20U01
Git & GitHub

Git

1. **Introduction**

- A distributed version control system.
- Tracks changes in source code.
- Designed for coordinating work among programmers.
- Goals include speed, data integrity, and support for distributed, non-linear workflows.

2. **Git in Git bash, IDE, the terminal in IDE**
3. **Using the menu of git bash**

4. **Basic Commands**

Git task	Notes	Git commands
Tell Git who you are	Configure the author's name and email address to be used with your commits. Note that Git strips some characters (for example trailing periods) from user.name.	git config --global user.name "Sam Smith" git config --global user.email sam@example.com
Create a new local repository		git init
Check out a repository	Create a working copy of a local repository:	git clone /path/to/repository
Add files	Add one or more files to staging (index):	git add <filename> git add *

Commit	Commit changes to head (but not yet to the remote repository):	git commit -m "Commit message"
Push	Send changes to the master branch of your remote repository:	git push origin master
Status	List the files you've changed and those you still need to add or commit:	git status
Connect to a remote repository	If you haven't connected your local repository to a remote server, add the server to be able to push to it:	git remote add origin <server>
	List all currently configured remote repositories:	git remote -v
Branches	Create a new branch and switch to it:	git checkout -b <branchname>
	Switch from one branch to another:	git checkout <branchname>
	List all the branches in your repo, and also tell you what branch you're currently in:	git branch
	Delete the feature branch:	git branch -d <branchname>
	Push the branch to your remote repository, so others can use it:	git push origin <branchname>
	Push all branches to your remote repository:	git push --all origin

Update from the remote repository	Fetch and merge changes on the remote server to your working directory:	git pull
	To merge a different branch into your active branch:	git merge <branchname>
	Preview changes, before merging:	git diff <sourcebranch> <targetbranch>
Tags	You can use tagging to mark a significant changeset, such as a release:	git tag 1.0.0 <commitID>
	CommitId is the leading characters of the changeset ID, up to 10, but must be unique. Get the ID using:	git log
	Push all tags to the remote repository:	git push --tags origin
Reset	To revert back changes to specific tag or version	git reset --hard <tag>

- **.gitignore**

Github

GitHub is a global company that provides hosting for software development version control using Git. It is a subsidiary of Microsoft, which acquired the company in 2018 for $7.5 billion. It offers all of the distributed version control and source code management functionality of Git as well as adding its own features.

Sub topics:

1. Creating repo
2. Pushing files
3. Clone repo

4. Pull request
5. Adding collaborators
6. Repo with most contributors

Additional learning topics:

1. Merge conflict
2. Generating issues
3. Open source contribution