CSE 344: Section 1
Git Setup for HW
Introduction to SQLite

Git/Gitlab Walkthrough

Install and Configure Git

Linux (Debian/Ubuntu):

```
sudo apt-get update
sudo apt-get install git
```

Mac:

http://git-scm.com/download/mac

Windows:

http://git-scm.com/download/win

Verify git installation (do this first to check to see if git is already installed)

```
git --version
```

Configure username:

```
git config --global user.name "John Doe"
```

Configure user email:

```
git config --global user.email "netid@uw.edu"
```

Gitlab

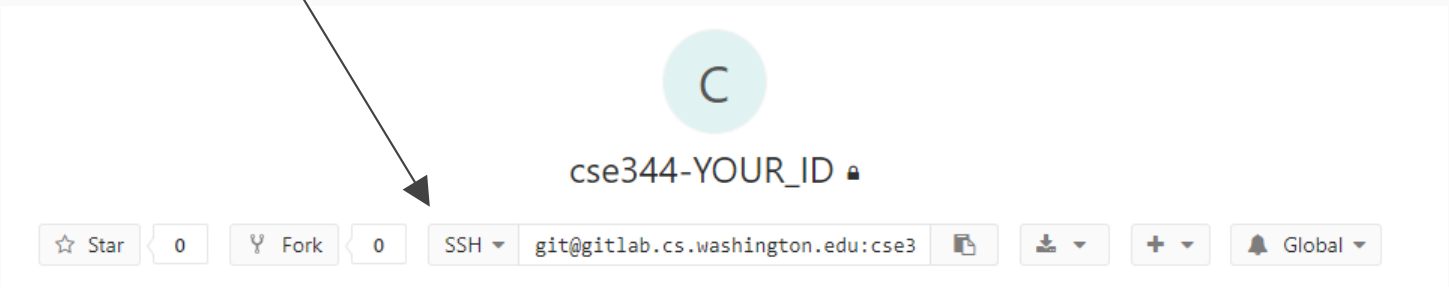
Login with CSE NetID

https://gitlab.cs.washington.edu/users/sign_in

Make sure you have access to your CSE 344 project repository (cse344-netid)

Try to clone your repo

```
git clone [repoURL]
```



Detailed instructions from GitLab:
https://gitlab.cs.washington.edu/help/ssh/README

Register your Computer on Gitlab (SSH)

To generate a SSH key pair (if you don't have one):

Linux/Mac: **`ssh-keygen -t rsa -C "netid@uw.edu" -b 4096`**

`Windows: use PuttyGen to generate and save keys`

Use the suggested save path (**`~/.ssh/id_rsa.pub`**)

Password for keys is optional

On Gitlab > User Settings (under your profile icon) > SSH Keys:

Paste in your public key

Name your key anything

Hit "Add Key"

Git Basics

More resources for learning git:
https://help.github.com/articles/git-and-github-learning-resources/
https://try.github.io/levels/1/challenges/1
https://courses.cs.washington.edu/courses/cse391/17sp/lectures/9/391Lecture09-Git-17sp.pdf

Git commands you should be familiar with:

```
git clone [repo path]
git pull
    (for HWs, "git pull upstream master")
git add [files]
git commit -m "a useful message"
git push
```

Dealing with conflicts:

You must manually edit files that have conflicts
(git doesn't know which version is "right")

DB Review & Using SQLite

Review: Database and DBMS

- What is a database?
- What is a DBMS?

Review: Database and DBMS

- What is a database?
  - Collection of organized files containing related data persisting over a long period of time
- What is a DBMS?
  - Program that allows for efficient management of large databases

SQL (Structural Query Language)

- Language designed for managing data held in a relational database management system (RDBMS)
- Declarative query language
- What can it do?
  - Data insert, delete, query, schema creation, etc.

SQLite: What is it?

- C library that implements a relational data management system (DBMS)

- sqlite3: a standalone program that can run programs and manage an SQLite database

SQLite Installation

Linux - Open a terminal, then run the command:

```
sudo apt-get install sqlite3
```

Mac -

1) Download Homebrew: instructions @ https://brew.sh/
2) Open a terminal, then run the command:

```
brew install sqlite3
```

SQLite Installation (con't)

Windows -

1) Go to https://www.sqlite.org/download.html and download the third option down (sqlite-tools-win32-x86-3200100.zip) under "Precompiled Binaries for Windows"

2) Extract files into directory of your choice

3) Add that directory to the environment variable "path"

SQLite Installation (con't)

All Platforms –

If you want more of an IDE experience you can also download SQLite Studio here: https://sqlitestudio.pl/index.rvt?act=download

NOTE: You will not be able to use SQLite Studio for all of homework 1 because it seems that you cannot change the output format… but it is a neat tool that has some helpful capabilities (checkout the "Format SQL" button)

Running SQLite

Linux/Mac - Open a terminal, then run the command:

sqlite3 [database]

where “database” is the name of the database

Windows -

1) In cmd, go to directory where you extracted sqlite3.exe files
2) Run the command: sqlite3 [database]

Questions on installation or running SQLite? Post on Piazza or visit us during OH!

SQLite: Basic SQL Statements

CREATE TABLE: creates a new table

[ex] CREATE TABLE tableName (columnName int, ...);

SQLite: Basic SQL Statements

INSERT INTO: inserts new data into table

[ex] INSERT INTO tableName VALUES (value1, …);

SQLite: Basic SQL Statements

SELECT: gets existing data from table

[ex] SELECT columnName FROM tableName;

SQLite: Basic SQL Statements

UPDATE: updates data in table

[ex] UPDATE tableName
SET ….
WHERE [condition];

SQLite: Basic SQL Statements

DELETE: deletes data in table

[ex] DELETE FROM tableName
WHERE [condition];

SQLite: Special Operators

DATE operator: lets you work with dates and times; declare as varchar (see hw1 documentation)

[ex] SELECT * FROM tableName WHERE dateColumn ='YYYY-MM-DD';

SELECT * FROM tableName WHERE dateColumn < DATE('now', '-1 month');

Other operators: LIKE, LENGTH(string), SUBSTR(string, start index, end index), etc.

SQLite: Special Commands

.help - list other . commands

.header on/off - show/hide column headers in query results

.mode [mode type] - change how to separate the columns in each row/tuple (for better formatting)

Mode type examples: csv, tabs, line

Demo!

More SQL (For Reference)

- WHERE clause - filter records
- AND, OR operator - filter records based on more than one condition
- LIKE operator - used in a WHERE clause to search for a specified pattern in a column
- AS - give an alias name to a table or a column
- Relational operators: =, >, >=, <, <=

Didn't understand everything? That's okay! This was just a preview.

SQL basics will be explained further in lecture before your homework is due.

*Post on Piazza or come to OH if you have any further questions!