

GIT



Problem Solving with Computers-II

`https://ucsb-cs24-s18.github.io/`

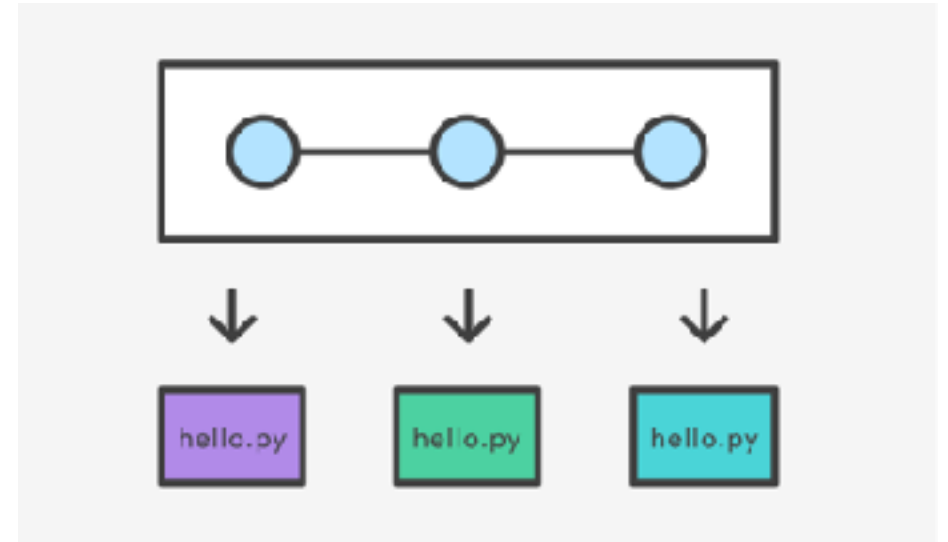
Read the syllabus. Know what's required. Know how to get help.

What is git?

Git is a version control system (VCS).

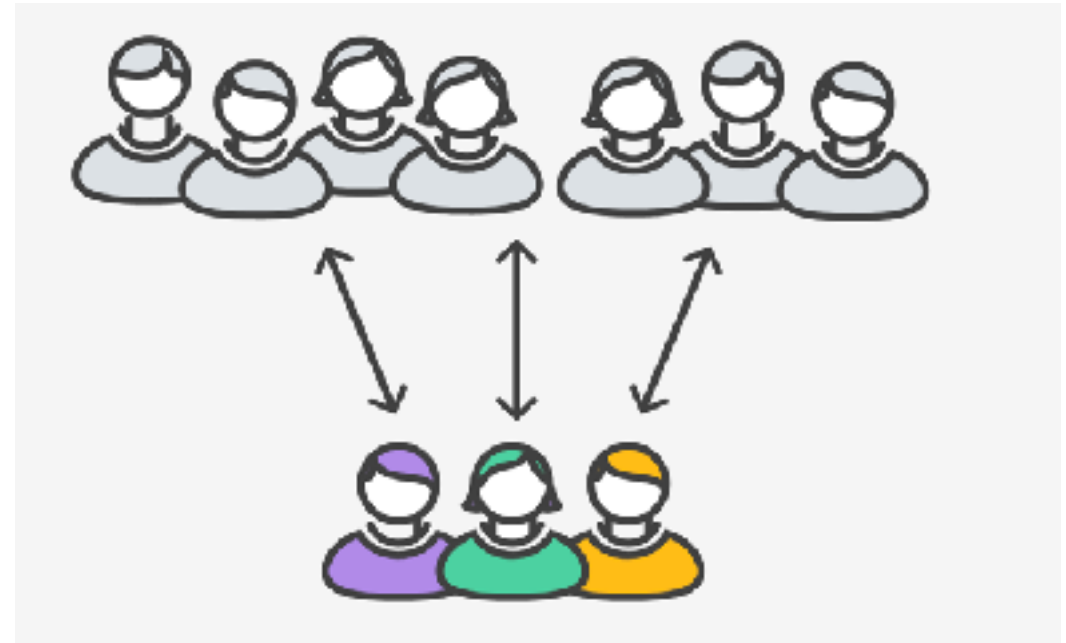
A VCS allows you to keep track of changes in a file (or groups of files) over time

Git allows you to store code on different computers and keep all these different copies in sync



Why are we learning git in this class?

- Collaborate
- Share code ownership
- Work on larger projects
- Provide feedback on work in progress
- Learn professional software development tools



Git Concepts

repo (short for repository): a place where all your code and its history is stored

Git Concepts: REPO

How is a directory different/similar to a git repository?

- A. Files are tracked in a directory but not in a repository
- B. Files are tracked in a repository but not in a directory
- C. Files are tracked in both a directory and repository

Creating a repo on the cloud (www.github.com)

Navigate to www.github.com and create a repo on the internet

Create a new repository

A repository contains all the files for your project, including the revision history.

Owner

ucsb-cs24-s18 ▾

Repository name

lab00_jgaucho_alily

Great repository names are short and memorable. Need inspiration? How about **potential-lamp**.

Description (optional)

☒



Public

Anyone can see this repository. You choose who can commit.

☐



Private

You choose who can see and commit to this repository.

☒ Initialize this repository with a README

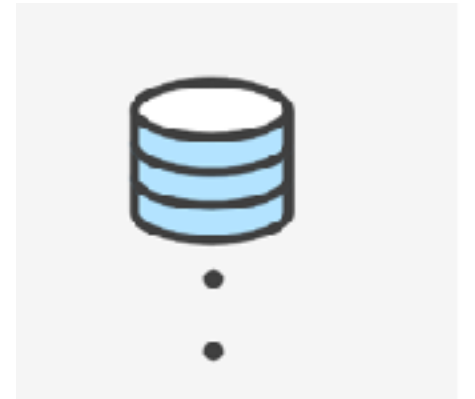
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: C++ ▾

Add a license: None ▾



Create repository



Remote repo

Cloning a repo

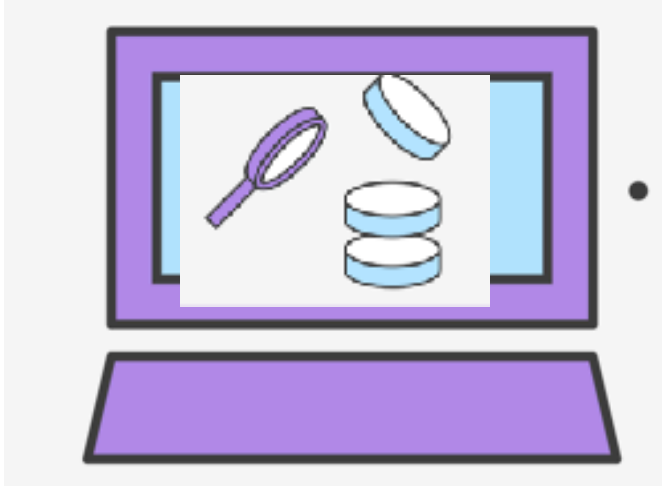
```
git clone <repo>
```



Different “states” of a file in a local repo



Remote repo



To inspect the state of a file use:
git status

Workspace

Staging area

Saved in local repo

- Any file that is modified (in an editor) is saved in the **workspace**

Saving a file (in the local repo)



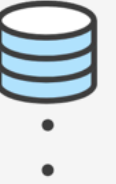
Workspace

```
git add <filename>  
git add .
```

```
git commit -m "message"
```

Staging area

Saved in local repo



Remote repo

Syncing repos: pushing local updates to remote

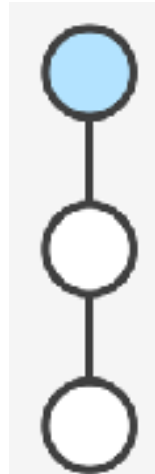
git push



Local repo



Remote repo

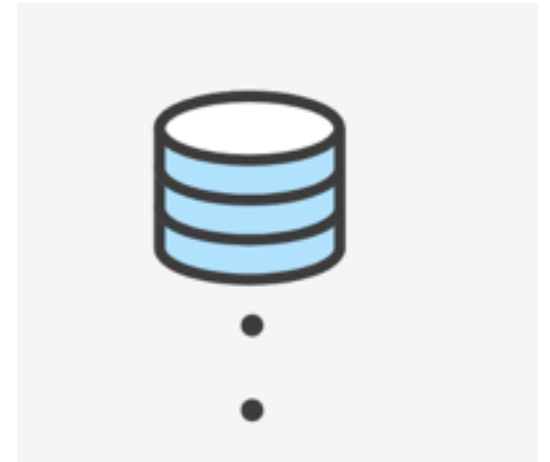


Syncing repos: pulling the fastest changes from remote

git pull



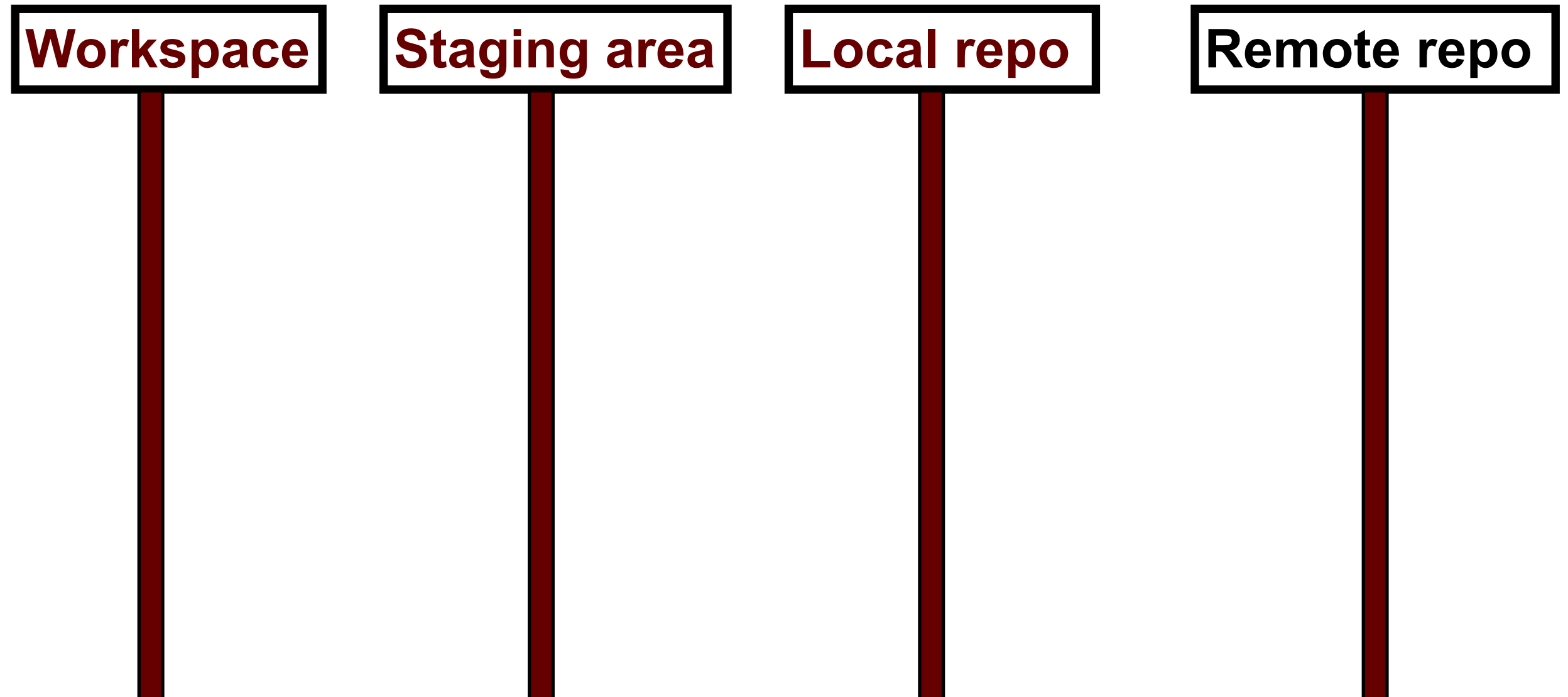
Local repo



Remote repo



Git workflow (review)



Concept: Classes are like Abstract Data Types

- An **Abstract Data Type** (ADT) bundles together:
 - some data, representing an object or "thing"
 - the operations on that data
- The operations defined by the ADT are the *only* operations permitted on its data
- ADT = classes + information hiding

```
class Dish{  
    public:  
        void pourIn( double amount);  
        void pourOut(double amount);  
    private:  
        double capacity;  
        double currentAmount;  
};
```

Demo

- Converting a procedural program to a OOP style program