GIT

Problem Solving with Computers-II

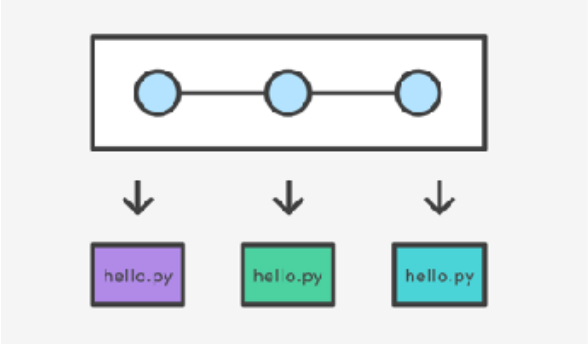
`https://ucsb-cs24-s18.github.io/`

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

What is git?

Git is a version control system (VCS).

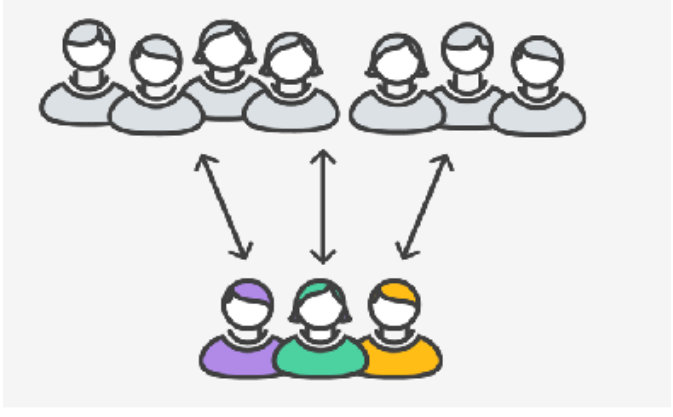
A VCS allows you to keep track of changes in a file (or groups of files) over time



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?

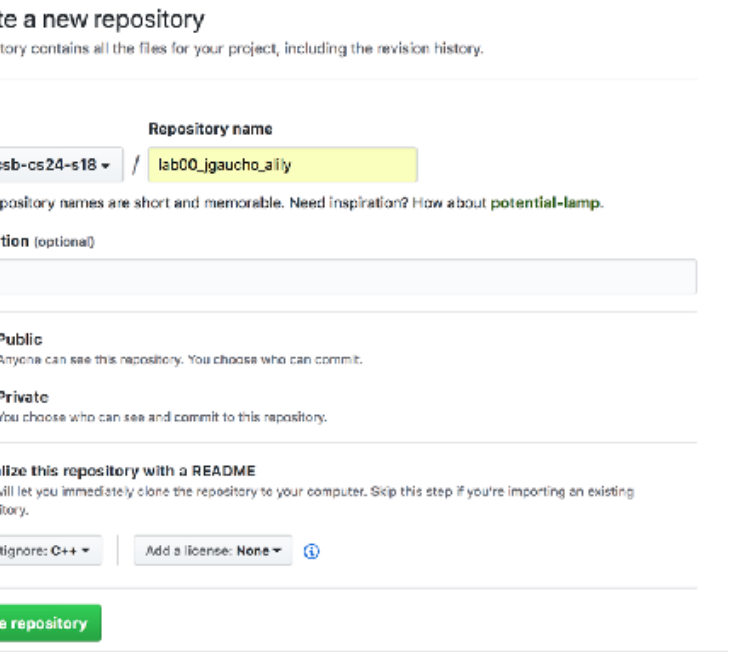
A. Files are tracked in a directory but not in a repository

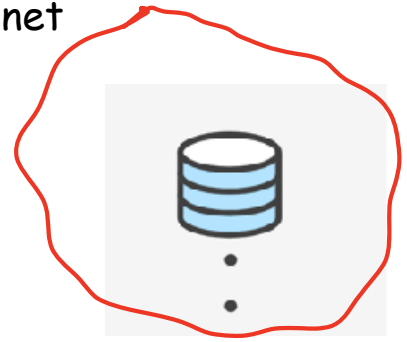
B. Files are tracked in a repository but not in a directory

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

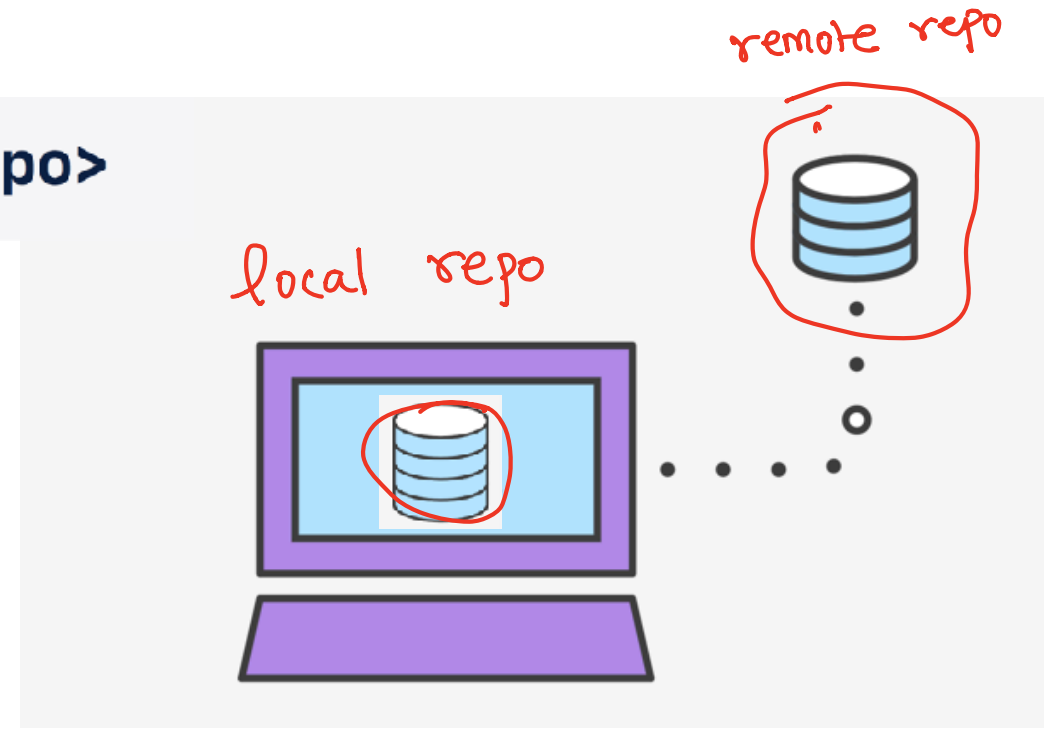




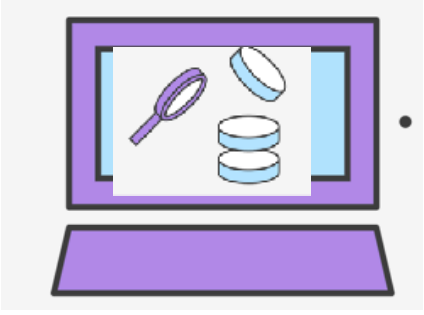
Remote repo

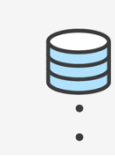
Cloning a repo

```
git clone <repo>
```



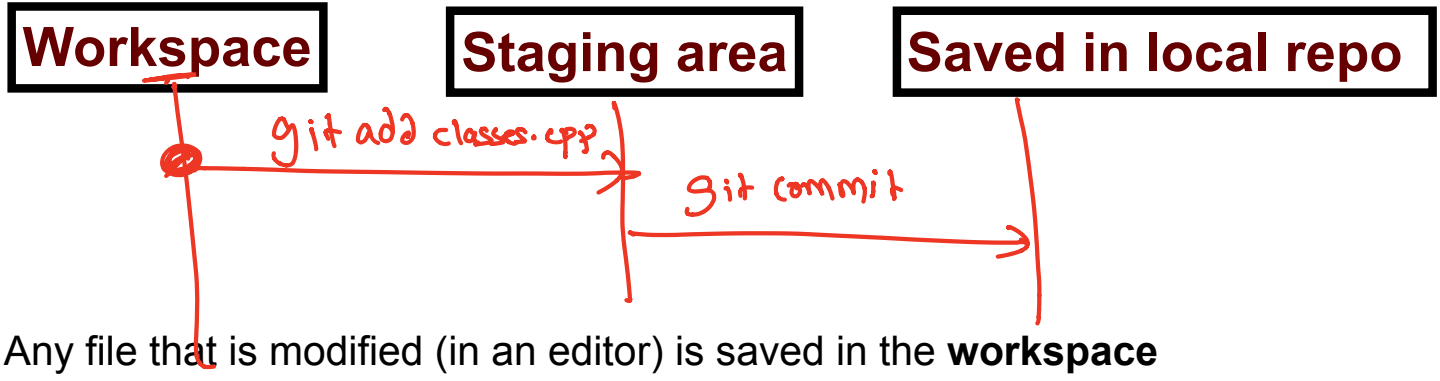
Different “states” of a file in a local repo





Remote repo

To inspect the state of a file use:
git status



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

Saving a file (in the local repo)

git add <filename>
git add .

git commit -m “message”

Remote repo

Workspace

Staging area

Saved in local repo

Syncing repos: pushing local updates to remote

git push

push the latest changes to the remote

Local repo

Remote repo

Initial version

master branch

origin

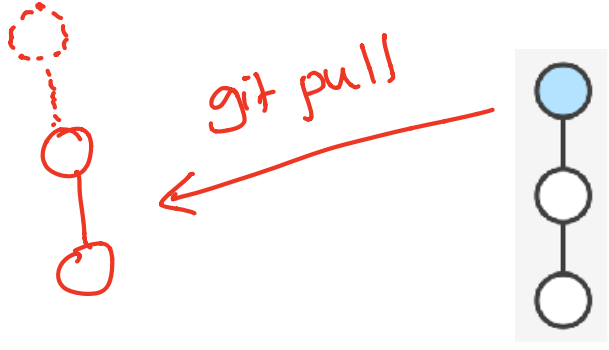
Syncing repos: pulling the fastest changes from remote

git pull

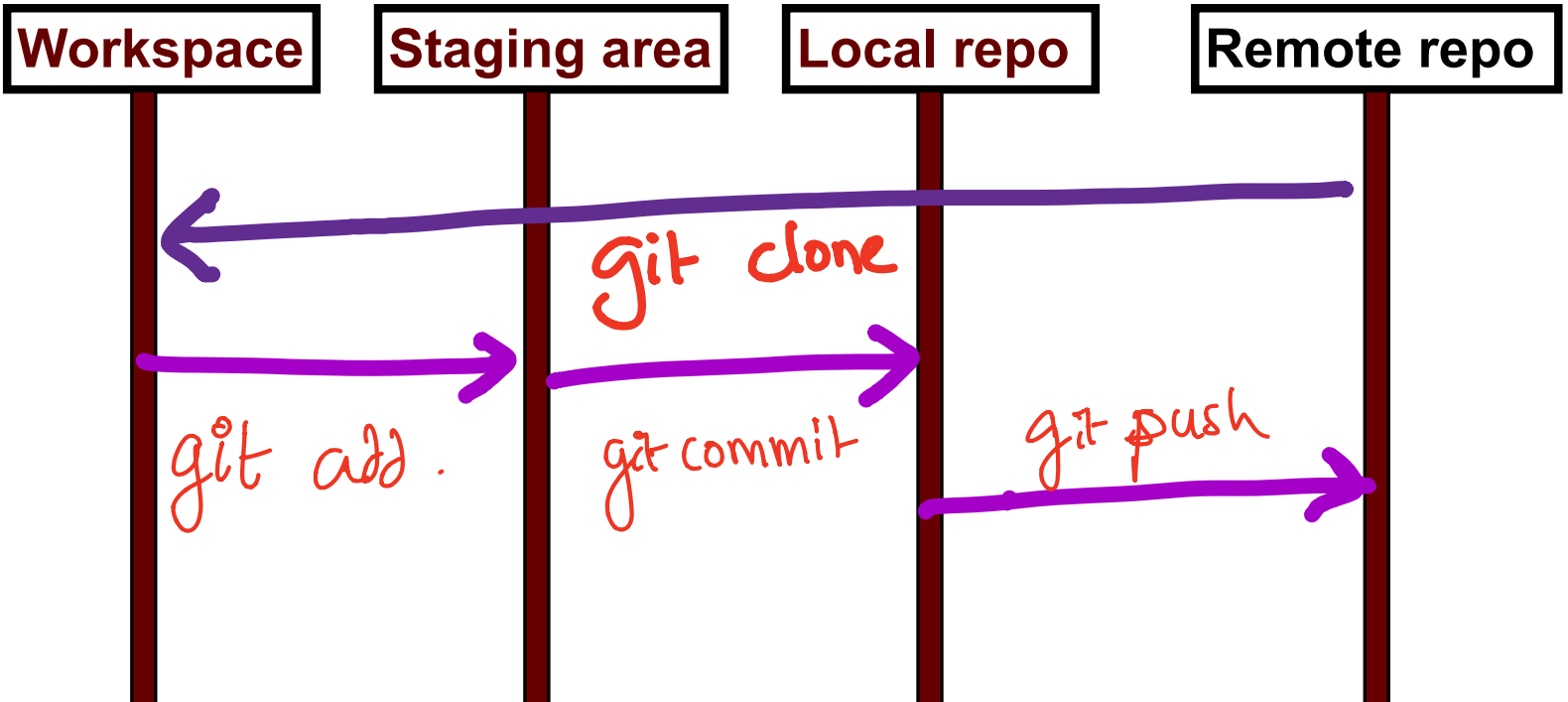
Update changes from remote

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