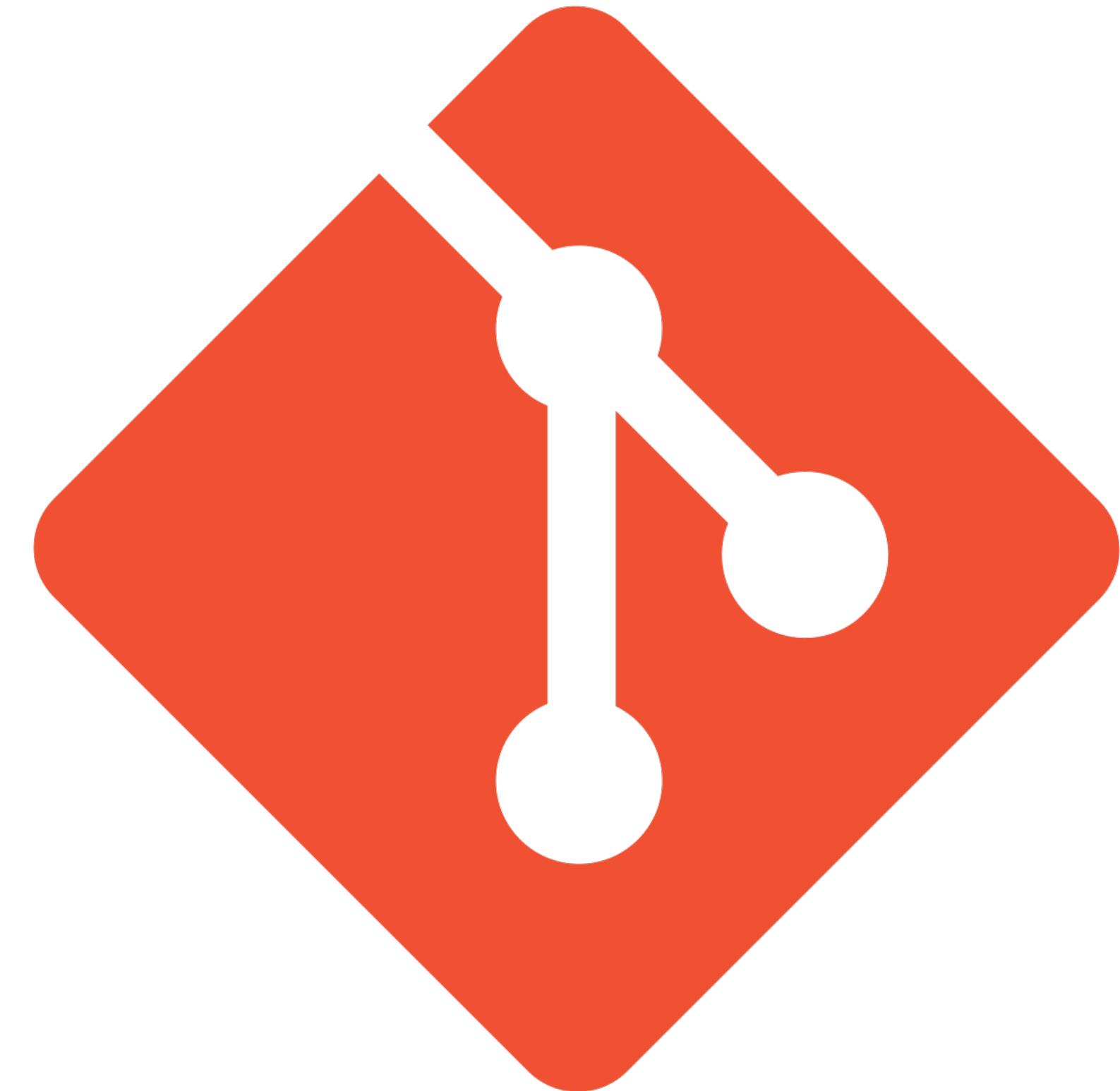
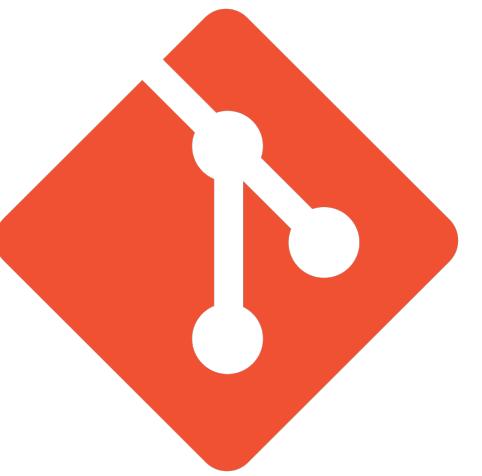


Git

Del 1: Versjonskontroll
Del 2: Samarbeid

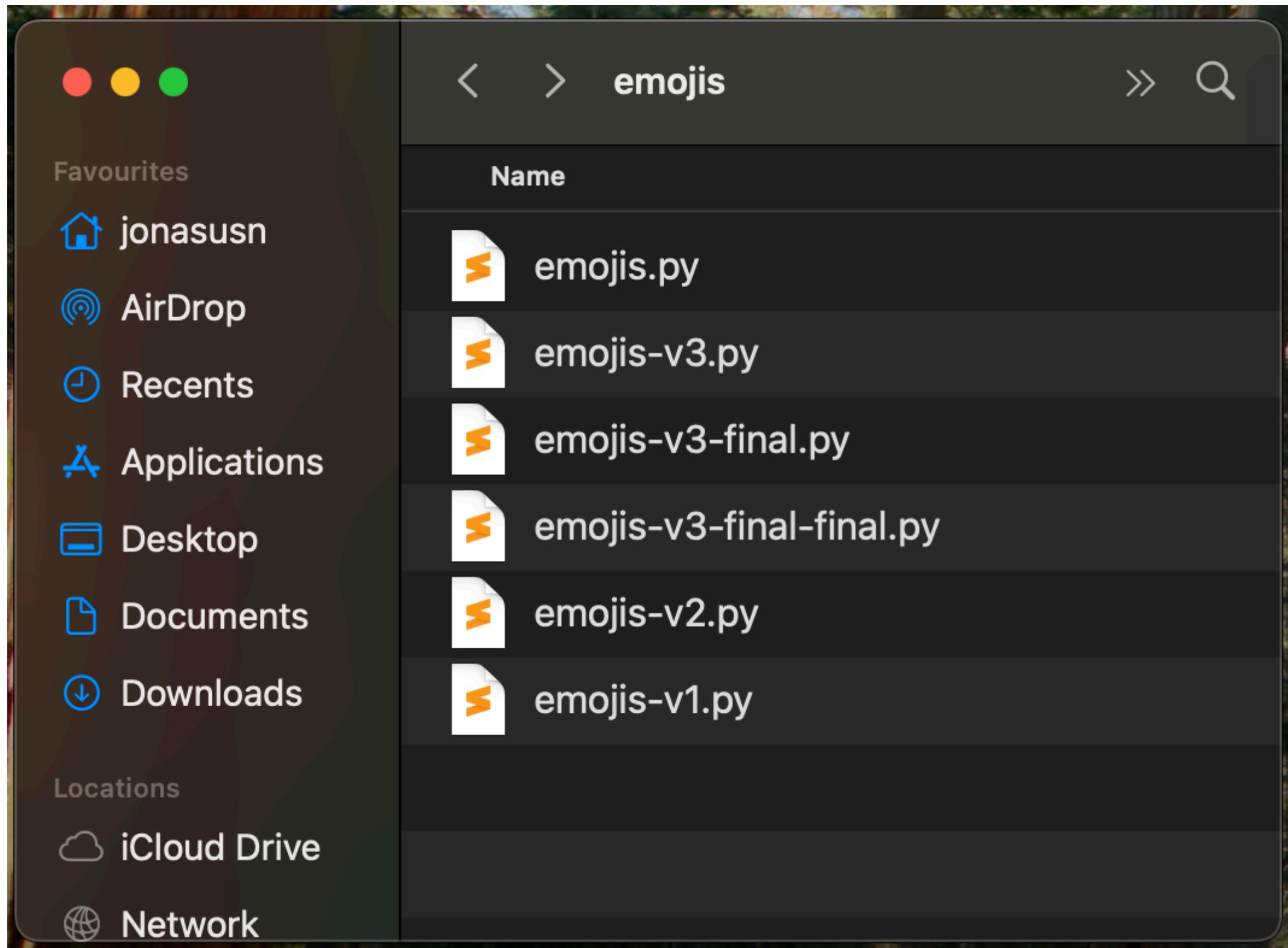


Jonas Johan Solsvik - 25.03.2025

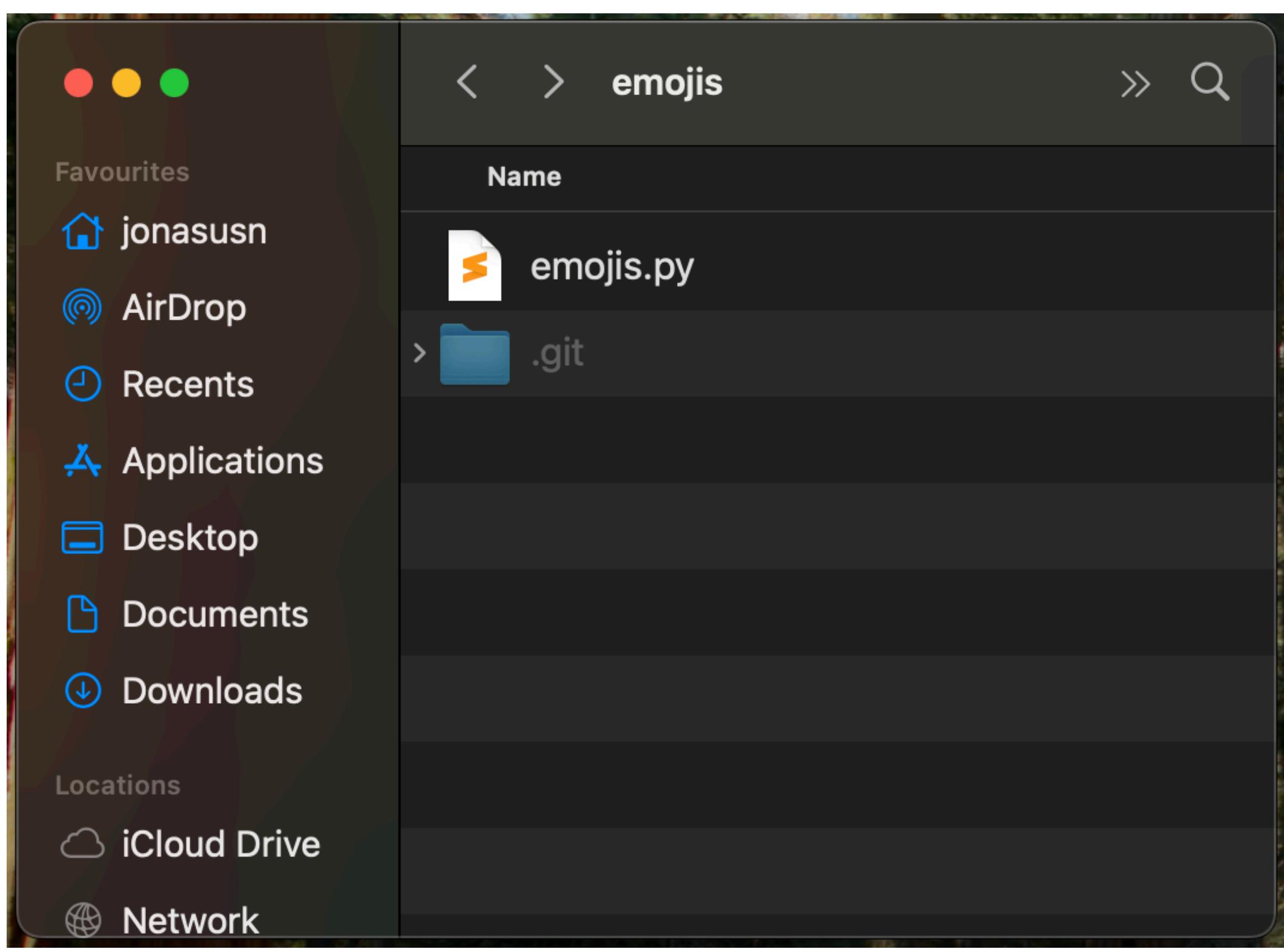


Del 1: Versjonskontroll

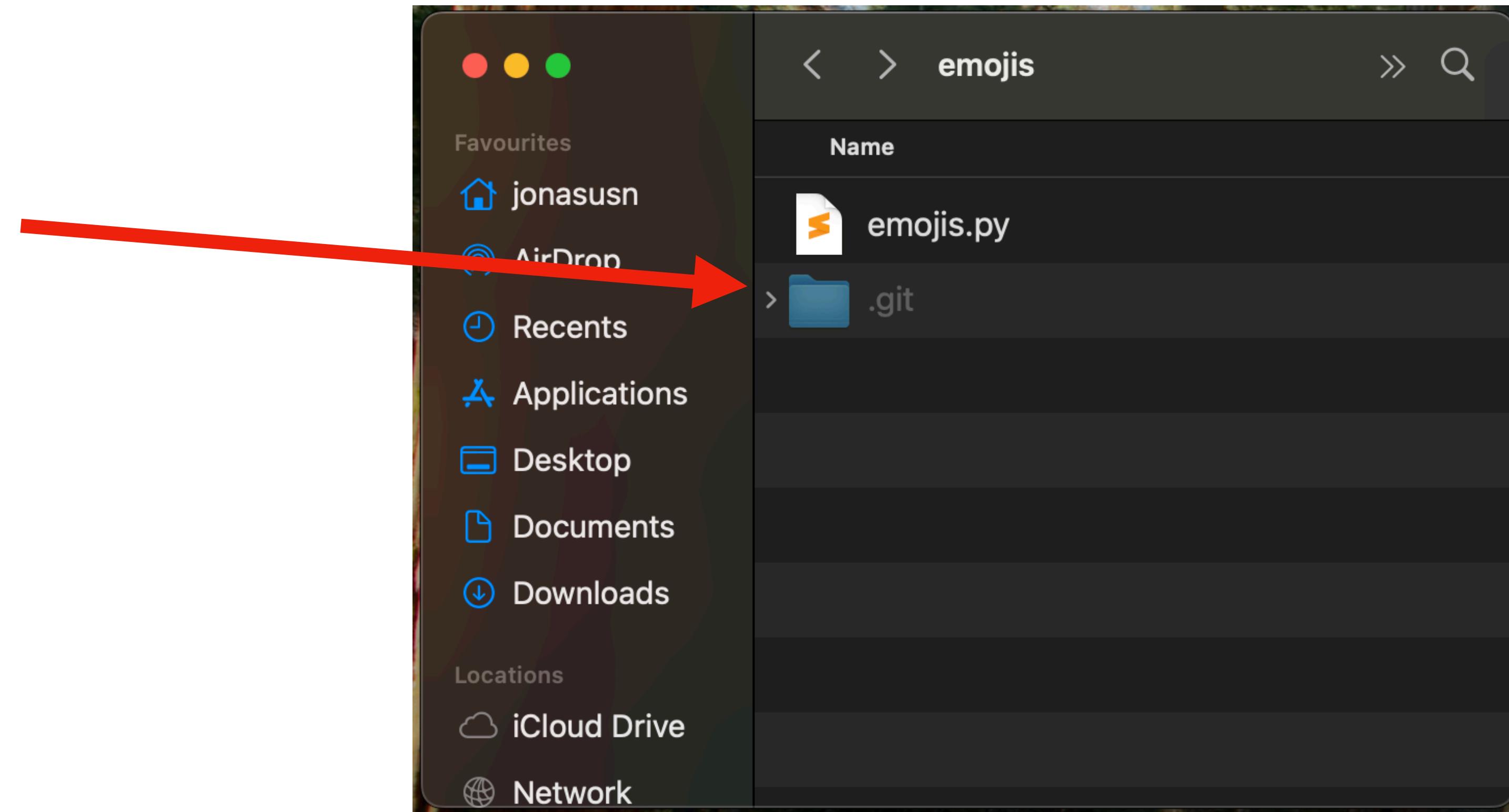
Versjonskontroll uten git



Versjonskontroll med git

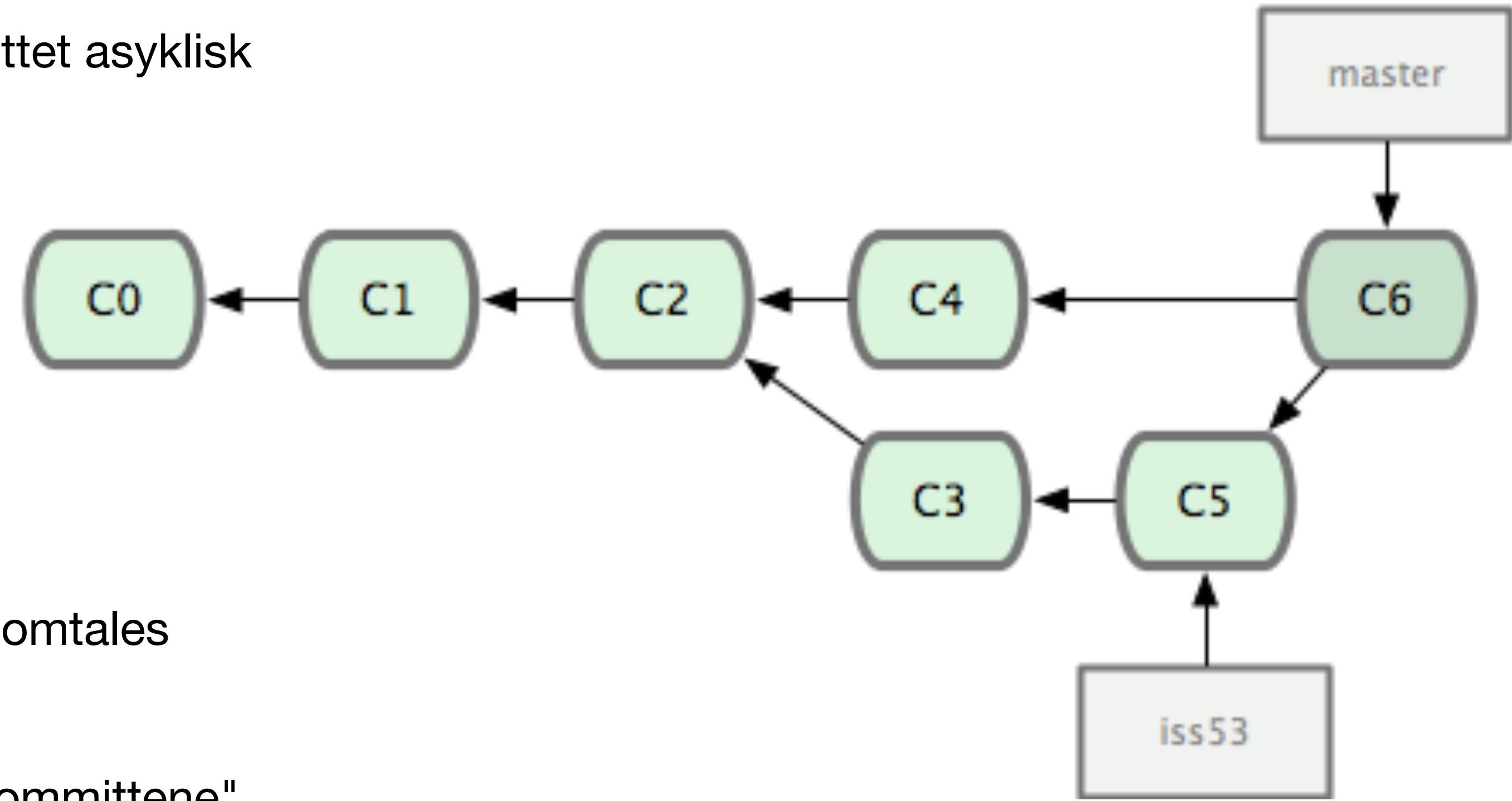


Hva er lagrer git her?



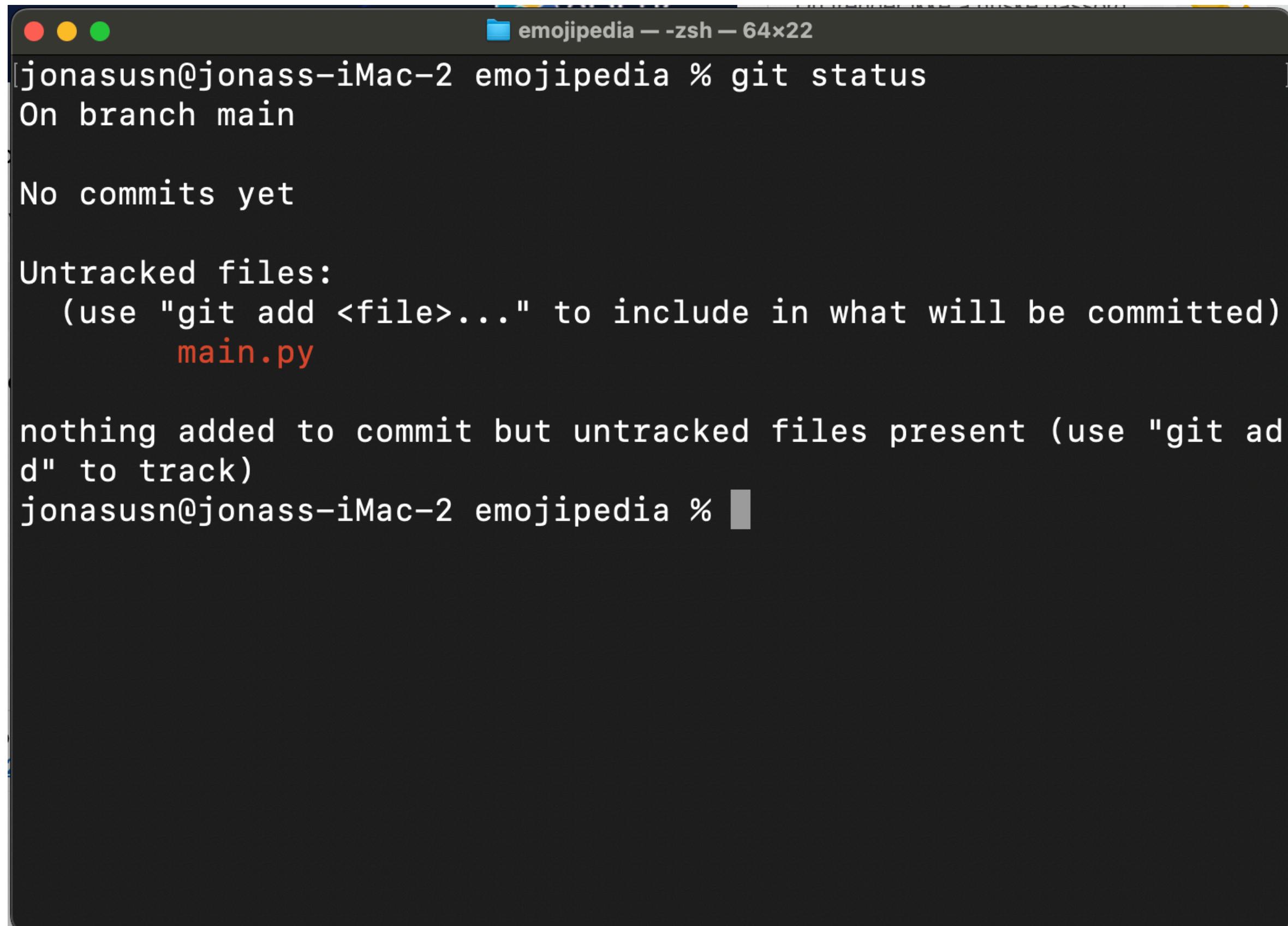
Historikkgrafen til git

- **DAG** - Directed acyclic graph / på norsk "Rettet asyklisk graf"
- **Rettet** - Pilene peker bare i en retning, mot begynnelsen.
- **Asyklisk** - Grafen har ingen sykluser.
- **Graf** - En datastruktur med noder og kanter:
 - Hver node representerer en endring. I git omtales disse endringene som "commits".
 - Kantene (pilene) gir oss rekkefølgen til "committene".



<https://git-scm.com/book/en/v2/Git-Branching-Basic-Branching-and-Merging>

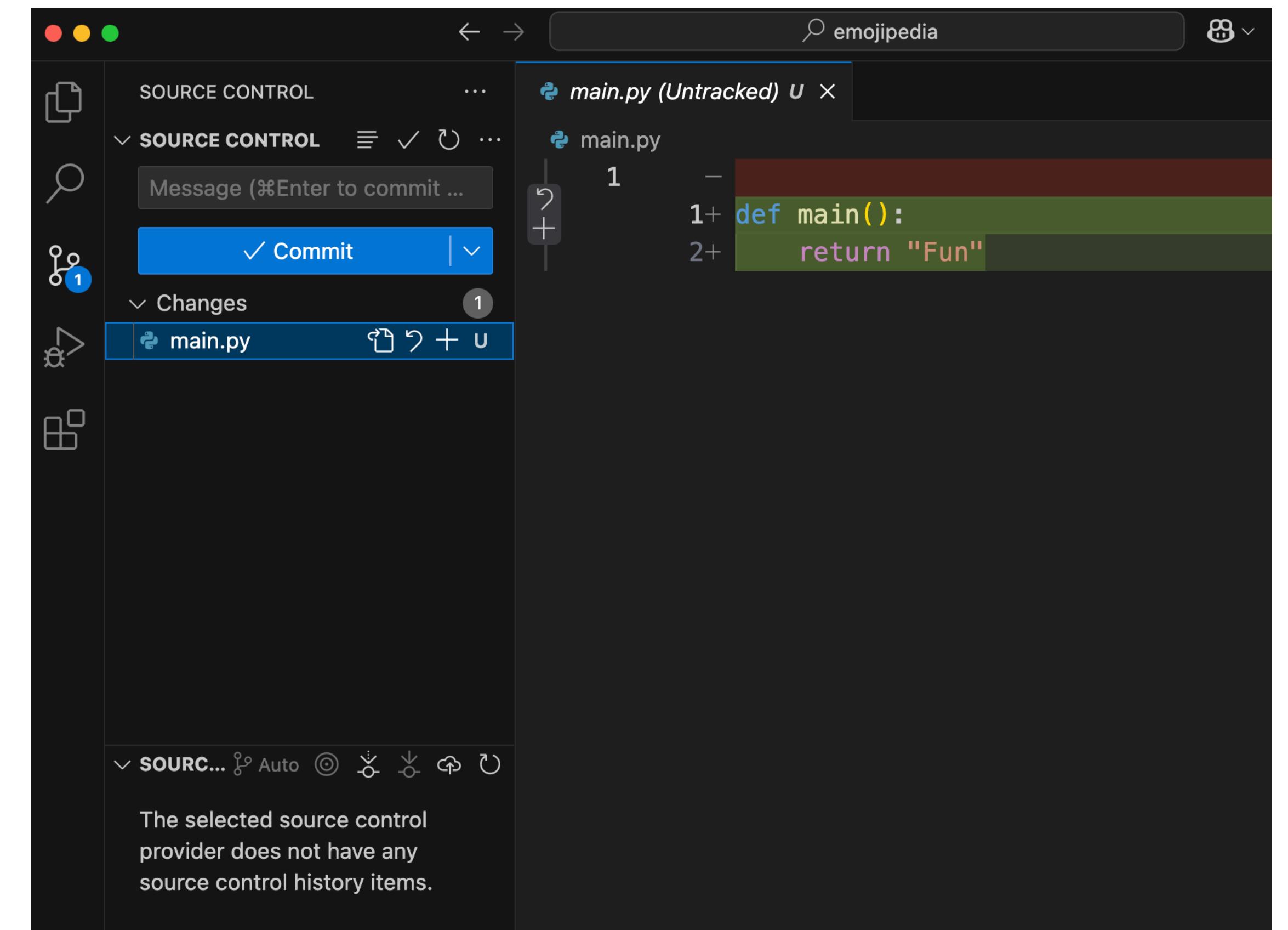
Git i terminal



```
emojipedia -- zsh -- 64x22
[jonasusn@jonass-iMac-2 emojipedia % git status
On branch main
No commits yet
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    main.py

nothing added to commit but untracked files present (use "git add" to track)
jonasusn@jonass-iMac-2 emojipedia %
```

Git i edtior



The selected source control provider does not have any source control history items.

SOURCE CONTROL

Message (⌘Enter to commit ...)

✓ Commit

Changes

main.py

main.py (Untracked) u x

def main():
 return "Fun"

Oppgave 1

1. Åpne en kommandolinje
2. Skriv "git version"
3. Kopier svar og lim inn i chat på Teams.

MINGW64:/

```
Everet@DESKTOP-C4841HN MINGW64 /  
$ which git  
/mingw64/bin/git  
  
Everet@DESKTOP-C4841HN MINGW64 /  
$ git --version  
git version 2.15.0.windows.1  
  
Everet@DESKTOP-C4841HN MINGW64 /  
$ |
```

"Git bash"
på Windows

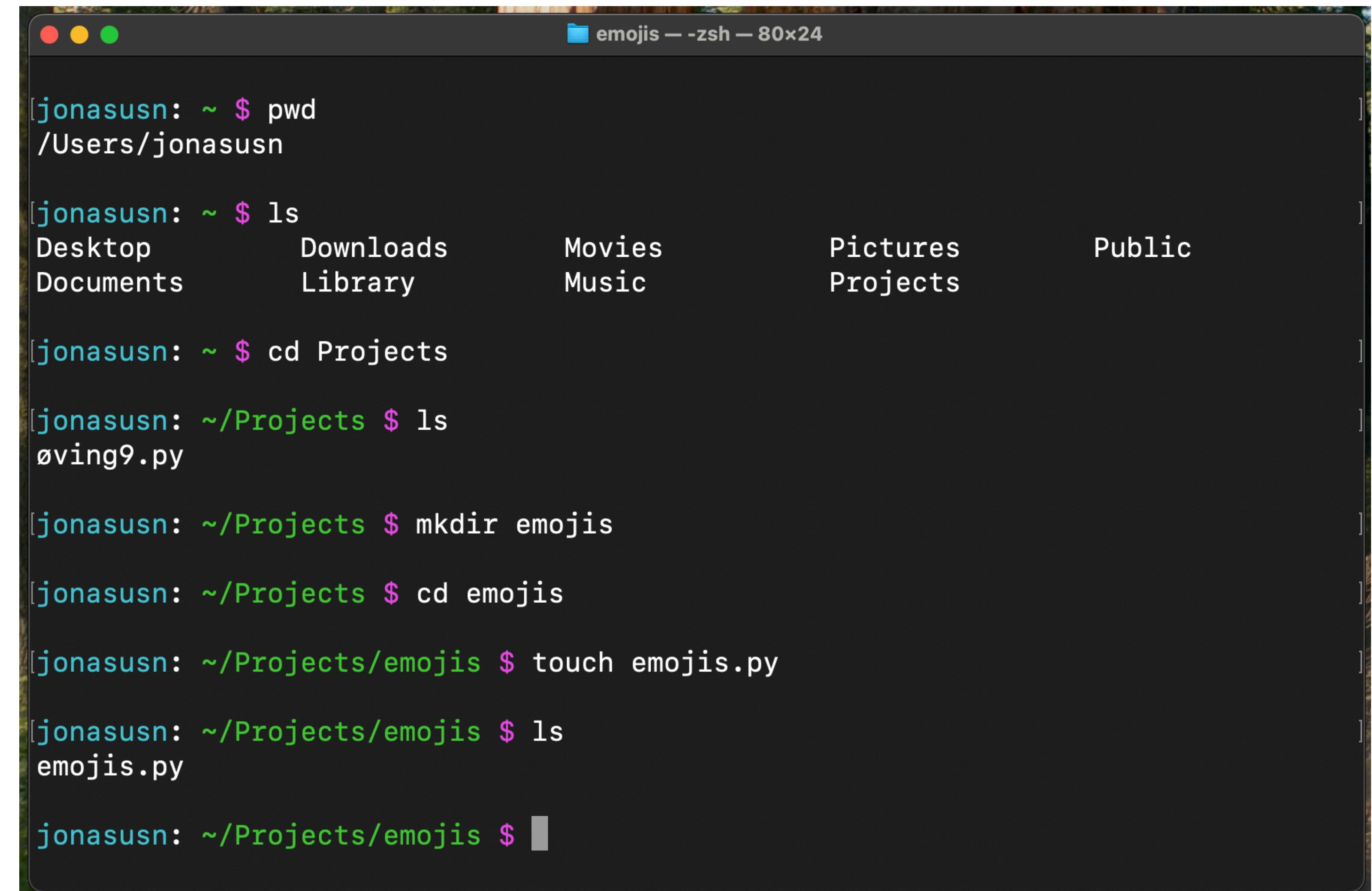
jonasusn — zsh — 80x24

```
[jonasusn: ~ $ git version  
git version 2.39.5 (Apple Git-154)  
  
jonasusn: ~ $ ]
```

"Terminal"
på MacOS

Filbehandling i kommandolinje

pwd	- print working directory
ls	- list contents
cd	- change directory
mkdir	- make directory
touch	- make file
rm	- remove file
mv	- rename file
open	- open file or directory



```
[jonasusn: ~ $ pwd
/Users/jonasusn

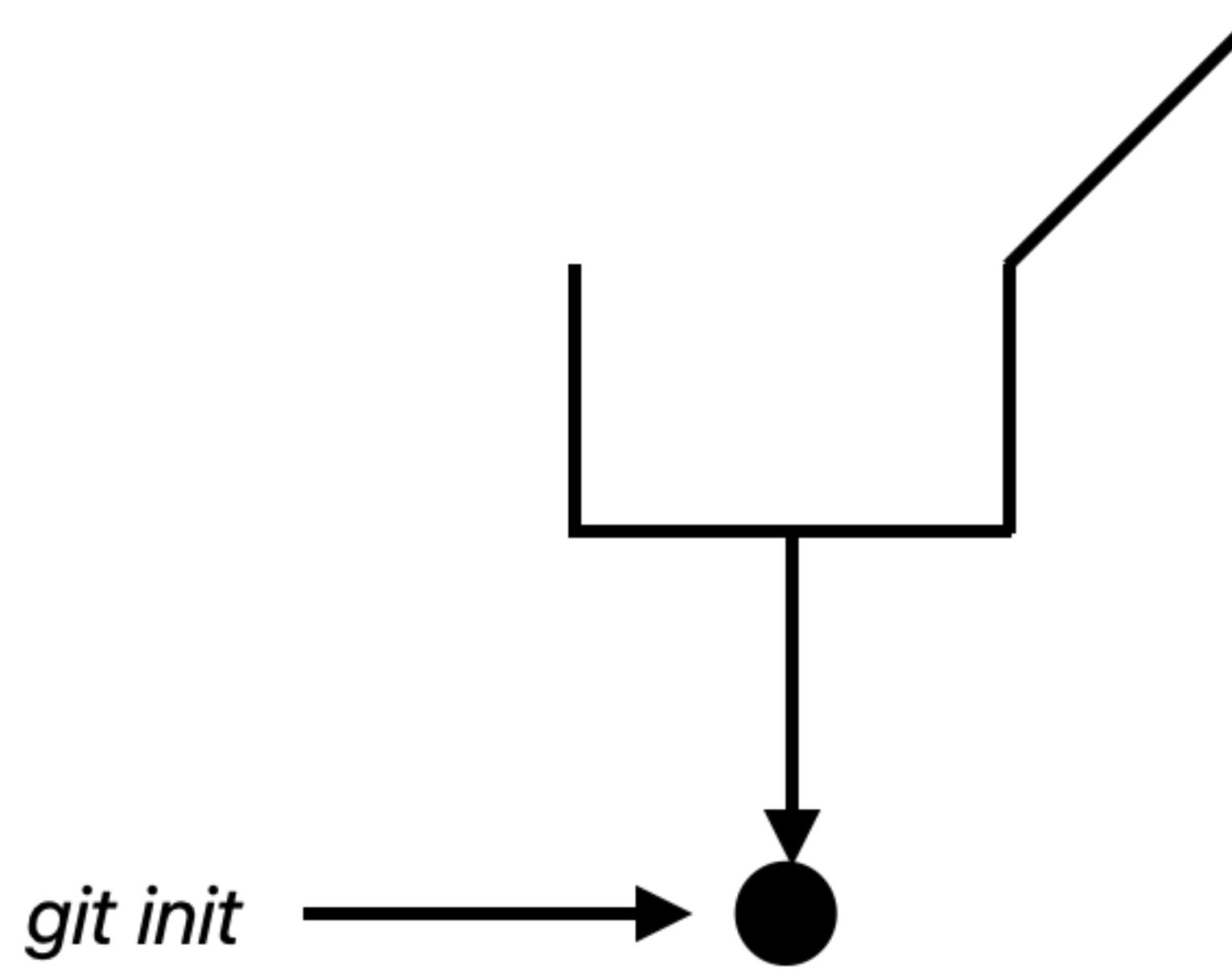
[jonasusn: ~ $ ls
Desktop           Downloads        Movies       Pictures      Public
Documents         Library          Music        Projects

[jonasusn: ~ $ cd Projects
[jonasusn: ~/Projects $ ls
øving9.py

[jonasusn: ~/Projects $ mkdir emojis
[jonasusn: ~/Projects $ cd emojis
[jonasusn: ~/Projects/emojis $ touch emojis.py
[jonasusn: ~/Projects/emojis $ ls
emojis.py

jonasusn: ~/Projects/emojis $ ]
```

git init

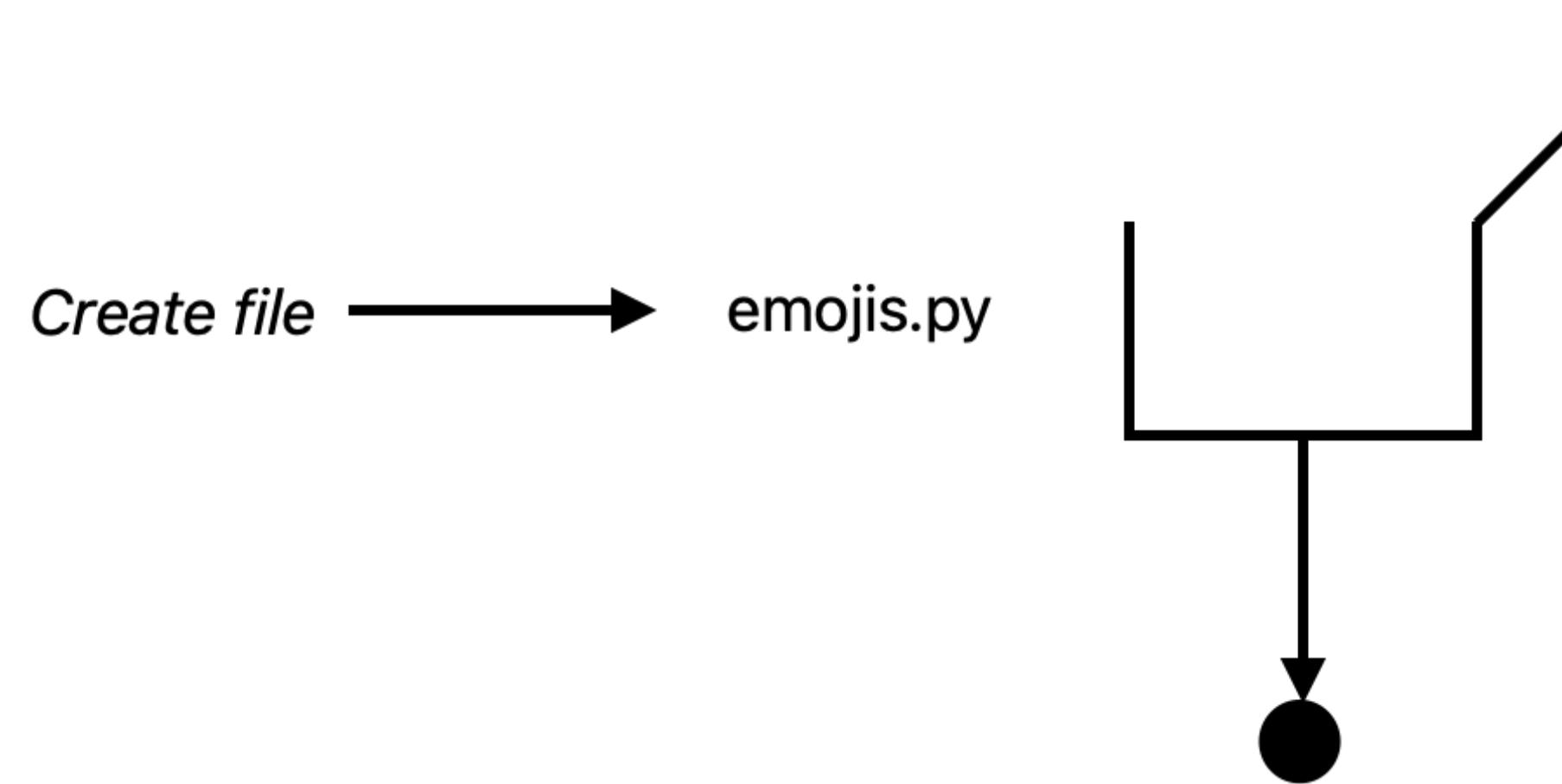


```
[jonasusn: ~/Projects $ cd emojis
[jonasusn: ~/Projects/emojis $ git init
Initialized empty Git repository in /Users/jonasusn/Projects/emojis/.git/
jonasusn: ~/Projects/emojis (main) $ ]]
```

A screenshot of a terminal window titled "emojis -- zsh -- 80x24". The terminal shows the following session:

```
[jonasusn: ~/Projects $ cd emojis
[jonasusn: ~/Projects/emojis $ git init
Initialized empty Git repository in /Users/jonasusn/Projects/emojis/.git/
jonasusn: ~/Projects/emojis (main) $ ]]
```

git status



```
[jonasusn: ~/Projects/emojis (main) $ touch emojis.py

[jonasusn: ~/Projects/emojis (main) $ git status
On branch main

No commits yet

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

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

jonasusn: ~/Projects/emojis (main) $ ]
```

A screenshot of a terminal window titled "emojis — zsh — 80x24". The terminal shows the following output:

```
[jonasusn: ~/Projects/emojis (main) $ touch emojis.py

[jonasusn: ~/Projects/emojis (main) $ git status
On branch main

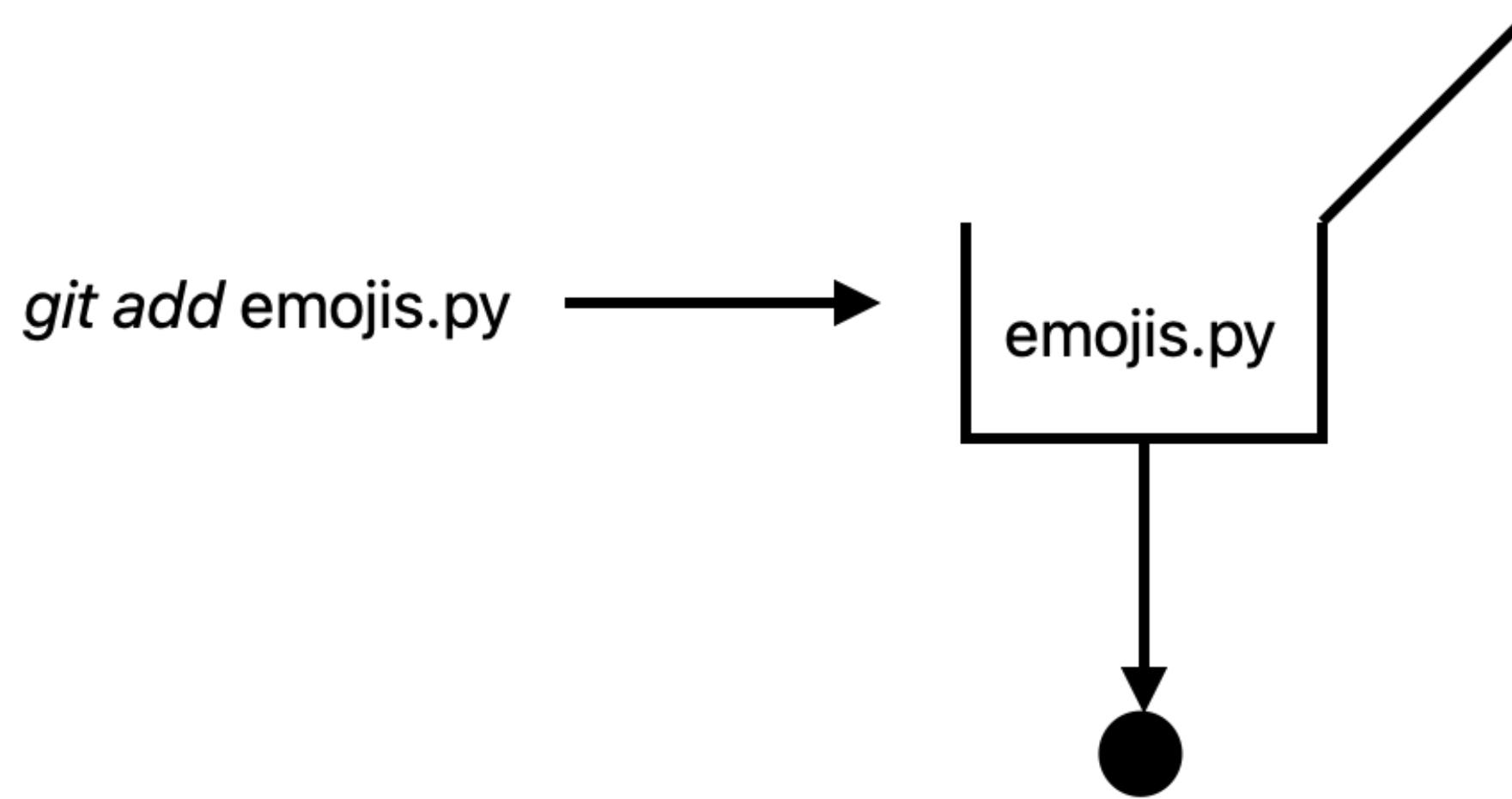
No commits yet

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

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

jonasusn: ~/Projects/emojis (main) $ ]
```

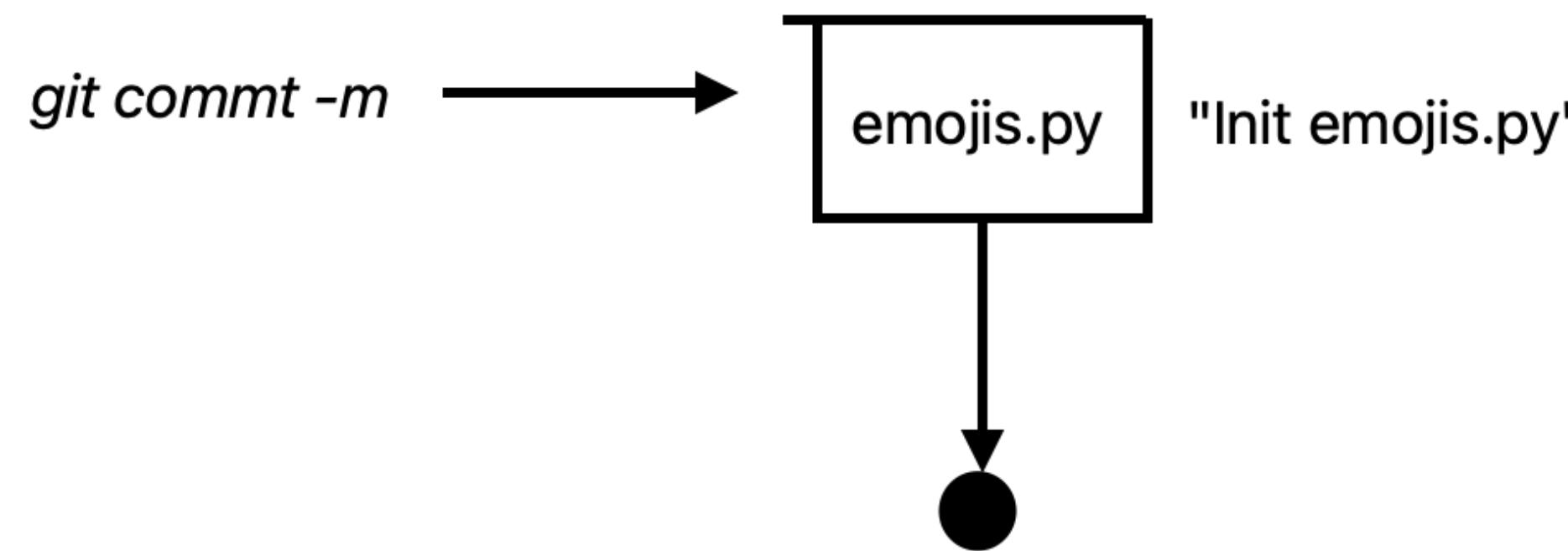
git add



```
[jonasusn: ~/Projects/emojis (main) $ git add emojis.py
[jonasusn: ~/Projects/emojis (main) $ git status
On branch main
No commits yet
Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
    new file:   emojis.py
[jonasusn: ~/Projects/emojis (main) $ ]
```

The screenshot shows a terminal window titled 'emojis -- zsh -- 80x24'. The user runs 'git add emojis.py' followed by 'git status'. The output indicates there are no commits yet, and a new file 'emojis.py' is staged for commit.

git commit

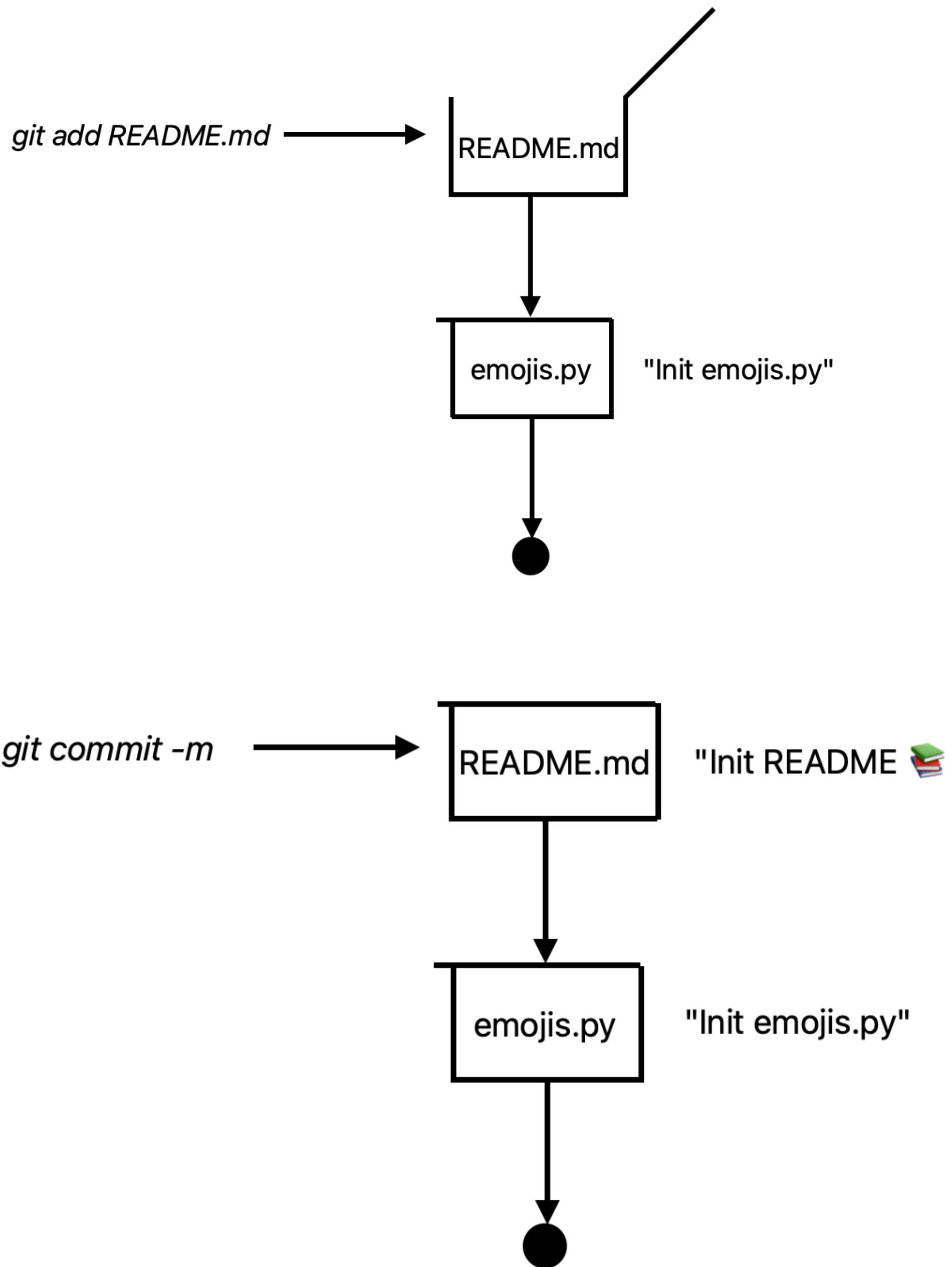


```
[jonasusn: ~/Projects/emojis (main) $ git commit -m "Init emojis.py"
[main (root-commit) 633a7b4] Init emojis.py
1 file changed, 0 insertions(+), 0 deletions(-)
create mode 100644 emojis.py

[jonasusn: ~/Projects/emojis (main) $ git log
commit 633a7b450bdfacf1bd667486ff3595e0e91d4ff6 (HEAD -> main)
Author: Jonasusn <267431@usn.no>
Date:   Sun Mar 23 17:20:31 2025 +0100

    Init emojis.py

jonasusn: ~/Projects/emojis (main) $ ]
```



En commit til...

```

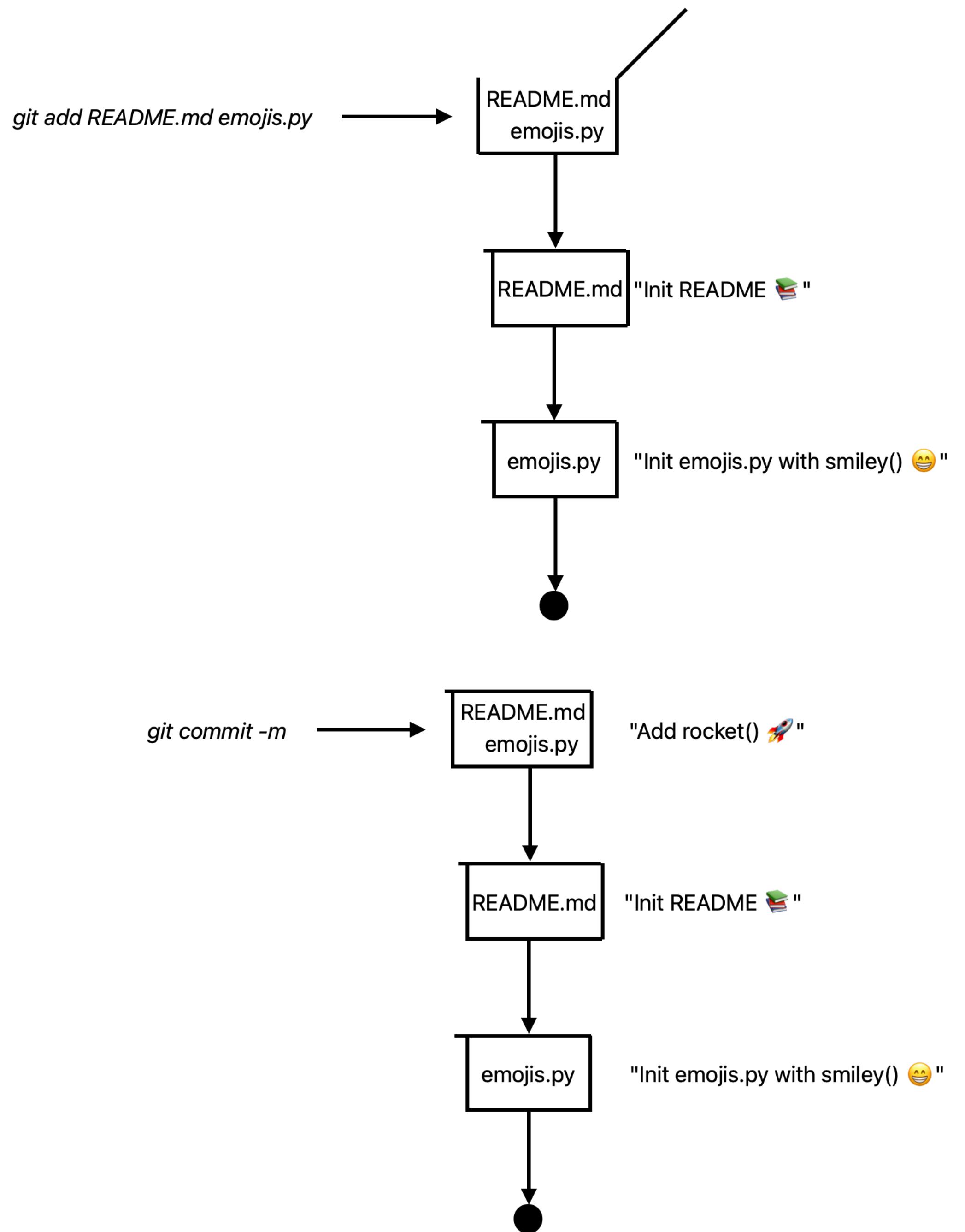
[jonasusn: ~/Projects/emojis (main) $ git log
commit 2d640b85f2515e9fa9b65c4212e8cfffc776ab (HEAD -> main)
Author: Jonasusn <jonasusn@jonass-iMac-2.local>
Date:   Sun Mar 23 17:29:34 2025 +0100

    Init README 📚

commit 633a7b450bdfacf1bd667486ff3595e0e91d4ff6
Author: Jonasusn <267431@usn.no>
Date:   Sun Mar 23 17:20:31 2025 +0100

    Init emojis.py

jonasusn: ~/Projects/emojis (main) $ ]
  
```



Og enda en...

```

[jonasusn: ~/Projects/emojis (main) $ git log
commit 44ba45aa14012c4562b8f49666e7d53fad612155 (HEAD -> main)
Author: Jonas Johan Solsvik <267431@usn.no>
Date: Sun Mar 23 17:35:07 2025 +0100

Add rocket()🚀

commit 2d640b85f2515e9fa9b65c4212e8cfffc776ab
Author: Jonasusn <jonasusn@jonass-iMac-2.local>
Date: Sun Mar 23 17:29:34 2025 +0100

Init README 📚

commit 633a7b450bdfacf1bd667486ff3595e0e91d4ff6
Author: Jonasusn <267431@usn.no>
Date: Sun Mar 23 17:20:31 2025 +0100

Init emojis.py

jonasusn: ~/Projects/emojis (main) $ ]

```

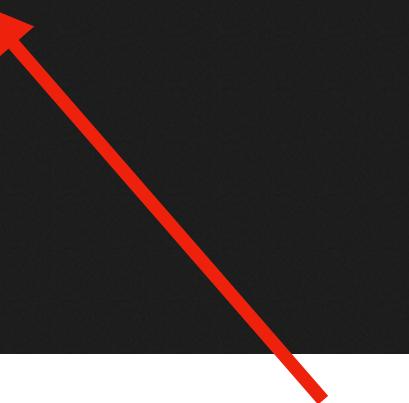
Og en i editor ->

The screenshot shows a dark-themed source control interface, likely GitHub Desktop or a similar application. The top bar includes standard window controls (red, yellow, green) and a search bar with the text "emojis". The main area is divided into several sections:

- SOURCE CONTROL**: A sidebar with icons for file operations.
- CHANGES**: A section where users can enter a commit message ("Message (⌘Enter to commit on "main")") and publish a branch.
- emojis.py**: The code editor view showing the following Python code:

```
1  1
2  2 def rocket():
3  3     return "🚀"
4  4
5  5+def skier():
6  6+    return "⛷"
```
- GRAPH**: A commit history graph showing the following branches and commits:
 - Add skier()** (Jonas Johan Solsvik) → **main**
 - Add rocket()** (Jonas Johan Solsvik)
 - Init README** (Jonasusn)
 - Init emojis.py** (Jonasusn)
- Bottom Status Bar**: Shows the current branch is "main", and there are 0 changes and 0 warnings.

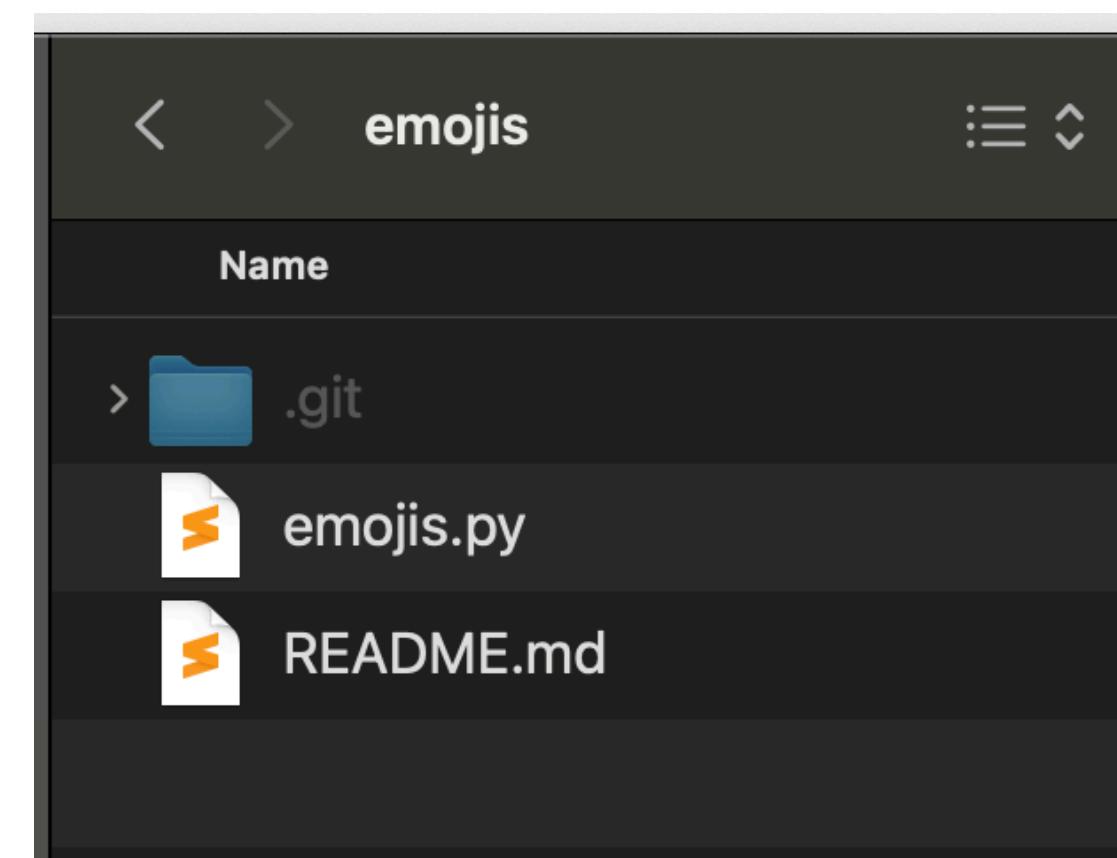
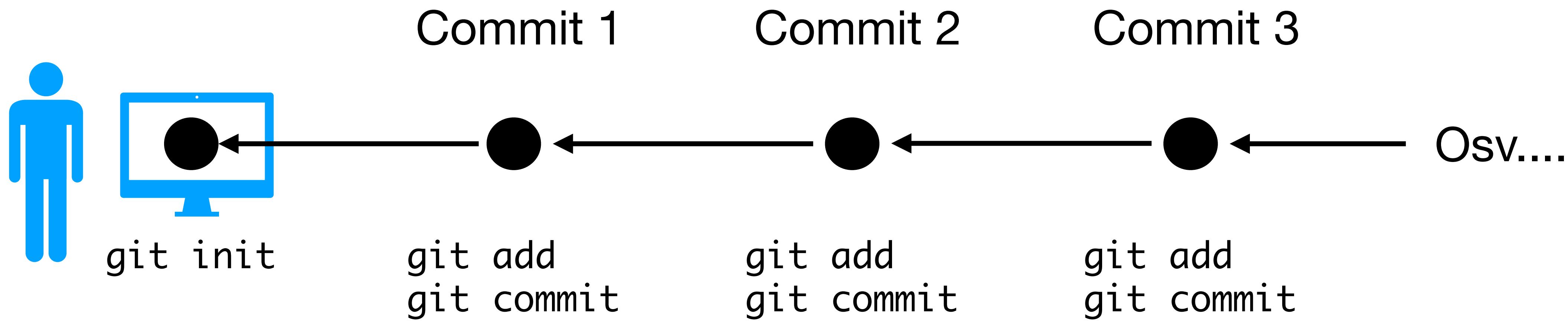
git tag



```
[jonasusn: ~/Projects/emojis (main) $ git tag v1
[jonasusn: ~/Projects/emojis (main) $ git log
commit b93cc4016c82bb084ba8076af495d0e170040088 (HEAD -> main, tag: v1)
Author: Jonas Johan Solsvik <267431@usn.no>
Date:   Sun Mar 23 17:39:07 2025 +0100

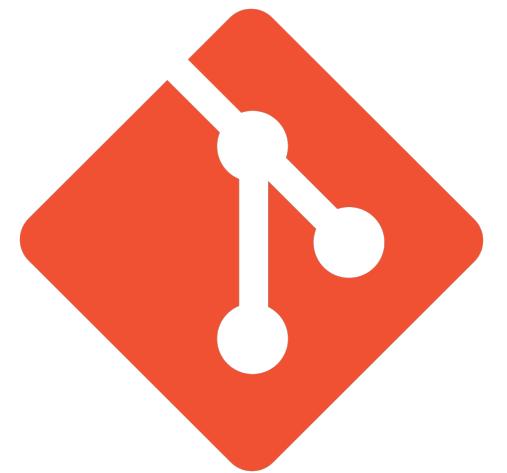
Add skier() 🎿
```

Oppsummering versjonskontroll



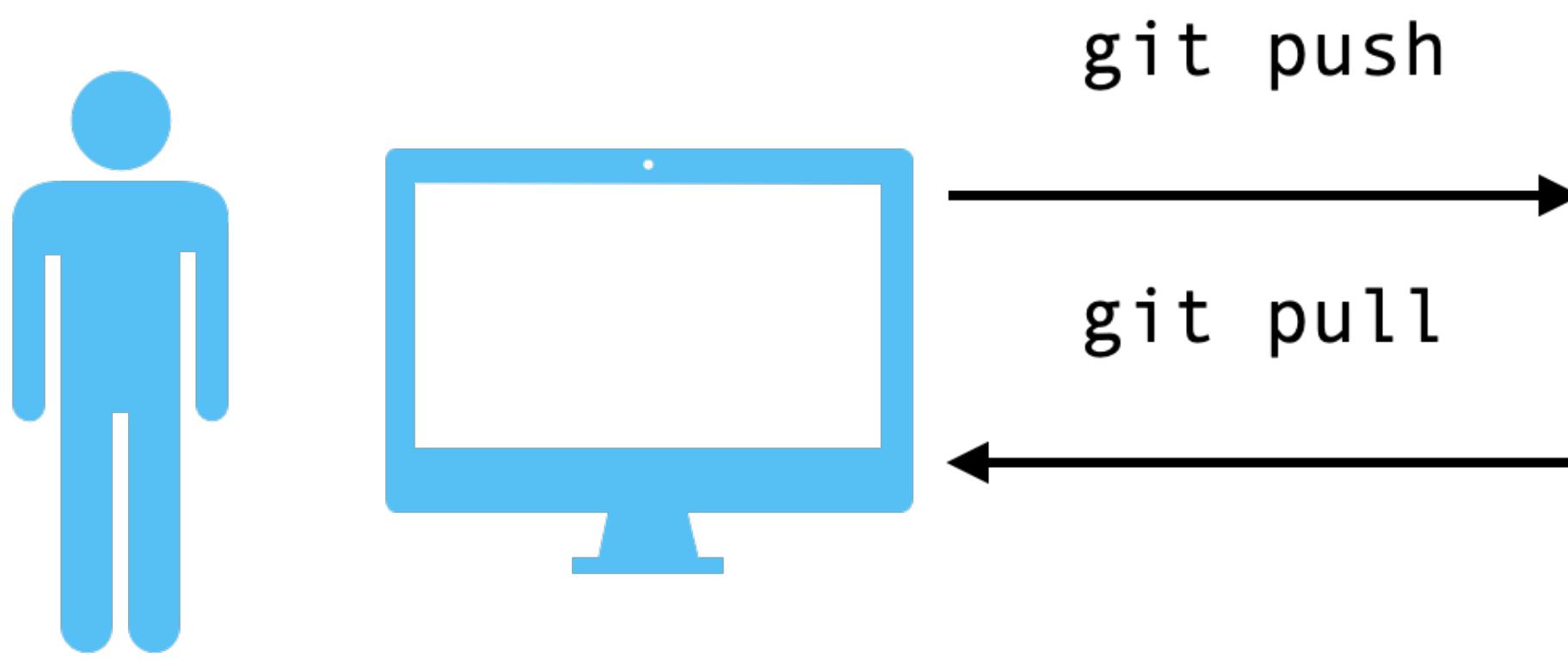
Kommandoer vi var innom

```
git init  
git status  
git add  
git commit  
git log  
git tag
```

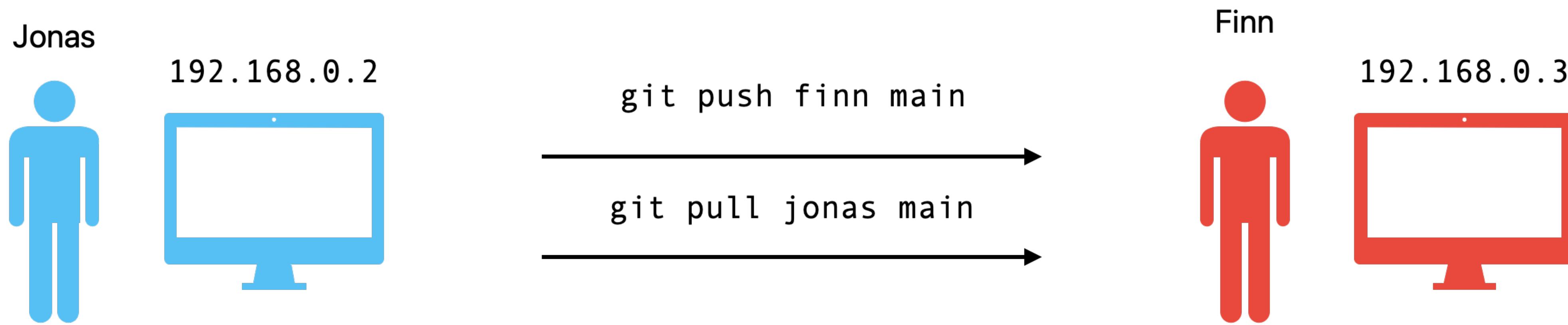


Del 2: Samarbeid

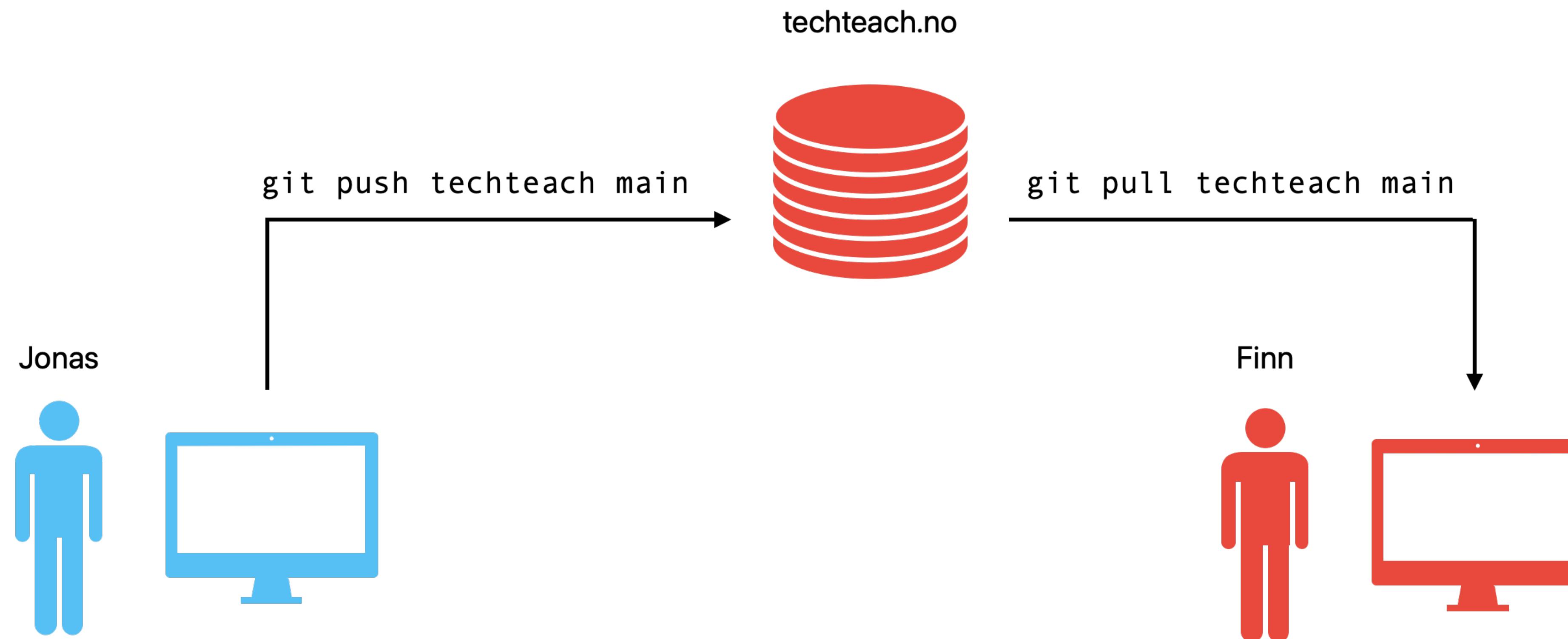
git push og pull



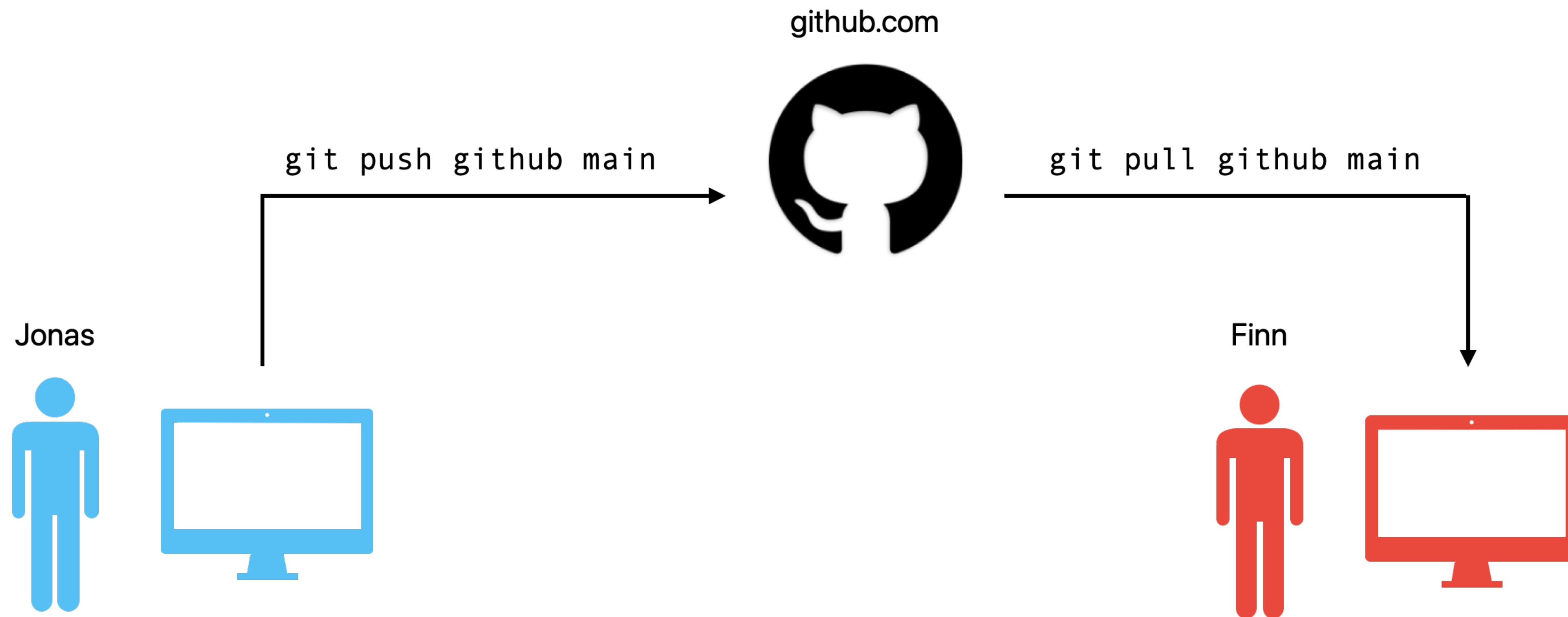
Direkte overføring



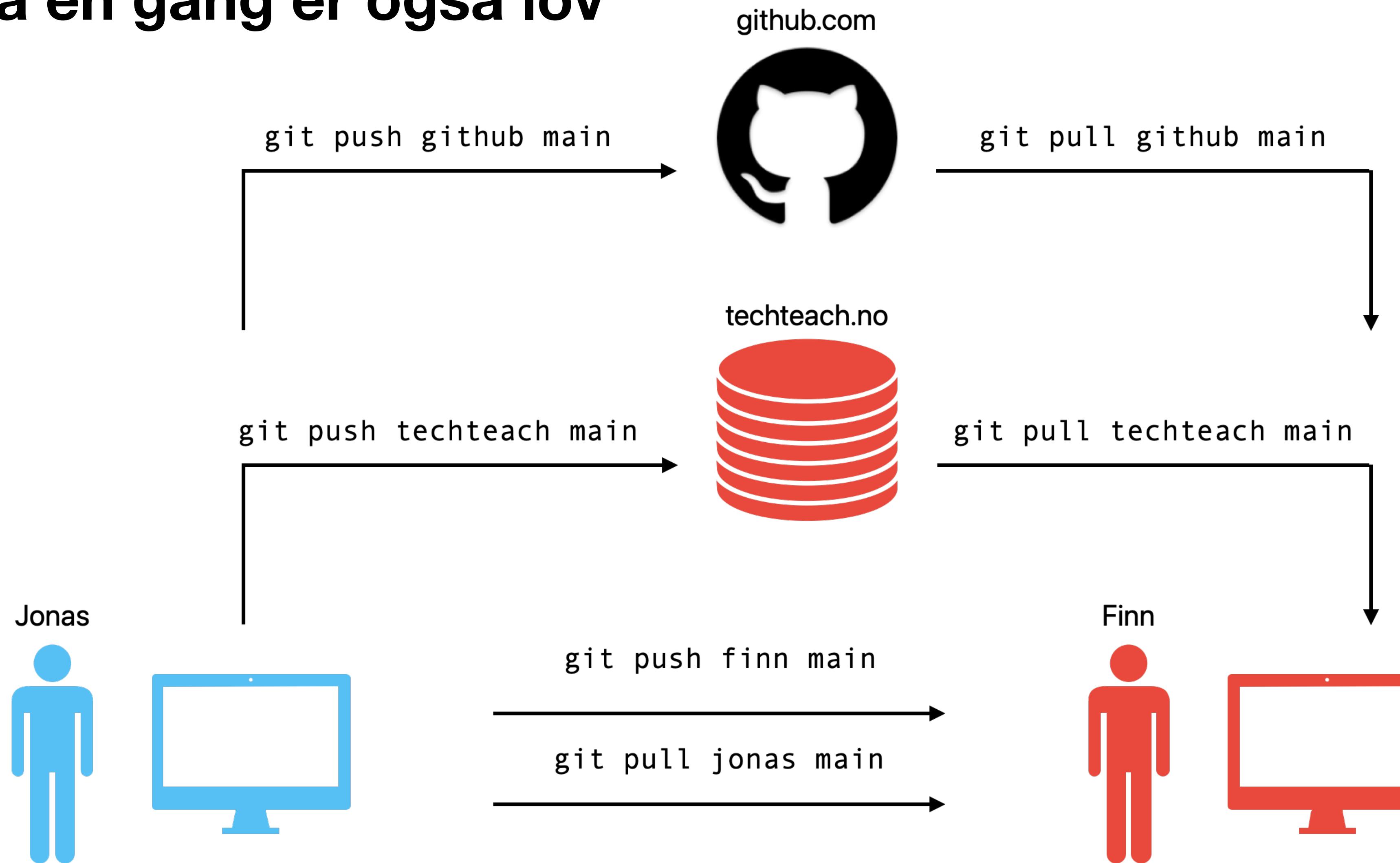
Overføring via egen server



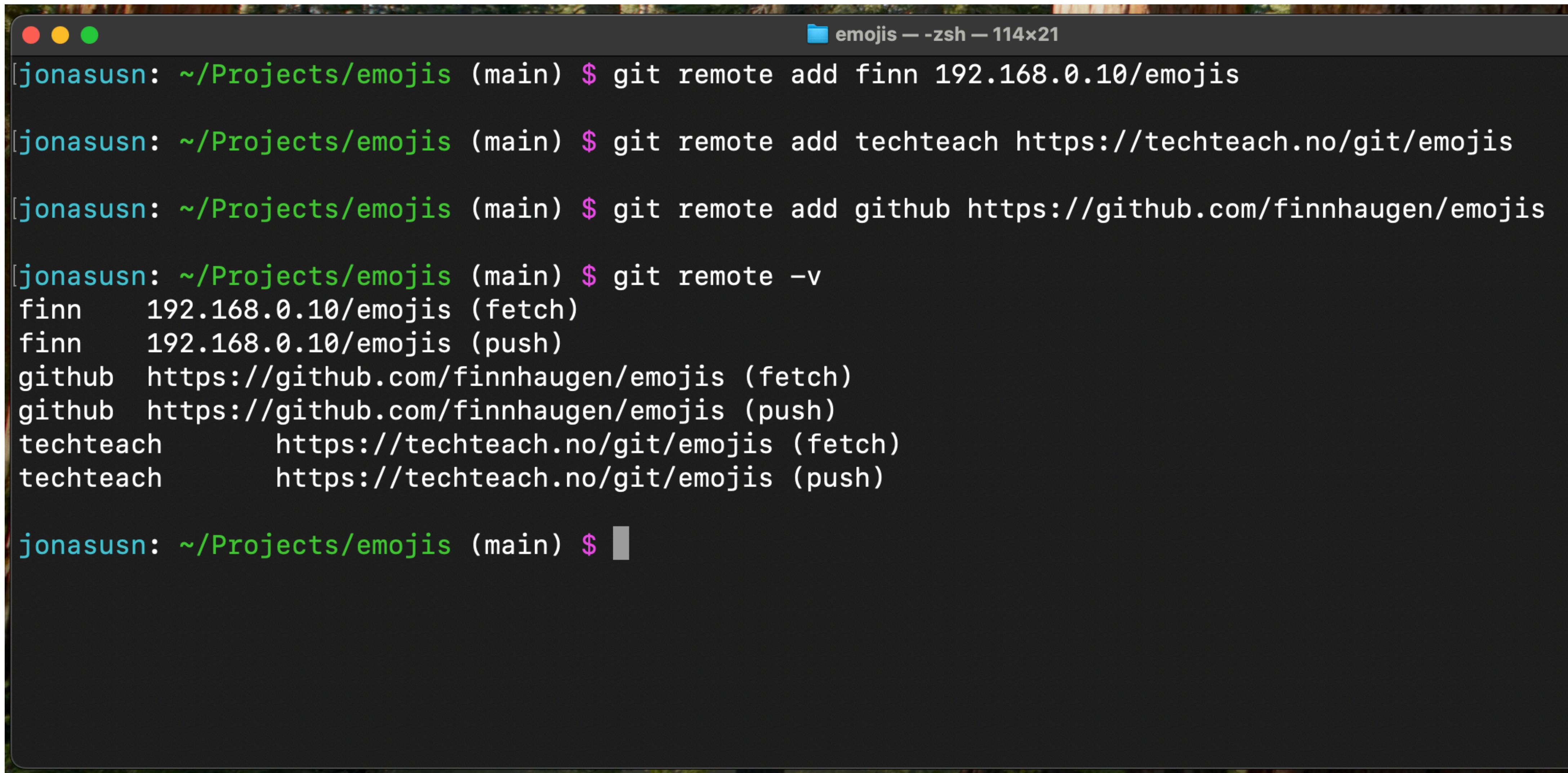
Overføring via tredjepart



Alt på en gang er også lov



git remote add



The screenshot shows a terminal window titled "emojis" running on a Mac OS X desktop. The window has three colored status icons (red, yellow, green) in the top-left corner. The title bar also displays the window name and its dimensions (114x21). The terminal's scroll bar is visible on the right side.

```
[jonasusn: ~/Projects/emojis (main) $ git remote add finn 192.168.0.10/emojis
[jonasusn: ~/Projects/emojis (main) $ git remote add techteach https://techteach.no/git/emojis
[jonasusn: ~/Projects/emojis (main) $ git remote add github https://github.com/finnhaugen/emojis
[jonasusn: ~/Projects/emojis (main) $ git remote -v
finn      192.168.0.10/emojis (fetch)
finn      192.168.0.10/emojis (push)
github    https://github.com/finnhaugen/emojis (fetch)
github    https://github.com/finnhaugen/emojis (push)
techteach      https://techteach.no/git/emojis (fetch)
techteach      https://techteach.no/git/emojis (push)
[jonasusn: ~/Projects/emojis (main) $ ]
```

git push

```
[jonasusn: ~/Projects/emojis (main) $ git remote add github git@github.com:Arxcis/emojis.git  
[jonasusn: ~/Projects/emojis (main) $ git remote -v  
github  git@github.com:Arxcis/emojis.git (fetch)  
github  git@github.com:Arxcis/emojis.git (push)
```

```
[jonasusn: ~/Projects/emojis (main) $ git push github main  
Enumerating objects: 3, done.  
Counting objects: 100% (3/3), done.  
Writing objects: 100% (3/3), 218 bytes | 218.00 KiB/s, done.  
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0  
To github.com:Arxcis/emojis.git  
 * [new branch]      main -> main
```

Oppsummering samarbeid

git push

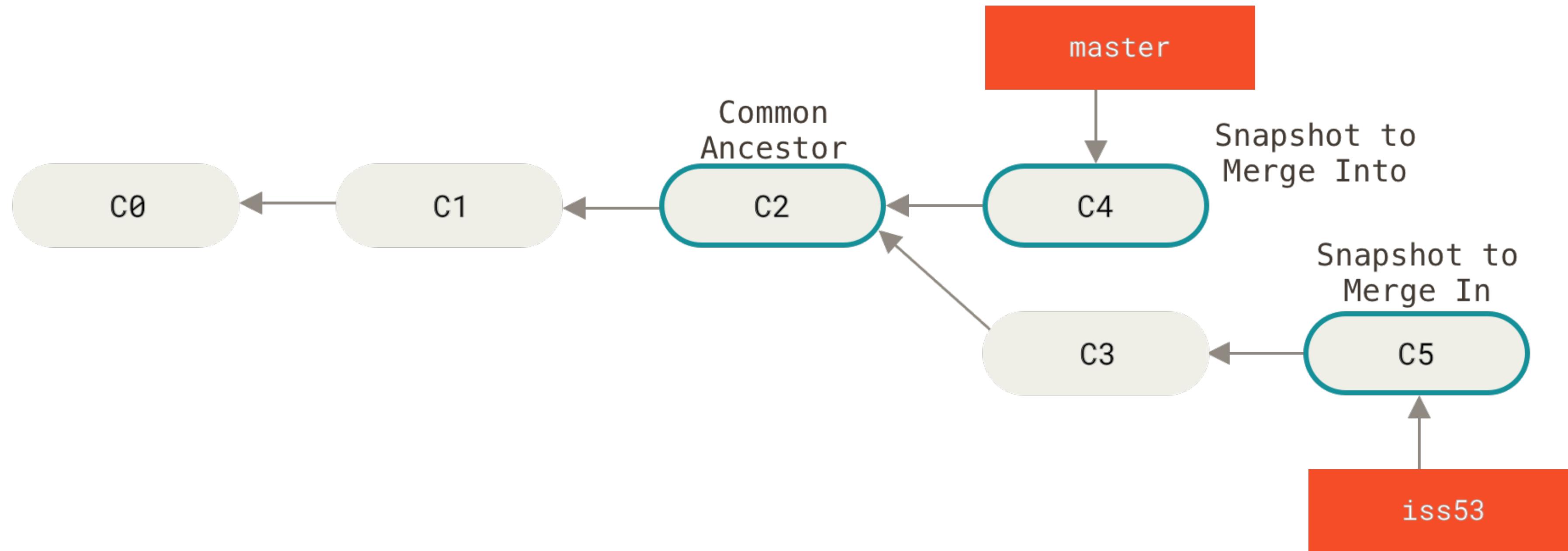
git pull

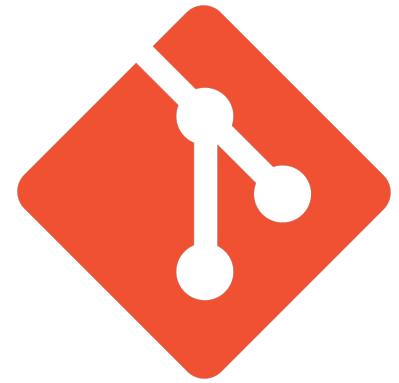
git remote

git clone

git branch

Det viktigste vi ikke rakk. Anbefales til selvstudie.





Takk for meg 

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

<https://www.youtube.com/watch?v=1y7Xd0kQtCE>