Git Basics

Git is perhaps the most common versioning tool in use today. These notes will examine how it works, where to get get it, and basic commands via the command prompt. There will be a lecture that follows these slides and illustrates other items of concern. Be sure and watch that lecture in addition to viewing these slides.

Background

- Created by Linus Torvalds who also created Linux

- It uses a distributed model so all team members have their own copy of the repository
  - You do not have to be connected to a central server/location to do your work

- Stores files via snapshots
  - Once a file is saved (committed) into repository, subsequent commits just save differences from before
  - Saves an enormous amount of space over time

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Distributed model

- While team members have own copy, there usually is a central location
  - Each team member will grab updates (pull) from central location each time s/he wants to do work
  - Each team member will copy (push) files s/he has worked on as necessary
  - It is (very) important to keep work among all team members current (synchronized)
- Central location can be part of corporate network or somewhere like GitHub or BitBucket

Git Software

- Git is free and can be downloaded from: https://git-scm.com/downloads

- There are many IDEs to simplify git usage
  - See: https://git-scm.com/download/gui/windows

- There are many excellent tutorials since it is so widely used
  - https://git-scm.com/docs/gittutorial
  - https://www.atlassian.com/git/tutorials
  - https://www.vogella.com/tutorials/Git/article.html

Setting up a local repository (via command line)

- Windows Command Line tutorial: https://www.youtube.com/watch?v=MBBWVgE0ewk
- Once git is installed it is simple to set up a repository
  - Create a folder/directory that will hold the files in your repository
  - Change directory to that repository
  - Run init command: **git init**
    - This formally creates your repository and places a variety of support files to help manage everything you commit to the repo
  - The first time you work with git you should also set your user name and email address. From within your repo do the following
    - **git config --global user.name "Your Name Goes Here"**
    - **git config --global user.email you@yourdomain.example.com**

Adding a file to your repo

- You can copy or create a file in your repo directory and git will notice it, but will not track it
  - You can check current state of your repo with: **git status**
  - To formally make git monitor a file is a two step process
    - **git add** filename
    - **git commit -m "info about commit goes in this string"** (the -m allows you to enter a message with info about your commit – you should ALWAYS do this)
    - After the above two steps the file is now formally monitored by git
  - To check results or what's going on at any time with repo remember: **git status**
  - To view a history of your commits you can use: **git log**