THE CS CLUB

LEHMAN COLLEGE
TECHNOLOGY CLUB

Intro to Git/Github

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Agenda

- What are Github and Git?
- Installing Git
- Creating a Github account
- Link Git to Github
- Git commands
- Demo
- Useful link/Resources

What are Github and Git?

GitHub is a code hosting platform for version control and collaboration. It lets you and others work together on projects from anywhere.

Git is a DevOps tool used for source code management. It is a free and open-source version control system used to handle small to very large projects efficiently. Git is used for tracking changes in the source code, enabling multiple developers to work together on non-linear development.

More on Git

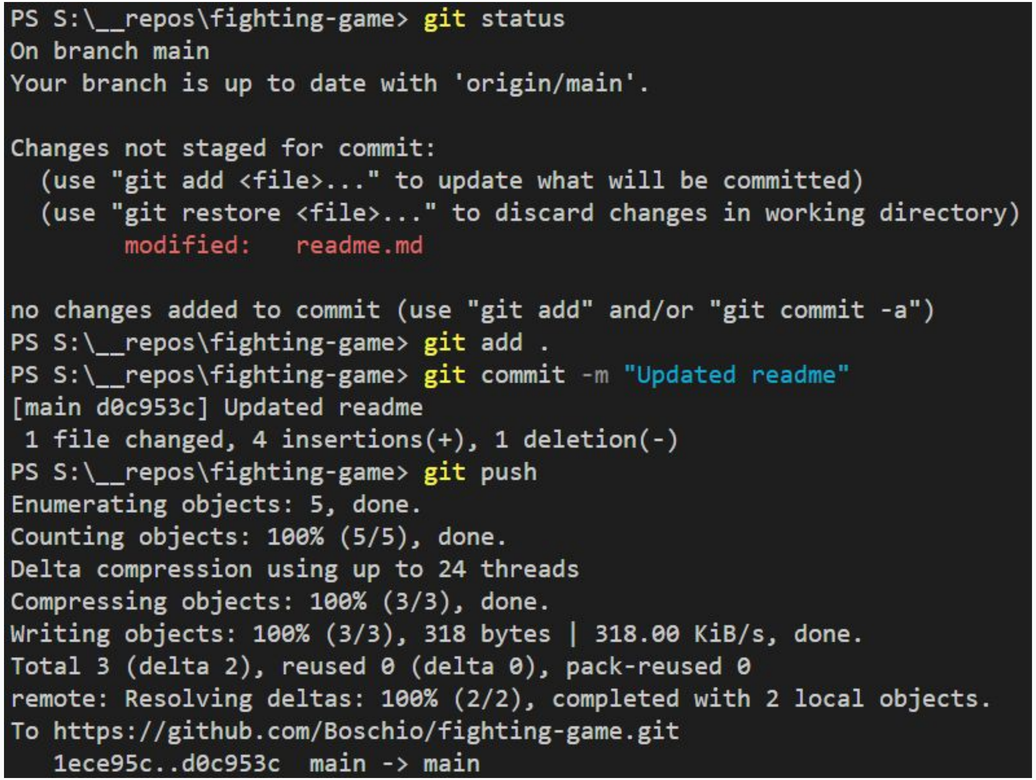
Git is a command line tool requiring you to use commands to “add”, “commit”, and “push” changes from your local copy of code to one hosted remotely.

To handle this, git breaks down your local repository into 3 “trees”:

Working Directory - Where your actual files are held

Index - Staging area for changed files ready to be committed

Head - Final place, where the most recent committed files are



```
PS S:\__repos\fighting-game> git status
On branch main
Your branch is up to date with 'origin/main'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   readme.md

no changes added to commit (use "git add" and/or "git commit -a")
PS S:\__repos\fighting-game> git add .
PS S:\__repos\fighting-game> git commit -m "Updated readme"
[main d0c953c] Updated readme
 1 file changed, 4 insertions(+), 1 deletion(-)
PS S:\__repos\fighting-game> git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 24 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 318 bytes | 318.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/Boschio/fighting-game.git
   1ece95c..d0c953c  main -> main
```

Note: git is primarily used with your command line tool, but There are some UI tools you can use for your git workflow, such as the GitHub Desktop app.

It is **highly** recommended to **learn how to use your command line interpreter**, as well as git within it.

Installing Git

Windows:
Download: https://gitforwindows.org/

MacOS:
Most versions of MacOS come preinstalled and can be activated through terminal with the command: git version

If not, download: https://git-scm.com/download/mac

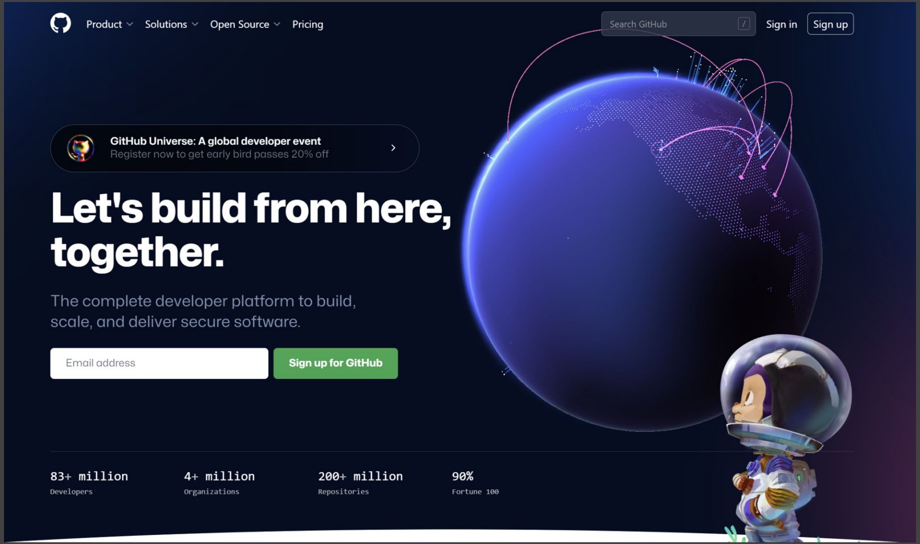
Linux:
Run the following command in your command prompt:
Ubuntu/Debian: $ sudo apt-get install git-all
Fedora: $ sudo dnf install git-all

Once installed, you can verify installation by typing the following into your command prompt:
git version (or git --version)

Creating an account on Github

Creating a Github account is easy and free!
Just click the link here:

https://github.com/



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Link Git to Github

Now we need to tell git where to send your changes. To do this, we set up git to point to your github account.

In your terminal:

```
git config --global user.name "Your Name"
git config --global user.email "yourname@example.com"
```

Change default local branch names from master to main:

```
git config --global init.defaultBranch main
```

Colorful Git output:

```
git config --global color.ui auto
```

Verify setup:

```
git config --get user.name
git config --get user.email
```

Mac Users only (Exclude ds_store files from git):

```
echo .DS_Store >> ~/.gitignore_global
git config --global core.excludesfile ~/.gitignore_global
```

Git Commands

Some commands to get you started. These you will likely use the most while starting out.
Remove [] brackets where seen.

git init - create a new repository (make sure to be within the directory/folder)

git clone [https/ssh url from one of your existing projects on GitHub] - create/clone a copy of project from github to local machine

git add [filename] - add changed file from WORKING DIRECTORY to INDEX (stage the changes)

git add . - stage the changes for ALL modified/new files within directory

git commit -m “insert commit message” - Staged files now added to the HEAD

git push - push changes to your currently checked out branch for your repository

git push -u origin [branch-name] - push current branch to new branch in repo with name specified, link the two together

git status - show the status of the working tree (changed, committed, not-committed files)

More Git Commands

There are many more commands to learn, with different flags for different actions.

git pull - pull latest changes from repository to local branch

git clone - create/clone a copy of a repo

git checkout - switch to another branch

git branch - list, create or delete branches

git merge - merge branch into another branch

git reset - reset/remove committed files

+ Many more commands

Typical Git Workflow

For the purposes of starting out and practicing Git, the most important commands and workflow you will need are:

```
git add .
git commit -m “insert meaningful comment on code changes”
git push
```

Also checking status of files periodically is very useful:

```
git status
```

Demo

Following along?
Useful VSCode plugins:

LiveServer
ESLint
GitGraph
HTML CSS Support
JavaScript code snippets

- Many more

Useful links/Resources

https://lehmancs.club/
https://git-scm.com/docs/gittutorial
https://docs.github.com/en/get-started/quickstart/set-up-git
https://github.com/git-guides
https://www.theodinproject.com/
https://training.github.com/downloads/github-git-cheat-sheet/

Useful Terminal software for Windows:
https://apps.microsoft.com/store/detail/windows-terminal/9N0DX20HK701?hl=en-us&gl=us

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