CMSC 128.2
Software Engineering 2

Software Configuration Management – Part 2b

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Git (command line)

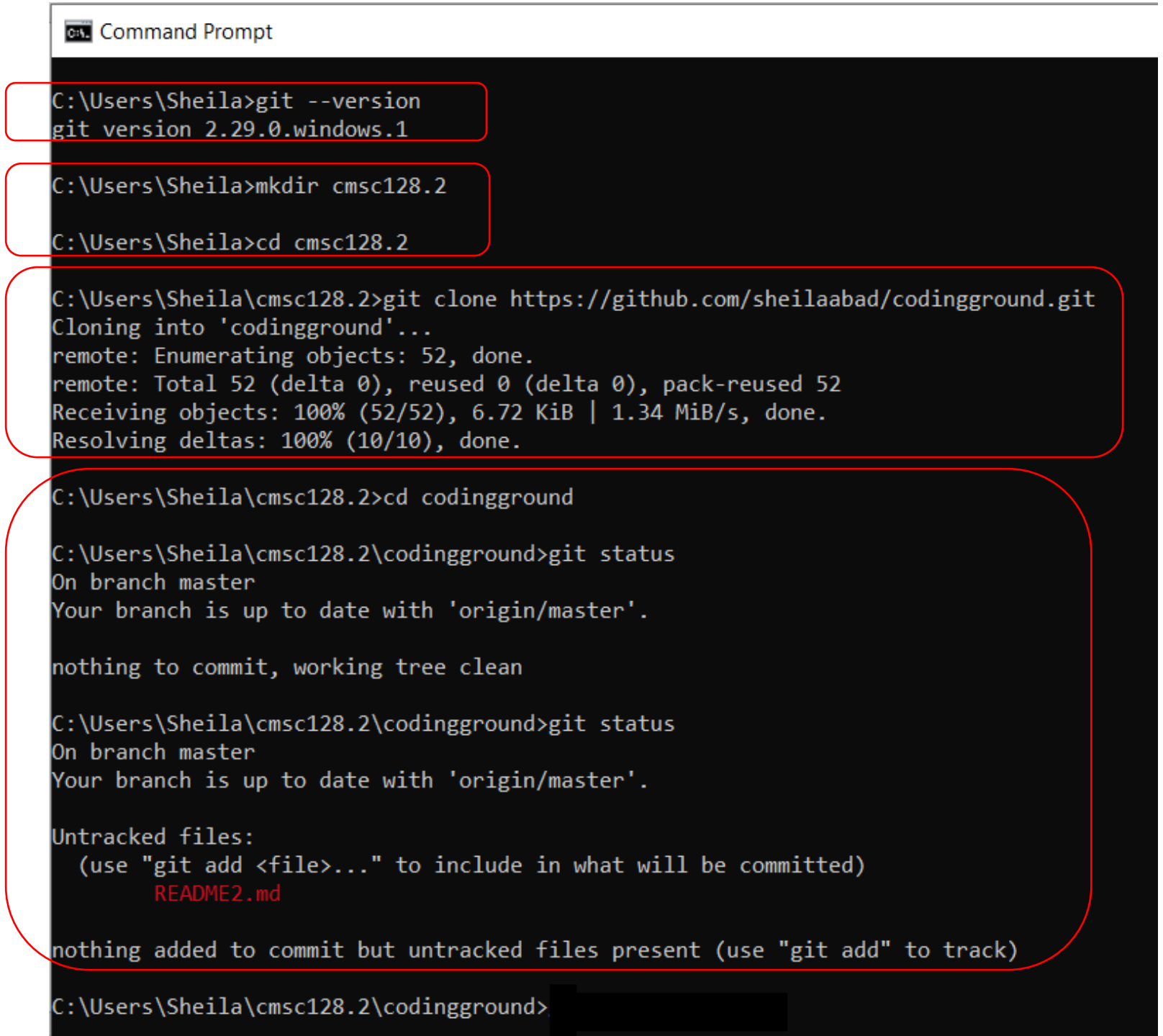
- Create a git account
- Click New Repository button
- Provide name for your repository
- Select Private
- Click Create Repository button
- Copy your Git URL
- Install git on your computer (Ex. Git for Windows)

Git (command line)

- Open terminal in your computer
- Type the following commands
  - `git –version`
  - `mkdir cs128.2`
  - `cd cs128.2`
  - `git clone httpsURL` or your repository
  - Create a `README.md` file which we will put in the repository (.md mean markdown file)
  - `git status` (to see the status of the files in the local repo; note untracked file means not yet tracked since 1st time to create the file and no changes done yet)
  - `git add README.md` (to stage the file prior to shipping to online repo)
  - `git status` (Note file is now tracked)
  - `git commit –m "Initial Commit"` (Note commit means the files in the local repository passed testing and ready for shipment to online repo)
  - `git status`
  - `git push origin master` (origin is the branch and master is the default repo; you might be asked for your username and password)
  - `Git status` (message is "your branch is up to date with origin/master, nothing to commit, working tree clean")
  - When you go to github online repo you'll see the updated origin/master

Git (command line)

- Let's update the README.md and create a new file index.html
- Type `git status` on your terminal (you'll see that README.md is modified and there's also a new untracked file index.html
- Type `git add index.html` (to stage index.html)
- `git status` (to see the new file added to online repo; note updated README.md is still in local repo)
- `git commit –m "2nd commit → added index.html"`
- `git push origin master` (to send the staged files to online repo)
- `git diff README.md` (to see the changes made to the README.md file)
- `git log` to see the logfile of the commits. Type `q` to quit
- `git checkout 09dfd2309ggdre` (hashcode of the stable commit) (If you messed out with the last commit and you want to go to the previous stable commit; this will make the head revert back to that previously stable commit)



To view the git version

To create a clone of the online repository on our local machine

To view the state of the repository and our staging area (or local machine). It allows us to see the tracked, untracked files and changes. This command will not show any commit records or information.

Command Prompt

```
C:\Users\Sheila\cmsc128.2\codingground>git add README2.md

C:\Users\Sheila\cmsc128.2\codingground>git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   README2.md
```

`git add` tells Git that you want to include updates to a particular file in the next commit. However, `git add` doesn't really affect the repository in any significant way—changes are not actually recorded until you run `git commit`

```
C:\Users\Sheila\cmsc128.2\codingground>git commit -m "commit for march 2022"
[master 50f9810] commit for march 2022
 1 file changed, 1 insertion(+)
 create mode 100644 README2.md

C:\Users\Sheila\cmsc128.2\codingground>git status
On branch master
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
```

`git commit` command is used to move files from the staging area to a commit. `git commit` creates a snapshot of the changes made to a Git repository which can then be pushed to the main repository when the developer is ready to do so.

```
C:\Users\Sheila\cmsc128.2\codingground>git push origin master
Username for 'https://github.com': sheilaabad
Password for 'https://sheilaabad@github.com':
remote: Support for password authentication was removed on August 13, 2021. Please use a personal access token instead.
remote: Please see https://github.blog/2020-12-15-token-authentication-requirements-for-git-operations/ for more information.
fatal: Authentication failed for 'https://github.com/sheilaabad/codingground.git/'

C:\Users\Sheila\cmsc128.2\codingground>
```

`git push origin master` pushes your master branch to the origin. Error here because git requires setup of git token in your local drive

A short note on git push

From August 13, 2021, GitHub is no longer accepting account passwords when authenticating Git operations. You need to add a **PAT (Personal Access Token)** instead, and you can follow the below method to add a PAT on your system.

> ## Create Personal Access Token on GitHub
>
> From your GitHub account, go to **Settings** => **Developer Settings** => **Personal Access Token** => **Generate New Token** (Give your password) => **Fillup the form** => click **Generate token** => **Copy the generated Token**, it will be something like `ghp_sFhFsSHhTzMDreGRLjmks4Tzuzgthdvfsrta`

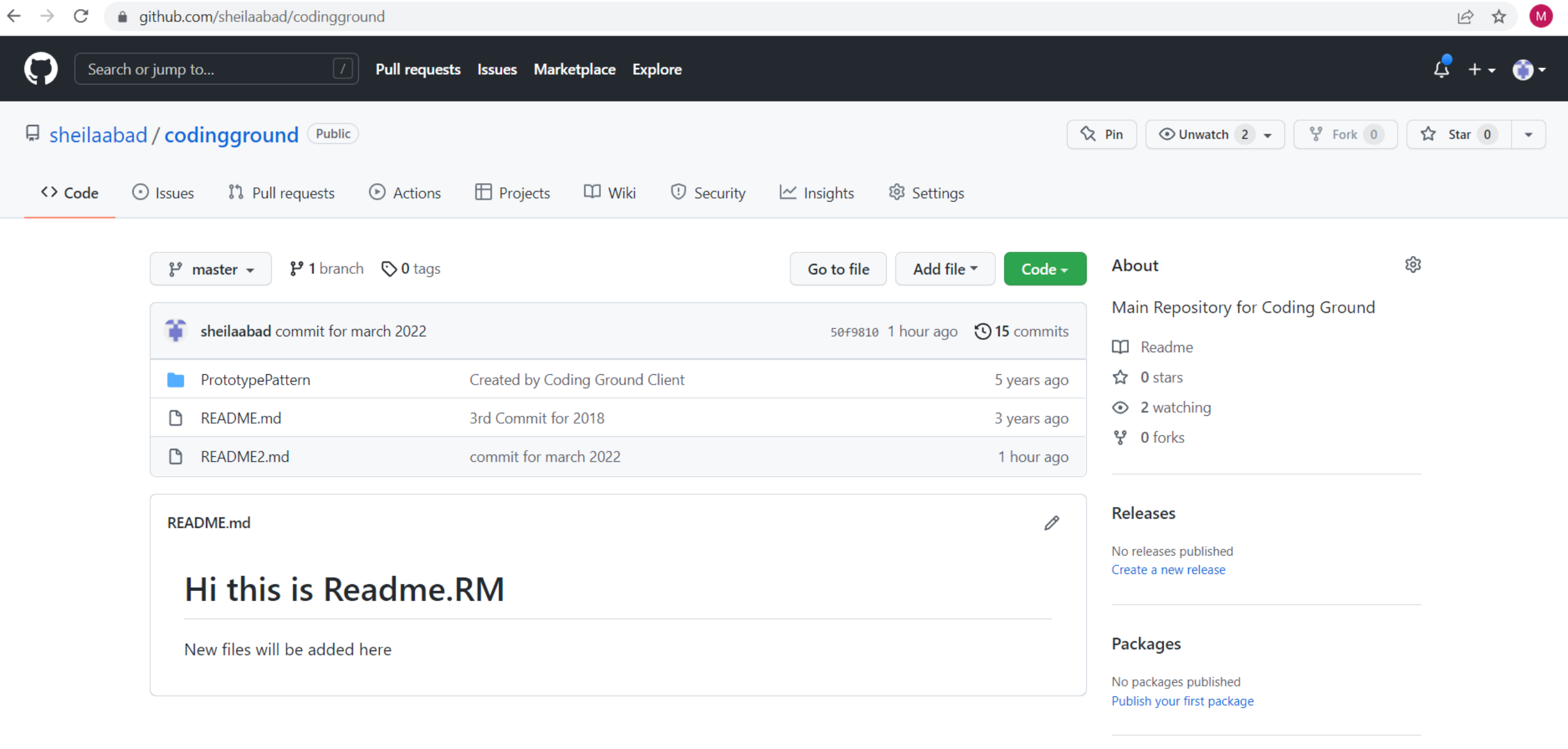
Now follow below method based on your machine:

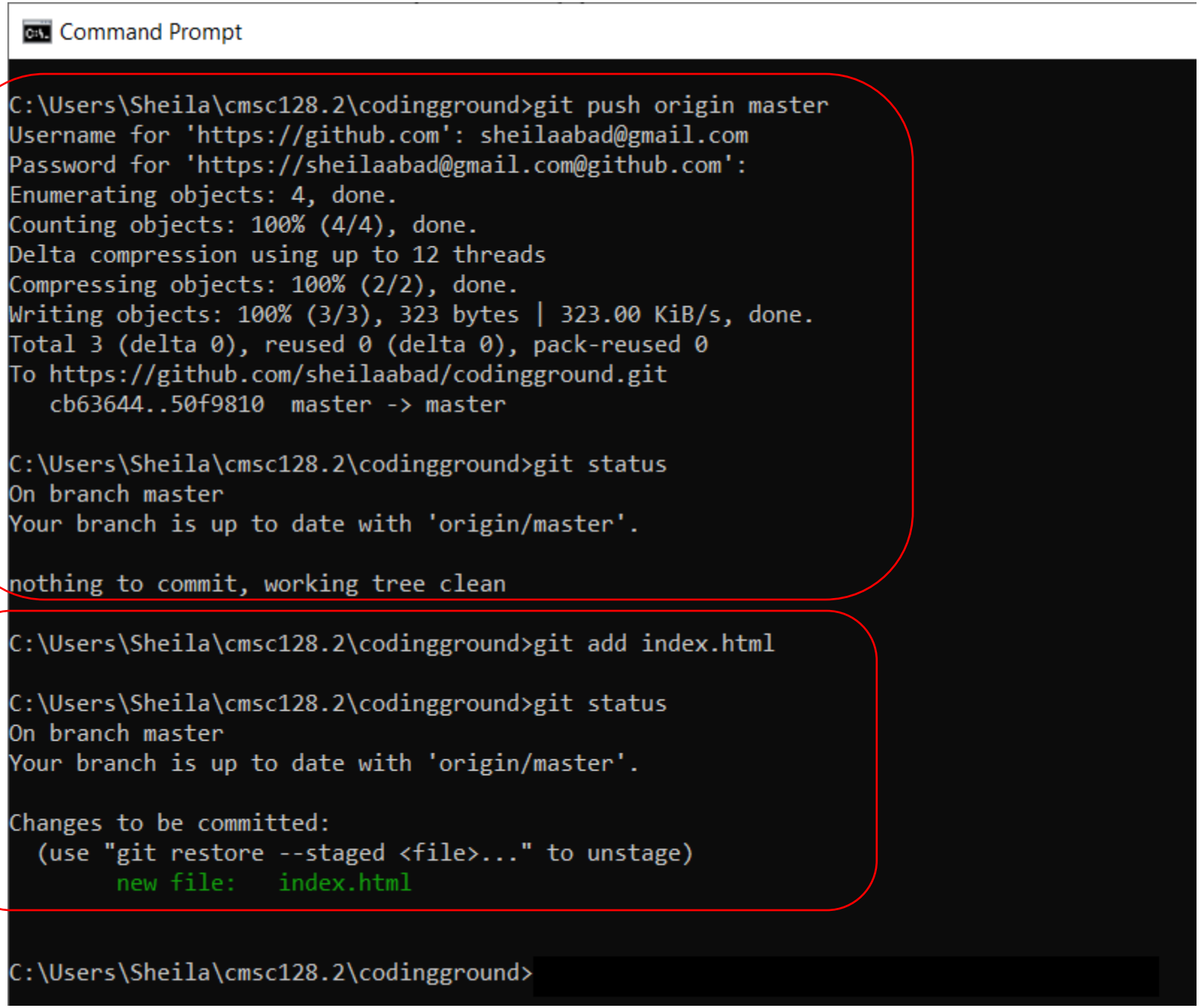
> ## For Windows OS
>
> Go to **Credential Manager** from **Control Panel** => **Windows Credentials** => find `git:https://github.com` => **Edit** => On Password replace with with your **GitHub Personal Access Token** => You are Done
>
> If you don't find `git:https://github.com` => Click on **Add a generic credential** => Internet address will be `git:https://github.com` and you need to type in your username and password will be your **GitHub Personal Access Token** => Click Ok and you are done

Assuming the procedure for github access token has been successfully performed then if we do another

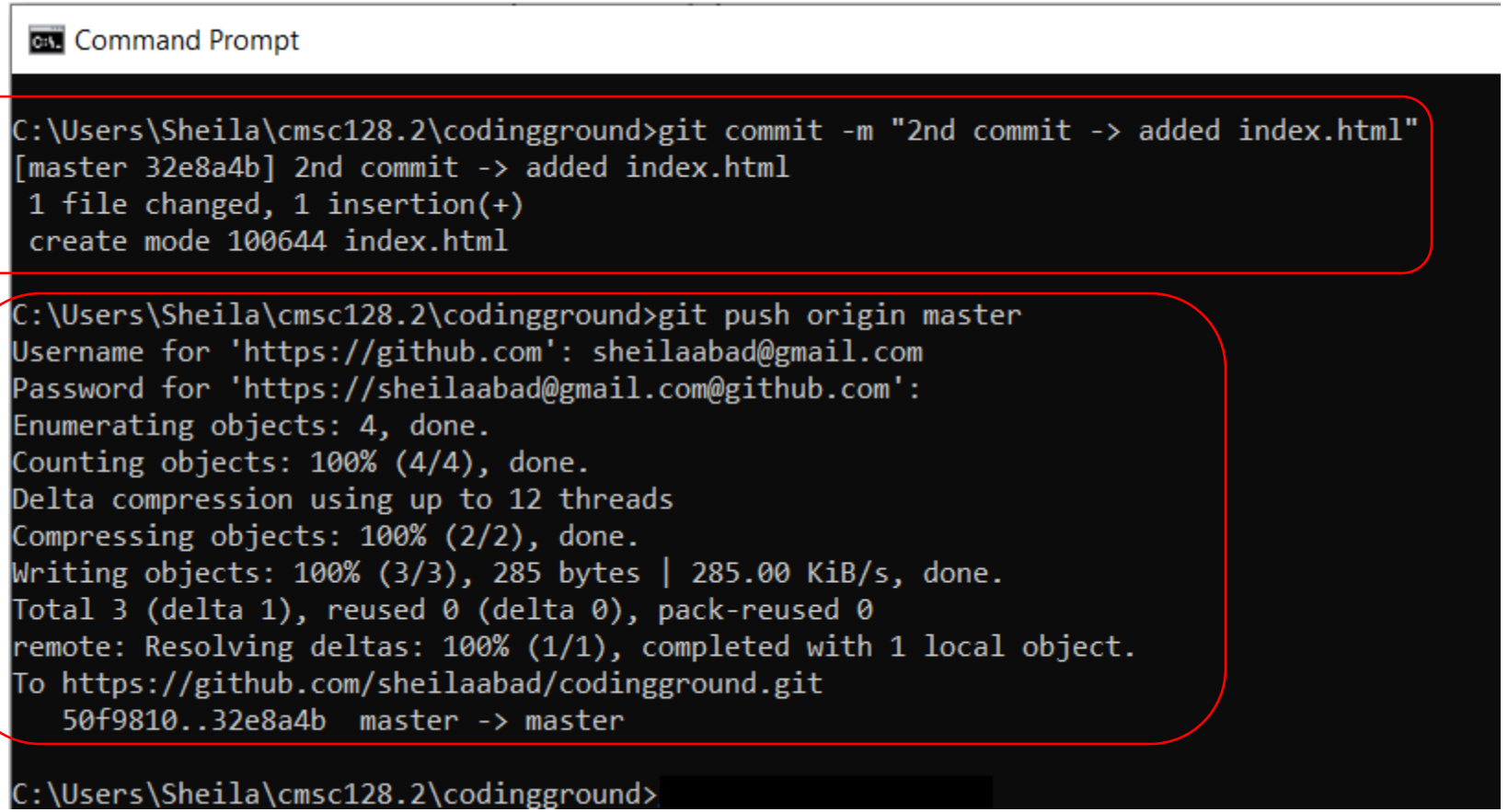
```
git push origin master
```

we should be able see already the `README2.md`





`git push origin master` pushes your master branch to the origin. Here, we were able to successfully perform the command since we had already setup the github access token on our local machine


Command Prompt
C:\Users\Sheila\cmsc128.2\codingground>git commit -m "2nd commit -> added index.html"
[master 32e8a4b] 2nd commit -> added index.html
1 file changed, 1 insertion(+)
create mode 100644 index.html
C:\Users\Sheila\cmsc128.2\codingground>git push origin master
Username for 'https://github.com': sheilaabad@gmail.com
Password for 'https://sheilaabad@gmail.com@github.com':
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 285 bytes | 285.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/sheilaabad/codingground.git
50f9810..32e8a4b master -> master
C:\Users\Sheila\cmsc128.2\codingground>

sheilaabad / codingground Public

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master | 1 branch | 0 tags | Go to file | Add file | Code

sheilaabad 2nd commit -> added index.html 32e8a4b 1 hour ago 16 commits

PrototypePattern	Created by Coding Ground Client	5 years ago
README.md	3rd Commit for 2018	3 years ago
README2.md	commit for march 2022	1 hour ago
index.html	2nd commit -> added index.html	1 hour ago

README.md

Hi this is Readme.RM

New files will be added here

About

Main Repository for Coding Ground

Readme
0 stars
2 watching
0 forks

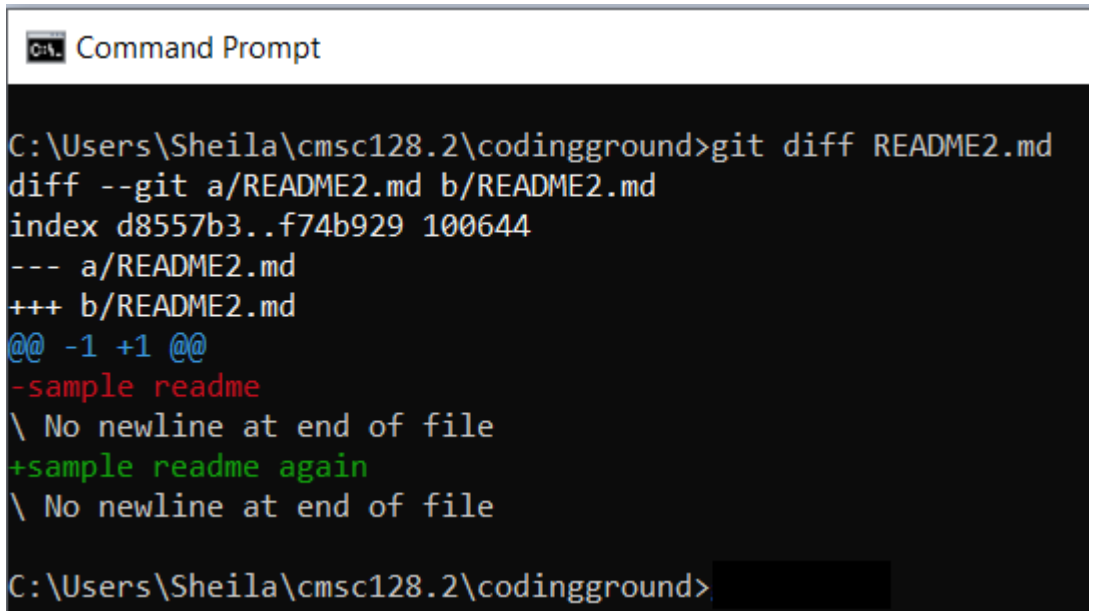
Releases

No releases published
Create a new release

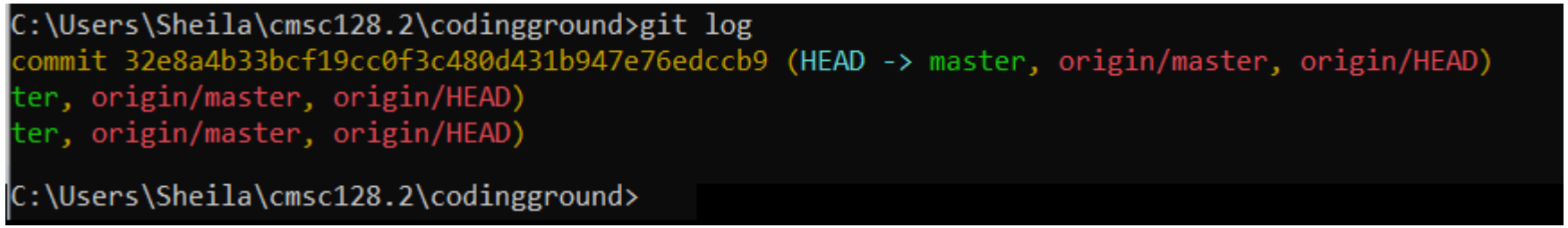
Packages

No packages published
Publish your first package

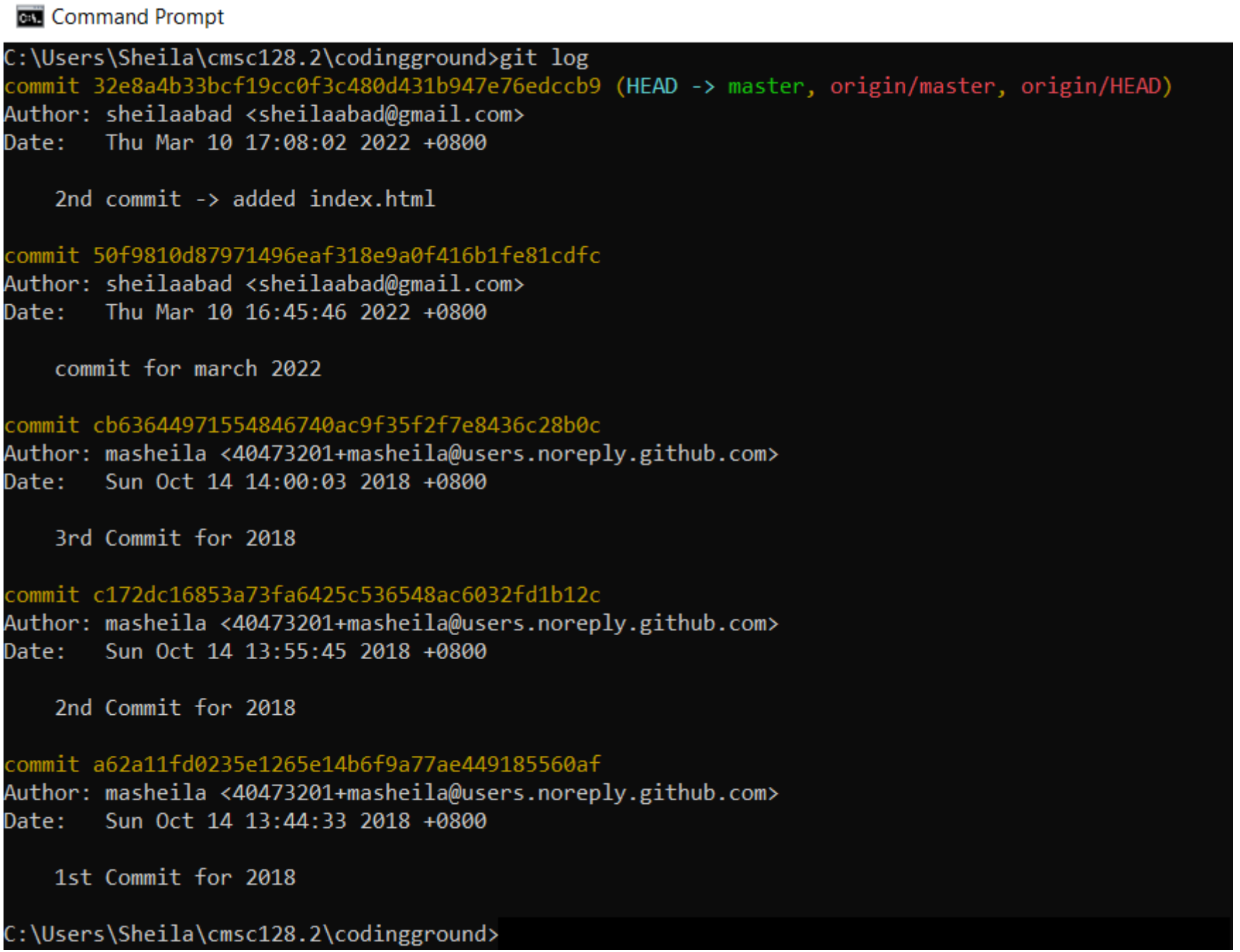
Let’s edit the README2.md that is on our local machine



Git was able to detect the difference between the copy on our local machine and the one in the online repository



Press `q` to exit viewing the git log


Command Prompt
C:\Users\Sheila\cmsc128.2\codingground>git log
commit 32e8a4b33bcf19cc0f3c480d431b947e76edccb9 (HEAD -> master, origin/master, origin/HEAD)
Author: sheilaabad <sheilaabad@gmail.com>
Date: Thu Mar 10 17:08:02 2022 +0800
2nd commit -> added index.html
commit 50f9810d87971496eaf318e9a0f416b1fe81cdfc
Author: sheilaabad <sheilaabad@gmail.com>
Date: Thu Mar 10 16:45:46 2022 +0800
commit for march 2022
commit cb63644971554846740ac9f35f2f7e8436c28b0c
Author: masheila <40473201+masheila@users.noreply.github.com>
Date: Sun Oct 14 14:00:03 2018 +0800
3rd Commit for 2018
commit c172dc16853a73fa6425c536548ac6032fd1b12c
Author: masheila <40473201+masheila@users.noreply.github.com>
Date: Sun Oct 14 13:55:45 2018 +0800
2nd Commit for 2018
commit a62a11fd0235e1265e14b6f9a77ae449185560af
Author: masheila <40473201+masheila@users.noreply.github.com>
Date: Sun Oct 14 13:44:33 2018 +0800
1st Commit for 2018
C:\Users\Sheila\cmsc128.2\codingground>

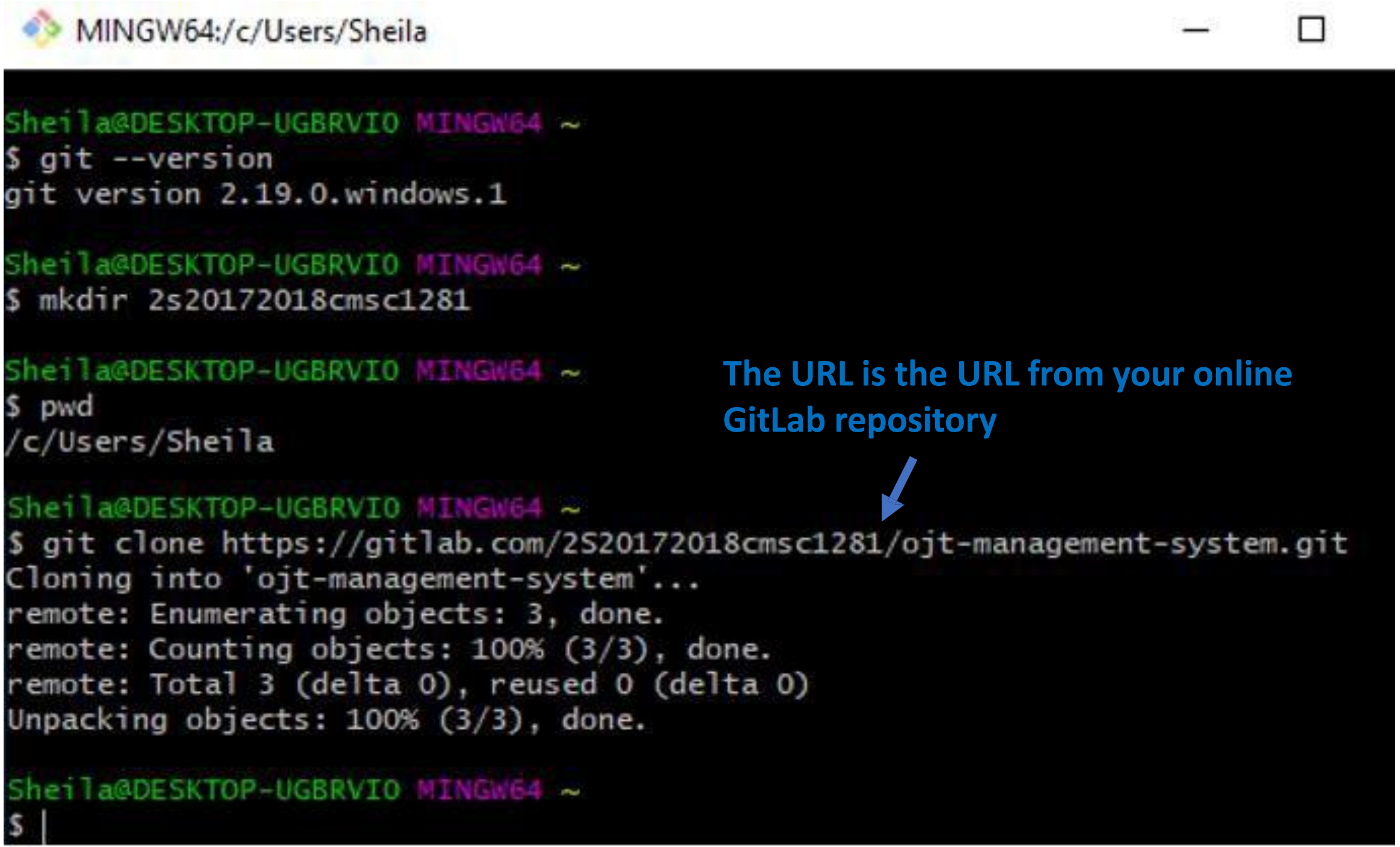
More tutorials here

https://www.atlassian.com/git/tutorials/setting-up-a-repository

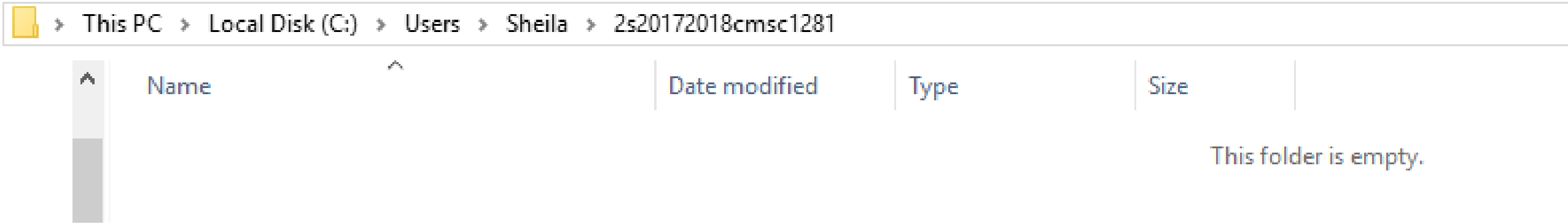
Exercise using Git (command line)

- Sign up gitlab
- Create repository
- Install gitlab in your local computer
- Clone online repository in your local computer
- Create a file in your local computer.
- Add this to your local computer
- Commit the file(s) in your local repo
- Push the file(s) from local to online repo
- Create another file in your local computer
- Add this file to your local computer
- Edit your first file
- Commit the file(s) in your local repo
- Push the file(s) from local to online repo
- Go back to first commit

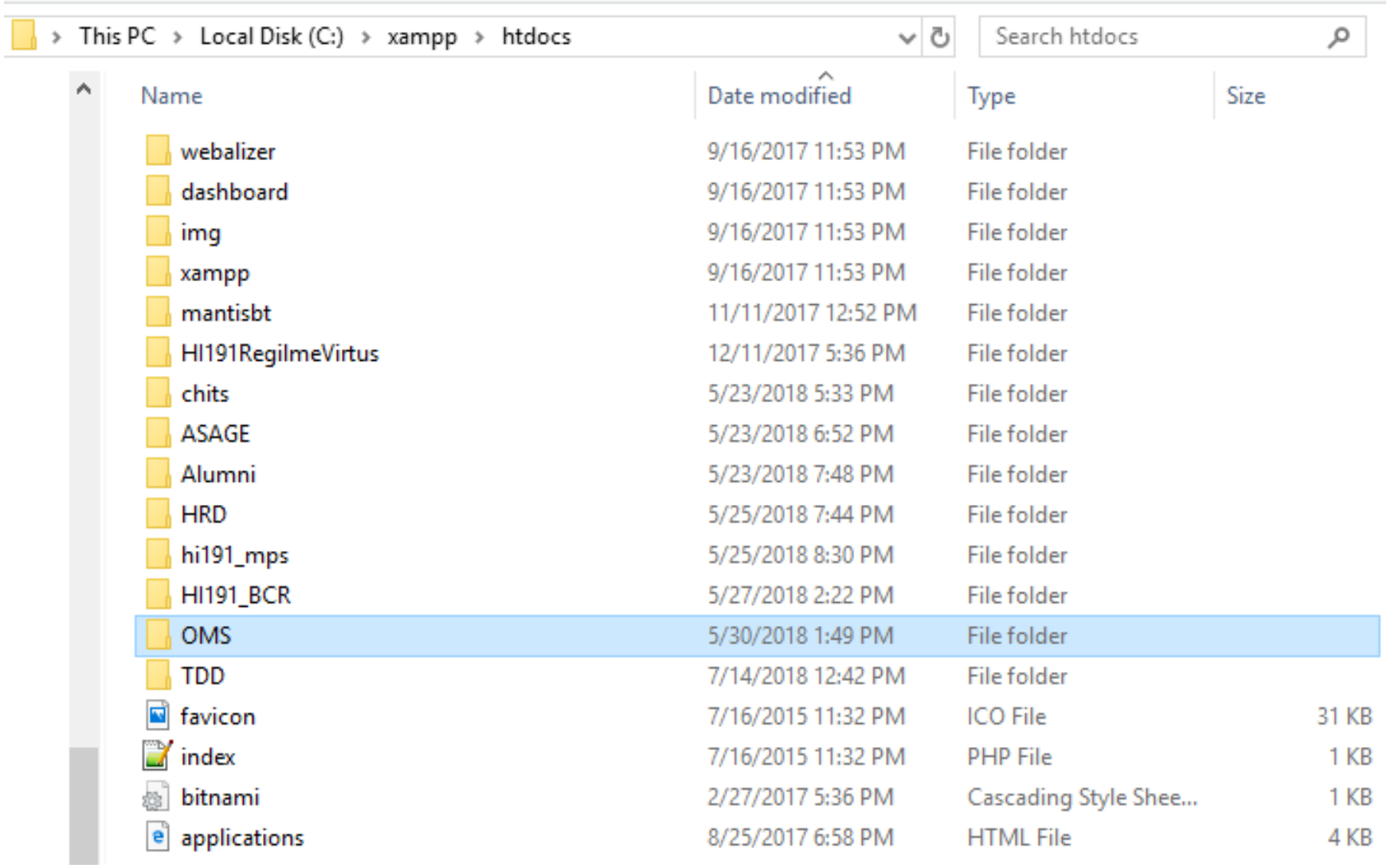
Git for Windows (gitforwindows.org)


MINGW64:/c/Users/Sheila
Sheila@DESKTOP-UGBRVIO MINGW64 ~
$ git --version
git version 2.19.0.windows.1
Sheila@DESKTOP-UGBRVIO MINGW64 ~
$ mkdir 2s20172018cmsc1281
Sheila@DESKTOP-UGBRVIO MINGW64 ~
$ pwd
/c/Users/Sheila
Sheila@DESKTOP-UGBRVIO MINGW64 ~
$ git clone https://gitlab.com/2S20172018cmsc1281/ojt-management-system.git
Cloning into 'ojt-management-system'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0)
Unpacking objects: 100% (3/3), done.
Sheila@DESKTOP-UGBRVIO MINGW64 ~
$
The URL is the URL from your online GitLab repository

Where your local git repository is



File in your computer which you want to put in your local git repository. Copy paste this to your local git repository



```
Sheila@DESKTOP-UGBRVIO MINGW64 ~/2s20172018cmsc1281
$ git status
fatal: not a git repository (or any of the parent directories): .git

Sheila@DESKTOP-UGBRVIO MINGW64 ~/2s20172018cmsc1281
$ cd OMS/

Sheila@DESKTOP-UGBRVIO MINGW64 ~/2s20172018cmsc1281/OMS (master)
$ ls
 application/    contributing.md  'OJT MANAGEMENT SYSTEM.docx'   scripts/
 assets/         index.php         oms.sql                      system/
 composer.json   license.txt       readme.rst                   user_guide/
```

In the folder 2s20172018cmsc1281, type the following git commands on your git console

```
git status

cd OMS/

ls
```

To get the status of the local repository, type

```
git status
```

```
Sheila@DESKTOP-UGBRVIO MINGW64 ~/2s20172018cmsc1281/OMS (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git checkout -- <file>..." to discard changes in working directory)

        modified:   application/config/database.php
        modified:   application/views/pages/downloadReport.php

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

        OJT MANAGEMENT SYSTEM.docx
        assets/images/avatar31.png
        assets/images/avatar54.png
        assets/images/user4-128x128orig.jpg
        assets/images/user7-128x1282.jpg
        oms.sql

no changes added to commit (use "git add" and/or "git commit -a")

Sheila@DESKTOP-UGBRVIO MINGW64 ~/2s20172018cmsc1281/OMS (master)
$
```

```
Sheila@DESKTOP-UGBRVIO MINGW64 ~/2s20172018cmsc1281/OMS (master)
$ ls
 application/   assets/   composer.json   contributing.md   index.php   license.txt  'OJT MANAGEMENT SYSTEM.docx'   oms.sql   readme.rst   scripts/   system/   user_guide/

Sheila@DESKTOP-UGBRVIO MINGW64 ~/2s20172018cmsc1281/OMS (master)
$ git add *
warning: LF will be replaced by CRLF in oms.sql.
The file will have its original line endings in your working directory

Sheila@DESKTOP-UGBRVIO MINGW64 ~/2s20172018cmsc1281/OMS (master)
$ git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git reset HEAD <file>..." to unstage)

        new file:   OJT MANAGEMENT SYSTEM.docx
        modified:   application/config/database.php
        modified:   application/views/pages/downloadReport.php
        new file:   assets/images/avatar31.png
        new file:   assets/images/avatar54.png
        new file:   assets/images/user4-128x128orig.jpg
        new file:   assets/images/user7-128x1282.jpg
        new file:   oms.sql


Sheila@DESKTOP-UGBRVIO MINGW64 ~/2s20172018cmsc1281/OMS (master)
```

To stage the files, type
git add *

To check the result, type
git status