

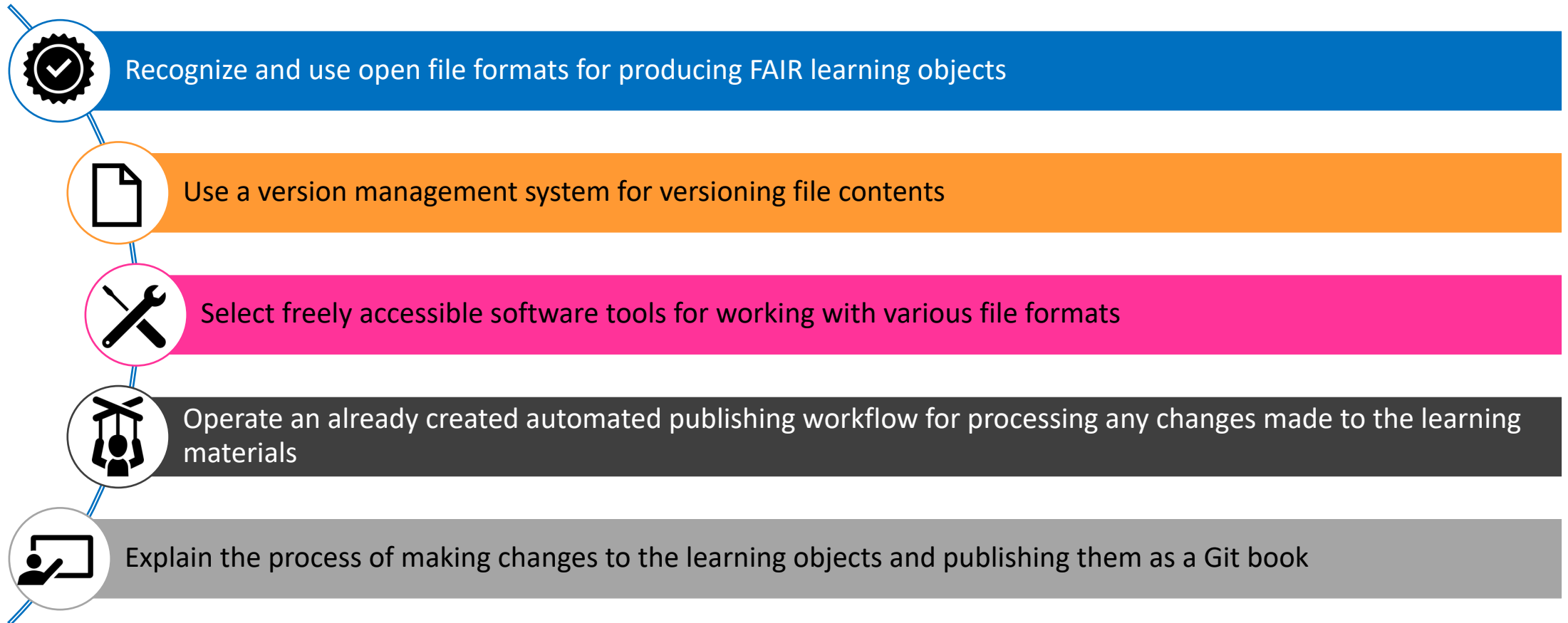
- Skills for the European
- Open Science
- Commons

Development Tools

WP2 T3



Learning Objectives



Agenda



Introduction

- Importance of careful selection of file formats
 - Both intermediary and final ones
- **Intermediary file format** – targeted at content contributors
- **Final file format** – ready for consumption by a wider audience
 - Interactive, visually appealing, accessible across various platforms
- Importance of choosing the right set of tools

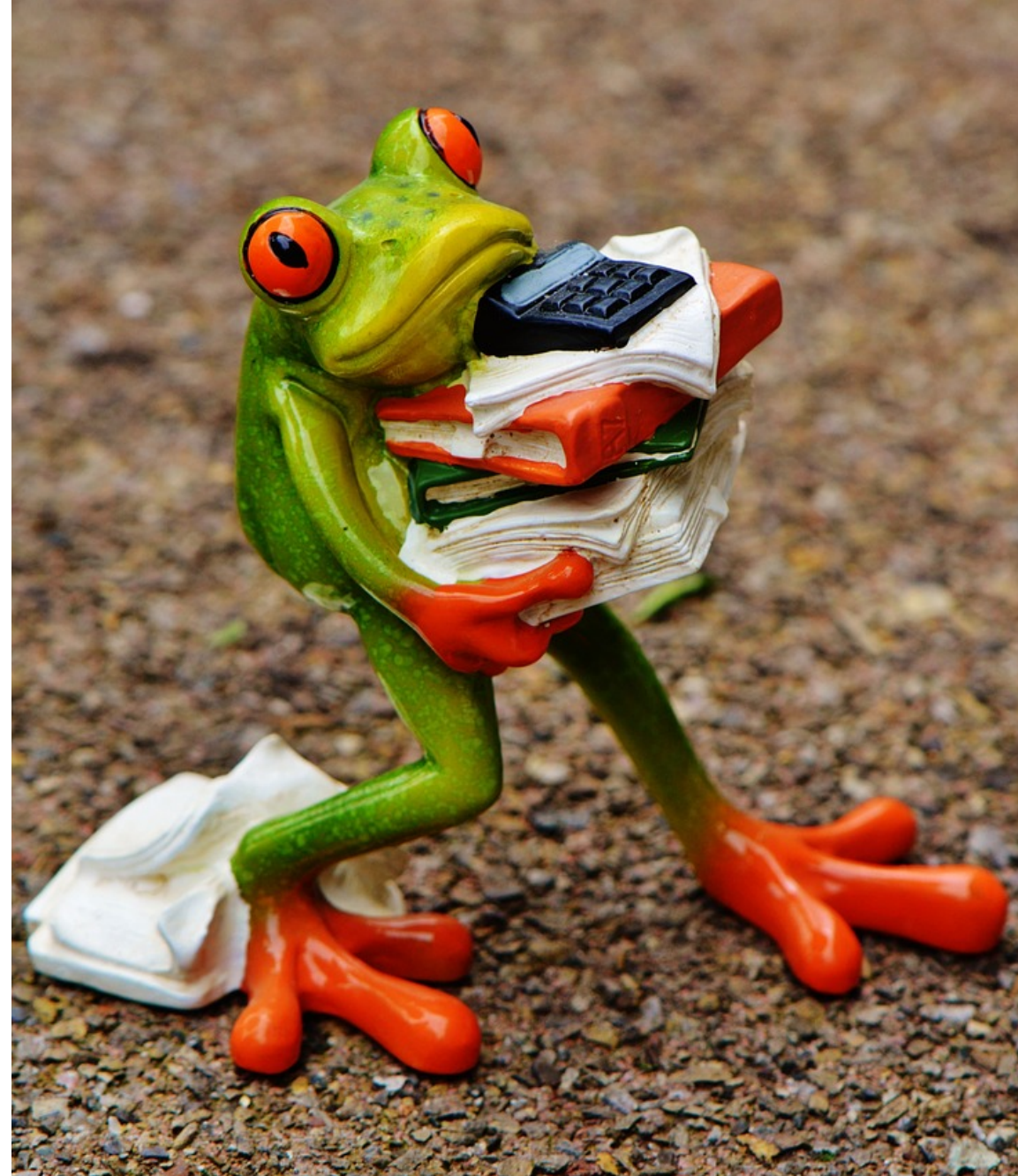


Image by [Alexa](#) from [Pixabay](#)

The Problem with Traditional Intermediary Formats



- Traditional intermediary formats: .docx, .odt, Google Docs
- Binary in nature
- Difficult version control
 - -v1, -v2, -LATEST, -LATESTLATEST, -FINAL, -FINAL2, -FINALFINAL
- No granular version control
- Usually (but not always) requires using proprietary software tools or third-party cloud services
 - Accessibility, privacy issues
- **Solution?**

Image by [Christian Dorn](#) from [Pixabay](#)

Hello, my name is... Markdown!

- Plain-text based **intermediary file format**
- Wide compatibility with version management systems
 - More on this in a bit...
- Easy collaboration and change conflict resolution
- Large ecosystem of accessible software tools
 - Editors, converters, validators
- Simple syntax for common formatting tasks
 - WYSIWYG editors available



Why Do I Have to Learn Yet Another Format?

Makes content reuse easier

- **Interoperability** with many publishing platforms
- Various final output formats: HTML, PDF

Widely used by other projects and initiatives; easy reusability

- [NASA's Transform to Open Science](#), [OpenScience](#), [FOSTER](#)

Easy sharing and collaboration with third-parties

- Public access to source files (if so desired)
- Easy **findability** via search engines (plain text...)
- Effortless version management

Extensive set of software tools

- **Accessible**, no vendor lock-in

Automatic publishing as Git book

Final Words on Markdown

- **Focus on Markdown** throughout the rest of the training
- **Alternatives are possible**, but they are not the first choice for FAIR-by-Design learning objects
 - Drawbacks in terms of findability, accessibility, interoperability, and reusability
- Slide decks are still made with traditional tools such as PowerPoint, Google Slides, LibreOffice Impress
 - Possible to use Markdown, but the ecosystem is not as mature yet

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Version Management and Collaboration with Git



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Git in a Nutshell

Most popular version management system today

Tracks file changes and versions over time

- Possible to go back in time to previous versions
- Record of who did what and when

Most powerful if used with plain-text files (e.g., Markdown)

- Binary files are supported as well, but without granular change tracking (.docx, PowerPoint, PDF, images)

Cross platform, client applications available for all operating systems

Git Terminology (1)

- **Repository** – a collaborative space where files can be versioned
- **Commit** – granular record of change related to a single or multiple files placed in a single repository. Information about the author, time, and changes made
- **Clone** – downloading an existing Git repository from an external source for local changes which can then be “committed”

Git Terminology (2)

- **Fork** – 1:1 copy of an existing repository, resulting in the creation of a new repository. Both repositories have shared histories (all recorded commits up to the point of forking) but divergent futures.
- **Pull request/Merge request** – way of reconciling changes made in a forked repository with the original one.
 - Each **PR/MR** consists of one or more commits
 - The owner of the fork submits a **PR/MR** to the original repository
 - The owner of the original repository reviews the changes and decides to accept or reject them

First Steps with Git

- Before we start...
 - GitHub as a free Git repository hosting service
 - GitHub Desktop Client as a Git client for interacting with Git repositories
 - FAIR-by-Design Templates repository - <https://github.com/FAIR-by-Design-Methodology/templates>

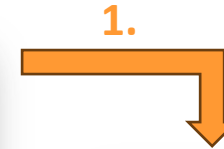
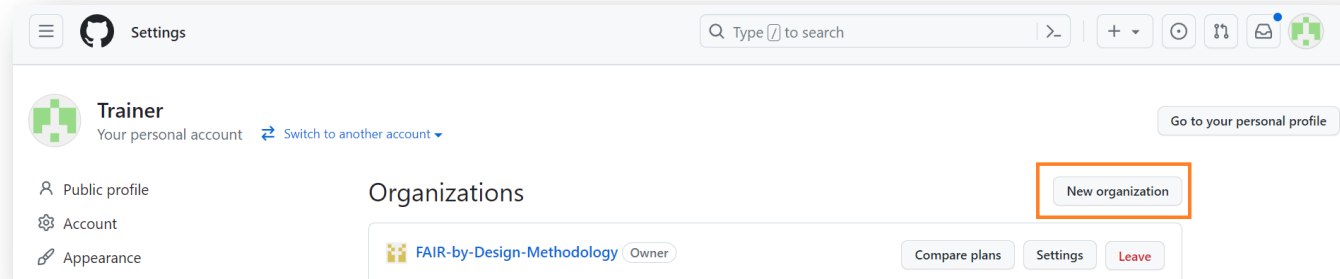
Image by [superintelligencek](#) from [Pixabay](#)



Using GitHub – Organizations (1)

- Difference between **user owned repositories** and **organization owned repositories**
- Creating a new organization on GitHub
 1. Navigating to the profile page
 2. Selecting “New Organization”
 3. Choosing the free plan
 4. Filling out organization information (name, contact email)
 5. Adding collaborators

Using GitHub – Organizations (2)



Tell us about your organization

Set up your organization

Organization account name *

FAIR-by-Design-Demo ✓

This will be the name of your account on GitHub.
Your URL will be: https://github.com/FAIR-by-Design-Demo.

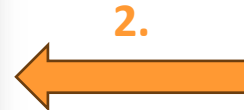
Contact email *

fair-by-design-demo@skills4eosc.com ✓

This organization belongs to: *

☒ My personal account
I.e., Trainer

☐ A business or institution
For example: GitHub, Inc., Example Institute, American Red Cross



Start collaborating

Welcome to FAIR-by-Design-Demo

Add organization members

Organization members will be able to view repositories, organize into teams, review code, and tag other members using @mentions.

[Learn more about permissions for organizations →](#)

Search by username, full name or email address

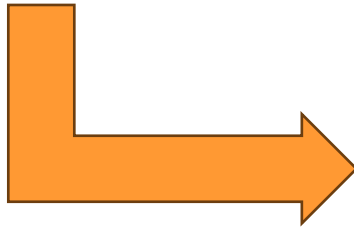
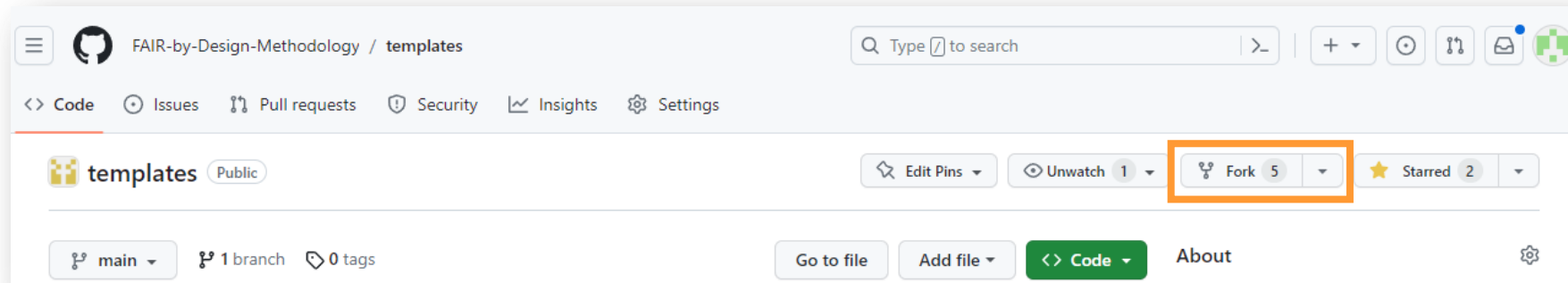
Complete setup

[Skip this step](#)

Using GitHub – Forks (1)

- Forking the [FAIR-by-Design Learning Object Templates](https://github.com/FAIR-by-Design-Methodology/templates)
 - <https://github.com/FAIR-by-Design-Methodology/templates>
 - Fork button
- **Fork owner:** the newly created organization
- **Name:** can be arbitrarily set, no limitations, no relation with the original name
- Redirection to the homepage of the forked repository

Using GitHub – Forks (2)



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.

Required fields are marked with an asterisk (*).

Owner * FAIR-by-Design-Demo / Repository name * My-Training-Demo
✓ My-Training-Demo is available.

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 FAIR-by-Design-Methodology/FAIR-by-Design_ToT by adding your own branch. [Learn more.](#)

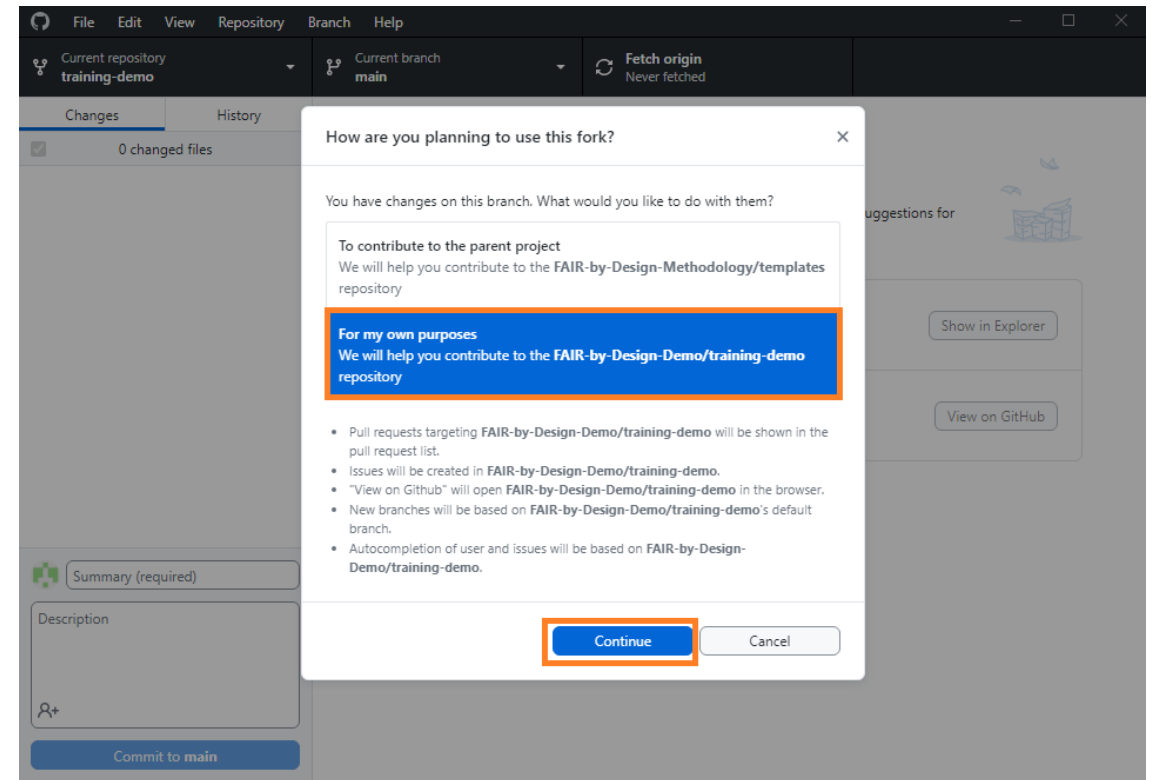
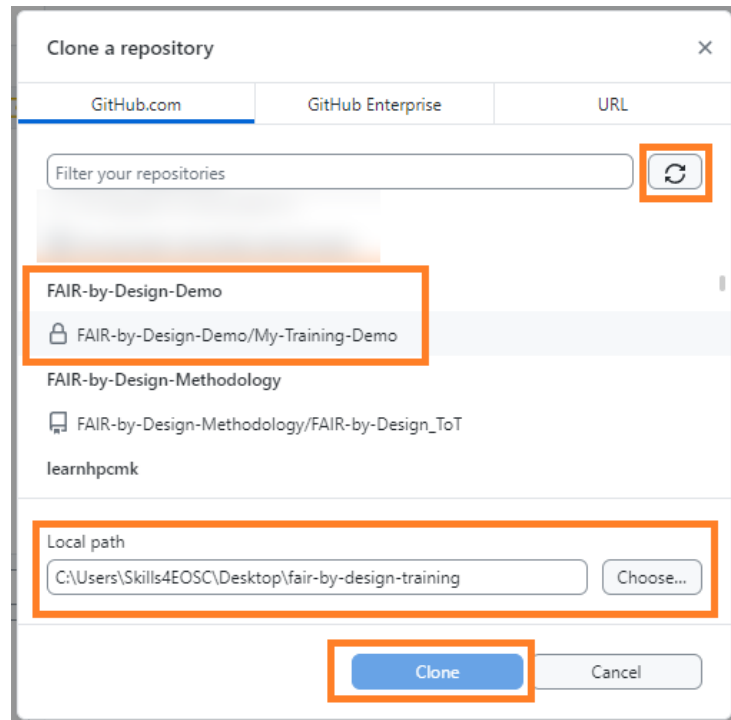
① You are creating a fork in the FAIR-by-Design-Demo organization.

[Create fork](#)

Using GitHub – Local Cloning (1)

- Authentication with GitHub credentials in the GitHub Desktop Client
- Setting profile information for **commit metadata** (name & email)
- Selecting the new repository fork from the list of repositories
- Choosing “For my own purposes” as a contribution method
- Previewing the downloaded files

Using GitHub – Local Cloning (2)



Exercise: Using Git in Practice

To simulate the preparation of FAIR-by-Design learning objects, create a fork of the [FAIR-by-Design Learning Object Templates](#) repository, and then clone it locally as to continue working on the materials.

Tip: Use a GitHub organization as the owner of the fork and use the GitHub Desktop Client for cloning it locally

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Setting Up a Markdown Environment

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General Information on Markdown Editors

- Any text editor can be seen as a Markdown editor
 - Yes, even Notepad
- More advanced editors bring quality of life improvements
 - Better graphical user interface
 - Integration with external tools
 - Extensibility via addons
- Markdown editor examples: **Obsidian**, VSCode, Zettlr, Joplin...
- Focus on Obsidian in this training

Obsidian as a Markdown Editor

- Free to use, cross-platform software
- First-party and third-party plugins for added functionality
- **Vault** – a folder opened in Obsidian
 - In our case vault is equivalent to a Git repository, 1:1 mapping
- All **settings** are **valid only for the currently open vault**
 - Flexible approach, allows different configuration when working on different projects

Using Obsidian – First Steps (1)

The first launch wizard offers to open an existing folder as vault

Selecting the previously cloned repository

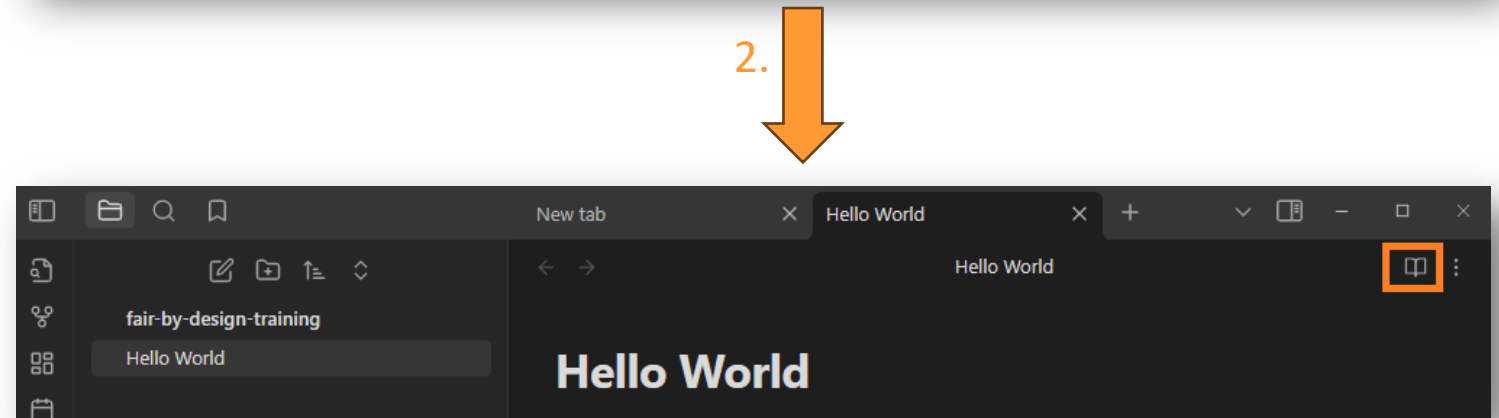
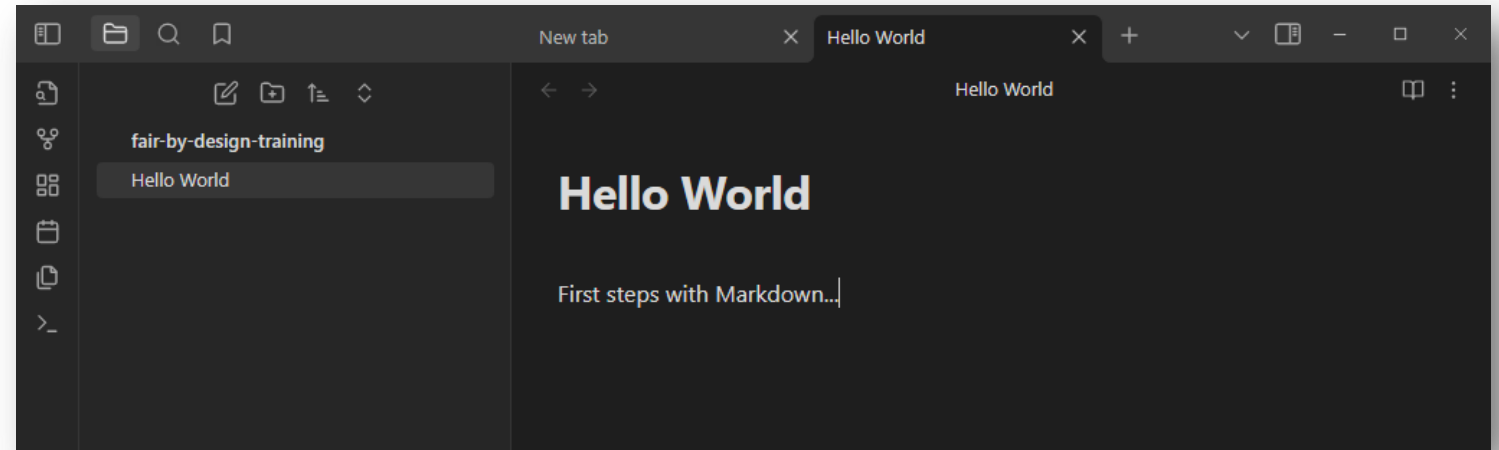
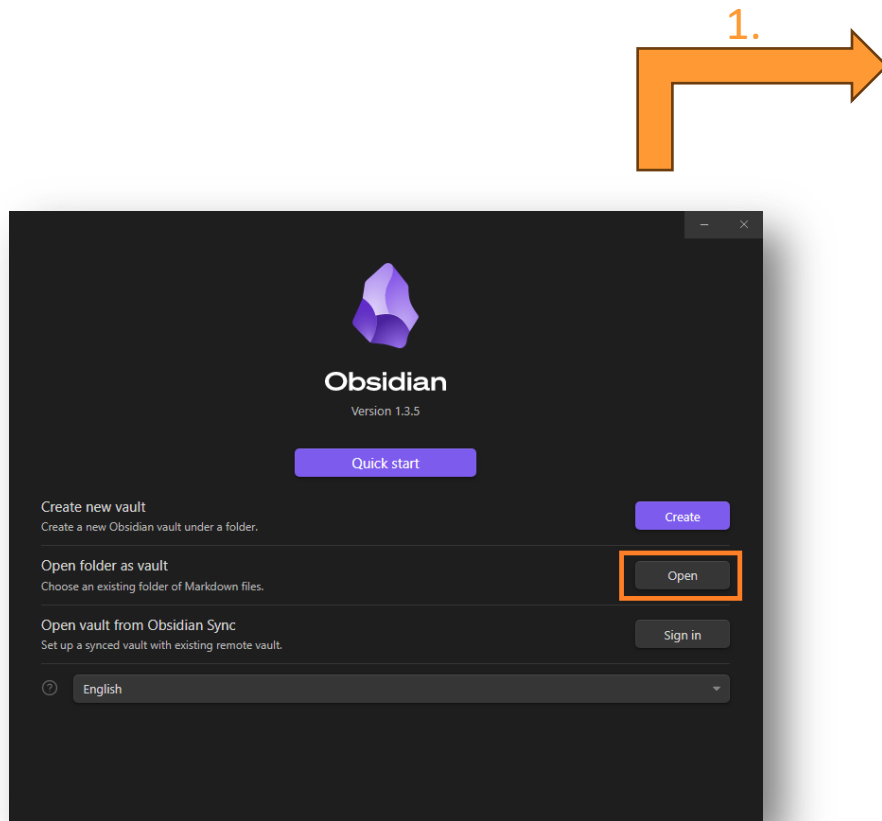
Two main areas within Obsidian

- Navigation tree (to the left)
- Editor (to the right)

Changing preview modes in Obsidian

- Render Markdown on the fly
- Show only Markdown source
- Preview only rendered content (no edits)

Using Obsidian – First Steps (2)



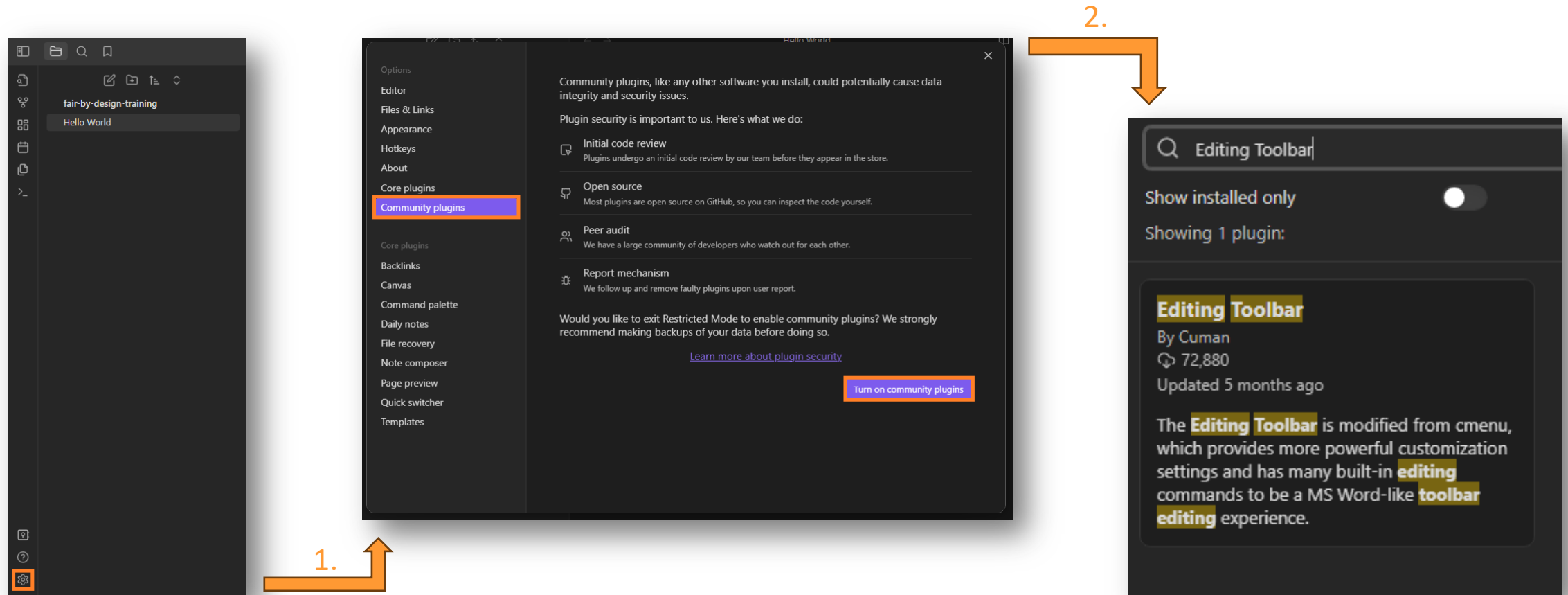
Using Obsidian – Changing Defaults (1)

- No editing toolbar by default with common operations
 - Bold, italic, headings, bullets, lists
- Using the **vast ecosystem of plugins** to overcome shortcoming
- **Plugin: Editing Toolbar**
- **Plugin: Table Editor**
- Settings to be changed (Files & Links section)
 - Default location for new attachments -> In subfolder under current folder
 - Subfolder name -> attachments

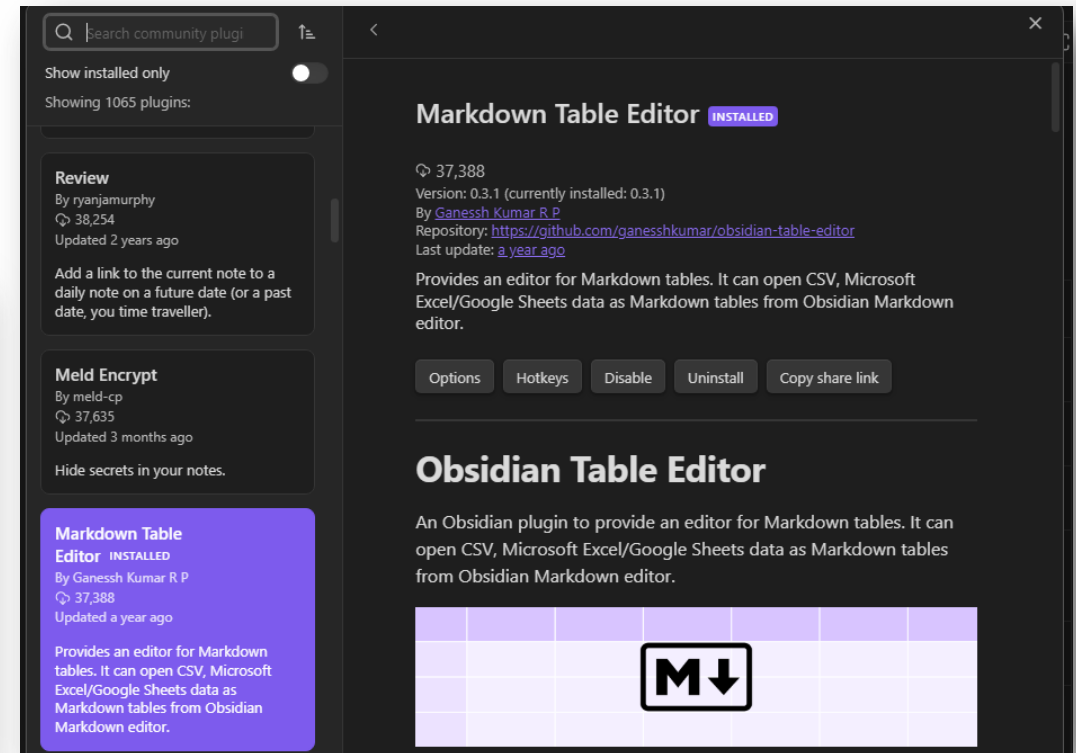
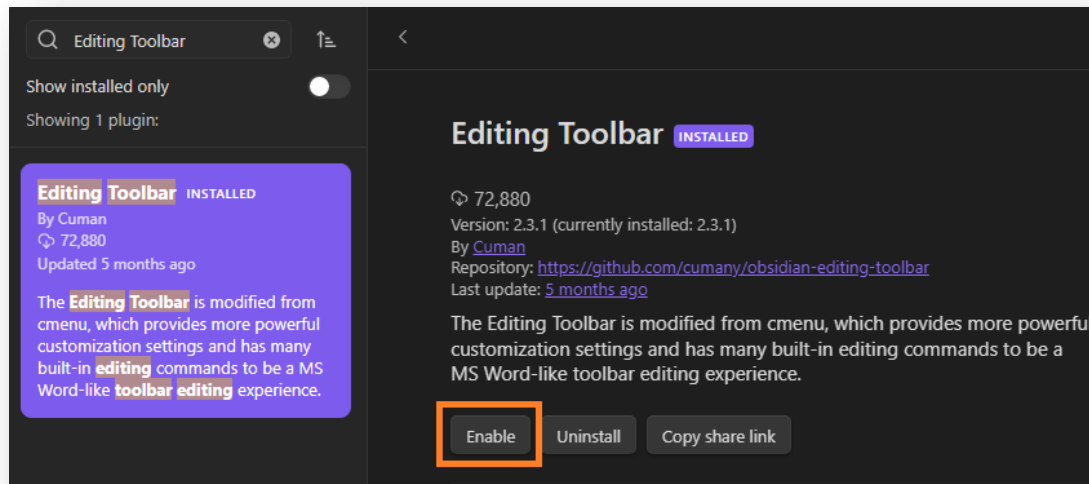
Using Obsidian – Changing Defaults (2)

- Settings to be changed (cont.)
 - New link format -> Relative path to file
 - Use [[Wikilinks]] -> Disable
 - Detect all file extensions -> Enable
- Testing the changes
 - Copy/Paste an image in an arbitrary file
 - The image should appear automatically
 - The file will be placed in an “attachments” subfolder

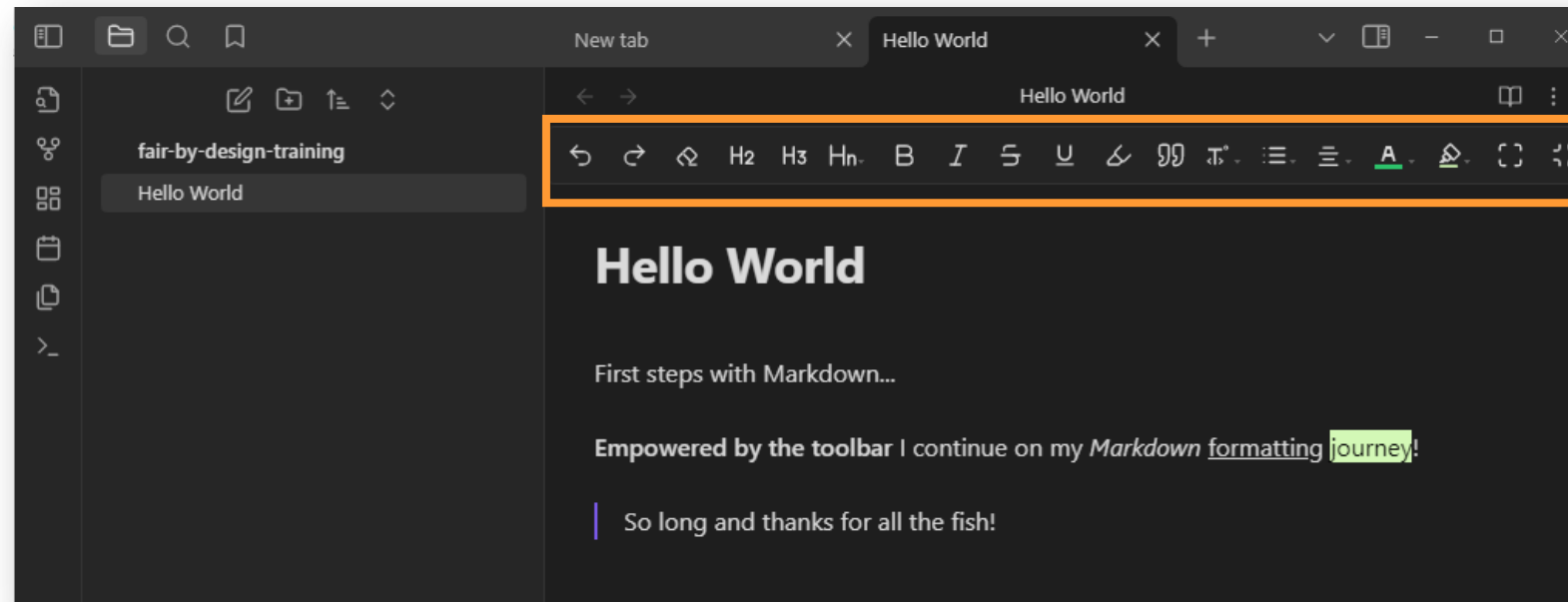
Using Obsidian – Changing Defaults (3)



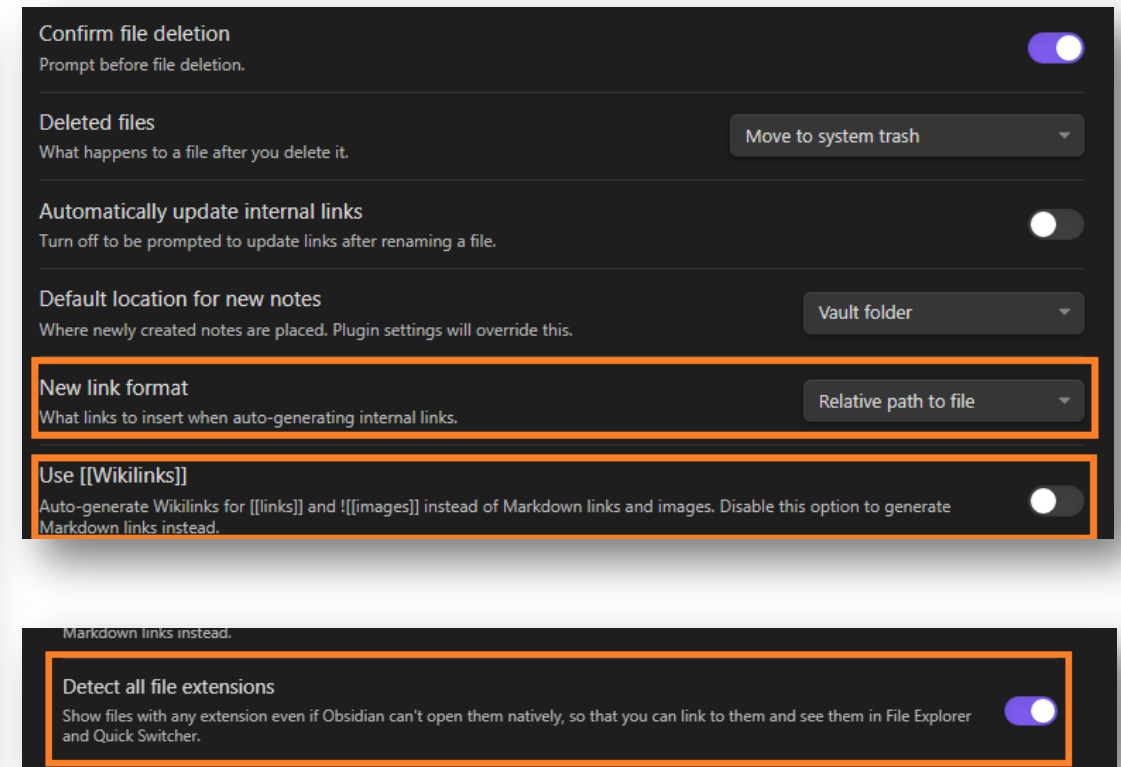
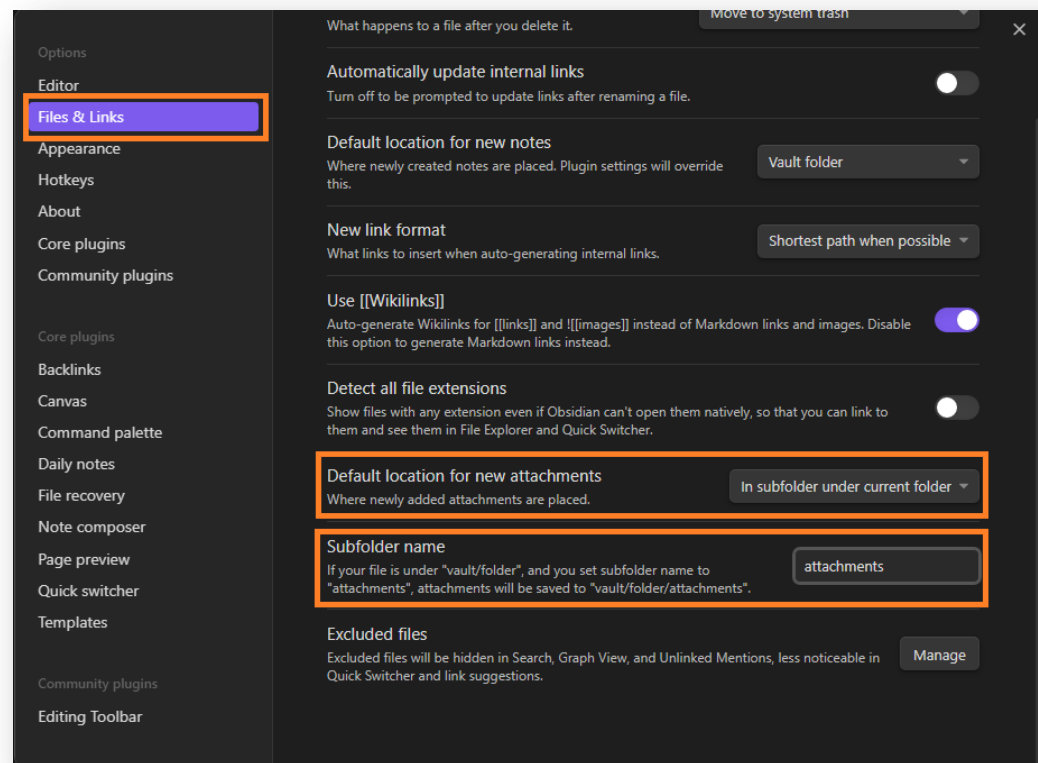
Using Obsidian – Changing Defaults (4)



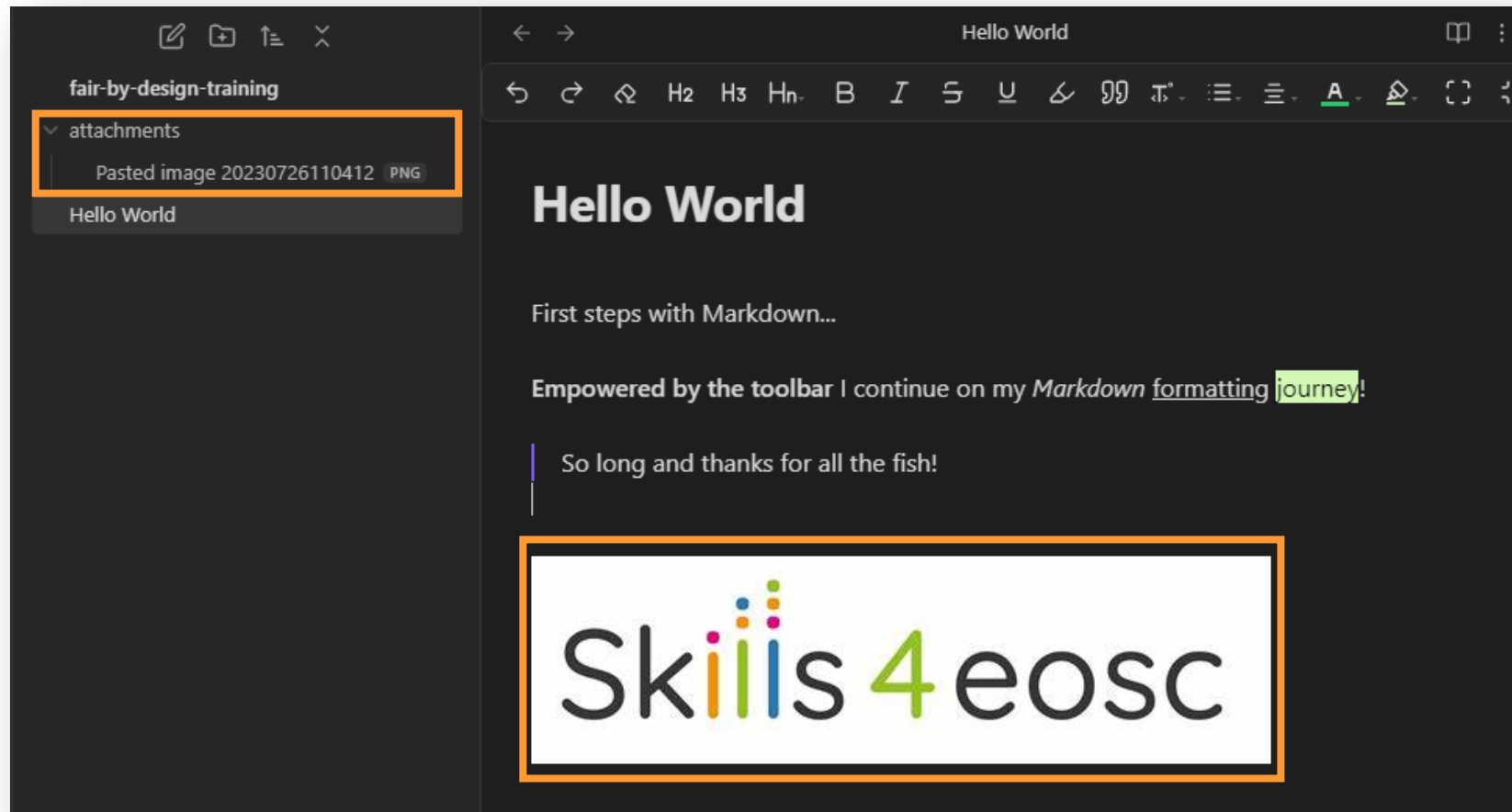
Using Obsidian – Changing Defaults (5)



Using Obsidian – Changing Defaults (6)



Using Obsidian – Changing Defaults (7)



Exercise: Configuring Obsidian

Go over the Obsidian setup process for the cloned repository, downloading the necessary plugins, and making the appropriate changes to Obsidian's default behavior.

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Working with Git books

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Introduction to Git Books

- **Goal #1:** Automatic conversion of Markdown documents to logically connected HTML files which would be publicly available
- **Goal #2:** set-it-and-forget-it configuration
- Many Git book frameworks
- The training focuses on **MkDocs**
- The templates repository already includes automatic workflows for publishing learning materials as a Git book

Configuring the Repository for Git Book Publishing

- To do (only once per repository):
 - Enabling the “inherited” automatic workflows from the parent repository
 - Allowing the automatic workflows to make changes to the files in the repository
 - Enabling free hosting of the Git book on GitHub

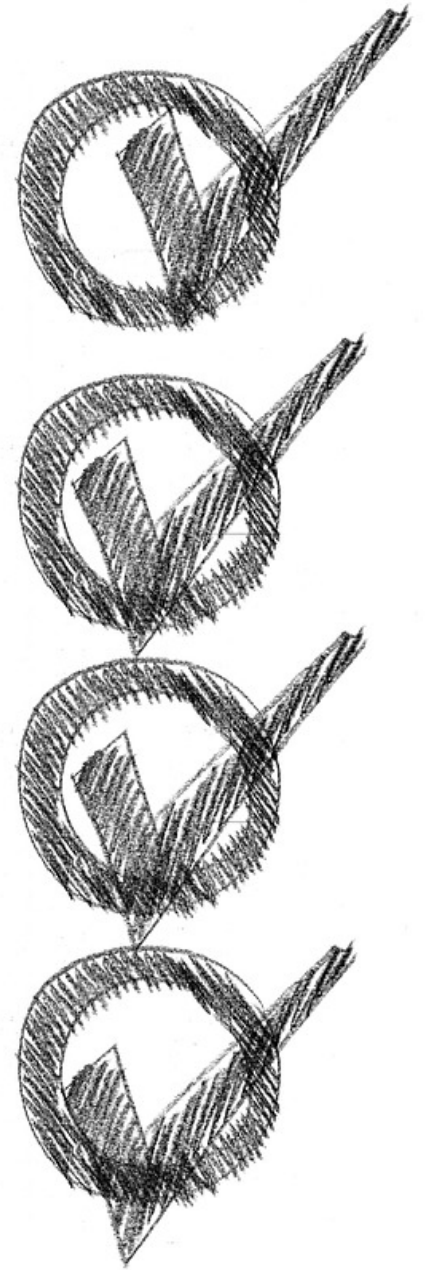
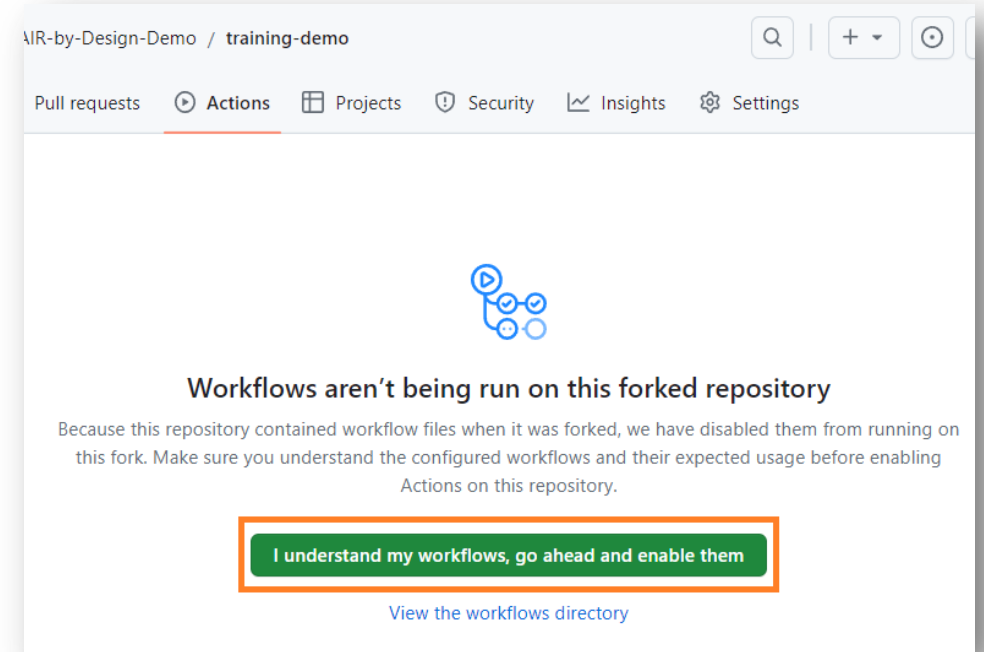
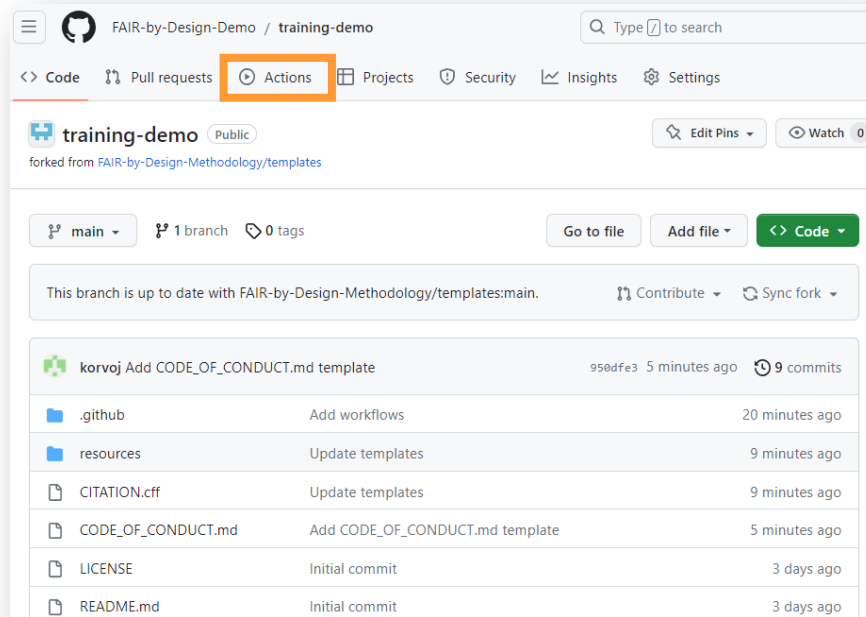
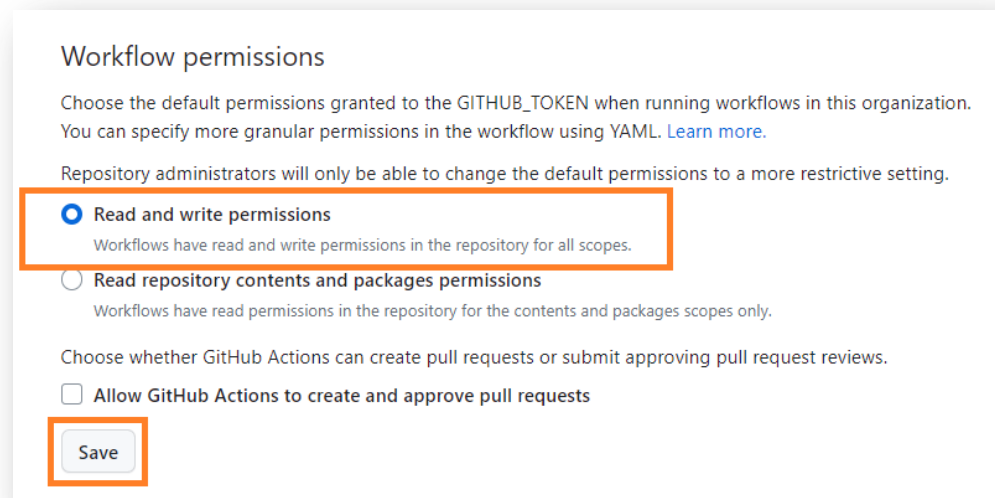
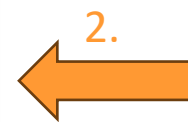
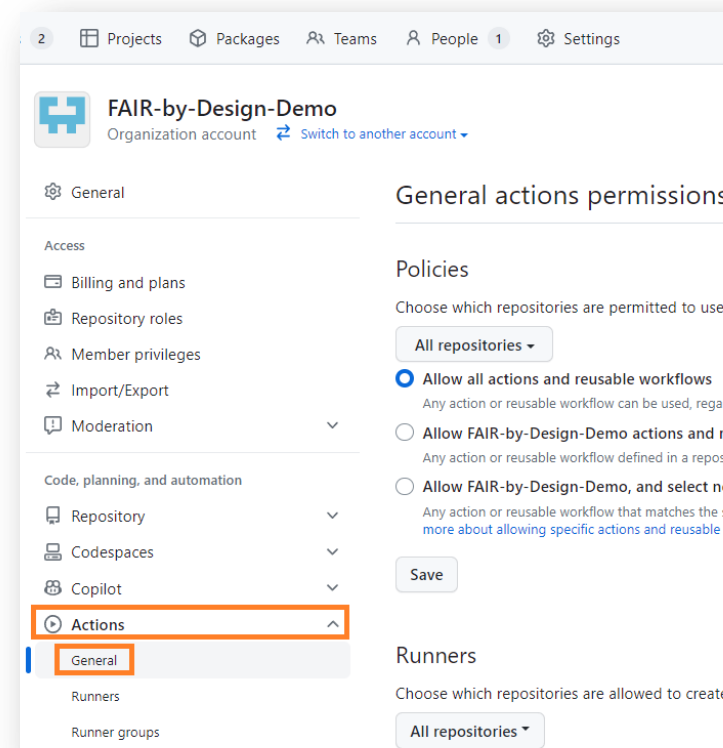
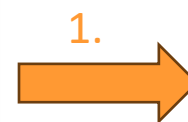
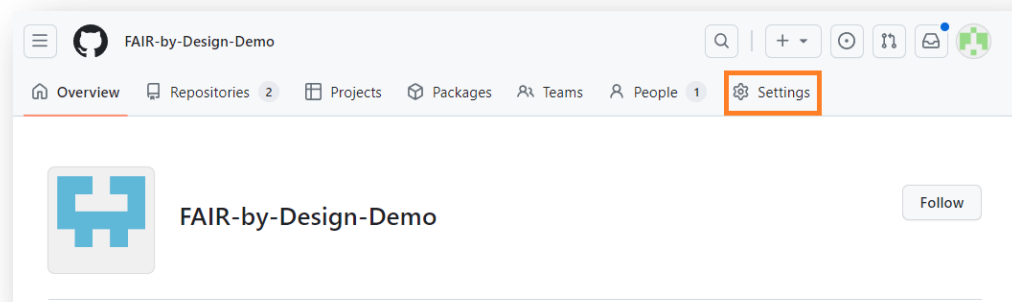


Image by [Gerd Altmann](#) from [Pixabay](#)

Enabling the GitHub Automatic Workflows



Allowing Changes by the Workflows



Previewing the Changes

- The Git book publishing **workflows** are **automatically launched** upon every commit that changes an .md file in the resources folder
- To try things out, we will make an arbitrary **change** to the **syllabus**, commit it, and push the changes using GitHub Desktop
- We will track the workflow's progress using the GitHub web interface

Making an Arbitrary Change

training-demo

resources

attachments

Feedback

overrides

stylesheets

Training Unit

index

syllabus

template_facilitator_guide

CODE_OF_CONDUCT

README

Type (Course/Workshop/Webinar)

Date/Time: when it will be offered

- put available from date if it is self-paced

Location

- where it will be available
- physical location
- URL link to resources (and virtual room if online) should lead to the learning Skills4EOSC platform

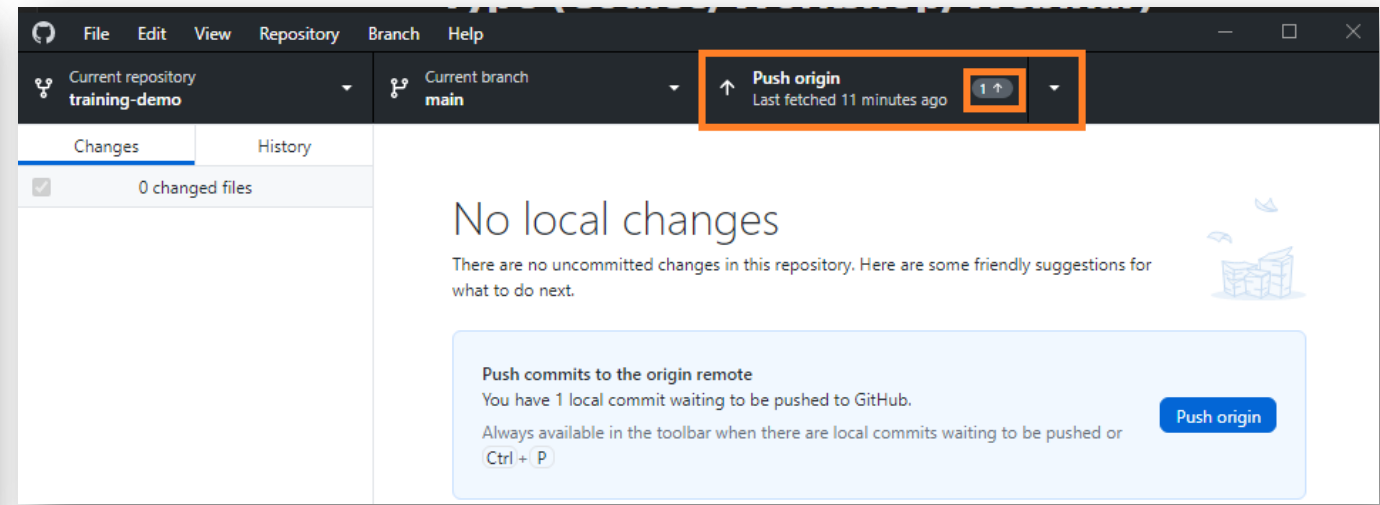
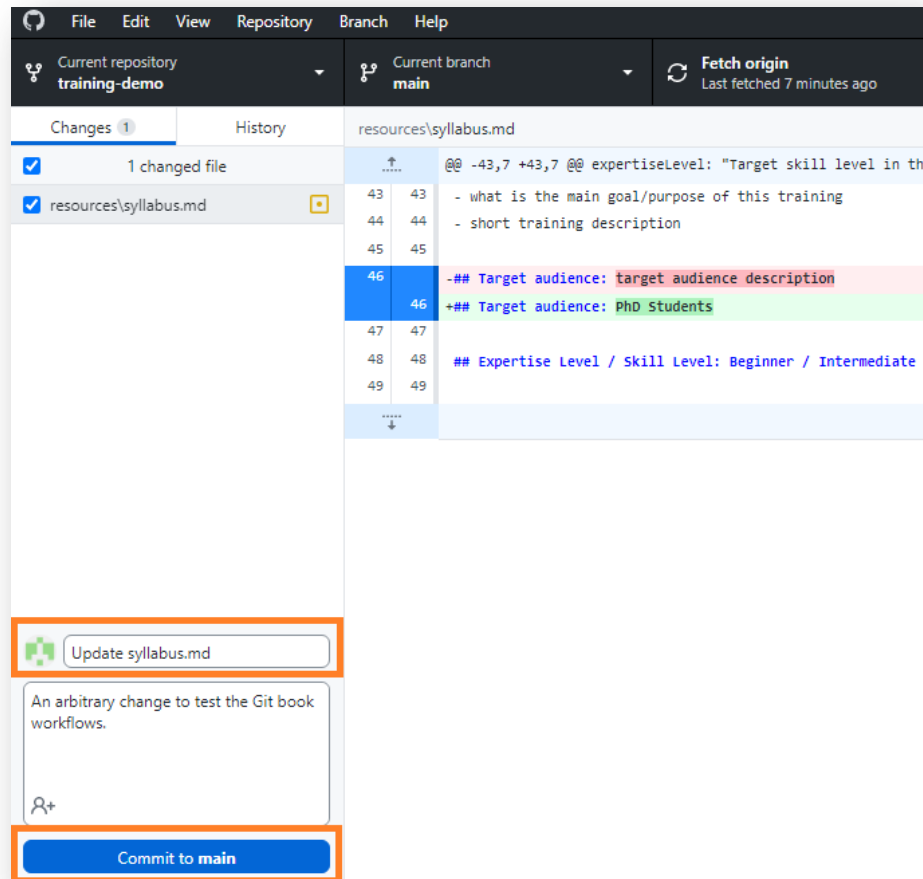
Training Description

- what is the main goal/purpose of this training
- short training description

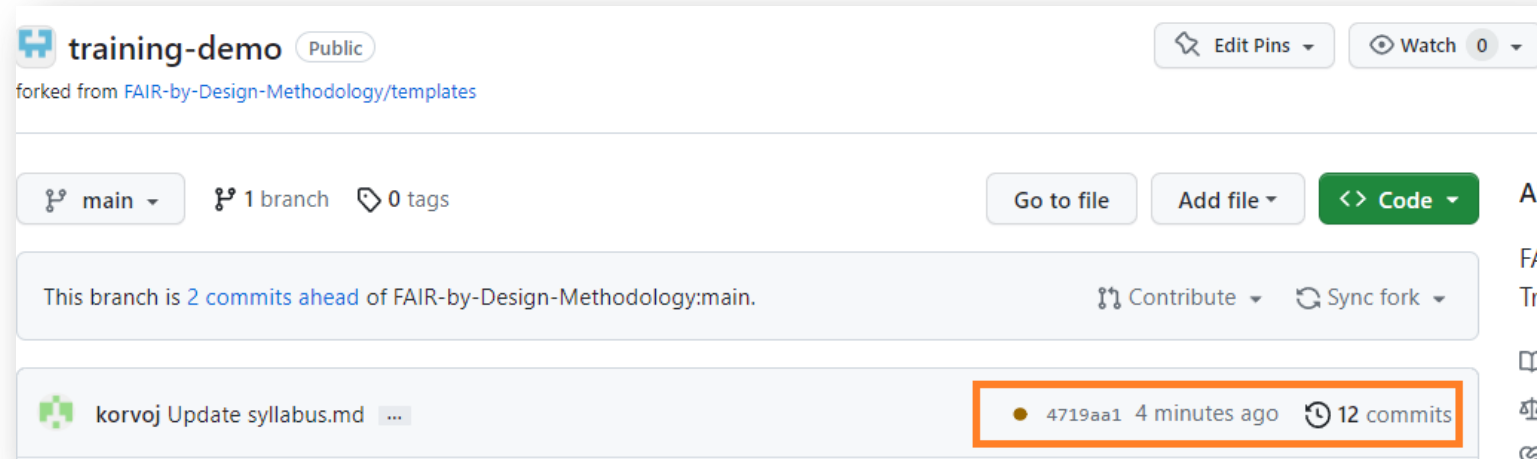
Target audience: PhD Students

Expertise Level / Skill Level: Beginner / Intermediate / Advanced

Committing the Changes



Tracking the Workflow's Progress



training-demo Public

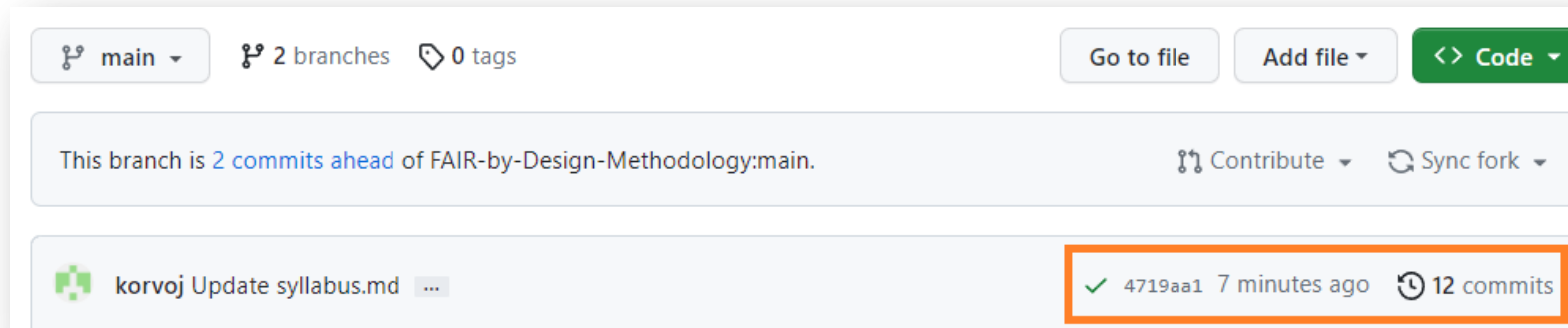
forked from FAIR-by-Design-Methodology/templates

main 1 branch 0 tags

This branch is 2 commits ahead of FAIR-by-Design-Methodology:main.

korvoj Update syllabus.md ...

4719aa1 4 minutes ago 12 commits



main 2 branches 0 tags

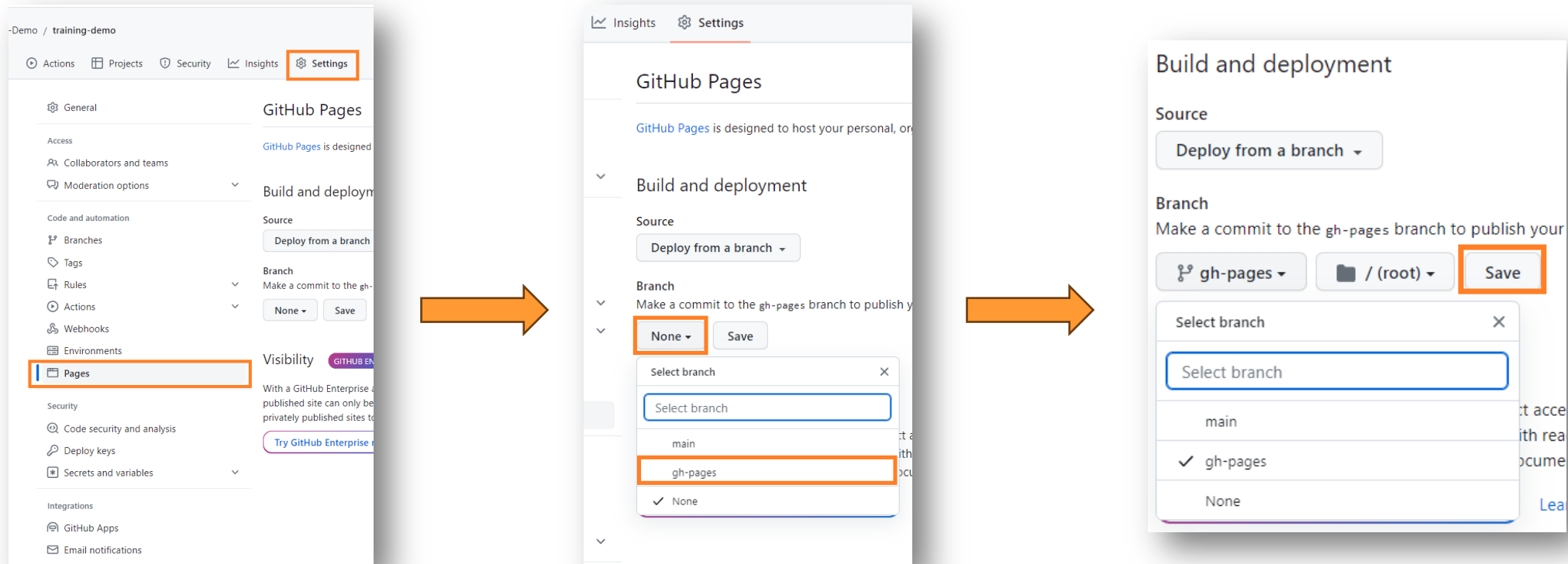
This branch is 2 commits ahead of FAIR-by-Design-Methodology:main.

korvoj Update syllabus.md ...

✓ 4719aa1 7 minutes ago 12 commits

Enabling Free Hosting of the Git Book


- These actions need to be performed only once per Git repository



Previewing the Git Book

GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

Your site is live at <https://fair-by-design-demo.github.io/training-demo/>
Last deployed by  korvoj 1 minute ago

[Visit site](#) ...



Skillis4eosc

The human readable name of the learning resource.

FAIR-by-Design Template Repository

The human readable name of the learning resource.

Training Unit >

Type (Course/Workshop/Webinar)

Date/Time: when it will be offered

• put available from date if it is self-paced

Location

• where it will be available

• physical location

• URL link to resources (and virtual room if online) should lead to the learning Skills4EOSC platform

Training Description

• what is the main goal/purpose of this training

• short training description

Target audience: PhD Students

Exercise: Publishing Your Very Own Git Book

Prepare the forked repository for Git book publishing by following the previously outlined steps.

Make an arbitrary change to an .md file in the forked templates repository.

Push the changes and verify that the Git book has been successfully published.

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Conclusion & Key Takeaways

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Summary

- **Markdown** as an intermediary file format for FAIR-by-Design learning resources
- **Git** as a robust version management system facilitating collaboration and change tracking
- **Obsidian** as an extensible Markdown editor allowing easy modification of template documents
- **Git book** as one of the final file formats for the Markdown files

Image by [Andy H](#) from [Pixabay](#)



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- Commons



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Thank you! Any questions before we continue?

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<https://doi.org/10.5281/zenodo.10014781>



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