GIT

Branch & Clone

1. Check Repository Status on Main Branch

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch main
Your branch is up to date with 'origin/main'.
nothing to commit, working tree clean
==========================================================================
```

2. Create a New Branch (`sprint1`) and List All Branches

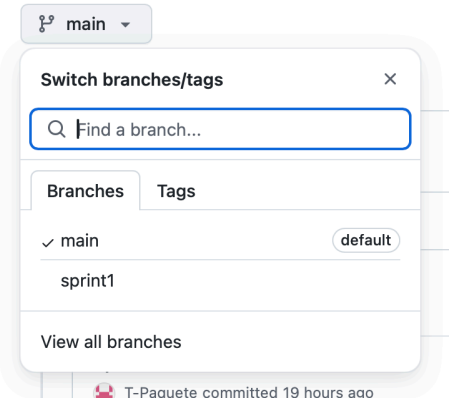
```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch -c sprint1

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch -a
==========================================================================
* main
  sprint1
  remotes/origin/main
==========================================================================
```

Options:
To list **both local and remote branches**:
git branch -a

To list **only remote branches**:
git branch -r

To show **last commit info for each branch**:
git branch -v

Stage Modified File and Successfully Commit to `sprint1`



3. Create Another Branch (`sprint2`) and Confirm Existence

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch sprint2

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch -a
================================================================================
* main
  sprint1
  sprint2
  remotes/origin/main
================================================================================
```

4. Delete a Local Branch (`sprint2`) Safely

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch -d sprint2
================================================================================
Deleted branch sprint2 (was 98c48ec).
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch -a
================================================================================
* main
  sprint1
  remotes/origin/main
================================================================================
```

Delete a local branch:
git branch -d branch-name

This is a **safe delete**: it prevents deletion if the branch has unmerged changes.

To force deletion (even if unmerged):
git branch -D branch-name

Delete a remote branch:
git push origin --delete branch-name

This tells the remote (usually named origin) to delete the branch

5. Remove a Tracked File (`file3`) from the Repository

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
==========================================================================
file1  file2  file3  testdir1  testdir2  testdir3  testdir4
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git rm file3
==========================================================================
rm 'file3'
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    deleted:    file3
==========================================================================


tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
==========================================================================
file1  file2  testdir1  testdir2  testdir3  testdir4
==========================================================================
```

6. Rename a File Using `git mv` (`file2` → `file21`)

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
==========================================================================
file1  file2  testdir1  testdir2  testdir3  testdir4
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git mv file2 file21
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
==========================================================================
file1  file21  testdir1  testdir2  testdir3  testdir4
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    renamed:    file2 -> file21
    deleted:    file3
==========================================================================
```

7. Create and Stage New Files with Bash Expansion

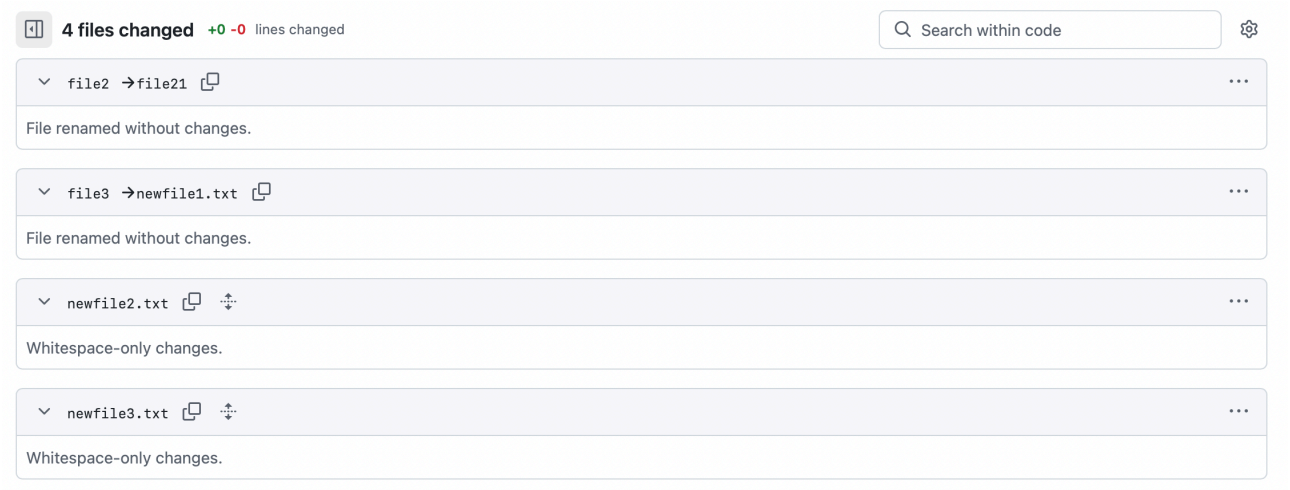
```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
================================================================================
file1  file21  testdir1  testdir2  testdir3  testdir4
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ touch
newfile{1..3}.txt
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
================================================================================
file1   newfile1.txt  newfile3.txt  testdir2  testdir4
file21  newfile2.txt  testdir1      testdir3
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git add .
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
================================================================================
On branch main
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    renamed:    file2 -> file21
    renamed:    file3 -> newfile1.txt
    new file:   newfile2.txt
    new file:   newfile3.txt
================================================================================
```

8. Commit File Renames and New Files, Then Push to Remote

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git commit -m "test
changes in files”
================================================================================
[main 9efe3d3] test changes in files
 4 files changed, 0 insertions(+), 0 deletions(-)
 rename file2 => file21 (100%)
 rename file3 => newfile1.txt (100%)
 create mode 100644 newfile2.txt
 create mode 100644 newfile3.txt
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
================================================================================
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
================================================================================
```

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git push origin main
================================================================================
Username for 'https://github.com': T-Paquete
Password for 'https://T-Paquete@github.com':
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (2/2), 265 bytes | 265.00 KiB/s, done.
Total 2 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/T-Paquete/testfiles.git
   98c48ec..9efe3d3  main -> main
================================================================================
```

9. Check changes on GitHub



10. Switch to `sprint1` Branch and Synchronize with Remote

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch
================================================================================
* main
  sprint1
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git switch sprint1
================================================================================
Switched to branch 'sprint1'
Your branch is behind 'origin/main' by 1 commit, and can be fast-
forwarded.
  (use "git pull" to update your local branch)
================================================================================
```

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git pull
==========================================================================
Username for 'https://github.com': T-Paquete
Password for 'https://T-Paquete@github.com':
Updating 98c48ec..9efe3d3
Fast-forward
 file2 => file21       | 0
 file3 => newfile1.txt | 0
 newfile2.txt          | 0
 newfile3.txt          | 0
 4 files changed, 0 insertions(+), 0 deletions(-)
 rename file2 => file21 (100%)
 rename file3 => newfile1.txt (100%)
 create mode 100644 newfile2.txt
 create mode 100644 newfile3.txt
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch sprint1
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
==========================================================================
```

If you're not already on it, use:
git checkout branch-name

Or with Git 2.23+ (preferred command):
git switch branch-name

11. Modify a File in `sprint1` Branch

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
==========================================================================
file1   newfile1.txt  newfile3.txt  testdir2  testdir4
file21  newfile2.txt  testdir1      testdir3
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ vim testdir2/file1
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ cat testdir2/file1
==========================================================================
make some
changes

to

commit
==========================================================================
```

12. Attempt to Commit Without Staging (Fails)

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch sprint1
Your branch is up to date with 'origin/main'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   testdir2/file1

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

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git commit -m "changes
made”
==========================================================================
On branch sprint1
Your branch is up to date with 'origin/main'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    modified:   testdir2/file1

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

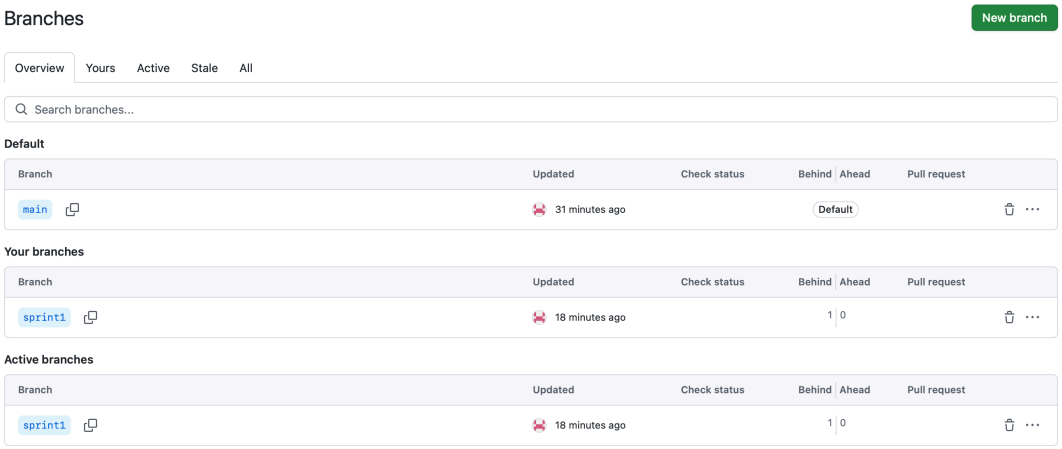
13. Stage Modified File and Successfully Commit to sprint1

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git add .
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch sprint1
Your branch is up to date with 'origin/main'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   testdir2/file1
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git commit -m "changes
staged and ready to commit”
==========================================================================
[sprint1 c9eeb37] changes staged and ready to commit
 1 file changed, 6 insertions(+)
==========================================================================
```

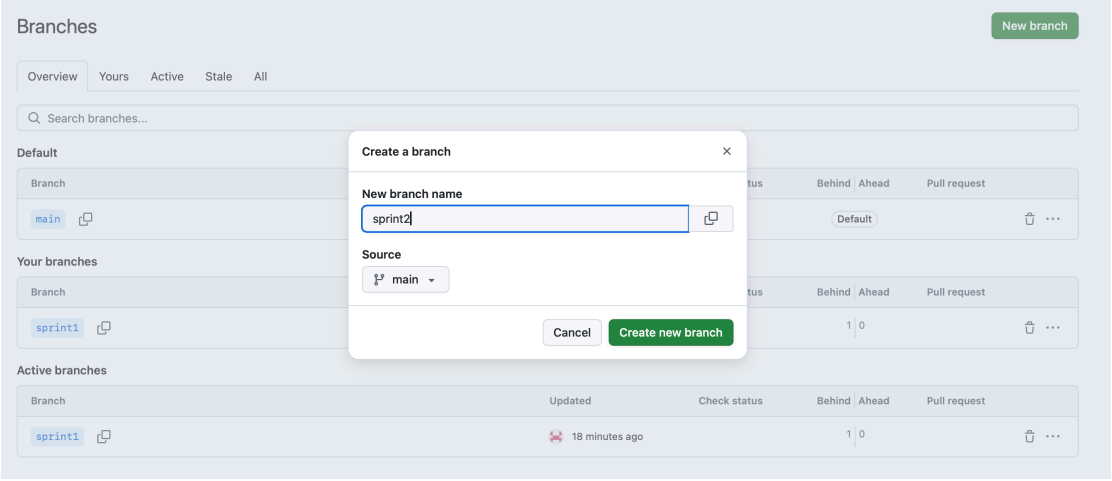
```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch sprint1
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
==========================================================================
```

14. Check Branches on GitHub and locally

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch
==========================================================================
  main
* sprint1
==========================================================================
```

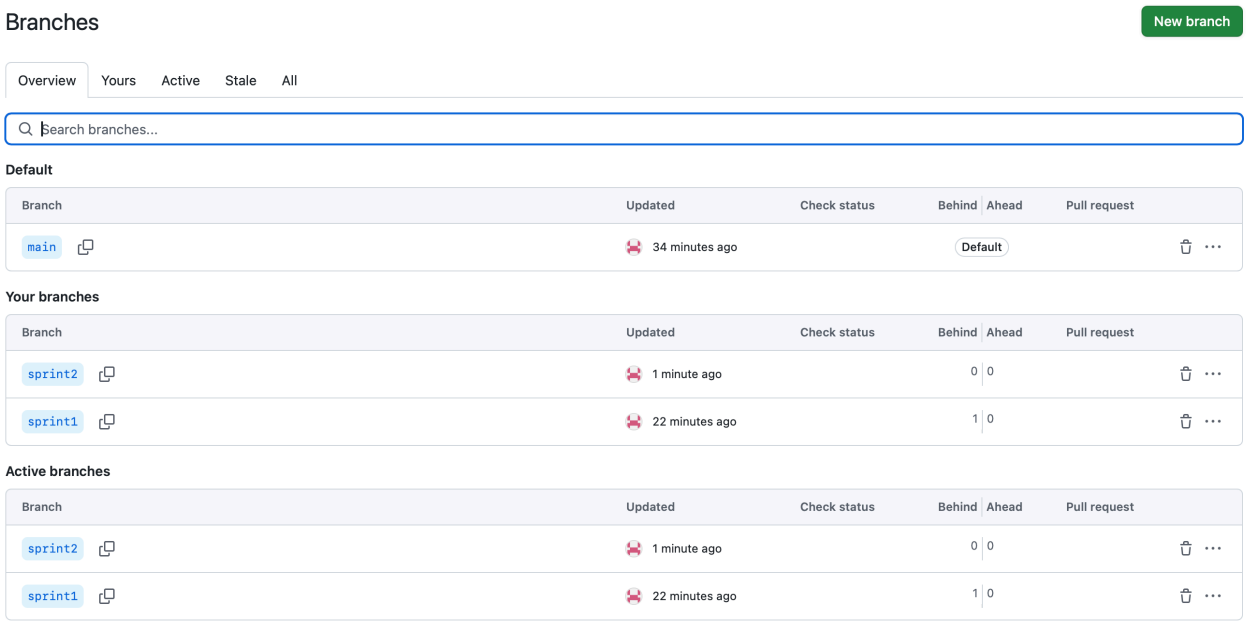


15. Create new Branch on GitHub



16. Check Branches on GitHub and locally

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch
================================================================================
  main
* sprint1
================================================================================
```



17. Pull Remote Branches and Confirm `sprint2` Exists Remotely

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git pull
================================================================================
Username for 'https://github.com': T-Paquete
Password for 'https://T-Paquete@github.com':
From https://github.com/T-Paquete/testfiles
 * [new branch]      sprint2    -> origin/sprint2
Already up to date.
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch
================================================================================
  main
* sprint1
================================================================================
```

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch -a
==========================================================================
  main
* sprint1
  remotes/origin/main
  remotes/origin/sprint1
  remotes/origin/sprint2
==========================================================================
```

18. Switch to `sprint2` Branch and Confirm Clean Working Tree

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
==========================================================================
file1   newfile1.txt  newfile3.txt  testdir2  testdir4
file21  newfile2.txt  testdir1      testdir3
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch -a
==========================================================================
  main
* sprint1
  remotes/origin/main
  remotes/origin/sprint1
  remotes/origin/sprint2
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch sprint1
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git switch sprint2
==========================================================================
branch 'sprint2' set up to track 'origin/sprint2'.
Switched to a new branch ‘sprint2'
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch sprint2
Your branch is up to date with 'origin/sprint2'.

nothing to commit, working tree clean
==========================================================================
```

19. Rename File in `sprint2` and Detect File Rename in Git Status

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch sprint2
Your branch is up to date with 'origin/sprint2'.

nothing to commit, working tree clean
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ mv file21 file2
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
==========================================================================
file1  newfile1.txt  newfile3.txt  testdir2  testdir4
file2  newfile2.txt  testdir1      testdir3
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch sprint2
Your branch is up to date with 'origin/sprint2'.

Changes not staged for commit:
  (use "git add/rm <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
    deleted:    file21

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    file2

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

20. Switch Back to `main` Branch from `sprint2`

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch
==========================================================================
  main
  sprint1
* sprint2
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git switch main
==========================================================================
D   file21
Switched to branch 'main'
Your branch is up to date with ‘origin/main'.
==========================================================================
```

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch
================================================================================
* main
  sprint1
  sprint2
================================================================================
```

21. Verify Branch Context and Active Branch (`main`)

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch
================================================================================
  main
  sprint1
*sprint2
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git switch main
================================================================================
D   file21
Switched to branch 'main'
Your branch is up to date with ‘origin/main'.
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch
================================================================================
* main
  sprint1
  sprint2
================================================================================
```

22. Merge `sprint1` and `sprint2` into `main`, Detect Working Tree Changes

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git merge sprint1
================================================================================
Updating 9efe3d3..c9eeb37
Fast-forward
 testdir2/file1 | 6 ++++++
 1 file changed, 6 insertions(+)
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git merge sprint2
================================================================================
Already up to date.
================================================================================
```

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch main
Your branch is ahead of 'origin/main' 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 restore <file>..." to discard changes in working directory)
    deleted:    file21

Untracked files:
  (use "git add <file>..." to include in what will be committed)
    file2

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

23. Stage Renamed File, Commit Changes, and Push to Remote Repository

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git add .
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
==========================================================================
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    renamed:    file21 -> file2
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git commit -m "new
==========================================================================
changes"
[main 9cdc72c] new changes
 1 file changed, 0 insertions(+), 0 deletions(-)
 rename file21 => file2 (100%)
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git push
==========================================================================
Username for 'https://github.com': T-Paquete
Password for 'https://T-Paquete@github.com':
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 12 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 594 bytes | 594.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/T-Paquete/testfiles.git
```

```
   9efe3d3..9cdc72c  main -> main
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
================================================================================
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
================================================================================
```

24. Push All Local Branches to Remote Repository

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git push --all origin
================================================================================
Username for 'https://github.com': T-paquete
Password for 'https://T-paquete@github.com':
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/T-Paquete/testfiles.git
   98c48ec..c9eeb37  sprint1 -> sprint1
================================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git status
================================================================================
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git branch
* main
  sprint1
  sprint2
================================================================================
```

25. Clone Repository from GitHub into a Subdirectory (`clonedir`)

Repository url: https://github.com/T-Paquete/testfiles.git

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ git clone https://
================================================================================
github.com/T-Paquete/testfiles.git clonedir
Cloning into 'clonedir'...
Username for 'https://github.com': T-Paquete
Password for 'https://T-Paquete@github.com':
remote: Enumerating objects: 26, done.
remote: Counting objects: 100% (26/26), done.
remote: Compressing objects: 100% (17/17), done.
remote: Total 26 (delta 6), reused 21 (delta 4), pack-reused 0 (from 0)
Receiving objects: 100% (26/26), done.
Resolving deltas: 100% (6/6), done.
================================================================================
```

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls -la
==========================================================================
total 32
drwxrwxr-x 8 tiago-paquete tiago-paquete 4096 May 21 13:43 .
drwxrwxr-x 3 tiago-paquete tiago-paquete 4096 May 20 14:01 ..
drwxrwxr-x 8 tiago-paquete tiago-paquete 4096 May 21 13:38 .git
drwxrwxr-x 7 tiago-paquete tiago-paquete 4096 May 21 13:43 clonedir
-rw-rw-r-- 1 tiago-paquete tiago-paquete    0 May 20 14:11 file1
-rw-rw-r-- 1 tiago-paquete tiago-paquete    0 May 21 12:19 file2
-rw-rw-r-- 1 tiago-paquete tiago-paquete    0 May 21 12:19 newfile1.txt
-rw-rw-r-- 1 tiago-paquete tiago-paquete    0 May 21 12:19 newfile2.txt
-rw-rw-r-- 1 tiago-paquete tiago-paquete    0 May 21 12:19 newfile3.txt
drwxrwxr-x 2 tiago-paquete tiago-paquete 4096 May 20 17:29 testdir1
drwxrwxr-x 2 tiago-paquete tiago-paquete 4096 May 21 13:26 testdir2
drwxrwxr-x 2 tiago-paquete tiago-paquete 4096 May 20 17:49 testdir3
drwxrwxr-x 2 tiago-paquete tiago-paquete 4096 May 20 14:12 testdir4
==========================================================================
```

26. Remove Cloned Repository Directory and Verify Cleanup

```
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
==========================================================================
clonedir  file2         newfile2.txt  testdir1  testdir3
file1     newfile1.txt  newfile3.txt  testdir2  testdir4
==========================================================================

tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ rm -rf clonedir
==========================================================================
tiago-paquete@Ubuntu1:~/GitHubProjects/T-Paquete$ ls
file1  newfile1.txt  newfile3.txt  testdir2  testdir4
file2  newfile2.txt  testdir1      testdir3
==========================================================================
```