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Beginner’s Guide to Git and GitHub
~Working in the Browser only~

Conrad Leonard and Kylie Davies

30 July 2025

Topic outline

- Why GitHub?
- Raising an issue
- Making a branch
- Make a simple document in markdown using Google docs
- Submitting a pull request
- Comparing and merging a pull request
- Branch hygiene

Why Git and GitHub?

Why? Because of an exponential growth in the need for software engineers to work together on development of complex software.

Git and GitHub are not the same thing:

- **Git** is a distributed version control system - a tool used by software developers to track changes to their code over time, allowing them to collaborate effectively and manage different versions of their projects.
- **GitHub** is a developer platform that allows developers to create, store, manage, and share their code. It uses Git to provide distributed version control and GitHub itself provides access control, bug tracking, software feature requests, task management, continuous integration, and wikis for every project.

How did we get here?

- Monolithic code - single batch, single system, single db.
- Changes to one element strongly impacted the whole.
- Programmers sometimes preferred to work alone but this limits productivity.
- Collaboration not easy.

Image source: Python in Plain English - Jesus Lagarez, Medium

Innovations in Software Engineering

- Monolithic code gave way to object-oriented programming.
- OOP was developed in the 1960s and 1970s but popularised through languages like Java and C++ in the 1990s.
- Classes and routines, more efficient and easier to manage and quicker to run. This helped avoid accidental overwrites.
- But sometimes… this still didn’t work very well.
- Voila: Git! Invented in 2005 by Linus Torvalds -

who also invented the Kernel of the Linux O/S.

Exciting nerdy fact

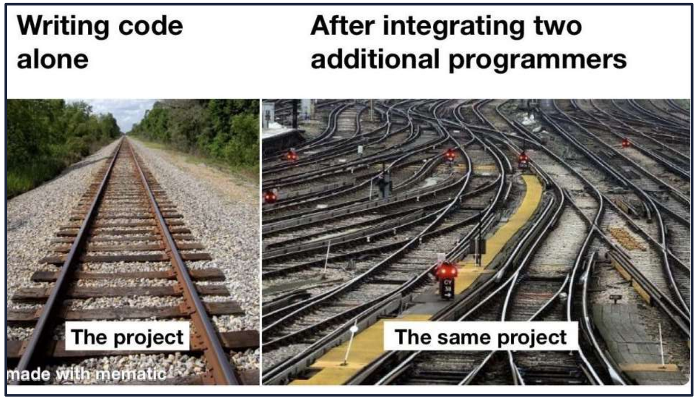
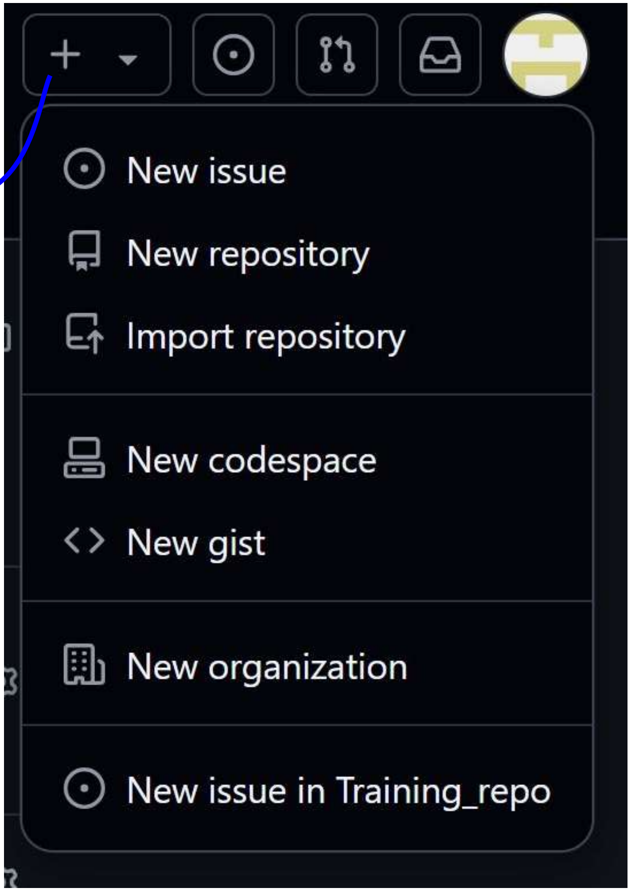


Image source: Programmer Humor https://programmerhumor.io/memes/team-collaboration 2025

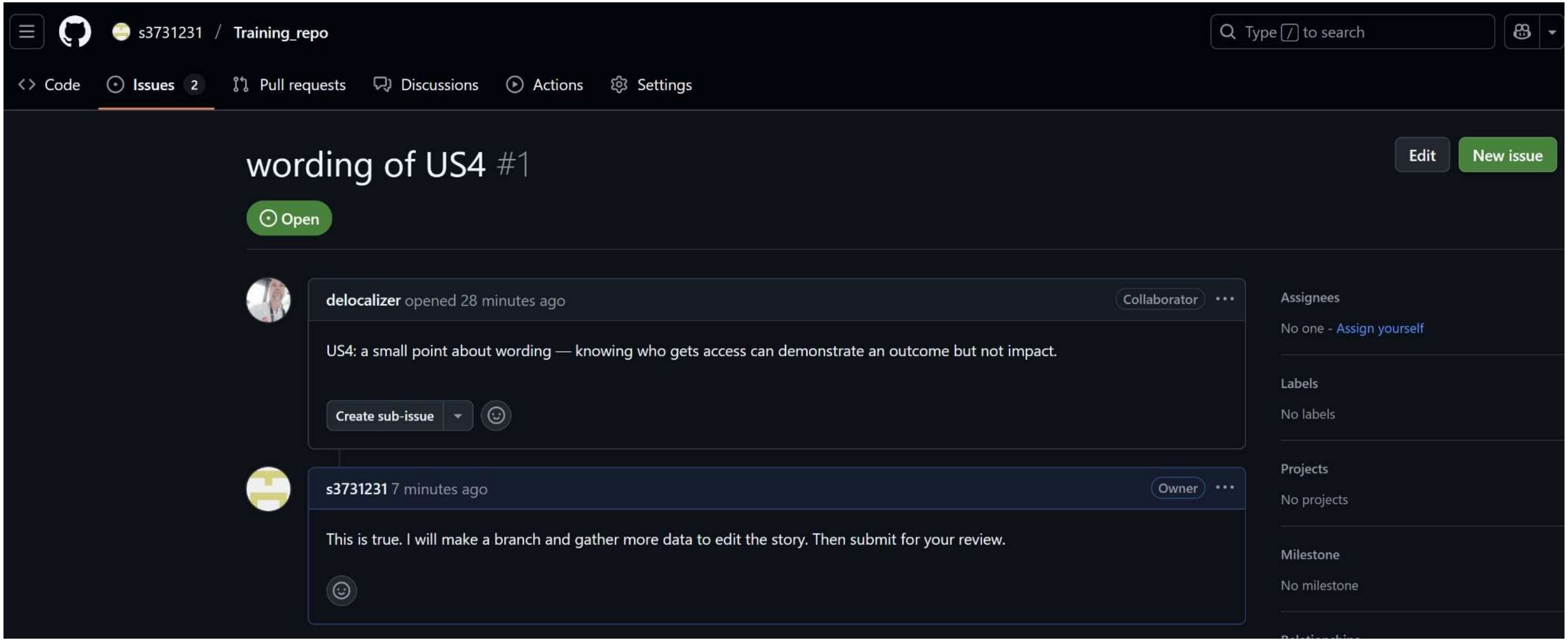
+ Button is a shortcut to common actions

Plus button near the top right of the screen gives access to many common actions.



Raising an issue in GitHub

Navigate to **Issues** then click **New Issue** or use the + button



wording of US4 #1

delocalizer opened 28 minutes ago

US4: a small point about wording — knowing who gets access can demonstrate an outcome but not impact.

s3731231 7 minutes ago

This is true. I will make a branch and gather more data to edit the story. Then submit for your review.

Assignees: No one - Assign yourself

Labels: No labels

Projects: No projects

Milestone: No milestone

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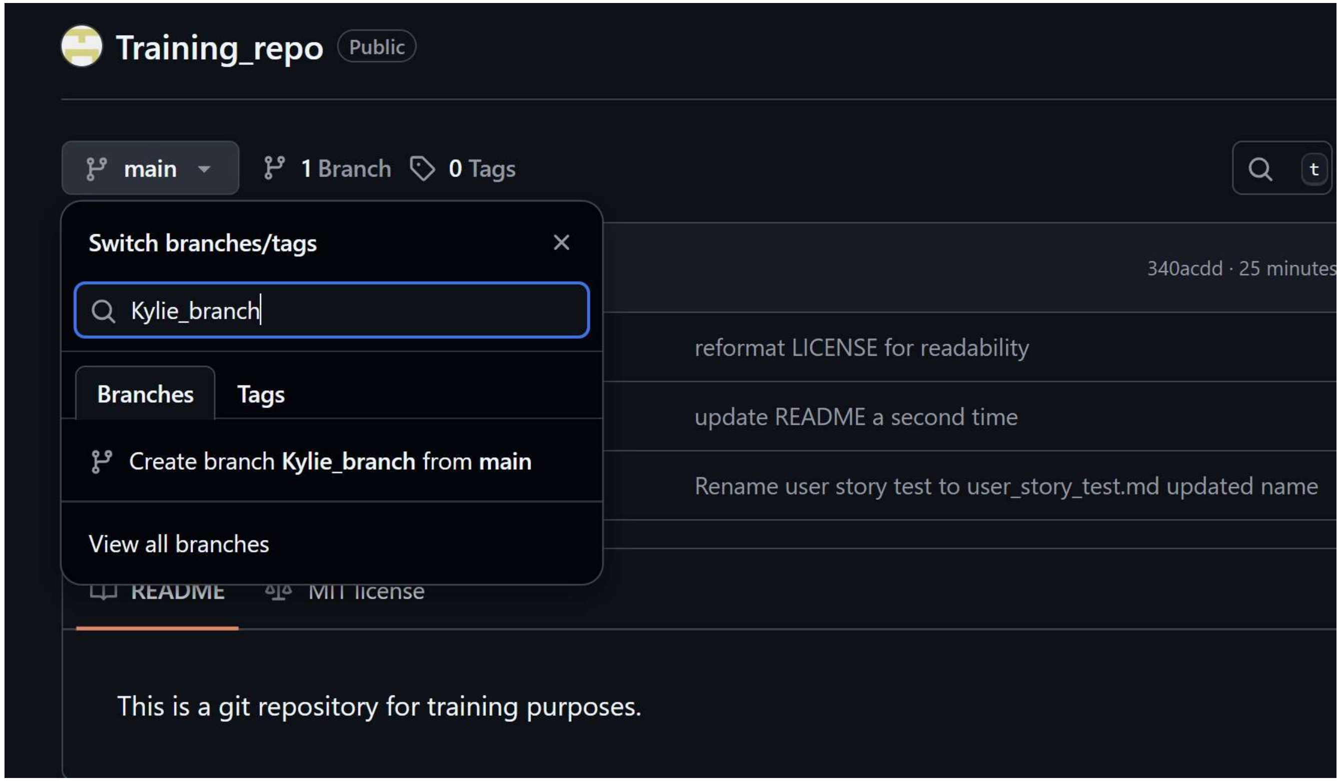
Making a Branch

Click the down arrow next to **Main**, then type your new branch name in and click **Create branch [branchname] from Main**. Your own branch is your own sandbox to try changes.



Kylie_branch

Create branch **Kylie_branch** from **main**

340acdd · 25 minutes

reformat LICENSE for readability

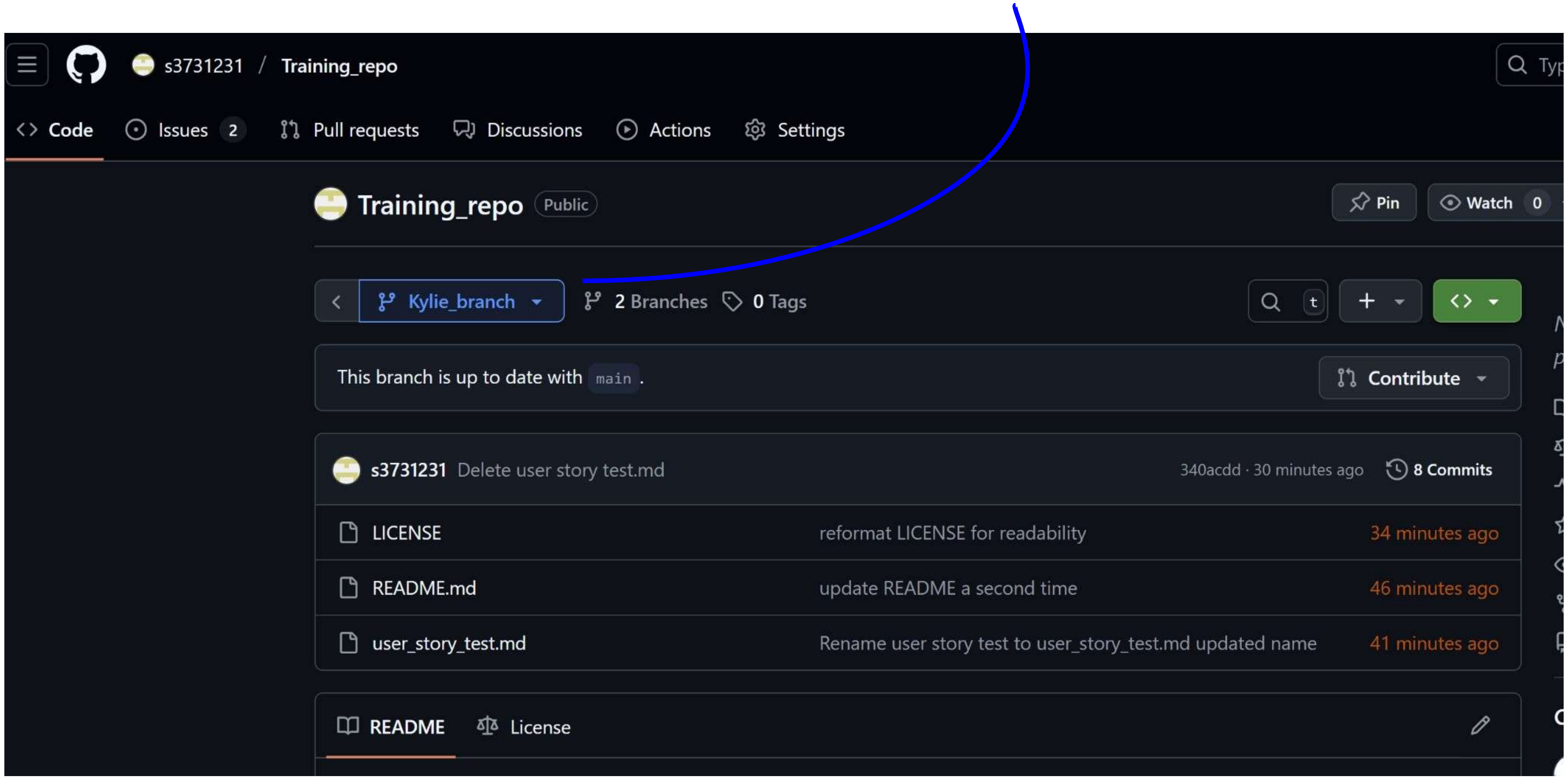
update README a second time

Rename user story test to user_story_test.md updated name

This is a git repository for training purposes.

Working in your branch

Always check that you are working in the correct branch - look at the top left under the Repo name.
You can switch back and forth between main and your branch.



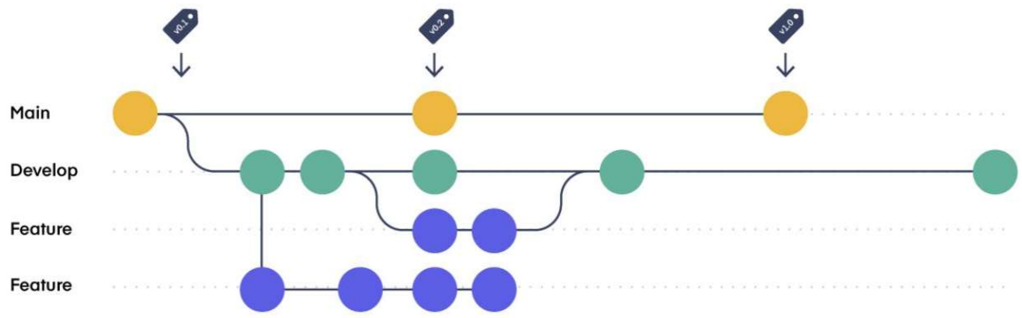
This branch is up to date with `main`.

s3731231 Delete user story test.md 340acdd · 30 minutes ago 8 Commits

LICENSE	reformat LICENSE for readability	34 minutes ago
README.md	update README a second time	46 minutes ago
user_story_test.md	Rename user story test to user_story_test.md updated name	41 minutes ago

The concept of branches in Git/GitHub

📷 **Image 1: Simple Git Branch Concept**

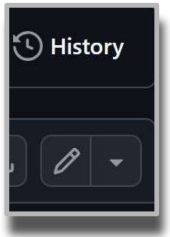


🧠 **Main**: The production-ready code 🌿 **Feature branch**: A place to develop new ideas 🔁 **Merge**: Integrate changes back into main

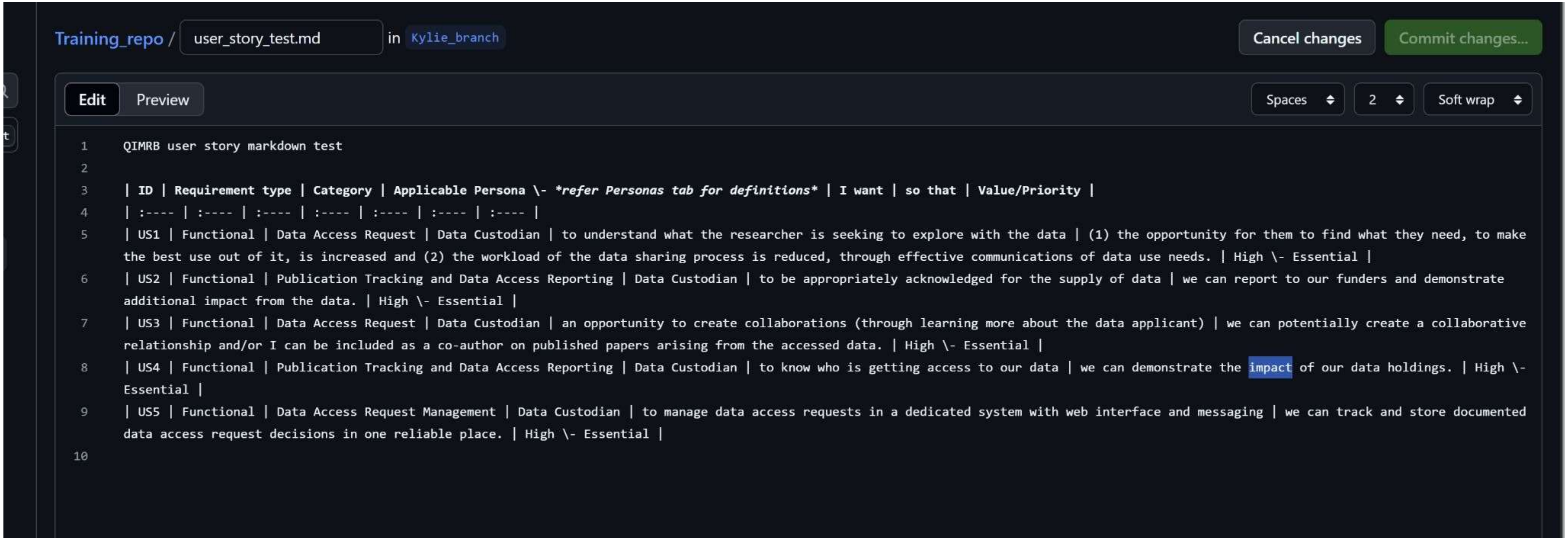
Image source: What is a Branch in Git and Github? By Ashutosh Mankhair - LinkedIn - https://www.linkedin.com/pulse/what-branch-git-github-branching-strategies-explained-mankhair-iwn0f/

Making edits

Click the pencil icon to edit your file. This file is in markdown (more about that later).
Make your edit then click **Commit Changes**.



Pencil icon



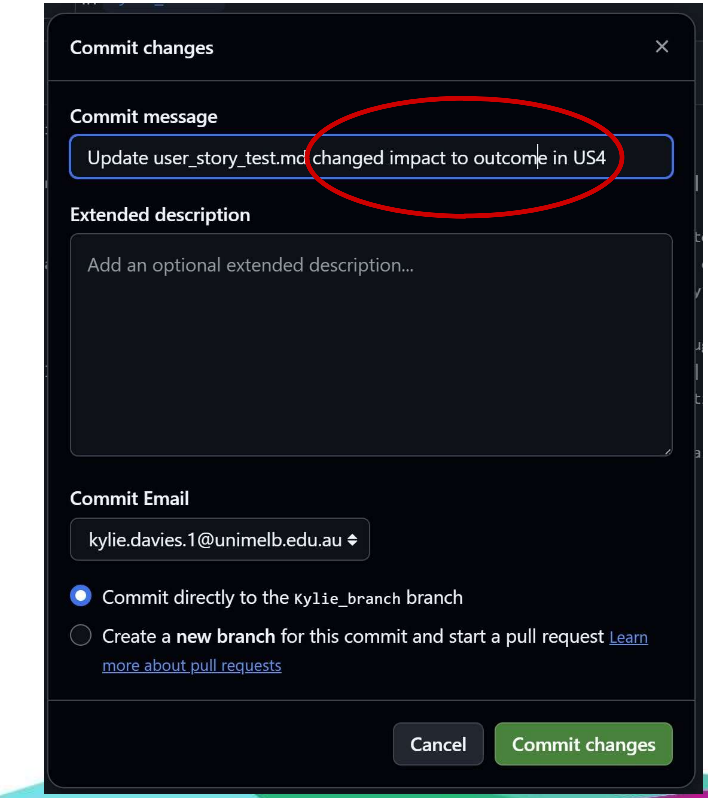
```
QIMRB user story markdown test

| ID | Requirement type | Category | Applicable Persona \- *refer Personas tab for definitions* | I want | so that | Value/Priority |
| :---- | :---- | :---- | :---- | :---- | :---- | :---- |
| US1 | Functional | Data Access Request | Data Custodian | to understand what the researcher is seeking to explore with the data | (1) the opportunity for them to find what they need, to make the best use out of it, is increased and (2) the workload of the data sharing process is reduced, through effective communications of data use needs. | High \- Essential |
| US2 | Functional | Publication Tracking and Data Access Reporting | Data Custodian | to be appropriately acknowledged for the supply of data | we can report to our funders and demonstrate additional impact from the data. | High \- Essential |
| US3 | Functional | Data Access Request | Data Custodian | an opportunity to create collaborations (through learning more about the data applicant) | we can potentially create a collaborative relationship and/or I can be included as a co-author on published papers arising from the accessed data. | High \- Essential |
| US4 | Functional | Publication Tracking and Data Access Reporting | Data Custodian | to know who is getting access to our data | we can demonstrate the impact of our data holdings. | High \- Essential |
| US5 | Functional | Data Access Request Management | Data Custodian | to manage data access requests in a dedicated system with web interface and messaging | we can track and store documented data access request decisions in one reliable place. | High \- Essential |

```

Commit Changes to your branch with a comment

Whenever you commit a change you will be prompted to add a commit message - briefly describe your change - the commit message is mandatory - the extended description is optional and for more detail. This forms the version history saved with the repo. Click **Commit Changes** again. (The change is able to be reverted if needed.)



Commit changes

Commit message

Update user_story_test.md changed impact to outcome in US4

Extended description

Add an optional extended description...

Commit Email

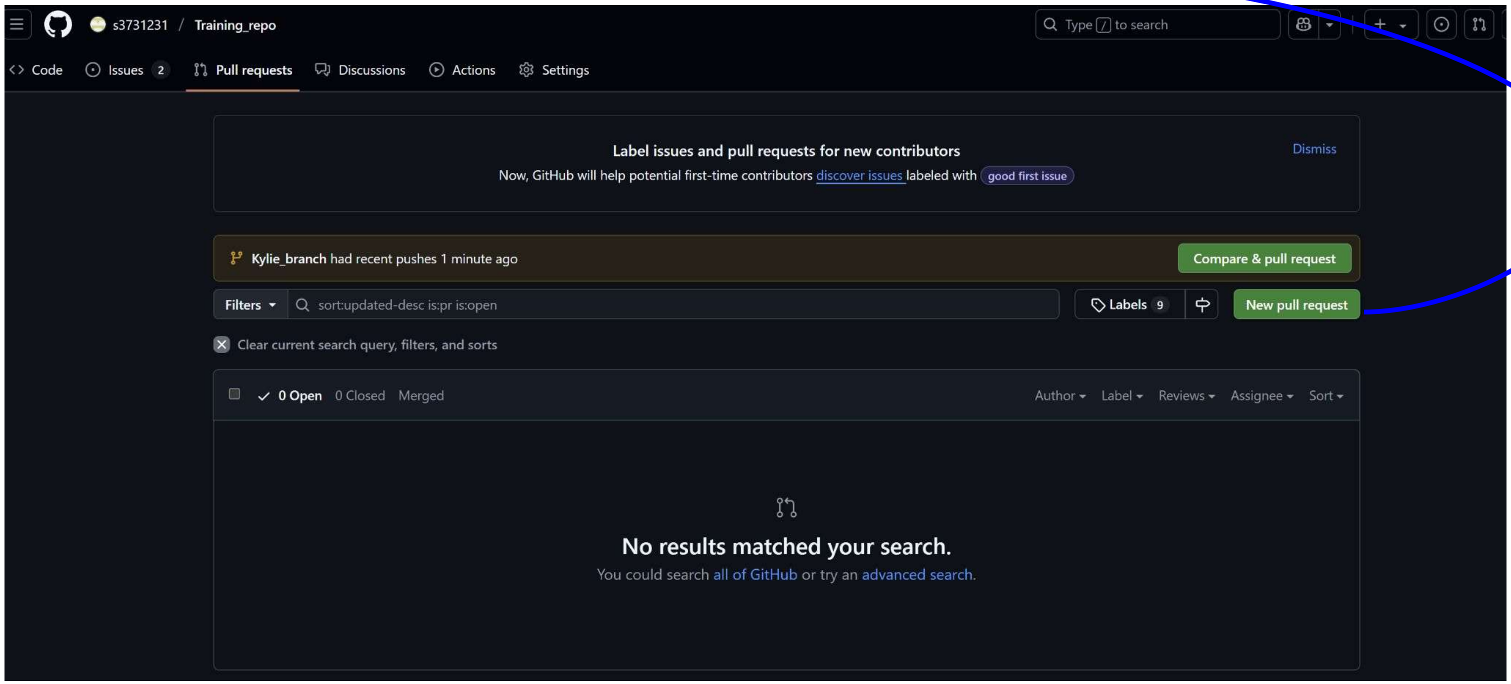
kylie.davies.1@unimelb.edu.au

● Commit directly to the `Kylie_branch` branch

○ Create a **new branch** for this commit and start a pull request Learn more about pull requests

Submitting a Pull Request in GitHub

You may make many commits during an editing session. Then submit those as a pull request. This is a package of changes you submit for approval and merging (potentially) into the main branch. Click Pull Requests and select **New Pull Request**.



Label issues and pull requests for new contributors

Now, GitHub will help potential first-time contributors discover issues labeled with good first issue

Kylie_branch had recent pushes 1 minute ago

sort:updated-desc is:pr is:open

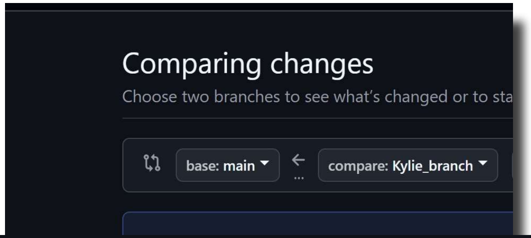
Clear current search query, filters, and sorts

No results matched your search.

You could search all of GitHub or try an advanced search.

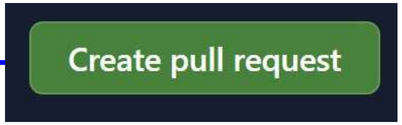
Submitting a Pull Request in GitHub

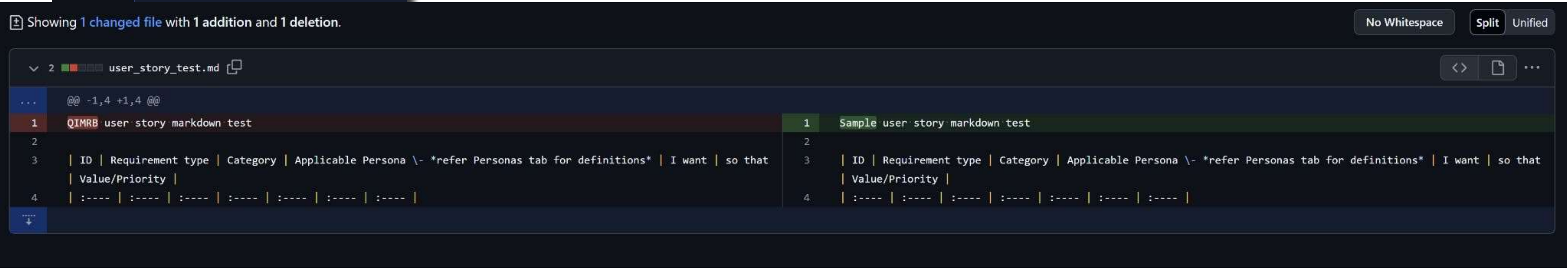
Set the compare: branch to your branch. A line by line comparison is revealed beneath for you to confirm what has been deeted and added, and the **Create Pull Request button** is enabled. Click that.



Comparing changes

Choose two branches to see what's changed or to sta



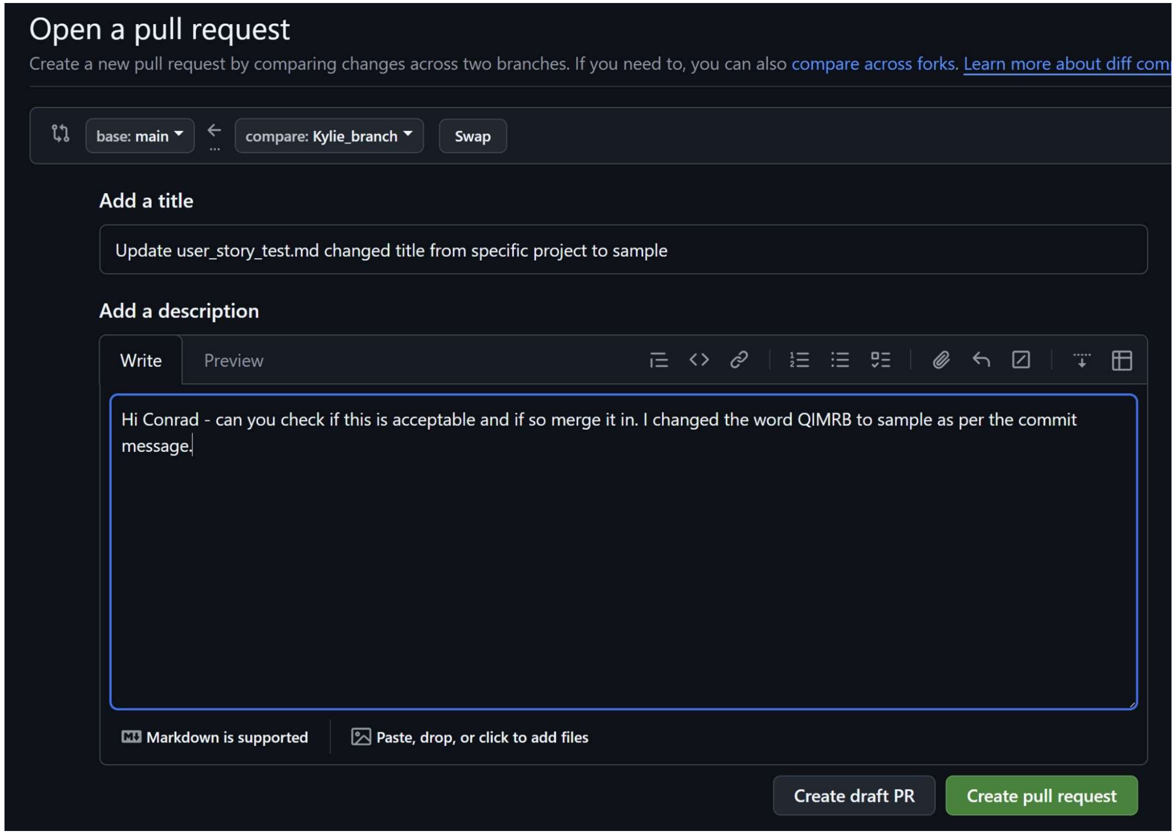


Showing 1 changed file with 1 addition and 1 deletion.

```
2  user_story_test.md
@@ -1,4 +1,4 @@
1  QIMRB user story markdown test                                 1  Sample user story markdown test
2                                                                2
3  | ID | Requirement type | Category | Applicable Persona \- *refer Personas tab for definitions* | I want | so that | Value/Priority |      3  | ID | Requirement type | Category | Applicable Persona \- *refer Personas tab for definitions* | I want | so that | Value/Priority |
4  | :---- | :---- | :---- | :---- | :---- | :---- | :---- |      4  | :---- | :---- | :---- | :---- | :---- | :---- | :---- |
```

Submitting a Pull Request in GitHub

Add a description for the person who will review and merge the pull request, then again click **Create 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. Learn more about diff com

Add a title

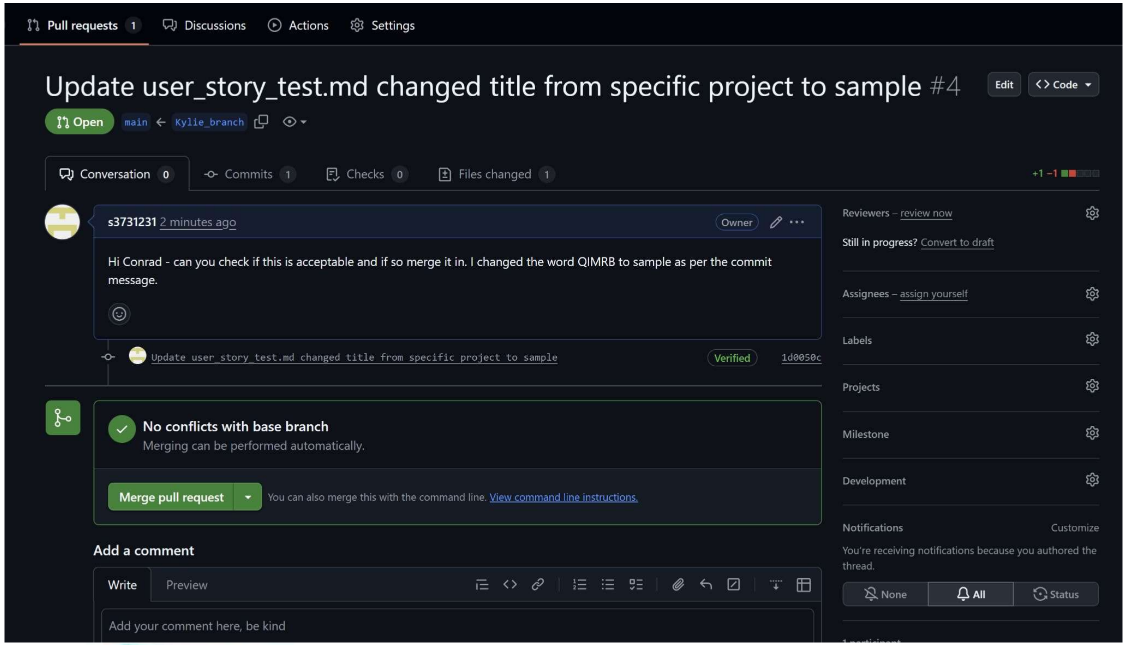
Update user_story_test.md changed title from specific project to sample

Add a description

Hi Conrad - can you check if this is acceptable and if so merge it in. I changed the word QIMRB to sample as per the commit message.

Comparing and Merging

Your collaborator will find your pull request under **Pull Requests**. They will compare to the main and make a decision on whether to merge your pull request into the main branch. You will be notified once they do. GitHub gives an indication that there are no conflicts and several other features to assist in comparing. Once satisfied, they click **Merge Pull Request** then can add a comment then click **Confirm Merge** to bring your package of changes into the Main Branch.



Update user_story_test.md changed title from specific project to sample #4

s3731231 2 minutes ago

Hi Conrad - can you check if this is acceptable and if so merge it in. I changed the word QIMRB to sample as per the commit message.

Update user_story_test.md changed title from specific project to sample — Verified — 1d0050c

No conflicts with base branch

Merging can be performed automatically.

You can also merge this with the command line. View command line instructions.

Still in progress? Convert to draft

You're receiving notifications because you authored the thread.

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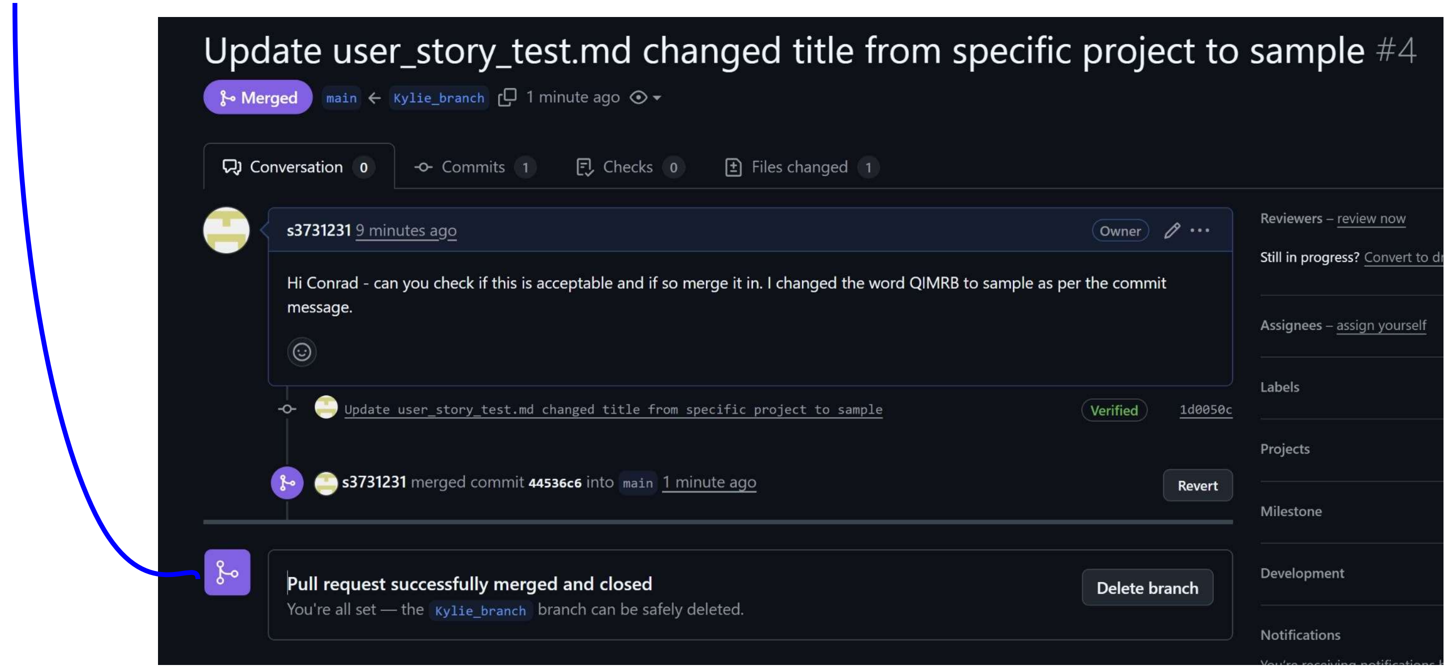
Remember to update & close the Issue

If your package of changes was triggered by an Issue, navigate back to the issue and update the issue with a comment and close it. This lets the issue raiser know you have taken their suggestion onboard and keeps the Issues folder tidy, preventing you or your team-mates working on issues already addressed.

Branch Hygiene - delete your branch

Once your branch has been merged into Main, you need to delete it, because its purpose has been served and it will be out of date once any other pull requests are merged into the Main. The neat thing about the browser GitHub is that it prompts you immediately after merging to delete your branch with a single click. Create a new branch to create a new suite of changes.



Update user_story_test.md changed title from specific project to sample #4

s3731231 9 minutes ago

Hi Conrad - can you check if this is acceptable and if so merge it in. I changed the word QIMRB to sample as per the commit message.

`Update user_story_test.md changed title from specific project to sample`

s3731231 merged commit 44536c6 into main 1 minute ago

Pull request successfully merged and closed

You're all set — the Kylie_branch branch can be safely deleted.

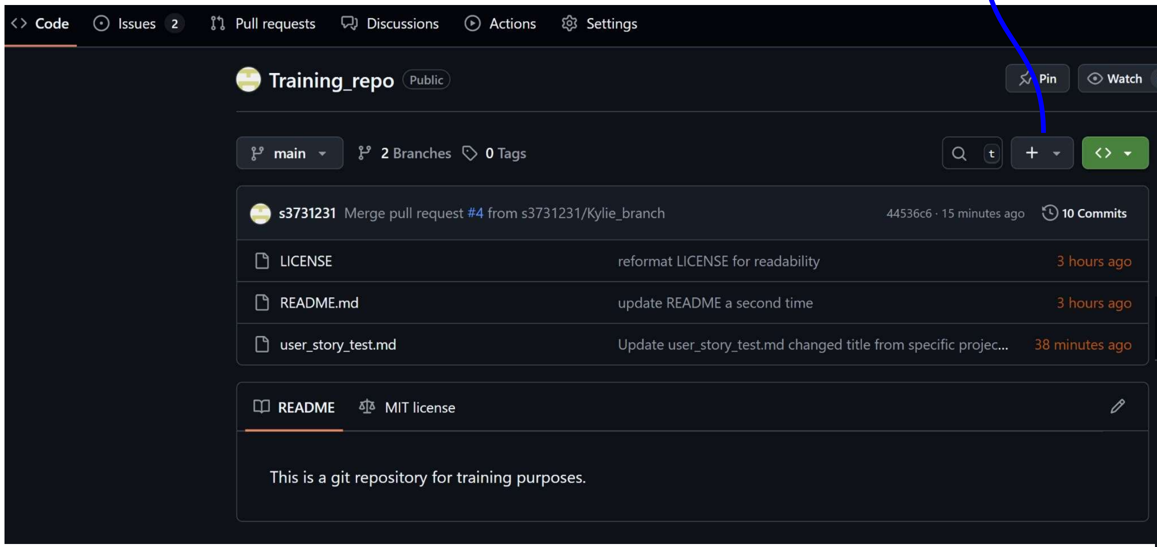
Markdown - a cheat’s guide

In Google docs, you can download a file in Markdown format. This is a shortcut to creating a markdown format file in GitHub through copying and pasting directly into a Git file. A copy of a Google doc and its corresponding markdown file are supplied with these slides.

Remember when creating a new markdown file in Git to give it the file suffix *.md so that GitHub displays the markdown file neatly.

Create a file and edit in markdown

From the Code screen Click the + above the list of files to add a file. Remember to add .md to the name to indicate markdown format. Using our cheat file copy and paste the content then click **Commit Changes**.

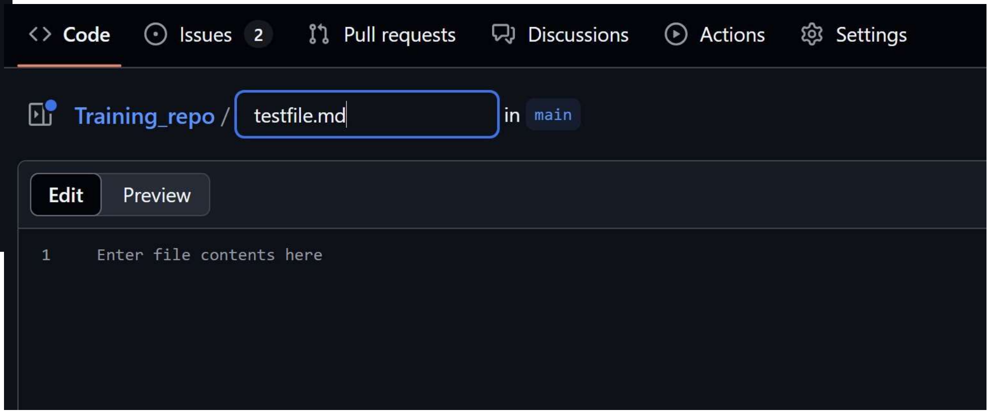


s3731231 Merge pull request #4 from s3731231/Kylie_branch 44536c6 · 15 minutes ago 10 Commits

LICENSE	reformat LICENSE for readability	3 hours ago
README.md	update README a second time	3 hours ago
user_story_test.md	Update user_story_test.md changed title from specific projec...	38 minutes ago

This is a git repository for training purposes.

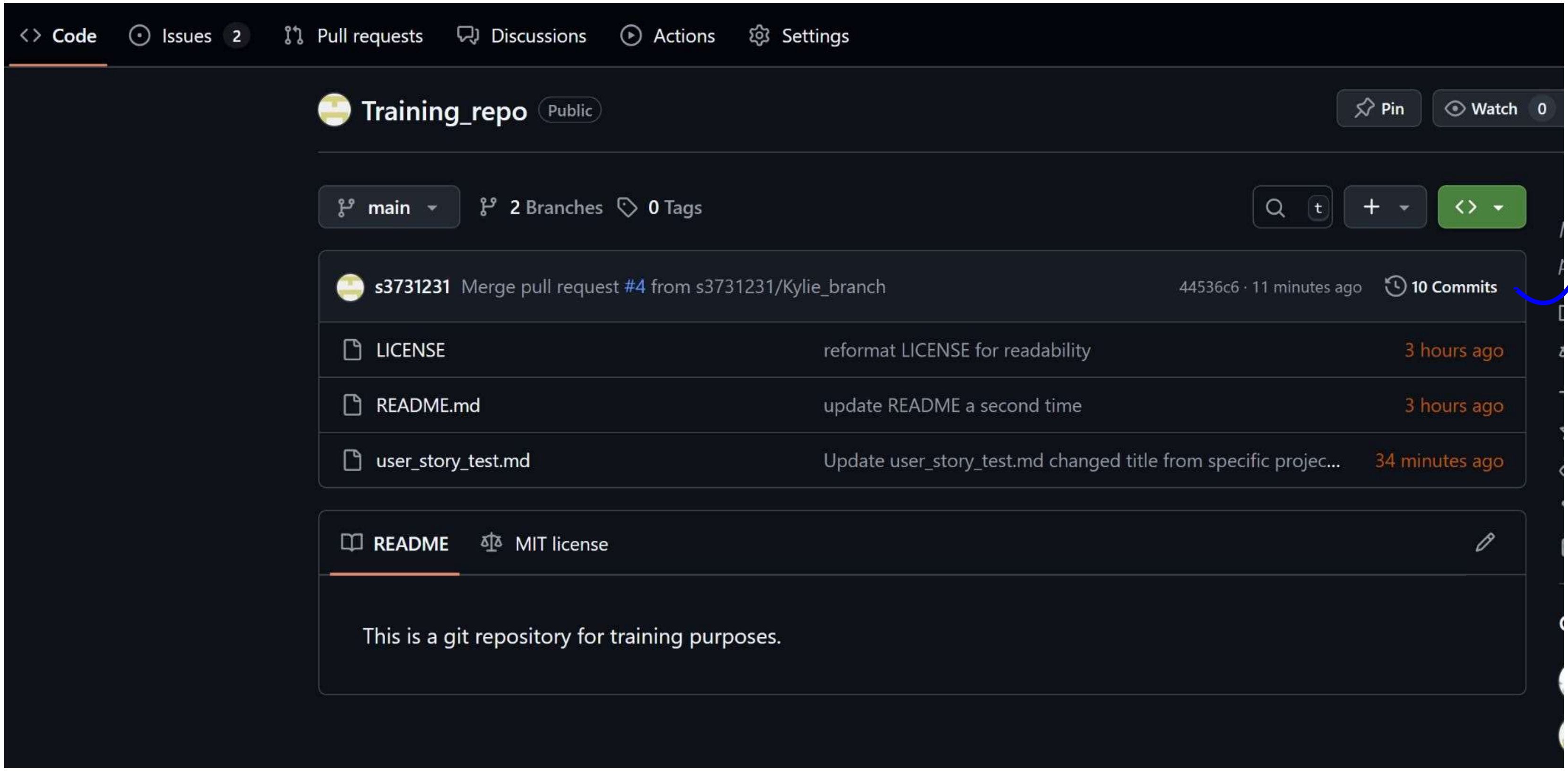
(To create a folder: add a slash to the name then enter a filename - the folder and file will be created simultaneously.)



Training_repo / testfile.md in main

```
Enter file contents here
```

Looking at the commit (version) history

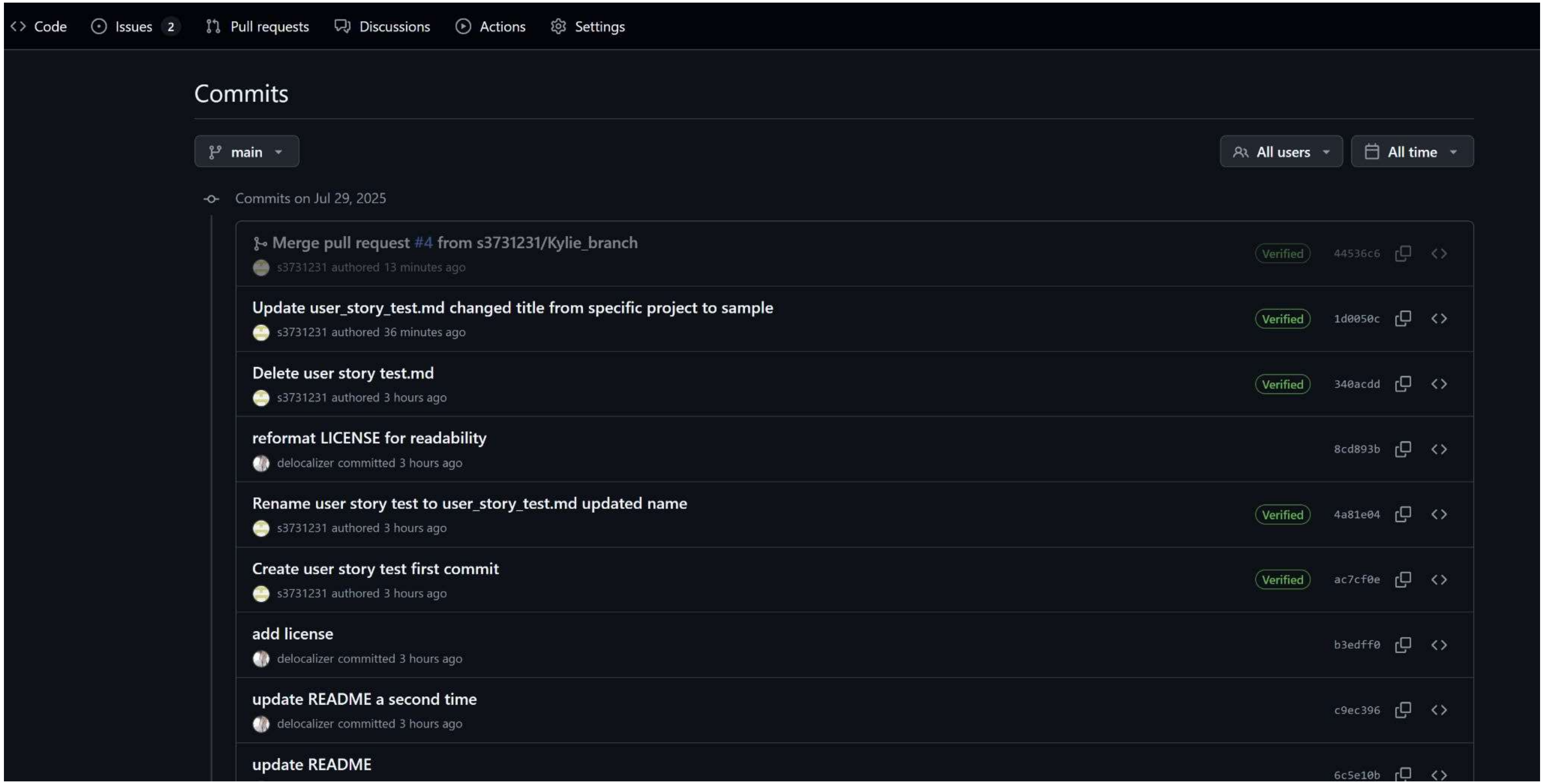


s3731231 Merge pull request #4 from s3731231/Kylie_branch 44536c6 · 11 minutes ago 10 Commits

LICENSE	reformat LICENSE for readability	3 hours ago
README.md	update README a second time	3 hours ago
user_story_test.md	Update user_story_test.md changed title from specific projec...	34 minutes ago

This is a git repository for training purposes.

Looking at the commit (version) history



Commits

Commits on Jul 29, 2025

Merge pull request #4 from s3731231/Kylie_branch
s3731231 authored 13 minutes ago — Verified — 44536c6

Update user_story_test.md changed title from specific project to sample
s3731231 authored 36 minutes ago — Verified — 1d0050c

Delete user story test.md
s3731231 authored 3 hours ago — Verified — 340acdd

reformat LICENSE for readability
delocalizer committed 3 hours ago — 8cd893b

Rename user story test to user_story_test.md updated name
s3731231 authored 3 hours ago — Verified — 4a81e04

Create user story test first commit
s3731231 authored 3 hours ago — Verified — ac7cf0e

add license
delocalizer committed 3 hours ago — b3edff0

update README a second time
delocalizer committed 3 hours ago — c9ec396

update README — 6c5e10b

Recommended Resources

- CLI novice course https://swcarpentry.github.io/git-novice/
- Make a repo in the browser

  https://www.linkedin.com/learning/github-essential-training-1-the-basics/making-a-repo-in-the-browser?u=2251738
- Create an issue in the browser

  https://www.linkedin.com/learning/github-essential-training-1-the-basics/creating-an-issue?resume=false&u=2251738
- Markdown course

  https://www.linkedin.com/learning/learning-gitlab-25489521/markdown-basics?u=2251738

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