Module 1-1

Command Line Shell & Version Control

What is a Command Line Shell?

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- 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.

Navigating through folders

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- Data in your workstation are organized into files and folders.
- The main command to move into and out of folders 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.
- When in a folder, the **ls** command lists all the files in the current directory.

Where Am I?

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

  Andy Chong Sam@DELL-JAVA MINGW64 ~/workspace
  $ **pwd**
  /c/Users/Andy Chong Sam/workspace

  The pwd command shows the location in the file system you are currently in.

The Tilde (~)

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

    Andy Chong Sam@DELL-JAVA MINGW64 ~/workspace
    $ **cd ~/workspace**

    Therefore, the above command will take you to:
    /c/Users/<Your Username>/workspace/

Making Directories

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

Copying and Moving Files

- To copy a file from 1 directory to another: **cp** *source* *destination*

  Andy Chong Sam@DELL-JAVA MINGW64 ~
  $ **cp ~/testdir/file.txt ~/othertestdir**

- To move a file from 1 directory to another: **mv** *source* *destination*

  Andy Chong Sam@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.

Removing Directories

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- To remove a directory, we use the rmdir command: **rmdir** folder name

```
Andy Chong Sam@DELL-JAVA MINGW64 ~/workspace
$ rmdir myFolder
```

- Deletion using this command is permanent, there is no recycling bin!

Let's Try this!

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Source Control : What it is

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- 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 (Uploading Changes)

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

Summary of add, commit, and push

An untracked file

A staged file

Local Repo

Remote Repo

1

2

3
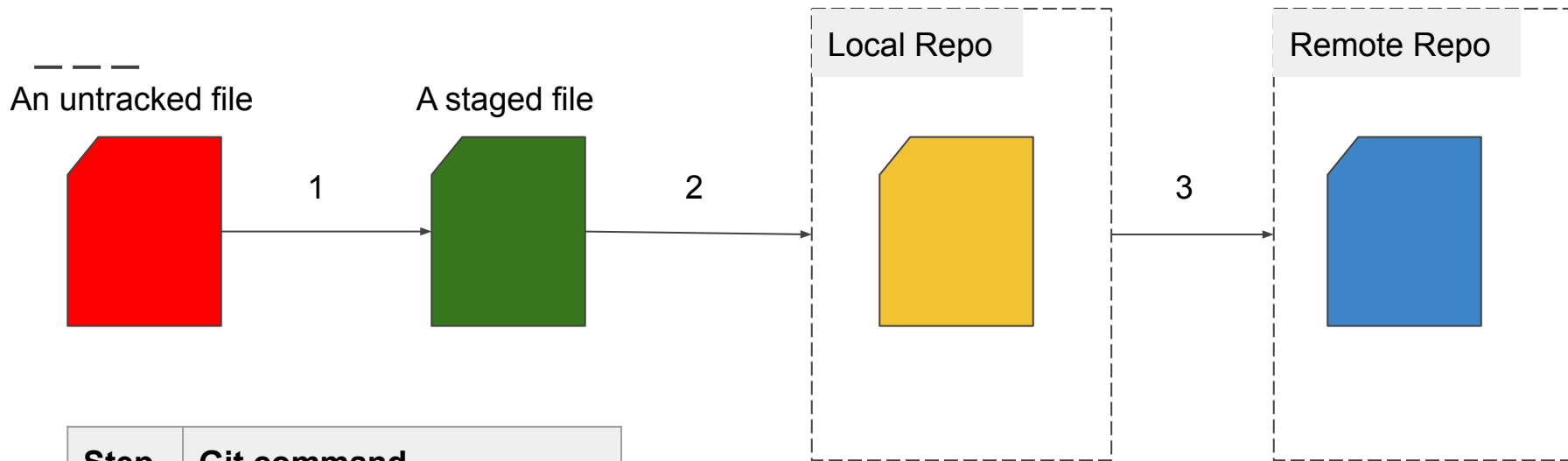
Step	Git command
1	add
2	commit
3	push

Source Control : Git Flow (Downloading Changes)

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- **git clone:** Pulls the entire repository, including all previous commits, to your workstation.
- **git pull upstream main**: Pulls latest changes from the remote repository.

- In this class we make a distinction between "upstream main" and "origin main". **Always pull from upstream main and push to origin main!** There are some circumstances where this will change - the instructor will let you know.