

Git and GitHub Notes

RESOURCES

- Videos:
 - Kevin Stravert: <https://www.youtube.com/watch?v=tRZGeaHPoaw>
 - Gwen Faraday: <https://www.youtube.com/watch?v=-9Tb76tBoFU>
- Official Git web site: <https://www.git-scm.com/>
- Official GitHub.com web site: <https://github.com/>
- Git and GitHub.com cheat sheet: <https://education.github.com/git-cheat-sheet-education.pdf>
- Git Reference Manual: <https://git-scm.com/docs>
- Git Overview Book: <https://git-scm.com/book/en/v2>
- Sample ignore files: <https://github.com/github/gitignore>
- Hyper.is Terminal: <https://hyper.is/>
- A decent Git command reference: <https://dev.classmethod.jp/articles/git-bash-commands/>

1 Install Git and Git Bash

Windows

Download from <https://git-scm.com/>

Select all of the default settings. Git Bash has also been installed and can be used instead of the command prompt. Git Bash supports UNIX commands for Git.

Linux

```
sudo apt-get update
apt-get install git
```

After installation

Check the installed version.

```
git --version
```

Set up your username and email address.

```
git config --global user.email jamorgan75@protonmail.com
git config --global user.name "James Morgan"
```

Set default branch name to “main”:

```
git config --global init.default branch main
```

View configuration.

```
git config --list
```

2 Get help

Ask git for help:

```
git config -h
```

If you want more detailed information,

```
git help config
```

This follows the format `git help <command>`

3 Start a New Project

Using Github

Create a new repository on [Github](#). If you are planning on publishing this repository as the main page of your Github pages, the repository should be named `<username>.github.io`

From within Github.com, click on `Code` and copy the Github URL. Navigate to the directory that the repository will be cloned to locally. Then type the following and paste the address.

```
git clone <URL>
```

Local Only

Within terminal, change directory to the folder for which you wish to create a repository. Type the following and then press Enter:

```
git init
```

This creates a hidden folder `.git` within the directory that contains the repository files.

Work On Your Code

Open your editor/IDE, create necessary files and start coding.

4 Working Towards the Initial Commit

Git status

We can find the status of our repository with the following command:

```
git status
```

This command will return the following information:

- branch name
- commits
- tracked (green) or untracked (red) files

Track and Untrack Files

To track a file:

```
git add index.htm
```

To untrack (unstage) a file:

```
git rm --cached index.htm  
git add notes_on_git_and_github.tex
```

To untrack (unstage) a file:

```
git rm --cached notes_on_git_and_github.tex
```

Ignore files with .gitignore

Create a .txt file in the directory and add the filetype. Comment with the hashtag symbol.

```
# ignore all .txt files  
*.txt
```

Ignoring files is useful if you have files with sensitive information within the directory.

To see a comprehensive list of all the ways to ignore files, visit <https://github.com/github/gitignore>

Track all files / add to staging

To track all files within the directory, use one of the following:

```
git add --all  
git add -A  
git add .
```

Commit

To commit is to take a snap shot of what your repository looks like at this point in time.

```
git commit -m "first commit - committing all files to the repository"
```

5 Change files and view differences

If we change and save a file, the file is now categorized as “modified.”

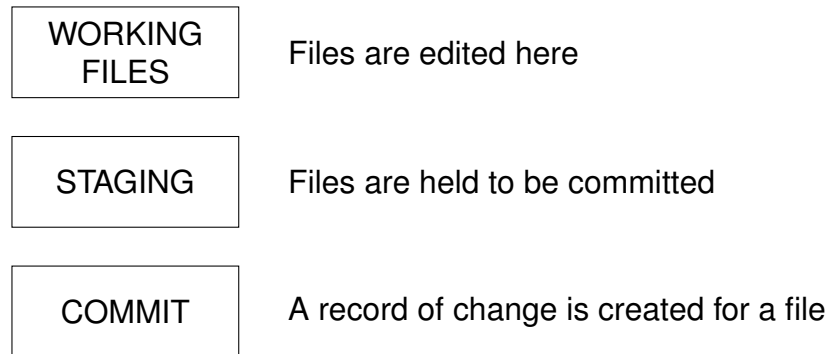
We can compare the differences in the modified file with the following command:

```
git diff
```

The original text will be in red, and the changed text will be in green.

We can now use the add command, and the file will be sitting in “staging”.

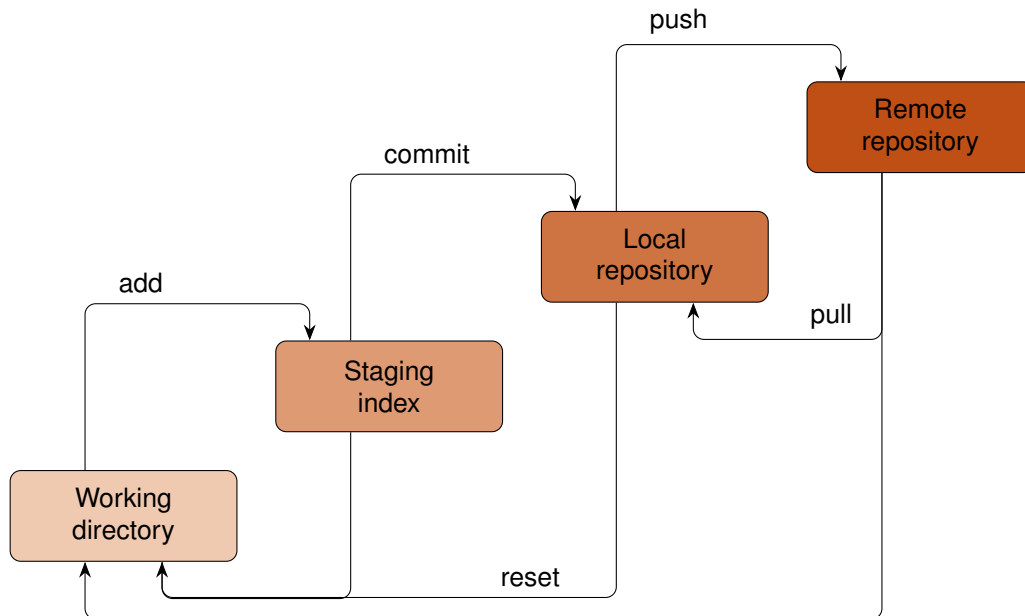
Within Git, we have three different environments: working files, staging, and commit.



To remove files from staging:

```
git restore --staged index.htm
```

If we commit now, the `index.htm` file will not be included as it is in the working environment.



6 Bypass staging and commit

The following skips the staging steps:

```
git commit -a -m "updated text to free range"
```

7 Delete / remove files

```
git rm "secret recipe.htm"
```

If Git is tracking the deleted file, status will show that the file has been deleted.

8 Restore files

```
git restore "secret recipe.htm"
```

This recovers the file.

9 Rename files

```
git mv "KCC Logo.png" "Primary Logo.png"  
git commit -m "chagnnnged the file name of an image"
```

10 View commit history with git log

```
git log
```

To get an abbreviated view:

```
git log --oneline
```

11 Amend commit

```
git commit -m "changed file name to Primary Logo.png" --amend
```

12 View changes in commits

```
git log -p
```

To find the different capabilities of `git log` is to use the help feature:

```
git help log
```

13 Reset to previous commit

To jump back to a previous commit:

```
git reset c193894
```

14 Rebase git repository

To modify your commits:

```
git rebase -i --root
```

To exit this menu, press :X and then Enter.

15 Branches

To create a new branch, from the directory we enter:

```
git branch FixTemp
```

To see branches, type:

```
git branch
```

We are currently in the branch with the asterisk.

To switch into another branch, we type:

```
git switch FixTemp
```

Now any changes made to the files in the directory will be associated with the current branch. Our commits will be applied to that branch.

Switching back to main,

```
git switch main
```

our files in the directory no reflect the changes made in the FixTemp branch. To bring the changes to the main branch, we need to merge the changes in.

16 Merge branches

We will need to specify which branch we want to merge with main.

```
git merge -m "Merge fixtemp back to main" FixTemp
```

17 Delete branch

Now that we've merged the FixTemp branch with main, we no longer need the FixTemp branch.

```
git branch -d FixTemp
```

18 Merge conflicts

If changes in main are committed before a branch is merged, we will have a merge conflict.

The following line will create a new branch and switch to that branch:

```
git switch -c UpdateText
```

19 Typical Git flow

You have some feature or bug to work on, so you create a new branch.

1. Create new branch
2. Make all changes
3. Merge into main
4. Delete branch that you were working on

20 Set up GitHub account

Your GitHub account can be created at <https://github.com/>

21 Create new cloud repository

On the left-hand side of the GitHub web page, you should see the option to create a new repository (a.k.a. repo). Alternatively, you can visit [github.new](https://github.com/new), and this will drop you on the new repo page.

Enter a name for the repo. If you make the repo private, you can assign different individuals access to the repo.

22 Push local repo to GitHub

23 Working with files

24 Edit repo details

25 Issues

26 Pull requests

27 Actions, Projects, Wiki, Security, Insights, Settings

28 Releases

29 Fetch and pull

30 Wrap up