git & GitHub CHEAT SHEET

Github – website that displays files in remote repos in the cloud…where you push to and pull from

Git – version control software on your local machine

Repo – this is a file folder "on steroids"; it keeps track of everything—all changes to things within it

Local vs. Remote vs. Origin

- **Local** refers to items on your local machine (also working directory vs. local repo--different)
- **Remote** is anything on the cloud/Github
- **Origin** is the nickname for the default remote repo that your local repo is linked to

How to Get Your Own Version of a Repo

- **Clone**: this makes an exact copy of a remote repo on your local machine, create a local repo
- **Fork**: this makes a copy of a remote repo in your space on the cloud—creates a remote copy

Making Changes to a Repo

- **Stage**: mark files that you have changed to go into the next update that gets saved locally
- **Commit**: saves changes to your _local_ repo; this is a point to which you can go back
- **Push**: sends all of your changes that have been committed locally to the _remote_ repo

Retrieving Changes to Remote Repo

- **Fetch**: like half of a pull; updates your local repo with latest from remote, but doesn't make any changes to the local working directory (won't see in local folder)—it doesn't overwrite anything
- **Merge**: takes files that have been fetched to your local machine and puts them into local folder
  - *Changes/updates files that are there from updates from fetch—or adds new files, etc.*
- **Pull**: grabs everything that's new in the remote repo and merges it with/updates the local repo
  - *A combination of a Fetch and a Merge*

Branches

- It's a parallel version of a repo—still in the repo, but doesn't affect the main branch
- Creates an "easy bailout option" for you—can do whatever to the branch and doesn't affect main
- If you create a branch, main is the base; create one from another branch, it is the base; if first branch is merged back to main before second branch, then main becomes base for second branch

Pull Request (PR)

- NOT the same as a Pull; this notifies others that you've pushed changes to a branch in a repo
- Allows discussion and review of changes prior to merging into the main/base branch
  - *Others can review proposed changes, add comments, and contribute/add commits*
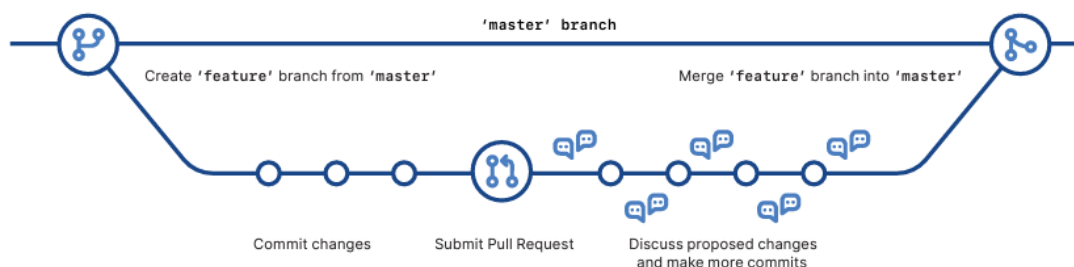- Can push commits to existing pull request; appear in chronological order

Image from https://training.github.com/downloads/github-git-cheat-sheet.pdf

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HWRS 501, Fall 2023
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Git Commands for Command Line

`git fetch`

- get all of the branches/updates from remote repo, doesn't change working directory (pull part 1)

`git merge`

- takes all changes from remote repo and updates your working directory (pull part 2)

`git push`

- take local changes and sends to/updates remote repo

`git pull`

- fetches and merges all changes on remote repo to local repo and working directory

`git status`

- shows modified files in the working directory that have been staged for next commit

`git add`

- stages all changes to get ready for a commit

`git commit -m "[description of what you did]"`

- saves all changes from staged files into a point to which you can go back to; a checkpoint

GIT FLOW DIAGRAM

Note: The local repos are the same, just duplicated to make space

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