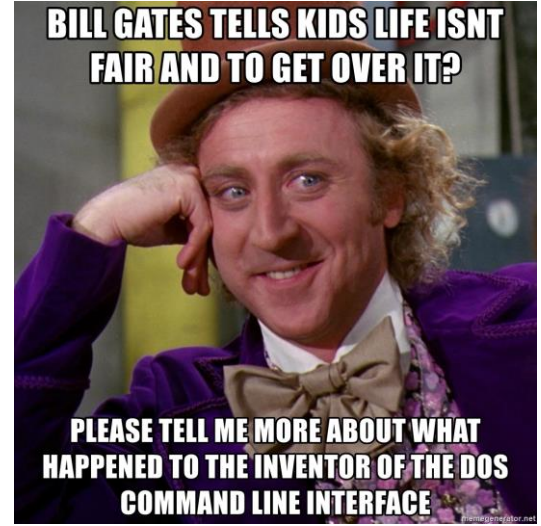


# Module 1-1

## Command Line Shell & Version Control

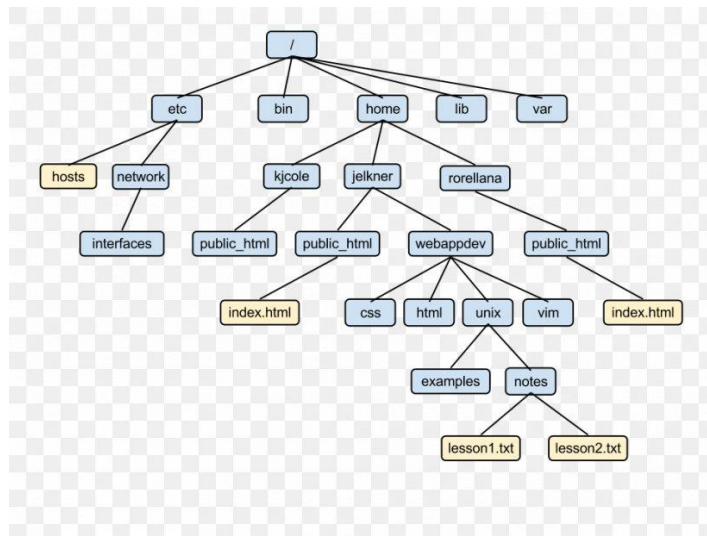


# Objectives

- Navigate files using the UI of their laptops
- Find and open a command line application
- Have your repository set up on their laptops
- Open Visual Studio Code as a text editor
- Understand that there is a basic command line on their computers and how to use it
- Understand pathing and hierarchical, parent-child structures
- Know the cd, ls, and pwd commands and how to use them
- Understand what source control is
- 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) – GUI or UI
  - 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.
  - **cd /** : Takes you to the root
- 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/
```

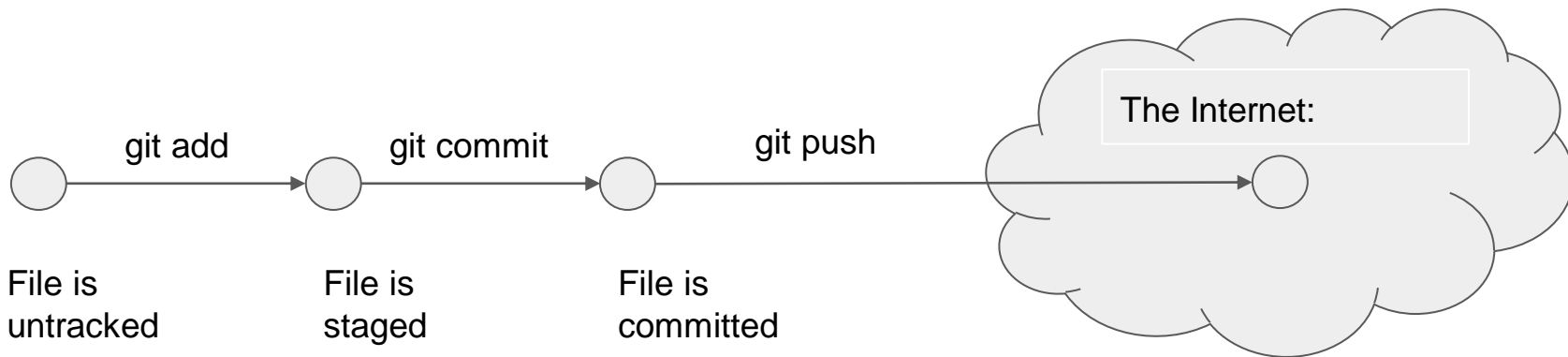
- Copy and Move differ in that the latter will remove the file from the source. With copy, the source retains a copy (pun intended) of the file.

# 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.
- To set up a git repo (repository) on a machine, you clone the repo from bitbucket. Cloning pulls all the commits from the remote repo to your local machine.

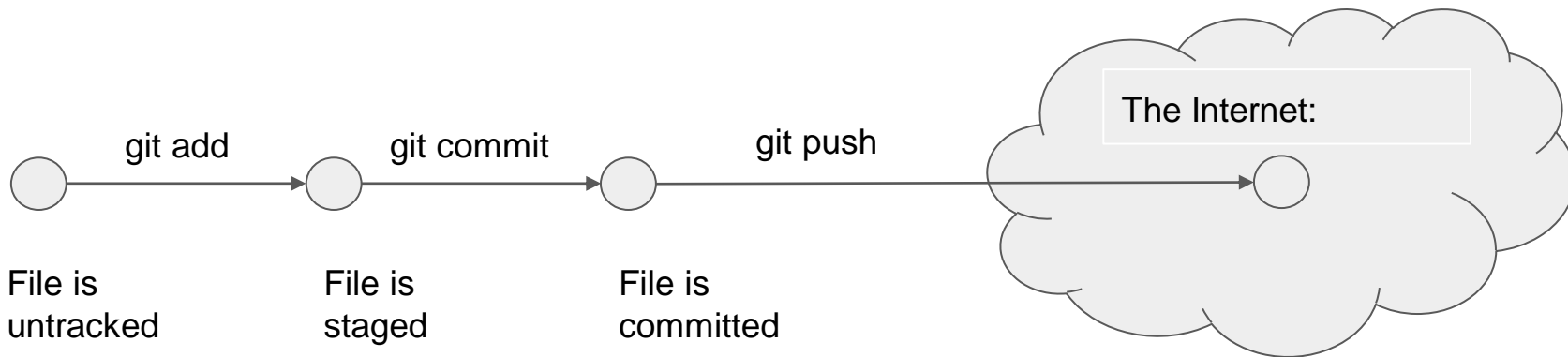
# Source Control : Git Flow (Checking In Changes)

- **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 main**: Push committed changes to network repository.



# Source Control :

- **git add about-me.txt**: Stage the about-me.txt file you have changed.
- **git commit -m “Add changes to about-me”**: Commit file to local repo
- **git push origin main**: Push committed changes to network repository.



# Source Control : Git Flow (Pulling Changes)

- **git pull upstream main**: Pulls latest 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.

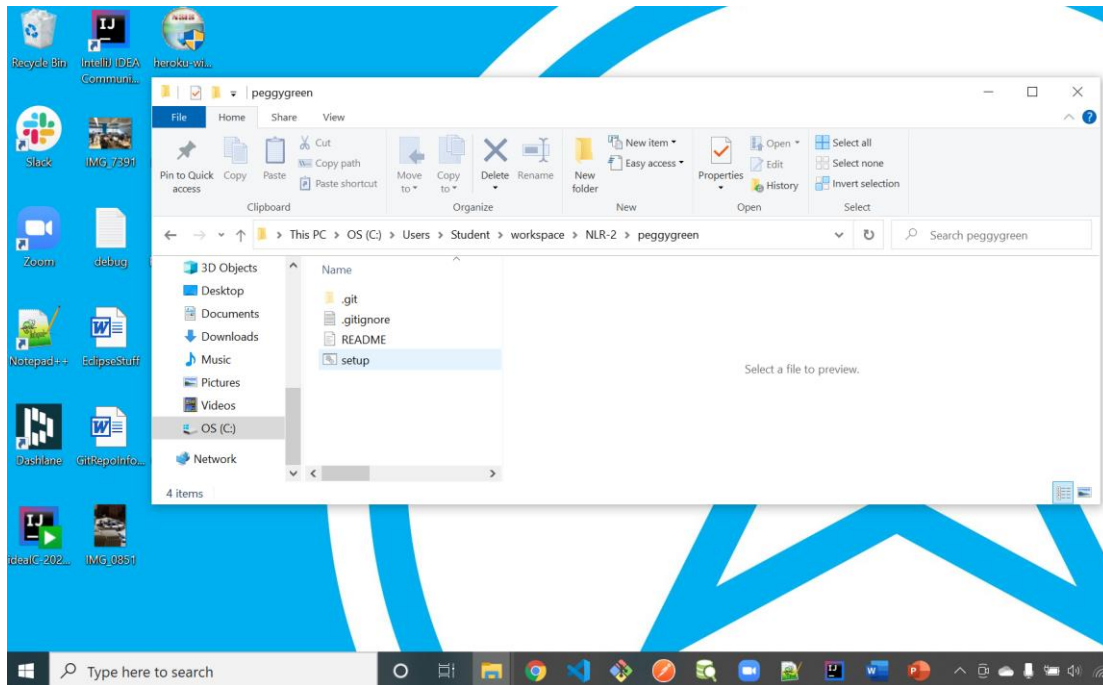
# Final Notes

- 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-nlr-2110/yourname/module-1/folder/src/main/>



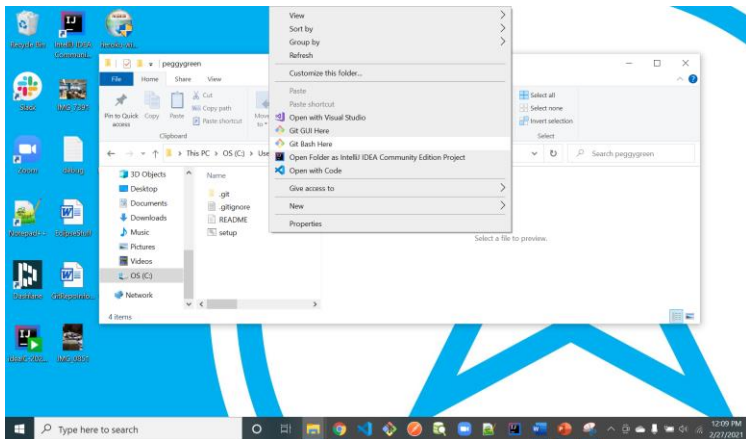
# Objectives

- Should be able to navigate files using the UI of their laptops



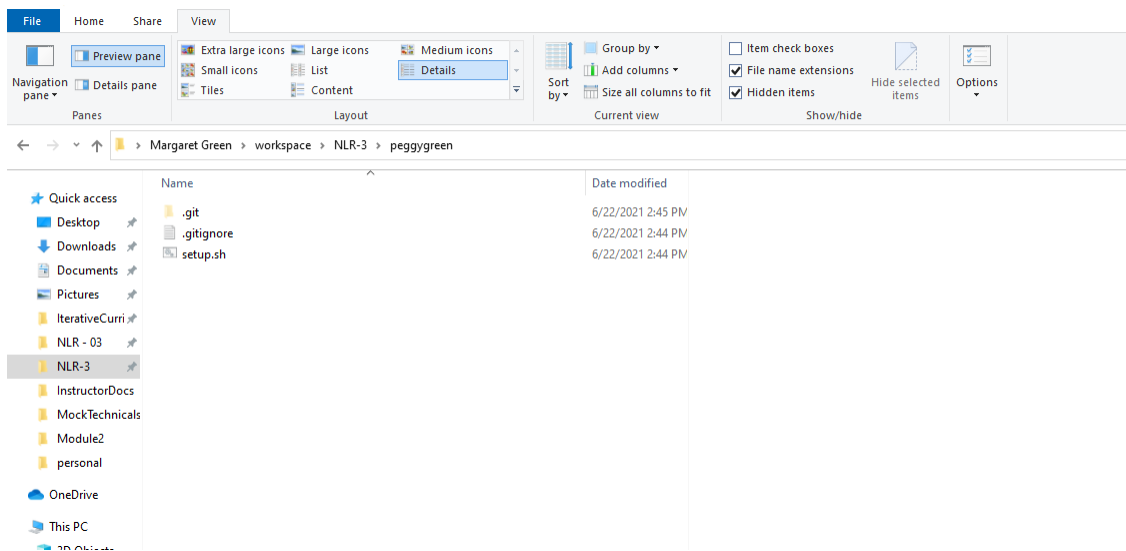
# Objectives

- Should be able to navigate files using the UI of their laptops
- Should be able to find and open a command line application



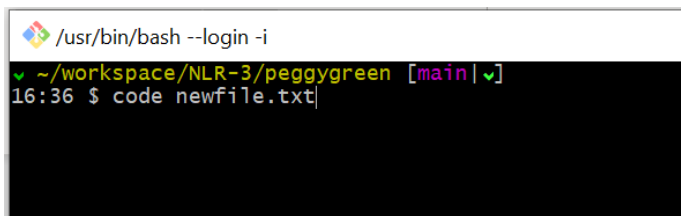
# Objectives

- Should be able to navigate files using the UI of their laptops
- Should be able to find and open a command line application
- Should have repository set up on their laptops

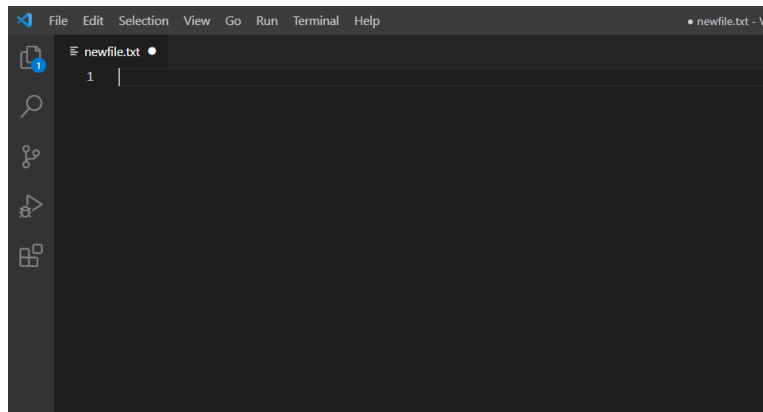


# Objectives

- Should be able to navigate files using the UI of their laptops
- Should be able to find and open a command line application
- Should have repository set up on their laptops
- Should be able to open Visual Studio Code as a text editor

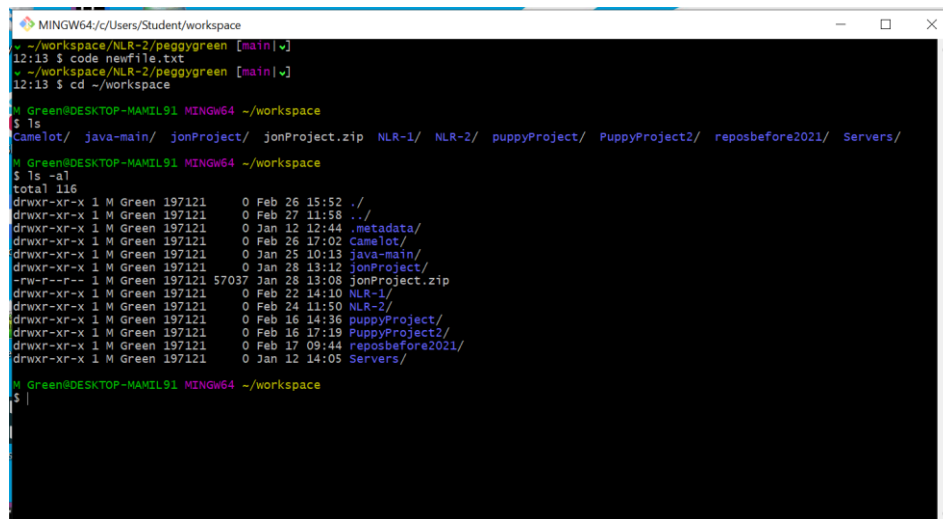


```
/usr/bin/bash --login -i
~/workspace/NLR-3/peggygreen [main|✓]
16:36 $ code newfile.txt
```



# Objectives

- Should be able to navigate files using the UI of their laptops
- Should be able to find and open a command line application
- Should have repository set up on their laptops
- Should be able to open Visual Studio Code as a text editor
- Should understand that there is a basic command line on their computers and how to use it



```
MINGW64/c/Users/Student/workspace
~/workspace/NLR-2/peggygreen [main|v]
12:13 $ code newfile.txt
~/workspace/NLR-2/peggygreen [main|v]
12:13 $ cd ~/workspace

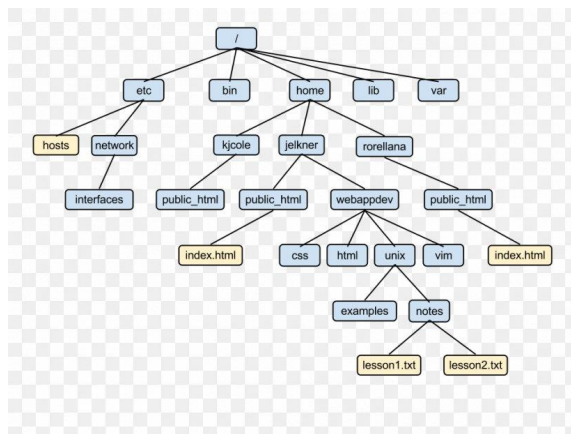
M Green@DESKTOP-MAM1L91 MINGW64 ~/workspace
$ ls
Camelot/  java-main/  jonProject/  jonProject.zip  NLR-1/  NLR-2/  puppyProject/  PuppyProject2/  reposbefore2021/  Servers/

M Green@DESKTOP-MAM1L91 MINGW64 ~/workspace
$ ls -al
total 116
drwxr-xr-x 1 M Green 197121  0 Feb 26 15:52 ./
drwxr-xr-x 1 M Green 197121  0 Feb 27 11:58 ../
drwxr-xr-x 1 M Green 197121  0 Jan 12 12:44 .metadata/
drwxr-xr-x 1 M Green 197121  0 Feb 26 17:02 Camelot/
drwxr-xr-x 1 M Green 197121  0 Jan 25 10:13 java-main/
drwxr-xr-x 1 M Green 197121  0 Jan 28 13:12 jonProject/
-rw-r--r-- 1 M Green 197121 57037 Jan 28 13:08 jonProject.zip
drwxr-xr-x 1 M Green 197121  0 Feb 22 14:10 NLR-1/
drwxr-xr-x 1 M Green 197121  0 Feb 24 11:50 NLR-2/
drwxr-xr-x 1 M Green 197121  0 Feb 16 14:36 puppyProject/
drwxr-xr-x 1 M Green 197121  0 Feb 16 17:19 PuppyProject2/
drwxr-xr-x 1 M Green 197121  0 Feb 17 09:44 reposbefore2021/
drwxr-xr-x 1 M Green 197121  0 Jan 12 14:05 Servers/

M Green@DESKTOP-MAM1L91 MINGW64 ~/workspace
$ |
```

# Objectives

- Should be able to navigate files using the UI of their laptops
- Should be able to find and open a command line application
- Should have repository set up on their laptops
- Should be able to open Visual Studio Code as a text editor
- Should understand that there is a basic command line on their computers and how to use it
- Should understand pathing and hierarchical, parent-child structures



# Objectives

- Should be able to navigate files using the UI of their laptops
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- Should understand that there is a basic command line on their computers and how to use it
- Should understand pathing and hierarchical, parent-child structures
- Should remember the cd, ls, and pwd commands and how to use them

**cd ~** : Returns you to your home directory.

**cd <directory name>** : Takes you to a specified directory **cd ..** : Takes you one level up.

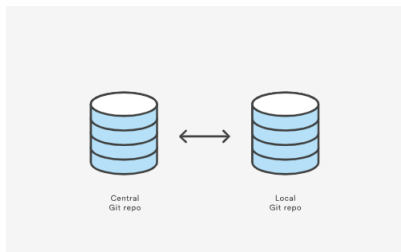
**pwd** – print working directory

**ls** – list files and folders (directory content)

**ls -al** – list files and folders including hidden ones (a) and long format (l)

# Objectives

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- Should have repository set up on their laptops
- Should be able to open Visual Studio Code as a text editor
- Should understand that there is a basic command line on their computers and how to use it
- Should understand pathing and hierarchical, parent-child structures
- Should remember the `cd`, `ls`, and `pwd` commands and how to use them
- Should understand what source control is





# Objectives

- Should be able to navig
- Should be able to find a
- Should have repository
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- Should understand that how to use it
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- Should have an understanding of what git is and what the workflow of it will be in the class

## Git usages : Understanding Git Workflow

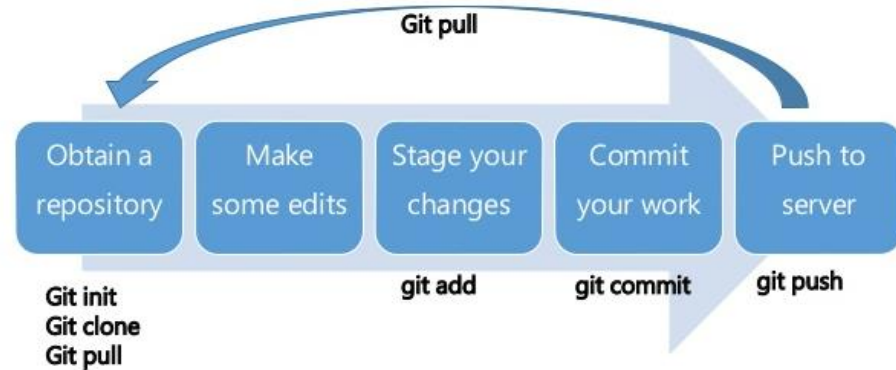


Image - Git Workflow