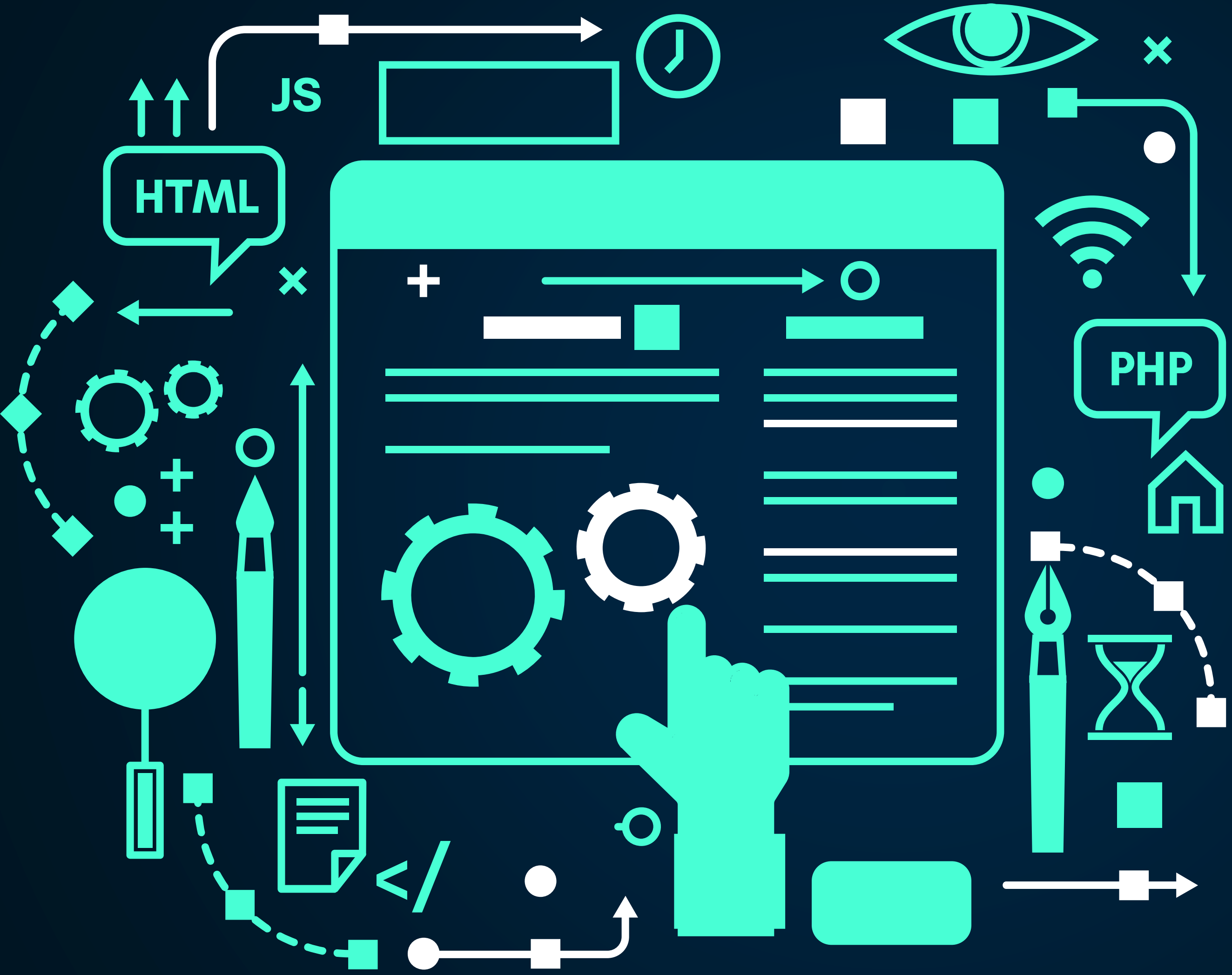

Git&Github

TA DS113 葉嘉浤

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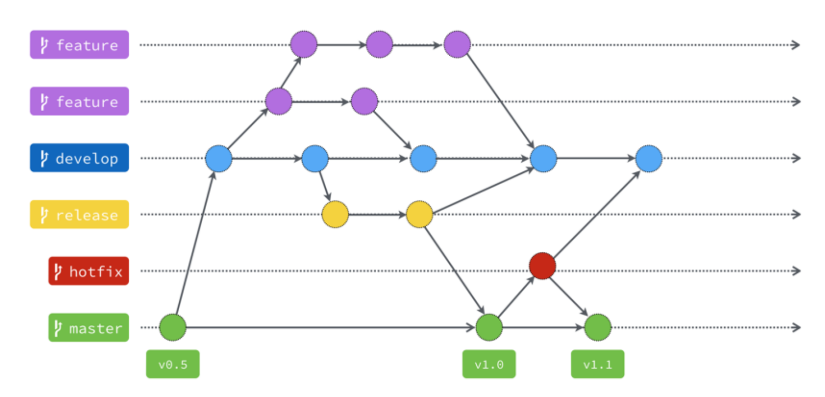
Branch

Why branch?

Branch in git

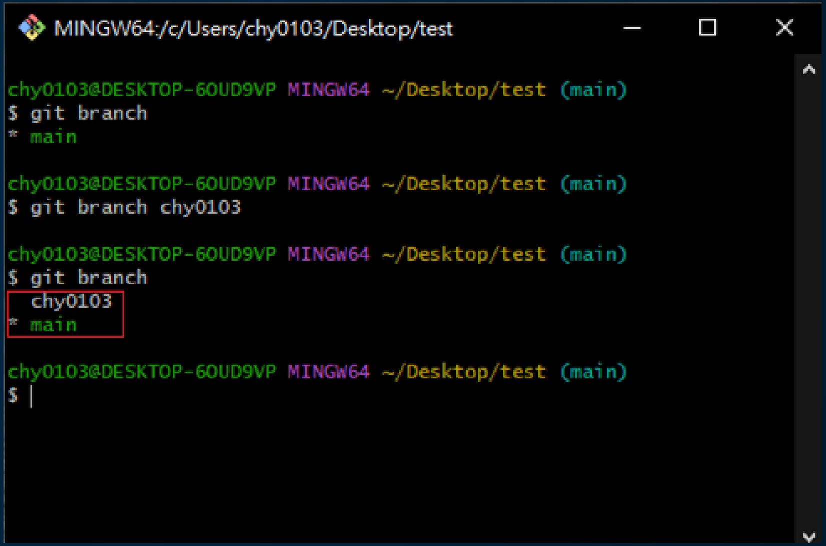


名稱	功能
Master	主要且穩定版本
Hotfix	用於緊急時修復
Release	實裝前最終測試
Develop	開發的基礎分支
Feature	新增功能

Branch

- git branch <branchname>
新增一個分支

*若輸入git branch，則會顯示所有分支

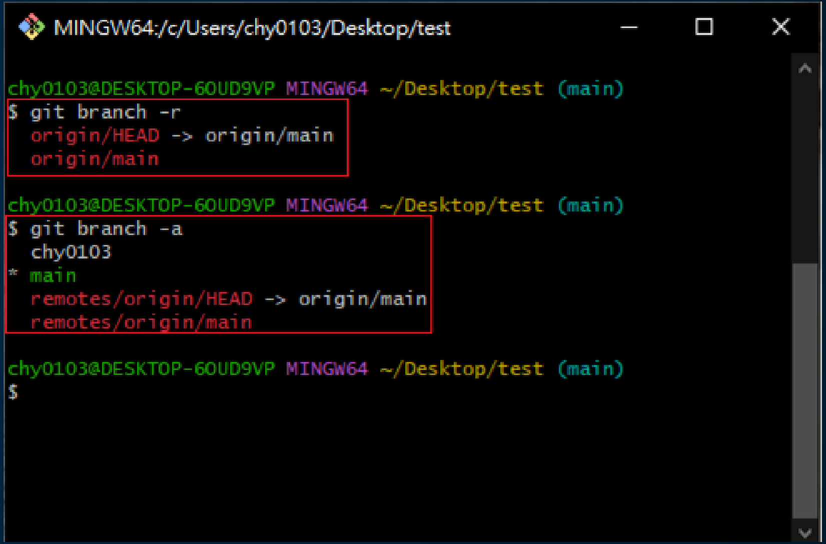


```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch
* main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch chy0103

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch
  chy0103
* main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ |
```

Branch

- git branch -r
確認遠端分支

- git branch -a
確認本機端分支

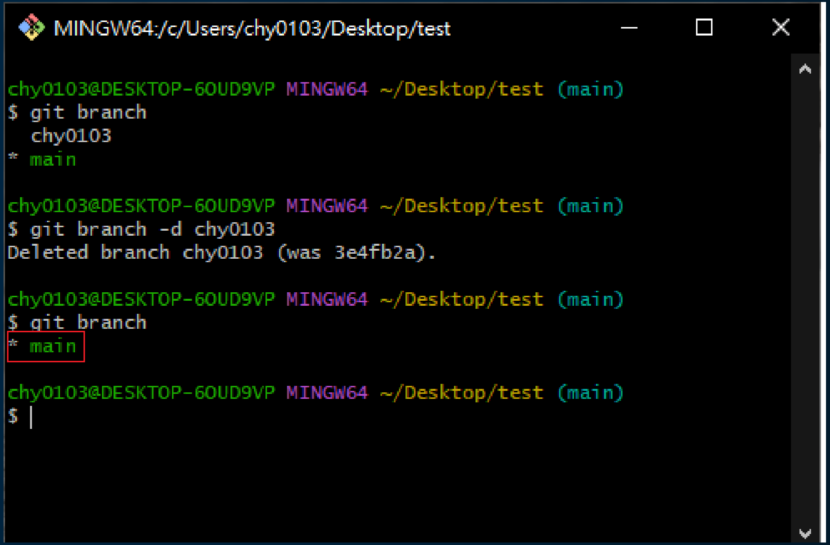


```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch -r
  origin/HEAD -> origin/main
  origin/main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch -a
  chy0103
* main
  remotes/origin/HEAD -> origin/main
  remotes/origin/main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$
```

Branch

- git branch -d <branchname>
刪除分支

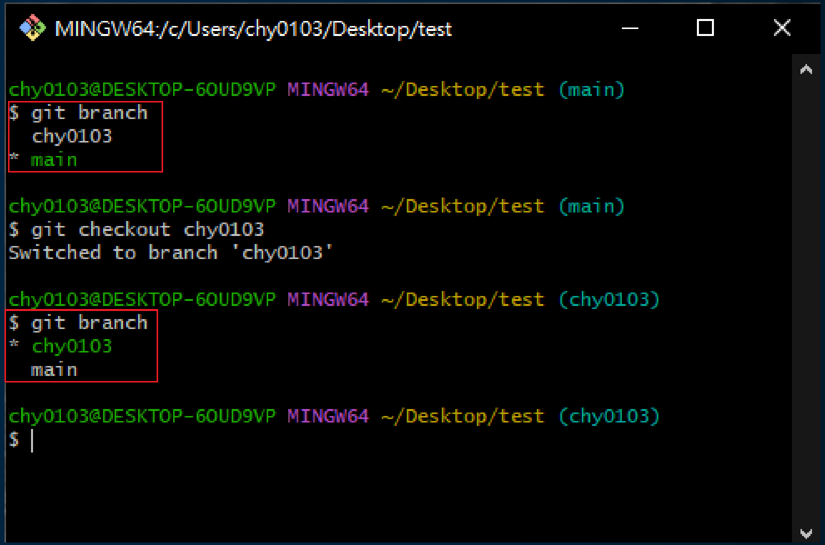
如果要刪除未合併的分支，git 會提醒你要先合併再刪除
可以使用 git branch –D 強制刪除



```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch
  chy0103
* main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch -d chy0103
Deleted branch chy0103 (was 3e4fb2a).

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch
* main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ |
```

Branch

- git checkout <branchname>
切換到指定分支

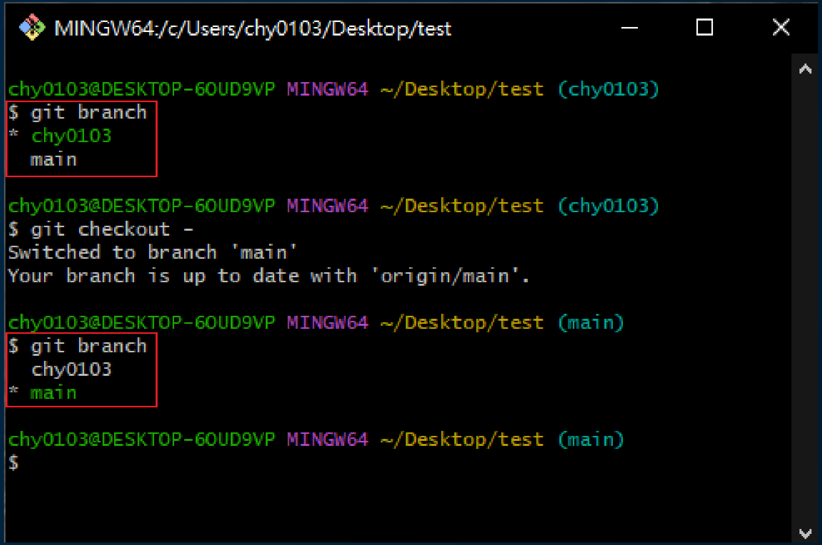


MINGW64:/c/Users/chy0103/Desktop/test

```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch
  chy0103
* main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git checkout chy0103
Switched to branch 'chy0103'

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git branch
* chy0103
  main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ |
```

Branch

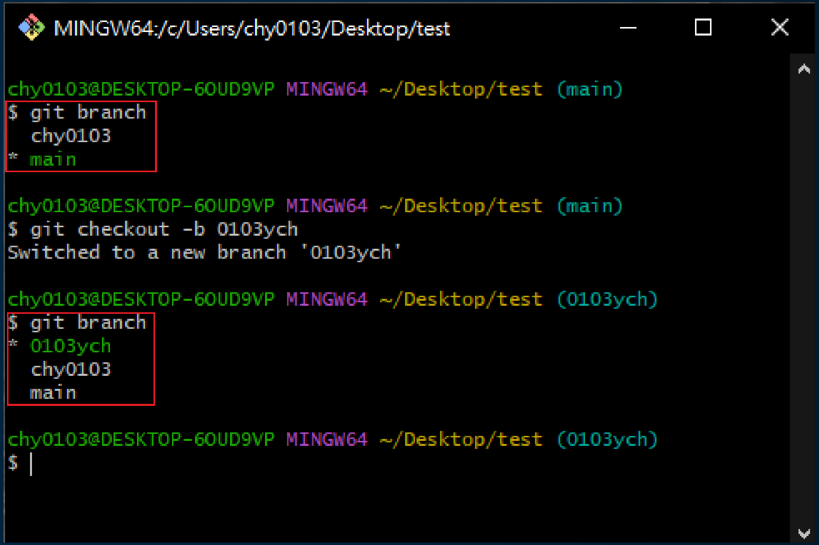
- git checkout - 切換回上一個分支



```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git branch
* chy0103
  main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git checkout -
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch
  chy0103
* main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$
```

Branch

- git checkout -b <branchname>
新增一個分支，並切換到該分支

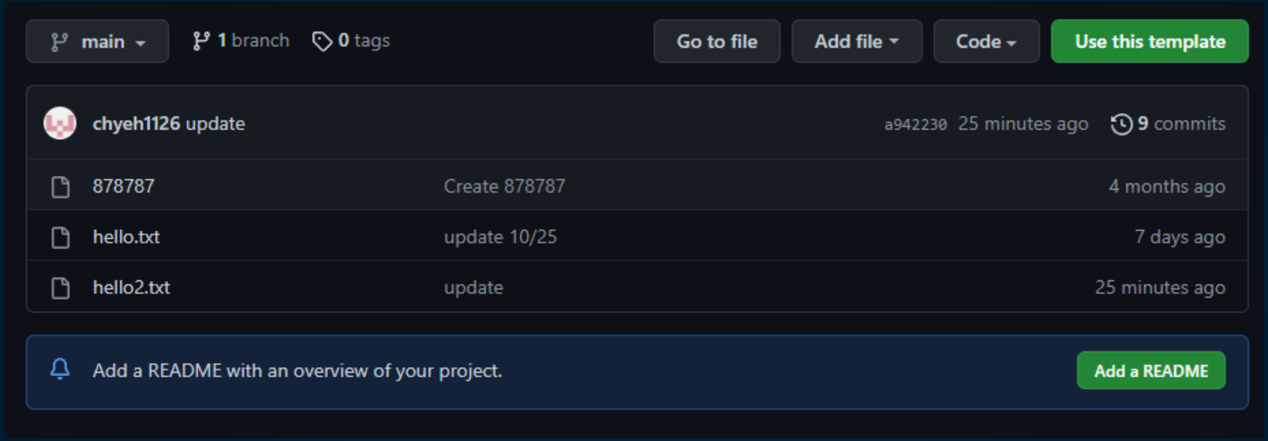


```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch
  chy0103
* main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git checkout -b 0103ych
Switched to a new branch '0103ych'

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (0103ych)
$ git branch
* 0103ych
  chy0103
  main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (0103ych)
$ |
```

Branch

指令	分支
git branch	查看所有分支
git branch <branchname>	新增分支
git branch -r	確認遠端分支
git branch -a	確認本機端分支
git branch -d <branchname>	刪除分支
git checkout <branchname>	切換到指定分支
git checkout -	切換回上一個分支
git checkout -b <branchname>	建立新分支，並同時切換到該分支
git merge <branchname>	將其他branch合併至當前branch

Use Branch

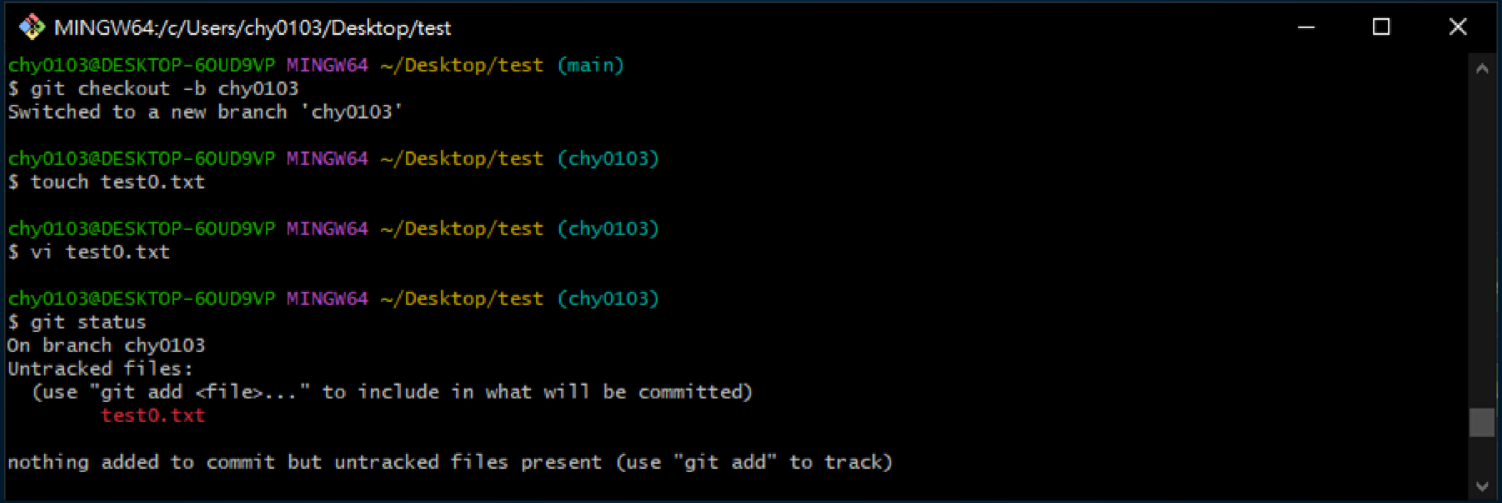


chyeh1126 update a942230 25 minutes ago 9 commits

878787	Create 878787	4 months ago
hello.txt	update 10/25	7 days ago
hello2.txt	update	25 minutes ago

Add a README with an overview of your project.

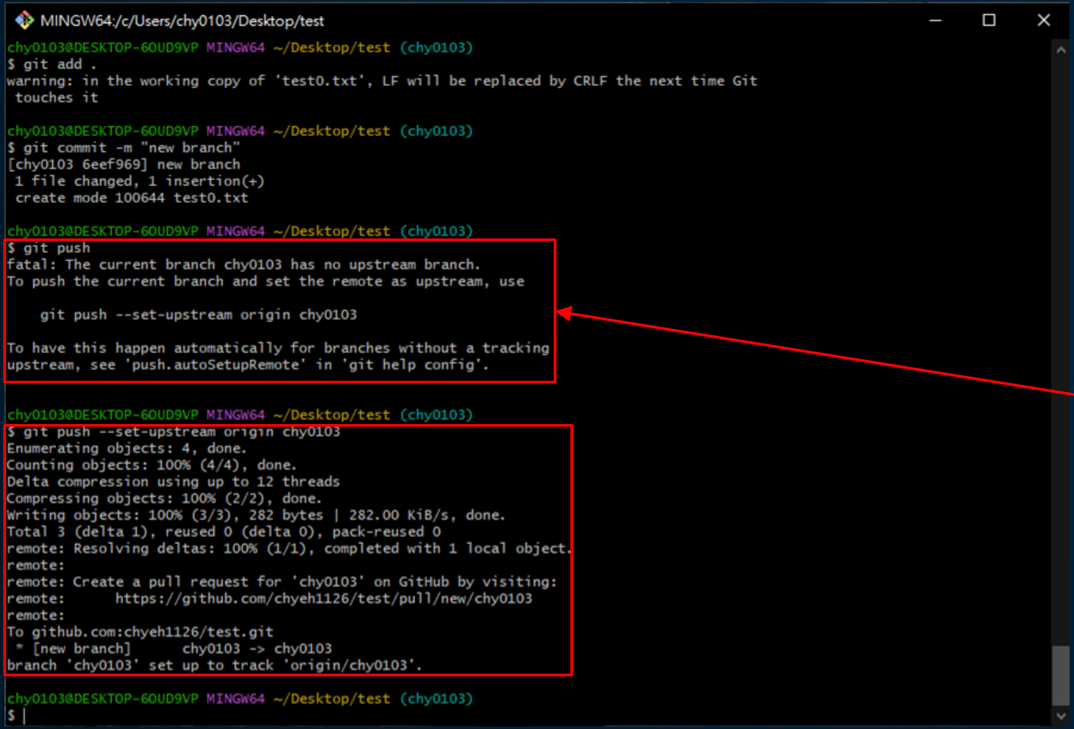
Use Branch



```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git checkout -b chy0103
Switched to a new branch 'chy0103'

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ touch test0.txt

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ vi test0.txt

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git status
On branch chy0103
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        test0.txt

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

- touch <file> : 新增檔案
- vi <file> : 編輯檔案內容

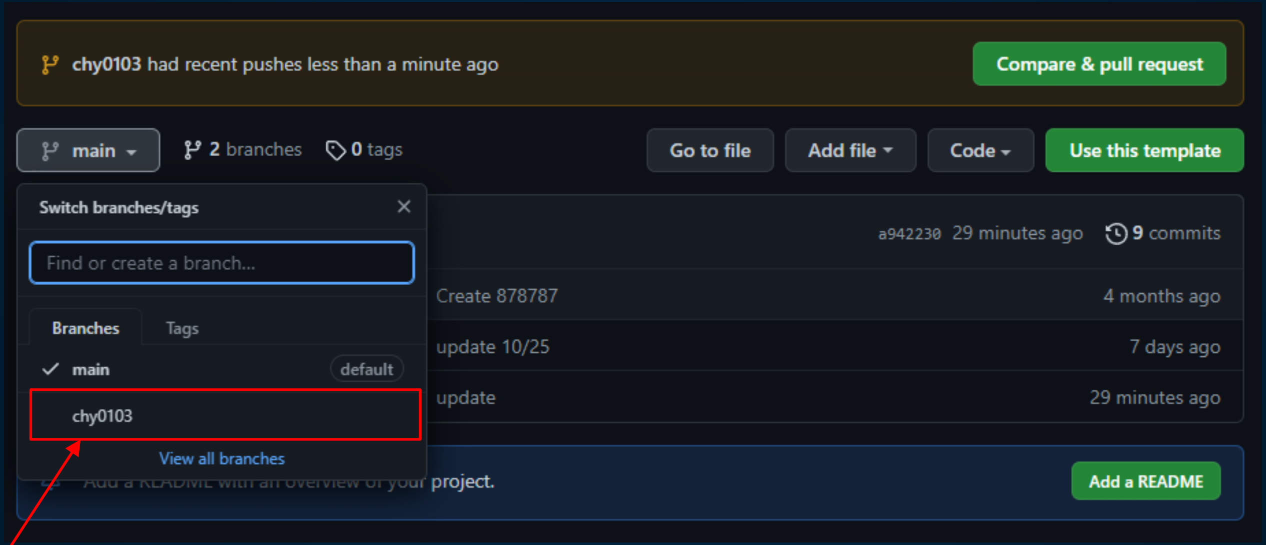
Use Branch



```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git add .
warning: in the working copy of 'test0.txt', LF will be replaced by CRLF the next time Git
 touches it

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git commit -m "new branch"
[chy0103 6eef969] new branch
 1 file changed, 1 insertion(+)
 create mode 100644 test0.txt

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git push
fatal: The current branch chy0103 has no upstream branch.
To push the current branch and set the remote as upstream, use

    git push --set-upstream origin chy0103

To have this happen automatically for branches without a tracking
upstream, see 'push.autoSetupRemote' in 'git help config'.

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git push --set-upstream origin chy0103
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 282 bytes | 282.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Create a pull request for 'chy0103' on GitHub by visiting:
remote:      https://github.com/chyeh1126/test/pull/new/chy0103
remote:
To github.com:chyeh1126/test.git
 * [new branch]      chy0103 -> chy0103
branch 'chy0103' set up to track 'origin/chy0103'.

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ |
```

雲端上並不知道本機端有 chy0103 這個分支，要在push時，同時把 chy0103 這個分支一起 push，雲端和本機端才有相同的版本控制

Use Branch



chy0103 had recent pushes less than a minute ago

a942230 29 minutes ago 9 commits

Create 878787 4 months ago

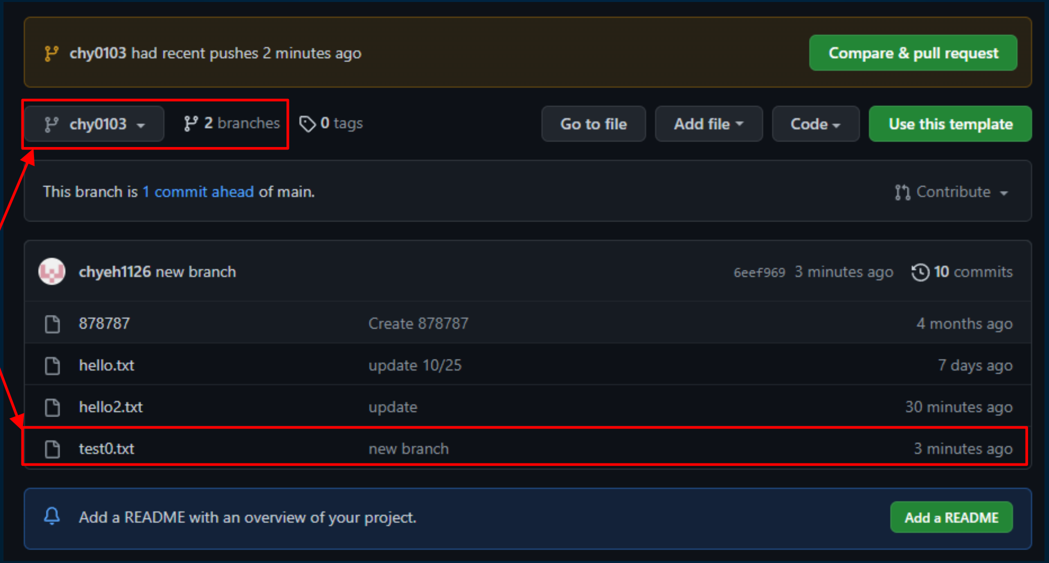
update 10/25 7 days ago

update 29 minutes ago

Add a README with an overview of your project.

成功在 github 新增分支

Use Branch



chy0103 had recent pushes 2 minutes ago

This branch is 1 commit ahead of main.

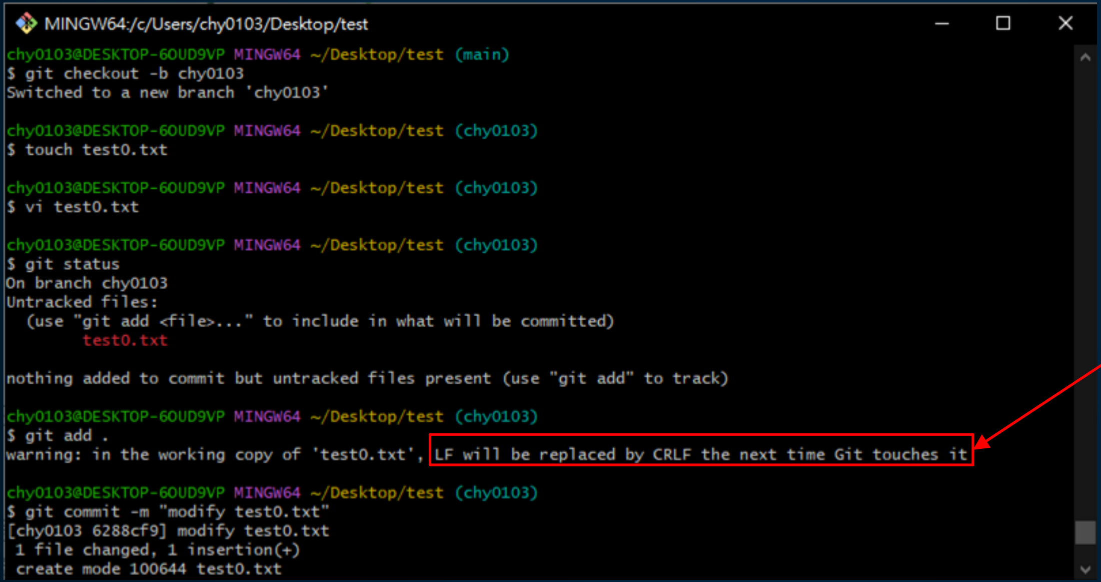
chyeh1126 new branch 6eef969 3 minutes ago 10 commits

878787	Create 878787	4 months ago
hello.txt	update 10/25	7 days ago
hello2.txt	update	30 minutes ago
test0.txt	new branch	3 minutes ago

Add a README with an overview of your project.

切換到 chy0103
這個分支，可以
看到 test0.txt

Merge Branch

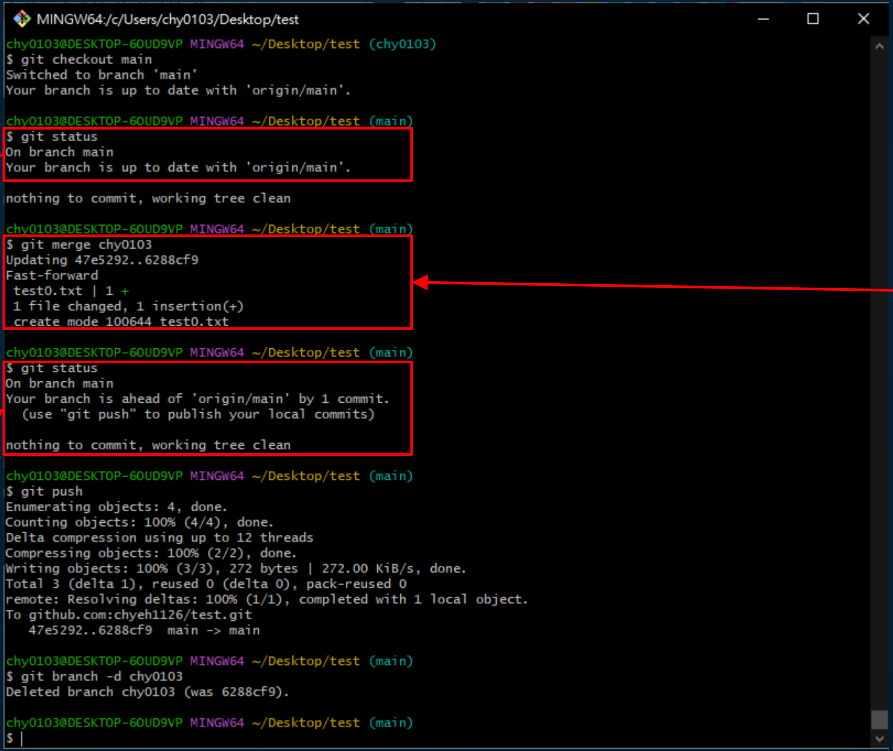


```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git checkout -b chy0103
Switched to a new branch 'chy0103'

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ touch test0.txt

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ vi test0.txt

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git status
On branch chy0103
Untracked files:
  (use "git add <file>..." to include in what will be committed)
        test0.txt

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

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git add .
warning: in the working copy of 'test0.txt', LF will be replaced by CRLF the next time Git touches it

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git commit -m "modify test0.txt"
[chy0103 6288cf9] modify test0.txt
 1 file changed, 1 insertion(+)
 create mode 100644 test0.txt
```

Warning : 斷行字元不同
Linux 使用 LF(\n)
Windows 使用 CRLF(\r\n)

處理方法
git config --global core.autocrlf true

Merge Branch



```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (chy0103)
$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git status
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git merge chy0103
Updating 47e5292..6288cf9
Fast-forward
 test0.txt | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 test0.txt

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ 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

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git push
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 272 bytes | 272.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com:chyeh1126/test.git
   47e5292..6288cf9  main -> main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git branch -d chy0103
Deleted branch chy0103 (was 6288cf9).

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ |
```

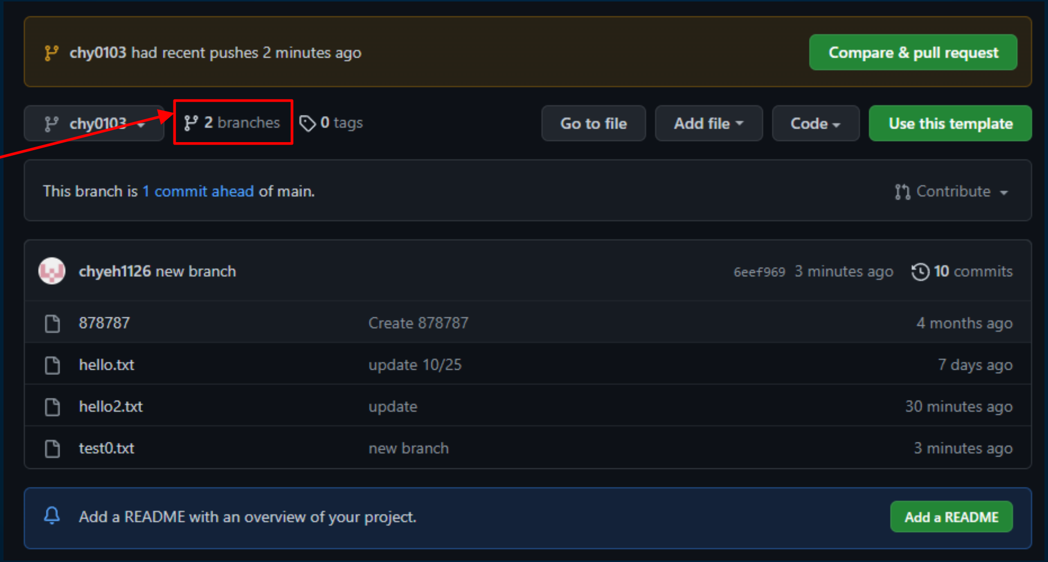
切換回 main，目前
仍為最新版本

將 chy0103 此分支的
內容合併進來

成功合併到 main !

Delete Branch

點擊 branch 查看所有分支



chy0103 had recent pushes 2 minutes ago

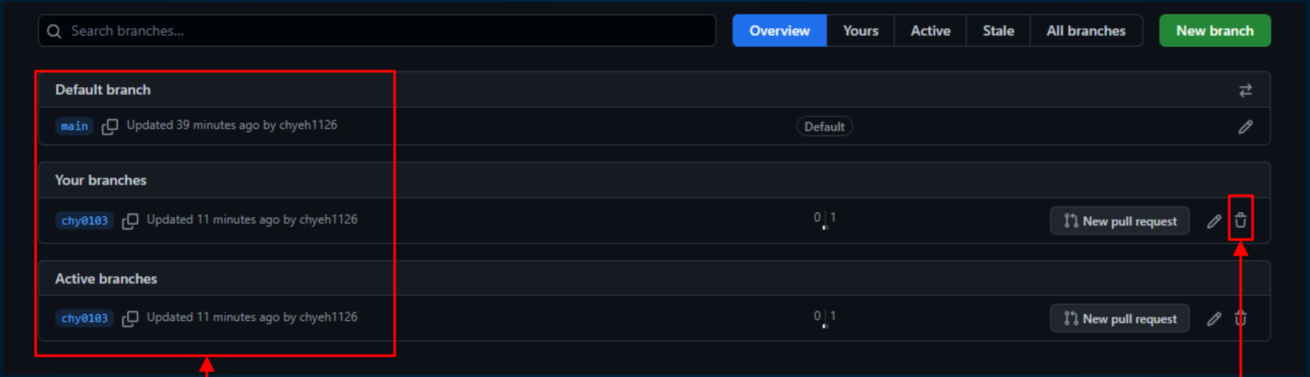
This branch is 1 commit ahead of main.

chyeh1126 new branch 6eef969 3 minutes ago 10 commits

878787	Create 878787	4 months ago
hello.txt	update 10/25	7 days ago
hello2.txt	update	30 minutes ago
test0.txt	new branch	3 minutes ago

Add a README with an overview of your project.

Delete Branch



Default branch

main Updated 39 minutes ago by chyeh1126 Default

Your branches

chy0103 Updated 11 minutes ago by chyeh1126 0 | 1 New pull request

Active branches

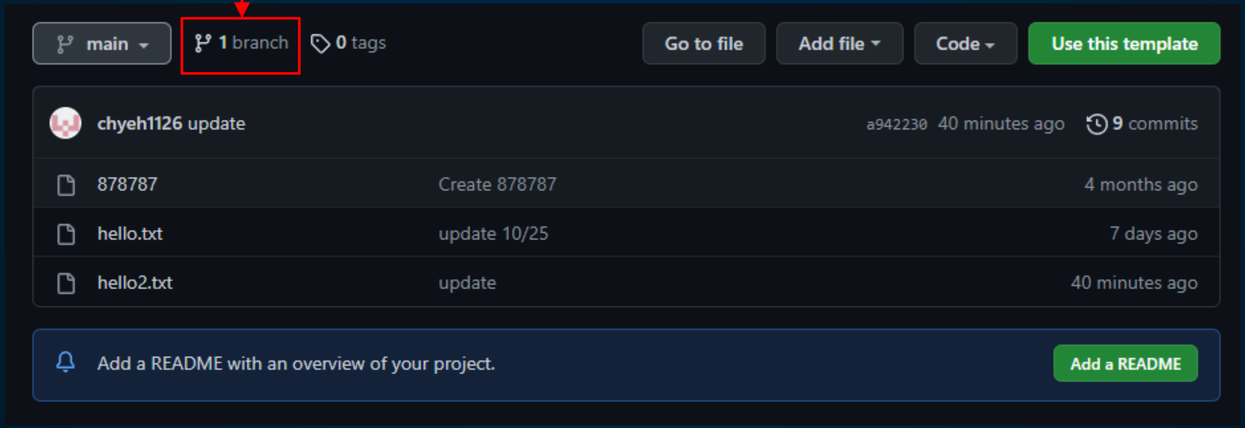
chy0103 Updated 11 minutes ago by chyeh1126 0 | 1 New pull request

這裡可以看到目前 repo 的所有分支

點擊此圖示就可以在 github 刪除 branch

Delete Branch

刪除完成，只剩 main



chyeh1126 update a942230 40 minutes ago 9 commits

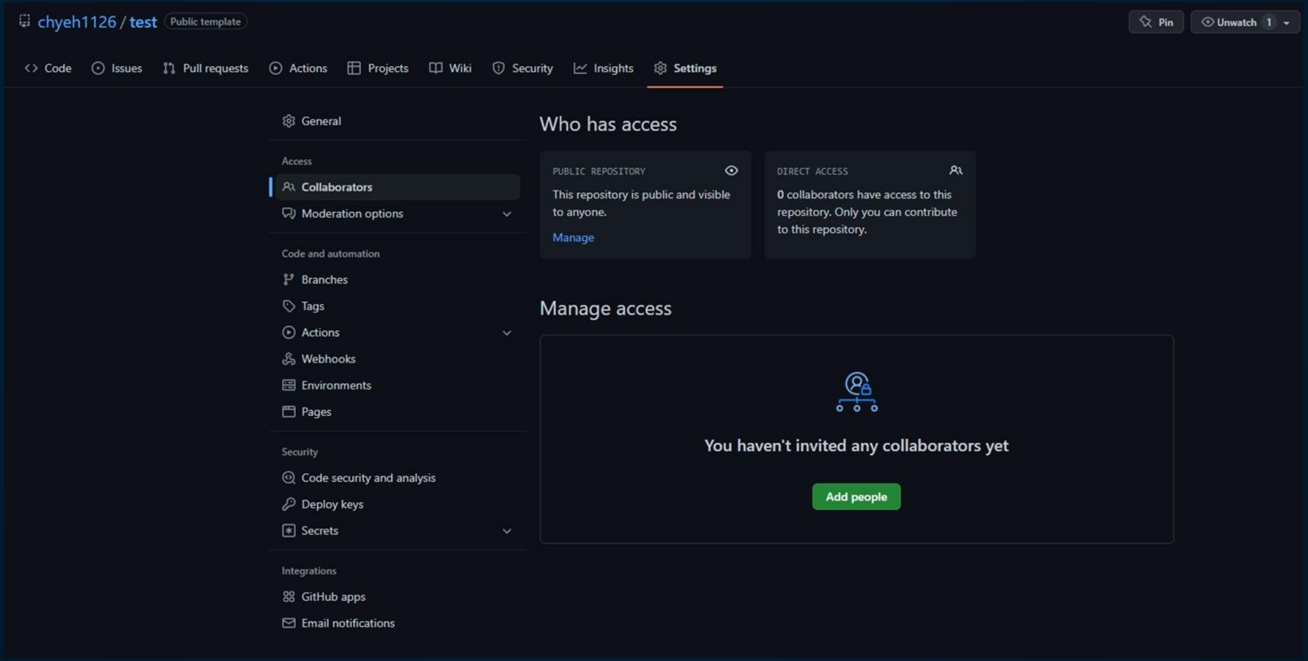
878787	Create 878787	4 months ago
hello.txt	update 10/25	7 days ago
hello2.txt	update	40 minutes ago

Add a README with an overview of your project.

Collaborating

Collaborating

Settings → Collaborators → Add people



Who has access

PUBLIC REPOSITORY

This repository is public and visible to anyone.

DIRECT ACCESS

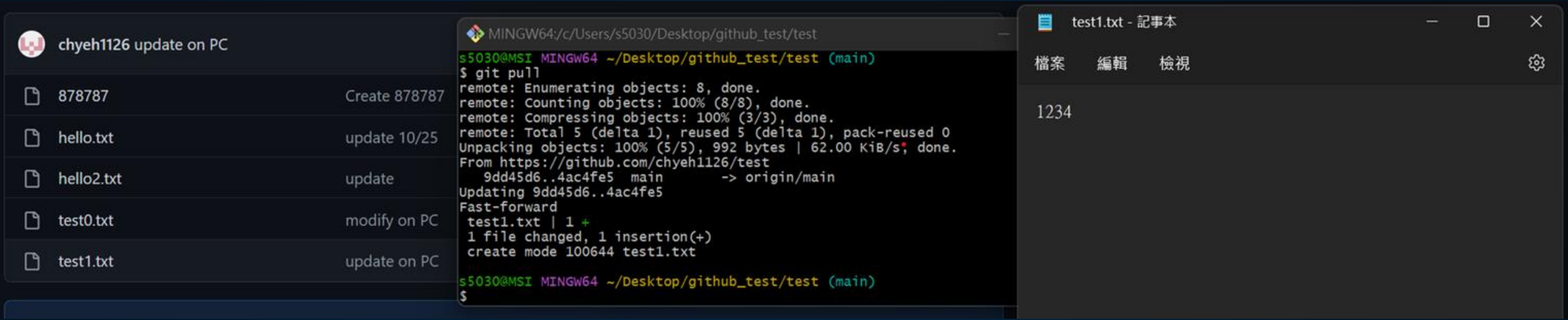
0 collaborators have access to this repository. Only you can contribute to this repository.

Manage access

You haven't invited any collaborators yet

Conflict

github 上最新版本是從裝置A push。在裝置B pull 下來，檔案內容為1234



chyeh1126 update on PC

878787	Create 878787
hello.txt	update 10/25
hello2.txt	update
test0.txt	modify on PC
test1.txt	update on PC

MINGW64:/c/Users/s5030/Desktop/github_test/test

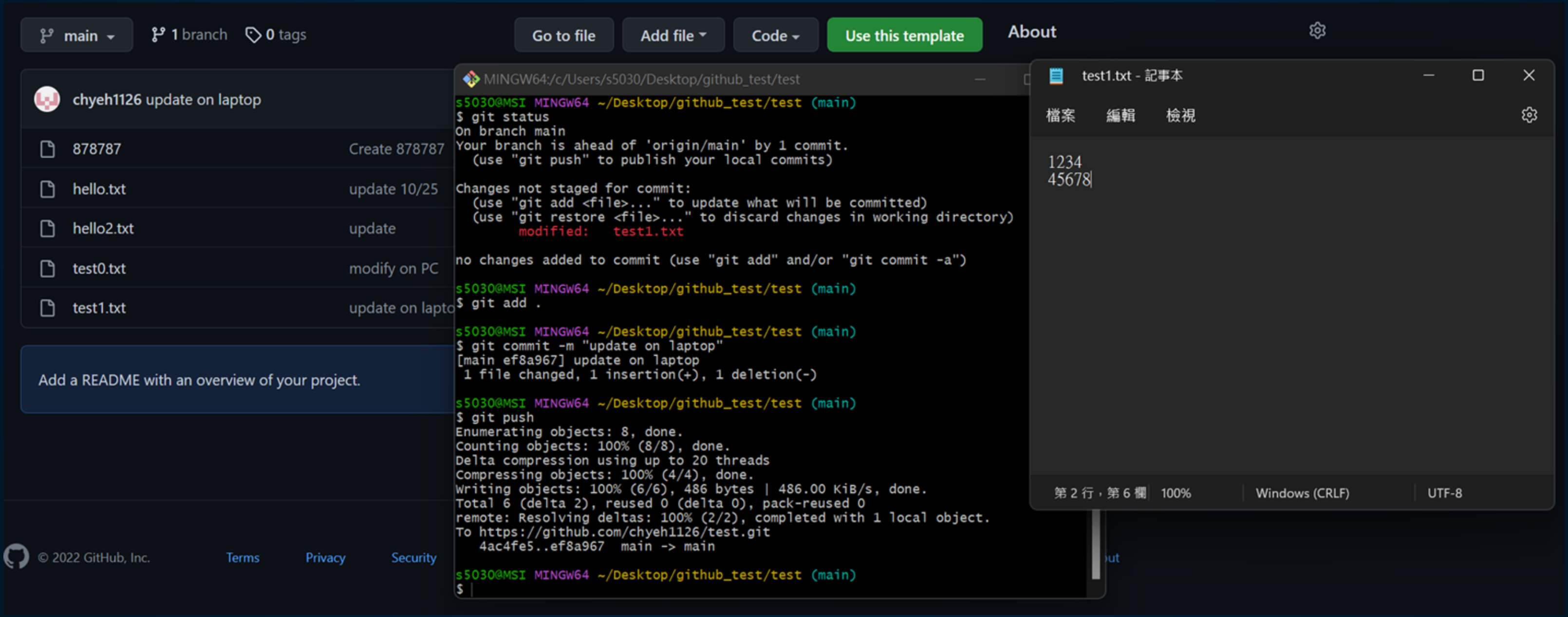
```
s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git pull
remote: Enumerating objects: 8, done.
remote: Counting objects: 100% (8/8), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 5 (delta 1), reused 5 (delta 1), pack-reused 0
Unpacking objects: 100% (5/5), 992 bytes | 62.00 KiB/s, done.
From https://github.com/chyeh1126/test
   9dd45d6..4ac4fe5  main       -> origin/main
Updating 9dd45d6..4ac4fe5
Fast-forward
 test1.txt | 1 +
 1 file changed, 1 insertion(+)
 create mode 100644 test1.txt

s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$
```

test1.txt - 記事本

1234

Conflict

將檔案內容做修改後，從裝置B push 到 github 上



chyeh1126 update on laptop

878787	Create 878787
hello.txt	update 10/25
hello2.txt	update
test0.txt	modify on PC
test1.txt	update on lapto

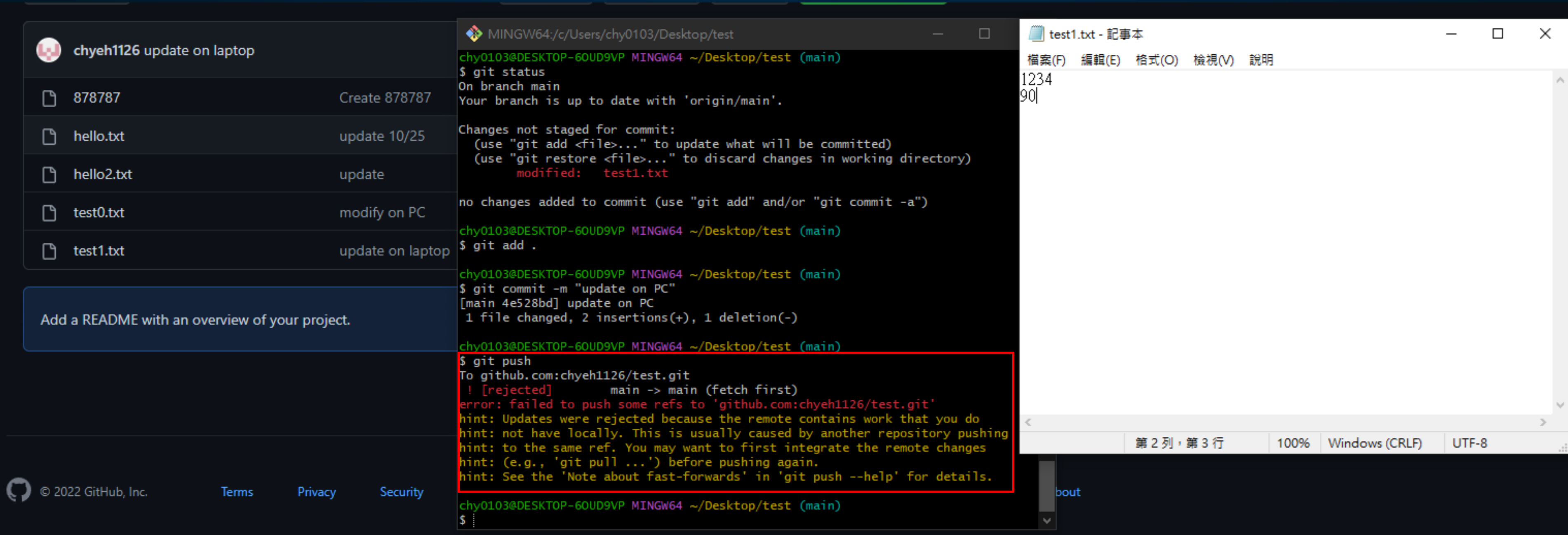
Add a README with an overview of your project.

```
s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ 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 <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   test1.txt

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

s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git add .

s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git commit -m "update on laptop"
[main ef8a967] update on laptop
 1 file changed, 1 insertion(+), 1 deletion(-)

s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git push
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 20 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 486 bytes | 486.00 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/chyeh1126/test.git
   4ac4fe5..ef8a967  main -> main

s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$
```

```
1234
45678
```

Conflict

在裝置A上修改檔案內容，想 push 上 github 時，就會產生 conflict !



chyeh1126 update on laptop

878787	Create 878787
hello.txt	update 10/25
hello2.txt	update
test0.txt	modify on PC
test1.txt	update on laptop

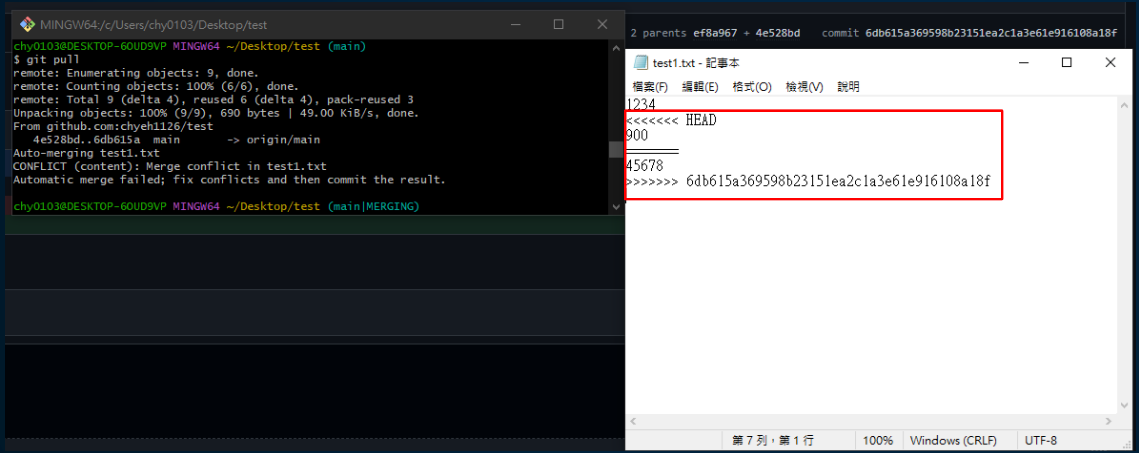
Add a README with an overview of your project.

```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git status
On branch main
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:   test1.txt

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

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git add .

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git commit -m "update on PC"
[main 4e528bd] update on PC
 1 file changed, 2 insertions(+), 1 deletion(-)

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git push
To github.com:chyeh1126/test.git
 ! [rejected]        main -> main (fetch first)
error: failed to push some refs to 'github.com:chyeh1126/test.git'
hint: Updates were rejected because the remote contains work that you do
hint: not have locally. This is usually caused by another repository pushing
hint: to the same ref. You may want to first integrate the remote changes
hint: (e.g., 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$
```

```
1234
90
```

Conflict

方法1
從 github pull 最新的版本 → 針對改過的內容更新 → push 到 github


MINGW64:/c/Users/chy0103/Desktop/test
2 parents ef8a967 + 4e528bd
commit 6db615a369598b23151ea2c1a3e61e916108a18f
test1.txt - 記事本
檔案(F) 編輯(E) 格式(O) 檢視(V) 說明
第 7 列，第 1 行
100%
Windows (CRLF)
UTF-8

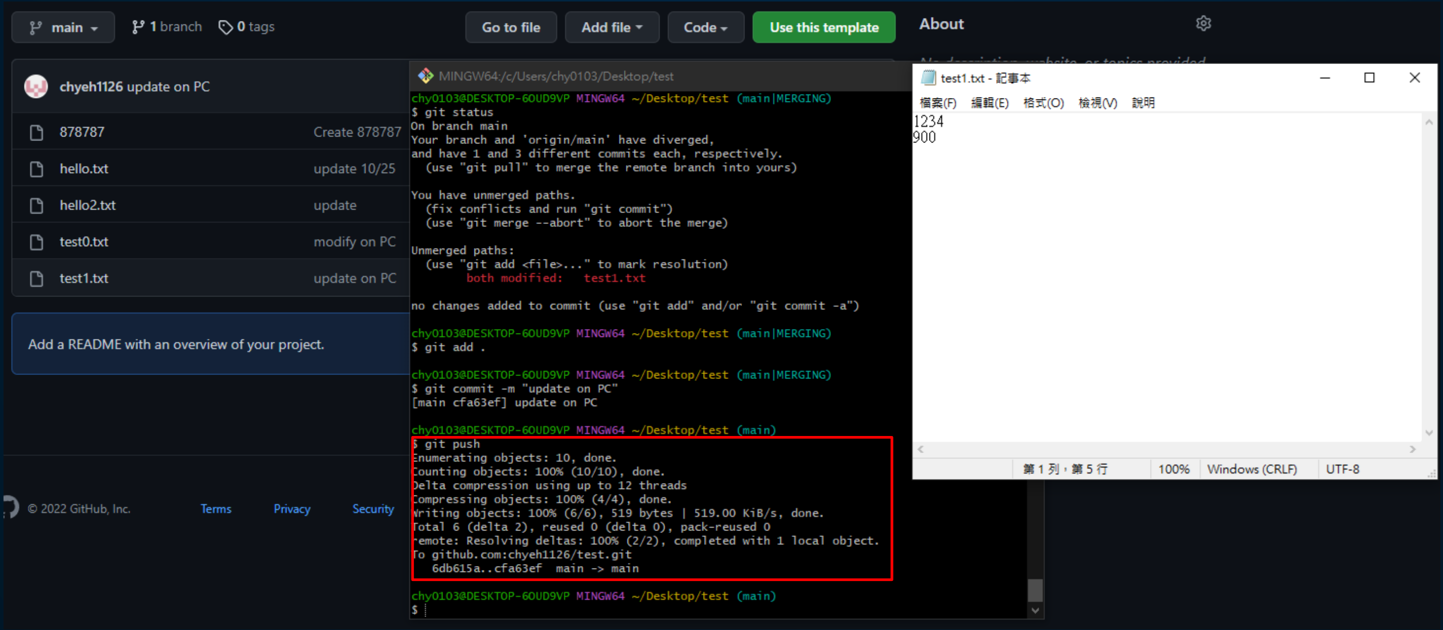
```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git pull
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (6/6), done.
remote: Total 9 (delta 4), reused 6 (delta 4), pack-reused 3
Unpacking objects: 100% (9/9), 690 bytes | 49.00 KiB/s, done.
From github.com:chyeh1126/test
   4e528bd..6db615a  main       -> origin/main
Auto-merging test1.txt
CONFLICT (content): Merge conflict in test1.txt
Automatic merge failed; fix conflicts and then commit the result.

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main|MERGING)
```

```
1234
<<<<<<< HEAD
900
=======
45678
>>>>>>> 6db615a369598b23151ea2c1a3e61e916108a18f
```

- <<< 到 ===
  在本機端的內容
- === 到 >>>
  從 github pull 下來的內容

Conflict

方法1
從 github pull 最新的版本 → 針對改過的內容更新 → push 到 github



chyeh1126 update on PC

878787	Create 878787
hello.txt	update 10/25
hello2.txt	update
test0.txt	modify on PC
test1.txt	update on PC

Add a README with an overview of your project.

```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main|MERGING)
$ git status
On branch main
Your branch and 'origin/main' have diverged,
and have 1 and 3 different commits each, respectively.
  (use "git pull" to merge the remote branch into yours)

You have unmerged paths.
  (fix conflicts and run "git commit")
  (use "git merge --abort" to abort the merge)

Unmerged paths:
  (use "git add <file>..." to mark resolution)
        both modified:   test1.txt

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

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main|MERGING)
$ git add .

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main|MERGING)
$ git commit -m "update on PC"
[main cfa63ef] update on PC

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git push
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 12 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 519 bytes | 519.00 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 github.com:chyeh1126/test.git
   6db615a..cfa63ef  main -> main

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$
```

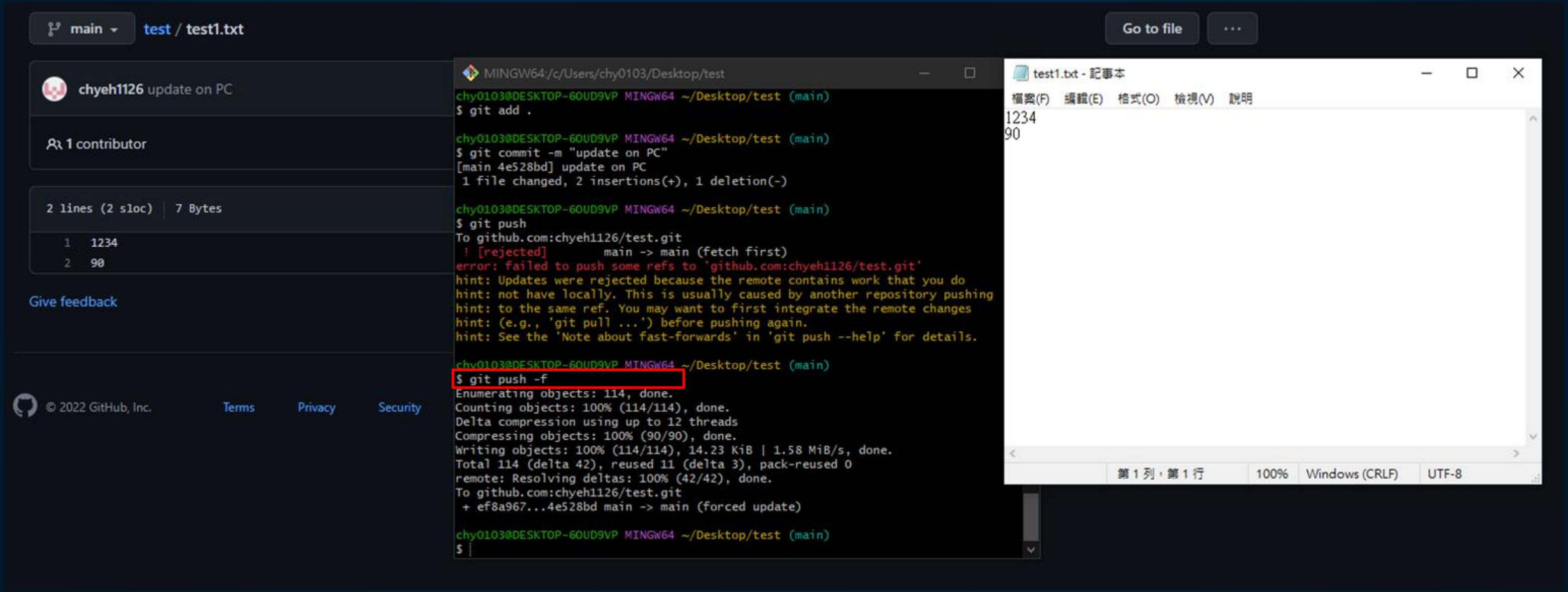
```
1234
900
```

第 1 列，第 5 行　100%　Windows (CRLF)　UTF-8

Conflict

方法2
用 git push -f 強制上傳

- git push -f 會強制蓋掉過去的版本，請小心使用

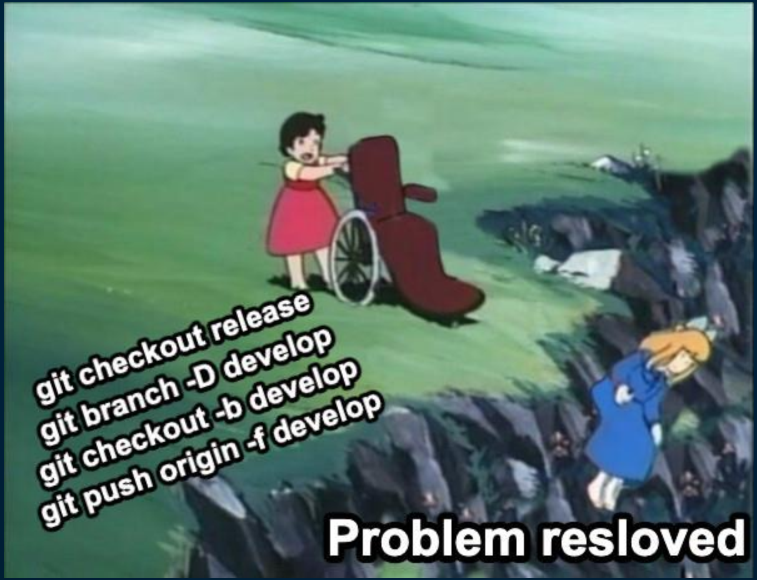


```
chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git add .

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git commit -m "update on PC"
[main 4e528bd] update on PC
 1 file changed, 2 insertions(+), 1 deletion(-)

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git push
To github.com:chyeh1126/test.git
 ! [rejected]        main -> main (fetch first)
error: failed to push some refs to 'github.com:chyeh1126/test.git'
hint: Updates were rejected because the remote contains work that you do
hint: not have locally. This is usually caused by another repository pushing
hint: to the same ref. You may want to first integrate the remote changes
hint: (e.g., 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$ git push -f
Enumerating objects: 114, done.
Counting objects: 100% (114/114), done.
Delta compression using up to 12 threads
Compressing objects: 100% (90/90), done.
Writing objects: 100% (114/114), 14.23 KiB | 1.58 MiB/s, done.
Total 114 (delta 42), reused 11 (delta 3), pack-reused 0
remote: Resolving deltas: 100% (42/42), done.
To github.com:chyeh1126/test.git
 + ef8a967...4e528bd main -> main (forced update)

chy0103@DESKTOP-6OUD9VP MINGW64 ~/Desktop/test (main)
$
```

```
1234
90
```

Conflict

使用 git push -f 可能會…

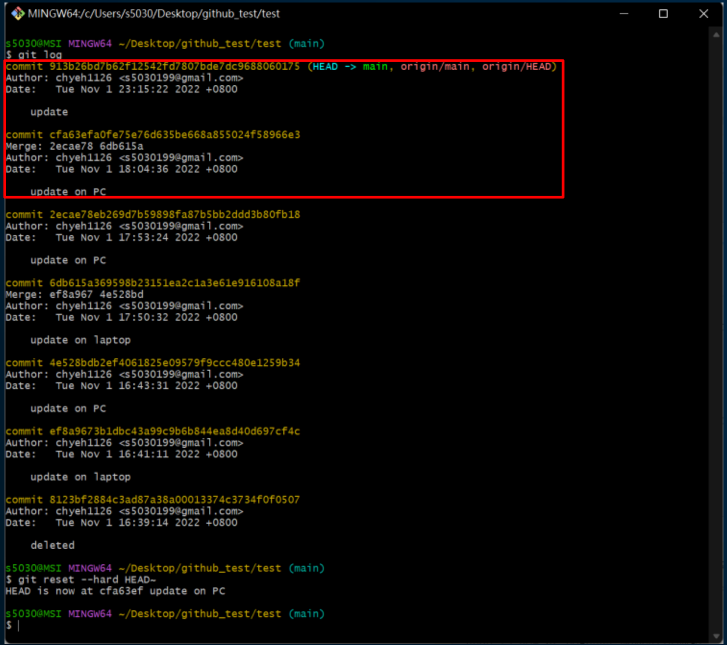


```
git checkout release
git branch -D develop
git checkout -b develop
git push origin -f develop
```

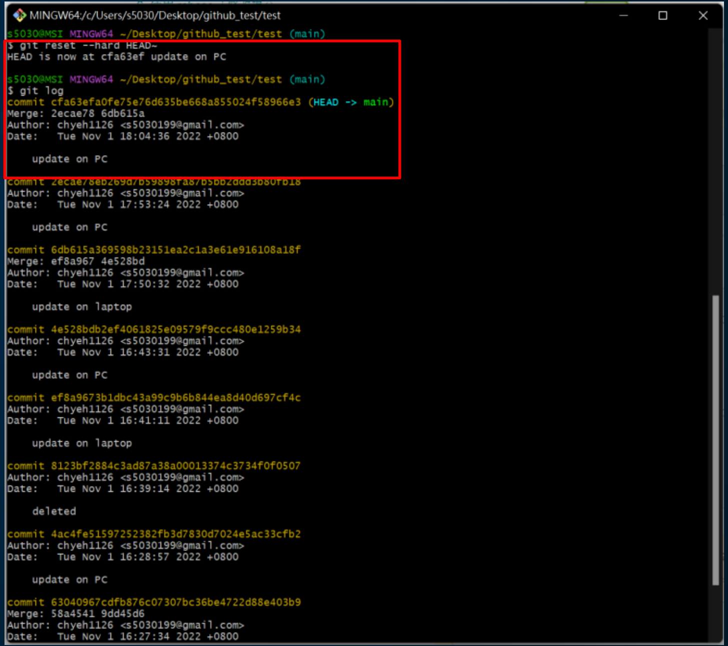
Conflict

- git reset
  回到先前版本

- git reset --soft : 保留工作目錄和暫存區檔案
- git reset --hard : 刪除工作目錄和暫存區檔案



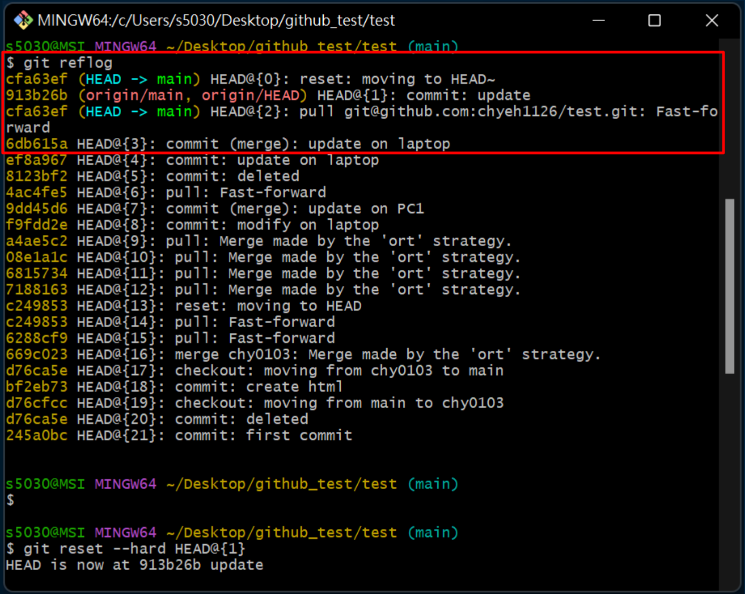
```
s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git log
commit 913b26bd7b62f12542fd7807bde7dc9688060175 (HEAD -> main, origin/main, origin/HEAD)
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 23:15:22 2022 +0800

    update

commit cfa63efa0fe75e76d635be668a855024f58966e3
Merge: 2ecae78 6db615a
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 18:04:36 2022 +0800

    update on PC

commit 2ecae78eb269d7b59898fa87b5bb2ddd3b80fb18
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 17:53:24 2022 +0800

    update on PC

commit 6db615a369598b23151ea2c1a3e61e916108a18f
Merge: ef8a967 4e528bd
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 17:50:32 2022 +0800

    update on laptop

commit 4e528bdb2ef4061825e09579f9ccc480e1259b34
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 16:43:31 2022 +0800

    update on PC

commit ef8a9673b1dbc43a99c9b6b844ea8d40d697cf4c
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 16:41:11 2022 +0800

    update on laptop

commit 8123bf2884c3ad87a38a00013374c3734f0f0507
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 16:39:14 2022 +0800

    deleted

s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git reset --hard HEAD~
HEAD is now at cfa63ef update on PC

s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ |
```



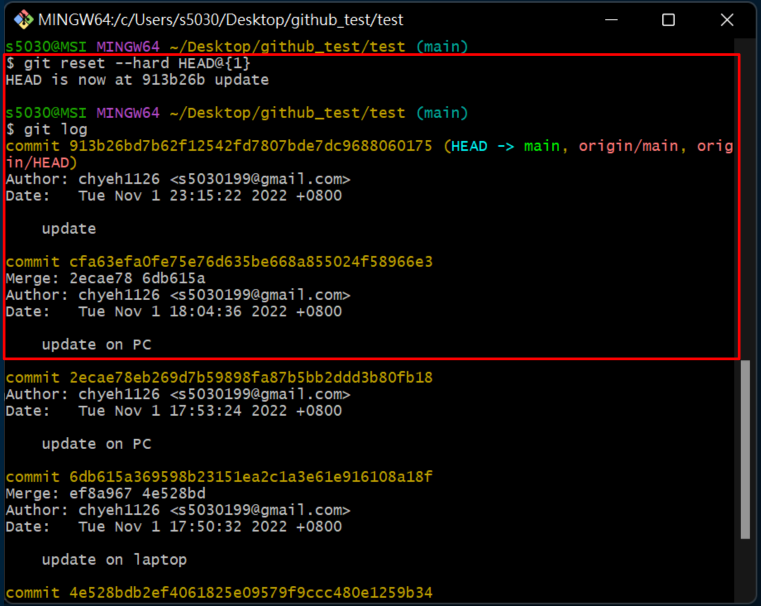
```
s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git reset --hard HEAD~
HEAD is now at cfa63ef update on PC

s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git log
commit cfa63efa0fe75e76d635be668a855024f58966e3 (HEAD -> main)
Merge: 2ecae78 6db615a
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 18:04:36 2022 +0800

    update on PC

commit 2ecae78eb269d7b59898fa87b5bb2ddd3b80fb18
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 17:53:24 2022 +0800

    update on PC

commit 6db615a369598b23151ea2c1a3e61e916108a18f
Merge: ef8a967 4e528bd
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 17:50:32 2022 +0800

    update on laptop

commit 4e528bdb2ef4061825e09579f9ccc480e1259b34
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 16:43:31 2022 +0800

    update on PC

commit ef8a9673b1dbc43a99c9b6b844ea8d40d697cf4c
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 16:41:11 2022 +0800

    update on laptop

commit 8123bf2884c3ad87a38a00013374c3734f0f0507
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 16:39:14 2022 +0800

    deleted

commit 4ac4fe51597252382fb3d7830d7024e5ac33cfb2
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 16:28:57 2022 +0800

    update on PC

commit 63040967cdfb876c07307bc36be4722d88e403b9
Merge: 58a4541 9dd45d6
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 16:27:34 2022 +0800
```

Conflict

- git reflog
  詳細顯示所有指令的SHA-1值，在 git log 找不到
  想還原的版本時，可以在這裡找到



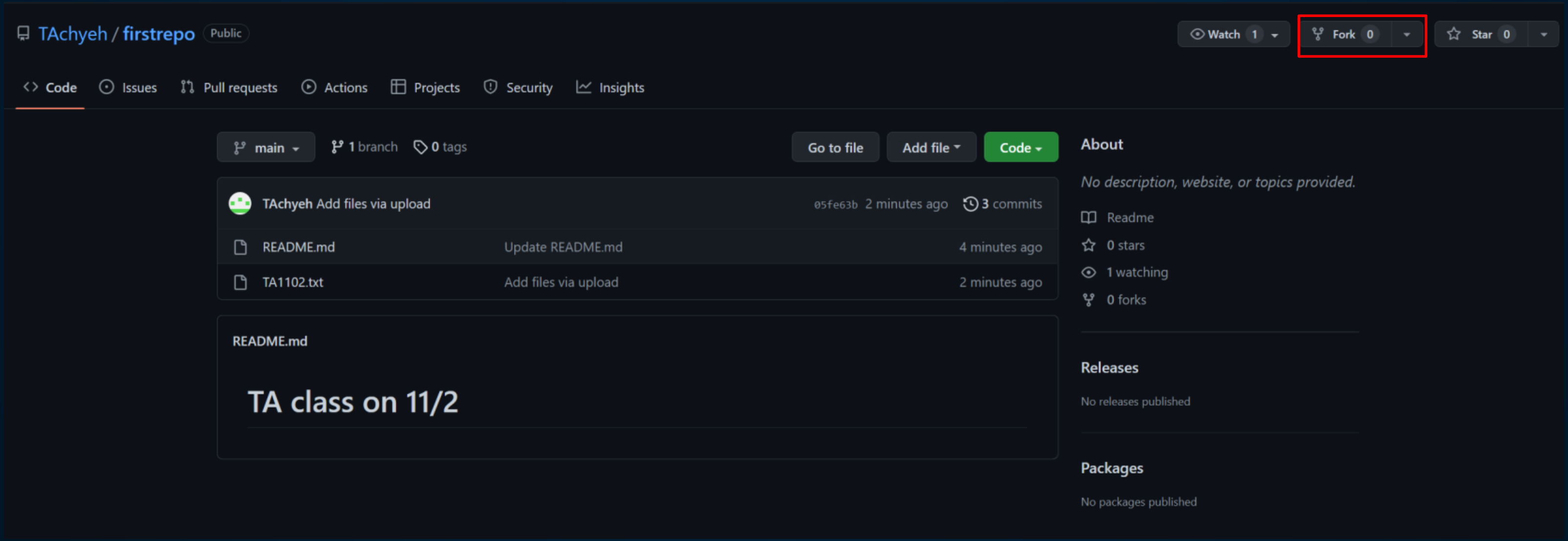
```
s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git reflog
cfa63ef (HEAD -> main) HEAD@{0}: reset: moving to HEAD~
913b26b (origin/main, origin/HEAD) HEAD@{1}: commit: update
cfa63ef (HEAD -> main) HEAD@{2}: pull git@github.com:chyeh1126/test.git: Fast-fo
rward
6db615a HEAD@{3}: commit (merge): update on laptop
ef8a967 HEAD@{4}: commit: update on laptop
8123bf2 HEAD@{5}: commit: deleted
4ac4fe5 HEAD@{6}: pull: Fast-forward
9dd45d6 HEAD@{7}: commit (merge): update on PC1
f9fdd2e HEAD@{8}: commit: modify on laptop
a4ae5c2 HEAD@{9}: pull: Merge made by the 'ort' strategy.
08e1a1c HEAD@{10}: pull: Merge made by the 'ort' strategy.
6815734 HEAD@{11}: pull: Merge made by the 'ort' strategy.
7188163 HEAD@{12}: pull: Merge made by the 'ort' strategy.
c249853 HEAD@{13}: reset: moving to HEAD
c249853 HEAD@{14}: pull: Fast-forward
6288cf9 HEAD@{15}: pull: Fast-forward
669c023 HEAD@{16}: merge chy0103: Merge made by the 'ort' strategy.
d76ca5e HEAD@{17}: checkout: moving from chy0103 to main
bf2eb73 HEAD@{18}: commit: create html
d76cfcc HEAD@{19}: checkout: moving from main to chy0103
d76ca5e HEAD@{20}: commit: deleted
245a0bc HEAD@{21}: commit: first commit


s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$

s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git reset --hard HEAD@{1}
HEAD is now at 913b26b update
```



```
s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git reset --hard HEAD@{1}
HEAD is now at 913b26b update

s5030@MSI MINGW64 ~/Desktop/github_test/test (main)
$ git log
commit 913b26bd7b62f12542fd7807bde7dc9688060175 (HEAD -> main, origin/main, orig
in/HEAD)
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 23:15:22 2022 +0800

    update

commit cfa63efa0fe75e76d635be668a855024f58966e3
Merge: 2ecae78 6db615a
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 18:04:36 2022 +0800

    update on PC

commit 2ecae78eb269d7b59898fa87b5bb2ddd3b80fb18
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 17:53:24 2022 +0800

    update on PC

commit 6db615a369598b23151ea2c1a3e61e916108a18f
Merge: ef8a967 4e528bd
Author: chyeh1126 <s5030199@gmail.com>
Date:   Tue Nov 1 17:50:32 2022 +0800

    update on laptop

commit 4e528bdb2ef4061825e09579f9ccc480e1259b34
```

Pull Request

對某個專案有興趣，也想幫忙時，可以用 Pull Request！
點擊 Fork，將專案複製一份到自己的 github



TAchyeh Add files via upload 05fe63b 2 minutes ago 3 commits

README.md	Update README.md	4 minutes ago
TA1102.txt	Add files via upload	2 minutes ago

README.md

TA class on 11/2

About

No description, website, or topics provided.

Readme
0 stars
1 watching
0 forks

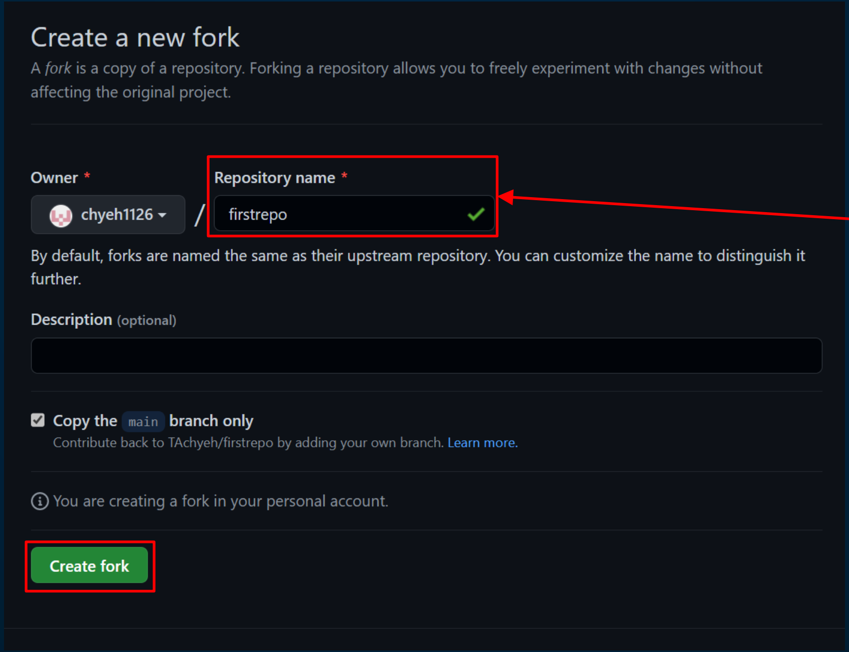
Releases

No releases published

Packages

No packages published

Pull Request



Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project.

Owner * chyeh1126 / Repository name * firstrepo ✓

By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.

Description (optional)

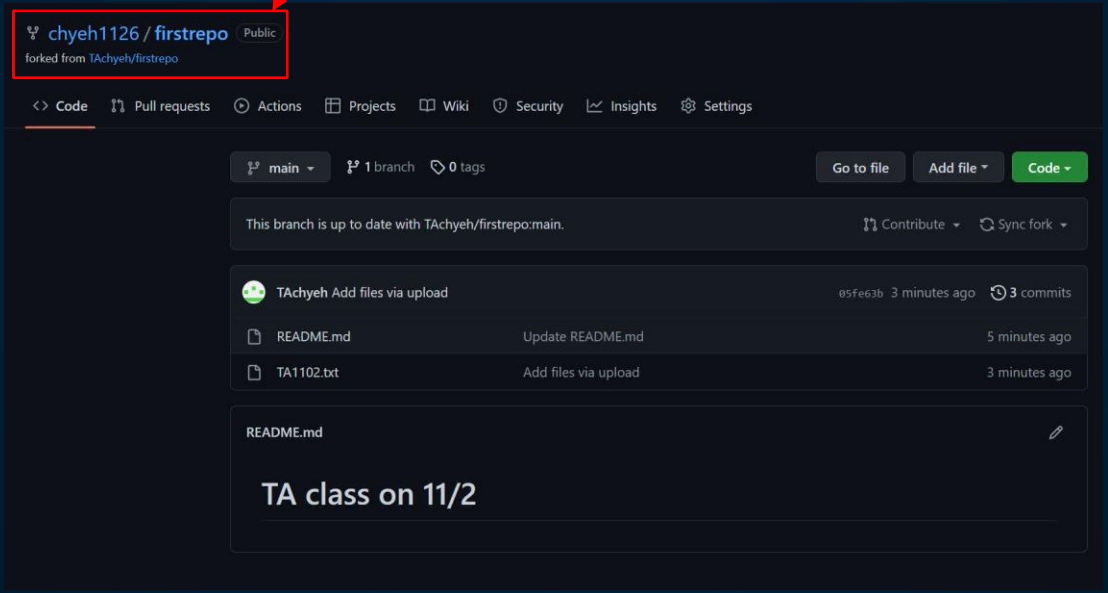
☑ Copy the `main` branch only
Contribute back to TAchyeh/firstrepo by adding your own branch. Learn more.

ⓘ You are creating a fork in your personal account.

這裡可以修改 Repository 的名稱，通常會和原本的相同

Pull Request

已 Fork 到自己的 github，下方會顯示 Fork 的來源



chyeh1126 / firstrepo Public

forked from TAchyeh/firstrepo

This branch is up to date with TAchyeh/firstrepo:main.

TAchyeh Add files via upload 05fe63b 3 minutes ago 3 commits

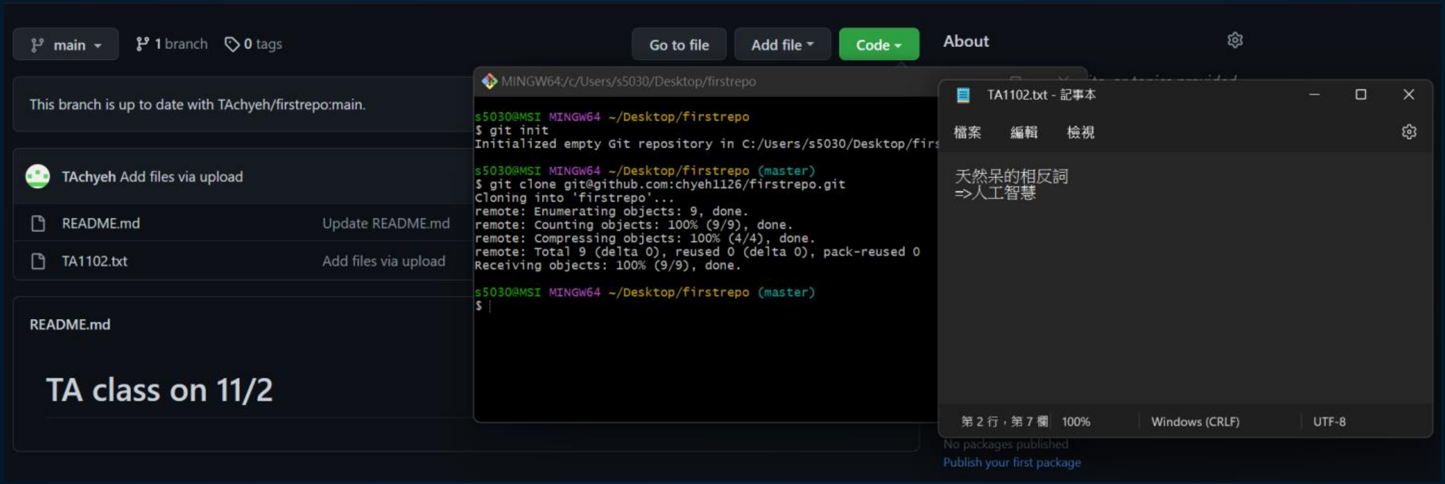
README.md	Update README.md	5 minutes ago
TA1102.txt	Add files via upload	3 minutes ago

README.md

TA class on 11/2

Pull Request

用 git clone 將專案拉到本機端



This branch is up to date with TAchyeh/firstrepo:main.

TAchyeh Add files via upload

README.md	Update README.md
TA1102.txt	Add files via upload

README.md

TA class on 11/2

MINGW64:/c/Users/s5030/Desktop/firstrepo

```
s5030@MSI MINGW64 ~/Desktop/firstrepo
$ git init
Initialized empty Git repository in C:/Users/s5030/Desktop/firs

s5030@MSI MINGW64 ~/Desktop/firstrepo (master)
$ git clone git@github.com:chyeh1126/firstrepo.git
Cloning into 'firstrepo'...
remote: Enumerating objects: 9, done.
remote: Counting objects: 100% (9/9), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 9 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (9/9), done.

s5030@MSI MINGW64 ~/Desktop/firstrepo (master)
$
```

TA1102.txt - 記事本

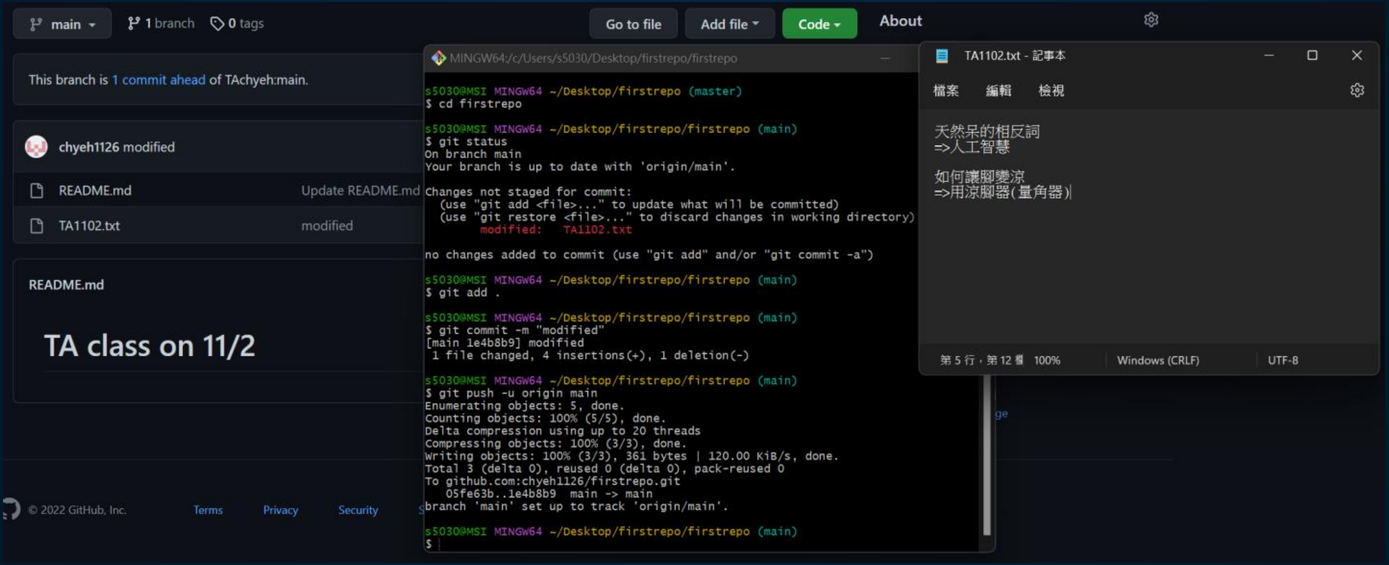
天然呆的相反詞
=>人工智慧

第 2 行，第 7 欄 100% Windows (CRLF) UTF-8

No packages published
Publish your first package

Pull Request

編輯好內容後， push 到 github上



This branch is 1 commit ahead of TAchyeh:main.

chyeh1126 modified

README.md	Update README.md
TA1102.txt	modified

README.md

TA class on 11/2

© 2022 GitHub, Inc.

MINGW64:/c/Users/s5030/Desktop/firstrepo/firstrepo

```
s5030@MSI MINGW64 ~/Desktop/firstrepo (master)
$ cd firstrepo

s5030@MSI MINGW64 ~/Desktop/firstrepo/firstrepo (main)
$ git status
On branch main
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:   TA1102.txt

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

s5030@MSI MINGW64 ~/Desktop/firstrepo/firstrepo (main)
$ git add .

s5030@MSI MINGW64 ~/Desktop/firstrepo/firstrepo (main)
$ git commit -m "modified"
[main 1e4b8b9] modified
 1 file changed, 4 insertions(+), 1 deletion(-)

s5030@MSI MINGW64 ~/Desktop/firstrepo/firstrepo (main)
$ git push -u origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 20 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 361 bytes | 120.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To github.com:chyeh1126/firstrepo.git
   05fe63b..1e4b8b9  main -> main
branch 'main' set up to track 'origin/main'.

s5030@MSI MINGW64 ~/Desktop/firstrepo/firstrepo (main)
$
```

TA1102.txt - 記事本

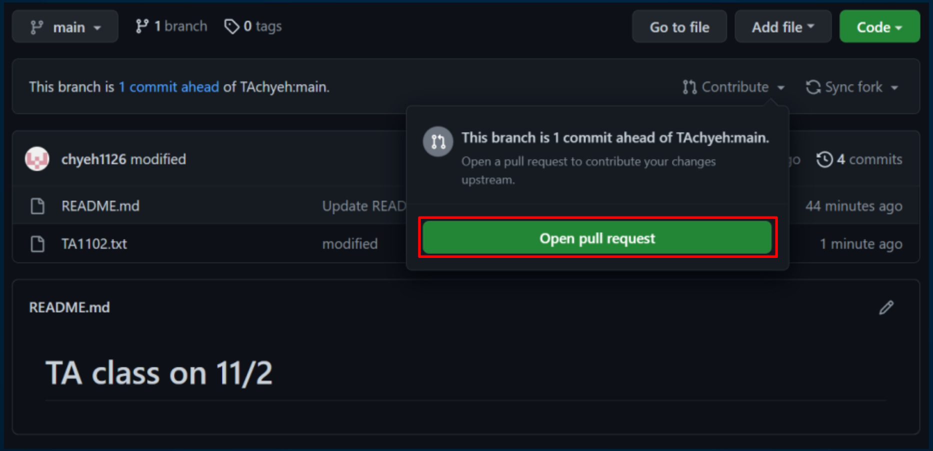
天然呆的相反詞
=>人工智慧

如何讓腳變涼
=>用涼腳器(量角器)

第 5 行，第 12 欄　100%　Windows (CRLF)　UTF-8

Pull Request

此時會顯示你有更新這個專案，可以向作者發送 Pull Request 請求。
如果作者覺得你的更新有貢獻，就會接受 Pull Request，將更新內容合併到專案中



This branch is 1 commit ahead of TAchyeh:main.

This branch is 1 commit ahead of TAchyeh:main.
Open a pull request to contribute your changes upstream.

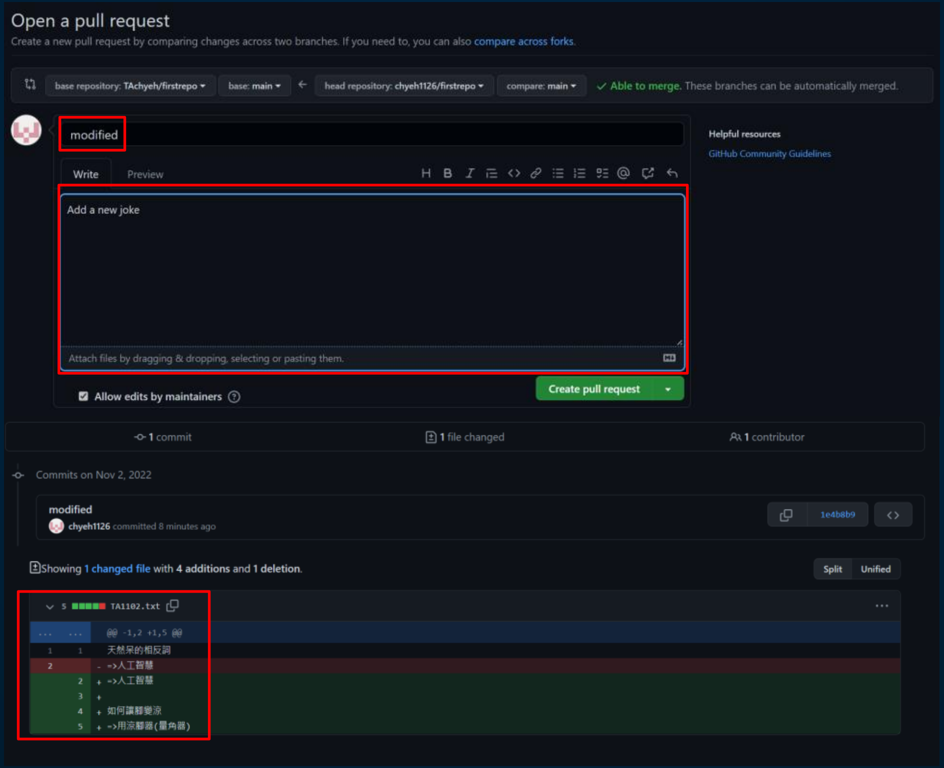
chyeh1126 modified
4 commits

README.md	Update READ	44 minutes ago
TA1102.txt	modified	1 minute ago

README.md

TA class on 11/2

Pull Request



Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks.

base repository: TAchyeh/firstrepo ▾ | base: main ▾ | ← | head repository: chyeh1126/firstrepo ▾ | compare: main ▾ | ✓ Able to merge. These branches can be automatically merged.

Title: modified

Add a new joke

Attach files by dragging & dropping, selecting or pasting them.

☑ Allow edits by maintainers

Commits on Nov 2, 2022

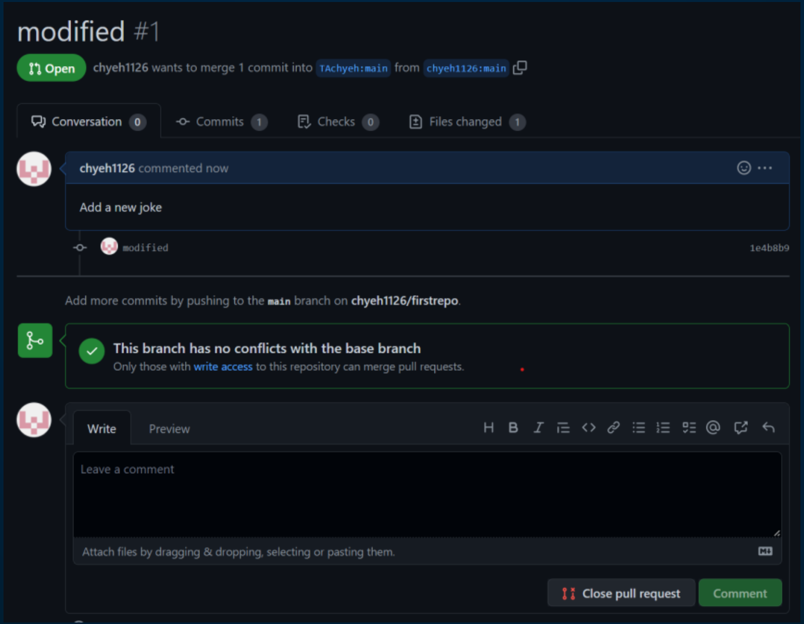
modified
chyeh1126 committed 8 minutes ago
1e4b8b9

Showing 1 changed file with 4 additions and 1 deletion.

```
5 🟩🟩🟩🟩🟥 TA1102.txt
...   ...   @@ -1,2 +1,5 @@
1     1       天然呆的相反詞
2           - =>人工智慧
      2     + =>人工智慧
      3     +
      4     + 如何讓腳變涼
      5     + =>用涼腳器(量角器)
```

Pull Request

成功發送 Pull Request 請求，等待作者確認



modified #1

Open chyeh1126 wants to merge 1 commit into TAchyeh:main from chyeh1126:main

chyeh1126 commented now

Add a new joke

modified 1e4b8b9

Add more commits by pushing to the main branch on chyeh1126/firstrepo.

This branch has no conflicts with the base branch

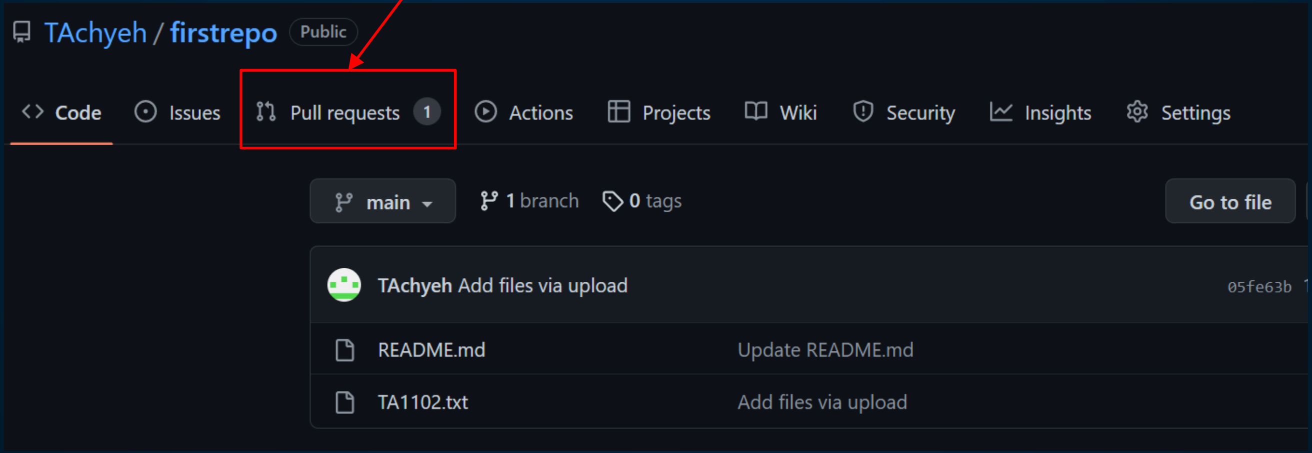
Only those with write access to this repository can merge pull requests.

Leave a comment

Attach files by dragging & dropping, selecting or pasting them.

Pull Request

點擊 Pull Requests，確認哪些人更新什麼內容

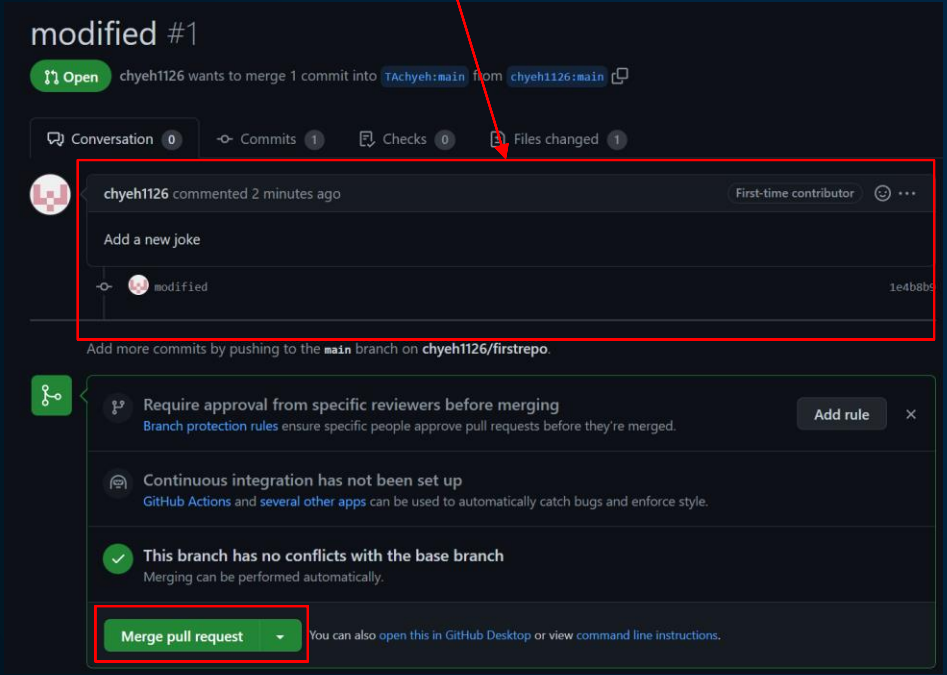


TAchyeh Add files via upload 05fe63b

README.md	Update README.md
TA1102.txt	Add files via upload

Pull Request

原作者可以查看其他人的更新內容



modified #1

Open chyeh1126 wants to merge 1 commit into TAchyeh:main from chyeh1126:main

chyeh1126 commented 2 minutes ago — First-time contributor

Add a new joke

modified 1e4b8b9

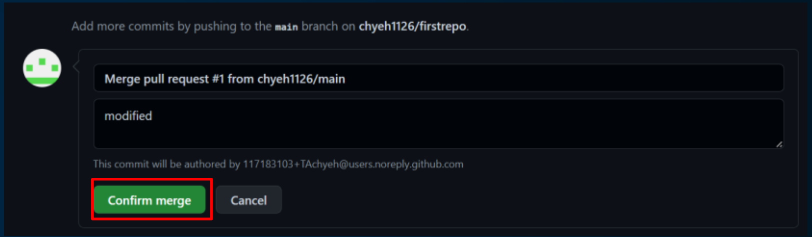
Add more commits by pushing to the **main** branch on **chyeh1126/firstrepo**.

Require approval from specific reviewers before merging
Branch protection rules ensure specific people approve pull requests before they're merged.

Continuous integration has not been set up
GitHub Actions and several other apps can be used to automatically catch bugs and enforce style.

This branch has no conflicts with the base branch
Merging can be performed automatically.

You can also open this in GitHub Desktop or view command line instructions.



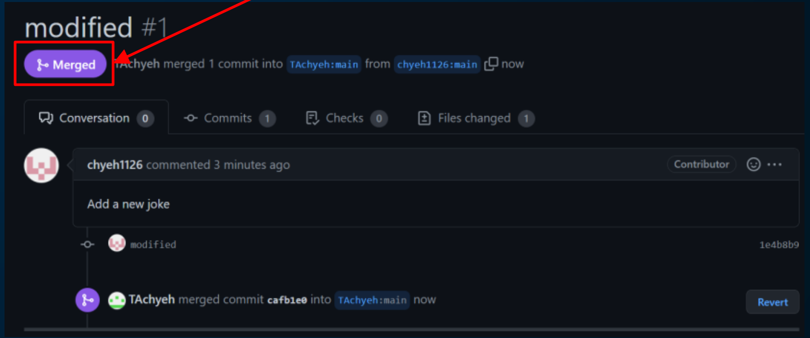
Add more commits by pushing to the **main** branch on **chyeh1126/firstrepo**.

Merge pull request #1 from chyeh1126/main

modified

This commit will be authored by 117183103+TAchyeh@users.noreply.github.com

Merged表示已合併其他人的更新內容



modified #1

Merged TAchyeh merged 1 commit into TAchyeh:main from chyeh1126:main now

chyeh1126 commented 3 minutes ago — Contributor

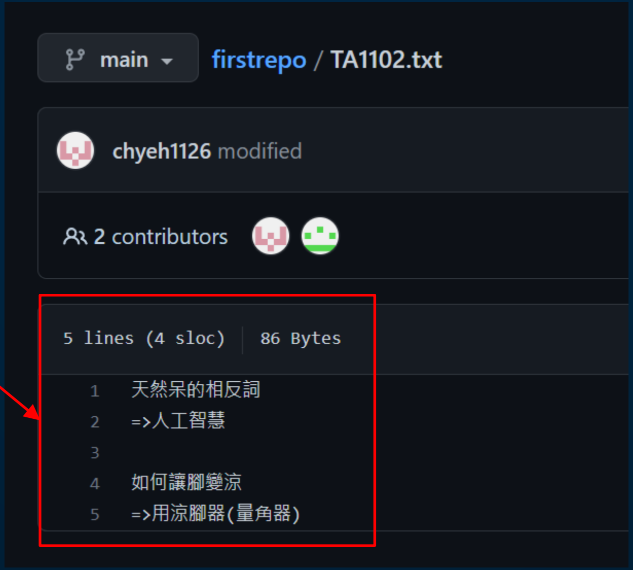
Add a new joke

modified 1e4b8b9

TAchyeh merged commit cafb1e0 into TAchyeh:main now

Pull Request

修改的內容已合併進來



```
天然呆的相反詞
=>人工智慧

如何讓腳變涼
=>用涼腳器(量角器)
```

Summary

- Branch
  - ➢ Branch 基本指令
  - ➢ Branch 流程
- Collaborating
  - ➢ 小組合作
  - ➢ Conflict處理
  - ➢ Pull Request

Thanks for listening!

Learning Resource

- 為你自己學Git

Git 教學 - Git 書 - 為你自己學 Git | 高見龍 (gitbook.tw)

- Git and GitHub Tutorial For Beginners | Full Course [2021] [NEW]

Git and GitHub Tutorial For Beginners | Full Course [2021] [NEW] – YouTube

- **14★Git入门★合并分支 git merge**

14★Git入门★合并分支 git merge – YouTube

- Git conflict markers [duplicate]

Git conflict markers - Stack Overflow