



**FABRICADEMY
TUTORIALS**

2026-27

GITLAB &

Website building

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FABRICADEMY INFRASTRUCTURE

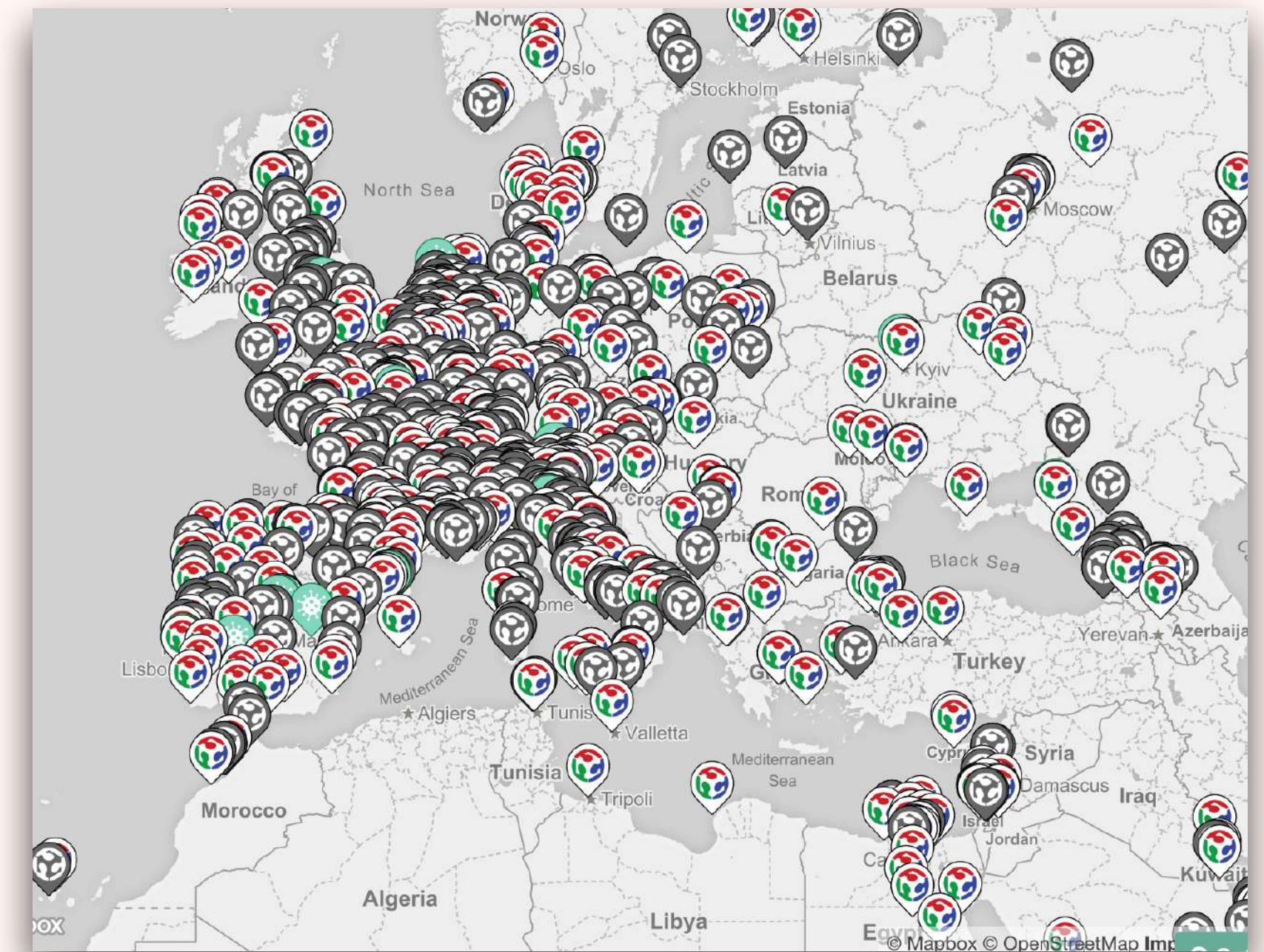
SERVICES OVERVIEW

- **fablabs.io** - Network map of FabLabs & tool used for universal logins
- **GitLab** - Git repository hosting & website hosting
- **NuEval** - Student evaluation tool
- **Mattermost** - team chat service

All servers are self-hosted by the Fab Foundation in Fab Hub Kendall, Boston, USA.

FABLABS.IO PLATFORM

- **Online platform that maps the locations of FabLab network world-wide**
- **Central user accounts (linked to other platforms)**
- **Dedicated forums for wider FabLab network**

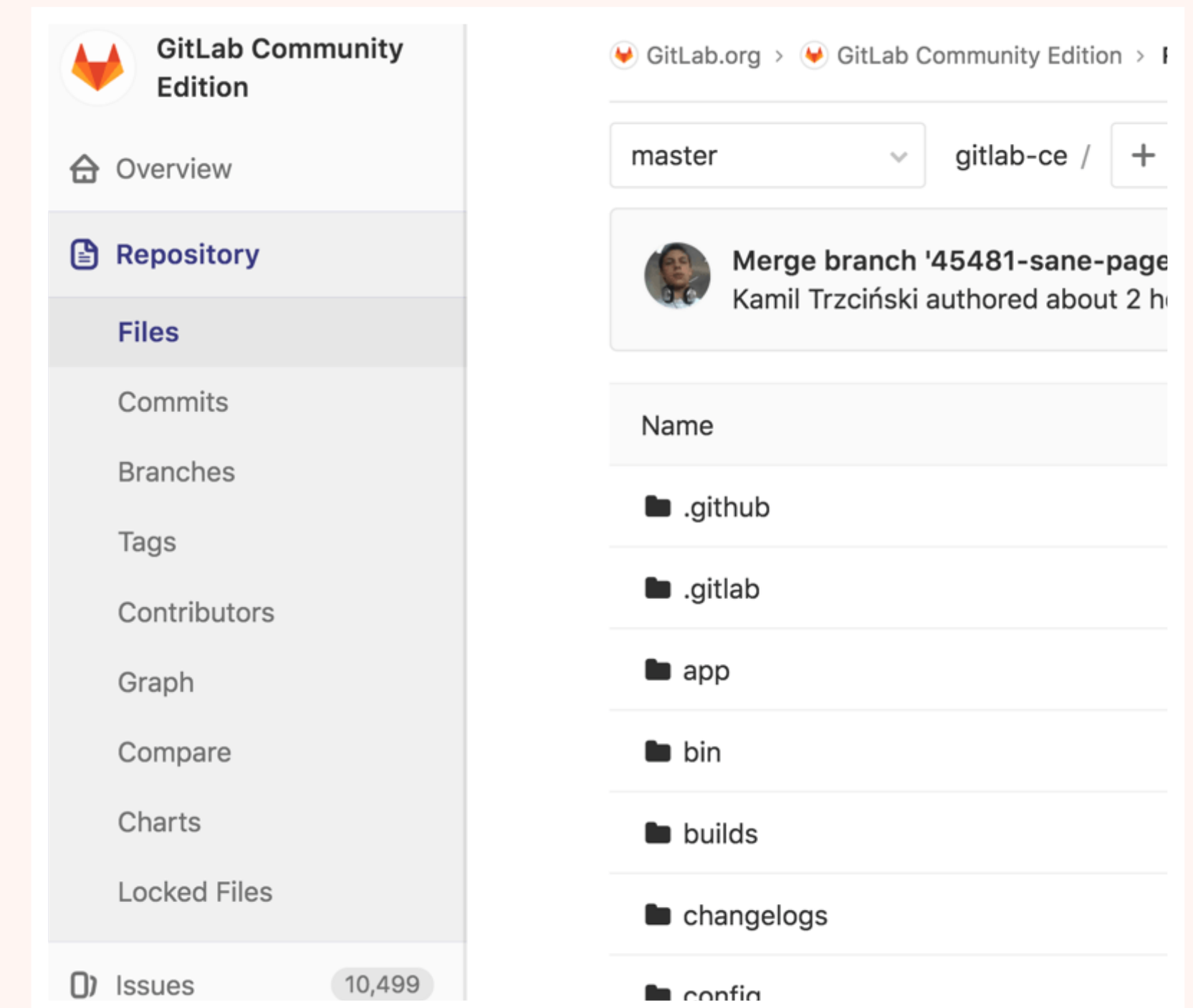




GITLAB PLATFORM

- **Hosting of your website code** (using Git)
- **Similar to GitHub, Bitbucket**
- **Web based file editor** (to edit your website pages)
- **Issues tracker** (helpful for planning tasks)
- **Website building (eg. CI) and hosting (GitLab Pages)**

gitlab.fabcloud.org



NUEVAL

nueval.academany.org

- A custom built platform to track the students' weekly progress and evaluation
- Login through your same fablabs.io account
- Student have a checklist for each week
- Instructors can evaluate and give feedback
- Assessment criteria found in the Handbook:
 - <http://fabricademy.fabcloud.io/handbook/assessment/criteria/>

2019

Local Assessment & Evaluation

Local Evaluation	2018-12-04	Instructor fibasile
State of the art, project management...		0%
Digital Bodies		0%
Circular Open Source Fashion		0%
Biofabricating Dyes and Materials		0%
Wearables I		0%
Textile Scaffold		0%
Computational Couture		0%
Open source hardware: from fibers t...		0%
Wearables II		0%
Implications and Applications		0%
Soft robotics		0%
Skin Electronics		0%
Final Project planning and pitch		0%
Final Project		0%

Final Project planning and pitch

OVERALL PROGRESS

0%

Leave Feedback

Pending

UNIT DESCRIPTION

Task: Final Project planning and pitch

Plan and present your final project idea.

LEARNING OUTCOMES

Unit progress

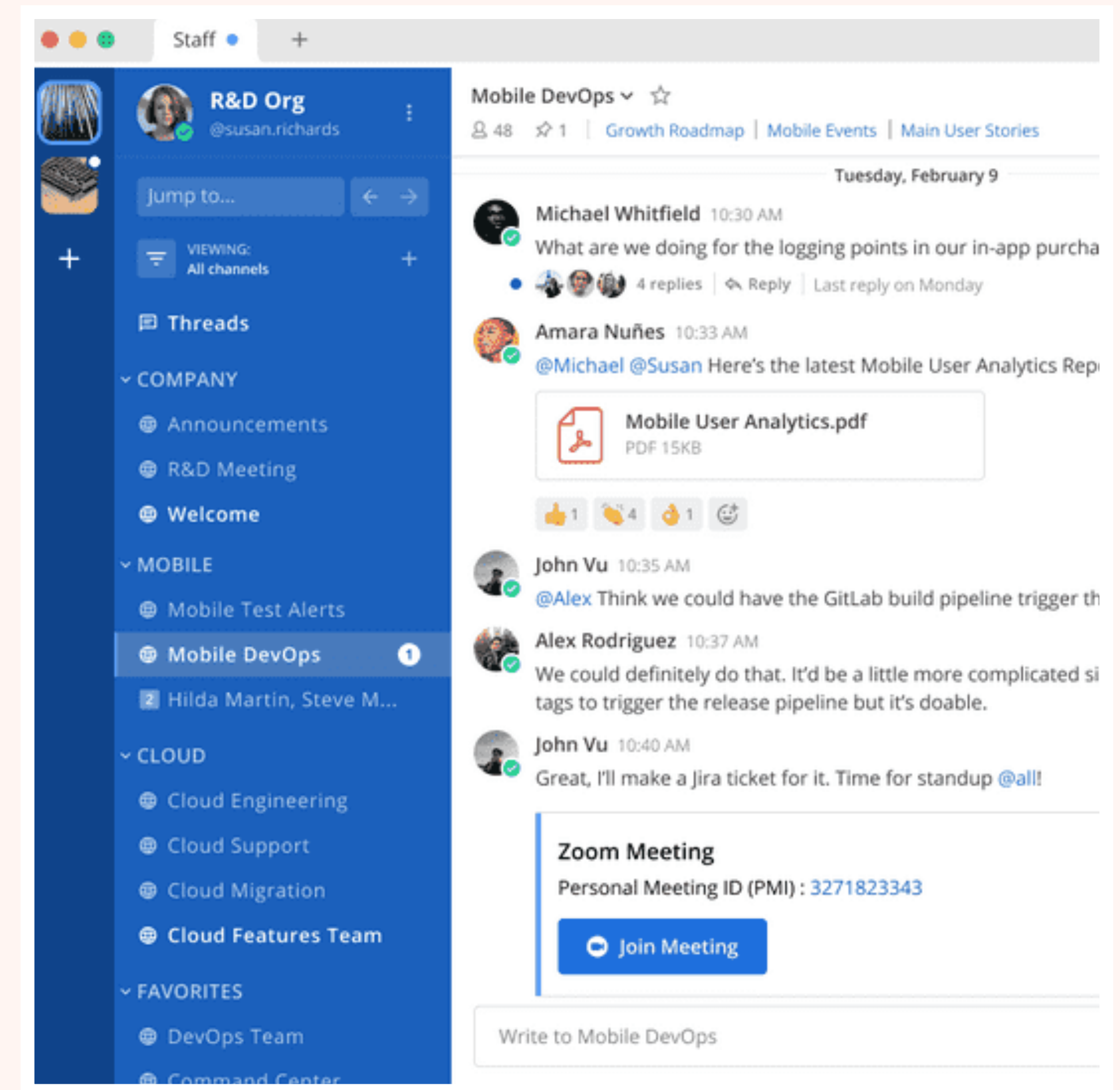
Task: Final Project planning and pitch

References: concept development, research, where does the project innovate

MATTERMOST

chat.academany.org

- a team chat tool with an open-source version
- Users can be part of various channels to discuss topics for each week with all students
- Academy self-hosted our own version
- Provides a smart-phone app with push notification (or just email updates).



Example Mattermost team

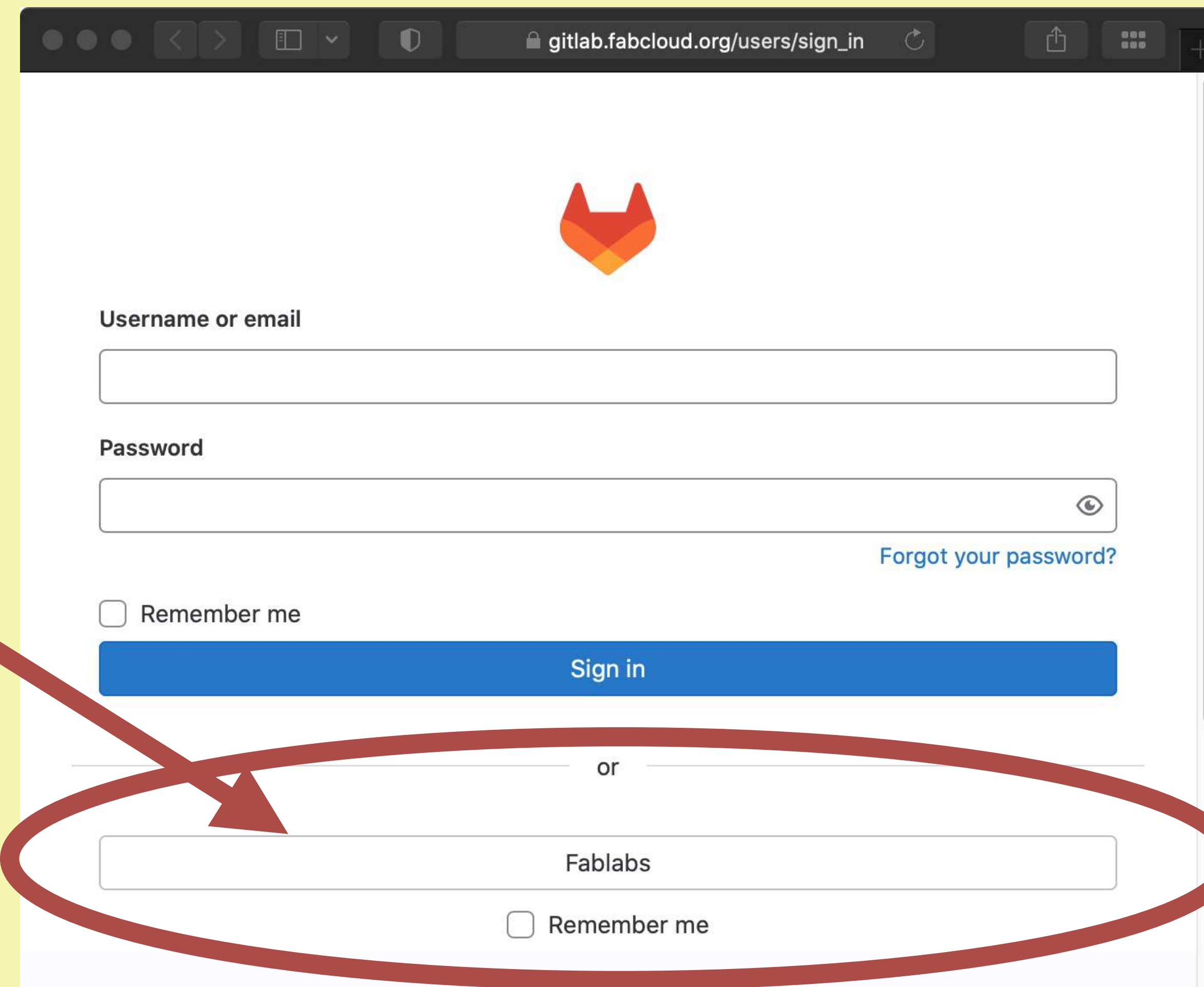
LET US TEST YOUR LOGIN

1. FIND YOUR WELCOME EMAIL

- **SUBJECT: Student Welcome**
 - **FROM: coordination@mg.textile-academy.org**
 - **Shows your login details and links for the Fabricademy platforms:**
 - **username**
 - **password**
 - **Website URLs**
-

2. START AT GITLAB.FABCLOUD.ORG

Click to get access
through fablabs.io



The screenshot shows a web browser window with the address bar displaying `gitlab.fabcloud.org/users/sign_in`. The page features the GitLab logo at the top. Below it, there are input fields for 'Username or email' and 'Password', followed by a 'Remember me' checkbox and a blue 'Sign in' button. A link for 'Forgot your password?' is located to the right of the password field. Below the 'Sign in' button, there is a horizontal separator with the word 'or' in the center. Underneath, there is a button labeled 'Fablabs' and another 'Remember me' checkbox. A red oval highlights the 'Fablabs' button and the second 'Remember me' checkbox. A red arrow points from the text 'Click to get access through fablabs.io' to the 'Fablabs' button. A blue arrow points from the right side of the red oval to the text 'Redirects website to: fablabs.io'.

Redirects website to:
fablabs.io

3. LOGIN WITH FABLABS.IO



Fablabs.io

Search, anything

Labs

Orgs

Machines

Jobs

Fab Academy

Events

Network

Projects

Forum

Sign in

Sign up



Email or Username

Password

Email or Username

Password

Sign in

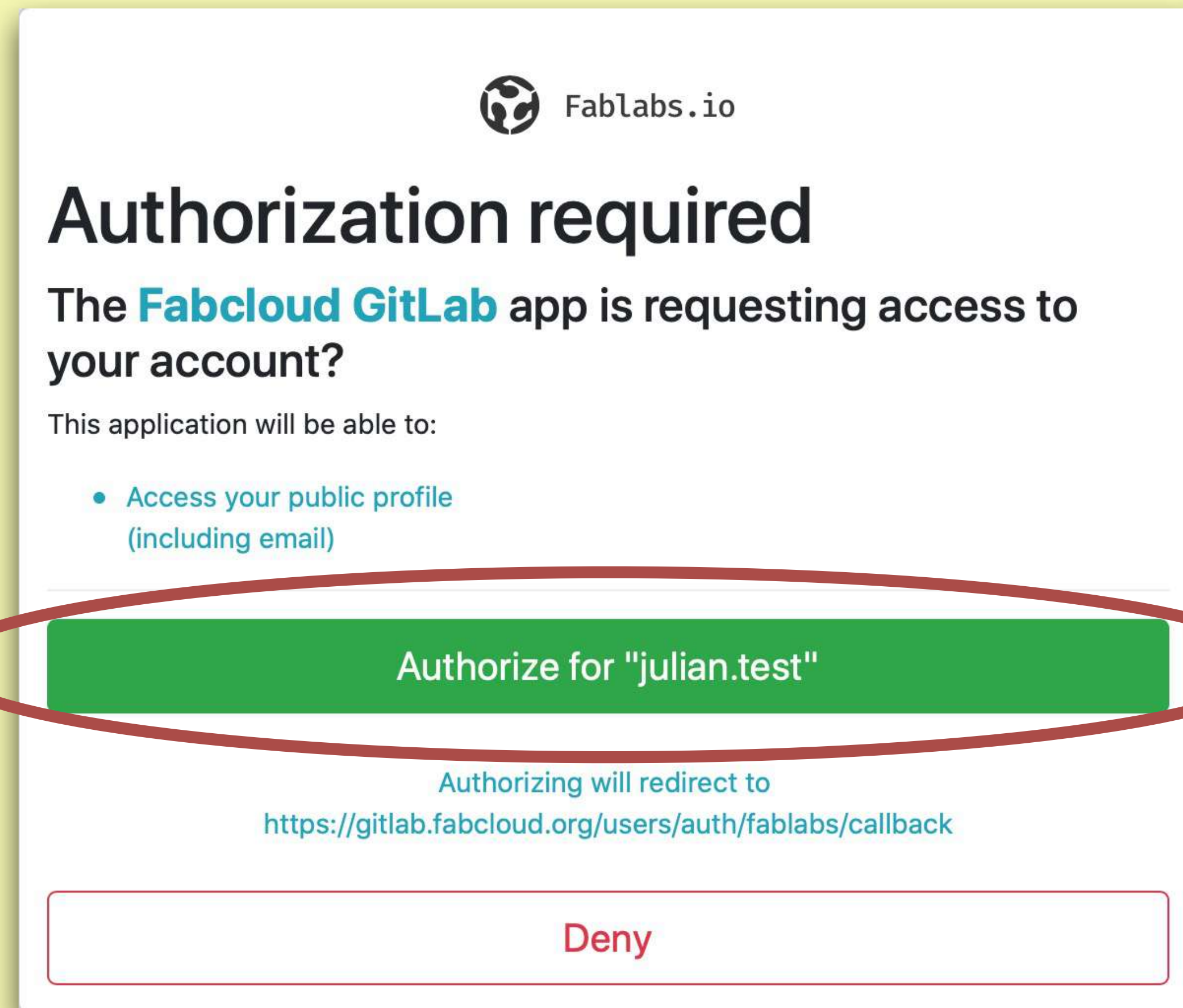
Forgot the password?

Not yet a member? [Sign up](#)

Username & password
found in your
Welcome email

4. GRANT ACCESS

Acknowledge GitLab can
login through fablabsio



 Fablabs.io

Authorization required

The **Fabcloud GitLab** app is requesting access to your account?

This application will be able to:

- Access your public profile (including email)

Authorize for "julian.test"

Authorizing will redirect to
<https://gitlab.fabcloud.org/users/auth/fablabs/callback>

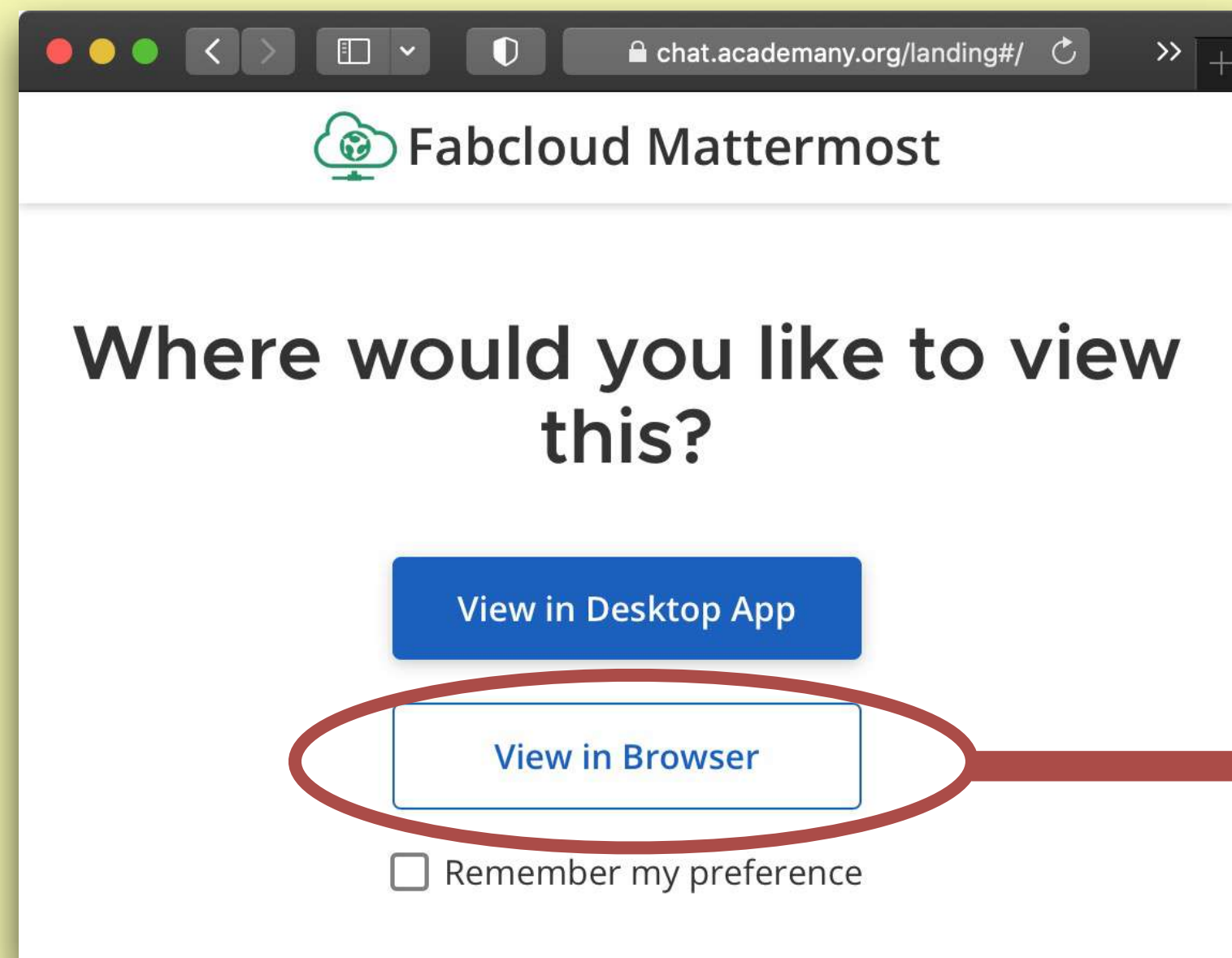
Deny

YOU ARE NOW IN GITLAB

The dashboard page in GitLab shows your repository
project for your documentation

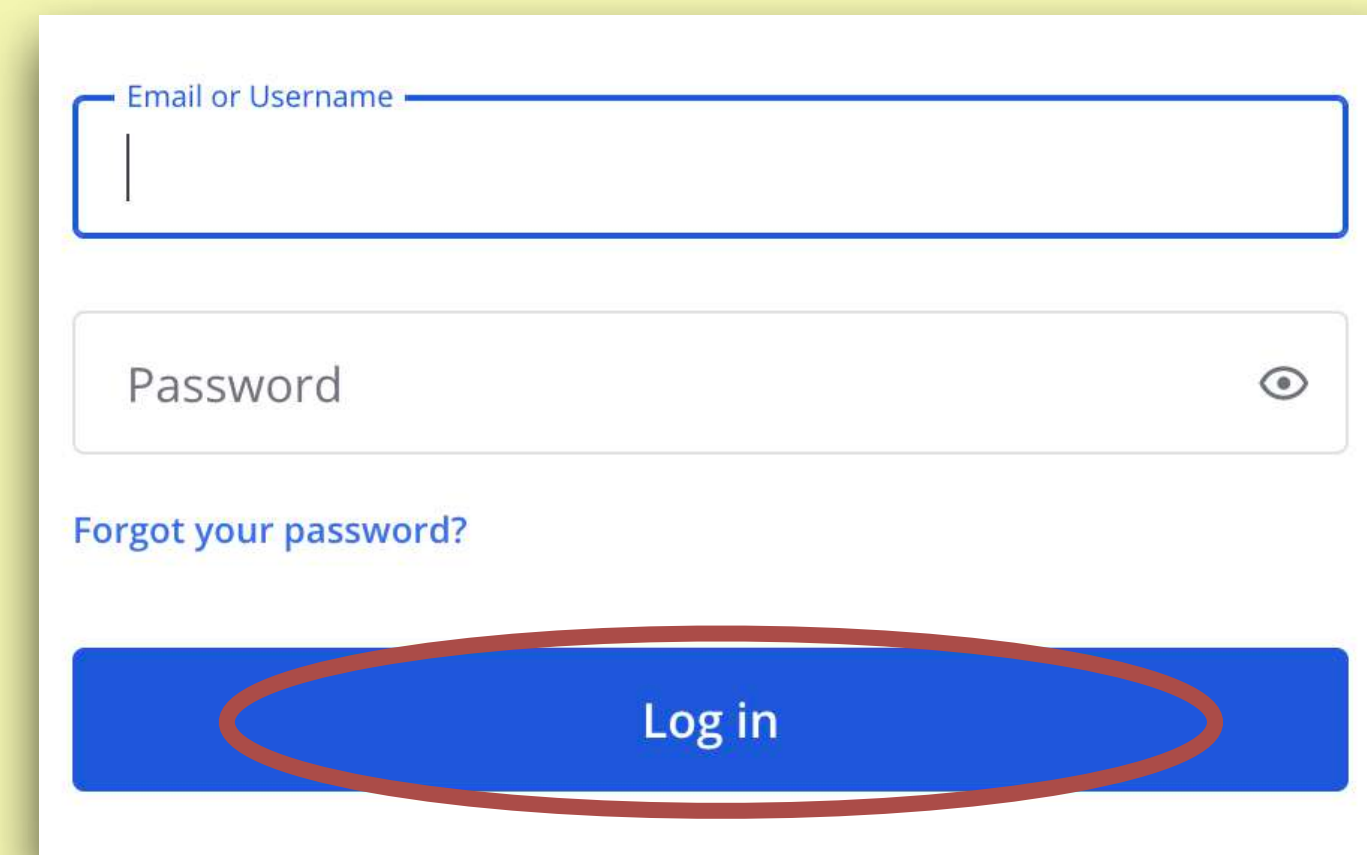
TRY SIGN-IN WITH MATTERMOST?

CHAT.ACADEMANY.ORG



A screenshot of a web browser window showing the landing page of chat.academany.org. The browser's address bar displays 'chat.academany.org/landing#/'. The page header includes the 'Fabcloud Mattermost' logo. The main heading asks 'Where would you like to view this?'. Below this, there are two buttons: 'View in Desktop App' and 'View in Browser'. The 'View in Browser' button is circled in red. At the bottom, there is a checkbox labeled 'Remember my preference'.

Little different
with Mattermost
use same
details as fablabs.io



A screenshot of the Mattermost login interface. It features a text input field for 'Email or Username', a password input field with a toggle icon, and a link for 'Forgot your password?'. At the bottom, there is a large blue 'Log in' button, which is circled in red. A red arrow points from the 'View in Browser' button in the previous screenshot to this 'Log in' button.

MATTERMOST WITH APP

- **Download Offical Mattermost App to your smart-phone**
 - **Use Server URL: chat.academany.org**
 - **Same login flow as the browser (click GitLab button) on sign-in form**
 - **Now you can have Push Notifications on your phone for new messages**
-

ABOUT YOUR WEBSITE

YOUR PERSONAL WEBSITE

- **Each student has their own website to document their work**
 - **We create default pages we think you need as a starting point**
 - **Each page includes some markdown/html examples and inspiration links to help you get started** (*which you can delete*)
 - **Website is built with a tool called *Zensical*** (we'll talk in the next slide)
 - **You will edit your website pages in the GitLab platform.**
-

WHAT IS A WEBSITE

- Website is written in HTML code
- Your browser reads the HTML and displays
 - specific code tags for heading, paraphrase or images
- HTML is just text, so we then use CSS to tell the browser how to style visually the HTML elements (ie. colors/font-sizes/layout)
- Play & Learn HTML with this tutorial: [w3schools.com/html](https://www.w3schools.com/html)

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>This is a Heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

Try demo of HTML with W3schools: https://www.w3schools.com/html/tryit.asp?filename=tryhtml_default

SCARY?

Coding can feel complex
but while experimenting, you will start
to understand what you are writing



USING MARKDOWN FOR HTML

- A markup language which allows write plain-text document with structure
- Tools exist to convert markdown to valid HTML in a predictable manner

Research

"Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum."

> "Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim



Research

"Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum."

"Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum."

LANGUAGE: MARKDOWN

HEADERS

```
# This is an <h1> tag
## This is an <h2> tag
##### This is an <h6> tag
```

EMPHASIS

```
*This text will be italic*
_This will also be italic_

**This text will be bold**
__This will also be bold__

*You **can** combine them*
```

LISTS

Unordered

- * Item 1
- * Item 2
 - * Item 2a
 - * Item 2b

Ordered

1. Item 1
2. Item 2
3. Item 3
 - * Item 3a
 - * Item 3b

IMAGES

```
![GitHub Logo](/images/logo.png)

Format: ![Alt Text](url)
```

LINKS

```
http://github.com - automatic!

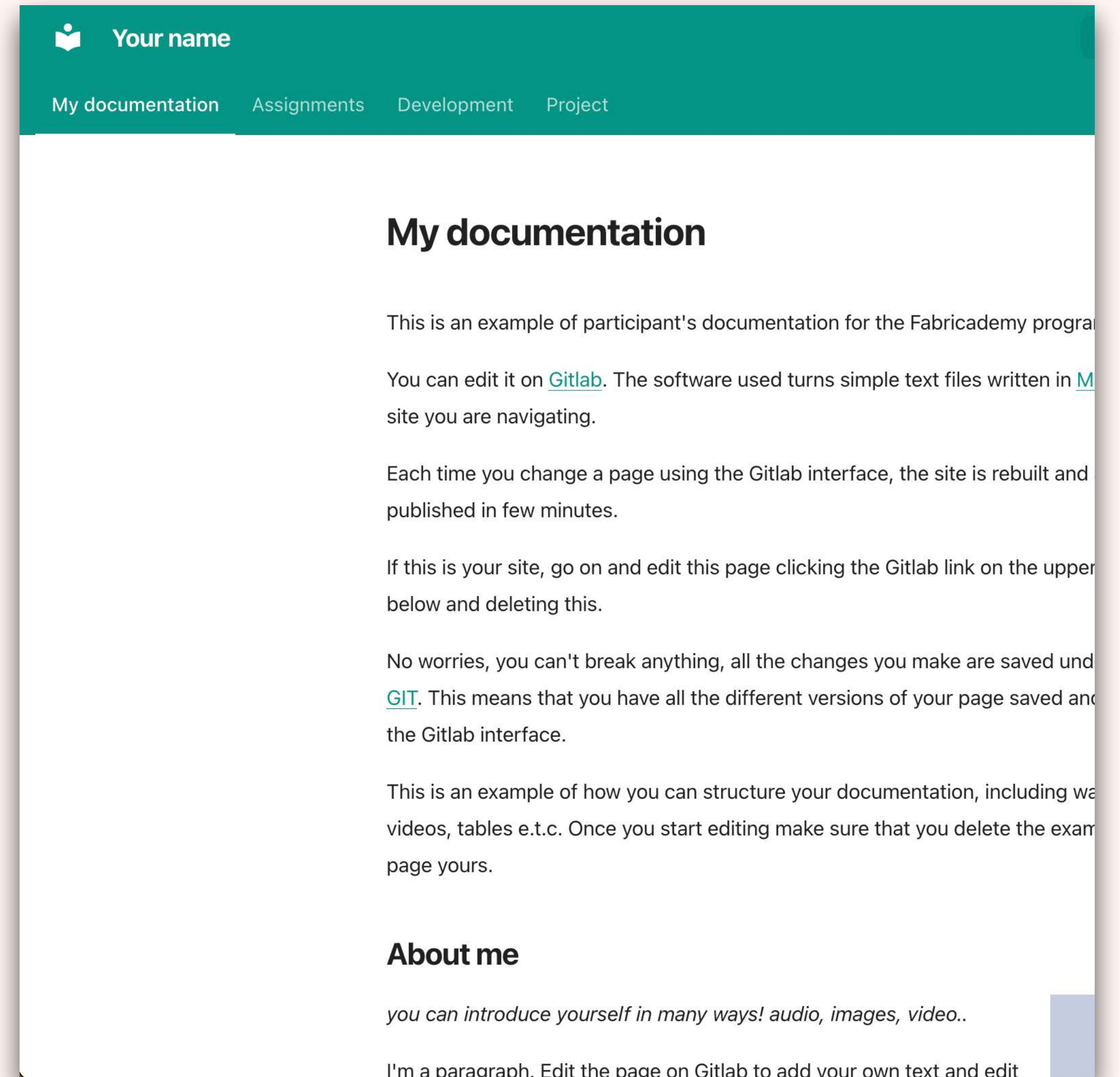
[GitHub](http://github.com)
```

See more info at: [fabricademy-gitlab-documentation-tutorial/03-markdown/](https://www.fabricademy.com/documentation/tutorial/03-markdown/)

ZENSICAL

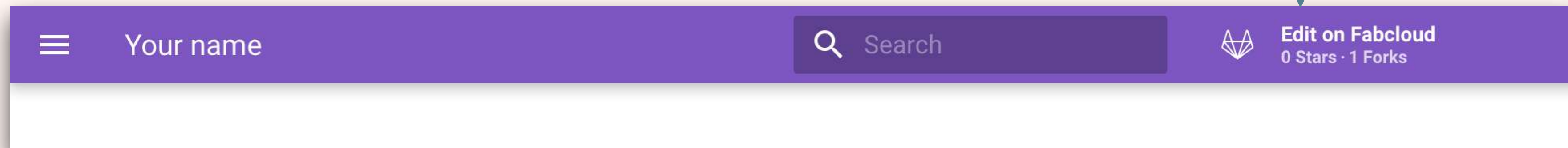
zensical.org

- **Tool to help create a website from markdown**
- **All content written using Markdown**
 - **HTML lines can be included with Markdown**
- **Generates HTML/CSS code from the markdown**
- **Lots of options to change how the website works**
 - **through a configuration file `zensical.toml`**
 - **Enable extra features/functionality**



LET'S EDIT YOUR WEBSITE

- Visit your website code project in GitLab, find the link by:
 - From your welcome email, you can find a link to your project
 - Or go to class.textile-academy.org/participants, click your name
 - On your website, find the “edit” button for easy access to your GitLab project



GITLAB PROJECT PAGE

1. List of website files

2. Last change saved
(called a “commit”)

3. Website deploy
status

4. List of changes
(commit history)

5. Rough size of project

6. History of
deployments
(CI pipeline statues)





J

Julian Test Website

▼



Project overview

▼



Pinned

▼



Manage

▼



Plan

▼



Code

^



Merge requests

0



Repository



Branches



Commits

4



Tags



Repository graph



Compare revisions



Build

^



Pipelines

6



Jobs



Pipeline editor

J

Julian Test Website

Project ID: 4524

5



Star

0



Fork

0



54 Commits



1 Branch



0 Tags



6.1 MiB Project Storage

Student repo template for initial documentation setup example.

2

Upload my first image

Julian Testsss authored 36 minutes ago

3

15e87ba9



main

julian-test-website /

+

Find file

Edit

↓

Clone

↓

README

CI/CD configuration

Add LICENSE

Add CHANGELOG

Add CONTRIBUTING

Configure Integrations

Name	Last commit	Last update
1	Upload my first image	36 minutes ago
.gitignore	Update mkdocs theme and config for 2...	2 years ago
.gitlab-ci.yml	Upgrade theme to v9	3 days ago
README.md	Update readme file	1 year ago
mkdocs.yml	Updateing my theme	57 minutes ago
requirements.txt	Upgrade theme to v9	3 days ago

ABOUT GIT + GITLAB

- **GitLab projects are a wrapper around a Git repository**
 - **A repo is a list of sequential changes saved, organised into “commits”**
 - **Each commit has a title and list of files and their changes compared to the previous commit**
 - **The commit history can show you what changed, who made the edit and when**
 - **If anything breaks, Git allows you to see all the changes made to that file, and undo the change**
 - **You can also work with the Git repository to your computer** *(with out internet or a browser needed)*
 - **example: `git clone <URL to the Gitlab repo>`**
 - **Allows you to make a few changes locally before you commit and push the change to GitLab**
 - **Install Zensical locally to have a preview of your changes in the browser, good for trying new things**
 - **Your changes need to be push to GitLab server (usually called origin) for you local changes to be deployed**
 - **Try using a Git GUI application to help work with GIT instead of using command line**
 - **Ie. GitHub Desktop, Atom, Microsoft VSCode**
-

ZENSICAL FOLDER STRUCTURE

zensical.toml	Configuration file for the Zensical tool, to personalise your website & configure extensions
docs/	Contains all your markdown documentation. All files to publish should be inside this folder
docs/index.md	This is your homepage. Edit this file with your profile and information
docs/images	This folder is meant to contain all images in your website. Be aware of the file size of uploads.
.gitlab-ci.yml	GitLab CI pipeline instructions for how to build and publish your project. Change at your discretion.

ZENSICAL CONFIGURATION FILE

- **The configuration is done in a format called “TOML”**
- **Indentation is very important, so be aware.** *(have errors? try a [TOML checker tool](#))*
- **Example of what it looks like:**

```
1  [project]
2
3  site_name = "Your name"
4
5  site_description = "Your name Fabricademy site."
6
7  site_author = "Your name here"
8
9  site_url = "http://academany.fabcloud.io/fabricademy/student-template/"
10
11 [project.theme]
12
13 palette.primary = "custom"
14 palette.accent = "teal"
15
16 [project.theme.font]
17 text = "Montserrat"
18 code = "Roboto Mono"
19
```

EXAMPLE, CHANGE ZENSICAL FONTS

- **The website theme allows you to change the fonts**
- **Using Google Fonts to find a one you like**
- **Edit your zensical.toml file with the Google Font name to use:**

Home

This is an example blog for the Fabricademy Course.

You can edit it on [Gitlab](#). The software used turns simple text files written in [Markdown](#) format, into the site you are navigating.

Each time you change a page using the Gitlab interface the site is rebuilt and all the changes published in few minutes.

If this is your site, go on and edit this page clicking the Gitlab link on the upper right, changing the text below and deleting this



Home

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MARKDOWN FILE PATHS

- **Links to images in mark down are relative to the file you are editing**
 - if you are in a folder "assignments/week01.md", you use ``
 - `"../"` means go back one folder (out of "assignments/")
 - in the "docs/index.md" file, you are in the same folder as images, so ``
-

WEBSITE STORAGE !!

➤ Store everything in your website (as much as possible)

- Restrict external hosted files if you can (eg. your youtube videos or sketchfab could get deleted)
- Protecting your documentation from breaking in the future (2yr, 5yr, 10yrs? ... :)

➤ Maximum allowed size of your website = **500MB**

- est 25MB per week (some week may need more/less) plus final project assets and PDFs
 - Images: aim for <80KB, or 100-200KB; (100KB means you can have 100 pictures per week :) + space for videos
 - ◆ Resize to resolutions width 800px (website is not any-wider anyway)
 - Videos: aim for 1-5MB (smaller videos mean more videos);
 - ◆ Use the HandBreak app to help "Presets > Web > Social 5MB" will help! (ie. like compressing your phone videos very well)
 - ◆ For HD video or final video, >50MB, as last resort if you can not get videos small, try Youtube or Vimeo.
 - GIFs: Good for animating slides or photos. NOT great for motion, like videos, which makes files 50MB instead of 2MB
 - Using GIT locally? Each commit can **not be larger than 10MB** (so not too many images in one commit :)
-

CHALLENGE: CUSTOM CSS

- **To do some more advance styling across your website, you can use CSS and class styles**
 - Example, different font-sizes than default or a custom button style
 - **Your website has an example CSS file**, see docs/stylesheets/extra.css file
 - Review the [zensical docs](#) on adding a custom CSS file
 - **Inspect your website HTML in the browser to find the “CSS targets” you want to style with CSS .)** (see handbook for examples)
-

WORKING LOCALLY

INSTALL ZENSICAL

- **Zensical can be installed on your MacOS/Windows/Linux**
 - **See changes faster by working locally, then commit all your changes in one push**
 - **For example on MacOS:**
 - **`python3 -m venv .venv`**
 - **`source .venv/bin/activate`**
 - **`pip install zensical`**
 - **THEN:**
 - **`zensical build`**
 - **`open http://localhost:8000/`**
-

GITLAB

EXTRA: HOW IS ZENSICAL PUBLISH

- For every time you push a commit in GitLab
- A CI job will be run on a special server:
 - The Job will read you `.gitlab-ci.yml` file from you project
 - Contains the instructions on how to build your project's HTML
 - Which is "sensical build" in this example
- When the CI job complete successfully, the new HTML is replaced in GitLab Pages (website hosting).
- You need to pay attention to any job failures, which means your website failed to not updated
 - Visit "CI/CD > Pipelines" in your GitLab project's sidebar

	Status	Pipeline ID	Triggerer	Commit	Stages	Duration
CI/CD Pipelines ←	passed	#245259		master - d43b74ac Upgrade Material them...	pages	00:00:34 4 days ago
Editor	passed	#245258		master - db0e... Upgrade Mate	pages:deploy	00:02:23 4 days ago
Jobs						
Schedules						
Deployments						

GITLAB'S OTHER FEATURES

- **Issue Tracker (ie. for asking for help on issues)**
 - **CI pipelines (ie. for automatically building your project)**
 - **Pages, used for hosting static websites**
 - **Web IDE (text editor in the browser, with a simple markdown editor)**
-

MATTERMOST - CHAT

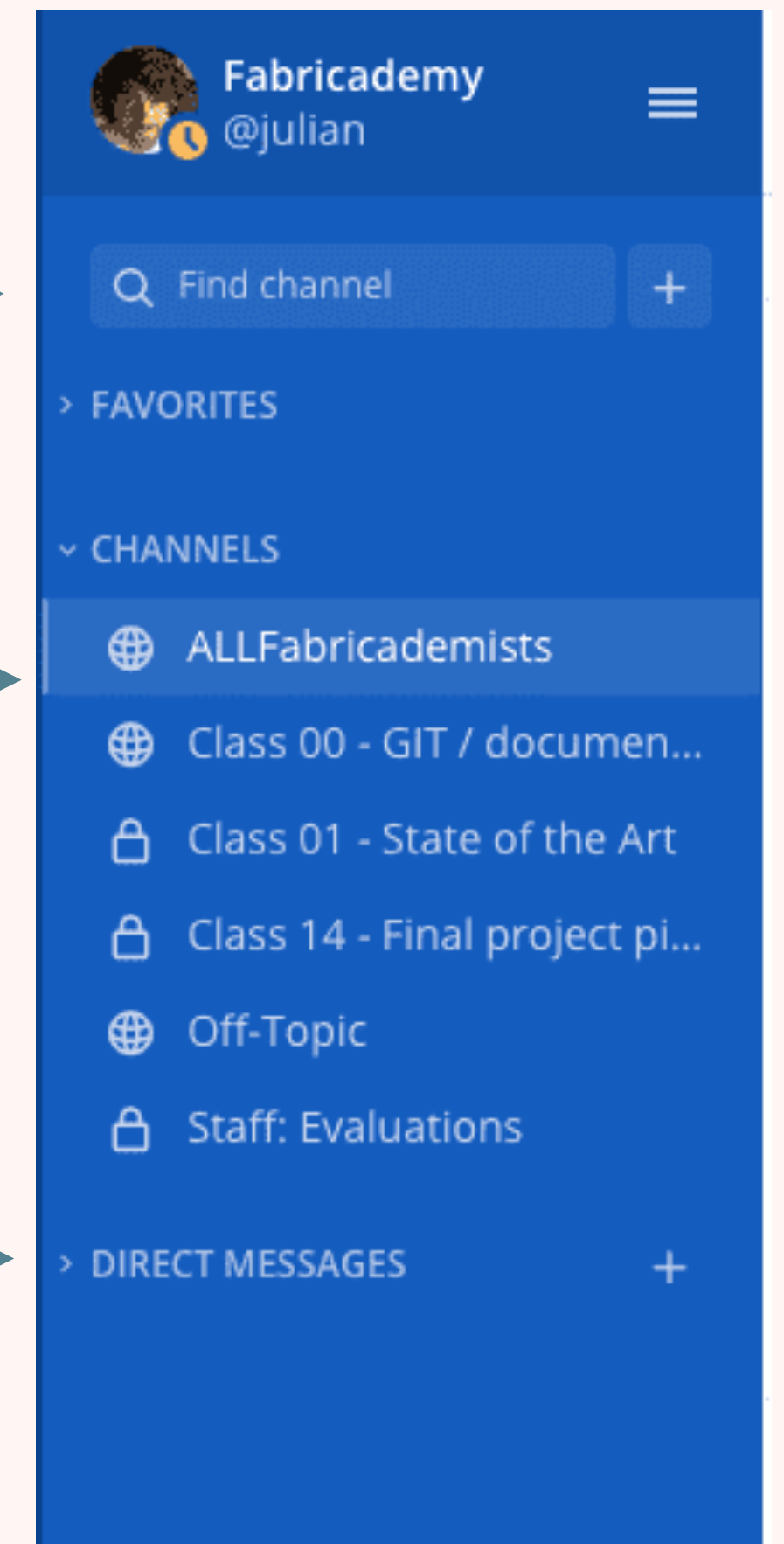
Browse and join channels



Click to switch channels



To start a one-on-one message with another user



“I HAVE A PROBLEM”

- **Ask your instructors**
 - **Check out: <https://fabricademy.fabcloud.io/gitlab-documentation-tutorial/>**
 - **Create an issue in your GitLab project**
 - **As your questions in Mattermost,**
-