

Module 1-1

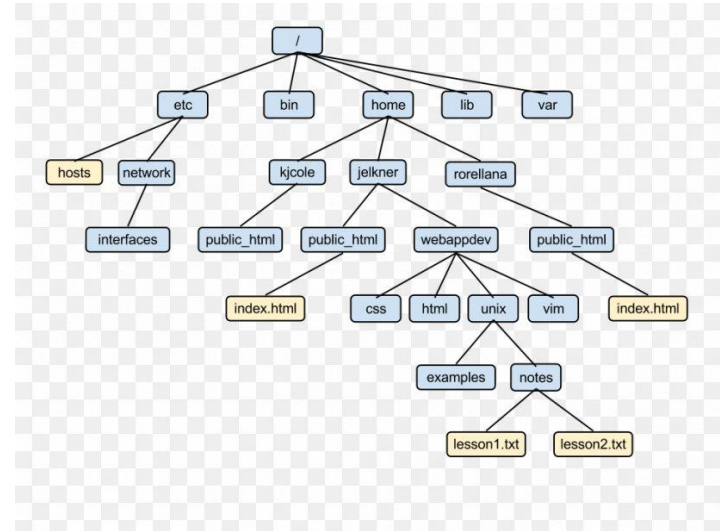
Command Line Shell & Version Control

Objectives

- Students should be able to navigate files using the UI of their laptops
- Students should be able to find and open a command line application
- Students should have repository set up on their laptops
- Students should be able to open Visual Studio Code as a text editor
- Students should understand that there is a basic command line on their computers and how to use it
- Students should understand pathing and hierarchical, parent-child structures
- Students should remember the `cd`, `ls`, and `pwd` commands and how to use them
- Students should understand what source control is
- Students should have an understanding of what git is and what the workflow of it will be in the class

File System

- Method for organizing and storing files
 - Organized into tree structures
 - Drives contain folders and folders contain files
- Like a filing cabinet
- Files contain the data we want
 - Documents, spreadsheets, etc.
- Folders hold files and other folders
 - All files exist in some folder in the file system



What is a Command Line Shell?

- A shell is the means by which the user interacts with the computer.
 - Shells can be in the form of a graphical user interface (i.e. Windows, MacOS)
 - Shells can be in the form of a command line, where users type in commands.
- Information Technology professionals should be familiar with **command line shells**.
- In this class we will be using GitBash, which allows for UNIX commands from a windows workstation.

Command Line Commands: Moving Around

- Data in your workstation are organized into files and folders.
- The main command to move around folder is **cd**. There are several variations of these:
 - **cd ~** : Returns you to your home directory.
 - **cd <directory name>** : Takes you to a specified directory i.e. cd workspace takes you to a folder called workspace
 - **cd ..** : Takes you one level up.
- You can always see what directory you're in by typing **pwd**.
- The **ls** command lists all the files in the current directory.
- The **ls -al** command will list all the files, including any hidden ones.

Let's Try this!

Moving Around: Absolute Path

- When you used the `pwd` command, the output would have looked something like this:

```
Student@DELL-JAVA MINGW64 ~/workspace  
$ pwd  
/c/Users/Student/workspace
```

Recall that `pwd` displays the current directory. Note that the response from this command is an absolute path since it starts with a slash (/).

Moving Around: Relative Path

- A relative path is differentiated from the absolute path by the absence of the initial slash:
 - **cd /c/Users/Student/workspace** uses an absolute path to get me to the workspace folder.
 - Alternatively, if I were already in my respective user folder (Student), typing **cd workspace** uses a relative path to get me to the workspace folder.

Moving Around: The Tilde (~)

- The tilde (~) is a special symbol used to denote the home directory. For all of your workstations this has been set to: `/c/users/Student`

```
Student@DELL-JAVA MINGW64 ~/workspace
```

```
$ cd ~/workspace
```

Therefore, the above command will take you to: `/c/Users/Student/workspace/`

Moving Around: Making Directories

- To create a directory we use the **mkdir <filename>** command.

Command Line Commands: Copying

- To copy a file from 1 directory to another: `cp <source> <destination>`

```
Student@DELL-JAVA MINGW64 ~
```

```
$ cp ~/testdir/file.txt ~/othertestdir
```

- To move a file from 1 directory to another: `mv <source> <destination>`

```
Student@DELL-JAVA MINGW64 ~
```

```
$ mv ~/othertestdir/file.txt ~/testdir/
```

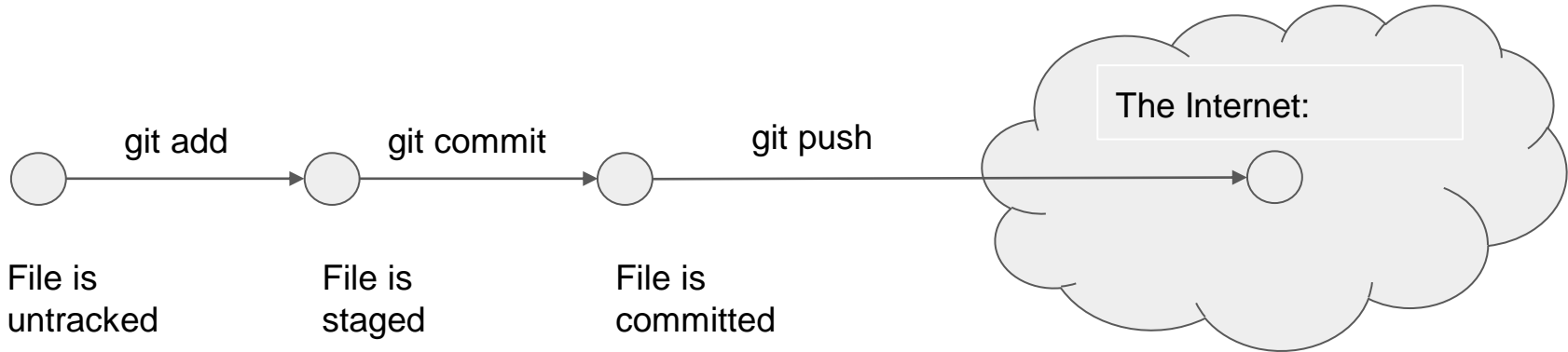
- Copy and Move differ in that the latter will remove the file from the source. With copy, the source retains a copy (pun intended) of the file.

Source Control : What it is

- Source control software allows developers to save and version their code.
- In this class, we will be using git / bitbucket.
- Git is an example of a distributed source control system, where a repository exists locally on your own workstation and on a central network location.

Source Control : Git Flow (Checking In Changes)

- **git status**: See the current status of your files.
- **git add -A**: Stage any files you have changed.
- **git commit -m "Commit message"**: Commit files to your local repository
- **git push origin master**: Push committed changes to network repository.



Source Control : Git Flow (Pulling Changes)

- **git pull upstream master**: Pulls latest from the remote repository.
- In this class we make a distinction between “upstream master” and “origin master”. Always pull from upstream master and push to origin master! There are some circumstances where this will change - the instructor will let you know.

Final Notes

- You want to pull often:
 - Pull when your instructors ask you to.
 - Pull first thing in the morning when you get to class.
 - Pull when you get back from lunch
 - Pull before you plan to push an assignment.
- Instructors will only grade what has been pushed to the BitBucket git repository. You can always check the web version of the repository to do a spot check to make sure what you pushed is actually there:

<https://bitbucket.org/te-det-phl-summer-2020/yourname/src/master/>