

# 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



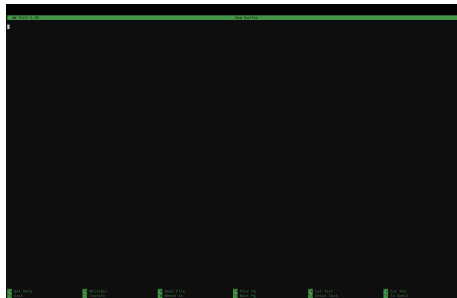
```
      :::  
iLE88Dj.  :jd88888Dj:  
.LG1tE888D.f8GjjL8888E;  
iE  :8888Et.      .G8888.  
;i   E888,        ,8888,  
      D888,       :8888:  
      D888,       :8888:  
      D888,       :8888:  
      D888,       :8888:  
      D888,       :8888:  
      888W,       :8888:  
      W88W,       :8888:  
      W88W,       :8888:  
      DGGD:       :8888:  
              :8888:  
              W888:  
              :8888:  
      E888i  
      tW88D
```



# GNU Nano Text Editor

```
      : : :
iLE88Dj. :jd88888Dj:
.LGite888D.F8GjjjL8888E;
iE :8888Et. .G8888.
;i  E888.      ,8888,
D888,      :8888:
D888,      :8888:
D888,      :8888:
D888,      :8888:
888W,      :8888:
W88W,      :8888:
W88W:      :8888:
DGGD:      :8888:
          :8888:
          :W888:
          :8888:
          E888i
          tW88D
```

- 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

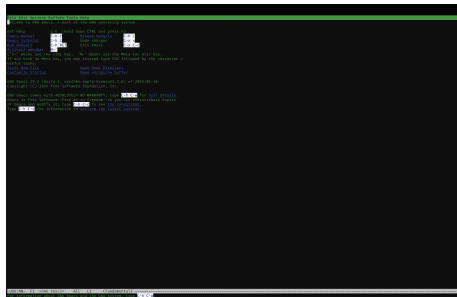


# Emacs Text Editor



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

- Many modes for different purposes such as browsing the web





# 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`

# Remote Version Control Platforms

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

# GitHub



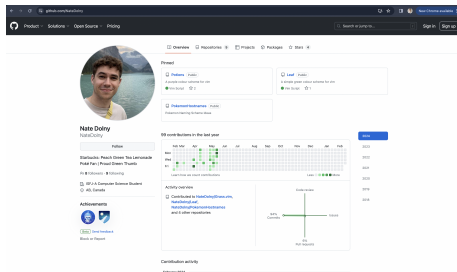
# GitLab



# Bitbucket

# GitHub

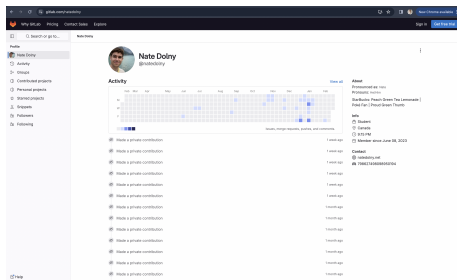
- Released in April 2008
- Microsoft acquired Github in 2012
- Over 100 million users
- Hosts millions of open source projects





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

- Only platform that self-hosting is free

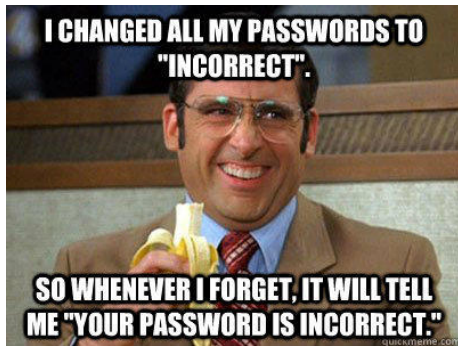


# Introduction to OpenSSH Suite



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

- 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



# 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*



# Adding our key to GitLab

## Step 1.

- *Click on edit profile*

## Step 2.

- *Click on SSH Keys*

## Step 3.

- *Click on add new key*

## Step 4.

- *Paste public key into key textbox*

## Step 5.

- *Give your key a name*

## Step 6.

- *Click add key*