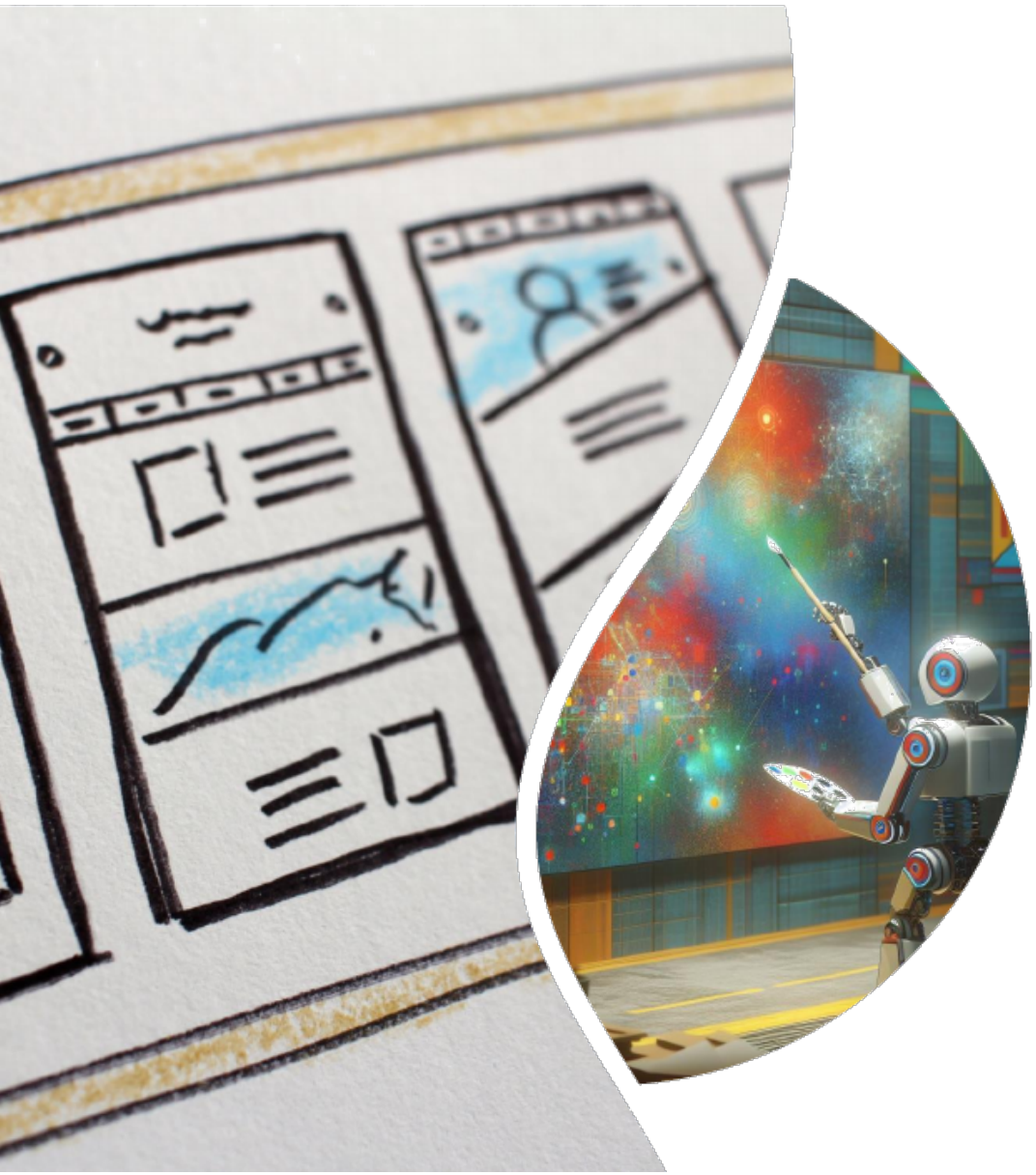


DGIN 5201
Digital Transformation
Lecture 10

Source Version Control

Vlado Keselj

Time and date:
10:05–11:25, 12-Feb-2026
Location: McCain 2170

Image: DALL-E. Bing Image Creator. Generated by AI

Previous Lecture

- Review of e2 form
  - touch typing
  - text editors, emacs
- Web server Apache
- Available material (e3)
- Concepts and tools
  - Iterative prototyping and rsync
  - Apache options
- Password protection (e4)
- Unix-style customization
  - .htaccess, .htpasswd, .bashrc, .emacs

Announcements: Assignment 2

- A2 part 1: by tomorrow (Fri 13-Feb-2026) 11:59pm
  - A2 part 1: e1 and e2 on timberlea
- A2 part 2: by Fri 27-Feb-2026
  - A2 part 2: what we finish this week, will be specified
- A2 part 3: by Fri 6-Mar-2026
  - A2 part 3: to be completed after reading week
  - will be specified

Heads-up: Second Half of the Term

- 1 lab and 1 lecture to finish CS part from 1st half
- Seminars and project meetings
- Team meetings with instructors
  - 20 min formative meetings
  - check schedule on Brightspace Week 7 to 12

Source Version Control

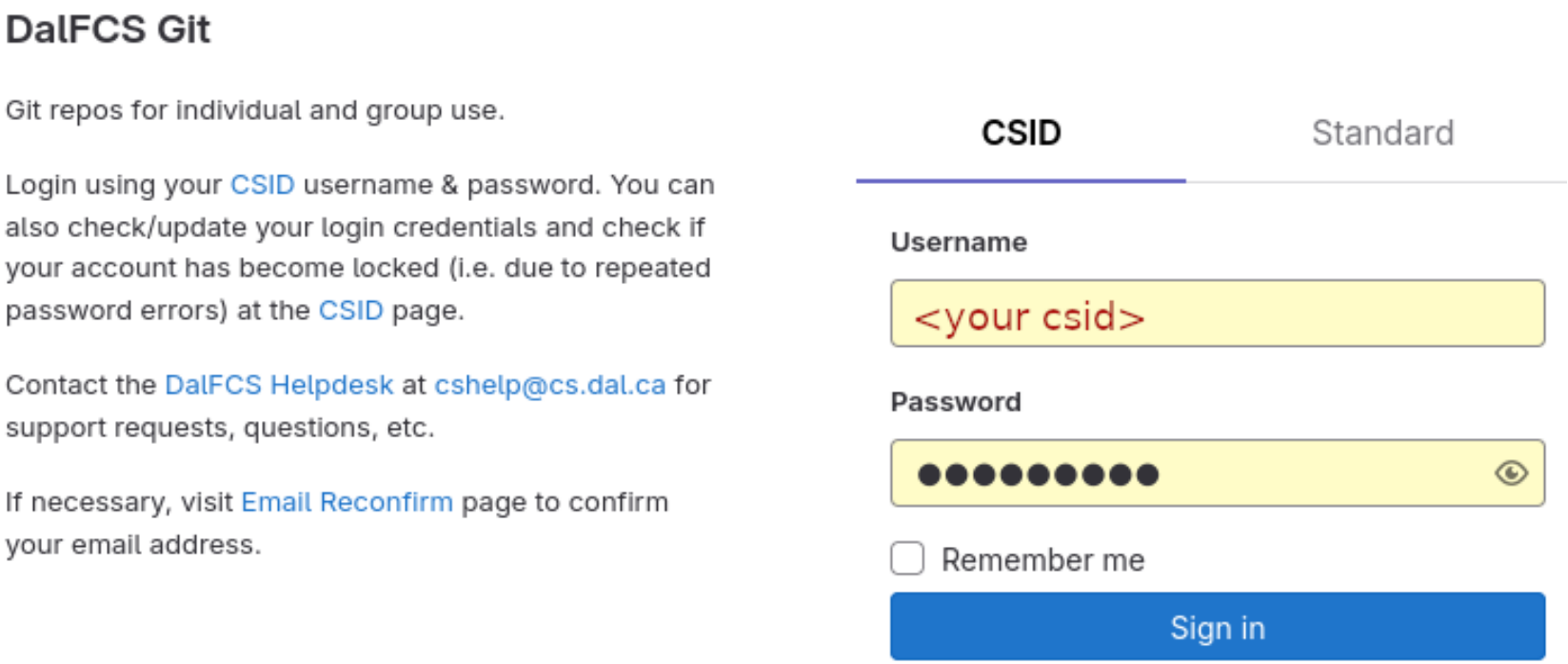
- Before continuing with e5 etc. let us see how to submit e1, e2, e3, e4 to GitLab
- We will use this as an introduction to git, GitLab, GitHub
- git is a Source Version Control tool
- We already have used making several incremental copies of the code
  - or may use saving a file version as a backup for later
  - saving relatively often, not to lose code accidentally

What is GitLab?

- It is based on Git, a source version control system
- A source version control system is used
  - to store and manage different versions of code
  - to provide collaborative platform for software developers
- GitLab is based on Git and provides a web interface
- Similar to GitHub in this sense
- Provides Continuous Integration (CI) and Continuous Delivery (CD) of code
- A lot of material on Git and GitLab can be found on the Web

Step 1. Logging into DalFCS GitLab Website

- Open your Web browser and go to: `https://git.cs.dal.ca`

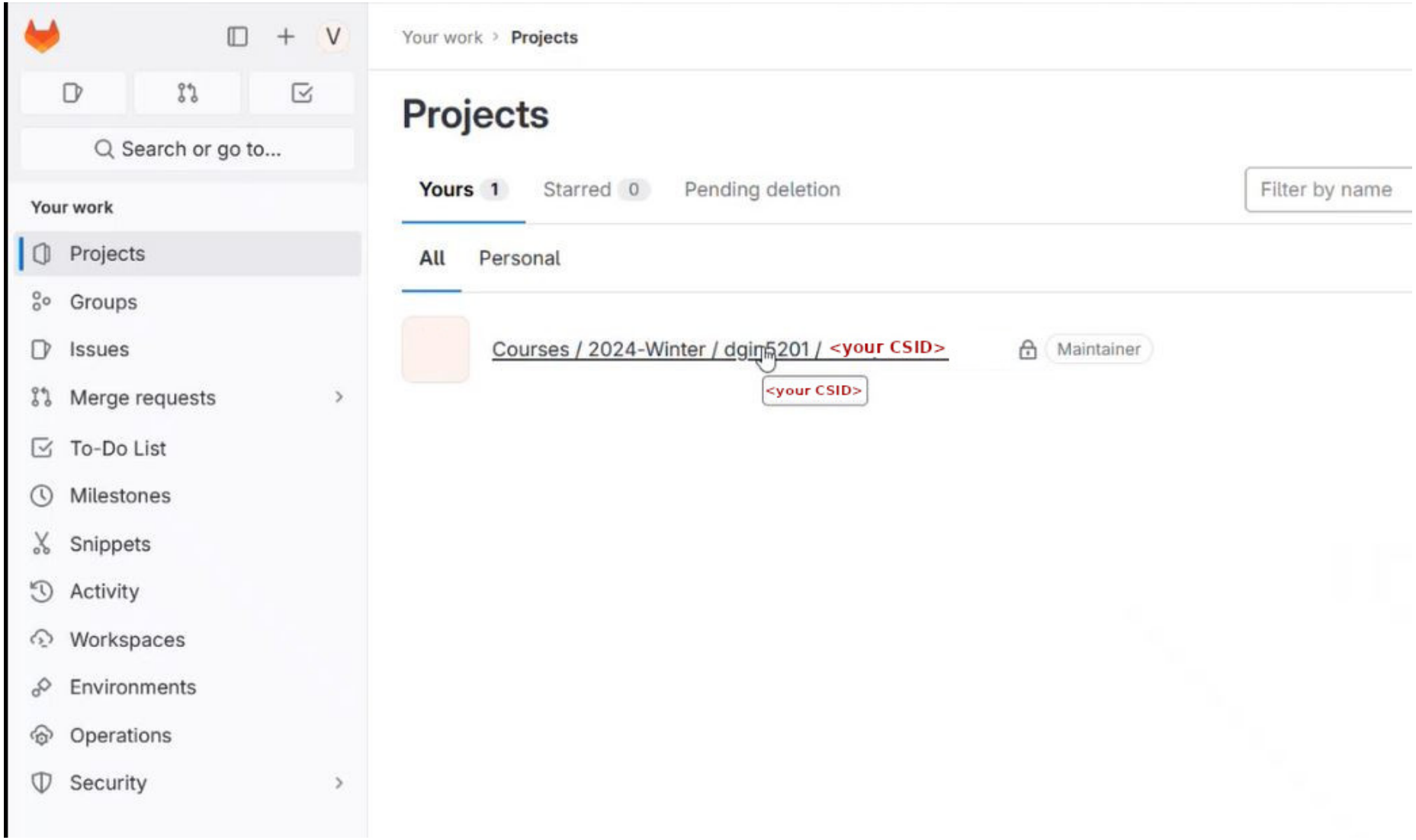


Step 2. Find your CSID Course Project in DGIN5201 Group

- The next step is to find your course project
- It is in the course group for the current term
- Its name is your CSID
- The next slide shows how the page with your projects approximatelly looks like

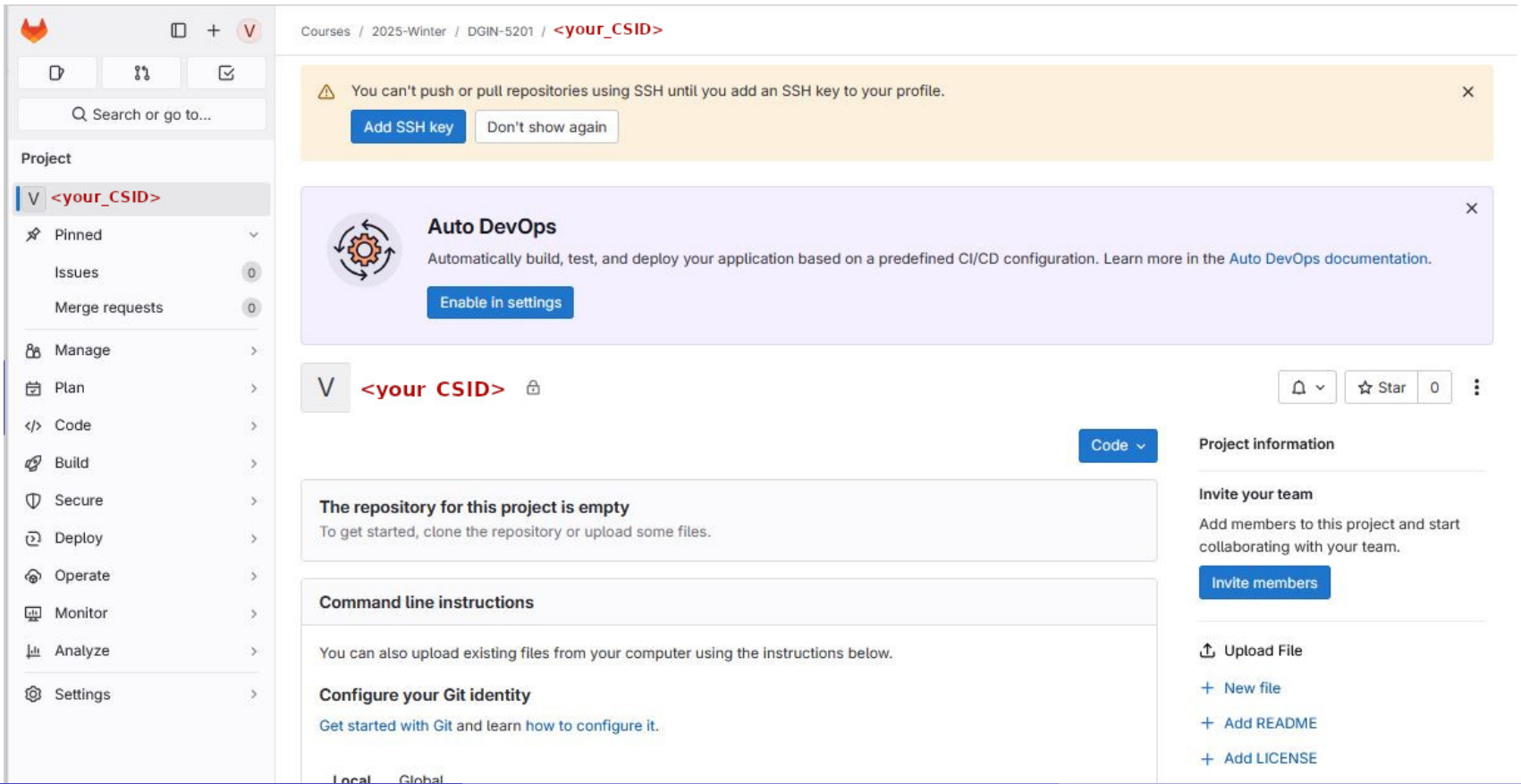
Approximate Page with Your Projects

- an approximate look of the page with your projects



Your Course GitLab Project (Repository)

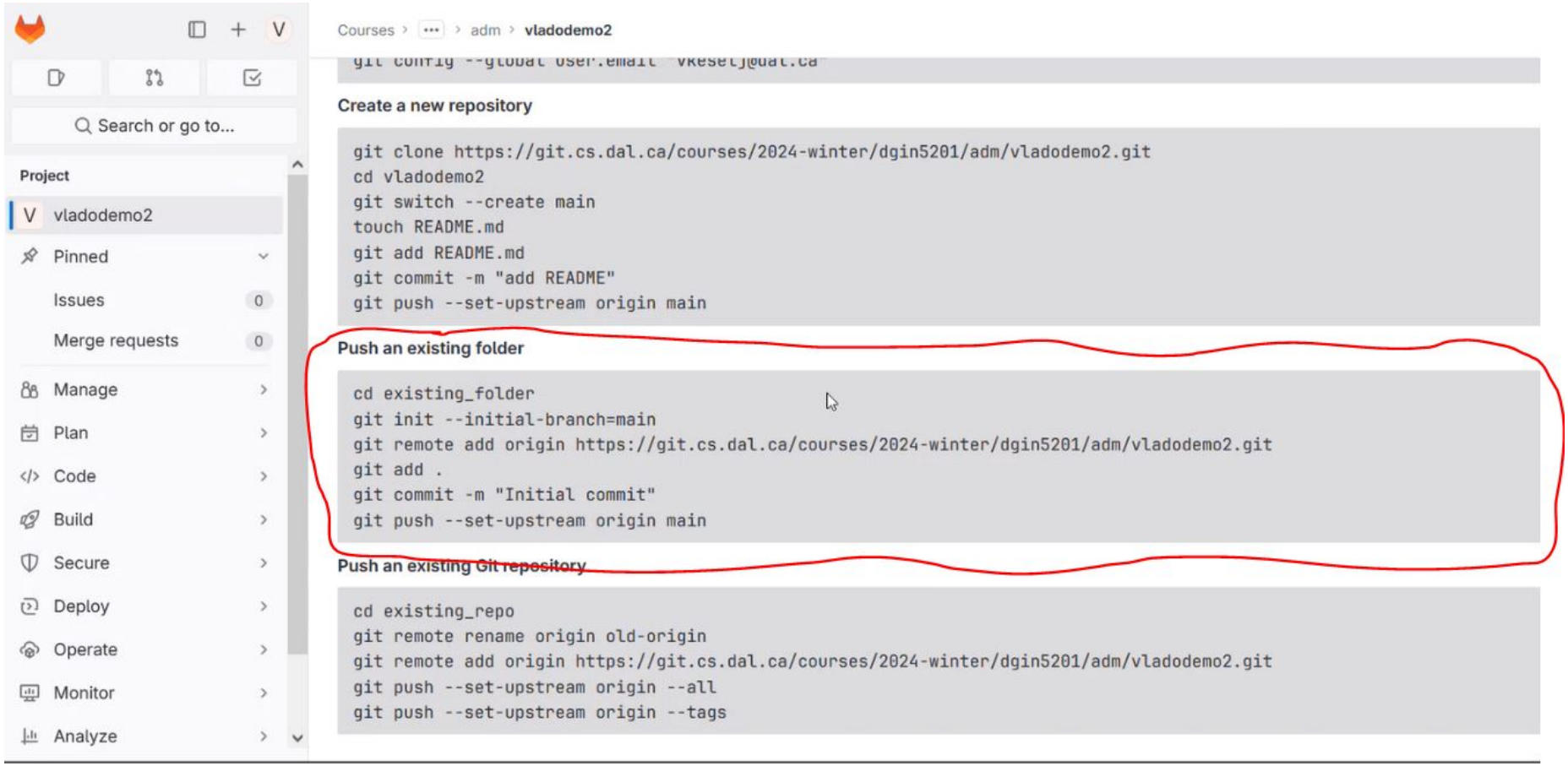
- It is named as your CSID and in the course group (`2026-winter/dgin-5201/<your_csid>`)
- URL: `https://git.cs.dal.ca/courses/2026-winter/dgin-5201/<your_csid>`



Step 3: Uploading your Files from `timberlea`

- In this step you should upload your lab files from `timberlea` into the GitLab server
- The instructions are shown in the GitLab page
- You should also open another command-line window for ssh login to `timberlea`
- **Note:** The following slides will have some incorrect information based on previous years. I will point out differences and correct them after class.

Instructions to Upload our Files



Login to timberlea Server

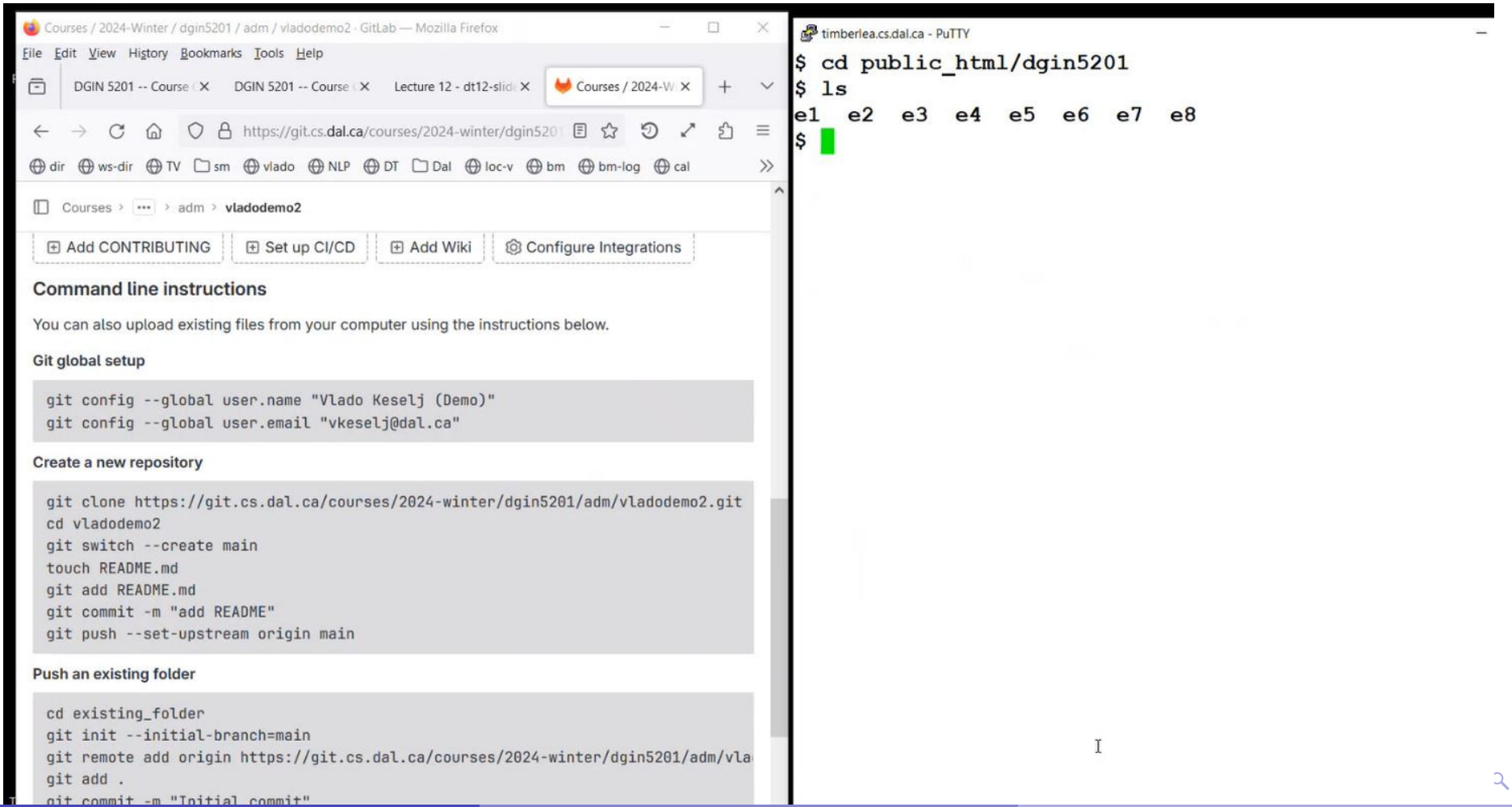
- In another window, we login to timberlea server
- It will probably be a command-line window or terminal window in which we type the command:

```
ssh <your_csid>@timberlea.cs.dal.ca
```

  where instead of <your_csid> you should use your own CSID
- or maybe you can use PuTTY, mobaxterm, or other SSH application
- You should try to have two windows: the web browser with GitLab, and the command-line window

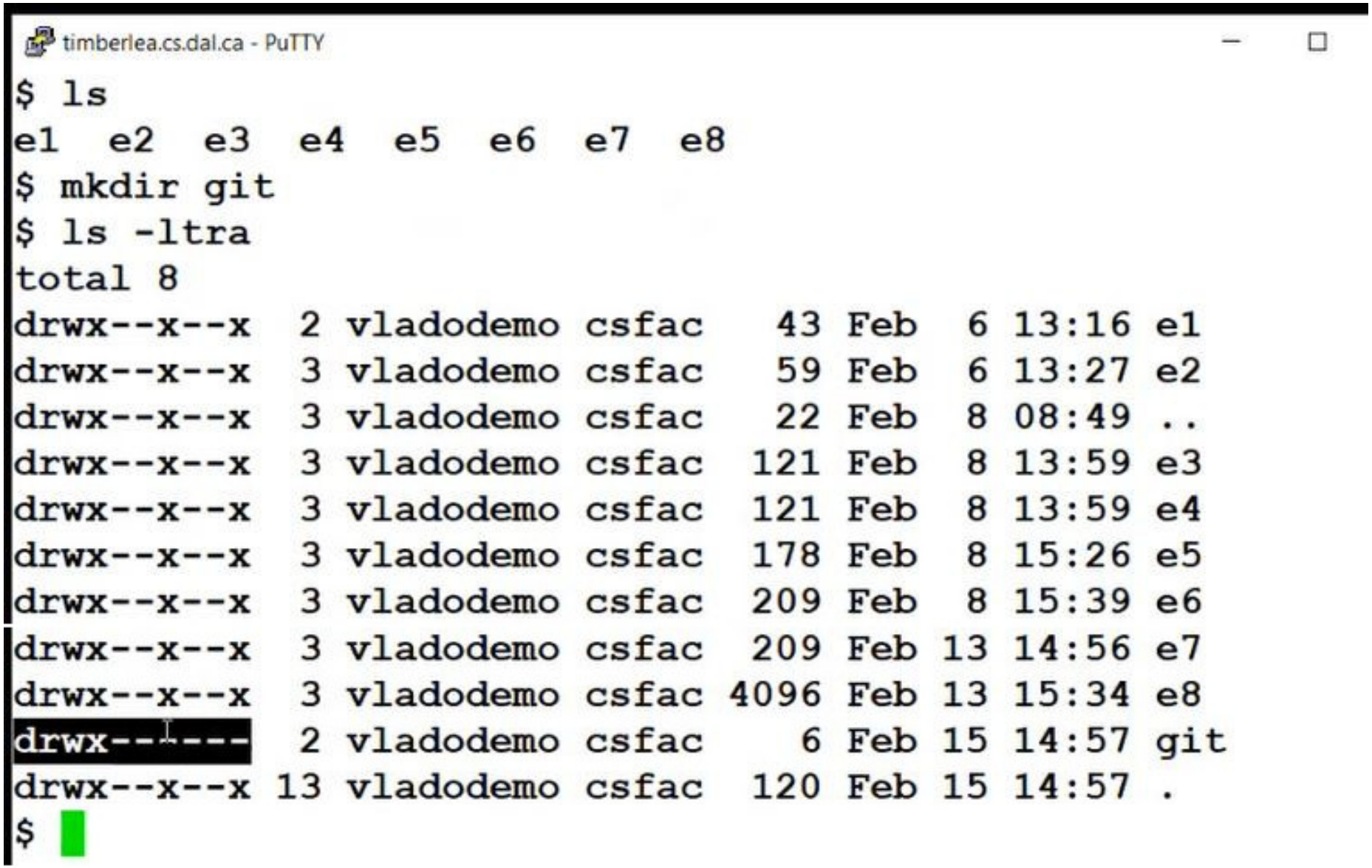
Going to your Labs Directory

- Change directory to `public_html/dgin5201` and list contents
- your screen with two windows could look as follows:



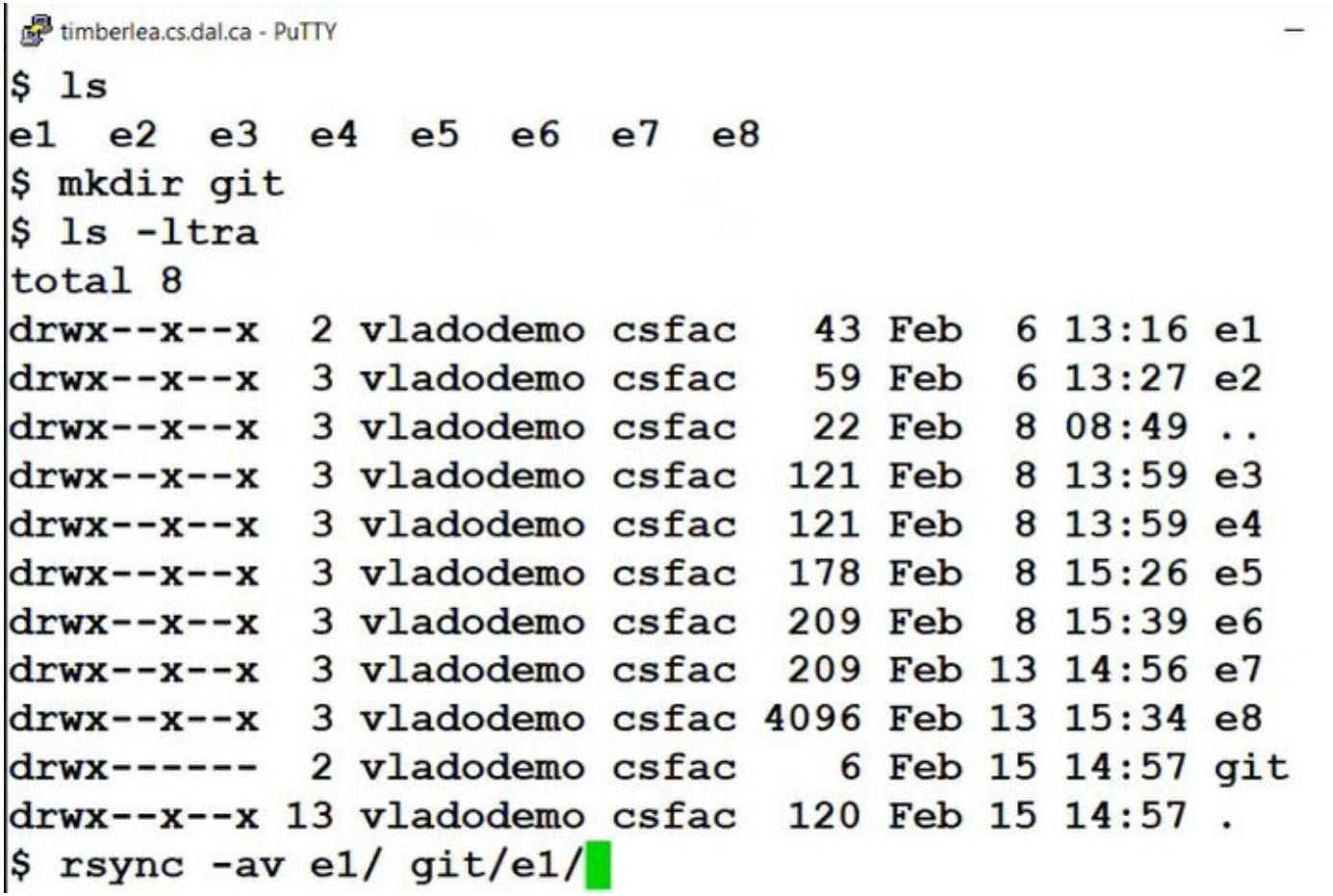
Create Directory `git`

- make directory `git`
- make sure that the directory has permissions `rwx` for for the user only (`rwx------`)
- the next screenshot shows how it would look on my screen


timberlea.cs.dal.ca - PuTTY
$ ls
e1 e2 e3 e4 e5 e6 e7 e8
$ mkdir git
$ ls -ltra
total 8
drwx--x--x 2 vladodemo csfac 43 Feb 6 13:16 e1
drwx--x--x 3 vladodemo csfac 59 Feb 6 13:27 e2
drwx--x--x 3 vladodemo csfac 22 Feb 8 08:49 ..
drwx--x--x 3 vladodemo csfac 121 Feb 8 13:59 e3
drwx--x--x 3 vladodemo csfac 121 Feb 8 13:59 e4
drwx--x--x 3 vladodemo csfac 178 Feb 8 15:26 e5
drwx--x--x 3 vladodemo csfac 209 Feb 8 15:39 e6
drwx--x--x 3 vladodemo csfac 209 Feb 13 14:56 e7
drwx--x--x 3 vladodemo csfac 4096 Feb 13 15:34 e8
drwx------ 2 vladodemo csfac 6 Feb 15 14:57 git
drwx--x--x 13 vladodemo csfac 120 Feb 15 14:57 .
$

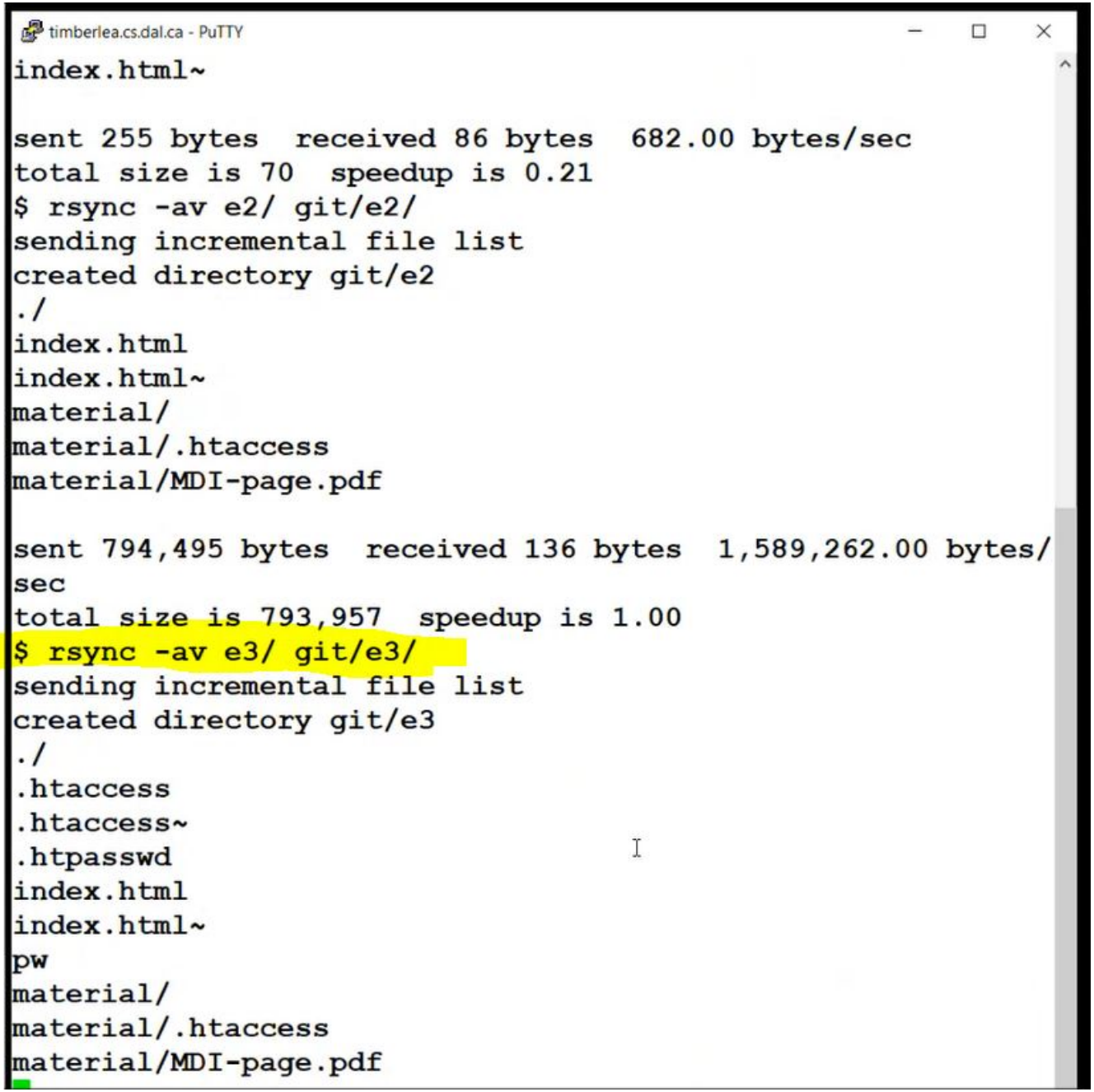
Copy directories e1...e4 into directory git

- We first `rsync` directory `e1`:



Copy other Directories with `rsync`: e2

```
$ rsync -av e2/ git/e2/
sending incremental file list
created directory git/e2
./
index.html
```


timberlea.cs.dal.ca - PuTTY
index.html~
sent 255 bytes received 86 bytes 682.00 bytes/sec
total size is 70 speedup is 0.21
$ rsync -av e2/ git/e2/
sending incremental file list
created directory git/e2
./
index.html
index.html~
material/
material/.htaccess
material/MDI-page.pdf
sent 794,495 bytes received 136 bytes 1,589,262.00 bytes/
sec
total size is 793,957 speedup is 1.00
$ rsync -av e3/ git/e3/
sending incremental file list
created directory git/e3
./
.htaccess
.htaccess~
.htpasswd
index.html
index.html~
pw
material/
material/.htaccess
material/MDI-page.pdf

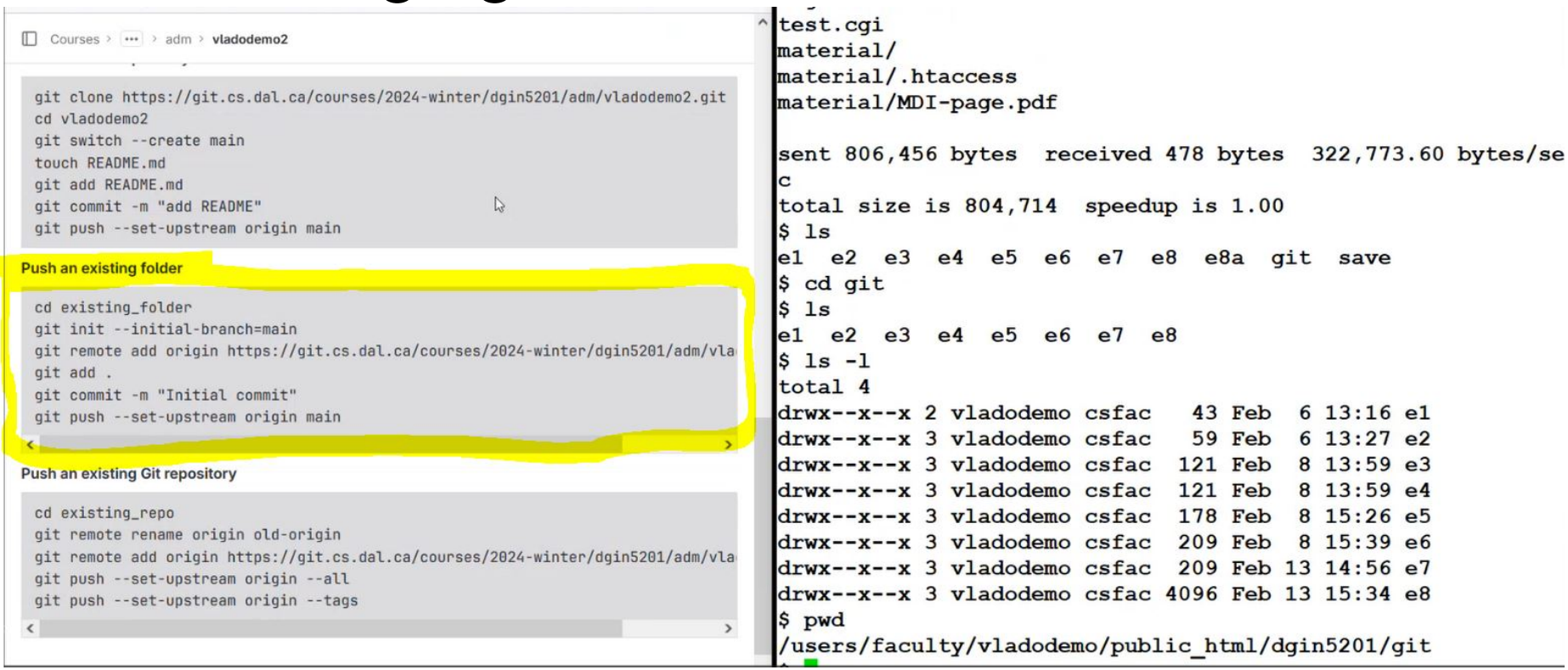
```
$ rsync -av e4/ git/e4/
```

Use highlighted commands to check your git directory

```
$ ls
e1  e2  e3  e4  e5  e6  e7  e8        git
$ cd git
$ ls
e1  e2  e3  e4  e5  e6  e7  e8
$ ls -l
total 4
drwx--x--x 2 vladodemo csfac   43 Feb  6 13:16 e1
drwx--x--x 3 vladodemo csfac   59 Feb  6 13:27 e2
drwx--x--x 3 vladodemo csfac  121 Feb  8 13:59 e3
drwx--x--x 3 vladodemo csfac  121 Feb  8 13:59 e4
drwx--x--x 3 vladodemo csfac  178 Feb  8 15:26 e5
drwx--x--x 3 vladodemo csfac  209 Feb  8 15:39 e6
drwx--x--x 3 vladodemo csfac  209 Feb 13 14:56 e7
drwx--x--x 3 vladodemo csfac 4096 Feb 13 15:34 e8
$ pwd
<your home directory .....>  /public_html/dgin5201/git
```

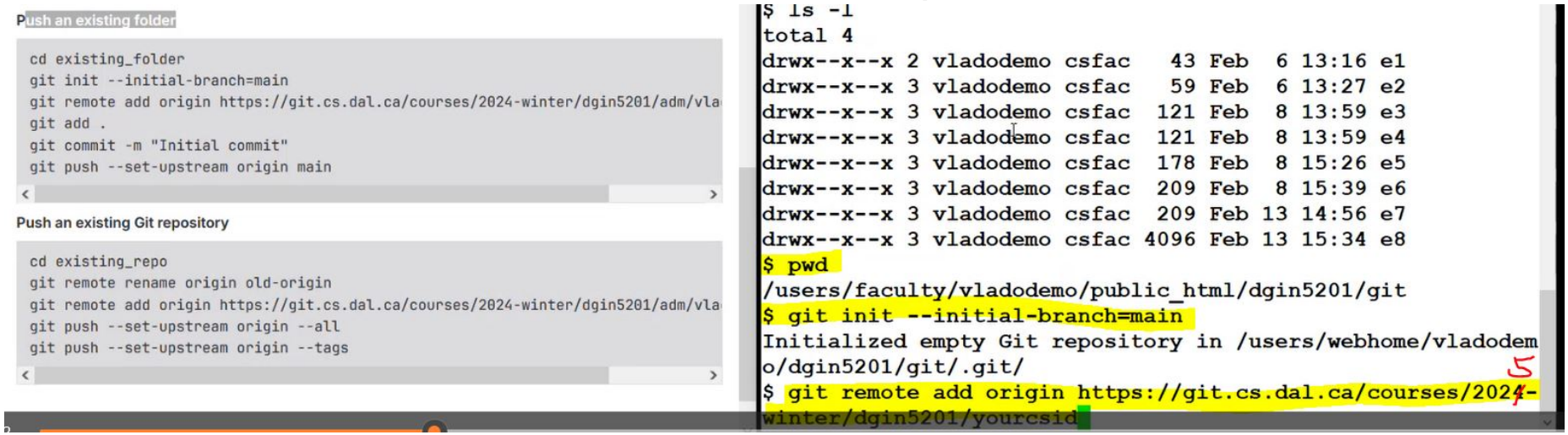
Follow `git` Commands for Upload

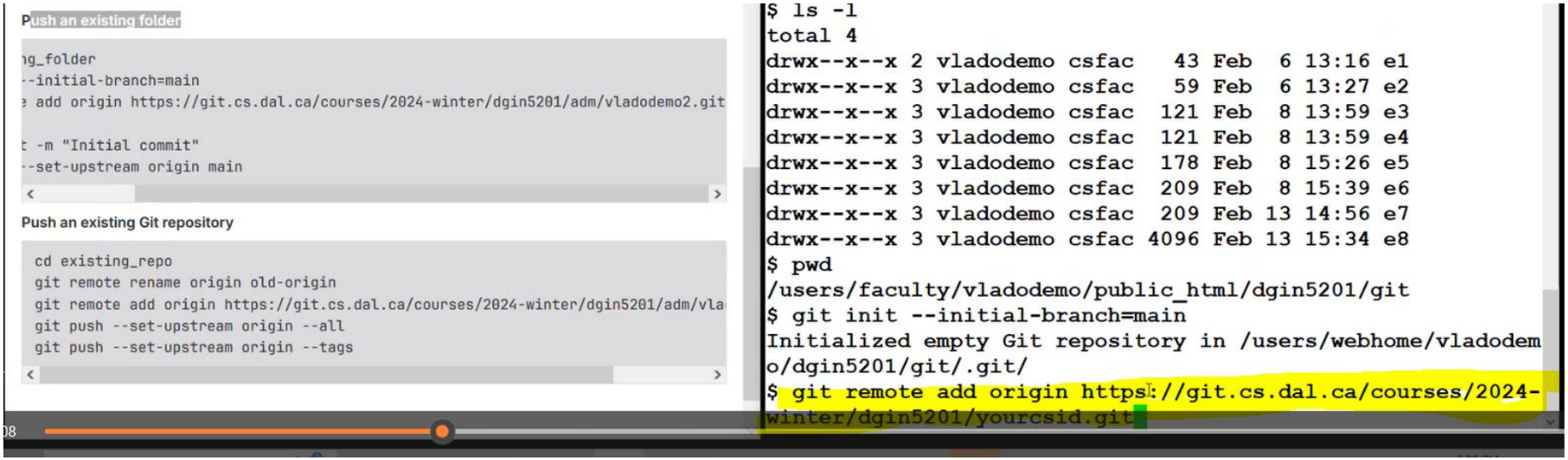
We now follow `git` commands shows on the GitLab page
First, let us highlight which ones we will use:



Type in Commands as Shown in GitLab page

Carefully copy commands from the GitLab page (these screenshots are from the last year):




Push an existing folder
ng_folder
--initial-branch=main
e add origin https://git.cs.dal.ca/courses/2024-winter/dgin5201/adm/vladodemo2.git
t -m "Initial commit"
--set-upstream origin main
Push an existing Git repository
cd existing_repo
git remote rename origin old-origin
git remote add origin https://git.cs.dal.ca/courses/2024-winter/dgin5201/adm/vla
git push --set-upstream origin --all
git push --set-upstream origin --tags
$ ls -l
total 4
drwx--x--x 2 vladodemo csfac 43 Feb 6 13:16 e1
drwx--x--x 3 vladodemo csfac 59 Feb 6 13:27 e2
drwx--x--x 3 vladodemo csfac 121 Feb 8 13:59 e3
drwx--x--x 3 vladodemo csfac 121 Feb 8 13:59 e4
drwx--x--x 3 vladodemo csfac 178 Feb 8 15:26 e5
drwx--x--x 3 vladodemo csfac 209 Feb 8 15:39 e6
drwx--x--x 3 vladodemo csfac 209 Feb 13 14:56 e7
drwx--x--x 3 vladodemo csfac 4096 Feb 13 15:34 e8
$ pwd
/users/faculty/vladodemo/public_html/dgin5201/git
$ git init --initial-branch=main
Initialized empty Git repository in /users/webhome/vladodem
o/dgin5201/git/.git/
$ git remote add origin https://git.cs.dal.ca/courses/2024-
winter/dgin5201/yourcsid.git

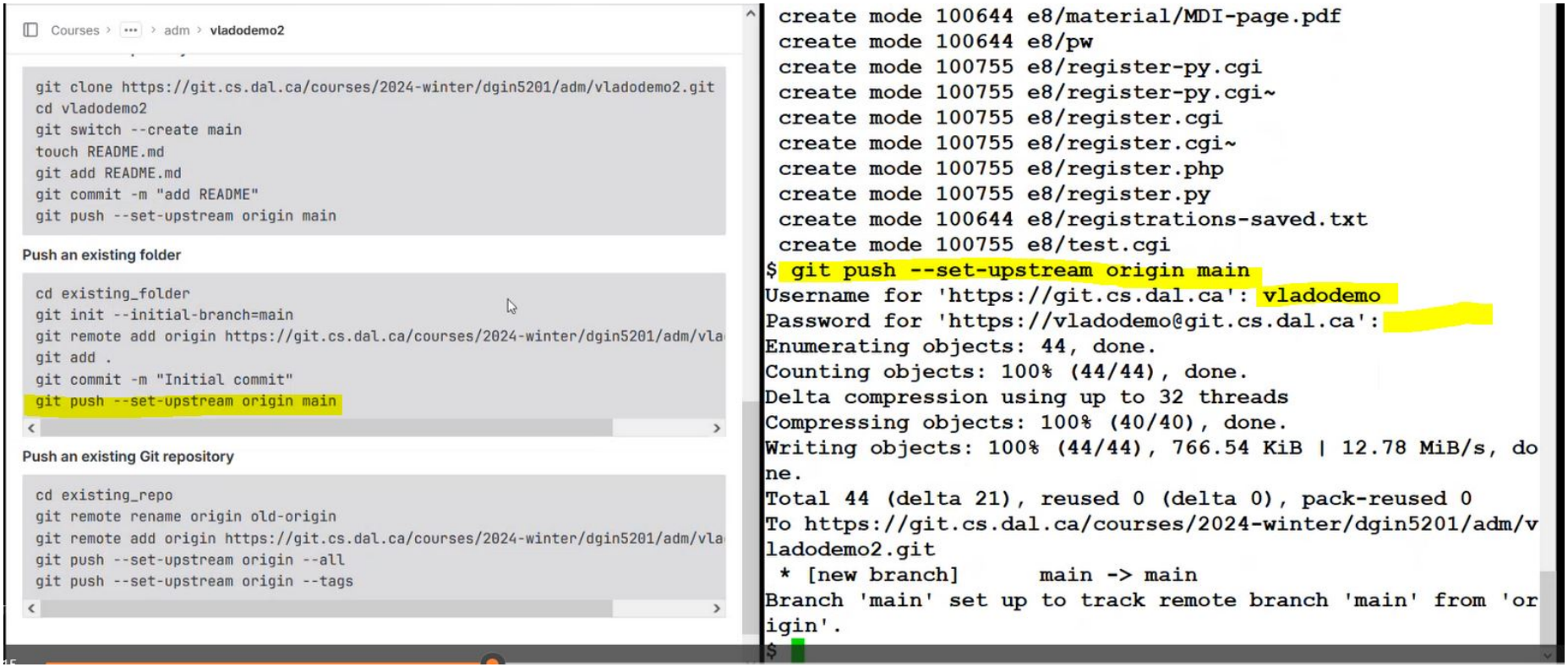
Push an existing folder

```
cd existing_folder
git init --initial-branch=main
git remote add origin https://git.cs.dal.ca/courses/2024-winter/dgin5201/adm/vla
git add .
git commit -m "Initial commit"
git push --set-upstream origin main
```

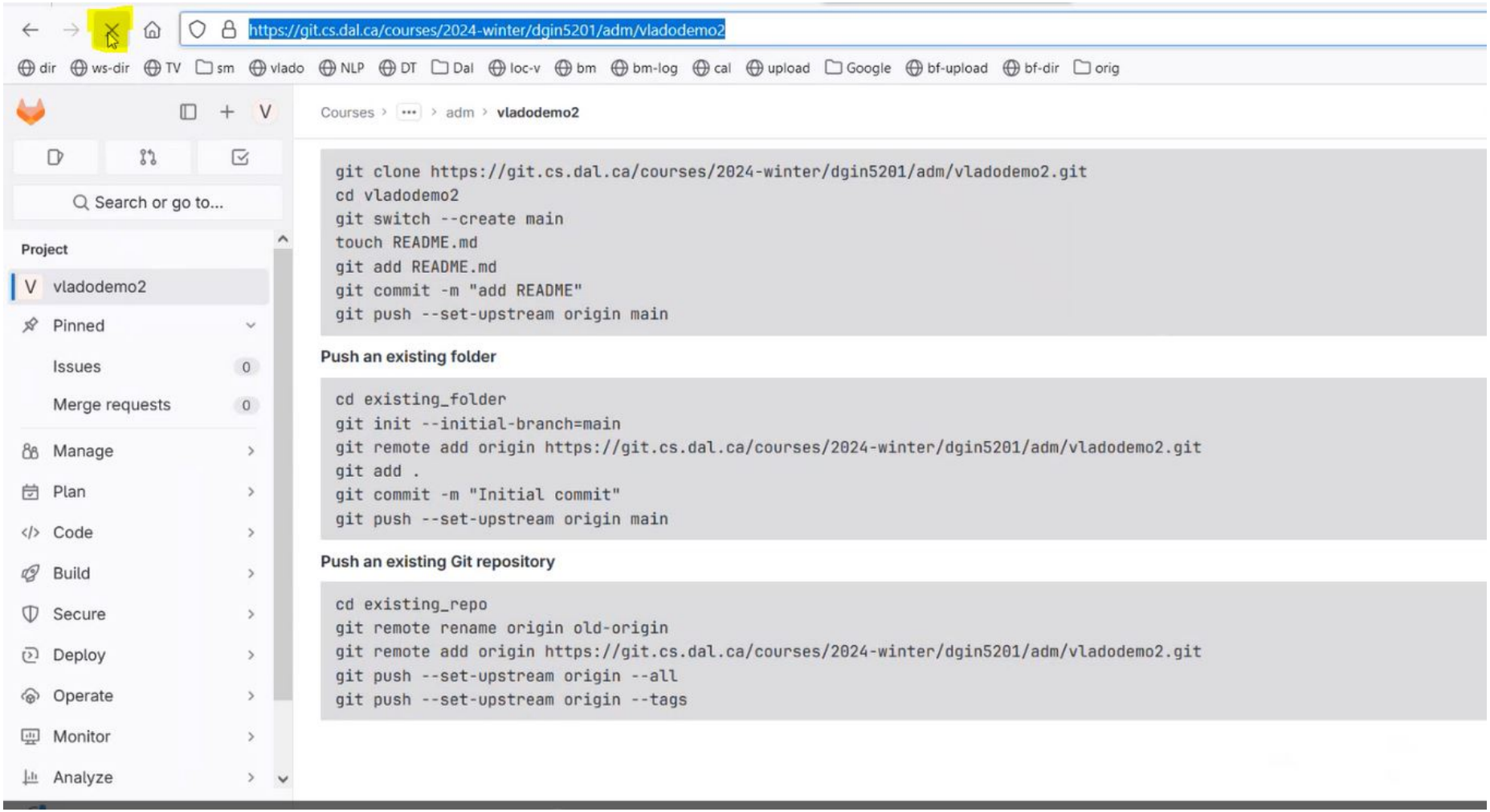
Push an existing Git repository

```
cd existing_repo
git remote rename origin old-origin
git remote add origin https://git.cs.dal.ca/courses/2024-winter/dgin5201/adm/vla
git push --set-upstream origin --all
git push --set-upstream origin --tags
```

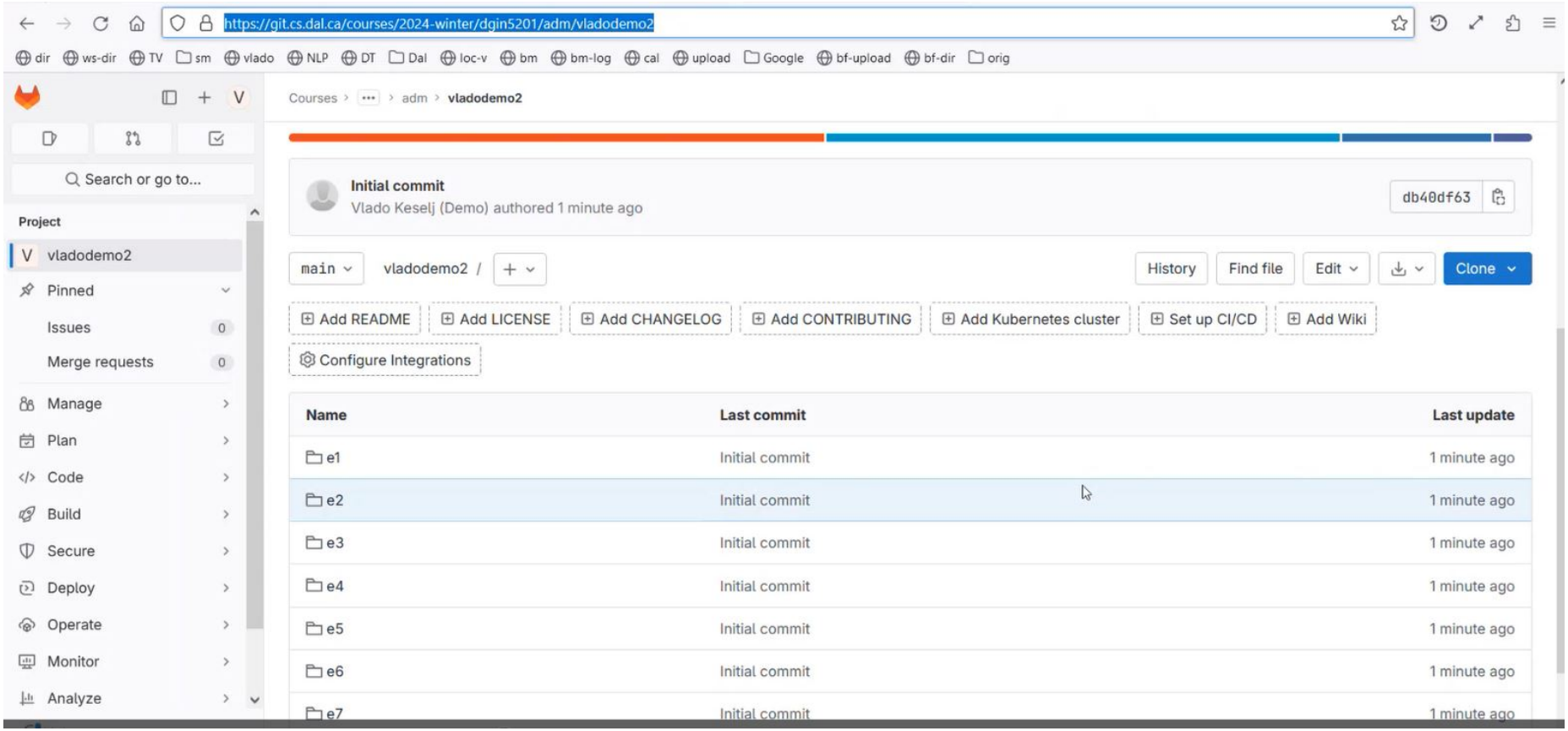
```
drwx--x--x 3 vladodemo csfac   59 Feb  6 13:27 e2
drwx--x--x 3 vladodemo csfac  121 Feb  8 13:59 e3
drwx--x--x 3 vladodemo csfac  121 Feb  8 13:59 e4
drwx--x--x 3 vladodemo csfac  178 Feb  8 15:26 e5
drwx--x--x 3 vladodemo csfac  209 Feb  8 15:39 e6
drwx--x--x 3 vladodemo csfac  209 Feb 13 14:56 e7
drwx--x--x 3 vladodemo csfac 4096 Feb 13 15:34 e8
$ pwd
/users/faculty/vladodemo/public_html/dgin5201/git
$ git init --initial-branch=main
Initialized empty Git repository in /users/webhome/vladodem
o/dgin5201/git/.git/
$ git remote add origin https://git.cs.dal.ca/courses/2024-
winter/dgin5201/adm/vladodemo2.git
$ git add .
$ git commit -m "Initial commit"
```

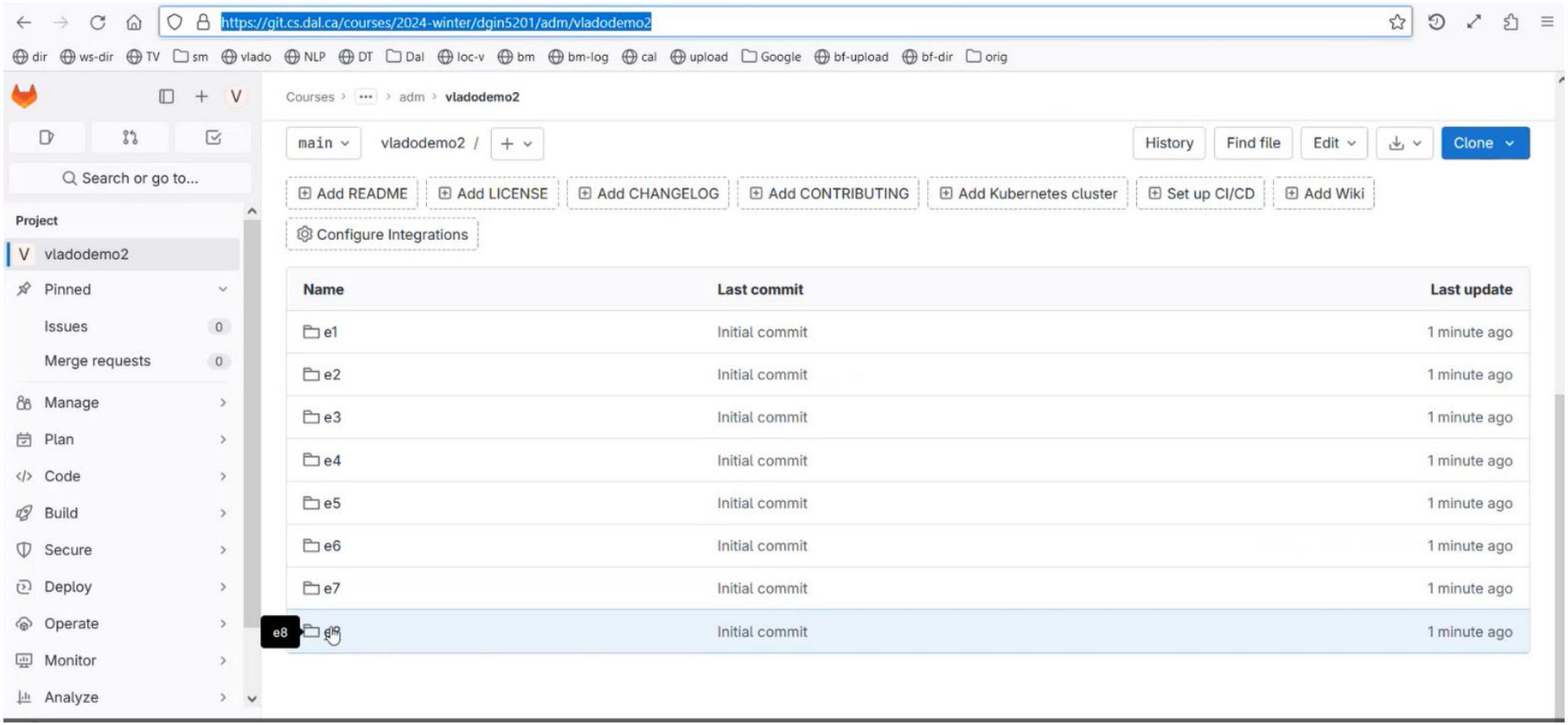

Courses › ··· › adm › vladodemo2
git clone https://git.cs.dal.ca/courses/2024-winter/dgin5201/adm/vladodemo2.git
cd vladodemo2
git switch --create main
touch README.md
git add README.md
git commit -m "add README"
git push --set-upstream origin main
Push an existing folder
cd existing_folder
git init --initial-branch=main
git remote add origin https://git.cs.dal.ca/courses/2024-winter/dgin5201/adm/vla
git add .
git commit -m "Initial commit"
git push --set-upstream origin main
Push an existing Git repository
cd existing_repo
git remote rename origin old-origin
git remote add origin https://git.cs.dal.ca/courses/2024-winter/dgin5201/adm/vla
git push --set-upstream origin --all
git push --set-upstream origin --tags
create mode 100644 e8/material/MDI-page.pdf
create mode 100644 e8/pw
create mode 100755 e8/register-py.cgi
create mode 100755 e8/register-py.cgi~
create mode 100755 e8/register.cgi
create mode 100755 e8/register.cgi~
create mode 100755 e8/register.php
create mode 100755 e8/register.py
create mode 100644 e8/registrations-saved.txt
create mode 100755 e8/test.cgi
$ git push --set-upstream origin main
Username for 'https://git.cs.dal.ca': vladodemo
Password for 'https://vladodemo@git.cs.dal.ca':
Enumerating objects: 44, done.
Counting objects: 100% (44/44), done.
Delta compression using up to 32 threads
Compressing objects: 100% (40/40), done.
Writing objects: 100% (44/44), 766.54 KiB | 12.78 MiB/s, done.
Total 44 (delta 21), reused 0 (delta 0), pack-reused 0
To https://git.cs.dal.ca/courses/2024-winter/dgin5201/adm/vladodemo2.git
* [new branch] main -> main
Branch 'main' set up to track remote branch 'main' from 'origin'.
$

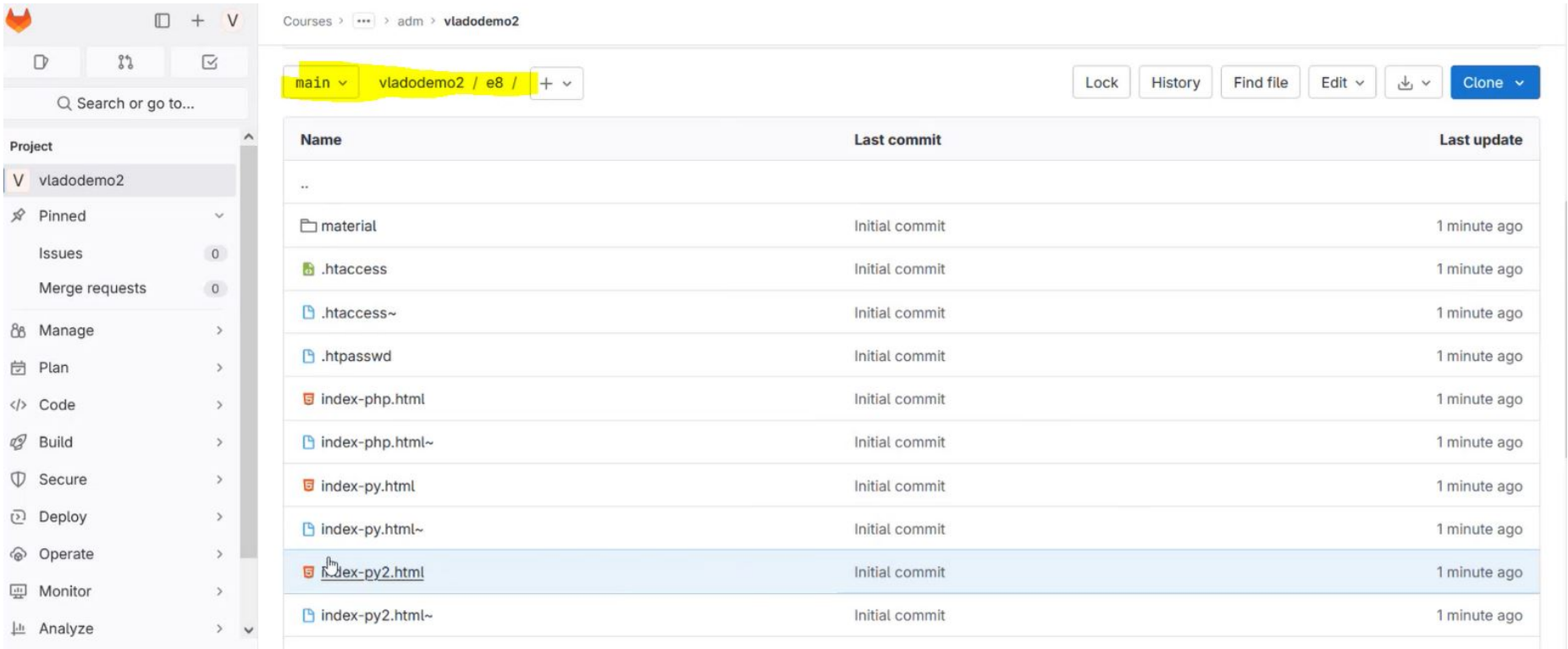
Refresh GitLab Page to Check Contents



Expected Contents in your GitLab Repository




https://git.cs.dal.ca/courses/2024-winter/dgin5201/adm/vladodemo2
dir ws-dir TV sm vlado NLP DT Dal loc-v bm bm-log cal upload Google bf-upload bf-dir orig
Courses › ... › adm › vladodemo2
main
vladodemo2 /
History
Find file
Edit
Clone
Add README
Add LICENSE
Add CHANGELOG
Add CONTRIBUTING
Add Kubernetes cluster
Set up CI/CD
Add Wiki
Configure Integrations
Search or go to...
Project
vladodemo2
Pinned
Issues 0
Merge requests 0
Manage
Plan
Code
Build
Secure
Deploy
Operate
Monitor
Analyze
Name
Last commit
Last update
e1 Initial commit 1 minute ago
e2 Initial commit 1 minute ago
e3 Initial commit 1 minute ago
e4 Initial commit 1 minute ago
e5 Initial commit 1 minute ago
e6 Initial commit 1 minute ago
e7 Initial commit 1 minute ago
e8 Initial commit 1 minute ago
e8


Courses › ••• › adm › vladodemo2
Search or go to...
Project
vladodemo2
Pinned
Issues 0
Merge requests 0
Manage
Plan
Code
Build
Secure
Deploy
Operate
Monitor
Analyze
main
vladodemo2 / e8 /
Lock
History
Find file
Edit
Clone
Name
Last commit
Last update
..
material Initial commit 1 minute ago
.htaccess Initial commit 1 minute ago
.htaccess~ Initial commit 1 minute ago
.htpasswd Initial commit 1 minute ago
index-php.html Initial commit 1 minute ago
index-php.html~ Initial commit 1 minute ago
index-py.html Initial commit 1 minute ago
index-py.html~ Initial commit 1 minute ago
index-py2.html Initial commit 1 minute ago
index-py2.html~ Initial commit 1 minute ago