

# Workshop materials

- <https://github.com/maglet/github-gui-demo>

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© 2014-2022 @ 10.00

# Tobin Magle

October 13, 2023 @ 12:00 pm

# Today we're going to cover:

- What is **version control**?
- What is **git**?
- Version control using **GitHub**
- **Collaboration** in GitHub



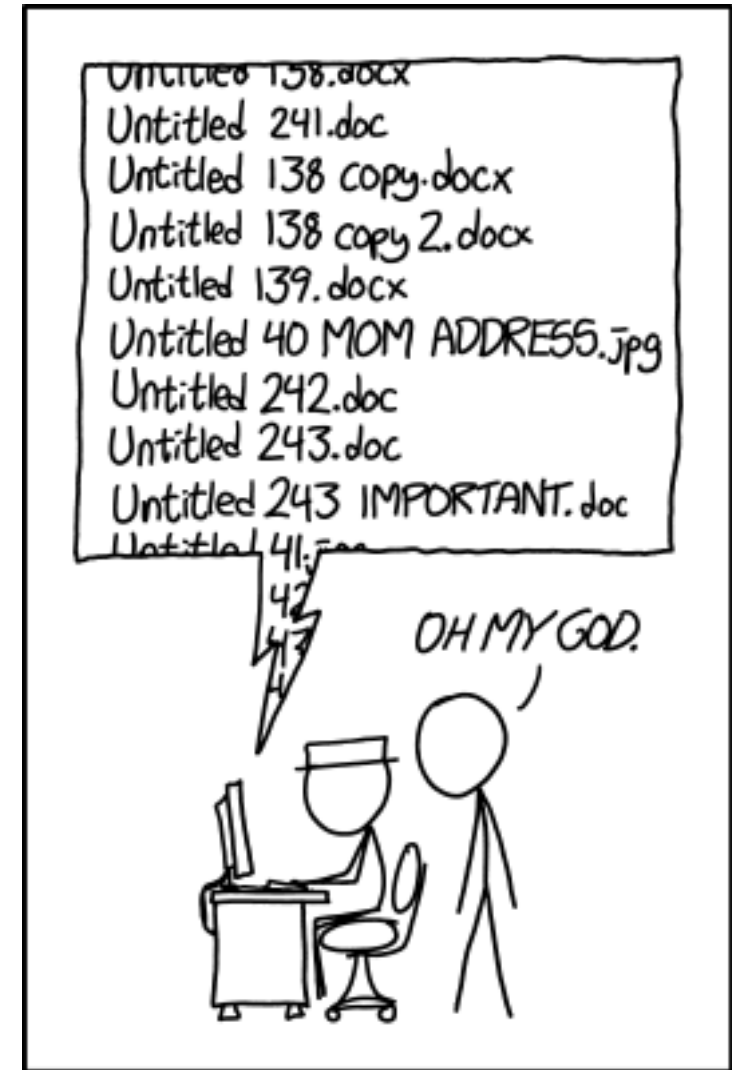
# How to get help after today's talk

- [bit.ly/rcdsconsult](https://bit.ly/rcdsconsult)
- We provide free consultations for programming, data science, and data management issues that are related to research

# Manual Version Control

## “Renaming files”

- Creates many files
- Relies on your ability to name files consistently
- Not designed for collaboration



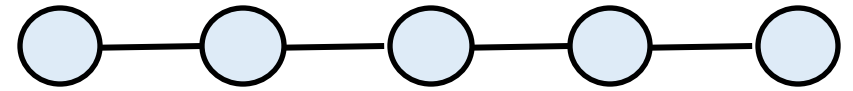
PROTIP: NEVER LOOK IN SOMEONE ELSE'S DOCUMENTS FOLDER.

# Version Control Systems

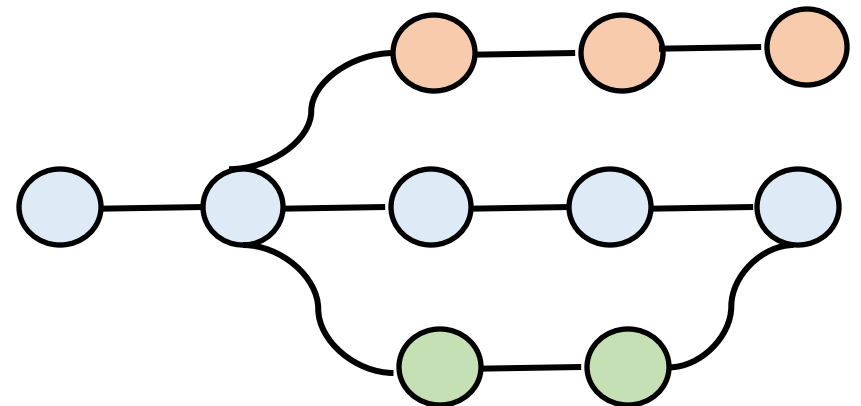
## “Unlimited undo”

- One file, many versions
- Records who made what change when
- Good for **collaboration**: identifies and helps resolve conflicting changes

**Solo**



**Collaborative**



# Today we're using git

- Built for large software development projects
- Can get complicated, but the basics are simple
- Free, open source
- Many online resources/tutorials



# Ways to use Git

## Command line

C:\Windows\System32\cmd.exe

```
D:\GFG>git status
On branch master
```

Initial commit

Changes to be committed:  
(use "git rm --cached <file>..." to unstage)

```
new file:   Basic Code/C++ Project.cbp
new file:   Basic Code/README.md
new file:   Basic Code/bin/Debug/C++ Project.exe
new file:   Basic Code/data.in
new file:   Basic Code/data.out
new file:   Basic Code/main.cpp
new file:   Basic Code/obj/Debug/main.o
new file:   DS/stackPar.cpp
new file:   DS/stackPar.exe
new file:   DS/stackPar.o
new file:   DS/stlSort.cpp
new file:   DS/structcar.cpp
new file:   DS/triplesum.cpp
new file:   Debugging/Debugging.cbp
new file:   Debugging/Debugging.depend
new file:   Debugging/Debugging.layout
new file:   Debugging/bin/Debug/Debugging.exe
new file:   Debugging/bin/Release/Debugging.exe
new file:   Debugging/main.cpp
new file:   Debugging/obj/Debug/main.o
new file:   Debugging/obj/Release/main.o
```

## Desktop Clients

The screenshot shows a desktop application window for a Git client. At the top, it displays the current branch as 'esc-pr' with a commit hash '#3972'. Below this, a commit message is entered: 'Add event handler to dropdown component'. The interface also shows the commit was made by 'iAmWillShepherd and Markus Olsson' and that one file was changed. A diff view is shown below, highlighting changes in 'app\src\ui\toolbar\dropdown.tsx'. The diff shows a new method 'private get isOpen()' being added, which returns 'this.props.dropdownState === 'open''. There are also changes to the 'onFoldoutKeyDown' method.

## GitHub Website

Edited the readme file

Changed the title to something better. Added a bulleted list

main

maglet committed 38 minutes ago Verified

Showing 1 changed file with 5 additions and 2 deletions.

7 README.md

@@ -1,3 +1,6 @@

1 - # github-gui-demo

2

3 - demo for adding and editing files in GitHub

1 + # De

2

3 + Thin

4 + \* ad



# Ways to use Git

## Command line

```
C:\Windows\System32\cmd.exe

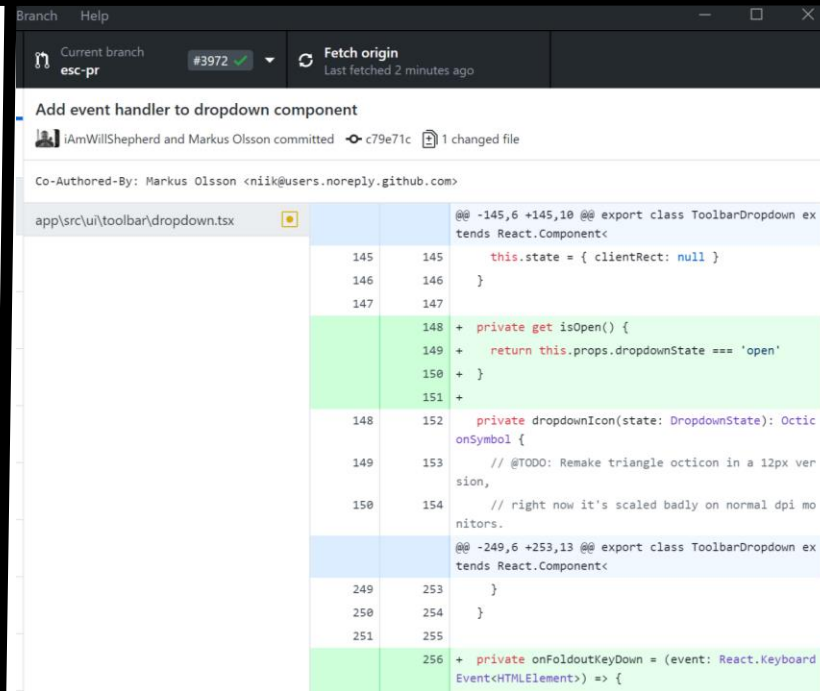
D:\GFG>git status
On branch master

Initial commit

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)

    new file:   Basic Code/C++ Project.cbp
    new file:   Basic Code/README.md
    new file:   Basic Code/bin/Debug/C++ Project.exe
    new file:   Basic Code/data.in
    new file:   Basic Code/data.out
    new file:   Basic Code/main.cpp
    new file:   Basic Code/obj/Debug/main.o
    new file:   DS/stackPar.cpp
    new file:   DS/stackPar.exe
    new file:   DS/stackPar.o
    new file:   DS/stlSort.cpp
    new file:   DS/structcar.cpp
    new file:   DS/triplesum.cpp
    new file:   Debugging/Debugging.cbp
    new file:   Debugging/Debugging.depend
    new file:   Debugging/Debugging.layout
    new file:   Debugging/bin/Debug/Debugging.exe
    new file:   Debugging/bin/Release/Debugging.exe
    new file:   Debugging/main.cpp
    new file:   Debugging/obj/Debug/main.o
    new file:   Debugging/obj/Release/main.o
```

## Desktop Clients



## GitHub Website

### Edited the readme file

Changed the title to something better. Added a bulleted list

main

maglet committed 38 minutes ago Verified

Showing 1 changed file with 5 additions and 2 deletions.

7 README.md

@@ -1,3 +1,6 @@

1 - # github-gui-demo

2

3 - demo for adding and editing files in GitHub

1 + # De

2

3 + Thin

4 + \* ad

# GitHub is a place to

- Store your work remotely
  - Free public repositories
  - Unlimited private repositories with Northwestern GitHub Org
- Edit files in the web browser
- Collaborate



<https://services.northwestern.edu/TDClient/30/Portal/Requests/ServiceDet?ID=55>

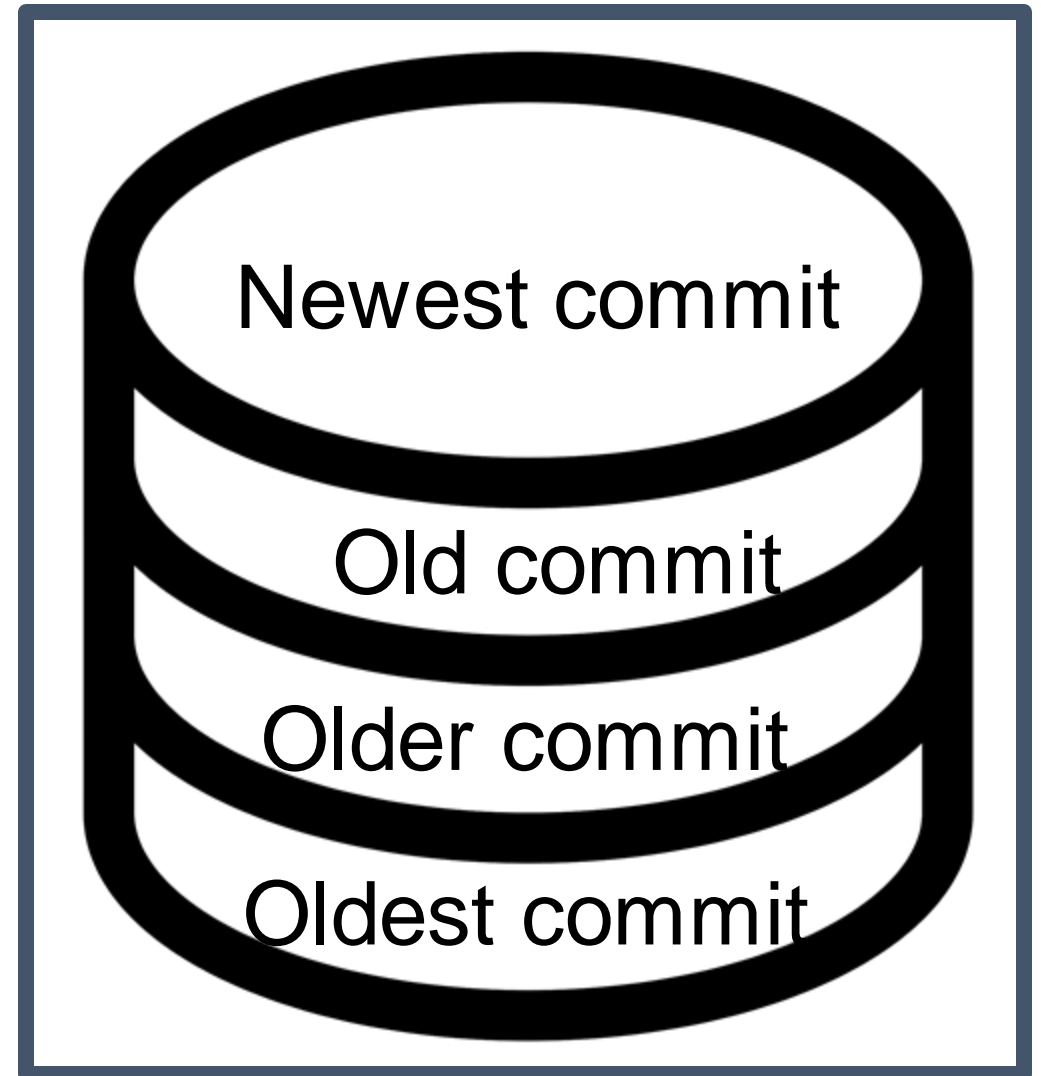
# GitHub best practices

- GitHub is for code and documentation, not data
- Never put protected or personal data on GitHub, even in a private repo
- Store credentials (private keys or tokens) in a separate file outside of your repository (ie, not in your code).
- Add a personal email to your GitHub account, so you can use it when you leave Northwestern

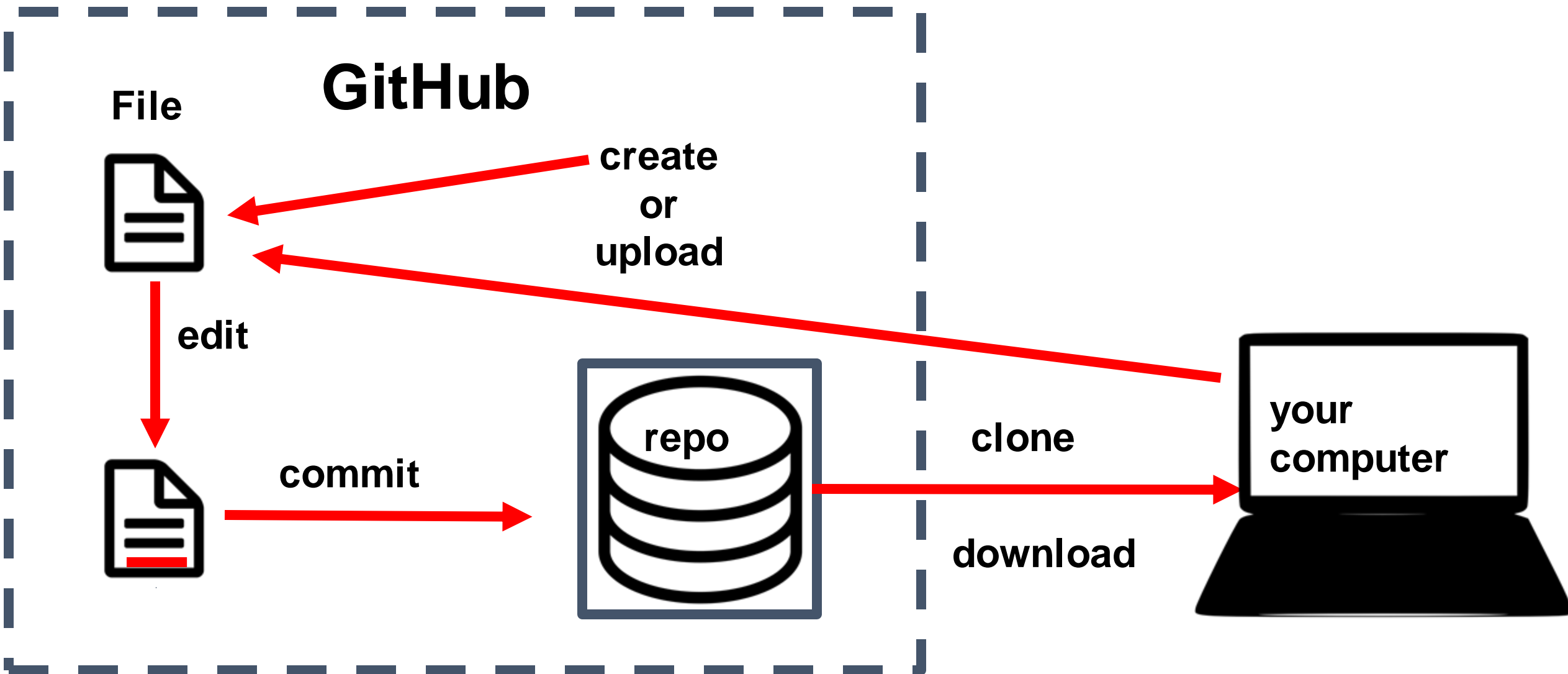


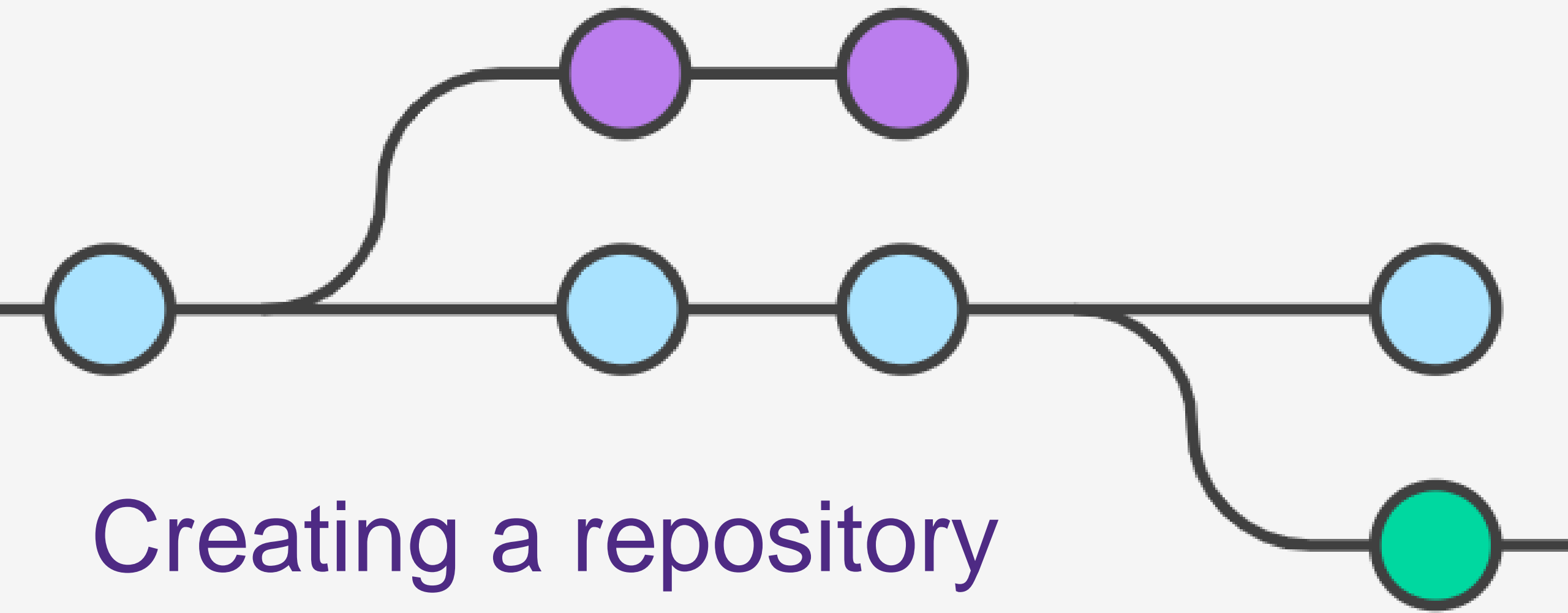
# GitHub jargon

- **Commit** - save your changes to the files in the repository – each has a unique id
- **Repository** (“repo”) - a running log of changes that were committed - all you see is the most recent version
- **Blame** – who changed what
- **History** - a list of commits
- **Diff** - compare what has changed between versions line by line



# GitHub workflow overview

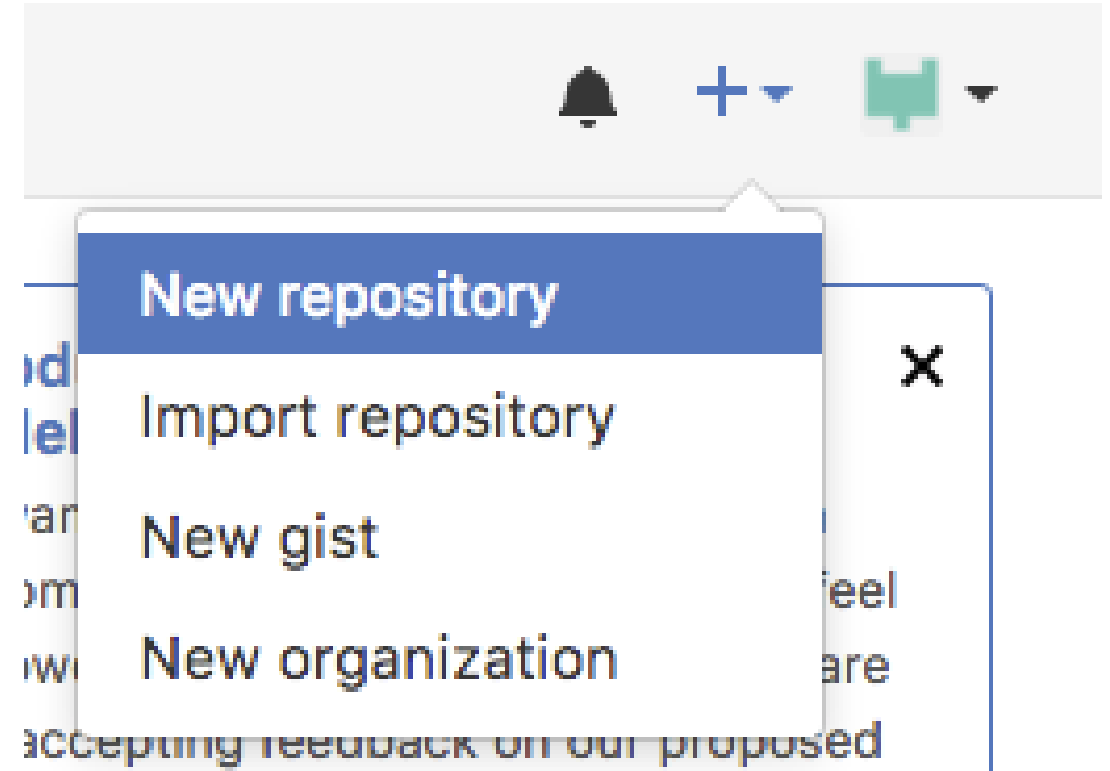




Creating a repository

# Make an empty GitHub repo

- Go to <http://github.com>
- Click the plus sign on the upper right hand side of the screen
- Select New repository



# Make an empty repository

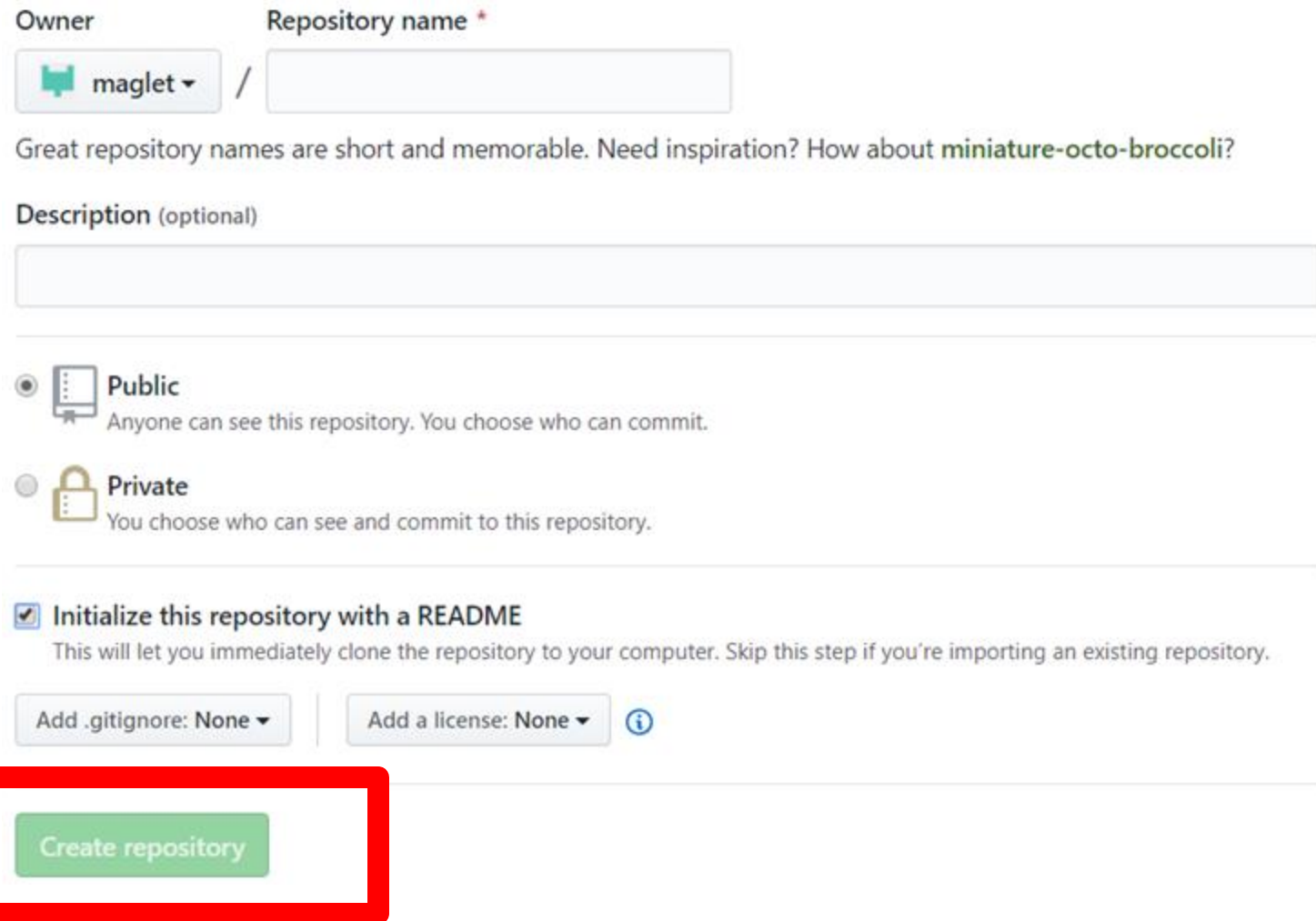
Name your repository

Provide a description

Keep it public

Initialize with a README

Create a repo


Owner:  maglet ▾ /


Repository name \*

Great repository names are short and memorable. Need inspiration? How about [miniature-octo-broccoli](#)?

Description (optional)


---

☒  **Public**  
Anyone can see this repository. You choose who can commit.

☐  **Private**  
You choose who can see and commit to this repository.

---

☒ **Initialize this repository with a README**  
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.

Add .gitignore: **None** ▾ | Add a license: **None** ▾ 

---

**Create repository**



# What you should see

The screenshot shows the GitHub interface for the repository 'maglet / github-gui-demo'. The repository is public and has 1 watch, 0 forks, and 0 stars. The 'Code' tab is selected, showing the 'main' branch. A recent commit by 'maglet' is highlighted with a red box, showing the update of 'README.md'. Below this, another red box highlights the rendered README content, which includes the repository name 'github-gui-demo' and the description 'demo for adding and editing files in GitHub'.

maglet / [github-gui-demo](#) Public

Pin Unwatch 1 Fork 0 Star 0

<> Code Issues Pull requests Actions Projects Wiki Security ...

main Go to file Add file <> Code About

maglet Update README.md ... **Files** now 7

README.... Update README.md now

README.md **Rendered README doc**

## github-gui-demo

demo for adding and editing files in GitHub

Readme 0 stars 1 watching 0 forks

# What you should see

The screenshot shows a GitHub repository page for 'maglet/github-gui-demo'. The repository is public and has 1 watcher, 0 stars, and 0 forks. The 'Code' tab is selected, showing the 'main' branch. The repository description is 'demo for adding and editing files in GitHub'. The README file is highlighted with a red box, showing the title 'github-gui-demo' and the description 'demo for adding and editing files in GitHub'. The text 'Repo name' is written in red next to the repository name.

maglet / **github-gui-demo** Public

Pin Unwatch 1 Fork 0 Star 0

Code Issues Pull requests Actions Projects Wiki Security

main Go to file Add file <> Code About

maglet Update README.md now 7

README.... Update README.md Text now

README.md

**github-gui-demo**

demo for adding and editing files in GitHub

demo for adding and editing files in GitHub

Readme 0 stars 1 watching 0 forks

Repo name

# What you should see

The screenshot shows the GitHub interface for the repository 'maglet / github-gui-demo'. At the top, there are buttons for 'Pin', 'Unwatch' (with a count of 1), 'Fork' (with a count of 0), and 'Star' (with a count of 0). Below these are tabs for 'Code', 'Issues', 'Pull requests', 'Actions', 'Projects', 'Wiki', and 'Security'. The 'Code' tab is selected and highlighted with an orange underline.

Below the tabs, there are buttons for 'main', 'Go to file', 'Add file', and 'Code'. To the right of these buttons is the 'About' section, which is highlighted with a red box. The 'About' section contains the text 'demo for adding and editing files in GitHub'.

Below the 'About' section, there is a commit history section. The first commit is by 'maglet' with the message 'Update README.md' and a timestamp of 'now 7'. Below this commit, there is a file named 'README....' with the message 'Update README.md' and a timestamp of 'now'.

Below the commit history, there is a section for the 'README.md' file. The file content is displayed in a large box. The title 'github-gui-demo' is at the top, followed by the description 'demo for adding and editing files in GitHub', which is highlighted with a red box.

On the right side of the 'README.md' section, there is a list of repository statistics: 'Readme', '0 stars', '1 watching', and '0 forks'.

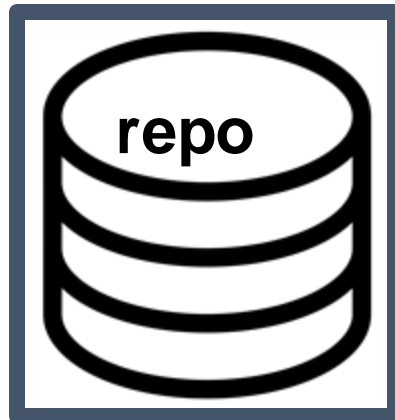
At the bottom right of the image, the text 'Repo description' is written in red.

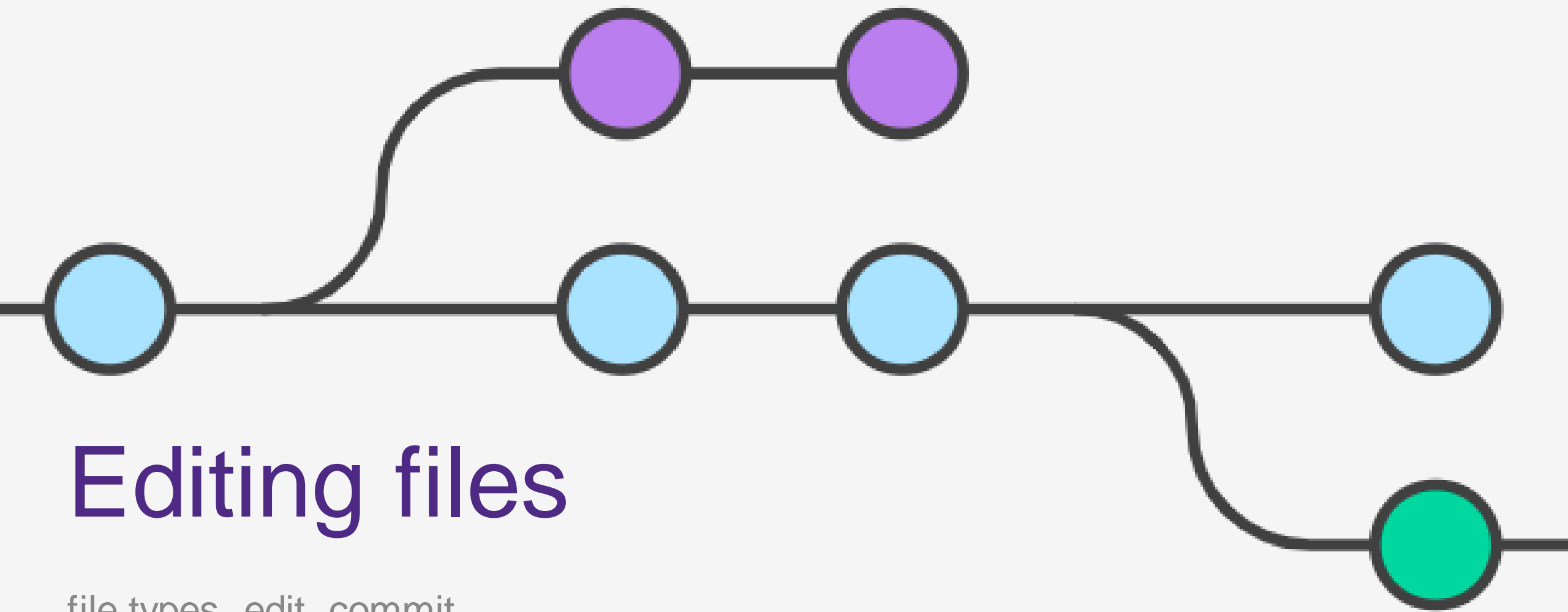
# What we've done so far

File



**GitHub**





# Editing files

file types, edit, commit

# Types of files git works best with

## **“Good” formats (text based)**

- Documents (.txt, .tex, .rtf, .md)
- Tabular Data (.csv)
- Source code (.R, .py, .c, .sh)

## **“Bad” formats (binary files)**

- Documents (.docx, .pdf, .ppt)
- Excel spreadsheets (.xlsx)
- Media (.jpg, .mp3, .mp4)
- Databases (.mdb, .sqlite)

# Edit the README file

The screenshot shows the GitHub interface for the repository 'maglet / github-gui-demo'. The repository is public. The navigation bar includes links for Code, Issues, Pull requests, Actions, Projects, Wiki, and Security. Below the navigation bar, there are buttons for 'main', 'Go to file', 'Add file', and 'Code'. A commit history section shows a recent commit by 'maglet' titled 'changed readme again' at 'now' with a clock icon and the number '5'. Below this, a file entry for 'README.md' is shown with the same title and time. The main content area displays the 'README.md' file. The title 'GitHub GUI demo' is prominently displayed. Below the title, there is a section titled 'Things to do in the GitHub GUI:' followed by a bulleted list: 'Edit files', 'Add files', and 'Look at changes'. In the top right corner of the README content area, there is a red 'Edit' button with a pencil icon, which is highlighted by a red square.

maglet / github-gui-demo Public

Pin Unwatch 1

<> Code Issues Pull requests Actions Projects Wiki Sec

main Go to file Add file <> Code

maglet changed readme again now 5

README.md changed readme again now

README.md Edit

## GitHub GUI demo

Things to do in the GitHub GUI:

- Edit files
- Add files
- Look at changes

# File editor

 **maglet / github-gui-demo** Public


 Pin


 Unwatch 1 ▼

 Fork 0 ▼

 Star 0 ▼

<> **Code**

 Issues


 Pull requests

 Actions

 Projects

 Wiki

 Security

 Insights

...

**Change name**

github-gui-demo /  in main

Cancel changes

<> **Edit file**

 Preview

Spaces ▼

2 ▼

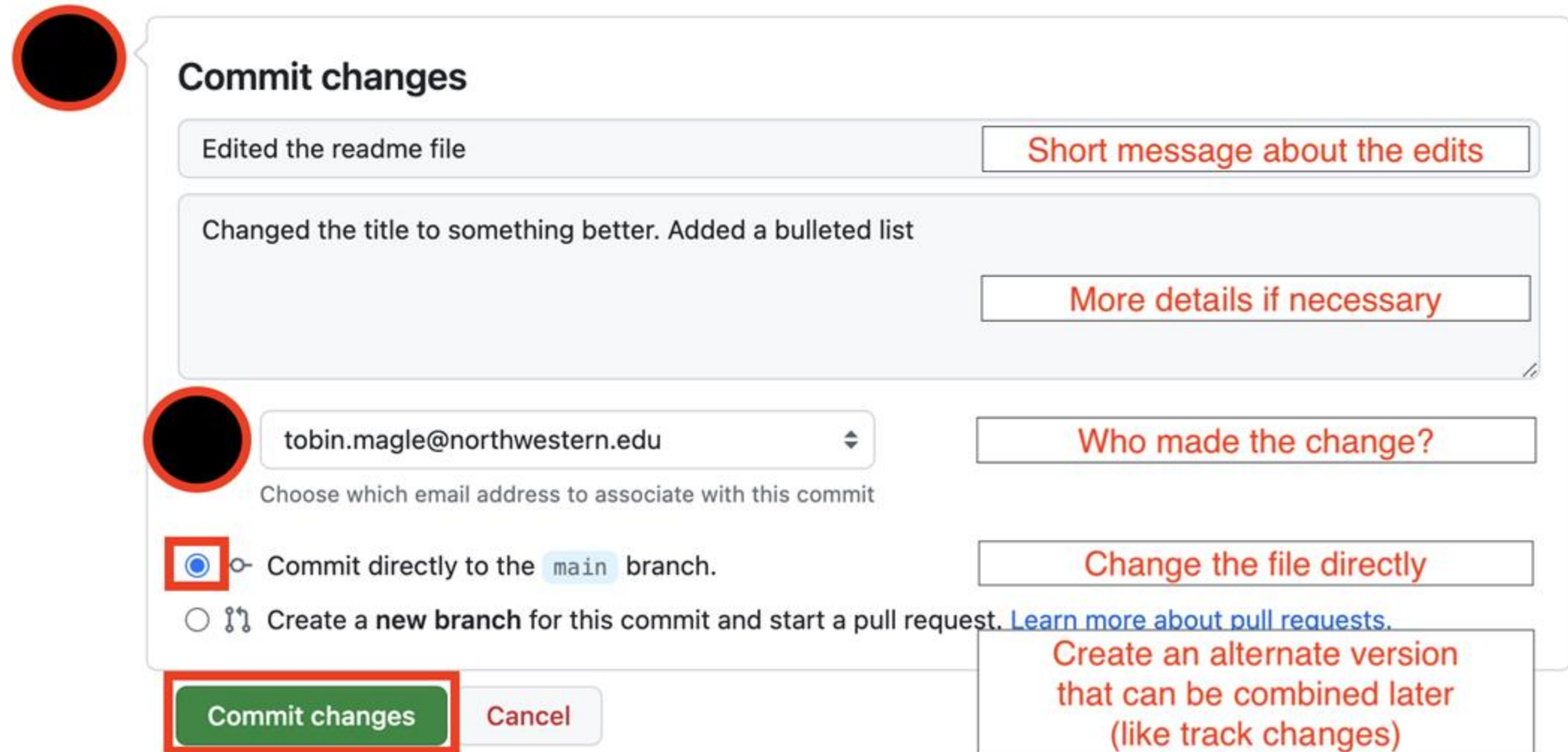
Soft wrap ▼

```
1 # github-gui-demo
2
3 demo for adding and editing files in GitHub
4
```

**Edit text**



# Commit Changes



**Commit changes**

Edited the readme file

Short message about the edits

Changed the title to something better. Added a bulleted list

More details if necessary

tobin.magle@northwestern.edu

Choose which email address to associate with this commit

☒ Commit directly to the `main` branch.

☐ Create a new branch for this commit and start a pull request. [Learn more about pull requests.](#)

Who made the change?

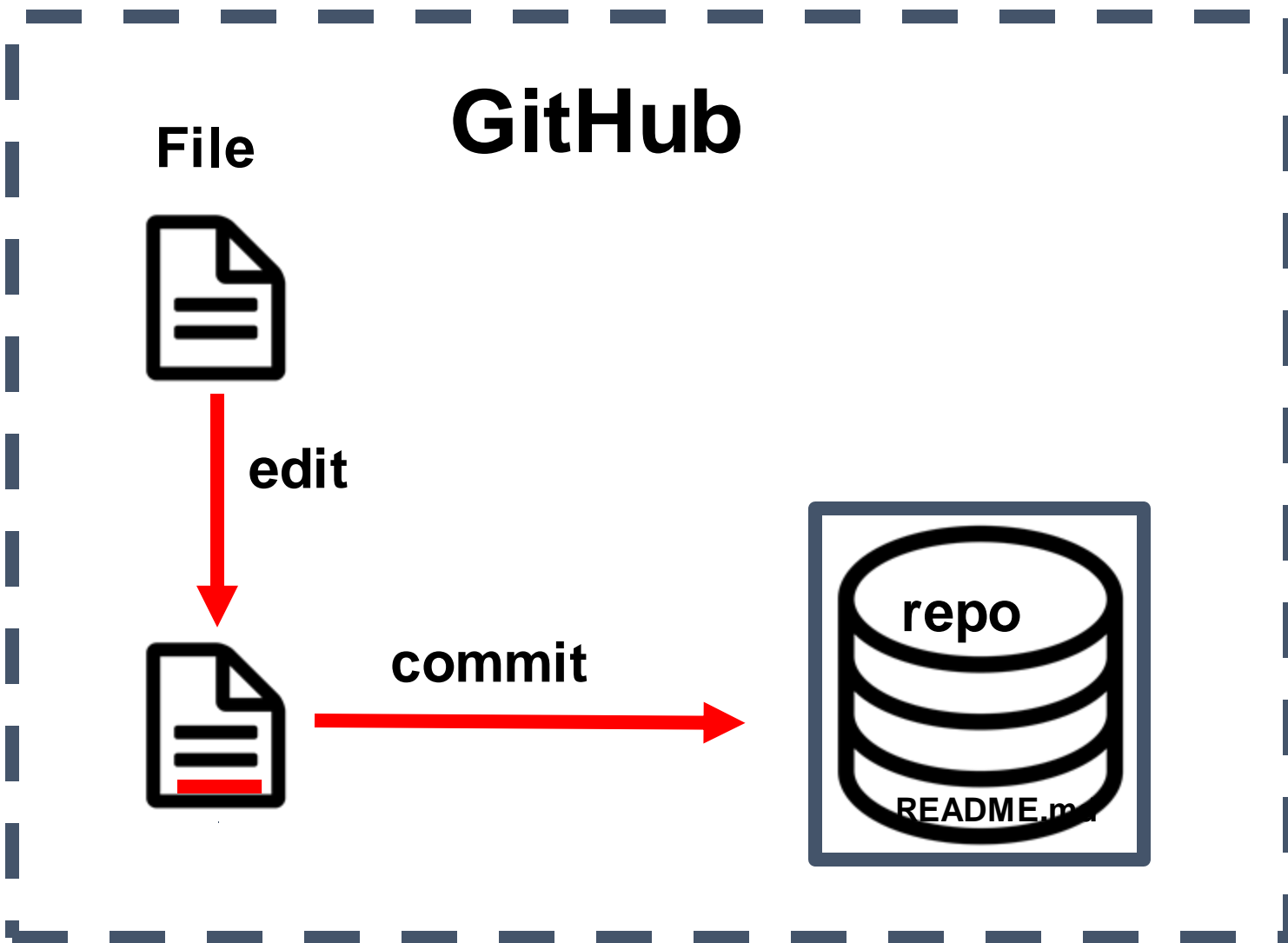
Change the file directly

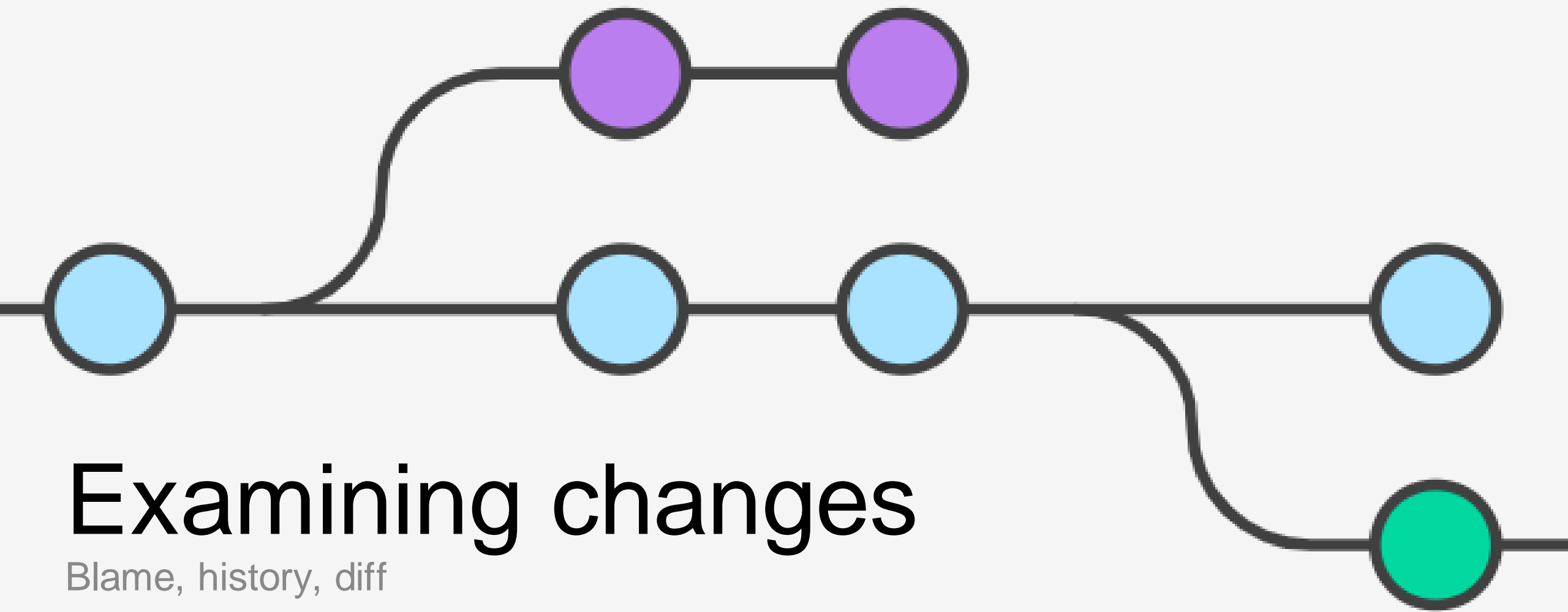
Create an alternate version that can be combined later (like track changes)

**Commit changes** Cancel

The image shows a GitHub commit interface. A red circle highlights the 'Commit changes' header. Another red circle highlights the email address dropdown menu. A red box highlights the 'Commit directly to the main branch' radio button. A red box highlights the 'Commit changes' button at the bottom left. Red text boxes provide additional context: 'Short message about the edits' points to the commit message input area, 'More details if necessary' points to the description input area, 'Who made the change?' points to the email address dropdown, 'Change the file directly' points to the 'Commit directly to the main branch' option, and 'Create an alternate version that can be combined later (like track changes)' points to the 'Create a new branch' option.

# What we've done so far






# Examining changes








Blame, history, diff

# Blame

See when each line of a file was edited last

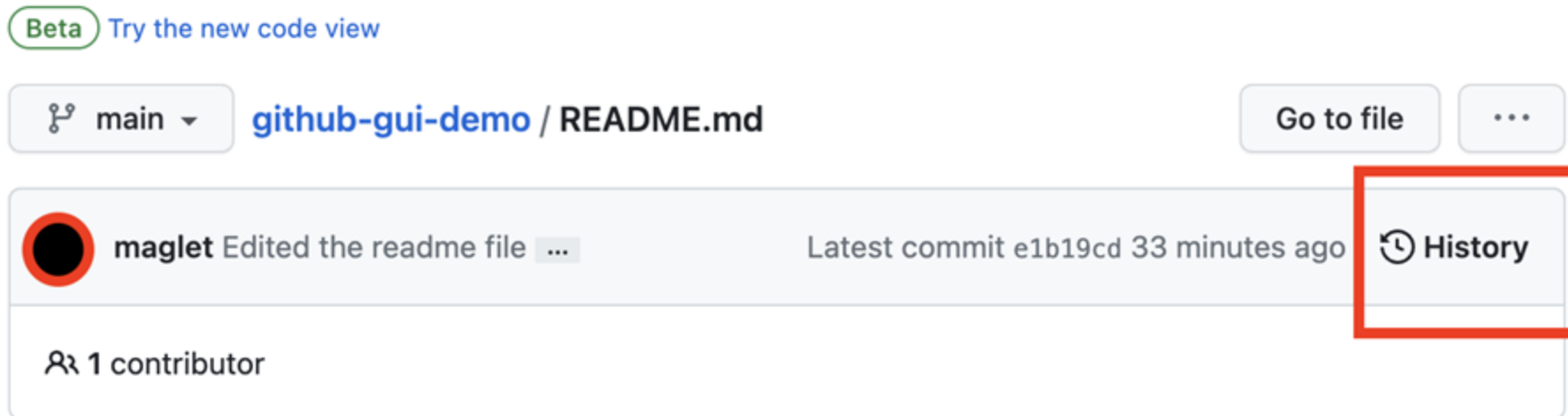
github-gui-demo / README.md 

Newer ||||| Older

 100644	6 lines (5 sloc)	111 Bytes		Raw	Normal view	History
 Edited the readme file	43 minutes ago		1	# Demo repository for using the GitHub GUI		
 Update README.md	yesterday		2			
 Edited the readme file	43 minutes ago		3	Things to do		
			4	* add a file		
			5	* edit a file		
			6	* look at what has changed		

# View File History

See all commits that have been made



# View File History

History for [github-gui-demo](#) / README.md

Commits on May 8, 2023

**Added collab things to do to readme**



aGitHasNoName committed 10 hours ago

Verified



[ec63244](#)



Commits on Apr 21, 2023

**Edited the readme file** ...



maglet committed 2 weeks ago

Verified



[e1b19cd](#)



**Update README.md**



maglet committed 2 weeks ago

Verified



[20225f0](#)



**Update README.md**



maglet committed 2 weeks ago

Verified



[596c419](#)



**changed readme again**



maglet committed 2 weeks ago

Verified



[dcd9cb8](#)



**Update README.md** ...



maglet committed 2 weeks ago

Verified




[c42588e](#)







# View File History

See who made the commit, when, and the commit message

History for [github-gui-demo](#) / README.md

 Commits on Apr 21, 2023

	Commit message		Commit ID	
who	 maglet committed 34 minutes ago	When	<div>Verified</div>	<div> <a href="#">e1b19cd</a>  </div>

# diff


See what changed in the file line by line

Edited the readme file



Changed the title to something better. Added a bulleted list

[Browse files](#)

main

 maglet committed 38 minutes ago Verified 1 parent [20225f0](#) commit [e1b19cd](#)

Showing 1 changed file with 5 additions and 2 deletions. Split Unified

7  README.md 

... @@ -1,3 +1,6 @@

1 - # github-gui-demo	1 + # Demo repository for using the GitHub GUI
2	2
3 - demo for adding and editing files in GitHub	3 + Things to do
	4 + * add a file
	5 + * edit a file
	6 + * look at what has changed


Red = deleted



Green = added




# View Repo History


From the main page





 **github-gui-demo** Public


 Pin  Unwatch 1

main ▾ 1 branch 0 tags Go to file Add file ▾ <> Code ▾

 **maglet** Rename README2.md to README.md ... 4664b1c 5 minutes ago



 **27 commits**







 data	Create blank.csv	6 months ago
 README.md	Rename README2.md to README.md	5 minutes ago
 github-gui.pdf	uploading post workshop slide updates	5 months ago
 script.R	Merge branch 'main' into main	5 months ago








README.md 

## Demo repository for using the GitHub GUI


# View Repo History

 maglet / github-gui-demo

 |     

 **Code**  Issues  Pull requests  Actions  Projects  Wiki  Security ...

## Commits

 main ▾

 Commits on Oct 13, 2023

Rename README2.md to README.md ...

Verified



4664b1c



 maglet committed 8 minutes ago

Rename README.md to README2.md ...

Verified



57a4f79



 maglet committed 8 minutes ago

 Commits on May 11, 2023

uploading post workshop slide updates

Verified

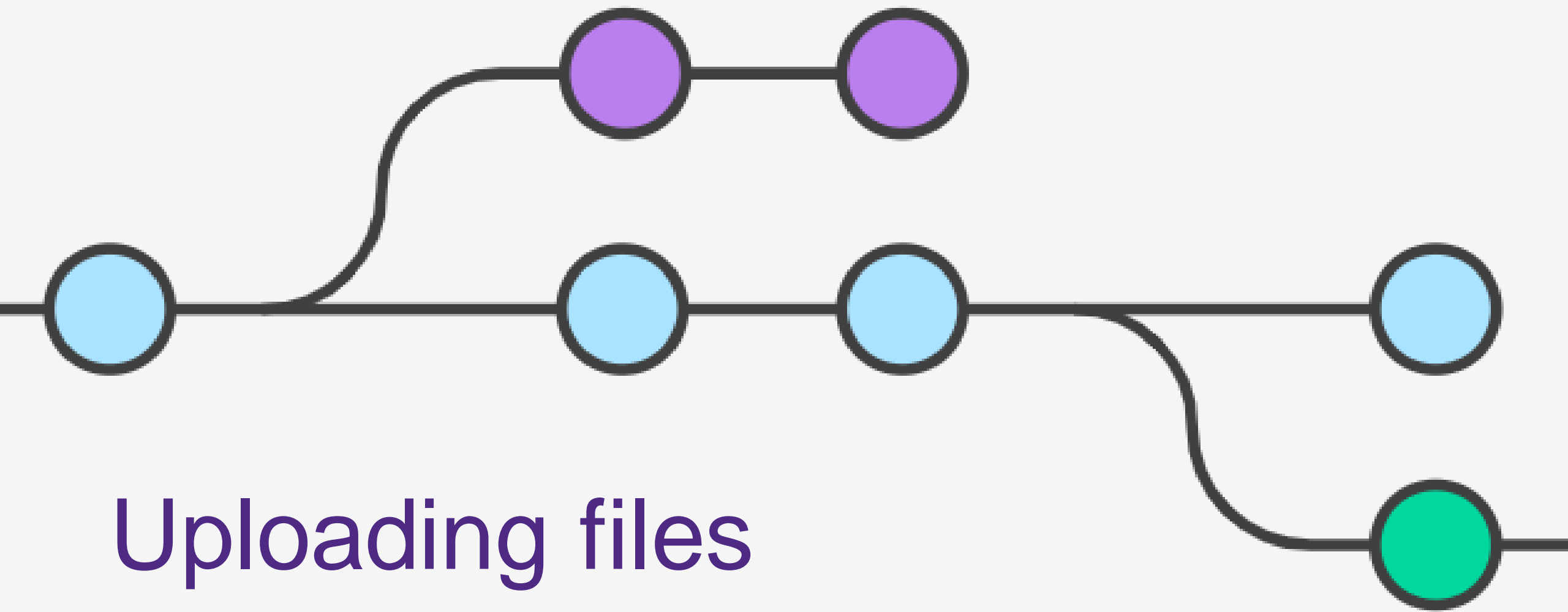


572441b

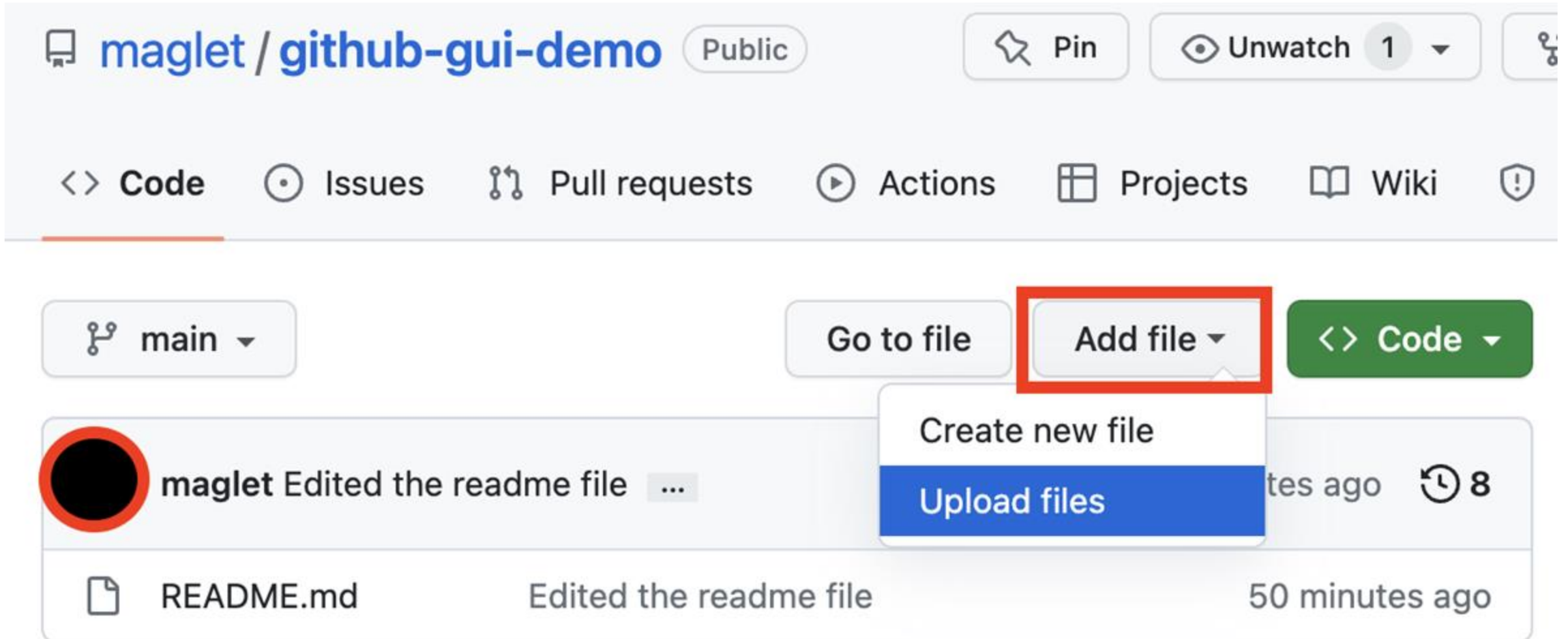


 maglet committed on May 11

 Commits on May 8, 2023



# Add a file from your computer



The screenshot shows the GitHub interface for the repository 'maglet / github-gui-demo'. The repository is public. The navigation bar includes links for Code, Issues, Pull requests, Actions, Projects, Wiki, and a shield icon. Below the navigation bar, there are buttons for 'main', 'Go to file', 'Add file', and 'Code'. The 'Add file' button is highlighted with a red box, and its dropdown menu is open, showing options for 'Create new file' and 'Upload files'. The 'Upload files' option is highlighted in blue. Below the dropdown menu, there is a commit history section showing a commit by 'maglet' that edited the 'readme file' 50 minutes ago. The commit message is 'maglet Edited the readme file'.

maglet / github-gui-demo Public

Pin Unwatch 1

<> Code Issues Pull requests Actions Projects Wiki

main Go to file Add file Code

Create new file

Upload files

maglet Edited the readme file ...

tes ago 8

README.md Edited the readme file 50 minutes ago

# Choose files

github-gui-demo /



**Drag files here to add them to your repository**

Or [choose your files](#)

# Commit



## Commit changes

Added an R script

Add an optional extended description...

- ☒ Commit directly to the `main` branch.
- ☐ Create a **new branch** for this commit and start a pull request. [Learn more about pull requests.](#)

Commit changes

Cancel

# File was added

 main ▼

Go to file

Add file ▼

 Code ▼



**maglet** Added an R script ...

now  9



README.md

Edited the readme file

1 hour ago

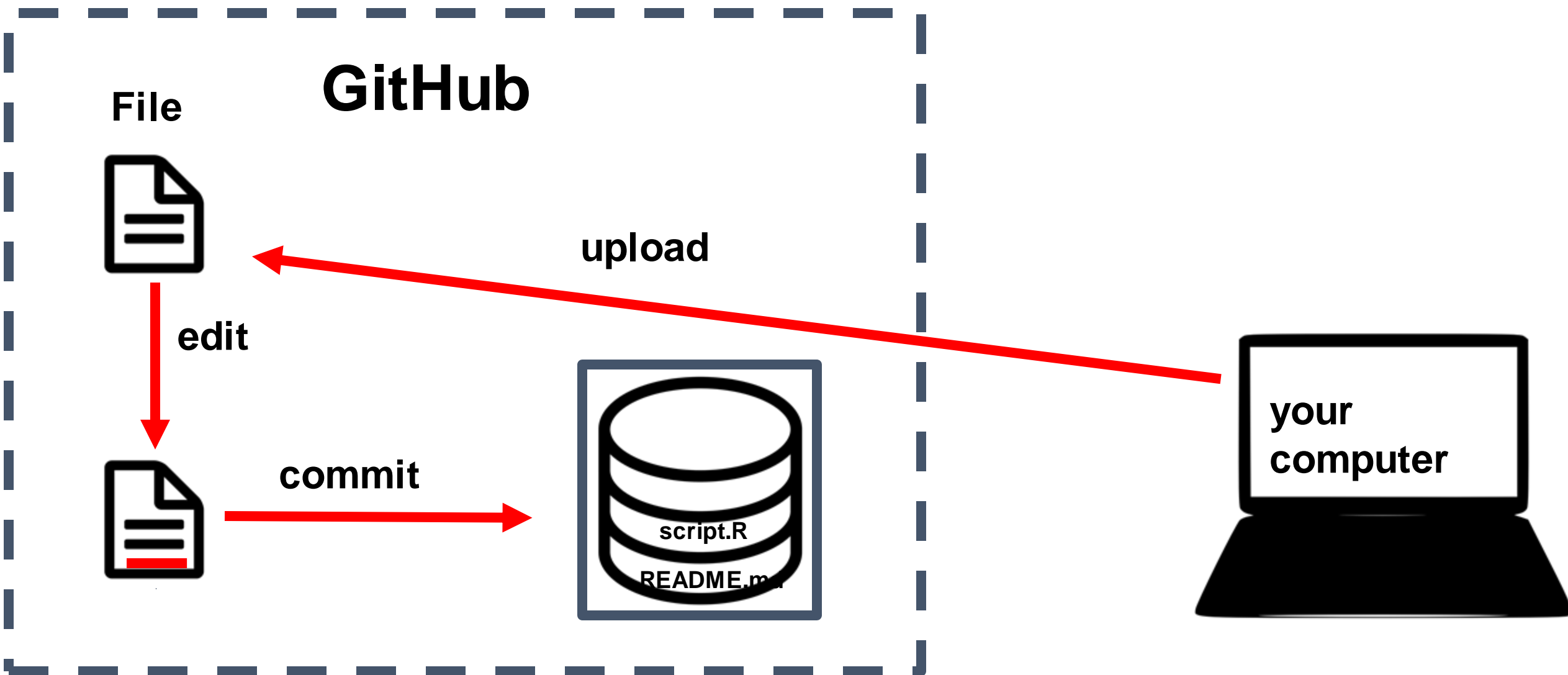


script.R

Added an R script

now

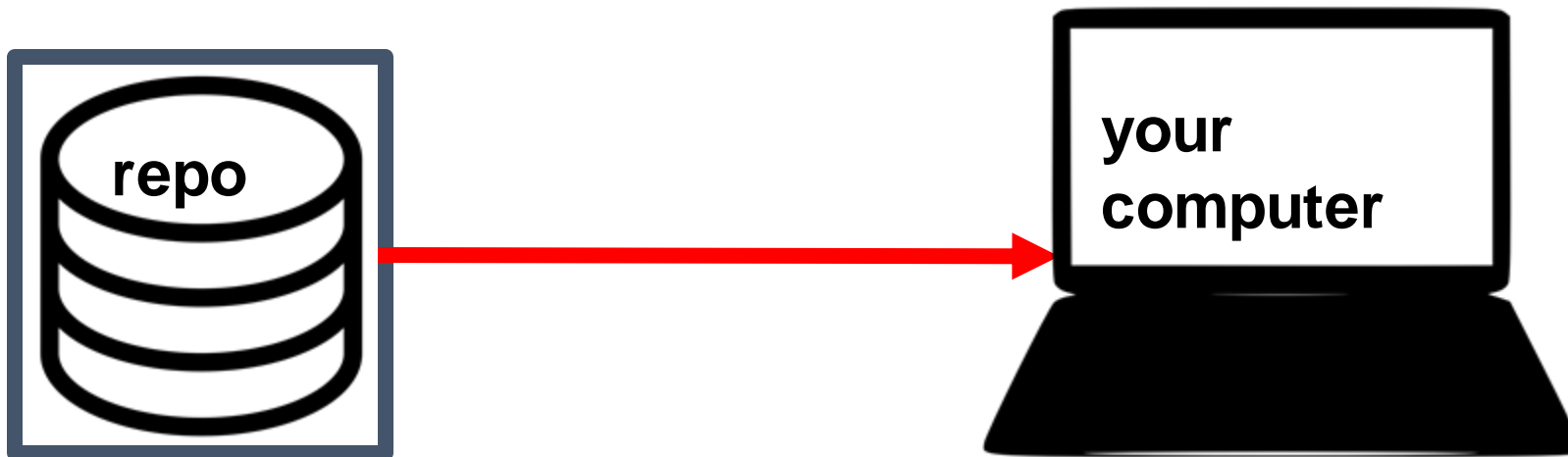
# What we've done so far





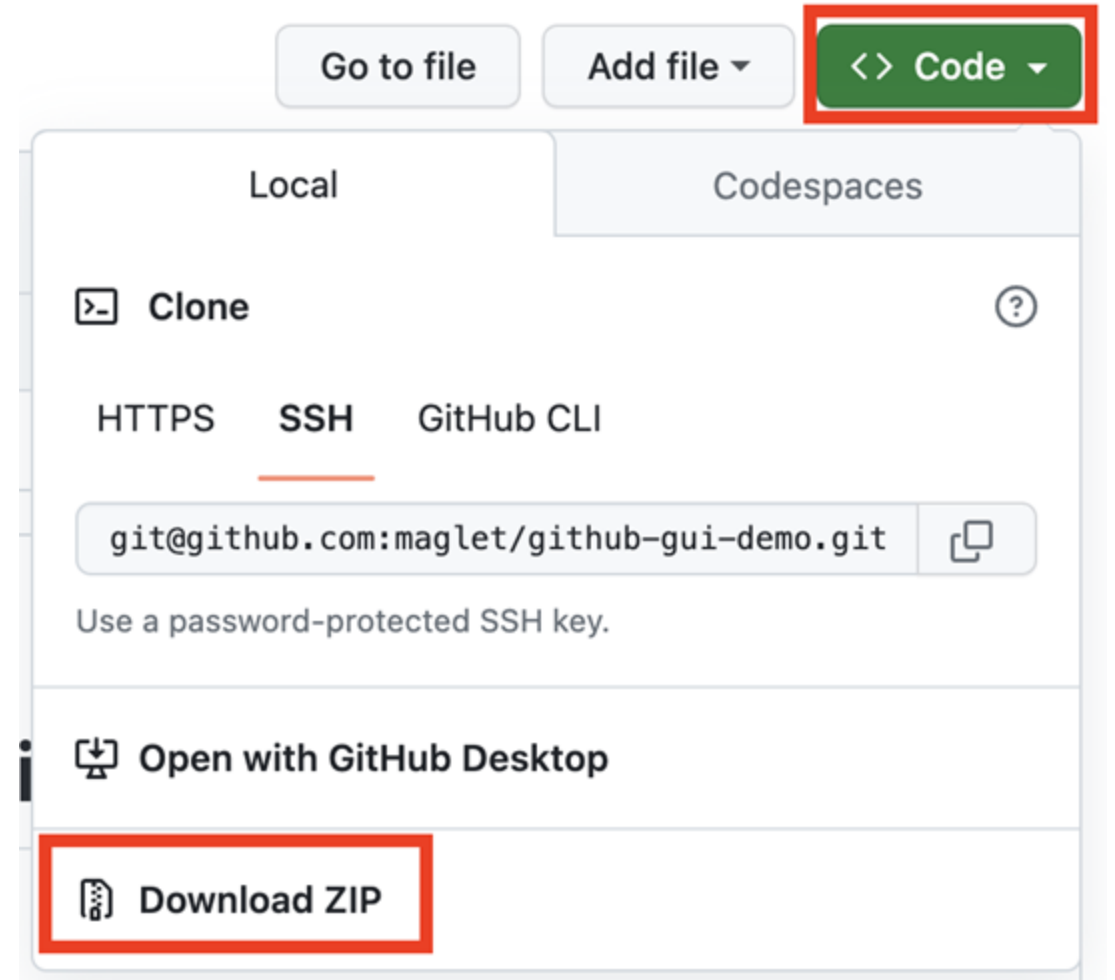
# Running code

- **Copy and paste** - take the lines of code you need to run locally
- **Download** - download most recent version of files
- **Clone** - downloads the whole repository to do version control on your computer



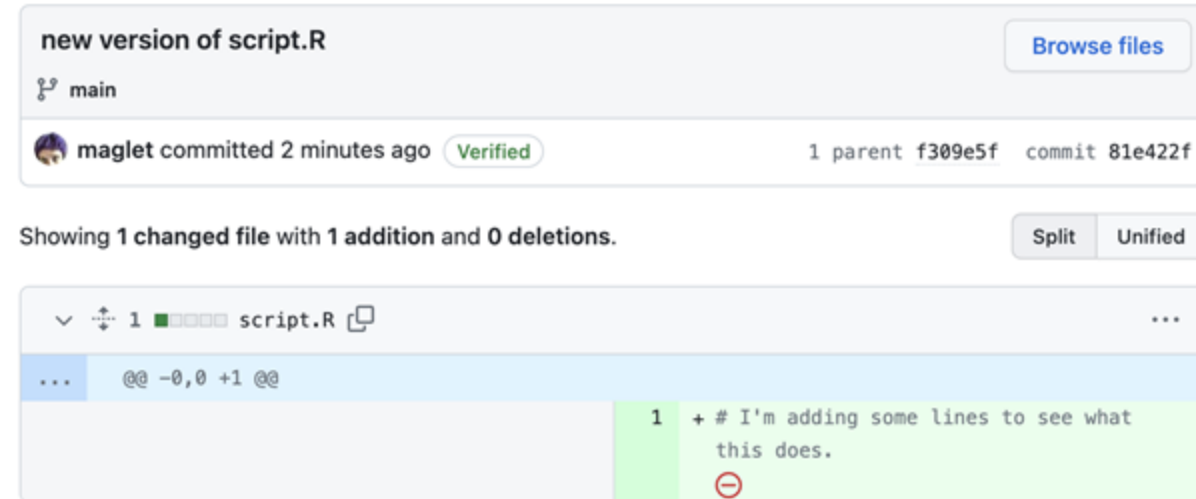
# Download

- Click the green code button
- Click download ZIP
- Extract files using a program on your computer
- Open your files

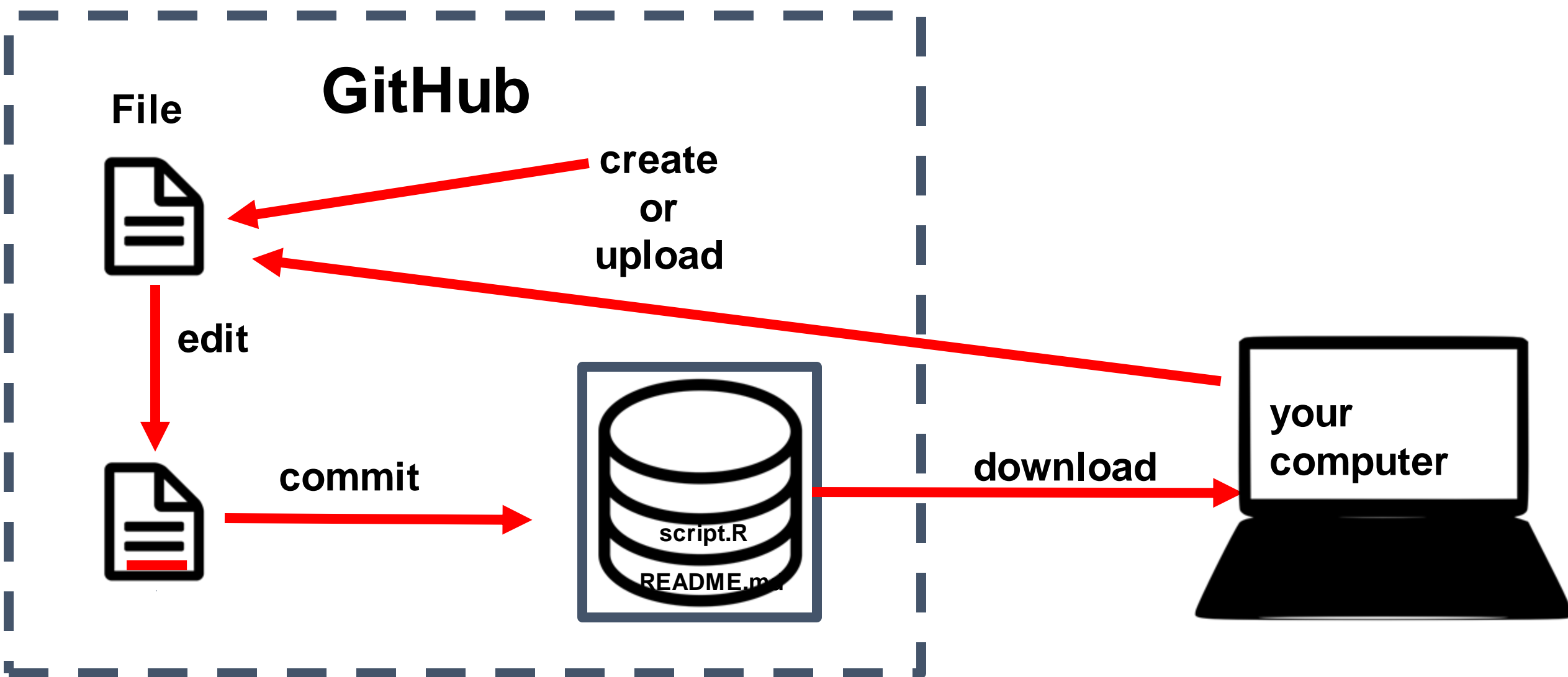


# Save changes

- Add file > upload file
- Select the file you changed
- Commit with a message
- File is updated



# GitHub workflow overview



A graphic featuring several thick, colorful ribbons (purple, yellow, black, blue, green, red) that cross and braid together on a gray background. The word "Collaboration" is written in white, centered over the braided section of the ribbons.

Collaboration

---

SO MUCH  
JARGON with Git

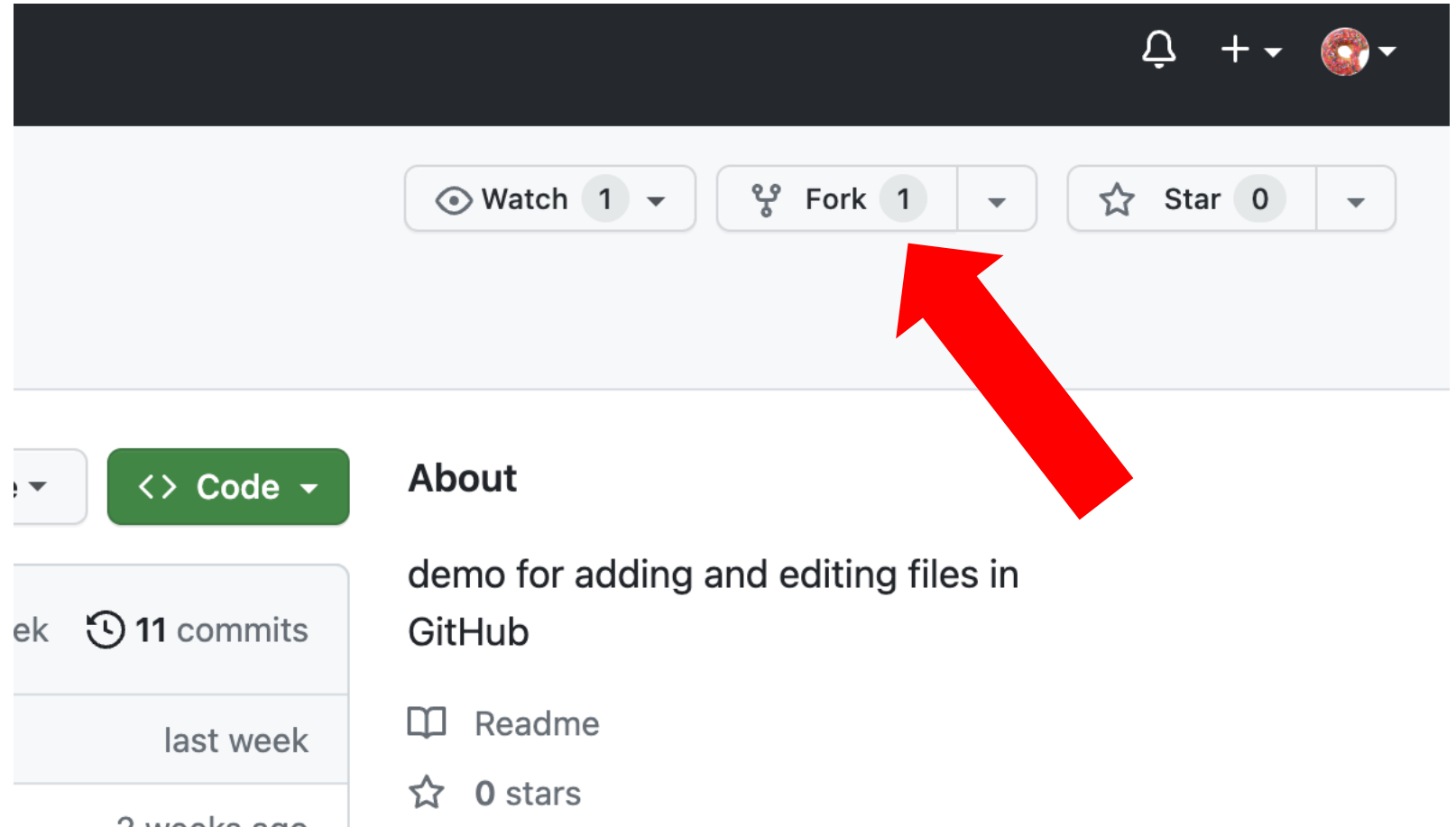


# STEP ONE: CREATE A **FORK**

## Create a Fork

**from** your friend's repo (AKA make a copy of the repo in your own account).

You can now play around with your version without messing up your friend's.



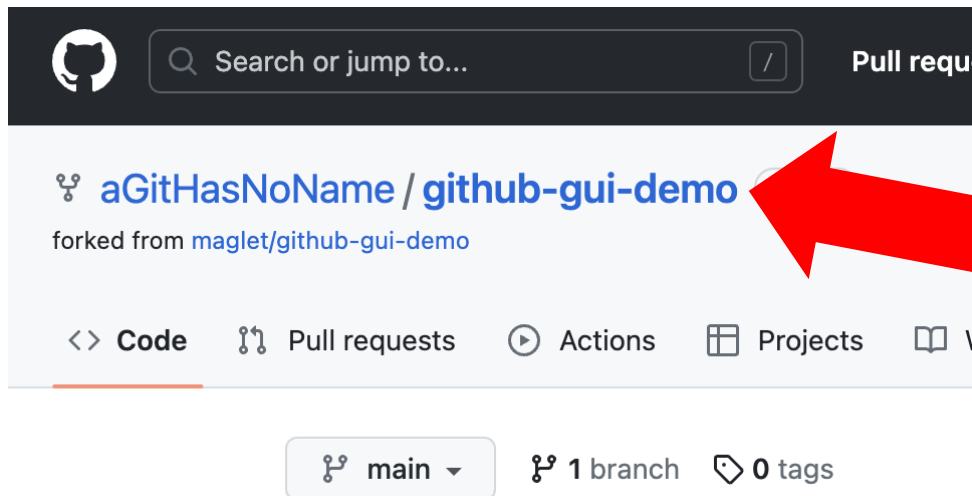
# Do not create a **FORK** from a **FORK**

If your friend's repo is actually a fork of someone else's repo, the following instructions for collaboration will not work. If you want to contribute to the original repo, you need to create a fork from the original repo.

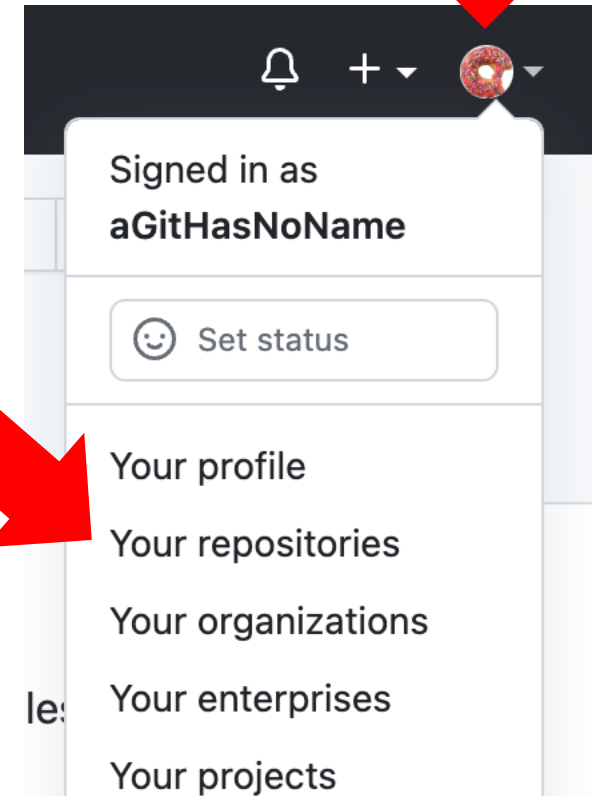


# STEP TWO: **OPEN** your version of the repo

Click on your account in the top right corner of your screen. Then click on Your repositories. Choose the forked repo.



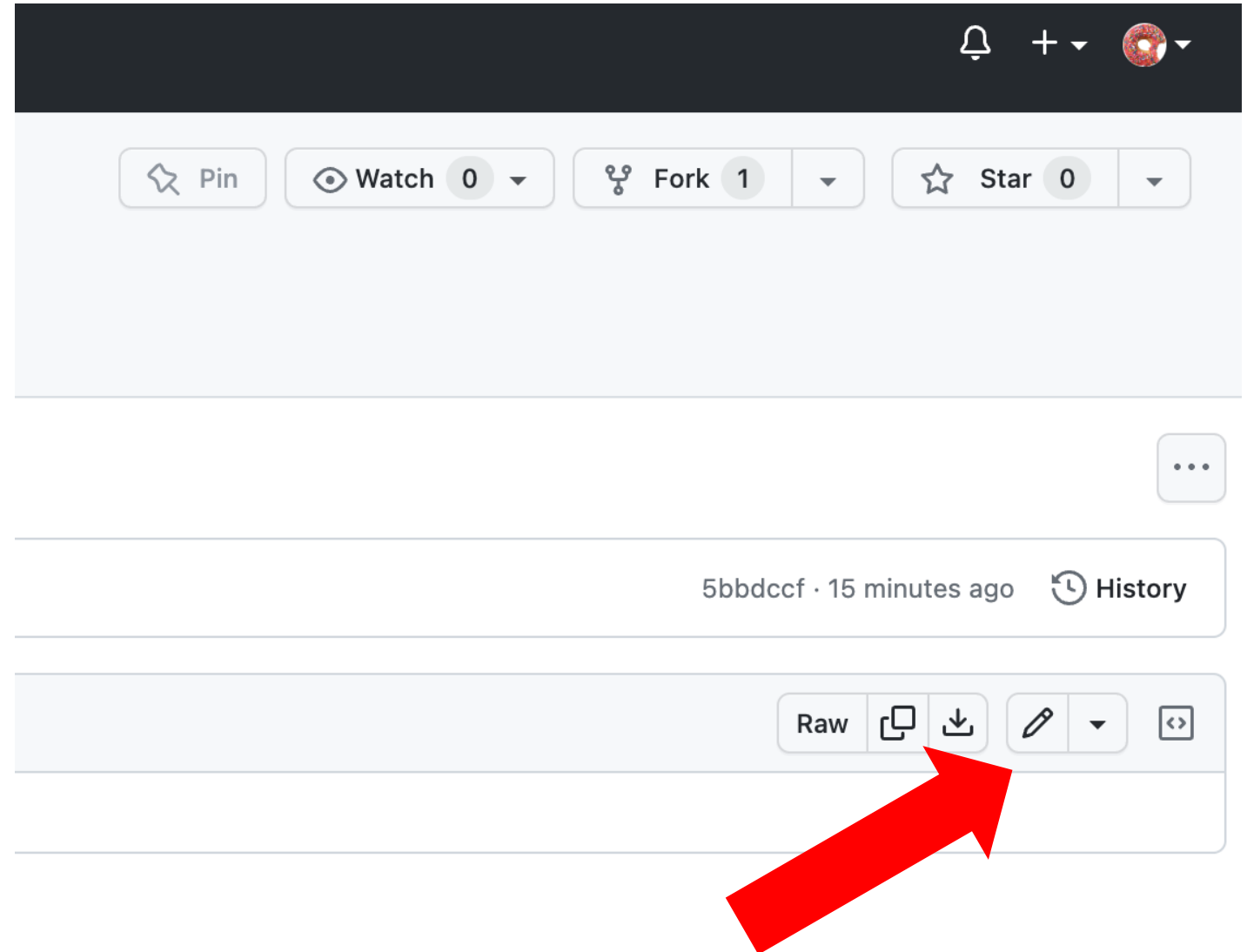
You can see it's your version of the repo in the top left of your screen.



# STEP THREE: **EDIT** a file

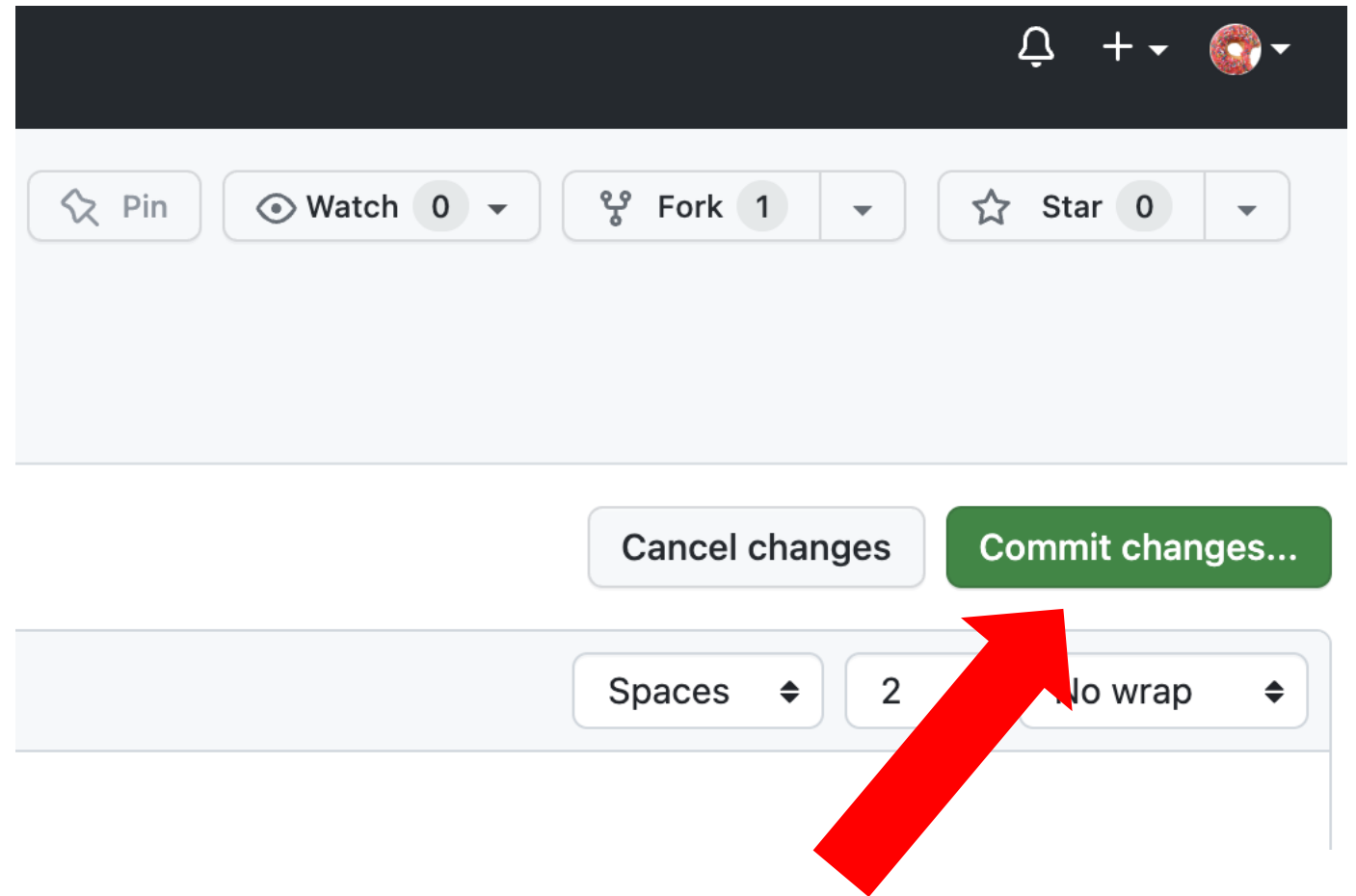
Open a file in the repo. Click on the pencil icon to Edit the file.

You can make direct changes or paste in new code you've been working on.



## STEP FOUR (a): **COMMIT** your changes

The button will light up once you've made a change to the file.



# STEP FOUR (b): COMMIT your changes

Name your commit.

You can commit directly to the **main branch** (that's the main branch in YOUR version of the repo). This lets you keep working on this file or on other files too before sending all your changes to your friend.



Commit changes

Commit message

Update script.R

Extended description

Add an optional extended description..

Commit Email

colbywitherup@gmail.com

☒ Commit directly to the main branch

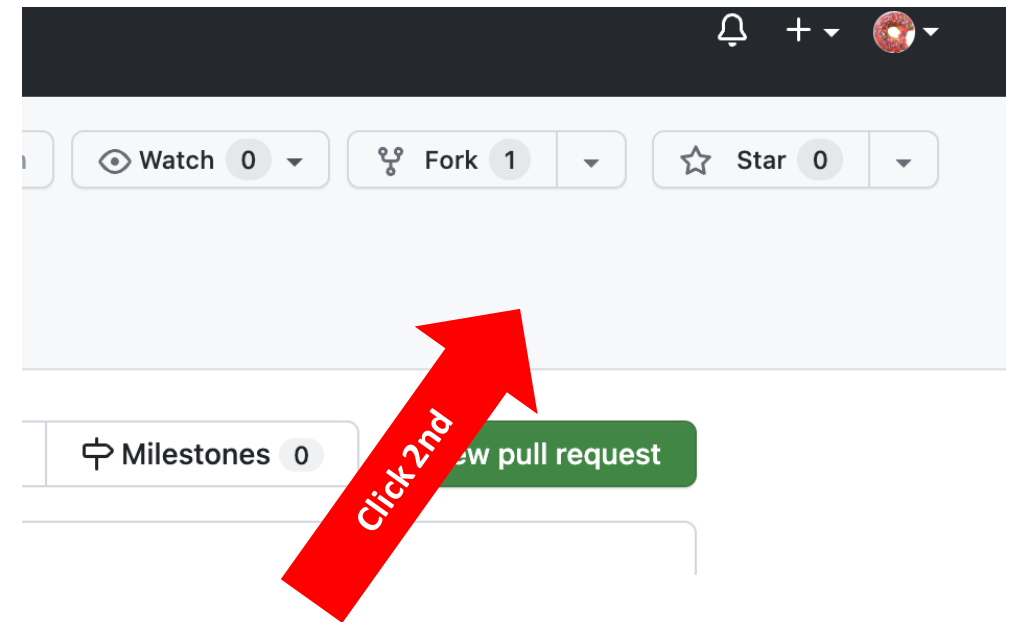
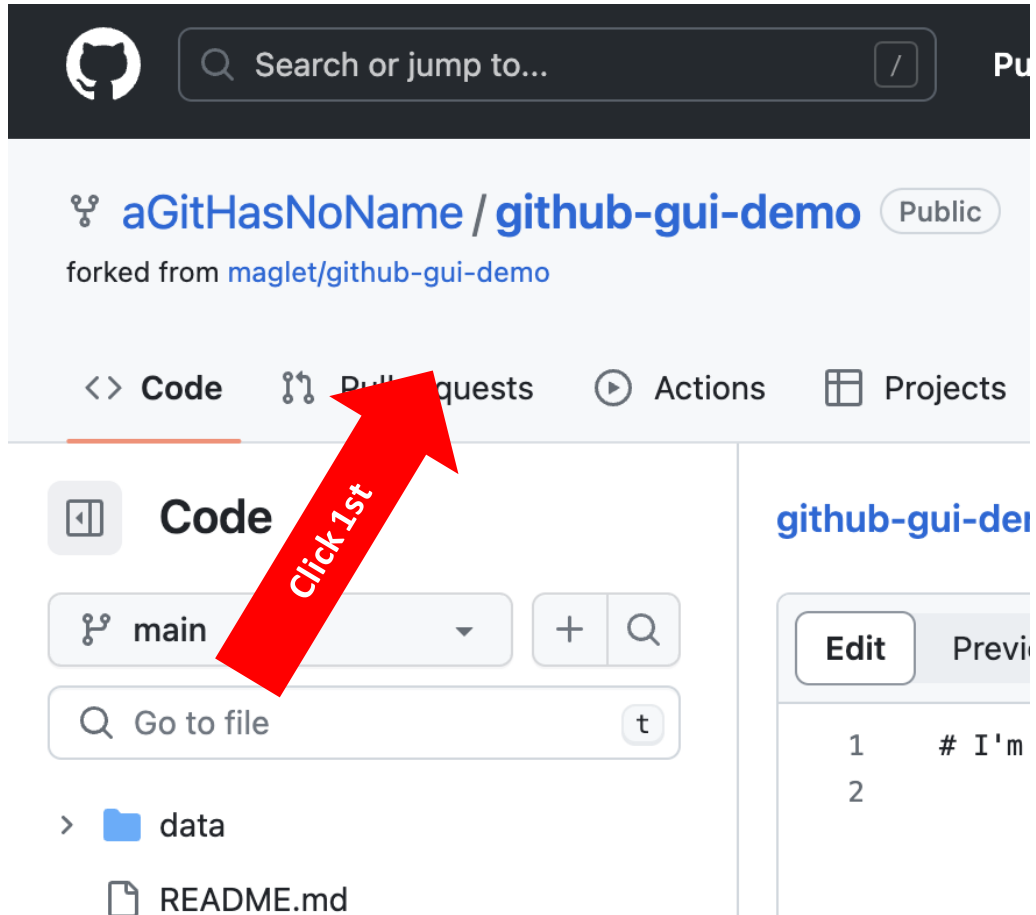
☐ Create a new branch for this commit and start a pull request

[Learn more about pull requests](#)

Cancel

Commit changes

# STEP FIVE (a): Create a **PULL** request



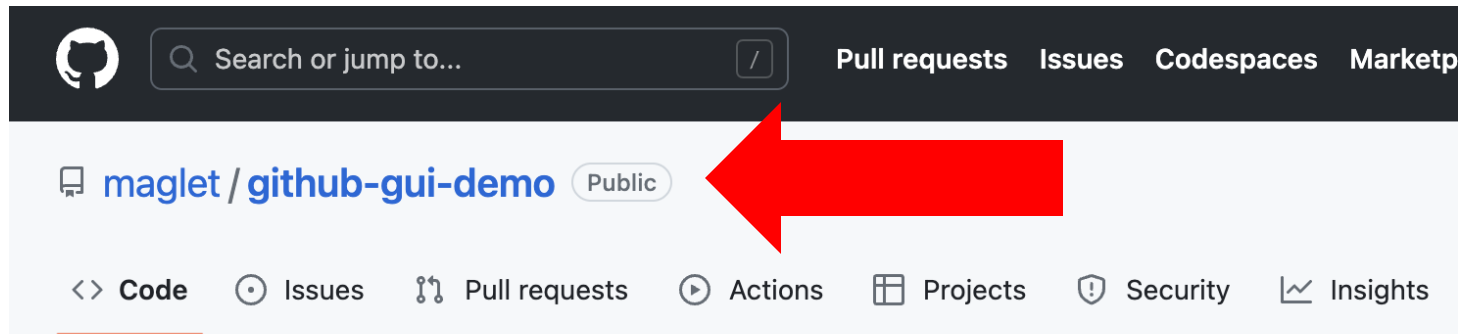
## PUSH

- AKA “**Create a pull request**” when working with someone else’s repo
- Make changes (AKA **commits**) to your version of the repo and ask them to accept those changes into their version of the repo
- *Remember, your friend won’t lose their previous version if they accept your changes – all versions are saved!*

## PULL

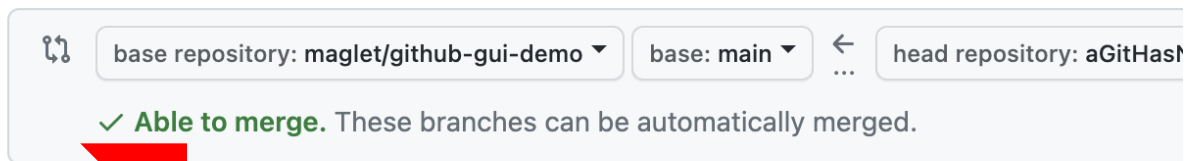
- Like “Accept all changes” in Microsoft Word when you let someone else review and make suggestions to your doc

# STEP FIVE (b): Create a **PULL** request



## Comparing changes

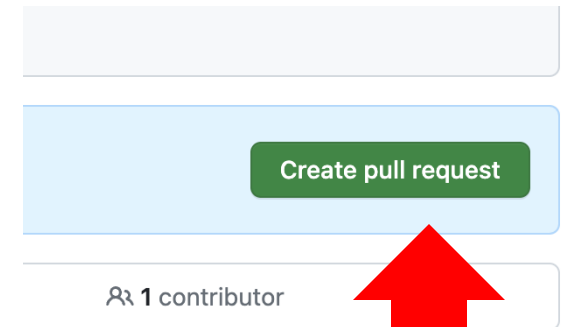
Choose two branches to see what's changed or to start a new pull request. If you need to, you



If it doesn't say "Able to merge", that means your friend has made changes since the last time you merged. Jump ahead to Step Five (d) for help.

It will now list your friend's version of the repo.

If it says "Able to merge", click the green button.



# STEP FIVE (c): Create a **PULL** request

## Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#).

↺

base repository: maglet/github-gui-demo ▾


base: main ▾

...

head repository: aGitHasNoName/github-gui-... ▾

compare: main ▾

✓ **Able to merge.** These branches can be automatically merged.



Added to readme

Write

Preview

H B I ≡ <> 🔗 ≡ ≡ ≡ @ 🗨️ ↶ 🗑️

Leave a comment

Attach files by dragging & dropping, selecting or pasting them. M+

☒ Allow edits by maintainers ?

Create pull request ▾

Give the pull request a name. You can also write a comment to your friend.

Click the green button.

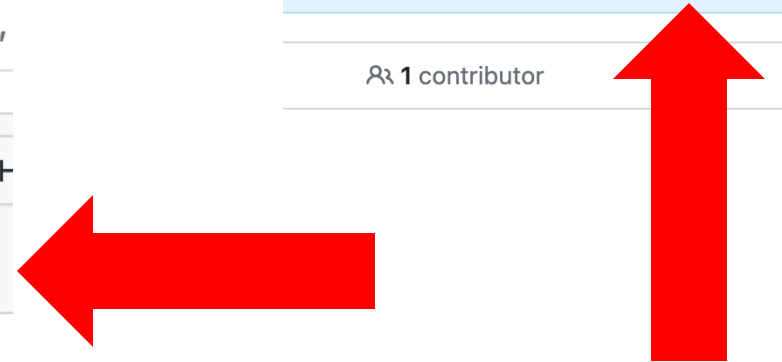


# STEP FIVE (d): **HELP!** Can't automatically merge

The screenshot shows the GitHub interface for the repository 'maglet/github-gui-demo'. The page title is 'Comparing changes'. Below the title, it says 'Choose two branches to see what's changed or to start a new pull request. If you need to,'. The comparison is set up with 'base repository: maglet/github-gui-demo' and 'base: main' as the base, and 'head repository: aGith-' as the head. A red error message at the bottom states: '× Can't automatically merge. Don't worry, you can still create the pull request.'

Click the green button anyway.

A close-up of the 'Create pull request' button, which is green with white text. It is located in a light blue box. Below the button, it says '1 contributor'.



# STEP FIVE (d): **HELP!** Can't automatically merge

## Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also [compare across forks](#).

base repository: maglet/github-gui-demo

base: main

head repository: aGitHasNoName/github-gui-...

compare: main

✗ **Can't automatically merge.** Don't worry, you can still create the pull request.

removed Has

Write

Preview

H B I @

I think there should be no "Ha"s now.

Attach files by dragging & dropping, selecting or pasting them.

☒ Allow edits by maintainers

Create pull request

Make your case to your friend about why your changes are waaaay better than their changes.

Click the green button.

## STEP FIVE (e): **WAIT**

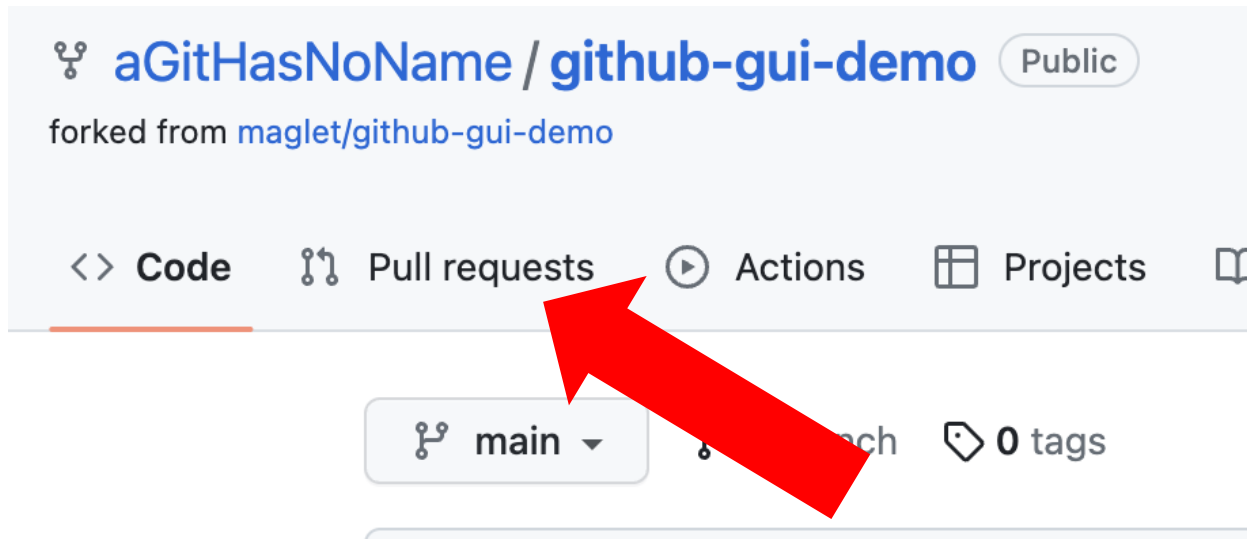
Wait for your friend to accept your pull request.

**IMPORTANT:** If you make any new commits before your friend PULLS, they will go into the same pull request and get pulled along.

**NOTE:** "Close a pull request" means CANCEL the pull request.

# How to accept a pull request

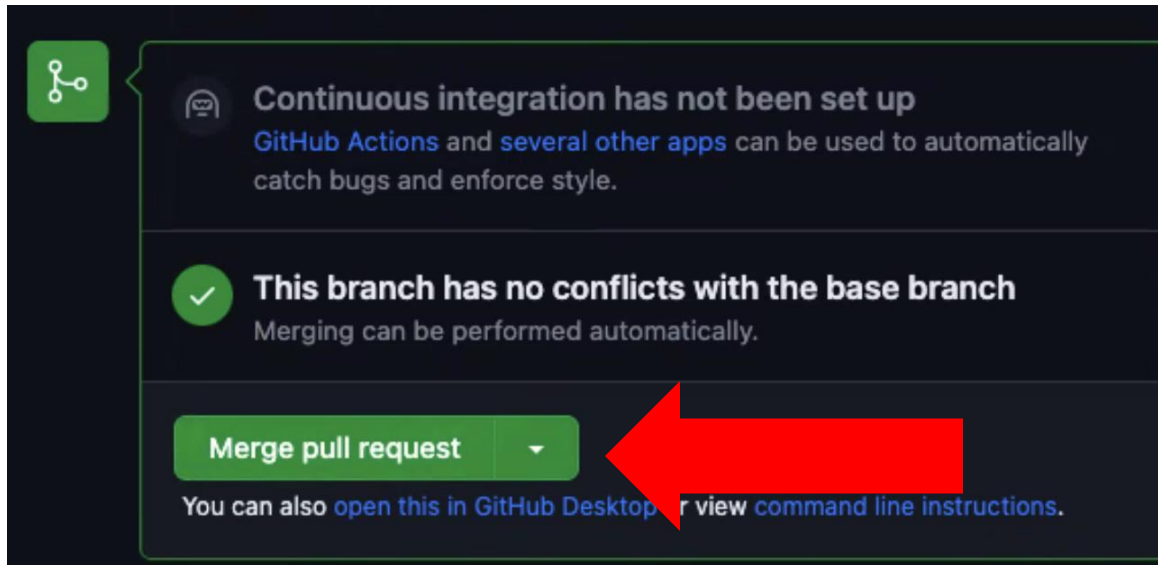
# STEP ONE: Open the pull request



Click on "Pull requests" in your repo.

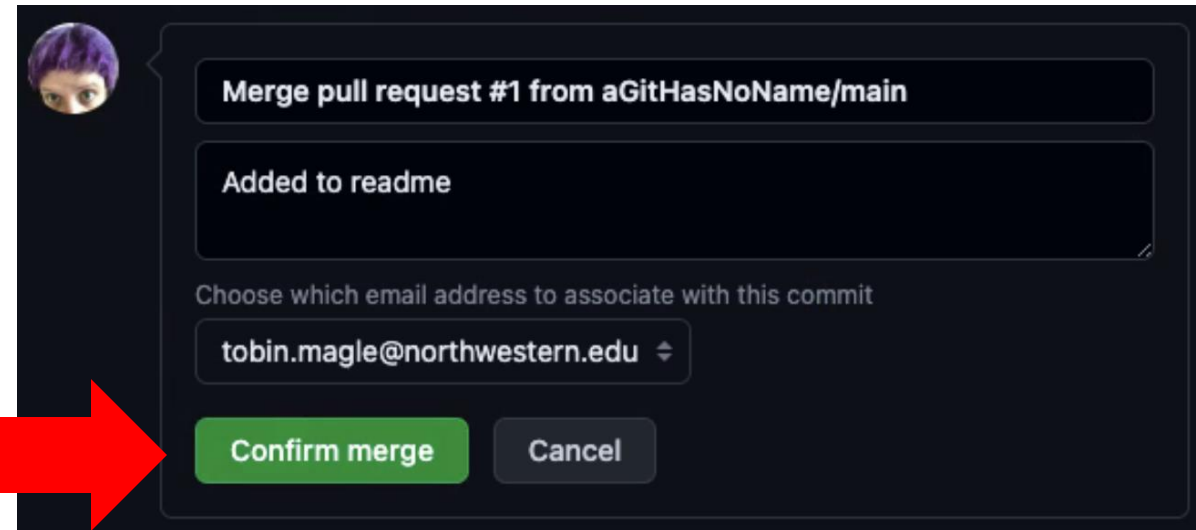
Choose the appropriate pull request from the menu.

## STEP TWO: **MERGE** your friend's changes into your repo



Click on “Merge pull request”,  
then “Confirm merge”

*NOTE: You can reject a pull request by "Closing" it.*

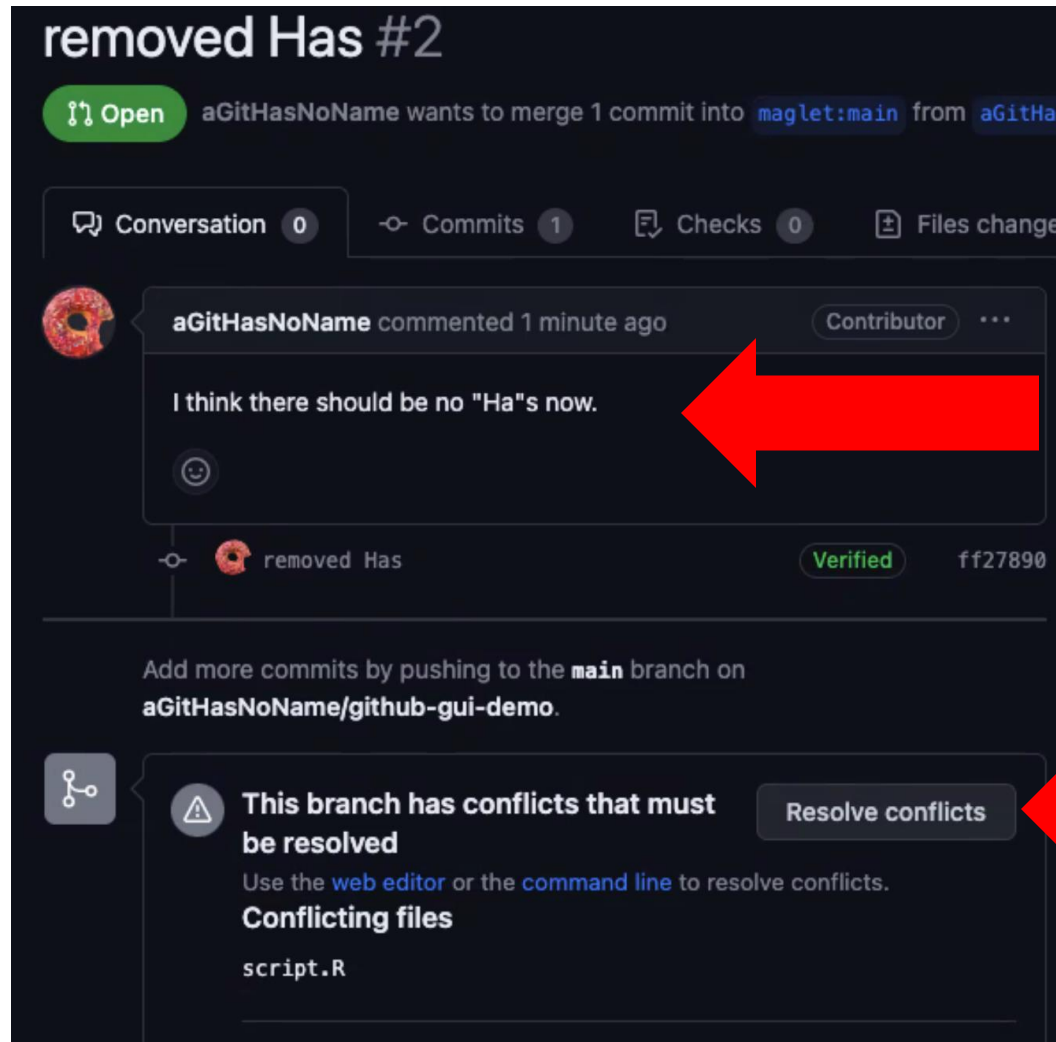


STEP TWO: **MERGE** your friend's changes into your repo



It worked!

# STEP TWO (b): RESOLVE any conflicts



If there's a conflict, you'll see your friend's explanation of their changes.

Click the "Resolve conflicts" button. It's a little hidden.



# STEP TWO (b): RESOLVE any conflicts

removed Has #2

Resolving conflicts between `aGitHasNoName:main` and `maglet:main` and committing changes → `a`

1 conflicting file

script.R 1 conflict Prev ^ Next v

```
1 <<<<<<< main
2 # I'm taking over this script. -Colby
3 |====
4 # I'm taking over this script. Hahaha Hahaha -Colby
5 # I'll get you for this, Colby.
6 >>>>>> main
7
```

BEFORE

View the conflict.  
Decide what it should  
really be and edit it  
directly in the box.

Once it looks correct,  
click the green button.

`NoName:main` and `maglet:main` and committing changes → `aGitHasNoName:main`

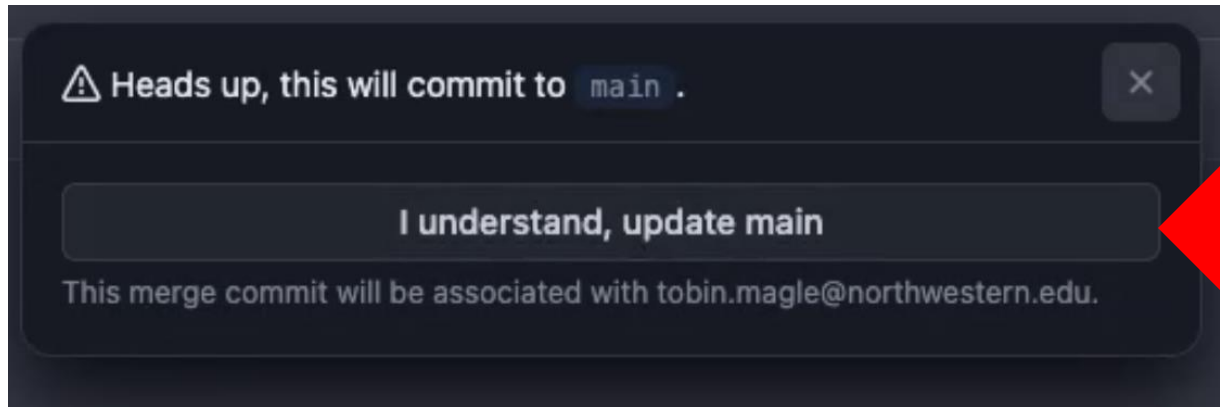
Commit merge

script.R ✓ Resolved

```
1 # I'm taking over this script. -Colby
```

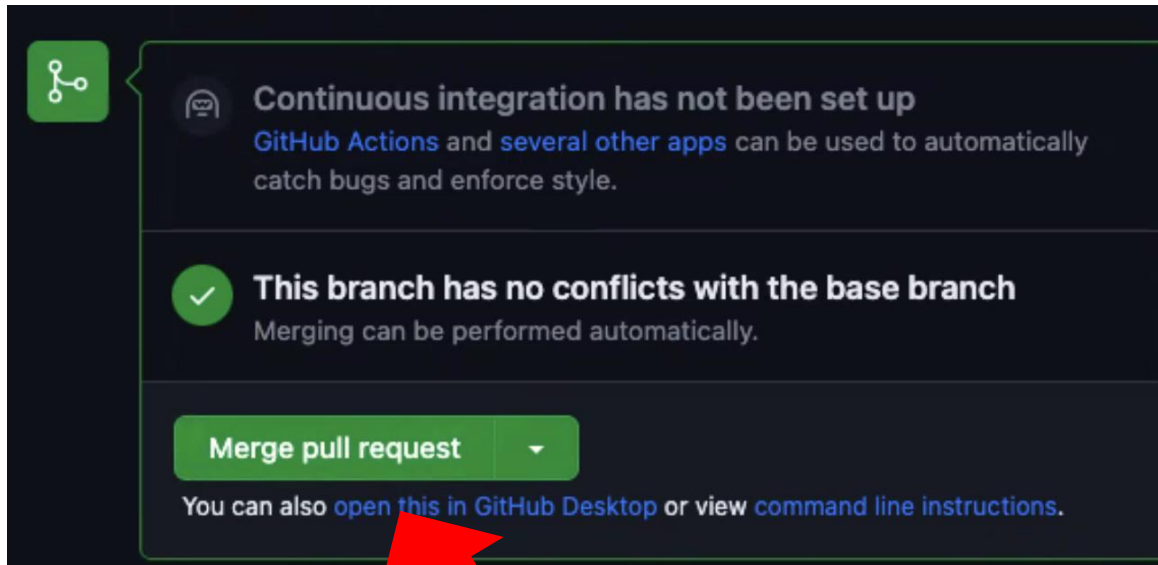
AFTER

## STEP TWO (b): RESOLVE any conflicts

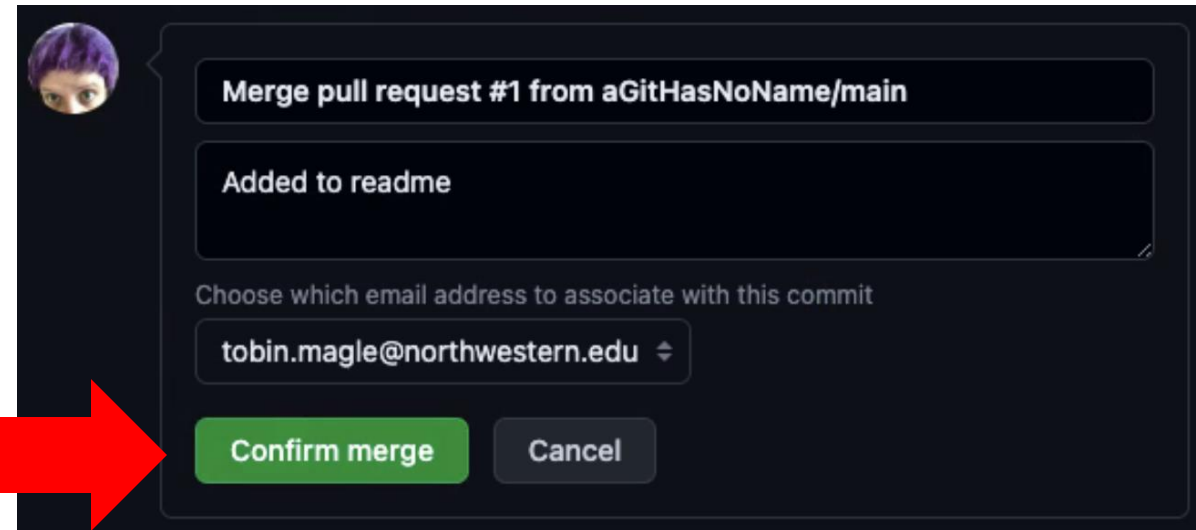


Click the warning box  
"I understand, update  
main".

# STEP TWO (b): RESOLVE any conflicts



Click on “Merge pull request”,  
then “Confirm merge”





Other ways to collaborate

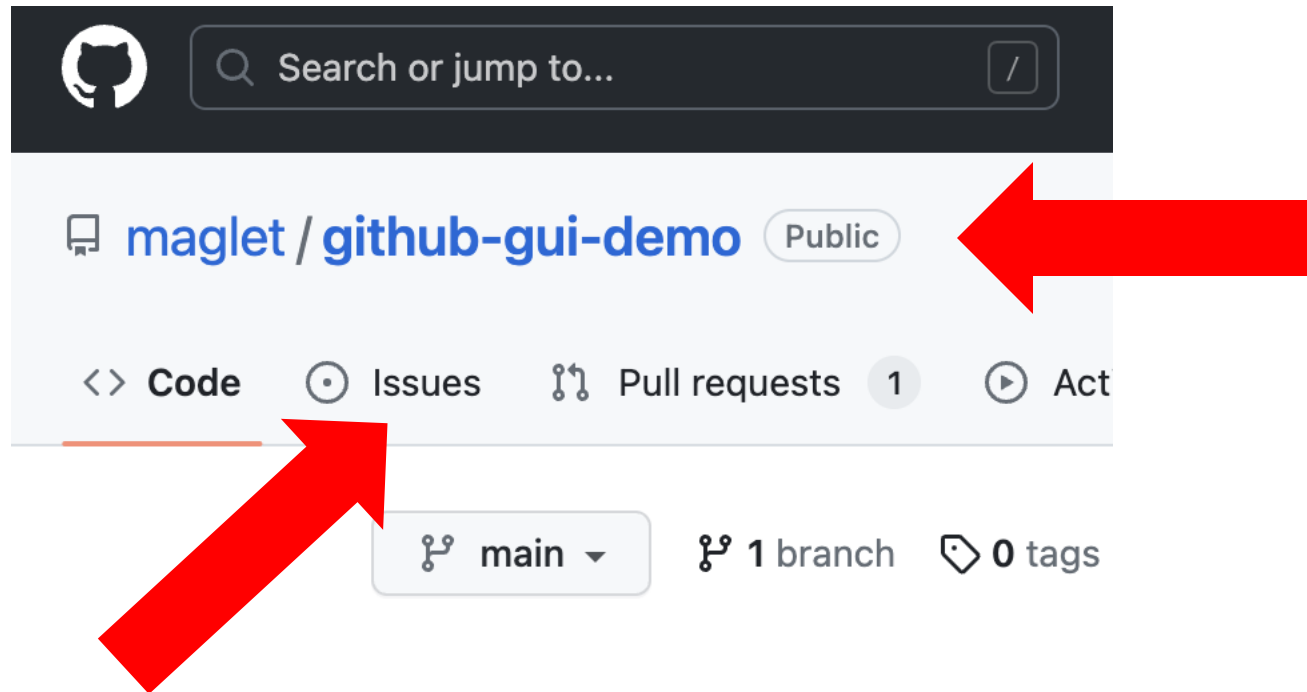
---

# OPEN AN **ISSUE**

Issues are a great way to

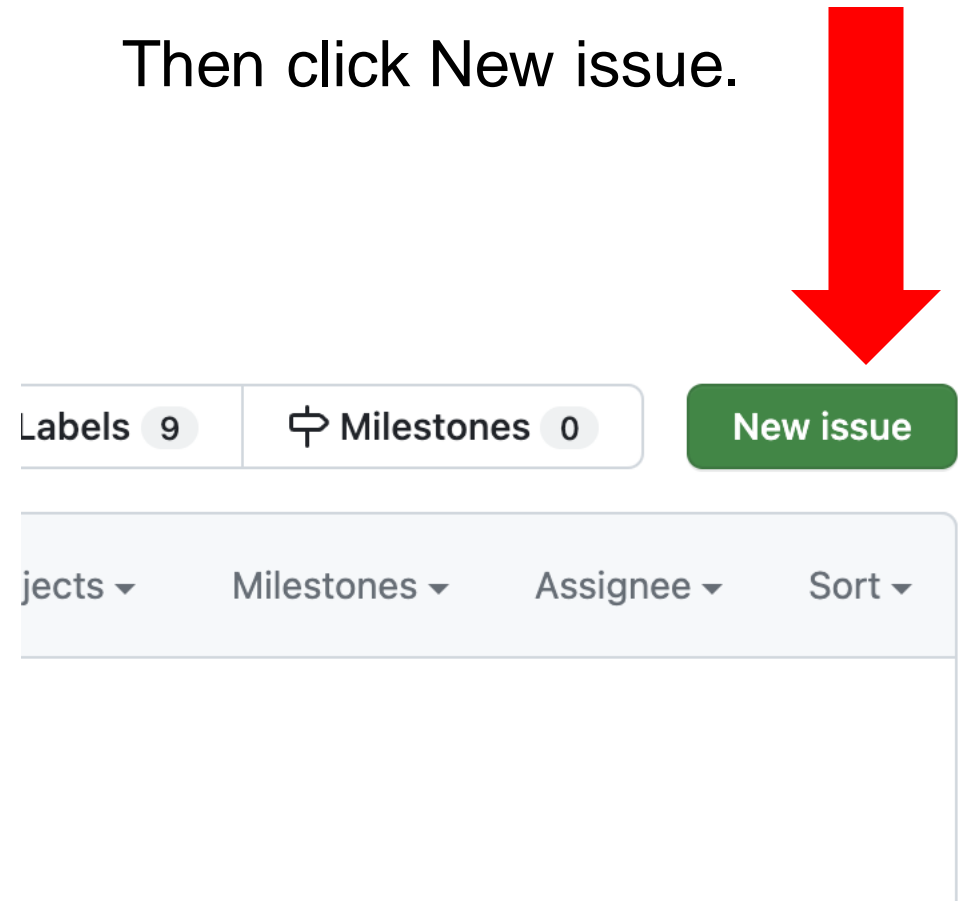
- track what still needs to be done on a project
- report bugs that need to get fixed
- have discussions about the what, why, how, and who of your code and documentation

# OPEN AN **ISSUE**




On your friend's repo,  
click Issues.

Then click New issue.




# OPEN AN **ISSUE**

Submitting an issue will start a discussion thread.

 **maglet / github-gui-demo** Public










[Code](#) [Issues](#) [Pull requests](#) [Actions](#) [Projects](#) [Security](#) [Insights](#)




Let's discuss the correct number of "Ha"s


Write

Preview


H B I       @   

We could be a "no-ha" team, a "heavy-ha" team, or somewhere in the middle. Discuss.

Attach files by dragging & dropping, selecting or pasting them. 

 Styling with Markdown is supported

Submit new issue





git from the command line

---



# git from the command line

You can also do your commits, pushes, and pulls from the command line (using git commands instead of point-and-click).

You will need a Linux or bash terminal. Mac computers come with a Linux terminal, but PC users will need to install one. We recommend WSL2 or git-bash.

# git from the command line

Suggestions for learning git:

- We will teach git this Winter or Spring.
  - Subscribe to the Research Computing Services listserv to get the most up-to-date workshop announcements.
- Follow a self-guided tutorial online. We recommend <https://carpentries-incubator.github.io/git-novice-branch-pr/>

# git from within RStudio

You can make commits and push changes to GitHub from within RStudio. Takes a little bit of know-how to get it linked.

Workshop on Using Git from RStudio: Next Tuesday, October 17th  
12pm-1pm on Zoom:

<https://planitpurple.northwestern.edu/event/604298>