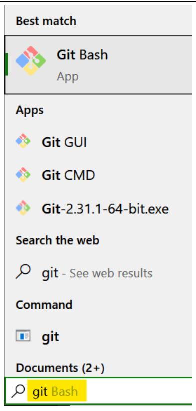
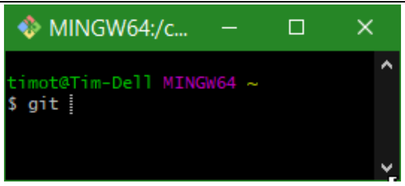
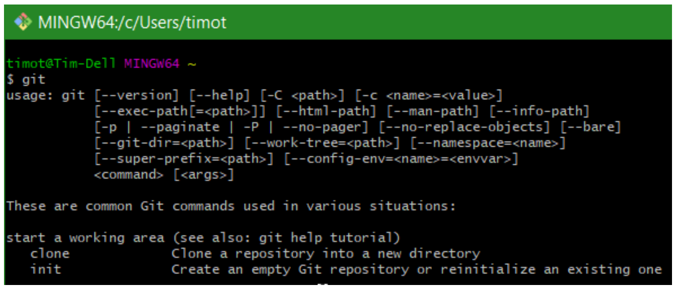
A good Git cheatsheet at https://towardsdatascience.com/a-git-cheatsheet-that-all-coders-need-bf8ad4d91576 with more commands than we need now but a very good reference.
https://www.bitdegree.org/learn/git -- good stuff but with lots of fluff.

Install Git

https://youtu.be/Rhc0KzfLaBk This tutorial will explain how to install the git version control system on your computer for the Final Project.

Git is a free and open-source distributed version control system. Get Git from git-scm.com/. The Download button for the latest source release automatically selects Windows or macOS. Take the defaults during installation with the possible exception of the default editor.

To launch git: Windows-Key, “git”, then select Git Bash. This is an emulated Linux / Unix (*nix) environment. Git GUI is available but making it work takes more effort than using the Bash shell.	 Best match Git Bash App Apps Git GUI Git CMD Git-2.31.1-64-bit.exe Search the web git - See web results Command git Documents (2+) git Bash
Running Git Bash results in a *nix emulated terminal window. Enter `git` to verify the installation. In your project folder containing source files, create a Shortcut to save time. Target: "C:\Program Files\Git\git-bash.exe" Start in *example*: "%USERPROFILE%\Documents\Seneca\CP4P Final Project"	 

```
MINGW64:/c/...
timot@Tim-Dell MINGW64 ~
$ git
```

```
MINGW64:/c/Users/timot
timot@Tim-Dell MINGW64 ~
$ git
usage: git [--version] [--help] [-C <path>] [-c <name>=<value>]
           [--exec-path[=<path>]] [--html-path] [--man-path] [--info-path]
           [-p | --paginate | -P | --no-pager] [--no-replace-objects] [--bare]
           [--git-dir=<path>] [--work-tree=<path>] [--namespace=<name>]
           [--super-prefix=<path>] [--config-env=<name>=<envvar>]
           <command> [<args>]

These are common Git commands used in various situations:

start a working area (see also: git help tutorial)
   clone             Clone a repository into a new directory
   init              Create an empty Git repository or reinitialize an existing one
```

In the Bash shell, do not use the back slash \ as a folder separator in a path; use the forward slash / as if in *nix. Bash interprets \ as the escape char for special characters, e.g. \$. Avoid special characters in folder and file names – it will make life at the command line easier.

At the $ prompt in the Bash git shell

- Git commands are preceded with "`git `"
- *nix commands like `cd` or `ls` can be entered normally
- use the Insert key to paste from clipboard instead of Ctrl-V (see this)
- select text by click + drag with mouse
- copy selected text with right click or Enter key.
- Up or down arrow keys will recall commands from the stack

Bash shell examples

```
$ cd "Documents/Seneca/CPR101 Final Project"
```

`$ ls` # list all files

Git setup

The global git username and password are associated with commits on all repositories on your system.

`$ git` **`config --global user.name`** `"`*`Your Name`*`"`

`$ git` **`config --global user.email`** `"`*`UserID`*`@mySeneca.ca"`

`$ git` **`config --list #`** Confirm the setup. Type **q** to quit the list, **h** for help.

`$ cd "`*path to dir/folder where repository will be*`"`

`git` **`init`** # Create an empty Git repository in the current folder/directory

> If you see `Documents/`*`path`*`/`**`.git:No such file or directory`**
> allow git.exe to write to your drive in your anti-virus or malware protection software
>
> The response should be
> `Initialized empty Git repository in Documents/`*`path`*`/.git/`

- To reset git and start again, delete the *hidden* **`.git`** folder

Essential Git Commands

`$ git` **`add`** *`file_name`* [type first character(s) of filename and press TAB key for auto complete]

> N.B. filenames should not include any version indication. Git merges and tracks the code differences within the *same* filename across committed versions. Different filenames are unrelated to each other. Version control happens only when the *same* filename is modified.

`$ git` **`commit -m`** *`version_name`* # -m is message switch: use a unique description for each commit.

`$ git` **`status -v`** `#` files with changes, yet to be committed
-v switch also shows source files' content differences:
lines + added, - deleted, -/+ changed. e.g.

```
diff --git a/converting.c b/converting.c
index b493251..c815139 100644
--- a/converting.c
+++ b/converting.c
@@ -1,4 +1,5 @@
-// CONVERTING V2
+// CONVERTING V2, changed this line to test git
+// added this line to test git
 #include "converting.h"  !! there is no -/+ flag, line listed for
context and location of -/+ changes within the source file.
```

`$ git` **`log`** # displays summary of commits (versions)

`$ git` **`log -p`** # displays commit differences (versions). Page-Down, Page-Up, **q** to quit the screen-by-screen listing, **h** for help.

`$ git` **`--no-pager log -p > "complete_git_log.txt"`** `#` outputs commit differences to all files in the repo

`$ git` **`--no-pager log -p`** ***`module`*** **`* >`** **`"`*`module`*`_git_log.txt"`** `#` outputs commit differences to *`module`* files only

`$` **`exit`** # To finish your git session

To process the next version of source files after the previous commit

- Make the changes to the same source filename. Comment, compile, write test cases, record test results.
- `$ git` **`add`** *`file_name`* # adds the latest changes made to a source code file into the git repo.
- `$ git` **`commit -m`** *`next_version_name`* # e.g. if previous version was "V1", this will be "V2"
- `$ git` **`status -v`** `#`

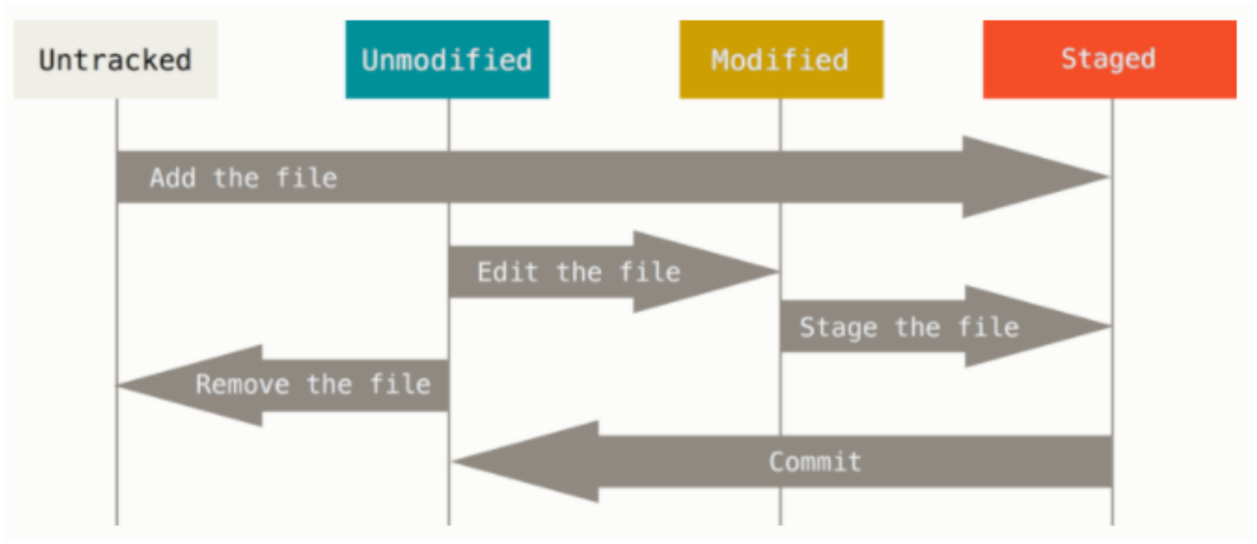
Additional Git Commands

```
$ git ls-tree -r master   # lists files tracked in current branch named 'master'
```

```
$ git rm --cached file_name
                  # removes a file from git repo, but not from the filesystem (source file remains)
      $ git commit -m "removing file_name from repo only" # to commit the removal
```

See https://www.git-tower.com/learn/git/ebook/en/command-line/advanced-topics/diffs/
https://intellipaat.com/community/12299/how-to-exit-git-log-or-git-diff

File States


Untracked
Unmodified
Modified
Staged
Add the file
Edit the file
Stage the file
Remove the file
Commit