Worksheet 01

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Topics

- Git

Prerequisites (installations)

This is your checklist:

- [x] Access to terminal
- [x] Install Git
- [x] Sign up for a GitHub account
- [x] Choose editor
- [x] Set up ssh keys
- [x] Configure git

Step 1: Work Environment: Access to Terminal

- Mac/Linux: use **Terminal**
- Windows:
  - Option 1: Power Shell
  - Option 2: Git Bash (recommended)

Step 2: Install Git

- Mac:
  - Git
- Windows:
  - Git for Windows (Git Bash)
- Linux:
  - Install Git on Linux

Confirm Git is installed by typing `git --version` on your terminal

Step 3: Sign up for a GitHub Account

Go to github.com

Step 4: Choose a Graphical Editor

- Try Visual Studio Code
  - Visual Studio Code
- OR one of these other editors
  - Sublime Text 3
  - Atom
  - Notepad++ (for Windows)

Step 5: SSH Setup

Mac & Linux Users

Go to home directory (in terminal)

```
% cd ~
% pwd
/Users/gallettilance
```

Go to `.ssh` directory

```
% pwd
/Users/gallettilance
% cd .ssh
% pwd
/Users/gallettilance/.ssh
```

Note: If you do not have the `.ssh` directory, you can create it

- if you are in your home directory:
  - `mkdir .ssh`
- if you are not in your home directory:
  - `mkdir ~/.ssh`

Generate `id_rsa` keypair files if needed

- **Note:** these `id_rsa` files contain a special password for your computer to be connect to network services (Ex: GitHub, AWS).
- Check to see if these files exist by typing `ls -alt`
- If you do not have these two files (`id_rsa` and `id_rsa.pub`), create them by typing:
  - `ssh-keygen`
  - Hit `enter` **3 times**

```
% pwd
/Users/gallettilance/.ssh
% ls
% ssh-keygen
Generating public/private rsa key pair.
Enter file in which to save the key
(/Users/gallettilance/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in
```

```
/Users/gallettilance/.ssh/id_rsa.
Your public key has been saved in
/Users/gallettilance/.ssh/id_rsa.pub.
The key fingerprint is:
SHA256:jmDJes1qOzDi8KynXLGQ098JMSRnbIyt0w7vSgEsr2E
gallettilance@RESHAMAs-MacBook-Pro.local
The key's randomart image is:
+---[RSA 2048]----+
|   .=+           |
|.  .==           |
|.o  +o           |
|..+= oo          |
|.E.+X.  S        |
|+o=o=*oo.        |
|++.*o.+o.        |
|..*.oo           |
|o= o+o           |
+----[SHA256]-----+
% ls
total 16
-rw-------  1   1675 Dec 17 12:20 id_rsa
-rw-r--r--  1    422 Dec 17 12:20 id_rsa.pub
%
```

Navigate to the `.ssh` directory

```
cd ~/.ssh
```

open `id_rsa.pub` using your editor of choice and copy its contents. Add `ssh` key to GitHub by following these steps:

- go to your GitHub account (create one if you don't have one, and save your user name and password somewhere easily accessible for you.)
- click on your avatar/profile picture (upper right of screen)
- go to `Settings`
- on left of screen, select `SSH and GPG keys`
- Select `New SSH key`
- for "Title": entitle it "GitHub key"
- for "Key": paste key from clipboard here
- click `Add SSH key`
- save, exit, confirm GitHub password as requested

Windows Users

Follow How to Create SSH Keys with PuTTY on Windows

Step 6: Configure Git

Configure user name and email (lets Git know who you are)

```
git config --global user.name "First Last"
```

```
git config --global user.email "myname@email.com"
```

To verify these additions, type:

```
git config --list
```

Default Editor

The default editor will be Vim. You may want to look up how to edit, save, and close vim as this can't be done with just point and click (you must use the vim commands).

Git / GitHub

a) what is the difference between git and github?

Git is a local functionality for saving & tracking changes on code. GitHub is an online/cloud repository that can be accessed & edited via Git.

b) what command would you use to copy a repo locally?

git clone

c) what button would you use to make a copy of a repo in GitHub?

Code -> Clone

d) let's say you have a copy of a repo in GitHub but that repo changes, does your copy on your laptop change too? why / why not?

No, not until you pull

e) what are the three commands you use to create a new save point in your git repo and back it up to GitHub?

add -> commit -> push

f) how would you make your local and remote copies change so that they have the most up-to-date version of the repo they are copied from?

Git pull

g) why are there sometimes conflicts between copied repos / branches? How do you resolve them?

Because sometimes changes are made to branches whose heads are farther along on the timeline than the base of those newer branches, introducing conflicts. You can resolve those conflicts by rebasing the new branch onto the head of the main branch.

h) describe all the steps needed to make a PR to contribute your notes to the class repository.

1. Fork the repo
2. Git clone on new repo
3. Add notes to the local version
4. Git push origin
5. Submit a pull request

i) Write here some other commands we used in class and what they mean / how to use them:

Stash - create a record of the current version/index while going back to a clean working directory Fetch - download a content from a remote repo

In [ ]: