Intro to Git

IEEE Workshop Committee

Install Git

git-scm.com/download



Windows

- Download .exe
- Use default install location
- Use default install settings
- Git Bash

Mac

- Download dmg installer
- Follow instructions
- Terminal

- Linux
 - Use correct commands for your distro
 - Terminal
 - GitHub Desktop not available

GitHub Desktop Setup

- github.com
 - choose sign-up in top-right
- Write in chat your github username

- desktop.github.com
 - download for MacOS or Windows
 - install, log in, and configure with your info



What is Git?



- Distributed Version Control System
 - Version Control Records changes to files over time, can revert back to specific versions
 - <u>Distributed</u> Can "clone" entire repository (current state + previous states), on different computers
- Free, open source
- Lightweight and fast
- Most used VCS

Git vs GitHub vs Gitlab

 Git - Software which handles VC, makes/tracks local changes

 GitHub - Remote hosting of Git repositories, other features like collaboration w/ other users

GitLab - Similar to GitHub, provides
 DevOps tools and is open-sourced



Some Core Ideas



- initialize create a new repository
 - folder to be used for a git project
- add adds file to launch pad after it has been changed
 - checkbox next to files in github desktop
- commit bundles together added files
 - adds a message, a checkpoint in the project
- push sends all commits to the remote server
 - updates project with local changes
- pull updates local repo with changes on server repo
 - updates local project with other people's changes
- clone copy server repo to your machine as local repo
 - necessary first step to begin work
- branch allows different things to be worked on
 - different versions being modified, merged when done

Creating & Using a Local Repository

Local Git Setup

Sign in to GitHub account on GitHub Desktop

- Enter name and email to Configure Git
 - all changes will have these identifiers



Getting Started

Initialize Repository



Create an empty folder

- folder will house git repositories
- My Documents, Desktop, etc.

- File -> New Repository
 - choose new folder
 - name the project, initialize with ReadMe

Stage first commit

- Create a text file
 - Save it in the repo
- Commit that file with a message
 - write a summary and a description
 - click commit
 - change will disappear from list



Make Changes

Stage + Make New Commit



 Open the text file you originally made and make an edit to it

 Repeat the same steps as before to create a new commit

- View your commit history
 - history tab on left side of screen
 - view -> history / ctrl+2

Branches

Create a Branch



Git allows branches

 Different people work on different branches

- Currently on the main branch, can create and move to another one
 - branch -> new branch

Making a change on a branch

Merging Branches



- Now on a new branch
- Add a new txt file
- Add and commit that file

- Combine changes on new branch with main
- Switch back to the main branch
 - leave changes behind
- Merge the changes from the new branch
 - branch -> merge into current branch

Using a Cloud Repository

Get Access to our Repository

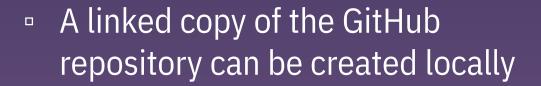
Go to email associated with your github account

Find the email and accept the invite

Go to the repo on github.com



Clone the GitHub Repository



- file -> clone
- select the repository, choose a folder for the repo to sit in
- If not there, log out of GitHub
 Desktop and log back in



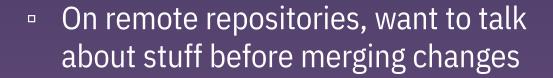
Create a Branch + Make Changes

- Now that we've cloned the cloud repo,
 we can contribute changes to it
- Create a new branch with your Drexel ID as the name
 - Not good practice to commit directly to main

- Add a new file and stage the commit
- Push the changes back up to GitHub
 - make sure you're on your branch, not main



GitHub Pull Requests



- Pull Requests allow collaborators to discuss the merge
 - Even make some necessary commits beforehand
- Pull requests end with a branch being merged into another and often being deleted



Pull from Repository

Switch back to the main branch

Note that no changes are present, like nothing happened

Choose pull

Get the new file to your local repo from the cloud



Additional Topics

- gitignore Specifies files which are to be ignored by git
 - Can provide specific file or give a pattern
 - Used in large-scale software projects
 - If using an IDE, use .gitignore

Using bash commands (Git Bash)

Rather than doing a hard reset, you can temporarily revert to a previous commit on a new branch



Raffle

Questions?

http://bit.ly/IEEEGitFeedback

--UPDATE--