Intro to GitHub & GitHub Desktop

-- Tytell Lab GitHub Training

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Intro to GitHub & GitHub Desktop

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- 5.1 Intentionally create a conflict.
- 5.2 Resolve conflict.

1. Set up GitHub Desktop

GitHub Desktop can be downloaded <u>HERE</u>.

To create a GitHub Account, following instructions <u>HERE</u>.

To set up GitHub Desktop, follow instructions <u>HERE</u>.

2. Get started with GitHub Desktop

2.1 Create a new repository and publish it.

1. Under File, select New repository, then fill in the information, and hit create repository. Remember to change Local Path to your own path

Create a New Repository	×
Name	
githubTraining	
Description)
Local Path)
local/path/to/store/repo	Choose
 Initialize this repository with 	h a README
Git Ignore	
None	~
License	
	\sim

2. In the repository bar, click Publish repository. Check your GitHub website, you will see this new repounder your Repositories.



3. Navigate to GitHub website to check your new repository.

2.2 Making, commiting, and pushing changes.

1. Click show in Finder folder, this will be the local folder of your GitHub Repo.

G Current F	pository ining	وم Current Branch main	-	S Fetch origin Last fetched 3 minutes ago		
Change	History					
V	changed files	T f	No loc There are no o for what to do	cal changes uncommitted changes in this repository. n next.	Here are some friendly sugges	stions
			Open the Select you Repositor	repository in your external editor ur editor in Preferences y menu or (#) (>) (A)		Open in RStudio
			View the Repositor	files of your repository in Finder y menu or (\Re)	(Show in Finder
			Open the Repositor	repository page on GitHub in your brow y menu or (왕)ⓒ)G	wser	View on GitHub

2. For Mac users, Command + shift + . to show hidden files. You will see .git folder which contains stores all the metadata and object database for that project.

📄 .git 💦 👌	🚞 branches	\rightarrow
.gitattributes	COMMIT_EDITMSG	
	config	
	description	
	FETCH_HEAD	
	HEAD	
	in hooks	\rightarrow
	index	
	🚞 info	\rightarrow
	iogs 🔁	\rightarrow
	🚞 objects	\rightarrow
	in refs	\rightarrow

- 3. Command + Shift + . to hide hidden files.
- 4. Make changes to your local repo. Ex: Create a new file called file.txt.

5. In GitHub Desktop, navigate to the Changes view. In the file list, you should see your file.txt. The checkbox to the left of the file.txt file indicates that the changes you've made to the file will be part of the commit you make. In the future, you might make changes to multiple files but only want to commit the changes you've made to some of the files. If you click the checkbox next to a file, that file will not be included in the commit.



6. You can write the commit message in commit message, click commit to main. Ex: we can write commit message as 'Create file.txt'.



8.

7. To push your changes to the remote repository on GitHub, click Push origin.

ß	Current Repository githubTraining	ų	Current Branch main	•	↑	Push origin Last fetched 12 minutes	1 1	•	
In yo	our browser, check the chang	ges to	the remote repo.				\odot	Unwatc	h 1
	ំ ំ 1 Branch 🛇 0 Ta	igs		Q Go to fil	е	t Add file	• <	> Code	•
	(i) shirleyxueli41 Create file.txt					393b34e · 3 minutes ag	o 🕚 2	Commit	s
	🗋 .gitattributes		Initial comm	it			17 mi	inutes a	igo
	🗋 file.txt		Create file.tx	‹t			3 mi	inutes a	igo

2.3 Fetching, and pulling changes from remote repo to local repo.

1. In your brower, make some edits to file.txt. Ex: Add Hello World as first line and then commit changes.

githubTraining / file.txt in main	Cancel changes	Commit changes
Edit Preview 🔁 Code 55% faster with GitHub Copilot	Spaces 🗢 2	 ♦ No wrap ♦
1 Hello World		

2. Fetch origin to check the changes in remote repo. This will only check the changes made in origin, and your local repo won't be overwritten.

	Gurrent Repository githubTraining	•	မှ Current Branch main	•	G Fetch origin Last fetched 4 minutes ago	
3.	Pull origin to pull the char	nges a	and update the local repo. Y	'our lo	ocal repo will be overwritten.	
	Current Repository githubTraining	•	وم Current Branch main	↓	Pull origin Last fetched just now	

4. You can see your file.txt has been updated.

-

Hello	World	
file.tx	t	
Plain T	ext Document - 13 bytes	i.
Inform	nation	
Created	d Today, 14	:20
Modifie	d Today, 14	:20
Last op	ened	

3. Restore a previous version

Under the History section, you can revert a commit by clicking on **Revert Changes in Commit**. This action will generate a new commit that restores the project to its former version. With GitHub Desktop, reverting is limited to the most recent commit only. When you revert multiple commits, it's best to revert in order from newest to oldest. If you revert commits in a different order, you may see merge conflicts.

Always write clear and detailed commit messages! This practice will enable quicker identification of previous versions for potential reverts.

Current Repository githubTraining	~	وہ Current Branch test
Changes	History	Add hello dog in test branch
[়] Select Branch to Compa	re	📫 shirleyxueli41 -O- df4b00d 🖓
Add hello dog in test bran	Amend Com Checkout Co	1 shanged file mit
add Hello Tufts	Reorder Cor Revert Chan	nmit ges in Commit
Add Hello Boston locally is hirleyxueli41 • 1 hour ag	Create Bran Create Tag	ch from Commit
Update file.txt	Cherry-pick	Commit
Merge branch 'main' of ht i shirleyxueli41 • 23 hours	Copy Tag View on Gith	Hub
add hello boston locally iii shirleyxueli41 • 23 hours a	ago	

4. Addressing conflicts between local and remote.

4.1 Intentionally create a conflict.

....

• In your browser, edit file.txt. Ex: Add Hello Medford as second line and then commit changes.

. ..

1...

• LOCAlly, edit file.txt. Ex: Add Hello Boston as second line, and then Commit to main.

G Current Reposito	ory 🗸	မှ ^{Curi} mai	rent Bra n	nch		•	≁	Pull origin Last fetched 1 minute ago	1 🗸	•	
Changes 1	History	file.txt									
🗹 1 chan	ged file			@@ -1	+1,2 @@						
🗹 file.txt	•		1 +	Hello	World World						
			2 +	Hello	Boston						
add Hello Bos	ston as second line										
Description											
R+											
Commit	to main										

• After you commit to main, under Pull origin in repository bar, you can see one up arrow and one down arrow. This means that you are one step behind remote repo (Adding Hello Medford as second line), but at the same time one step ahead remote repo (Adding Hello Boston as second line).



• When you Pull origin, you will see conflict warning.

Resolve conflicts before Merge	×
1 conflicted file	
file.txt 1 conflict	Open in RStudio 🗸
Open in command line, your tool of choice, or close to r	esolve manually.



- An explanation of file.txt with conflict.
 - <<<<< HEAD: Everything between this line and the ====== line are your changes—the content from local repo where you're trying to push into remote.</p>
 - After the ====== line, the content up until >>>>> represents the incoming changes from remote repo that you are trying to push to.



4.2 Resolve the conflict.

L Hollo Modford

- Click view conflicts and right click the down arrow in the new window.
- There are two simple options, Use the modified file from main and Use the modified file from origin/main.
 - main represents local repo main branch
 - origin/main represents remote repo main branch.

1 conflicted file file.txt 1 conflict Open in RStudio Open in command line, your tool of choice, or close to resolve manually. Open in command line, your tool of choice, or close to resolve manually. Open with Default Program Reveal in Finder Use the modified file from main 	Resolve conflicts before Merge	×
I conflict Open in RStudio Open with Default Program Open in command line, your tool of choice, or close to resolve manually. Open with Default Program Reveal in Finder Use the modified file from main	1 conflicted file	
Open in command line, your tool of choice, or close to resolve manually. Use the modified file from main	file.txt 1 conflict	Open in RStudio Open with Default Program
	Open in command line, your tool of choice, or close to	resolve manually. Reveal in Finder Use the modified file from main
Abort Merge Continue Merge	Abort Merge	Continue Merge

- There is also a third option, when you don't like the version in local repo and the version in remote repo. You can edit the file.txt again to make new changes.
 - Ex: Let's change the file content, so the first line is still Hello World, but the second line is Hello Tufts.

		file.txt
Hello Wor	ld	
Hello Tuf	ts	

- You can commit and push again. This new commit will overright the previous commits made locally and globally.
- Check the file.txt in your browser, you can now see something like below.

githubTraining / file.txt

5. Addressing conflicts between main and other branch

5.1 Intentionally create a conflict.

• Create a test branch with name test, then publish the branch.



- In test branch, edit file.txt. Ex: Add Hello Dog as the third line, then Commit to test, then Push orgin.
- Switch back to main branch, edit file.txt. Ex: Add Hello Cat as the third line, then Commit to main, then Push orgin.
- Switch back to test branch again.
- Under menu bar Branch, click compare to branch, then select main branch to compare with.

	п тем керозкогу	
Current Repository	ل جو Current Branch test	New Branch Rename Delete
Changes History	Revert "add helle	Discard All Changes
^৮ Select Branch to Compare	This reverts com	Stash All Changes
Revert "add hello hoston"	📫 shirleyxueli41 -C	Update from main
i shirleyxueli41 • 1 hour ago	1 chan	Compare to Branch Merge into Current Branch
add hello boston	file.txt	Squash and Merge into Current Branch
📫 shirleyxueli41 • 1 hour ago		Rebase Current Branch
add hello medford		Compare on GitHub
📫 shirleyxueli41 • 1 hour ago		View Branch on GitHub
Add hello world		Preview Pull Request
👔 shirleyxueli41 • 1 hour ago		Create Pull Request

- Under Changes, you will see Behind(1) and Ahead(1), which means local branch is one step behind main branch, because it doesn't add line Hello Cat, and at the same time, it is one step ahead main branch, because it adds line Hello Dog which main branch doesn't have.
- In your browser, you can still create a pull request to merge test branch to main branch. But you will see conflict warning.

5.2 Resolve conflict.

- In your browser, check the conflicts and create a new commit under test branch.
- Merge again.
- Check the two branches, you will see the file.txt is the version after you made the new commit to test branch.