Git Bootcamp

Computer Student Society

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What is Git?

- One of the many popular version control systems available

- Git is a tool used to manage code but can also be applied to any other type of document (**does not have to be code**)

Version Control

Records changes a person made to a document overtime. It can be used by one person or multiple people.

When should you use Git?

- **ALWAYS!!**
- Git is your best friend when it comes to any project big or small

Setting up Git

Create a Profile

Set Profile Name
- git config –global user.name "Peter Parker"

Set Profile Email
- git config –global user.name "Parker.P@midtown.net"

Set Default Editor
- git config –global editor="vim"

View our configuration (Optional)
- git config –global list

PRO TIP

Git allows for multiple profiles, so you could have a personal and school profile.

Command-line Text Editors

- A text editor that can run directly in a terminal without a graphical user interface
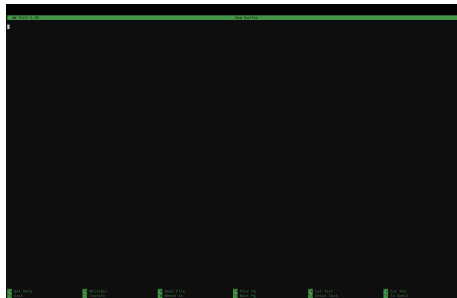
GNU Nano Text Editor

- Released in November 18, 1999
- User-friendly and easy to learn
- Developed and maintained by volunteers

Vim Text Editor

- Released in November 2, 1991
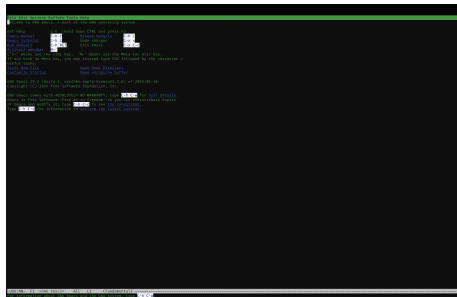- Modal editor
- Highly customizable, many plugins available

Emacs Text Editor

- Many modes for different purposes such as browsing the web

- Released in March 20, 1985
- Created by GNU Project founder Richard Stallman
- Highly customizable

What makes a good commit?

- Detailed messages that someone can read that informs others about the changes you made to a document.

Changes 4000 lines of code
```
> git commit -m "minor changes"
> git push origin main
```
Leaves

What makes a good commit?

A better approach to making commits

- *Title:* Add a topic

- *Changes:* Add details about changes made to file(s)

- *State:* Add a brief summary of the state of program or feature

- *TODO:* Make notes about things to fix

PRO TIP

Pretend you are sending an email to your friends, group mates, or professor informing them of the changes you made to the document.

Making a Commit

Step 1. *Add a document to staging*
- git add ≺ *document* ≻

Step 2. *View documents that have been staged (Optional)*
- git status

Step 3. *Remove a document from staging (Optional)*
- git reset ≺ *document* ≻

Step 4. *Record changes to repository*
- git commit

Step 5. *Upload changes to remote repository*
- git push

- Allows you to store code some place other than your local machine
- Allows for multiple people to collaborate on a project

GitHub

GitHub
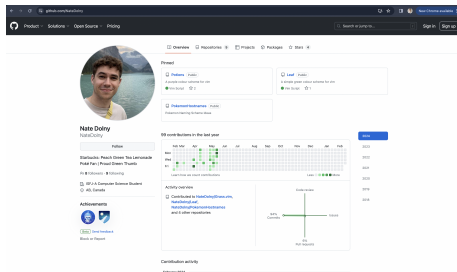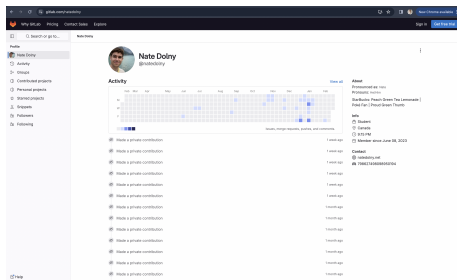

- Released in April 2008
- Microsoft acquired Github in 2012
- Over 100 million users
- Hosts millions of open source projects

GitLab

GitLab

- Released in 2011
- Over 30 million users
- More secure than GitHub
- Focuses on collaboration, efficiency, and automation

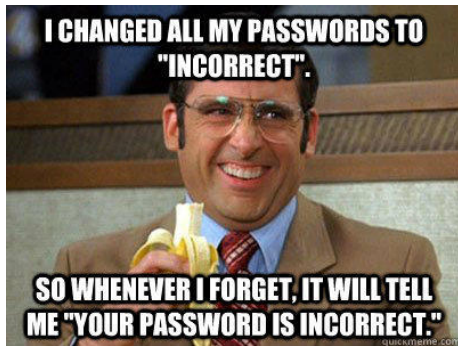- Only platform that self-hosting is free

Introduction to OpenSSH Suite

KEEPING YOUR COMMUNIQUÉS SECRET

- Encrypts all traffic to eliminate eavesdropping, connection hijacking, and other attacks.

- ssh-keygen: Generates, manages, and converts authentication keys for ssh
- ssh-add: Adds private keys to the authentication agent

- ssh-scp: copies files between hosts on a network

Generate an SSH Key

Generate an SSH-Key

- ssh-keygen -t ed25519 -C "Parker.P@midtown.net"

You'll then be given a choice "Enter a file which to save the key (/home/You/.ssh/id_ALGORITHM):"

Option 1. *Name the key*

- Enter your chosen key name and press enter

Option 2. *Press enter*

- Should only choose this option if you will only ever have one key

Congrats you have created your first SSH Key!!

Adding an SSH Key to the SSH-Agent

Step 1. *Start ssh-agent in the background*
- eval "$(ssh-agent -s)"

Step 2. *Add your ssh key to the ssh-agent*
- ssh-add /.ssh/≺ *yourKeyName* ≻

If you didn't name your key use this instead
- ssh-add /.ssh/id_ed25519

Exploring GitLab

Open Firefox or Google Chrome

- https://git.cs.usask.ca/users/sign

Username

- *Your NSID example: abc123*

Password

- *Your Canvas Password*