

BIOL425 Comp Mol Bio

Part 1. Git & Unix

+

•

○

Professor Weigang Qiu
Hunter College of CUNY
Spring 2023

Version Control with Git (Chapter 2)

- For: assignment submission & grading
- Prep: Install git; register as a user; send me your usernames

1. Download course repository

```
git clone https://github.com/weigangq/CSB-BIOL425.git
```

2. Upload/Update assignments

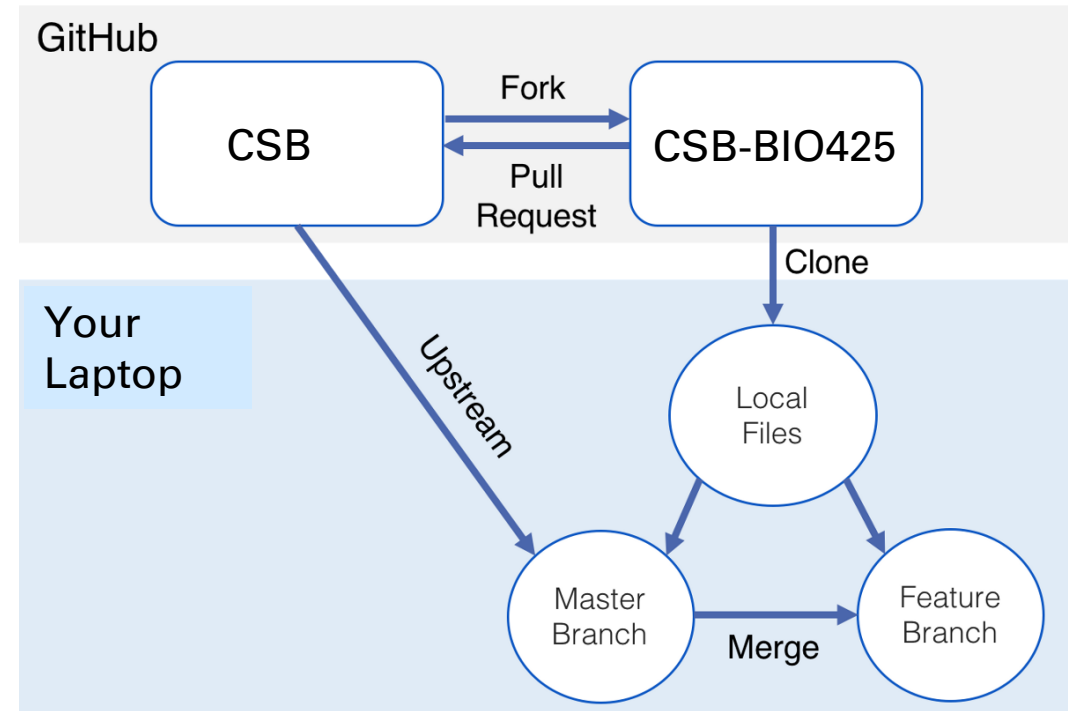
```
git add <filename> # add a new file
```

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

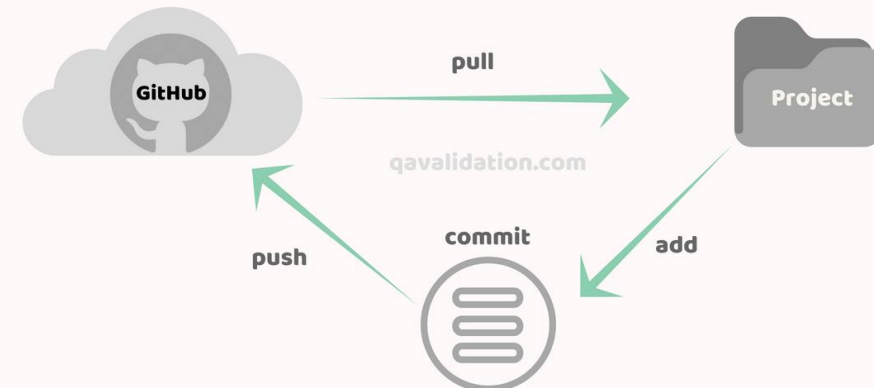
```
git push
```

3. Check status

```
git status
```



Git PUSH PULL



UNIX Basics (Chapter 1)

1. Directory listing & shorthand

```
ls -lrrth      # long, reverse, timestamp, human-readable
pwd            # present working directory
~             # home directory
.             # current directory
..            # parent directory
```

2. Keyboard shorthand (for command editing)

```
Ctrl-a        # go to the beginning
Ctrl-e        # go to the end
Ctrl-l        # clear the screen
Ctrl-u        # clear text before the cursor
Ctrl-k        # clear text after the cursor
Ctrl-c        # kill the (stalled) command
```

3. Directory navigation

```
cd ~/CSB-BIOL425/python/data      # absolute path
Cd ../../../unix/data             # relative path
cd -                               # toggle 2 directories
```

4. Use auto-completion

```
Tab          # NEEVER type out a full filename
ls bad\ file\ name.txt  # NEEVER use spaces in filenames
```

Exercise 1

Intermezzo 1.1

- (a) Go to your home directory.
 - (b) Navigate to the sandbox directory within the CSB/unix directory.
 - (c) Use a relative path to go to the data directory within the python directory.
 - (d) Use an absolute path to go to the sandbox directory within python.
 - (e) Return to the data directory within the python directory.
-

UNIX Basics (Cont'd)

1. Copy files and directories

```
cp ~/CSB-BIOL425/unix/data/Buzzard2015_about.txt ~/CSB-BIOL425/unix/sandbox/      # use absolute path
cd ~/CSB-BIOL425/unix/sandbox/
cp ../data/Buzzard2015_about.txt .          # use relative path
cp ../data/Buzzard2015_about.txt ../Buzzard2015_about2.txt      # copy & rename
cp -r ../data .          # recursive copy
```

2. Move or rename a file

```
mv Buzzard2015_about2.txt ../data/          # move file to a different directory
mv ../data/Buzzard2015_about2.txt ../data/Buzzard2015_about_new.txt      # move and rename
```

3. Remove file or directory

```
touch new_file.txt          # absolute path
rm -i new_file.txt          # Proceed with caution; EXTREMELY destructive
mkdir -p d1/d2/d3           # make nested directories
rm -r d1                     # recursively remove a directory (and its sub-directories)
```

4. View & filter text files

```
cd ~/CSB-BIOL425/unix/data
less Marra2014_data.fasta    # spacebar to page down; b to page up; Q to quit
cat *.txt                   # concatenate all ".txt" files
wc *.txt                    # word count (all ".txt" files)
head Gesquiere2011_data.csv  # show top lines
tail -n 2 Gesquiere2011_data.csv # show tail two lines
sort Gesquiere2011_data.csv  # sort lines in a file (alphabetically)
sort -n Gesquiere2011_data.csv # sort lines numerically
```

Exercise 2

Intermezzo 1.2

To familiarize yourself with these basic Unix commands, try the following:

- (a) Go to the data directory within CSB/unix.
 - (b) How many lines are in file Marra2014_data.fasta?
 - (c) Create the empty file toremove.txt in the CSB/unix/sandbox directory without leaving the current directory.
 - (d) List the contents of the directory unix/sandbox.
 - (e) Remove the file toremove.txt.
-