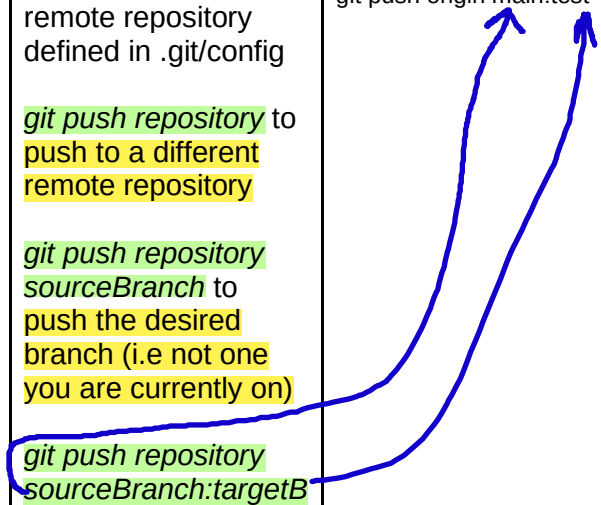
Purpose of document: guide on lectures with commands used and description

Command	Explanation	Remarks / Common arguments	Example
git clone	Clone a remote repository given the URL	99% of the time you will pass the repository URL as the only argument to git clone.	git clone https://github.com/Pierian-Data/Git-and-GitHub-Zero-to-Hero.git

Command	Explanation	Remarks / Common arguments	Example
git add	Stage files / add files to the index for subsequent committing	*git add -A* : Stage all files *git add -u* : Stage all tracked files (i.e files which have been added before after they were altered) *git add /path/to/file* : Stage the file identified by its path	git add ReadMe.md
git status	Lists all added, changed and newly created files.	Typically no arguments necessary. You can use *git status -s* to get a shorter version	git status
git reset	Undo changes / unstage files / go back to commit	*git reset* without any arguments unstages all added files but preserves all changes. *git reset –hard* unstages all added files and deletes all changes you made since the last commit. CAUTION! *git reset /path/to/file* to unstage a single file *git reset –hard commitId* to jump back to the commit with *commitId*	git reset git reset test.txt git reset –hard 5b331f3
git restore	Unstage specific files / undo specific changes	*git restore –staged* to unstage added files *git restore /path/to/file* to undo changes since last commit. Only possible when unstaged. Difference between reset and restore	git restore test.txt git restore –staged test.txt

git log	Show commit history	Pass no arguments to get the full log of the corresponding branch or use filtering arguments such as –after, –author or -n More information on formatting and filtering can be found here	git log –after="2022-1-1" git log –after="yesterday" git log -n 10 git log –author="Jose"
git diff	Visualize changes	*git diff* to list all changes since the last commit (unstaged files) *git diff –cached* for staged files *git diff /path/to/file* for a single file *git diff commitID1 commitID2* to compare between commits *git diff branch1 branch2* to compare between branches	git diff –cached test.txt git diff 4598 3g62 test.txt git diff main development
git commit	Commit changes after staging them	Typically you only use: *git commit -m "Message"* An empty message aborts the commit command. If *-m* is not passed, git opens a text editor to write the message *git commit --amend -m "Changed message"* to change the commit message of the previous commit	git commit -m "Updated ReadMe.md" git commit --amend -m "your new message"

git push	Push new commits to the remote repository	*git push* to push to the branch you are currently on and the remote repository defined in .git/config *git push repository* to push to a different remote repository *git push repository sourceBranch* to push the desired branch (i.e not one you are currently on) *git push repository sourceBranch:targetBranch* to push to the targetBranch from the sourceBranch *git push –force* to force push your current commit ignoring potential conflicts	git push git push origin git push origin main git push origin main:test 

Command	Explanation	Remarks / Common arguments	Example
git branch	“List, create, or delete branches”	*git branch* to list all branches *git branch name* to create a new branch called *name* *git branch –delete name* to delete the branch called *name*	git branch git branch development git branch –delete development
git switch	Switch to another branch	*git switch name* to switch to the branch name *git switch -c na*me to create the branch name if it does not exist and switch to it *git switch -d commitId* to switch to a previous commit *git switch -m name* merges the changes of the current branch into name and switches to *name*	git switch development git switch -c development2 git switch -d h98uab git switch -m main
git checkout	“Switch branches or restore working tree files”	*git checkout name* to switch to the branch name *git checkout -b name* to create the branch name if it does not exist and switch to it *git checkout commitId* to switch to a previous commit *git checkout -m name* merges the changes	git checkout development git checkout -b development2 git checkout h98uab git checkout -m main git checkout test.txt

		of the current branch into name and switches to *name* *git checkout /path/to/file* to undo changes since the last commit (i.e git restore) Difference switch and checkout	
git merge	Merge / join two branches	*Typically done on github, but for the sake of completion:* *git merge branch1 branch2* merges *branch1* and *branch2* on the current branch (i.e a new commit is created) *git merge branch* to merge *branch* into the current branch *git merge -s strategy branch* to define the merging strategy	git merge devel git merge devel1 devel2 git merge -s ours devel
git tag	“Create, list, delete or verify a tag”	Can also be done on github *git tag* to list all tags *git tag tagname* to create a tag called *tagname* *git tag tagname -a* to add an annotated tag with the name *tagname* (will open editor) *git tag –delete tagname* to delete the tag *tagname*	git tag v1.0 git tag v1.0 -a git tag –delete v1.0

git fetch	Fetch changes from the remote repository (does not update head)	*git fetch* to get the new commits from the branch you are currently on and the remote repository defined in .git/config *git fetch repository* to update from a different remote repository *git fetch repository sourceBranch* to get the desired branch (i.e not one you are currently on) *git fetch repository sourceBranch:targetBranch* to get the sourceBranch into the targetBranch	git fetch git fetch origin git fetch origin main git fetch origin main:test
git pull	Update local version with remote version. git fetch + git merge	*git pull* to pull from the branch you are currently on and the remote repository defined in .git/config *git pull repository* to pull from a different remote repository *git pull repository sourceBranch* to pull the desired branch (i.e not one you are currently on) *git pull repository sourceBranch:targetBranch* to pull the sourceBranch into the targetBranch	git pull git pull origin git pull origin main git pull origin main:test

`git pull`	**Pull Request (PR)**
Updates your local branch with remote changes.	Requests merging changes into another branch (e.g., `main` → `feature`).
No review process.	Requires approval before merging.
Used **locally** (`git pull origin main`).	Used **on GitHub/GitLab** (UI-based workflow).

git rebase	Rewrite commit history	*git rebase -i HEAD~n* to rebase the last *n* commits in the interactive mode *git rebase main* to rebase *main* on the current branch *git rebase –onto newbase oldbase* for more advanced rebasing with specific branches More in depth guide here, here Caution: Do not rebase after pushing!	git rebase -i HEAD~5
git revert	Revert existing commits and create new commit with these changes	*git revert commitId* creates a new commit containing the state of *commitId.* The editor will be opened to enter the commit message Difference revert reset	git revert 2fc0df

Command	Explanation	Remarks / Common arguments	Example

Day 4			
git stash	Stash changes for later use	*git stash* to add a new stash entry with the current modifications and reset your state to the current HEAD *git stash list* to get all stash entries *git stash show* to visualize the changes (diff) *git stash pop* to pop the first element of *git stash list* *git stash pop stash@{i}* to get the *ith* element of the stack *git stash apply* works similar to *git stash pop* but does not remove the stash from the list More examples	git stash git stash list git stash show git stash pop git stash pop stash@{2}
git clean	Delete all files not tracked by git	*git clean* to recursively remove all files not tracked *git clean -n* to list the files which would be deleted *git clean -x to also delete files ignored via .gitignore* *git clean -X to only delete ignored files*	git clean git clean -n git clean -x

Push the Branch to GitHub

git push -u origin <branch-name> or git push --set-upstream origin <branch-name>