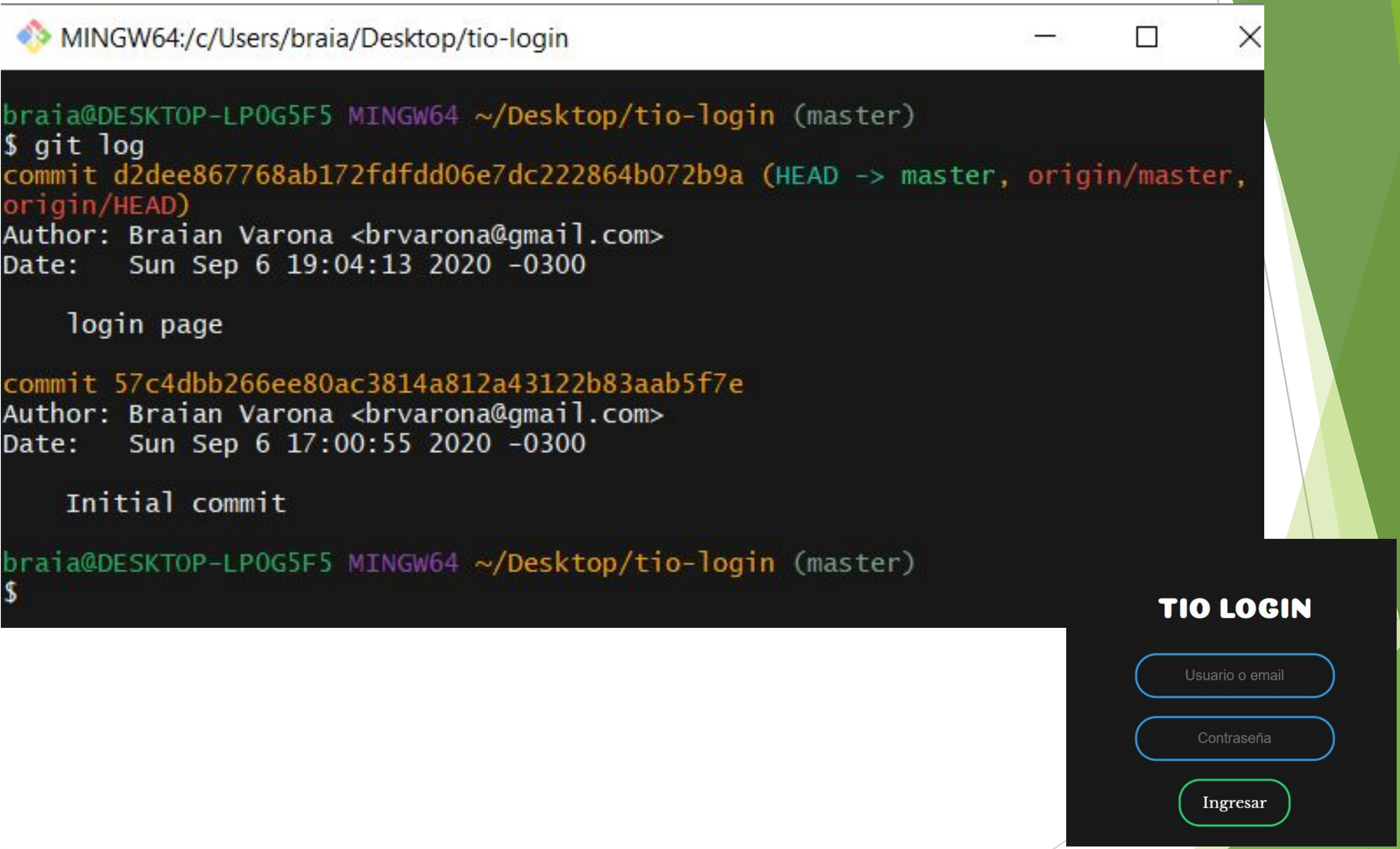
MINGW64:/c/Users/braia/Desktop/tio-login

```
braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (master)
$ git checkout -b estilos
Switched to a new branch 'estilos'

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (estilos)
$ git status
On branch estilos
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:   login.css

no changes added to commit (use "git add" and/or "git commit -a")

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (estilos)
$ git add .

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (estilos)
$ git commit -m "cambios de color en titulo y background"
[estilos 5fe3a03] cambios de color en titulo y background
 1 file changed, 2 insertions(+), 2 deletions(-)
```



- Si cambiamos a la rama master con el comando git checkout
  - ¿Qué sucede?
  - git log ¿Qué dice?

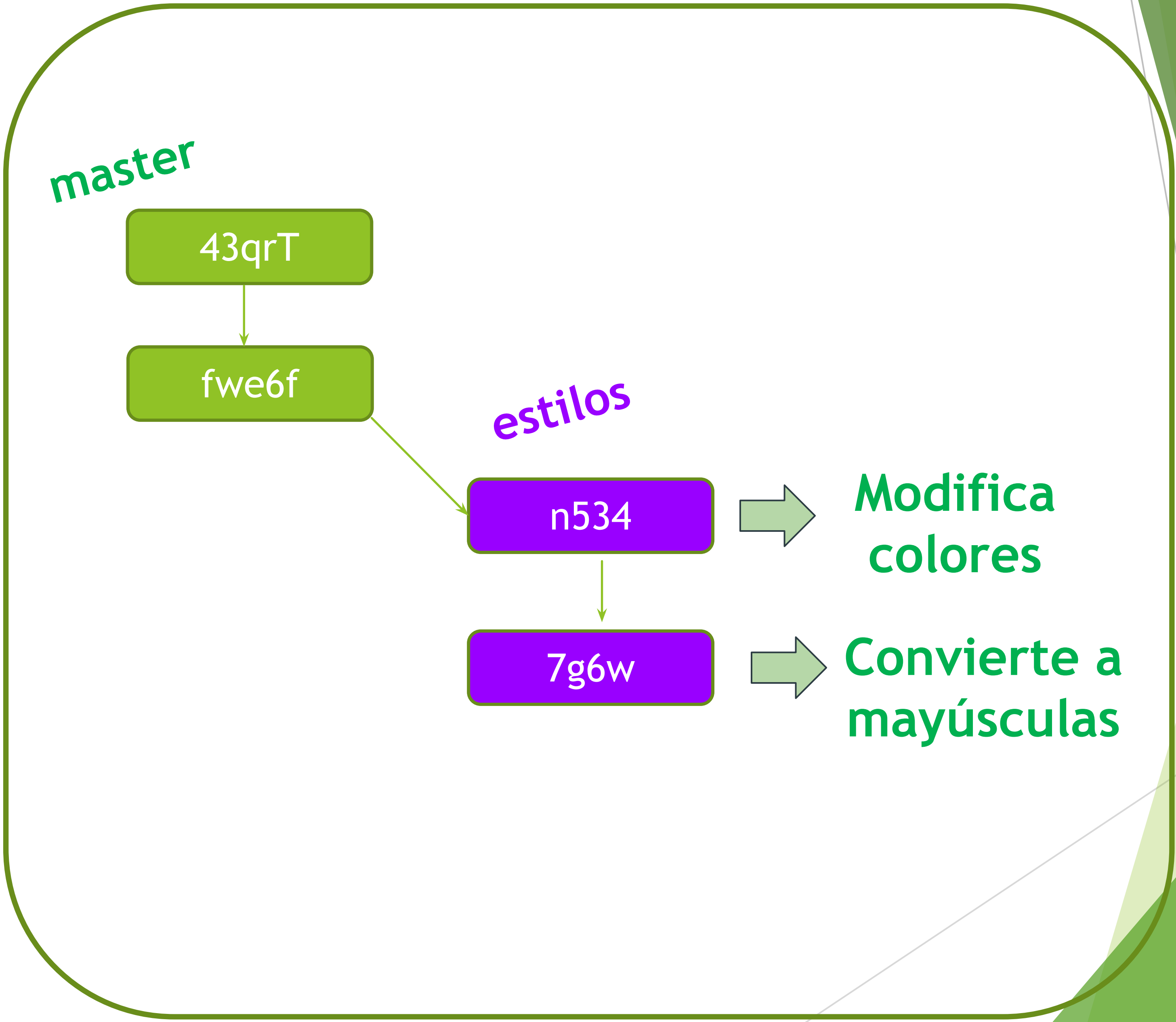
En la rama master...



MINGW64:/c/Users/braia/Desktop/tio-login

```
braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (master)
$ git log
commit d2dee867768ab172fdfdd06e7dc222864b072b9a (HEAD -> master, origin/master,
origin/HEAD)
Author: Braian Varona <brvarona@gmail.com>
Date:   Sun Sep 6 19:04:13 2020 -0300

    login page

commit 57c4dbb266ee80ac3814a812a43122b83aab5f7e
Author: Braian Varona <brvarona@gmail.com>
Date:   Sun Sep 6 17:00:55 2020 -0300

    Initial commit

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (master)
$
```

Local



master

43qrT

fwe6f

estilos

n534

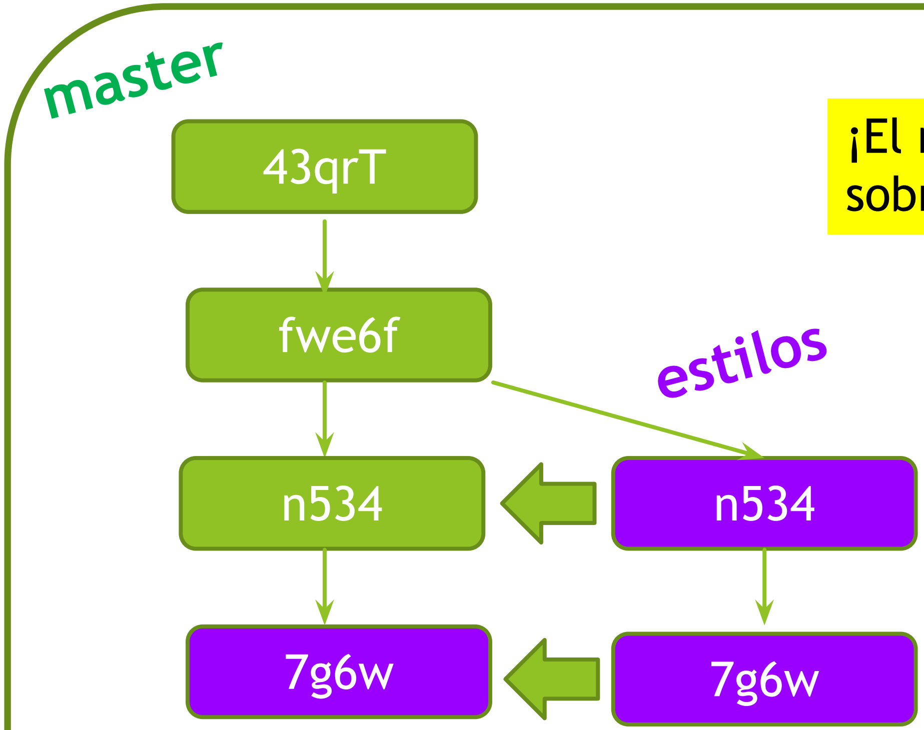
Modifica colores

7g6w

Convierte a mayúsculas

Fusionar dos ramas

git merge <NAME>

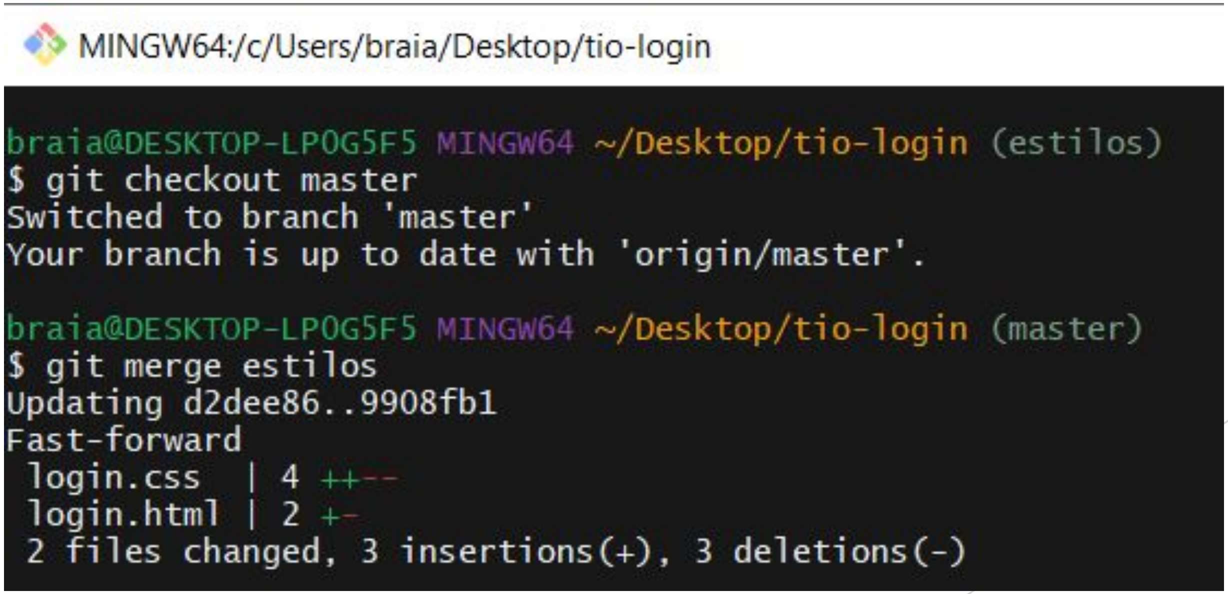


¡El merge se realiza sobre la rama activa!

> git merge estilos

Fast-Forward

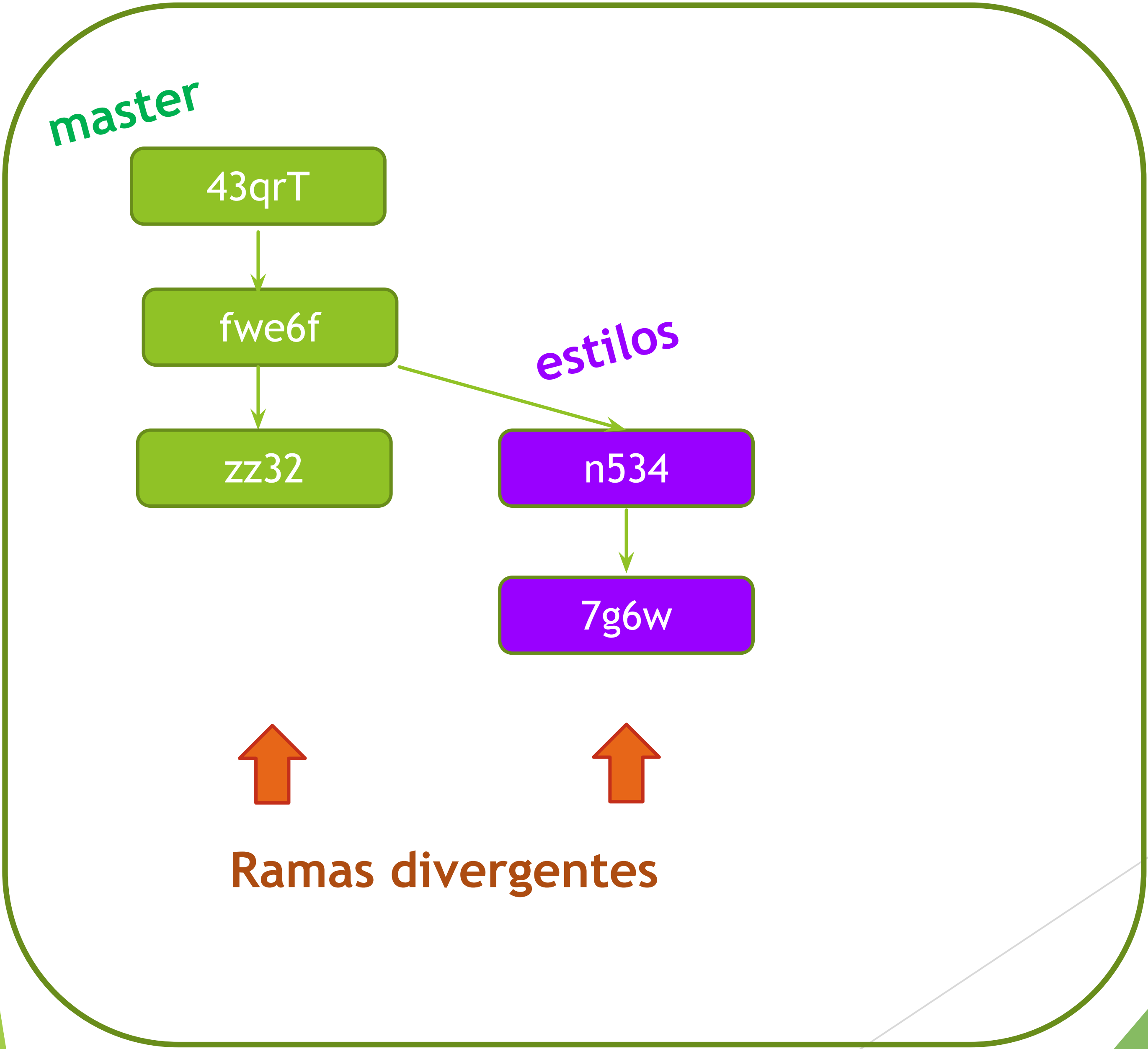
- La fusión se realiza de manera automática
- No hay conflictos entre una rama y otra
- Git puede “unir” todo el contenido sin problemas



MINGW64:/c/Users/braia/Desktop/tio-login

```
braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (estilos)
$ git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (master)
$ git merge estilos
Updating d2dee86..9908fb1
Fast-forward
 login.css  | 4 ++--
 login.html | 2 +-
 2 files changed, 3 insertions(+), 3 deletions(-)
```

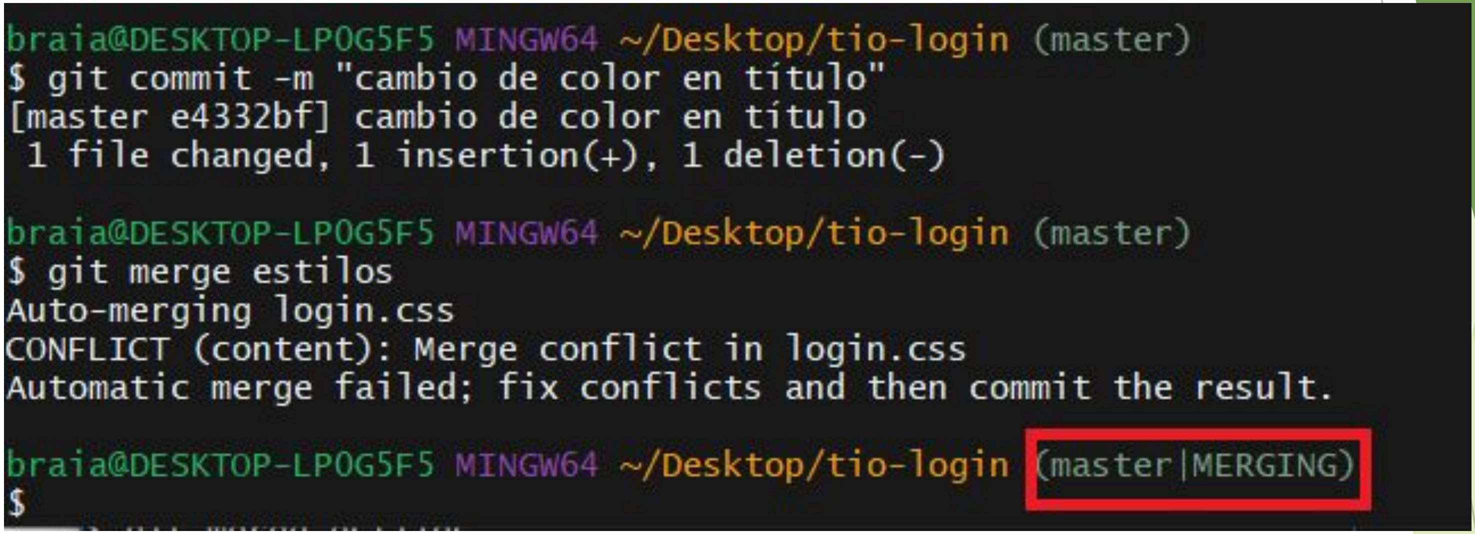
Local



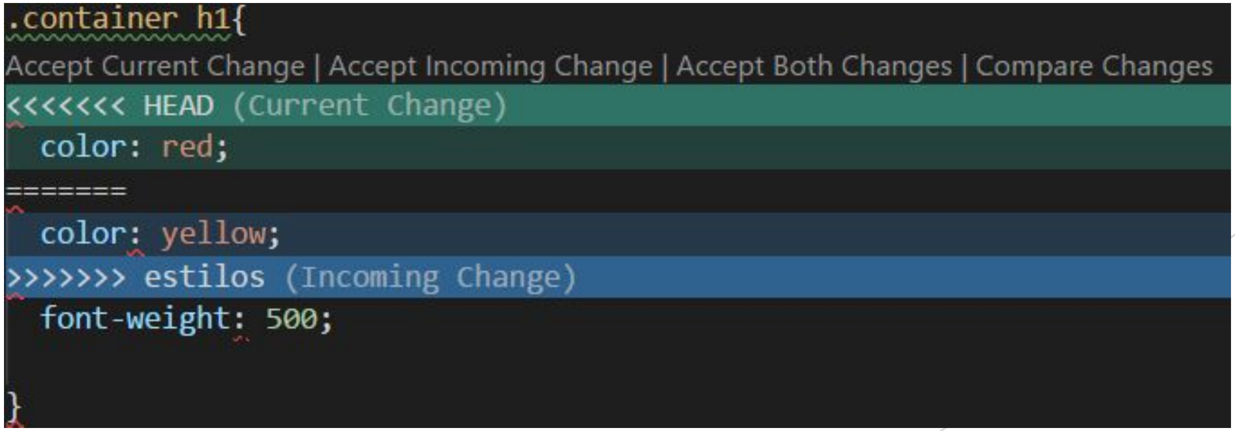
Ramas divergentes

Manual merge

- El programador es quien debe resolver el conflicto



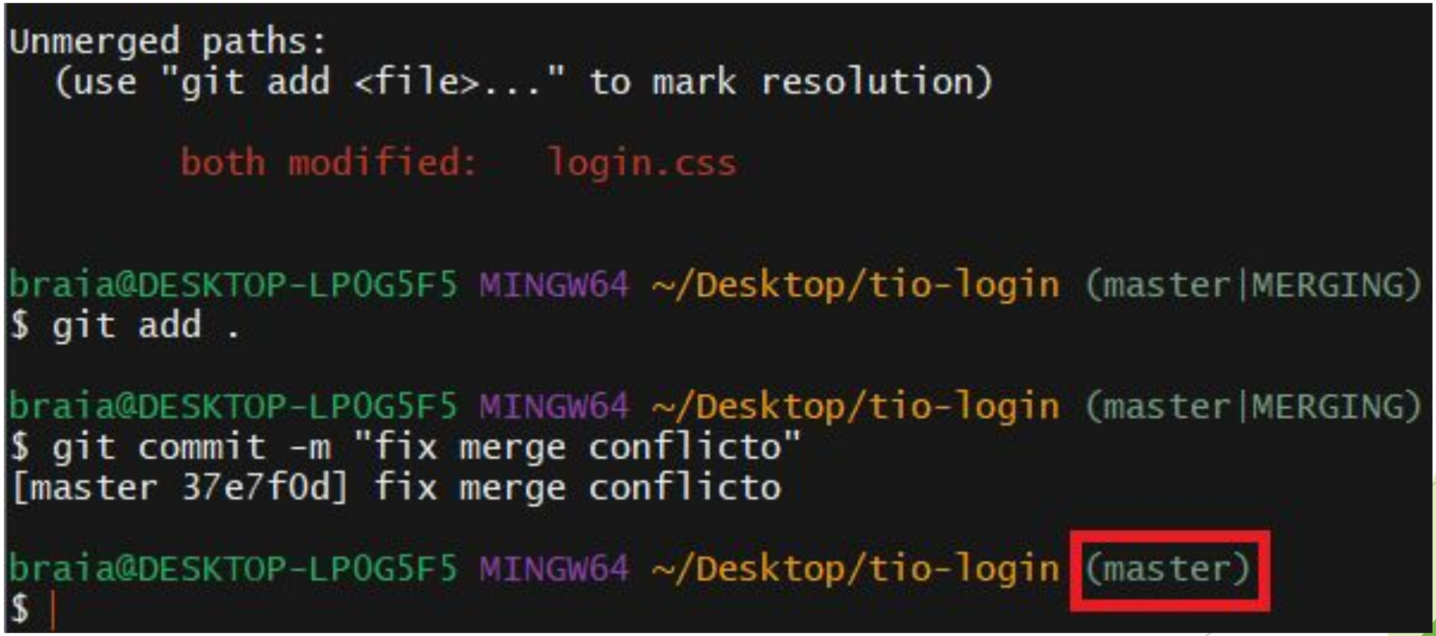
```
braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (master)
$ git commit -m "cambio de color en título"
[master e4332bf] cambio de color en título
 1 file changed, 1 insertion(+), 1 deletion(-)

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (master)
$ git merge estilos
Auto-merging login.css
CONFLICT (content): Merge conflict in login.css
Automatic merge failed; fix conflicts and then commit the result.

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (master|MERGING)
$
```



```
.container h1{
Accept Current Change | Accept Incoming Change | Accept Both Changes | Compare Changes
<<<<<<< HEAD (Current Change)
  color: red;
=======
  color: yellow;
>>>>>>> estilos (Incoming Change)
  font-weight: 500;

}
```

Confirmación del merge

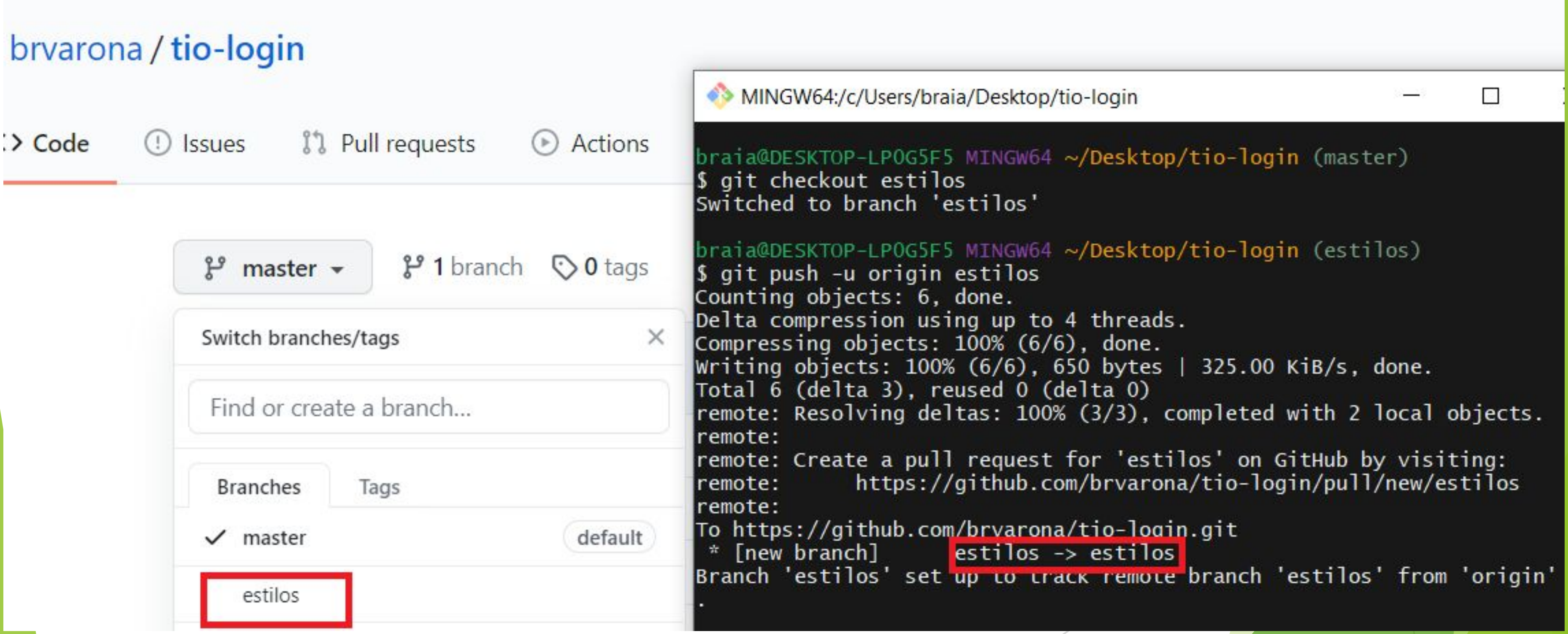
- Para salir del estado “merging” es necesario resolver el conflicto, agregar los archivos a la staging area y luego realizar la confirmación.



```
Unmerged paths:
  (use "git add <file>..." to mark resolution)

        both modified:   login.css


braia@DESKTOP-LP0G5F5 MINGW64 ~/Desktop/tio-login (master|MERGING)
$ git add .

braia@DESKTOP-LP0G5F5 MINGW64 ~/Desktop/tio-login (master|MERGING)
$ git commit -m "fix merge conflicto"
[master 37e7f0d] fix merge conflicto

braia@DESKTOP-LP0G5F5 MINGW64 ~/Desktop/tio-login (master)
$ 
```

Ramas remotas

- git push -u <remote> <remote_branch>
- git push -u <remote> <local_branch>:<remote_branch>



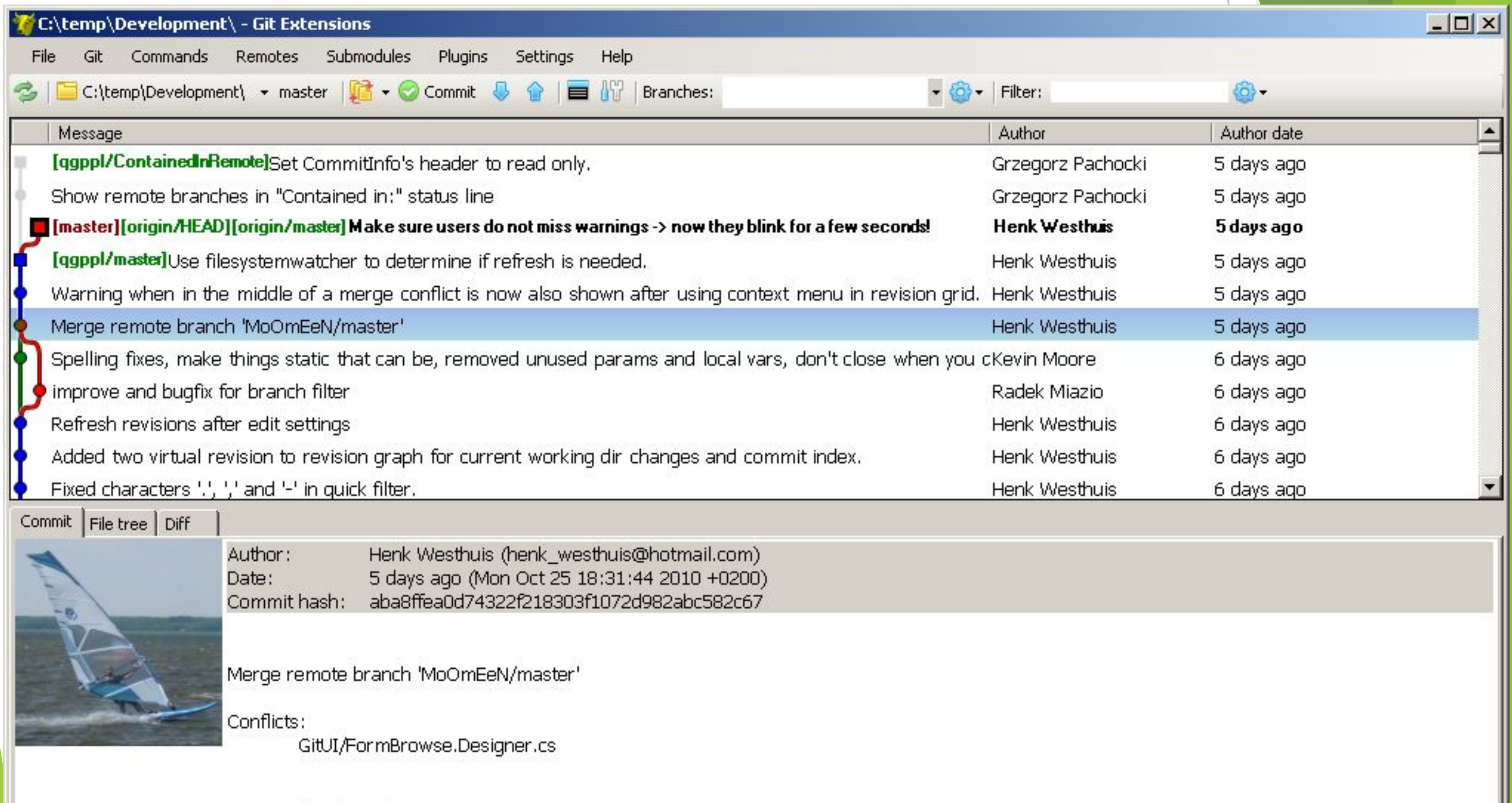
```
braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (master)
$ git checkout estilos
Switched to branch 'estilos'

braia@DESKTOP-LPOG5F5 MINGW64 ~/Desktop/tio-login (estilos)
$ git push -u origin estilos
Counting objects: 6, done.
Delta compression using up to 4 threads.
Compressing objects: 100% (6/6), done.
Writing objects: 100% (6/6), 650 bytes | 325.00 KiB/s, done.
Total 6 (delta 3), reused 0 (delta 0)
remote: Resolving deltas: 100% (3/3), completed with 2 local objects.
remote:
remote: Create a pull request for 'estilos' on GitHub by visiting:
remote:      https://github.com/brvarona/tio-login/pull/new/estilos
remote:
To https://github.com/brvarona/tio-login.git
 * [new branch]      estilos -> estilos
Branch 'estilos' set up to track remote branch 'estilos' from 'origin'
.
```

- ¿Por qué hacer *branches* del proyecto?
  - Para desarrollar software en paralelo e independiente entre los programadores
  - Para no afectar al código principal
  - Para disminuir errores

Git Extensions es una interfaz gráfica para Git

https://gitextensions.github.io/

Git Extensions es una interfaz gráfica para Git



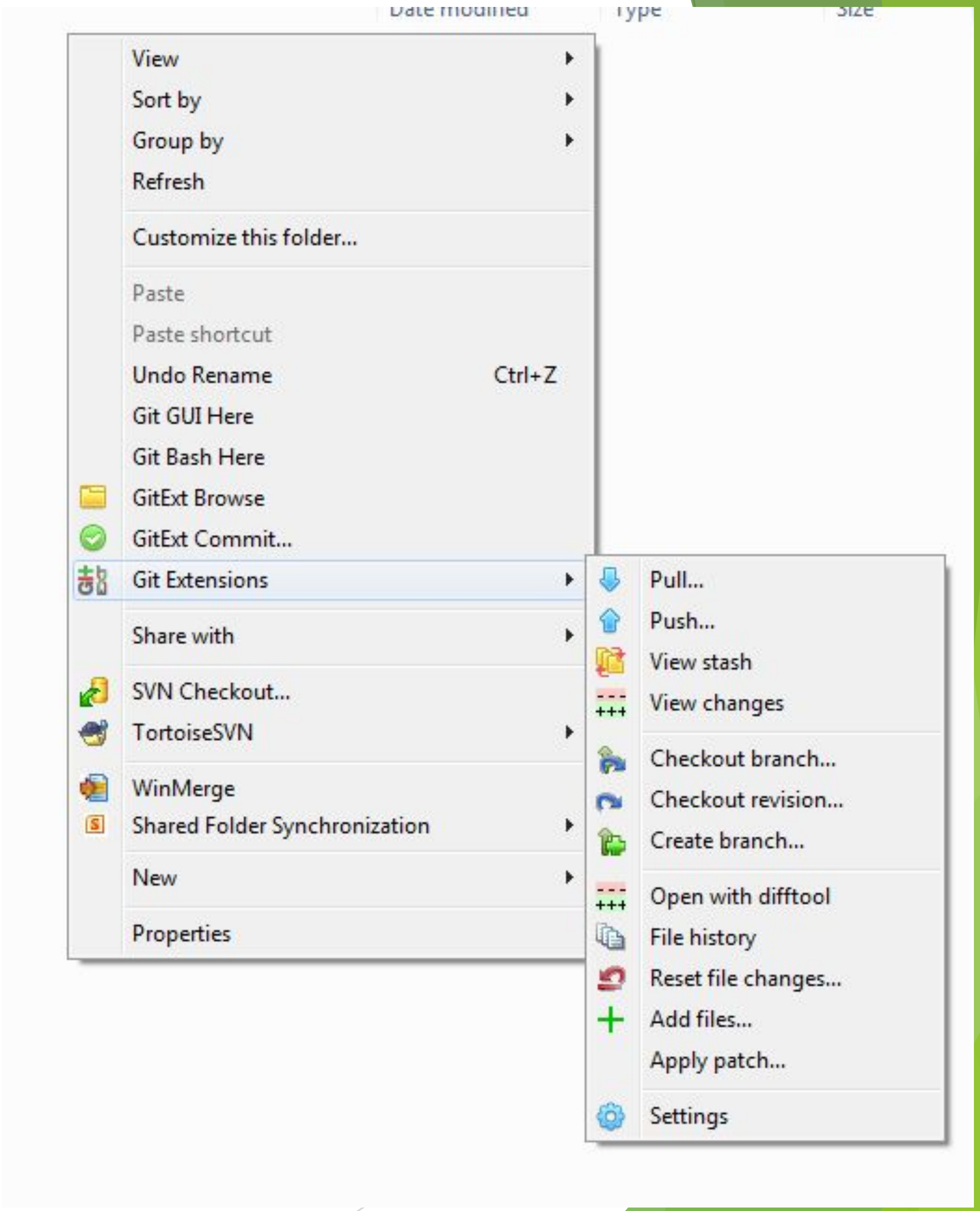
Message	Author	Author date
[qgppl/ContainedInRemote]Set CommitInfo's header to read only.	Grzegorz Pachocki	5 days ago
Show remote branches in "Contained in:" status line	Grzegorz Pachocki	5 days ago
[master][origin/HEAD][origin/master] Make sure users do not miss warnings -> now they blink for a few seconds!	**Henk Westhuis**	**5 days ago**
[qgppl/master]Use filesystemwatcher to determine if refresh is needed.	Henk Westhuis	5 days ago
Warning when in the middle of a merge conflict is now also shown after using context menu in revision grid.	Henk Westhuis	5 days ago
Merge remote branch 'MoOmEeN/master'	Henk Westhuis	5 days ago
Spelling fixes, make things static that can be, removed unused params and local vars, don't close when you c	Kevin Moore	6 days ago
improve and bugfix for branch filter	Radek Miazio	6 days ago
Refresh revisions after edit settings	Henk Westhuis	6 days ago
Added two virtual revision to revision graph for current working dir changes and commit index.	Henk Westhuis	6 days ago
Fixed characters '.', ',' and '-' in quick filter.	Henk Westhuis	6 days ago

Author: Henk Westhuis (henk_westhuis@hotmail.com)
Date: 5 days ago (Mon Oct 25 18:31:44 2010 +0200)
Commit hash: aba8ffea0d74322f218303f1072d982abc582c67

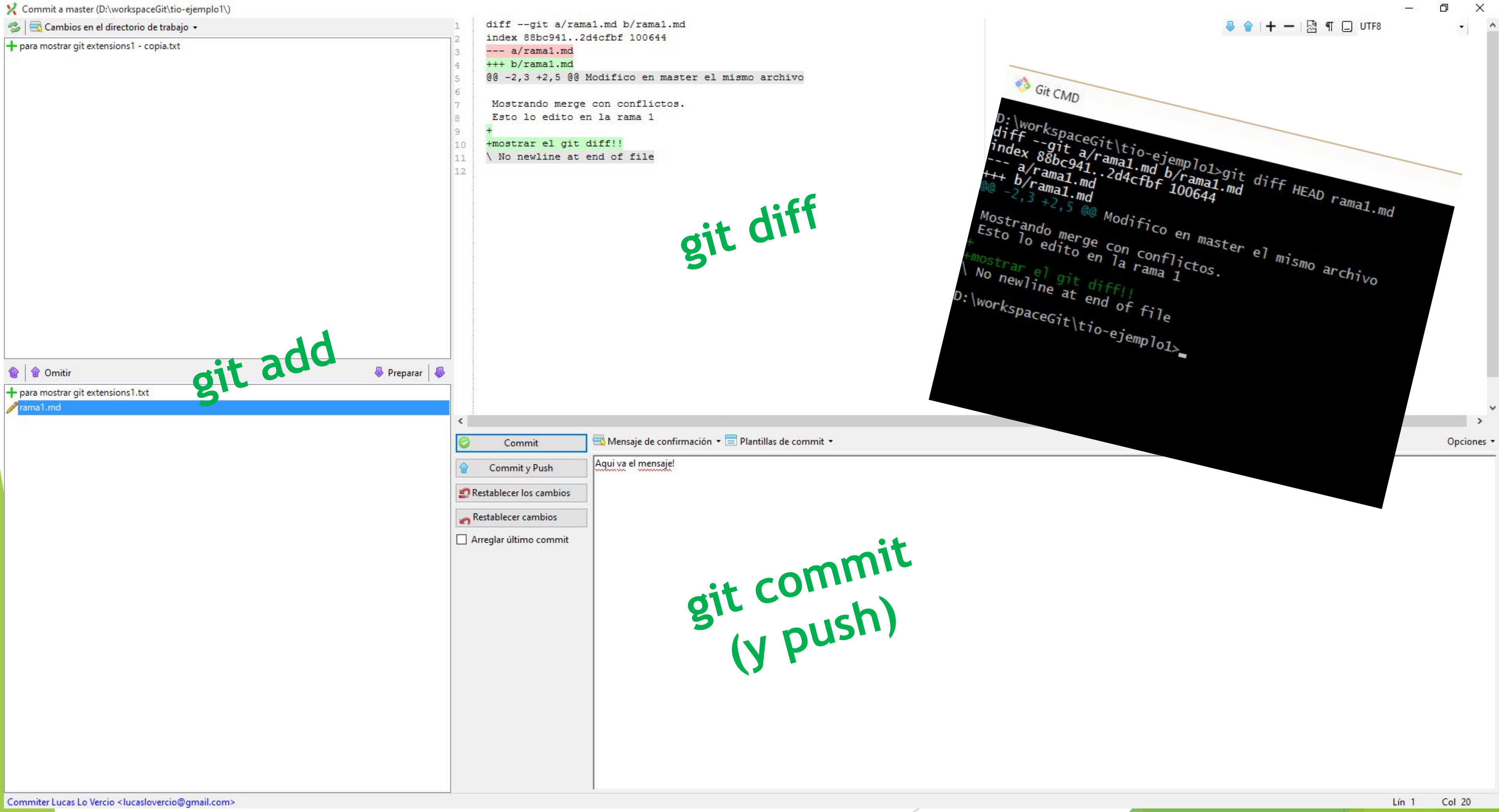
Merge remote branch 'MoOmEeN/master'

Conflicts:
GitUI/FormBrowse.Designer.cs

Menú contextual



Menú Commit



Commit a master (D:\workspaceGit\tio-ejemplo1\)

Cambios en el directorio de trabajo:
- para mostrar git extensions1 - copia.txt

Preparados:
- para mostrar git extensions1.txt
- rama1.md

```
diff --git a/rama1.md b/rama1.md
index 88bc941..2d4cfbf 100644
--- a/rama1.md
+++ b/rama1.md
@@ -2,3 +2,5 @@ Modifico en master el mismo archivo

 Mostrando merge con conflictos.
 Esto lo edito en la rama 1
+
+mostrar el git diff!!
\ No newline at end of file
```

```
D:\workspaceGit\tio-ejemplo1>git diff HEAD rama1.md
diff --git a/rama1.md b/rama1.md
index 88bc941..2d4cfbf 100644
--- a/rama1.md
+++ b/rama1.md
@@ -2,3 +2,5 @@ Modifico en master el mismo archivo

Mostrando merge con conflictos.
Esto lo edito en la rama 1
+mostrar el git diff!!
\ No newline at end of file

D:\workspaceGit\tio-ejemplo1>_
```

☐ Arreglar último commit

Mensaje de confirmación: Aqui va el mensaje!

Commiter Lucas Lo Vercio <lucaslovercio@gmail.com>

Lín 1 Col 20

git add

git diff

git commit
(y push)

- Resumen
  - git branch: lista las ramas locales
  - git branch <rama>: crea una nueva rama
  - git checkout <rama>: cambia el puntero HEAD a <rama>
  - git branch -d <rama>: borra la rama
  - git merge <rama>: fusiona el contenido de <rama> en la rama en la que estamos parados

Bibliografía

https://git-scm.com/book/es/v1

Leer:

3.3 Ramificaciones en Git

En inglés:
https://www.atlassian.com/git/tutorials/using-branches