Introduction to Git

Presented to CSUSB Data Analytics Working Group

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2/29/2024

Git

-- www.git-scm.com

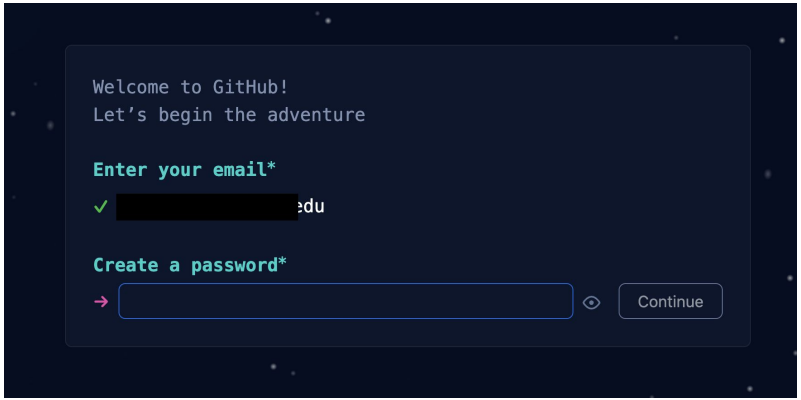
How much do we know about git?

- 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



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

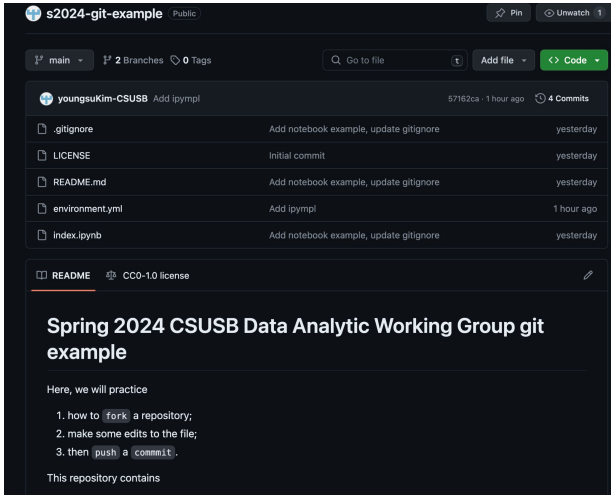
Git vs GitHub (cont'd)

```
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 `commmit`.

This repository contains %
s2024-git-example ➤
```



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

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

Key Terms in Git

Loosely

- repository (repo): a project
- branch of a repo: often main and branches of main
- pull & push: download & upload
- commit: snapshot
- fork: copy a repo

We create a **repository** and add files to the main **branch**. When done, we **commit** and **push** to the **repo**. Today, we **fork** a **repo**, make changes, **commit**, and **push**.

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 GibHub action, open-ended

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