

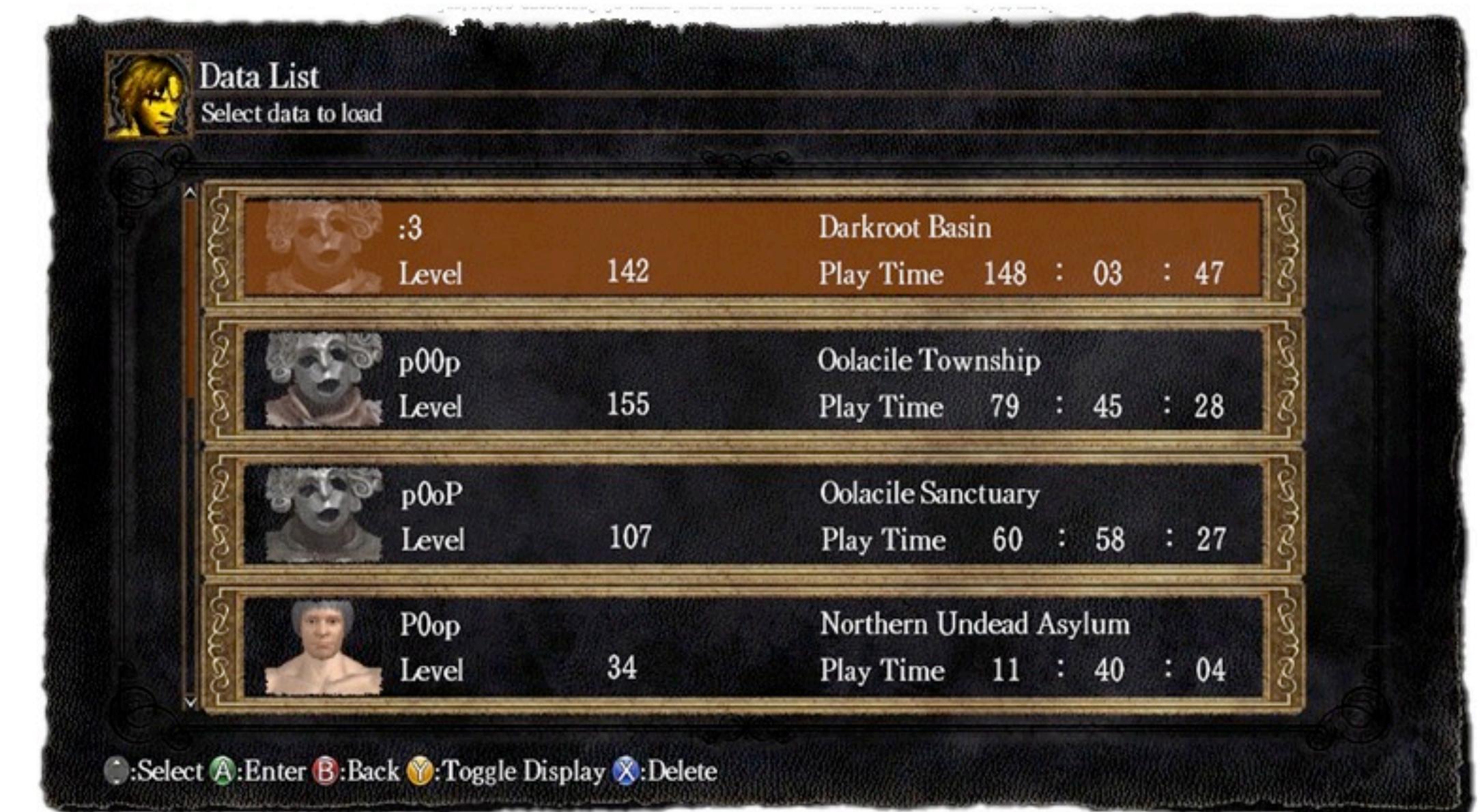
Git, GitHub & GitHub Desktop

Version Control, Collaboration & how to manage
your code projects

“Savegame” for programmører

Vi kender det fra et væld af spil:

- Vi gemmer når vi er færdige for i dag
- Vi gemmer når vi har vundet en kamp
- Vi gemmer lige før vi skal prøve noget særligt risikofyldt
- Vi gemmer når vi er tanket op på health



Og vi henter når det er gået galt for os



Git

Version Control System - A piece of Software.

A system that tracks all changes in your code and files.

GitHub

Cloud-based Hosting Service to host your Git Repositories (projects). Your repositories are stored on an online server.

GitHub uses git and helps people like you and me to collaborate on projects. On GitHub you can discover other users and repositories.

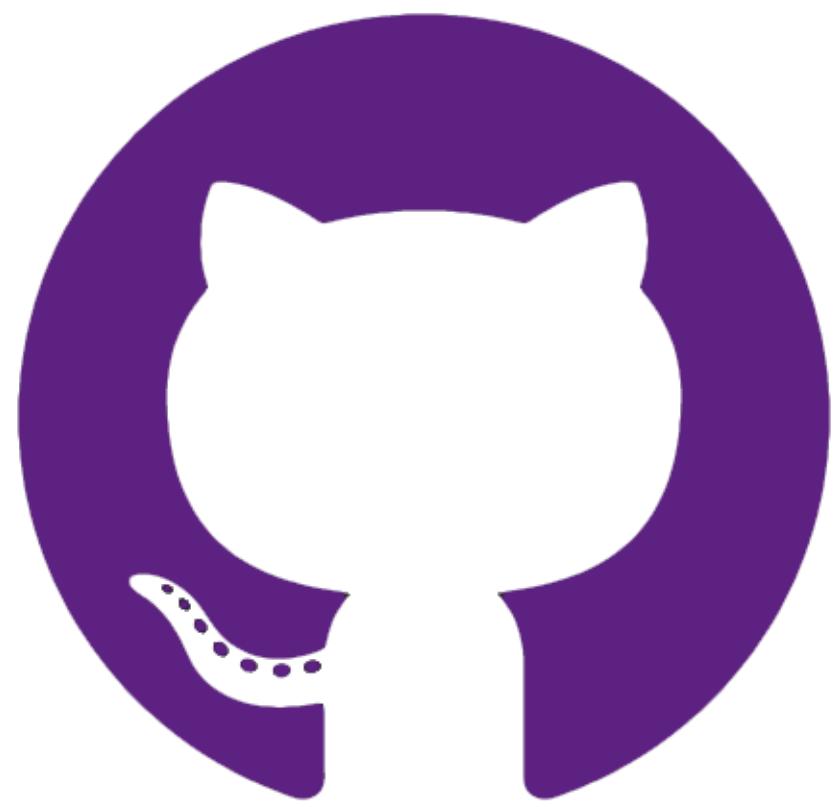
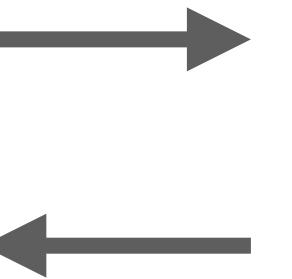
GitHub Desktop

An Application on your computer.

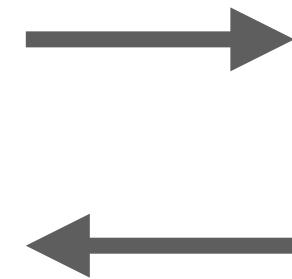
A GUI to manage your project with Git and GitHub. In other words, GitHub Desktop allows you to run Git and manage your projects in a desktop app with a graphical interface, instead of typing git commands.



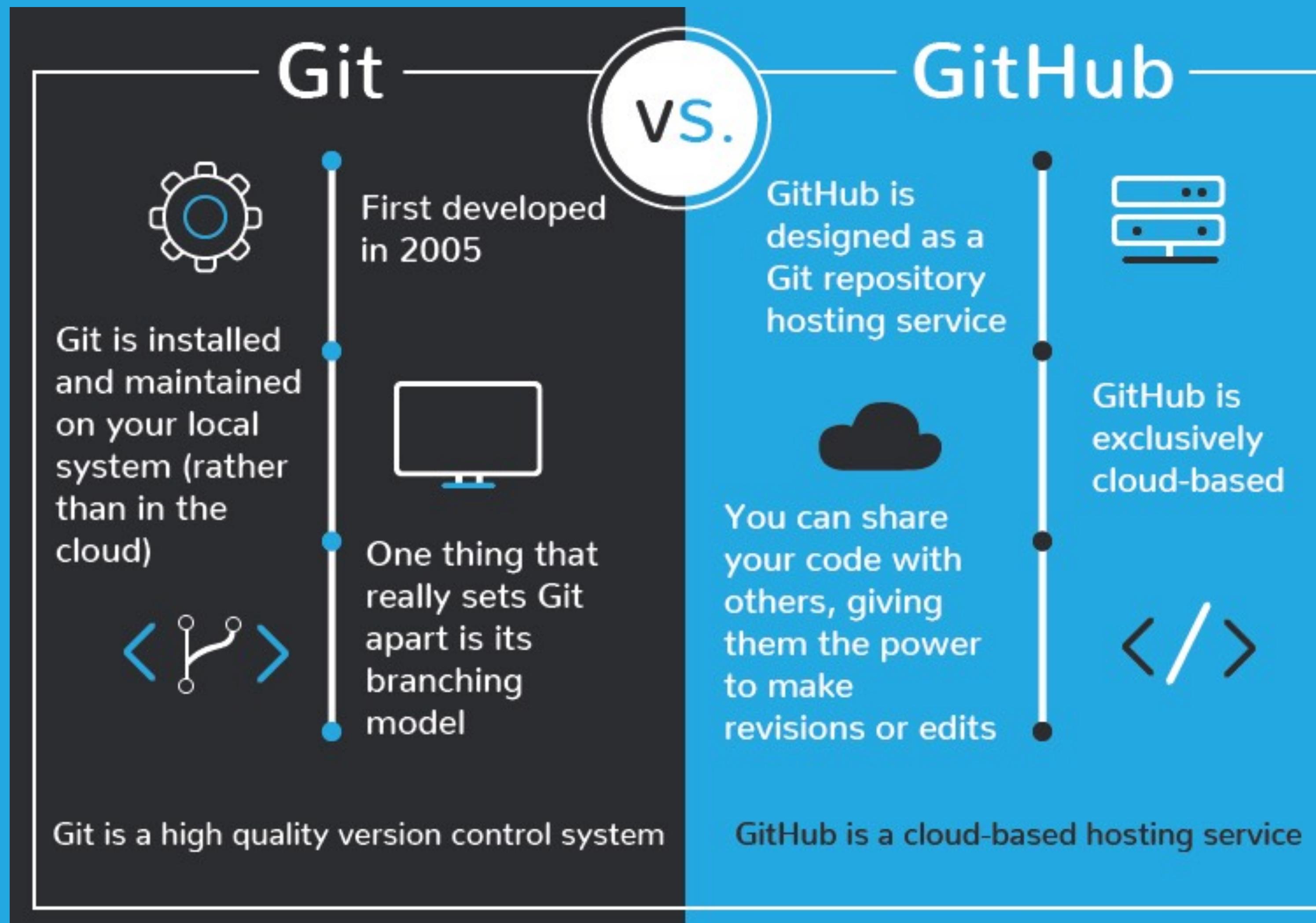
WEB PROJECT

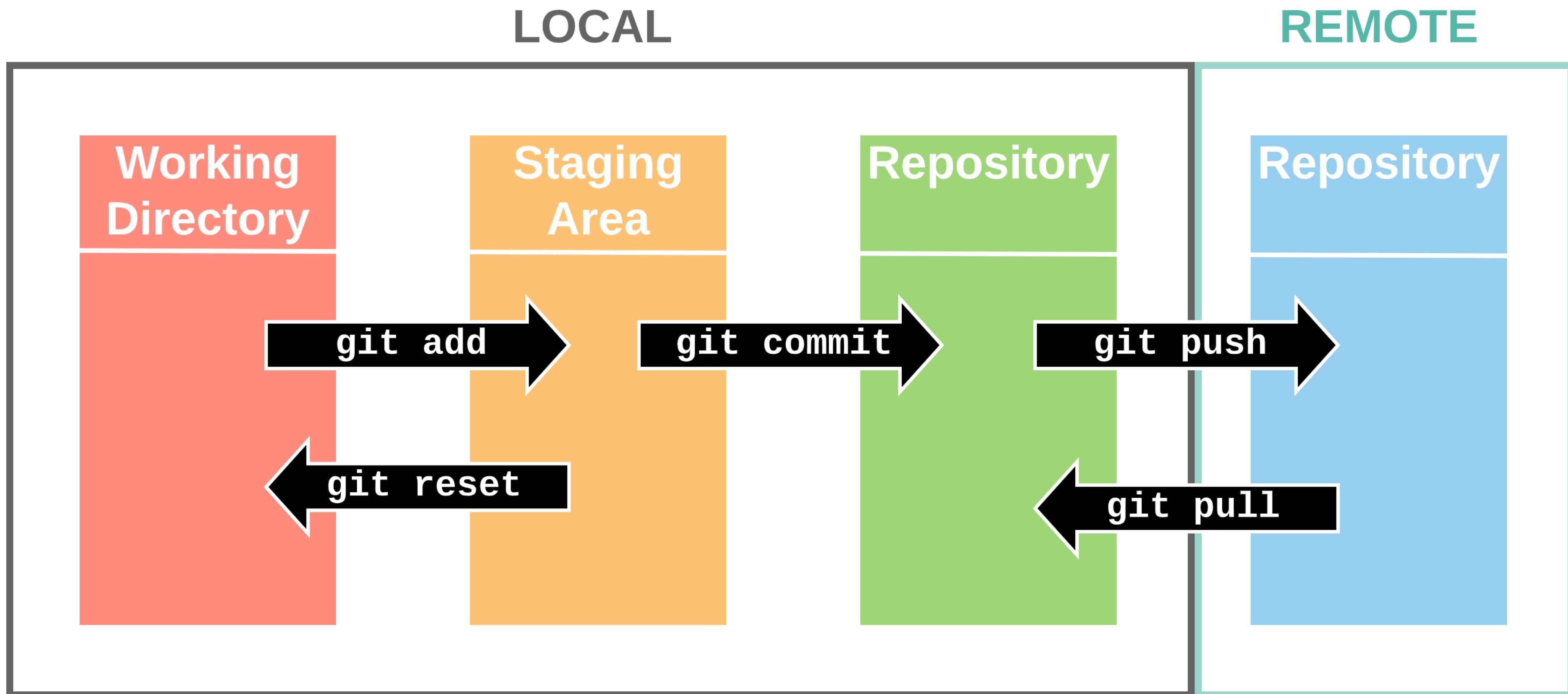


GITHUB DESKTOP
APP / GUI



GITHUB
SERVER WITH REPOSITORIES





Med egne ord

Hvad er Git? GitHub? GitHub Desktop?

Hvad er et repository?

Hvad betyder clone, fork, push og pull?

Git commands

```
git config  
git init  
git clone  
git status  
git log  
git add  
git reset  
git stash  
git commit  
git push  
git pull  
git branch  
git checkout  
git merge  
git fetch
```

```
mdu-e18front — less - git log — 80x24
Last login: Tue Oct 15 07:36:07 on console
[cederdorff@Rasmuss-MacBook-Air ~ % dev
[cederdorff@Rasmuss-MacBook-Air Developer % cd mdu-e18front
[cederdorff@Rasmuss-MacBook-Air mdu-e18front % atom .
[cederdorff@Rasmuss-MacBook-Air mdu-e18front % git status
On branch master
Your branch is up to date with 'origin/master'.

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

    chart_js_firebase_solution/

nothing added to commit but untracked files present (use "git add" to track)
[cederdorff@Rasmuss-MacBook-Air mdu-e18front % git log
commit d9aa6c14a9424ef31cd11e65ca4db929cb99134e (HEAD -> master, origin/master,
origin/HEAD)
Author: Rasmus Cederdorff <rasmus@cederdorff.com>
Date:   Tue Oct 15 10:01:12 2019 +0200

    Minor customisation of template functions and styling

commit 47d023d6fdddc3e8acab8144e835cd1e376e9a0e (origin/new-feature, new-feature
)
```

```
caelj@mac.local ~ $ mkdir repo
caelj@mac.local ~ $ cd repo
caelj@mac.local repo $ git init .
Initialized empty Git repository in /Users/caelj/repo/.git/
caelj@mac.local repo $ touch foo
caelj@mac.local repo $ git stage .
caelj@mac.local repo $ git commit -m "Epoch."
[master (root-commit) 9ed3c75] Epoch.
 0 files changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 foo
caelj@mac.local repo (master) $ git checkout -b some_feature_branch
Switched to a new branch 'some_feature_branch'
caelj@mac.local repo (some_feature_branch) $ git branch
  master
* some_feature_branch
caelj@mac.local repo (some_feature_branch) $ git checkout master
Switched to branch 'master'
caelj@mac.local repo (master) $
```

Current Repository: css-training-day Current Branch: main Fetch origin: Last fetched just now

Changes (2) History index.html

2 changed files

| | ... | @@ -6,6 +6,7 @@ |
|------------|---------|--|
| app.css | 6 6 | <meta http-equiv="X-UA-Compatible" content="IE=edge" /> |
| index.html | 7 7 | <meta name="viewport" content="width=device-width, initial-scale=1.0" /> |
| | 8 8 | <title>CSS Træningsbanen</title> |
| | 9 9 | + <link rel="stylesheet" href="app.css"> |
| | 10 10 | </head> |
| | 11 12 | <body> |

CSS file added and linked!

Description

Commit to main



Git as individual

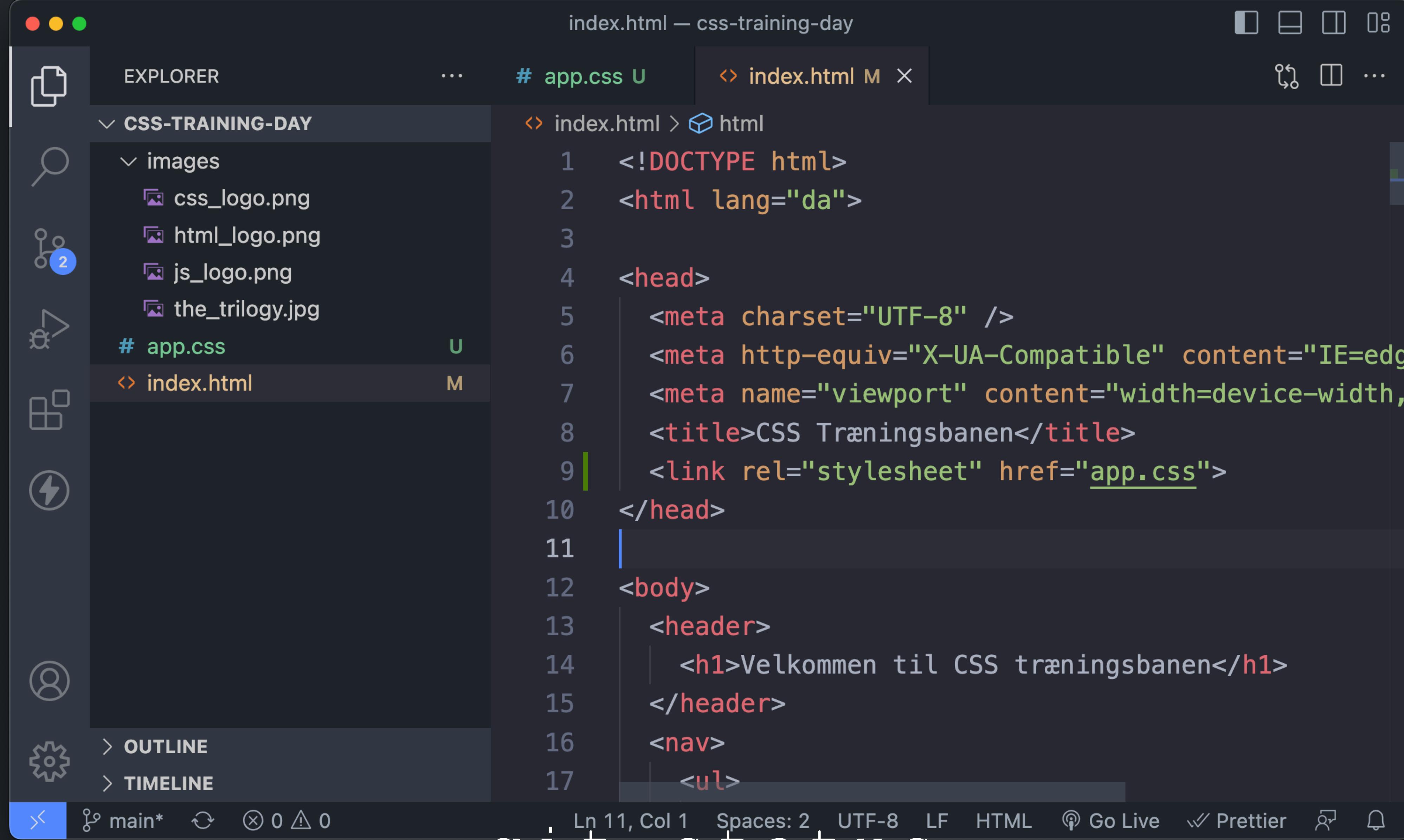
How to use Git and GitHub Desktop when you are working on your own project - as individual.

The screenshot shows a dark-themed Git commit interface. At the top, it displays the current repository as "css-training-day" and the current branch as "main". A "Fetch origin" button indicates the last fetch was 1 minute ago. Below this, there are two tabs: "Changes" (selected) and "History". The "Changes" tab shows "2 changed files": "app.css" and "index.html". The "index.html" file is open in the main editor area, showing the following diff:

```
@@ -6,6 +6,7 @@
 6   6 <meta http-equiv="X-UA-Compatible" content="IE=edge" />
 7   7 <meta name="viewport" content="width=device-width, initial-scale=1.0" />
 8   8 <title>CSS Træningsbanen</title>
 9 + 9 <link rel="stylesheet" href="app.css">
10  10 </head>
11  11 <body>
```

At the bottom, there is a summary section with a user icon, a "Summary (required)" field, a "Description" field containing a placeholder "R+", and a large blue "Commit to main" button.

git status



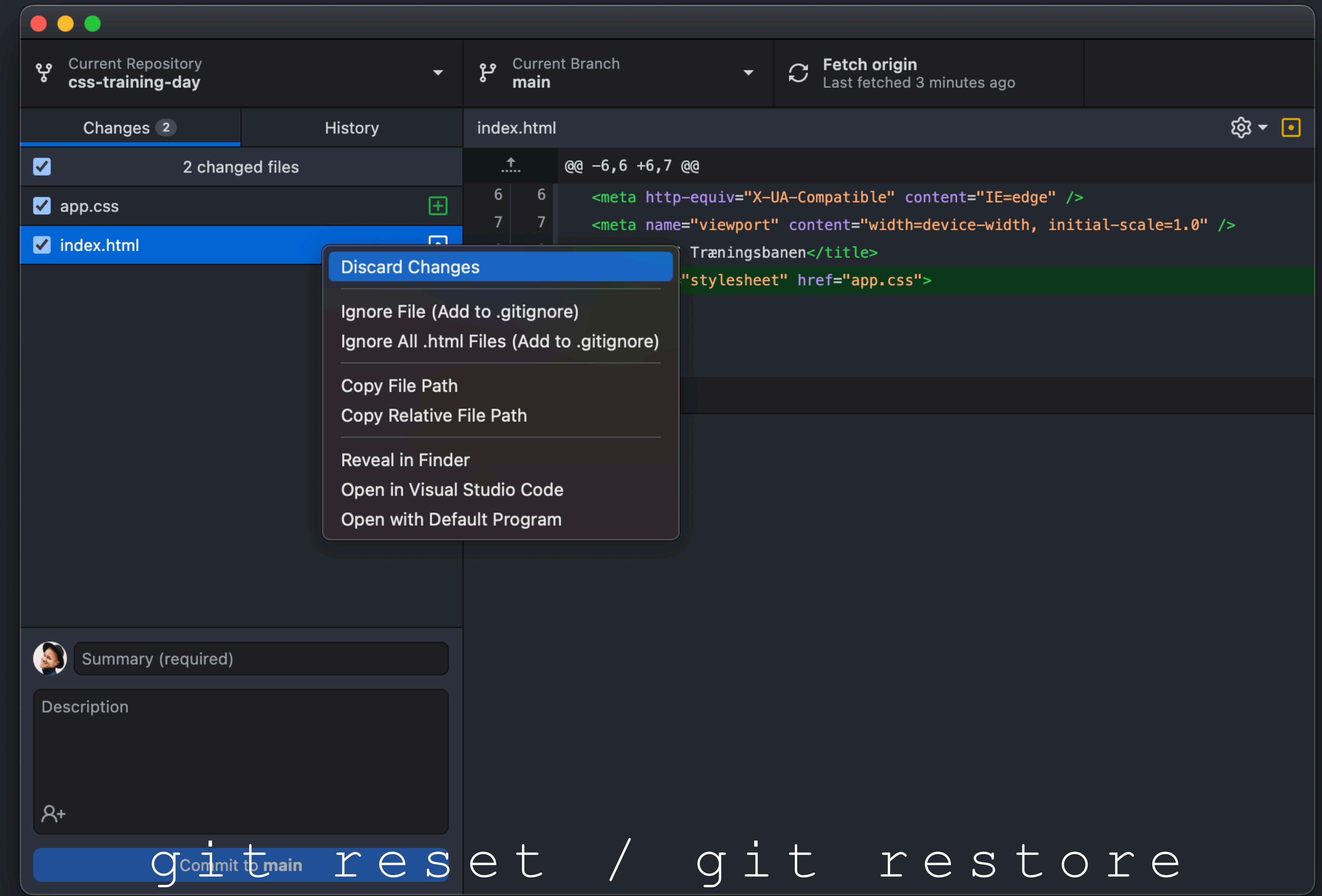
index.html — css-training-day

EXPLORER ... # app.css U <> index.html M X

<> index.html > html

```
1  <!DOCTYPE html>
2  <html lang="da">
3
4  <head>
5      <meta charset="UTF-8" />
6      <meta http-equiv="X-UA-Compatible" content="IE=edge" />
7      <meta name="viewport" content="width=device-width, initial-scale=1.0" />
8      <title>CSS Træningsbanen</title>
9      <link rel="stylesheet" href="app.css">
10     </head>
11
12     <body>
13         <header>
14             <h1>Velkommen til CSS træningsbanen</h1>
15         </header>
16         <nav>
17             <ul>
```

git status



Current Repository
mdu-e18front

Current Branch
master

Fetch origin
Last fetched 18 minutes ago

Changes 5 History

5 changed files

chart_js_firebase.
chart_js_firebase.
chart_js_firebase.
chart_js_firebase.
chart_js_firebase.

Discard 5 Selected Changes

- Ignore 5 Selected Files (Add to .gitignore)
- Ignore All .css Files (Add to .gitignore)
- Ignore All .png Files (Add to .gitignore)
- Ignore All .html Files (Add to .gitignore)
- Ignore All .js Files (Add to .gitignore)

Copy File Path
Reveal in Finder
Open in Atom
Open with Default Program

Summary (required)

Description

Commit to master

git reset / git restore

Current Repository **octo-repo**

Current Branch **branch-123** #41

Fetch origin
Last fetched 4 minutes ago

Changes • History

4 changed files

another-bad-idea.md

bad-idea.md

idea.rb

README.md

Current Repository **octo-repo**

Current Branch **branch-123** #41

Changes • History

4 changed files

another-bad-idea.md

bad-idea.md

idea.rb

README.md

Discard 2 Selected Changes...

Discard All Changes...

Ignore 2 selected files

Ignore All .md Files

Reveal in Finder

Open in Atom

Open with Default Program

The screenshot shows a dark-themed Git commit interface. At the top, it displays the current repository as "css-training-day" and the current branch as "main". A "Fetch origin" status bar indicates it was last fetched 1 minute ago. Below this, there are two tabs: "Changes" (which is selected) and "History". The "Changes" tab shows two changed files: "app.css" and "index.html". The "index.html" file is currently being edited.

The code editor shows the following diff:

```
@@ -6,6 +6,7 @@
 6   6 <meta http-equiv="X-UA-Compatible" content="IE=edge" />
 7   7 <meta name="viewport" content="width=device-width, initial-scale=1.0" />
 8   8 <title>CSS Træningsbanen</title>
 9 + 9 + <link rel="stylesheet" href="app.css">
10  10 </head>
11  11
12  12 <body>
```

At the bottom left, there is a summary section with a user icon, the text "Summary (required)", and a "Commit to main" button. There is also a "Description" field and a "R+" button.

git status -> git add

git add

The screenshot shows a GitHub commit interface. At the top, it displays the current repository as "mdu-e18front" and the current branch as "master". It also shows the last fetch from the origin was 17 hours ago. The main area is titled "Changes 8" and lists eight changed files. The file "main.css" is selected, showing its content in a diff view. The content of main.css includes CSS rules for html, h1, and h2 elements, along with a canvas selector. Below the file list, there is a summary section with a user profile picture, a "Summary (required)" field, a "Description" field, and a "Commit to master" button.

Current Repository
mdu-e18front

Current Branch
master

Fetch origin
Last fetched 17 hours ago

Changes 8

8 changed files

chart_js_firebase_solution/css/main.css

chart_js_firebase_solution/img/favicon.png

chart_js_firebase_solution/index.html

chart_js_firebase_solution/js.firebaseio_config.js

chart_js_firebase_solution/js/main.js

chart_js_firebase_template/css/main.css

chart_js_firebase_template/index.html

chart_js_firebase_template/js/main.js

chart_js_firebase_solution/css/main.css

```
@@ -0,0 +1,33 @@
1  +* {
2  +  line-height: 1.2;
3  +  margin: 0;
4  +
5  +
6  +html {
7  +  color: #333;
8  +  display: table;
9  +  font-family: Helvetica, Arial, sans-serif;
10 + height: 100%;
11 + text-align: center;
12 + width: 100%;
13 + font-weight: 200;
14 +
15 +
16 +h1 {
17 +  font-size: 2em;
18 +  font-weight: 300;
19 +  letter-spacing: 3px;
20 +  margin: 1em 0;
21 +
22 +
23 +h2 {
24 +  font-size: 1.8em;
25 +  font-weight: 300;
26 +  letter-spacing: 3px;
27 +  margin: 2.5em 0 1em;
28 +
29 +
30 +canvas {
31 +  max-width: 80%;
32 +  margin: 2em auto;
33 +} @*
```

Summary (required)

Description

Commit to master

The screenshot shows a dark-themed Git commit interface. At the top, it displays the current repository as "css-training-day" and the current branch as "main". A "Fetch origin" button indicates the last fetch was just now. Below this, there are two tabs: "Changes" (which is selected) and "History". The "Changes" tab shows "2 changed files": "app.css" and "index.html". The "index.html" file is open in the main editor area, showing the following diff:

```
@@ -6,6 +6,7 @@
 6   6 <meta http-equiv="X-UA-Compatible" content="IE=edge" />
 7   7 <meta name="viewport" content="width=device-width, initial-scale=1.0" />
 8   8 <title>CSS Træningsbanen</title>
 9 + 9 <link rel="stylesheet" href="app.css">
10  10 </head>
11  11 <body>
```

Below the editor, a message box shows a profile icon and the text "CSS file added and linked.". There is a "Description" field with a placeholder "R+" and a "Commit to main" button at the bottom.

git add -> message

Current Repository: mdu-e18front | Current Branch: master | Fetch origin: Last fetched 17 hours ago

Changes (8) | History | chart_js_firebase_template/js/main.js

8 changed files

| chart_js_firebase_solution/css/main.css | [+] | 14 14 @@ -14,16 +14,29 @@ _dataRef.where('region', '==', 'north').orderBy("year").onSnapshot(function(snap { |
|--|-----|--|
| chart_js_firebase_solution/img/favicon.png | [+] | 15 15 } appendCows(_sustainabilityData); // call appendCows with _sustainabilityData as function argument |
| chart_js_firebase_solution/index.html | [+] | 16 16 appendCarbonFootprint(_sustainabilityData); //call appendCarbonFootprint with _sustainabilityData as function argument |
| chart_js_firebase_solution/js/firebase_config.js | [+] | 17 17 + appendMilkProduction(_sustainabilityData); //call appendMilkProduction with _sustainabilityData as function argument |
| chart_js_firebase_solution/js/main.js | [+] | 18 18 }); |
| chart_js_firebase_template/css/main.css | [●] | 19 20 function appendCows(sustainabilityData) { |
| chart_js_firebase_template/index.html | [●] | 20 21 console.log(sustainabilityData); |
| chart_js_firebase_template/js/main.js | [●] | 21 22 // TODO: prepare data for the chart |
| | | 22 23 // TODO: create the chart with options |
| | | 23 24 + let chart = document.querySelector('#cows'); |
| | | 24 25 + // let myDoughnutChart = new Chart(chart, {...} |
| | | 25 26 } |
| | | 26 27 |
| | | 27 28 function appendCarbonFootprint(sustainabilityData) { |
| | | 28 29 console.log(sustainabilityData); |
| | | 29 30 // TODO: prepare data for the chart |
| | | 30 31 // TODO: create the chart with options |
| | | 31 32 + let chart = document.querySelector('#carbonFootprint'); |
| | | 32 33 + // let myDoughnutChart = new Chart(chart, {...} |
| | | 33 34 +} |
| | | 34 35 + |
| | | 35 36 +function appendMilkProduction(sustainabilityData) { |
| | | 36 37 + console.log(sustainabilityData); |
| | | 37 38 + // TODO: prepare data for the chart |
| | | 38 39 + // TODO: create the chart with options |
| | | 39 40 + let chart = document.querySelector('#milkProduction'); |
| | | 40 41 + // let myDoughnutChart = new Chart(chart, {...} |
| | | 41 42 } }@* |

Minor customisation of template functions and styling

Description

Commit to master

git add
git commit

Commit messages ...

| | COMMENT | DATE |
|---|------------------------------------|--------------|
| O | CREATED MAIN LOOP & TIMING CONTROL | 14 HOURS AGO |
| O | ENABLED CONFIG FILE PARSING | 9 HOURS AGO |
| O | MISC BUGFIXES | 5 HOURS AGO |
| O | CODE ADDITIONS/EDITS | 4 HOURS AGO |
| O | MORE CODE | 4 HOURS AGO |
| O | HERE HAVE CODE | 4 HOURS AGO |
| O | AAAAAAA | 3 HOURS AGO |
| O | ADKFJSLKDFJSOKLFJ | 3 HOURS AGO |
| O | MY HANDS ARE TYPING WORDS | 2 HOURS AGO |
| O | HAAAAAAAAANDS | 2 HOURS AGO |

AS A PROJECT DRAGS ON, MY GIT COMMIT MESSAGES GET LESS AND LESS INFORMATIVE.

Commit your changed

git commit: Snapshot of your repository. Contains the changed files and a message. Commits are “saving points” making it possible to keep track of code changes and go back “in history”.

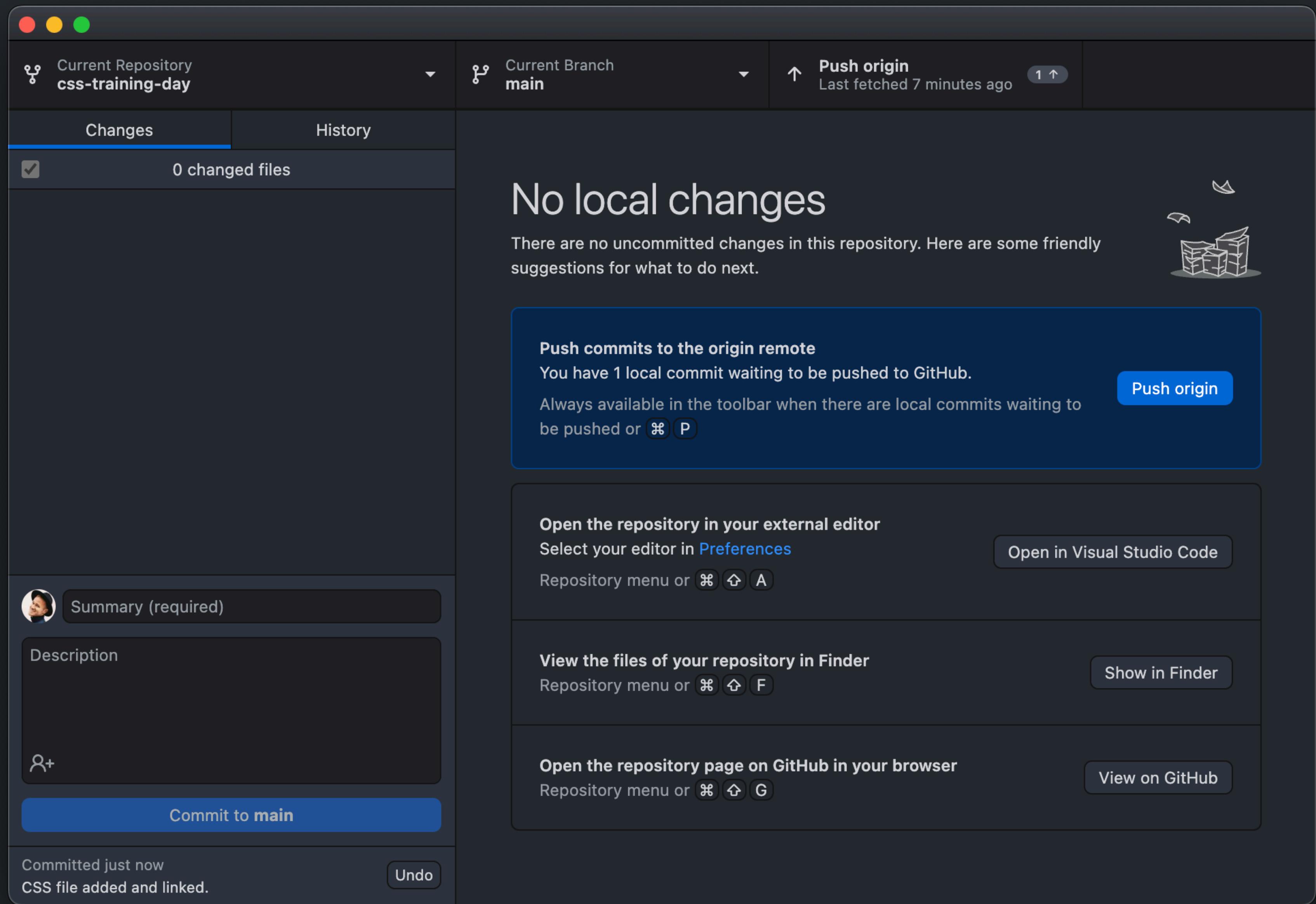
Se punkt 8 i Opret et nyt projekt med GitHub Desktop

The screenshot shows a dark-themed Git commit interface. At the top, it displays the current repository as "css-training-day" and the current branch as "main". A "Fetch origin" status indicates it was last fetched 2 minutes ago. Below this, there are two tabs: "Changes 2" (selected) and "History". The "Changes 2" tab lists two changed files: "app.css" and "index.html". The "index.html" file is shown in a diff viewer with the following content:

```
@@ -6,6 +6,7 @@
 6   6     <meta http-equiv="X-UA-Compatible" content="IE=edge" />
 7   7     <meta name="viewport" content="width=device-width, initial-scale=1.0" />
 8   8     <title>CSS Träningsbanen</title>
 9 + 9     + <link rel="stylesheet" href="app.css">
10  10    </head>
11  11
12  12  <body>
```

A message bubble at the bottom left says "CSS file added and linked." A blue box highlights the "Commit to main" button.

git commit

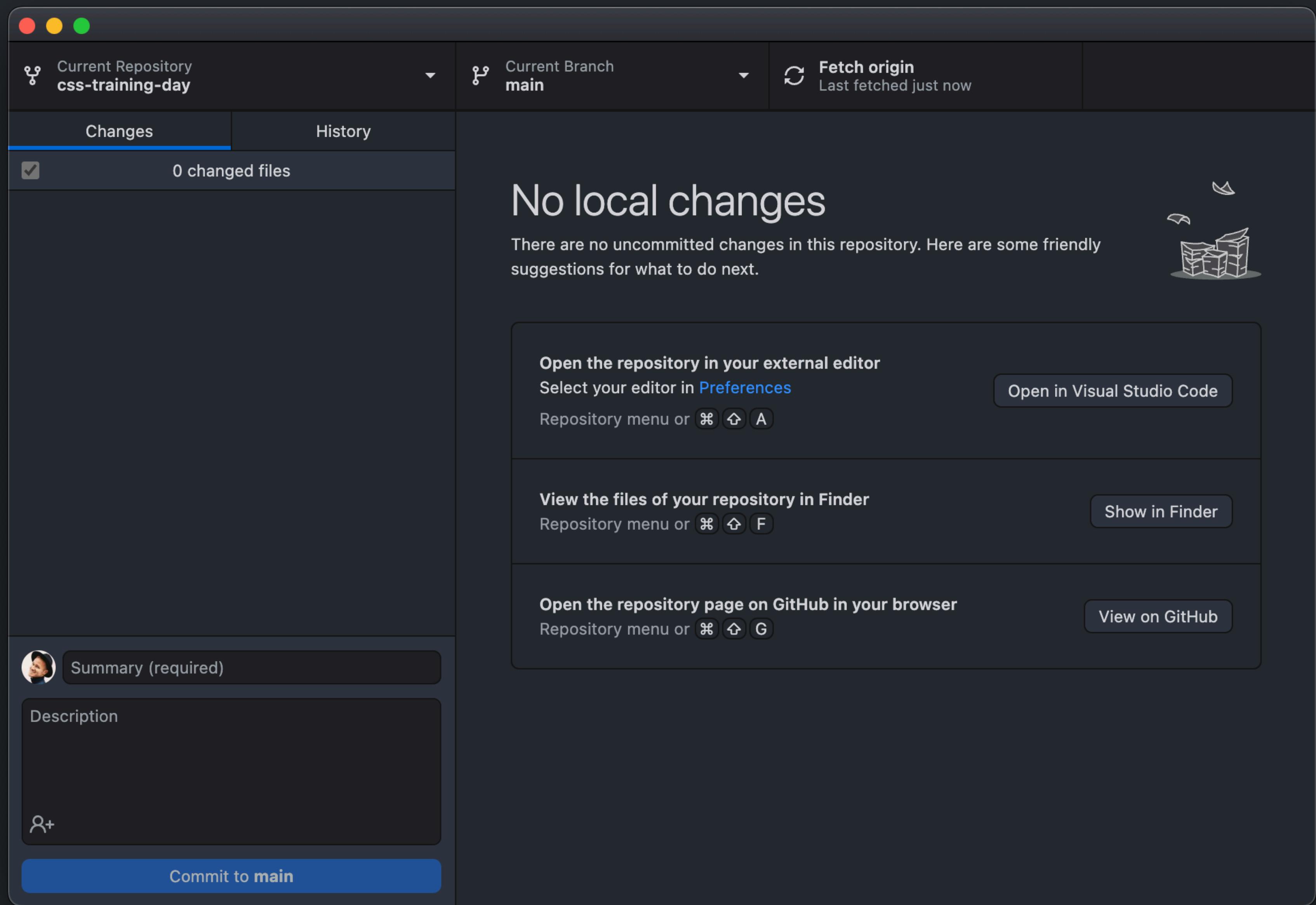


git commit -> git push

Push your commit

git push: Uploads (pushes) your local commits to the remote repository - pushes your (local) commits to your repository on GitHub (online).

Se punkt 8 i Opret et nyt projekt med GitHub Desktop



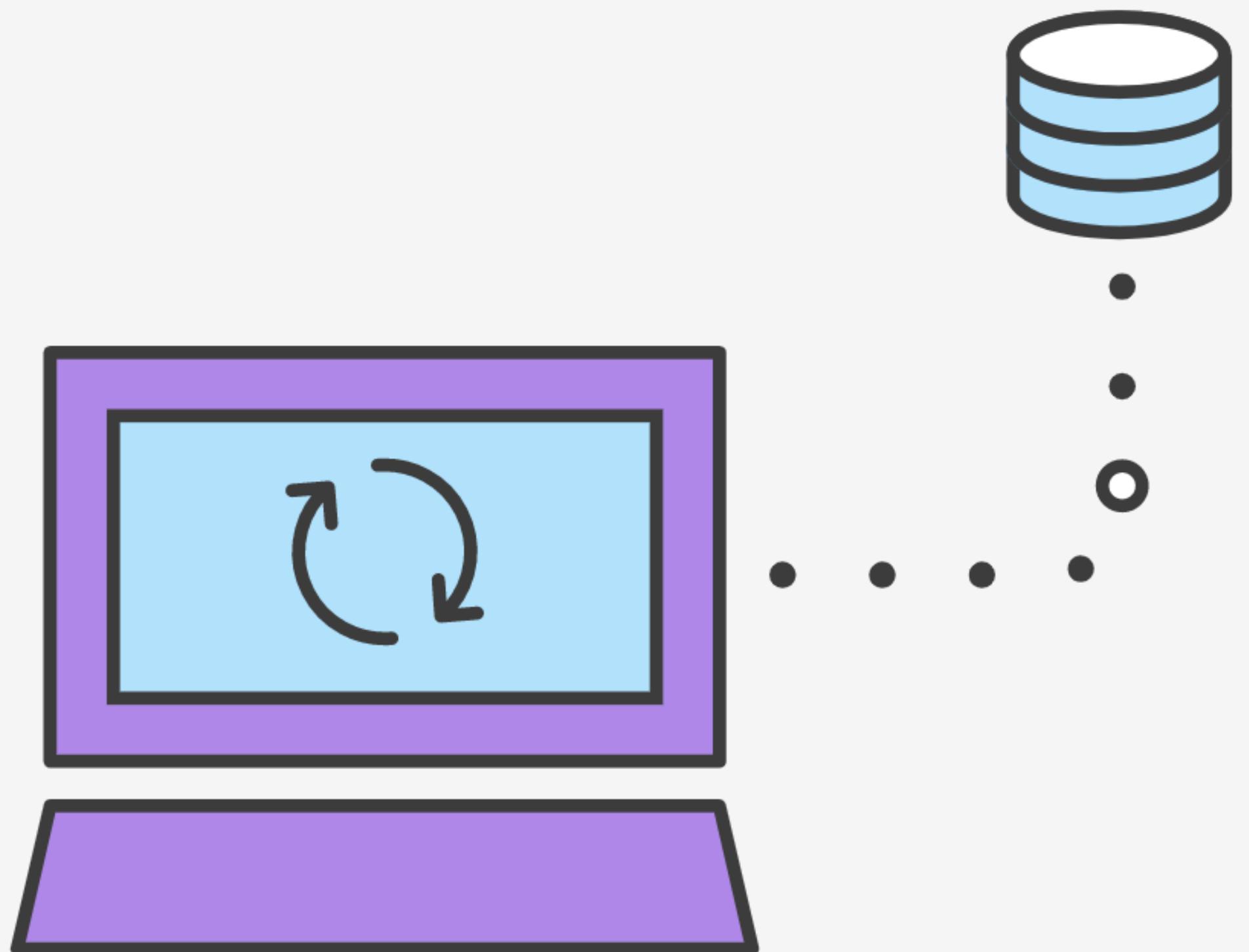
git push (done)

CONTINUOUSLY

git add

git commit

git push
**to make sure it's
on GitHub (online)**



The screenshot shows a dark-themed Git commit history interface. At the top, there are three dropdown menus: 'Current Repository' set to 'css-training-day', 'Current Branch' set to 'main', and 'Fetch origin' which says 'Last fetched just now'. Below these are two tabs: 'Changes' and 'History', with 'History' being the active tab. A button 'Select Branch to Compare...' is also present. The main area displays a list of commits:

- CSS file added and linked.** by Rasmus Cederdorff · 8 minutes ago
- Update index.html** by Rasmus Cederdorff · 25 minutes ago
- tilføjet fonte og farver tekst** by peterlinddk · 10 hours ago
- images and basic HTML** by peterlinddk · 21 hours ago

On the right side, a detailed view of the first commit ('CSS file added and linked.') is shown. It's a merge commit ('bf1f897') between 'main' and 'app.css'. The commit message is 'CSS file added and linked.' and it was made by Rasmus Cederdorff. The commit details show changes in 'index.html':

| Line | Line | Change | Text |
|------|------|-----------------|--|
| 6 | 6 | @@ -6,6 +6,7 @@ | <meta http-equiv="X-UA-Compatible" content="IE=edge" /> |
| 7 | 7 | | <meta name="viewport" content="width=device-width, initial-scale=1.0" /> |
| 8 | 8 | | <title>CSS Træningsbanen</title> |
| 9 | 9 | + | <link rel="stylesheet" href="app.css"> |
| 9 | 10 | | </head> |
| 10 | 11 | | |
| 11 | 12 | | <body> |

git log (history)

The screenshot shows a dark-themed Git commit history interface. At the top, there are three dropdown menus: 'Current Repository' set to 'css-training-day', 'Current Branch' set to 'main', and 'Fetch origin' indicating it was last fetched 2 minutes ago. Below these are two tabs: 'Changes' and 'History', with 'History' being the active tab. A button 'Select Branch to Compare...' is present. The main area displays a list of commits:

- Update index.html** by Rasmus Cederdorff · eb879cf · 9 minutes ago · 1 changed file +142 -123
- CSS file added and linked.** by Rasmus Cederdorff · 26 minutes ago
- tilføjet fonte og farver tekst** by peterlinddk · 10 hours ago
- images and basic HTML** by peterlinddk · 21 hours ago

A context menu is open over the first commit ('Update index.html') with the following options:

- Revert Changes in Commit
- Create Branch from Commit
- Create Tag...
- Cherry-pick Commit...
- Copy SHA
- Copy Tag
- View on GitHub

The commit details for 'Update index.html' are shown on the right, comparing changes between lines 1 and 20. The changes are as follows:

| Line | Change | Text |
|------|--|------------------|
| 1 | <!DOCTYPE html> | <!DOCTYPE html> |
| 2 | <html lang="da"> | <html lang="da"> |
| 3 | - <head> | |
| 4 | - <meta charset="UTF-8" /> | |
| 5 | - <meta http-equiv="X-UA-Compatible" content="IE=edge" /> | |
| 6 | - <meta name="viewport" content="width=device-width, initial-scale=1.0" /> | |
| 7 | - <title>CSS Træningsbanen</title> | |
| 8 | - </head> | |
| 9 | - <body> | |
| 10 | - <header> | |
| 11 | - <h1>Velkommen til CSS træningsbanen</h1> | |
| 12 | - </header> | |
| 13 | - <nav> | |
| 14 | - | |
| 15 | - Om CSS | |
| 16 | - Selektorer | |
| 17 | - Properties | |
| 18 | - Box-modellen | |
| 19 | - Enheder | |
| 20 | - Fonte og Farver | |

git revert -> to previous commit

Git Revert | Atlassian Git Tutorial +

atlassian.com/git/tutorials/undoing-changes/git-revert

Tutorials

Q

Git Revert

git checkout / git clean / git revert / git reset / git rm

The `git revert` command can be considered an 'undo' type command, however, it is not a traditional undo operation. Instead of removing the commit from the project history, it figures out how to invert the changes introduced by the commit and appends a new commit with the resulting inverse content. This

Current Repository
mdu-f19front

Current Branch
master

Pull origin
Last fetched just now

Changes History

0 changed files

No local changes

There are no uncommitted changes in this repository. Here are some friendly suggestions for what to do next.

Pull 1 commit from the origin remote
The current branch (`master`) has a commit on GitHub that does not exist on your machine.

Pull origin

Always available in the toolbar when there are remote changes or `⌘ ⌘ P`

Open the repository in your external editor
Select your editor in Preferences

Open in Visual Studio Code

Repository menu or `⌘ ⌘ A`

View the files of your repository in Finder
Repository menu or `⌘ ⌘ F`

Show in Finder

Open the repository page on GitHub in your browser
Repository menu or `⌘ ⌘ G`

View on GitHub

Summary (required)

Description

Commit to master

git pull

Current Repository
drs-corporatesite

Current Branch
master

Fetch origin
Last fetched 3 minutes ago

Changes

History

0 changed files

No local changes

There are no uncommitted changes in this repository. Here are some friendly suggestions for what to do next.



Open the repository in your external editor

Select your editor in [Preferences](#)

Repository menu or ⌘ ⌘ A

Open in Atom

View the files of your repository in Finder

Repository menu or ⌘ ⌘ F

Show in Finder

Open the repository page on GitHub in your browser

Repository menu or ⌘ ⌘ G

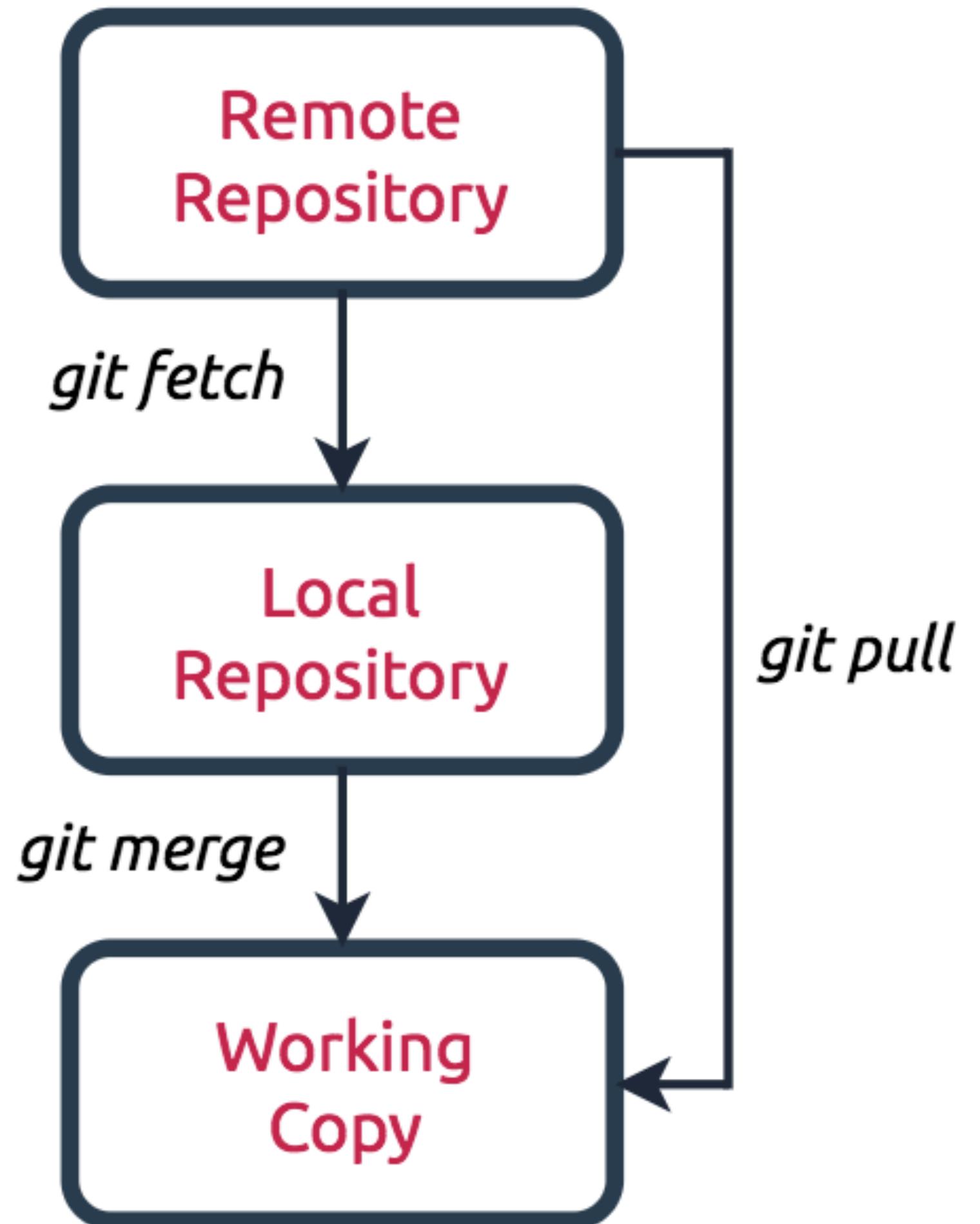
View on GitHub

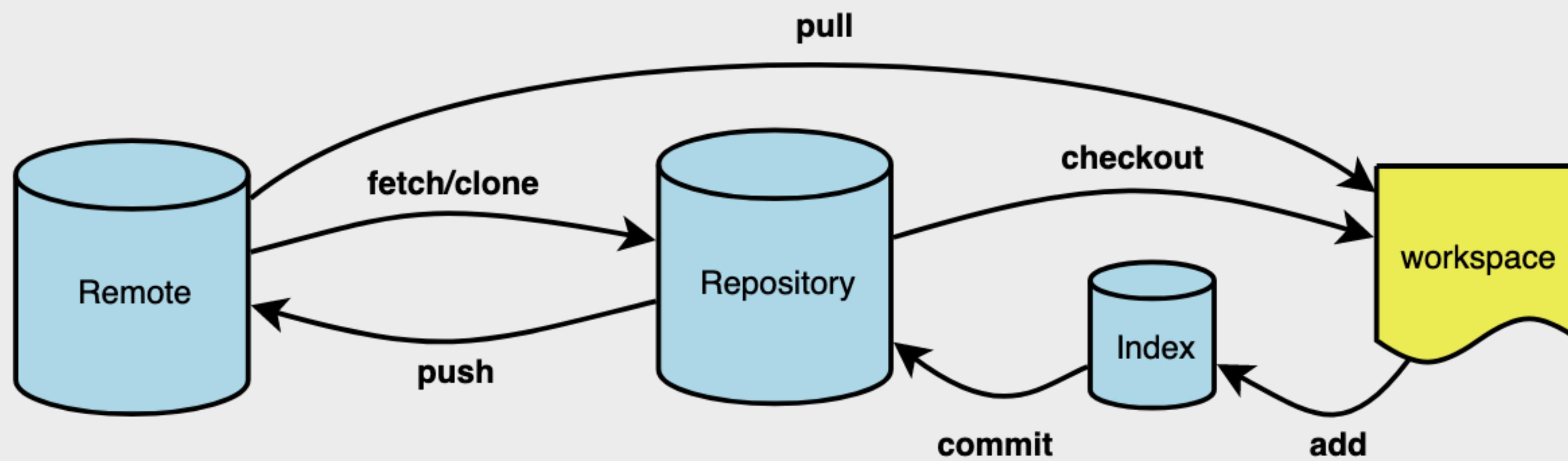
Summary (required)

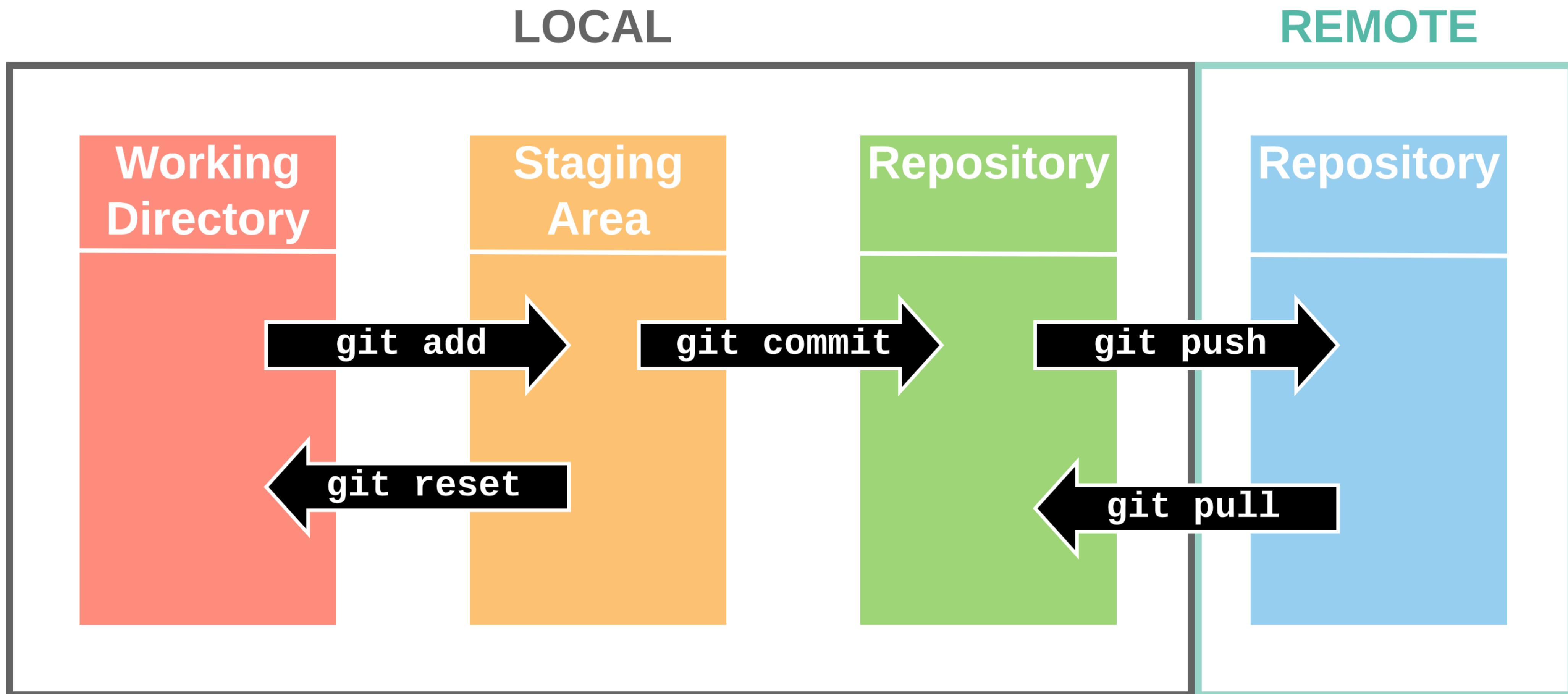
Description

Commit to master

git fetch







Tips & recommendations

Make clean & small commits

Commit early and often

Meaningful commit messages

Commit messages ...

| | COMMENT | DATE |
|---|------------------------------------|--------------|
| O | CREATED MAIN LOOP & TIMING CONTROL | 14 HOURS AGO |
| O | ENABLED CONFIG FILE PARSING | 9 HOURS AGO |
| O | MISC BUGFIXES | 5 HOURS AGO |
| O | CODE ADDITIONS/EDITS | 4 HOURS AGO |
| O | MORE CODE | 4 HOURS AGO |
| O | HERE HAVE CODE | 4 HOURS AGO |
| O | AAAAAAA | 3 HOURS AGO |
| O | ADKFJSLKDFJSOKLFJ | 3 HOURS AGO |
| O | MY HANDS ARE TYPING WORDS | 2 HOURS AGO |
| O | HAAAAAAAAANDS | 2 HOURS AGO |

AS A PROJECT DRAGS ON, MY GIT COMMIT MESSAGES GET LESS AND LESS INFORMATIVE.

Almindeligt arbejdsflow – når tingene virker

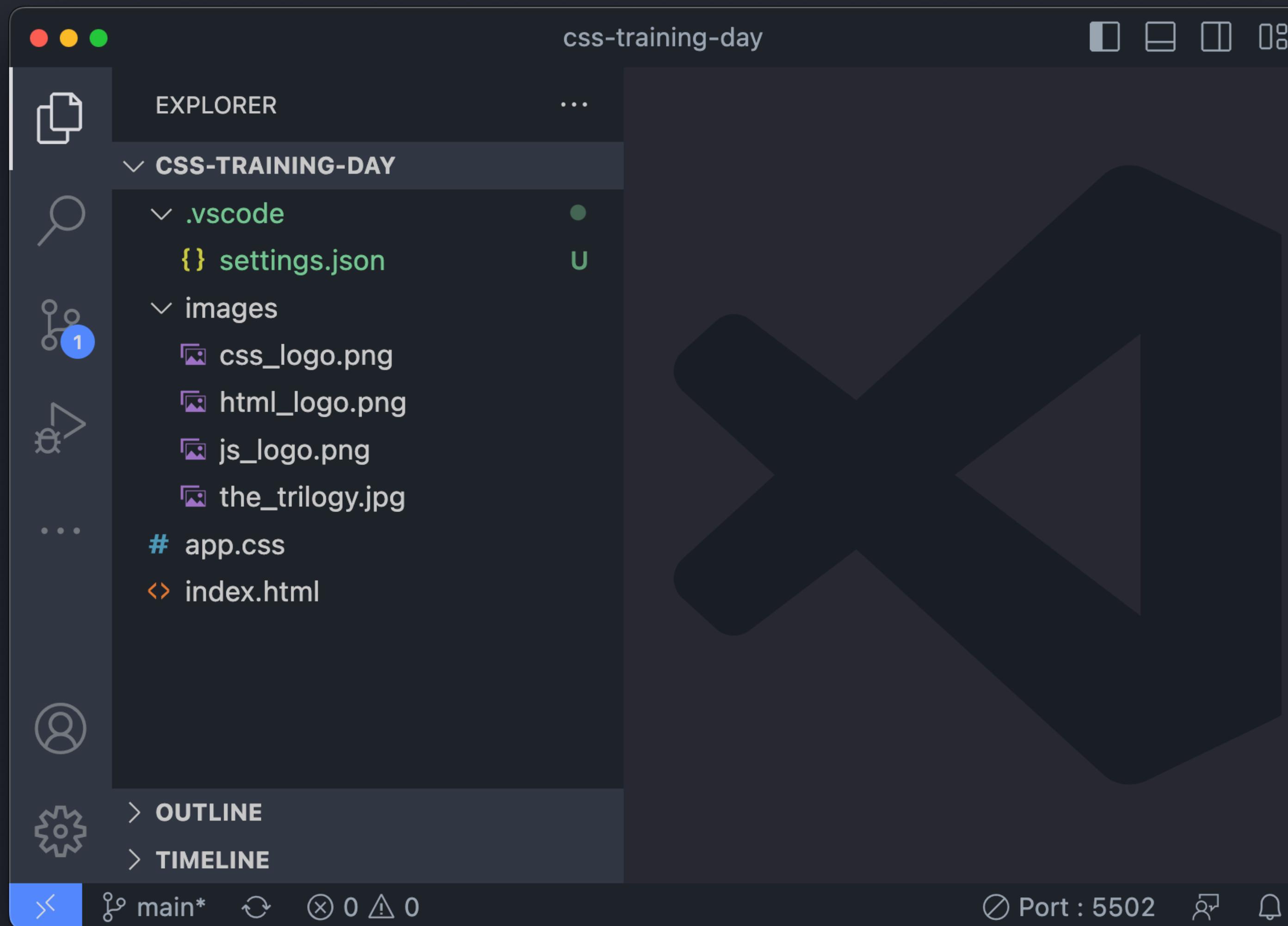
1. Kode-kode-kode
2. Test – Yes! Det virker!
3. git add de filer der er ændret - marker dem du vil have med i et commit
4. git commit med en kommentar om hvad der nu virker
5. Og gentag fra punkt 1
6. ... og så skal du pushe en gang i mellem

USE THE HISTORY &
CHANGES VIEW IN GITHUB
DESKTOP

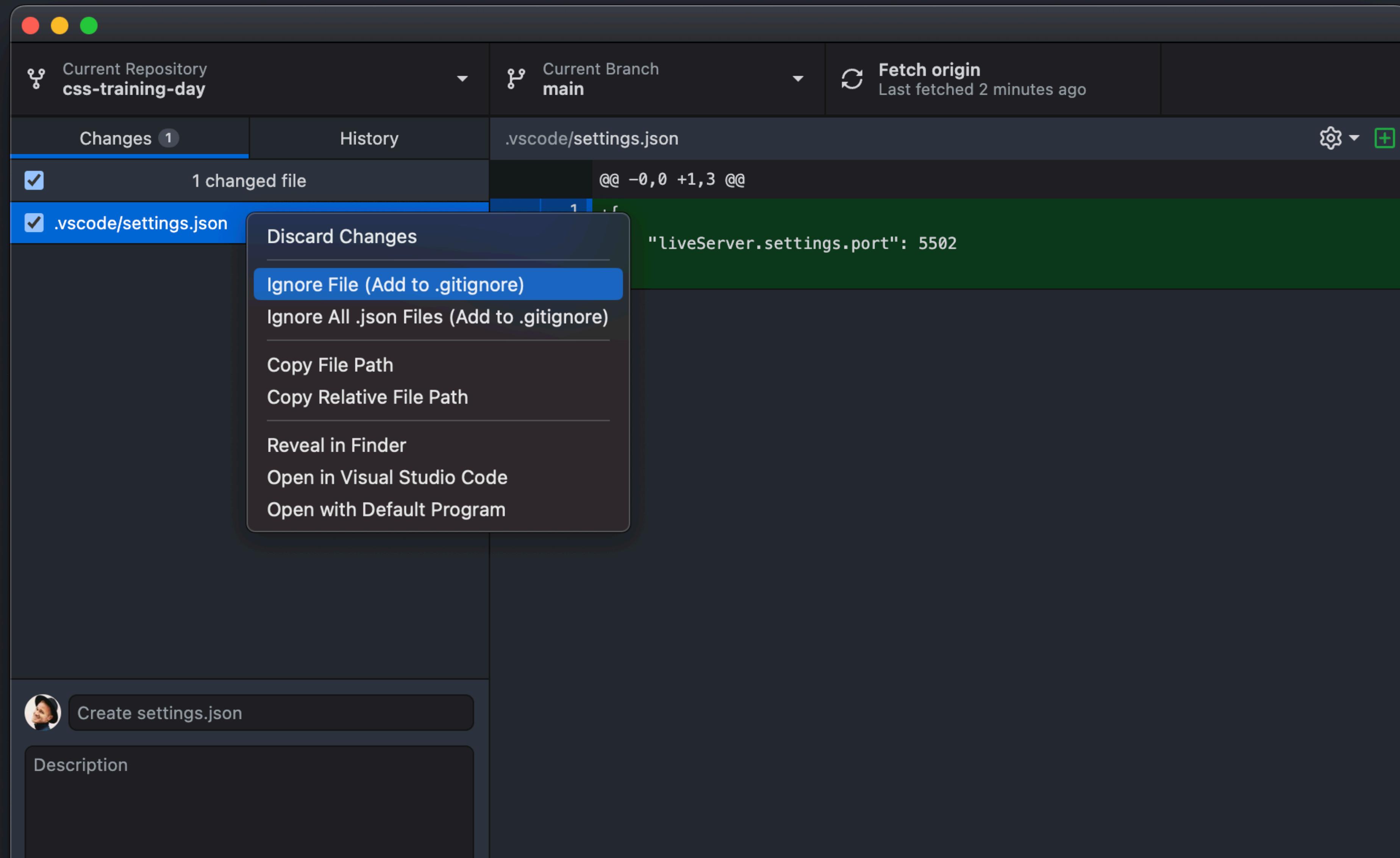
.gitignore

a part of git that ignores specific files and folders

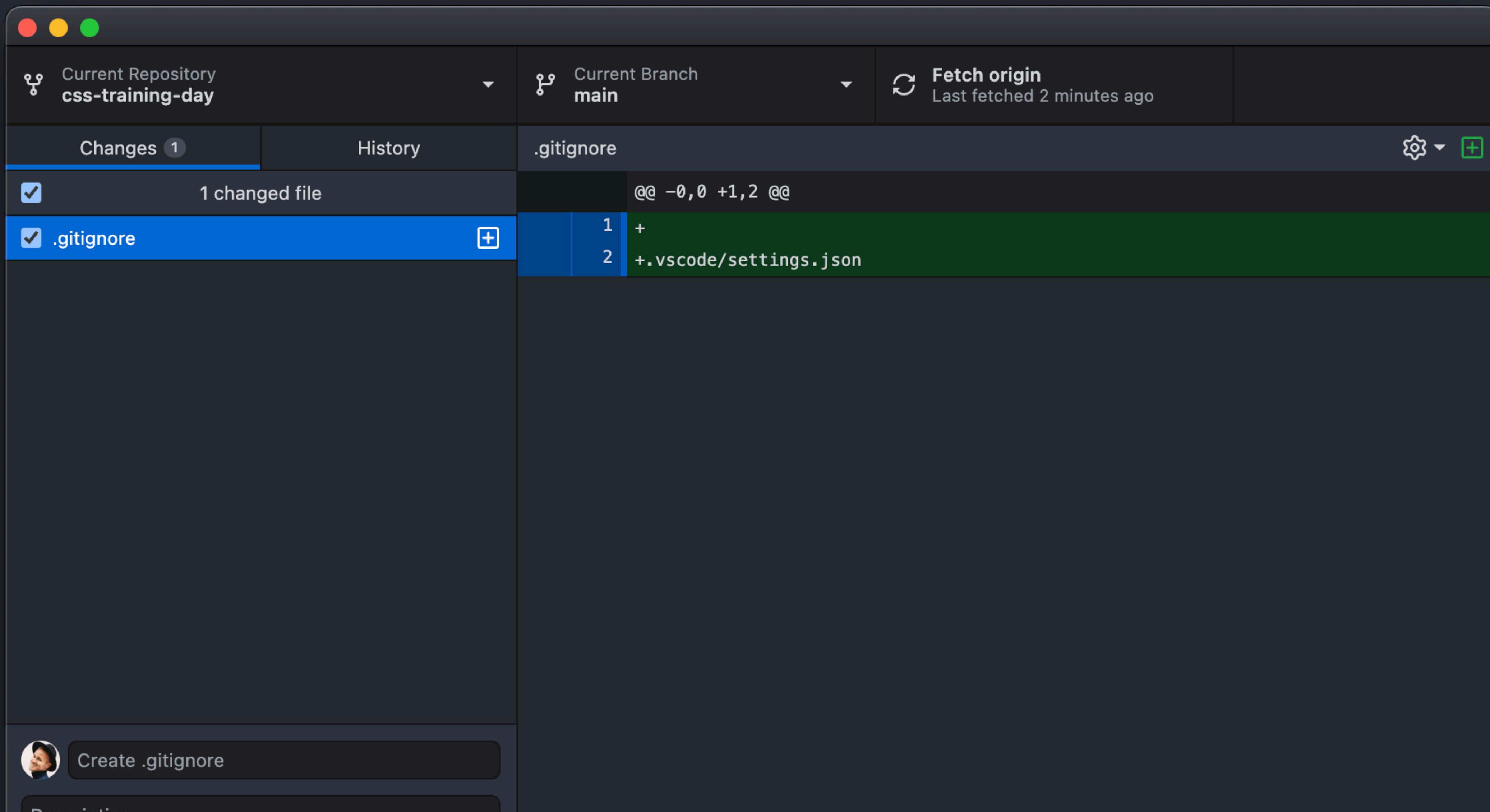
Files you want to ignore



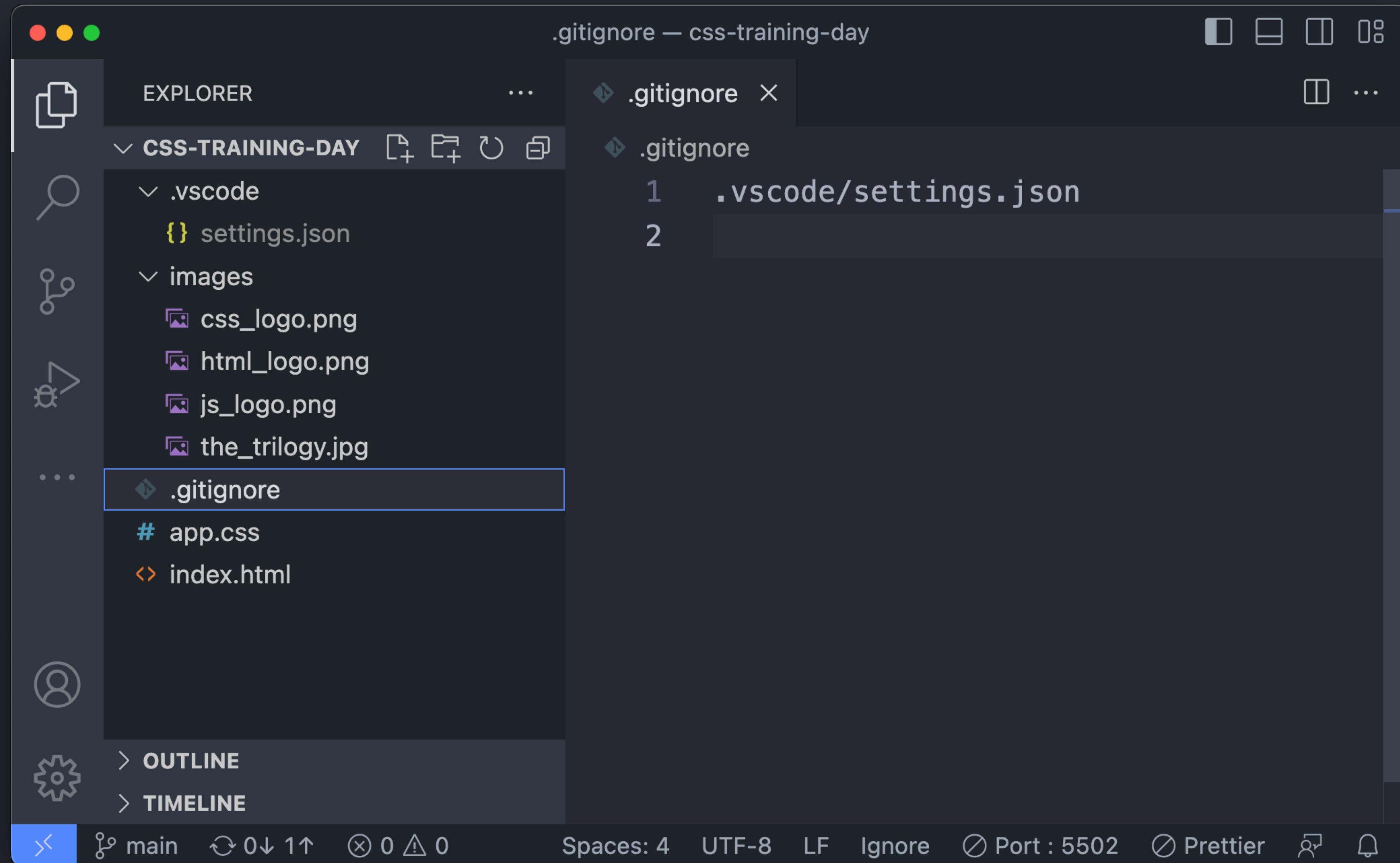
Ignore in GitHub Desktop



... adds a .gitignore file



Ignored in VS Code



ASK GOOGLE

<https://help.github.com/en/desktop>

<https://www.atlassian.com/git/tutorials/comparing-workflows/gitflow-workflow>