



git

ISW

# Git?

Git is free and open-source software for distributed version control: tracking changes in any set of files.

# Git repository?

A Git repository is the `.git/` folder inside a project. This repository tracks all changes made to files in your project, building a history over time.

<https://www.gitkraken.com/learn/git/tutorials/what-is-a-git-repository>

# Repository aanmaken

1. Local repository aanmaken → pushen naar remote

OF

2. Remote repository aanmaken → clonen op local

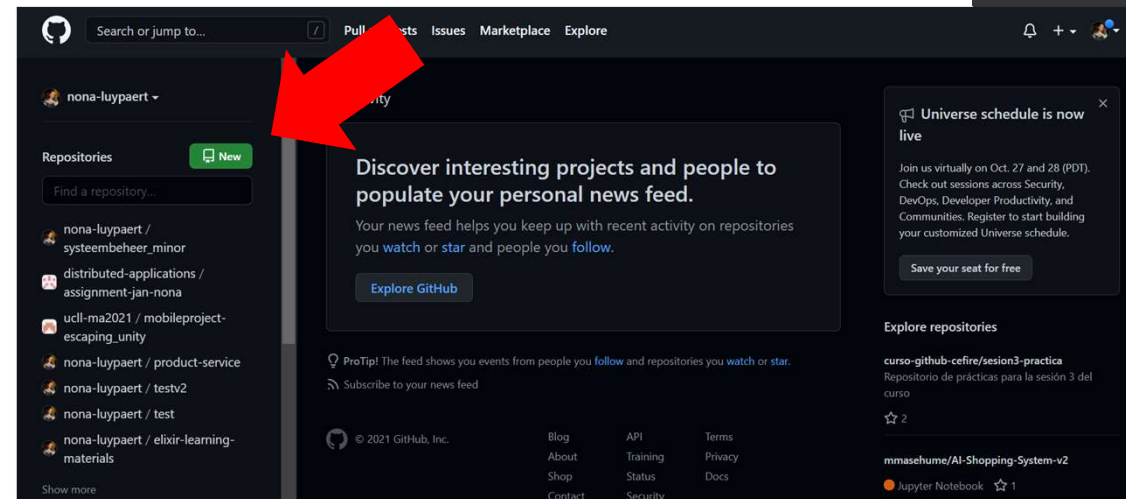
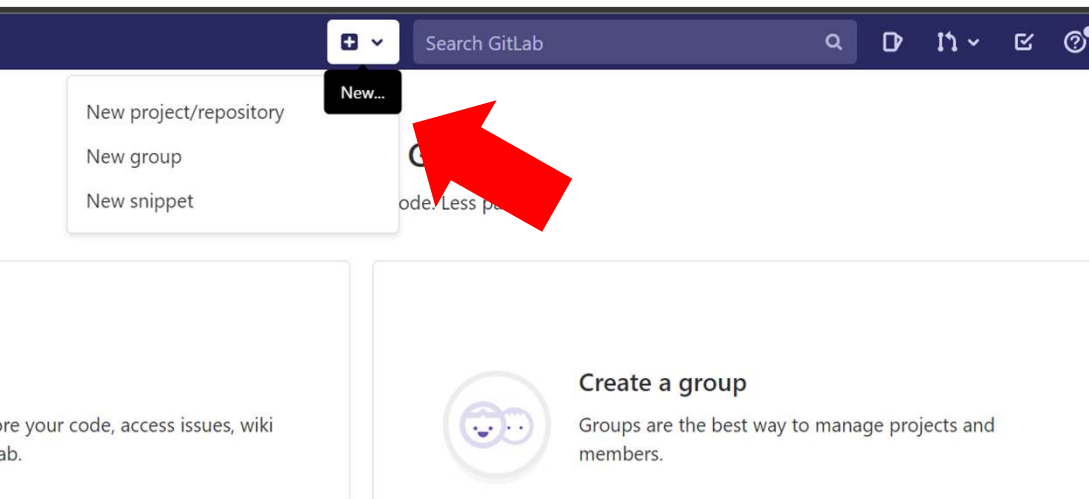
# 1. Eerst local aanmaken

In de gewenste folder...

- `git init`
- `git add .`
- `git commit -m 'Initial commit'`
- `git remote add origin url`
- `git push --set-upstream origin master`

## 2. Eerst remote aanmaken

- Nieuw repository aanmaken op bv. github
- In gewenste folder...  
`git clone url`



# .gitignore

Negeert alle veranderingen in aangewezen bestanden, bv...

- \*.docs → negeert alle word-bestanden
- test.pdf → negeert enkel test.pdf (niet bv. logs/test.pdf)
- logs/ → negeert de folder logs
  
- Best in het begin!

# git add

- veranderingen toevoegen, 'klaar zetten'
- alle veranderingen in huidige directory...  
git add .
- ... of specifieke verandering in *bestand*  
git add *bestandspad*





# git commit

- Maakt de verandering permanent  
git commit -m '*Actual clear, informative message*'
- Hou commits klein, liefst 1 change/update per commit.
- Zorg voor een deftige commit message!!



# git push



- Zet commits (en dus ook veranderingen) op remote repo
- `--set-upstream origin master` (slide 3)  
maakt de remote “origin” en de branch “master” default, vanaf nu is git push/pull voldoende

# git pull



- Update local repo met de recentste versie van de remote repo
  
- `--set-upstream origin master` (slide 3)

# Volgorde heeft belang!

1. git add .
2. git commit -m “
3. git pull
4. git push

Anders riskeer je de lokale, niet gecomitee, veranderingen te overschrijven met de remote repo!

Of er ontstaan errors door veranderingen op de remote repo.

# Merge conflicten

Wanneer git de veranderingen niet automatisch kan samenvoegen.

Oplossing?

`git pull`

Manueel naar file gaan en probleem oplossen.

Dan opnieuw...

`git add .`

`git commit -m 'Fixed merge conflict'`

`git push`

Persoon 2 veroorzaakt een merge conflict (Door op dezelfde lijn te schrijven). Pushen gaat dus niet.

```
nonal@zephyrus MINGW64 ~/Documents/_SEM_1/persoon_2 (main)
$ git add .

nonal@zephyrus MINGW64 ~/Documents/_SEM_1/persoon_2 (main)
$ git commit -m 'Added text to file.txt (conflict)'
[main a112817] Added text to file.txt (conflict)
 1 file changed, 1 insertion(+)

nonal@zephyrus MINGW64 ~/Documents/_SEM_1/persoon_2 (main)
$ git pull
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 3 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 301 bytes | 27.00 KiB/s, done.
From https://github.com/nona-luypaert/test
   849a3e6..7ff1c97  main      -> origin/main
Auto-merging file.txt
CONFLICT (content): Merge conflict in file.txt
Automatic merge failed; fix conflicts and then commit the result.

nonal@zephyrus MINGW64 ~/Documents/_SEM_1/persoon_2 (main|MERGING)
$ git push
To https://github.com/nona-luypaert/test.git
 ! [rejected]        main -> main (non-fast-forward)
error: failed to push some refs to 'https://github.com/nona-luypaert/test.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. Integrate the remote changes (e.g.
hint: 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
```

Persoon 2 gaat naar de file die het probleem veroorzaakt...



file.txt - Kladblok

Bestand Bewerken Opmaak Beeld Help

```
<<<<<<< HEAD
```


```
Deze lijn veroorzaakt een conflict.
```

```
=====
```

```
Deze lijn werd eerst gepusht. |
```

```
>>>>>>> 7ff1c9750afacab4e43bf2c8220c86cc5d7335dd
```

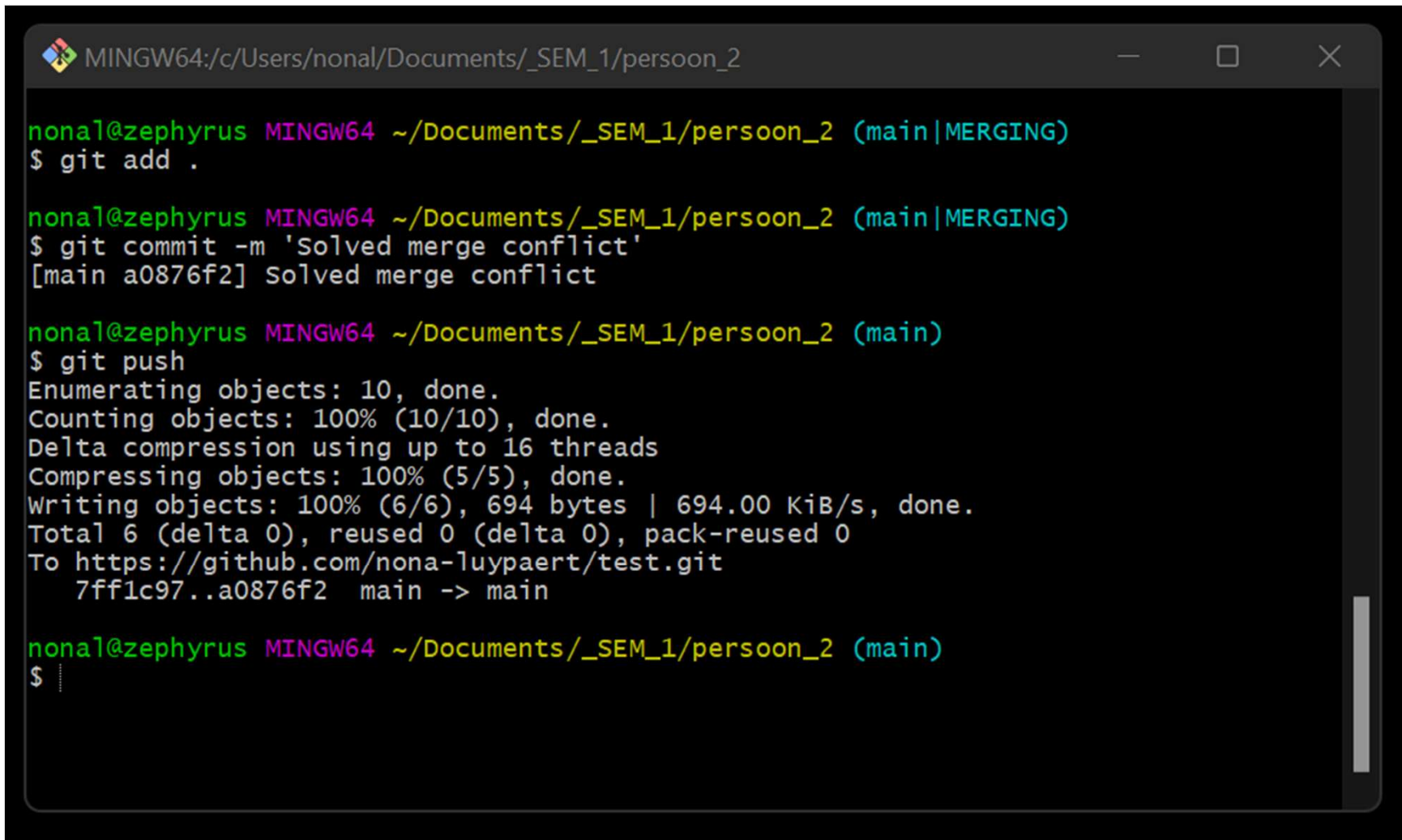
... en lost dit probleem op.

A screenshot of a Notepad window titled "file.txt - Kladblok". The window has a menu bar with "Bestand", "Bewerken", "Opmaak", "Beeld", and "Help". The main text area contains three lines of text in a monospaced font: "Deze lijn veroorzaakt een conflict.", "Deze lijn werd eerst gepusht.", and "Zo is het beter!".

```
file.txt - Kladblok  
Bestand  Bewerken  Opmaak  Beeld  Help  
Deze lijn veroorzaakt een conflict.  
Deze lijn werd eerst gepusht.  
Zo is het beter!
```



Tenslotte pusht persoon 2 zijn oplossing.



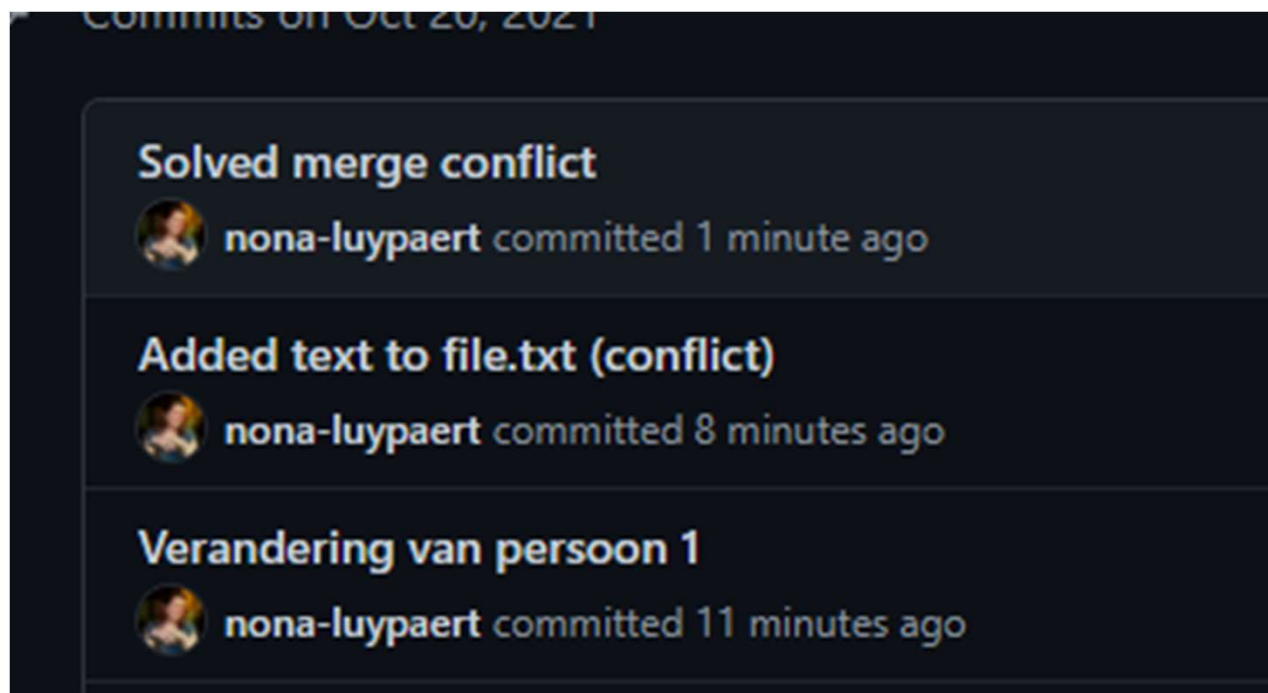
```
MINGW64:/c/Users/nonal/Documents/_SEM_1/persoon_2
nonal@zephyrus MINGW64 ~/Documents/_SEM_1/persoon_2 (main|MERGING)
$ git add .

nonal@zephyrus MINGW64 ~/Documents/_SEM_1/persoon_2 (main|MERGING)
$ git commit -m 'Solved merge conflict'
[main a0876f2] Solved merge conflict

nonal@zephyrus MINGW64 ~/Documents/_SEM_1/persoon_2 (main)
$ git push
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 16 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 694 bytes | 694.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/nona-luypaert/test.git
 7ff1c97..a0876f2  main -> main

nonal@zephyrus MINGW64 ~/Documents/_SEM_1/persoon_2 (main)
$
```

Deze push zal wel slagen 😊



# Branches

Om kladwerk, problemen, onafgemaakte code... apart te houden van 'the final product'.

Alle veranderingen op een branch blijven (voorlopig) op die branch.

Branches moeten ook naar remote gepusht worden:  
git push origin *branch*

### **git branch dev**

maakt nieuwe branch aan genaamd *dev*

### **git checkout dev**

'springt' van huidige branch op dev-branch

### **git checkout -b feature1**

creëert nieuwe branch genaamd *feature1* en gaat hier direct naartoe

### **git branch -d dev**

delete de dev-branch

### **git branch**

lijst alle branches op

MINGW64:/c/Users/nonal/Documents/\_SEM\_1/test

nonal@zephyrus MINGW64 ~/Documents/\_SEM\_1/test (main)

\$ git branch

\* main

nonal@zephyrus MINGW64 ~/Documents/\_SEM\_1/test (main)

\$ git branch dev

nonal@zephyrus MINGW64 ~/Documents/\_SEM\_1/test (main)

\$ git branch

dev

\* main

nonal@zephyrus MINGW64 ~/Documents/\_SEM\_1/test (main)

\$ git checkout dev

Switched to branch 'dev'

nonal@zephyrus MINGW64 ~/Documents/\_SEM\_1/test (dev)

\$ git checkout -b feature1

Switched to a new branch 'feature1'

nonal@zephyrus MINGW64 ~/Documents/\_SEM\_1/test (feature1)

\$ git branch

dev

\* feature1

main

nonal@zephyrus MINGW64 ~/Documents/\_SEM\_1/test (feature1)

\$ git branch -d dev

Deleted branch dev (was a0876f2).

nonal@zephyrus MINGW64 ~/Documents/\_SEM\_1/test (feature1)

\$ git branch

\* feature1

main

## 2 branches mergen

Dev-branch mergen met main:

```
git checkout main
```

```
git merge dev
```

Kan ook voor merge conflicten zorgen.

Ofwel op dezelfde manier slide 11, ofwel via github...

# Branches on Github:

The screenshot shows the GitHub interface for a repository named 'nona-luypaert / test'. The repository is private and has 1 branch and 0 tags. The 'main' branch is selected. A 'Switch branches/tags' dialog box is open, showing a search bar for 'Find or create a branch...' and a list of branches including 'main' (marked as default). A red arrow points to the 'Issues' tab in the navigation bar.

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

nona-luypaert / test Private Unwatch 1 Star 0 Fork 0

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

main 1 branch 0 tags Go to file Add file Code About

Switch branches/tags

Find or create a branch...

Branches Tags

main default

View all branches

test

Readme Releases Packages

# Merge dev met master: maak pull request aan ('pullt' dev naar master)

The screenshot shows the GitHub interface for a repository named 'nona-luypaert / voorbeeld'. The 'dev' branch is selected, and it is 1 commit ahead of master. A red arrow points from the 'Compare & pull request' button to a tooltip that says 'This branch is 1 commit ahead of master. Open a pull request to contribute your changes upstream.' Another red arrow points from the tooltip to the 'Open pull request' button.

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

nona-luypaert / voorbeeld Private

Unwatch 1 Star 0 Fork 0

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

dev had recent pushes 6 minutes ago **Compare & pull request**

dev 2 branches 0 tags Go to file Add file Code

This branch is 1 commit ahead, 1 commit behind master. Contribute

nona-luypaert Changed dev file

test.txt Changed dev file

Add a README with an overview of your project. Add a README

**This branch is 1 commit ahead of master.**  
Open a pull request to contribute your changes upstream.

Compare **Open pull request**

About No description, website, or topics provided.

Releases No releases published Create a new release

Packages No packages published Publish your first package



# Indien er conflicten zijn... los ze op


## Changed dev file #1


Edit

<> Code

 Open nona-luypaert wants to merge 1 commit into `master` from `dev`

 Conversation 0

 Commits 1

 Checks 0

 Files changed 1

+1 -0 



nona-luypaert commented now



No description provided.

 Changed dev file

949cc8f



Add more commits by pushing to the `dev` branch on `nona-luypaert/voorbeeld`.



**This branch has conflicts that must be resolved**

Use the [web editor](#) or the [command line](#) to resolve conflicts.

Resolve conflicts

**Conflicting files**

test.txt

Reviewers

No reviews

Assignees

No one—assign yourself

Labels

None yet

Projects

None yet

Milestone

No milestone

Indien er conflicten zijn... los ze op

## Changed dev file #1

Resolving conflicts between `dev` and `master` and committing changes → `dev`

1 conflicting file

test.txt

1 conflict

Prev ^

Next v



Mark as resolved

test.txt  
test.txt

```
1 <<<<<< dev
2 Deze lijn komt uit dev-branch.
3 =====
4 Deze lijn komt uit master-branch.
5 >>>>>> master
```

## Changed dev file #1

Resolving conflicts between `dev` and `master` and committing changes → `dev`

1 conflicting file

test.txt

1 conflict

Prev ^

Next v



Mark as resolved

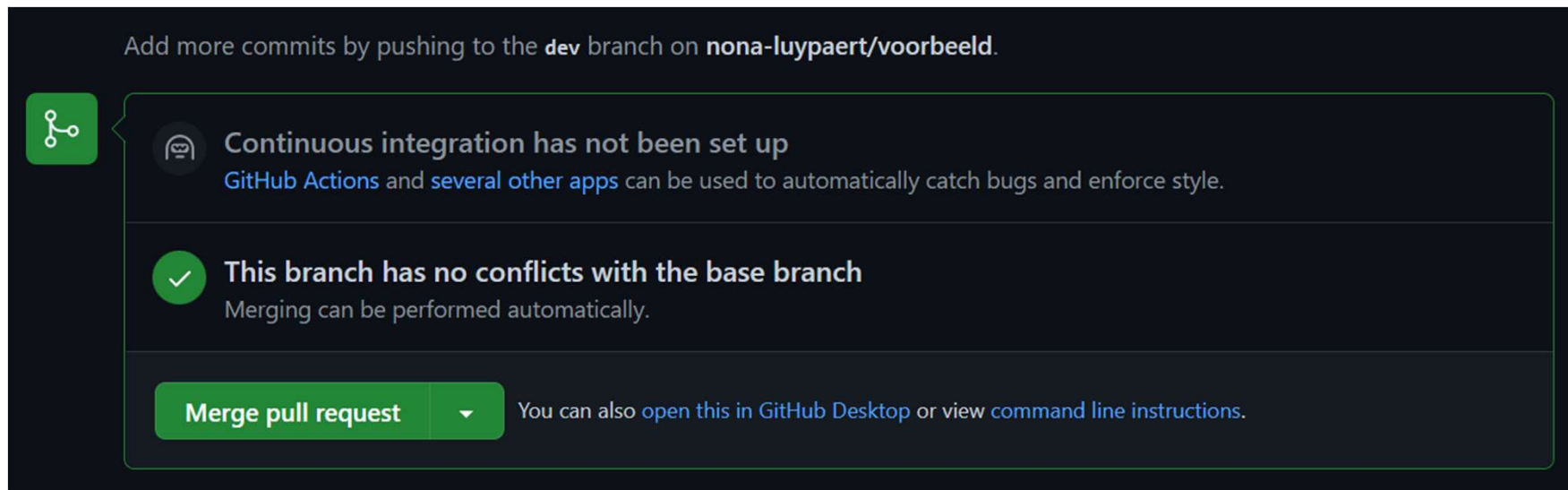
test.txt  
test.txt

```
1 Deze lijn komt uit dev-branch.
2 Deze lijn komt uit master-branch.
3
```






## Commit en merge het pull request

Add more commits by pushing to the **dev** branch on **nona-luypaert/voorbeeld**.



The image shows a GitHub pull request merge status panel. It features a green 'Merge pull request' button on the left. To the right of the button, there are two status messages: one with a warning icon stating 'Continuous integration has not been set up' and another with a checkmark icon stating 'This branch has no conflicts with the base branch'. Below these messages is a dropdown menu with the text 'Merge pull request' and a small downward arrow. To the right of the dropdown, there is a link to 'GitHub Desktop' and 'command line instructions'.

-  **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.

**Merge pull request**  You can also [open this in GitHub Desktop](#) or view [command line instructions](#).

Master-branch zal nu zijn eigen veranderingen en die van dev bevatten.

# Hulpmiddelen

- IntelliJ integratie / VScode extension
- Github desktop
- Github kraken

# Vragen?

Voor de liefhebbers: <https://git-scm.com/book/en/v2>