



Introduction to git

Presented to CSUSB Data Analytics Working Group

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Git



Git is a **free and open source** distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

www.git-scm.com



Questions

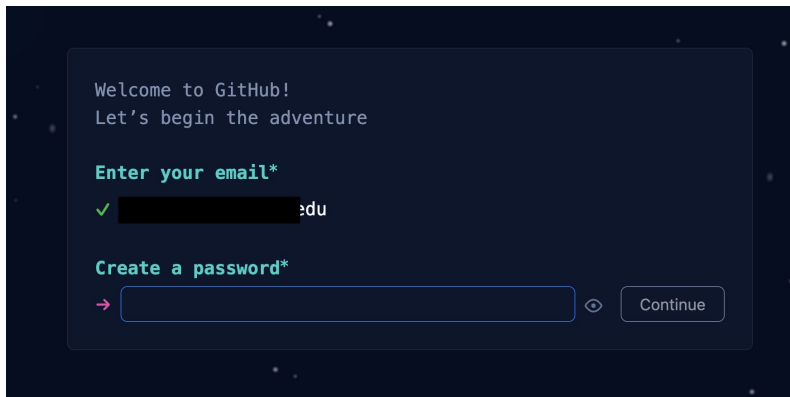
- ❏ Have you heard about git?
 - ❏ Ans:
- ❏ What about GitHub?
 - ❏ Ans:
- ❏ Do you use it? If so, what are your use cases?
 - ❏ Ans:



GitHub (or any git) Account

Helpful to follow along interactive session later

<https://github.com/signup>


A screenshot of the GitHub signup form. The form is dark-themed with a starry background. It contains the following elements: a welcome message, a prompt to enter an email, a green checkmark next to a partially filled email address, a prompt to create a password, a red arrow next to an empty password field, and a 'Continue' button.

Welcome to GitHub!
Let's begin the adventure

Enter your email*

✓ [redacted]@du

Create a password*

→ 



Git vs GitHub

Feature	Git	GitHub
Definition	Distributed Version Control System (DVCS)	Web-based platform for collaborative software development
Purpose	Tracks changes, enables version control, local work	Hosts Git repositories, facilitates collaboration, project management
Key Features	- Local repository with full history	- Hosting Git repositories in the cloud
	- Branching and merging	- Issue tracking
	- Version control capabilities	- Pull requests
Usage	Version control, tracking changes, managing history	Hosting repositories, collaborating, managing issues
Dependency	Standalone, does not require internet	Web-based, requires internet and GitHub account
Examples	CLI tools like Git Bash, Git CLI	Web interface, desktop applications like GitHub Desktop

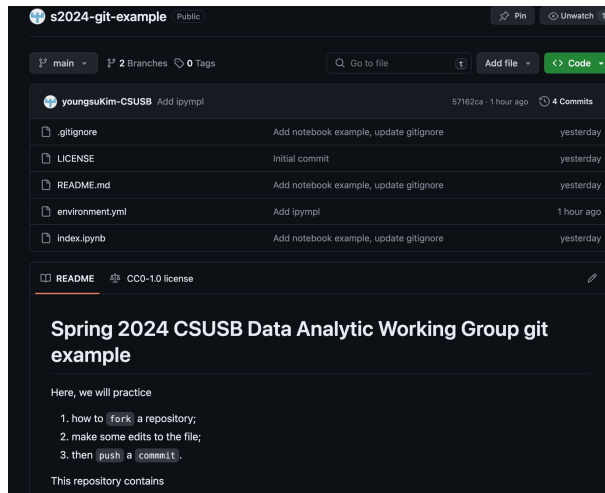
Git vs GitHub (cont'd)

```
s2024-git-example > ls -l
total 656
-rw-r--r-- 1 006501270 staff 7048 Feb 28 19:34 LICENSE
-rw-r--r-- 1 006501270 staff 204 Feb 28 19:35 README.md
-rw-r--r-- 1 006501270 staff 116 Feb 28 19:57 environment.yml
-rw-r--r-- 1 006501270 staff 316947 Feb 28 19:34 index.ipynb
s2024-git-example > cat README.md
# Spring 2024 CSUSB Data Analytic Working Group git example

Here, we will practice

1. how to `fork` a repository;
1. make some edits to the file;
1. then `push` a `commit`.

This repository contains
```



The screenshot shows the GitHub interface for a public repository named 's2024-git-example'. The repository is owned by 'youngsuKim-CSUSB'. It has 2 branches and 0 tags. The file list shows: .gitignore, LICENSE, README.md, environment.yml, and index.ipynb. The README.md file is selected, showing its content: '# Spring 2024 CSUSB Data Analytic Working Group git example', 'Here, we will practice', a list of three steps (1. how to `fork` a repository; 1. make some edits to the file; 1. then `push` a `commit`.), and 'This repository contains'. The repository is public and has 4 commits.



What?

One “may” think of Git and GitHub as

- Python and Jupyter Lab/Notebook
- R and RStudio

*git-cli offers more for certain purposes



Three Popular Git Services

 **Bitbucket**

 **GitLab**

 **GitHub**



Examples

- ❏ <https://youngsukim-csusb.github.io/> my webpage
- ❏ <https://github.com/youngsuKim-CSUSB/presentations.git> this presentation
- ❏ <https://github.com/youngsuKim-CSUSB/s2024-git-example>
- ❏ <https://github.com/tensorflow/tensorflow>
- ❏ https://gitlab.nrp-nautilus.io/youngsu_kim/sphinx-test;
https://youngsu_kim.pages.nrp-nautilus.io/sphinx-test/
- ❏ <https://pypi.org/project/pandas/>
- ❏ <https://github.com/jupyterhub/binderhub>
- ❏ <https://github.com/suthakaranr/my-first-binder>



Git Demo

Session 1: set up a **repo** with a Binder link, pull request

- ☐ Create a GitHub account
- ☐ **Fork** the example repo; <https://github.com/youngsuKim-CSUSB/s2024-git-example>
- ☐ Make some changes and **commit**
- ☐ Make a **pull request**

Session 2: initialize/create a repo and explore GitHub action

- ☐ Create a **repo**
- ☐ Add README.md
- ☐ Create a **branch** and explore **merging**