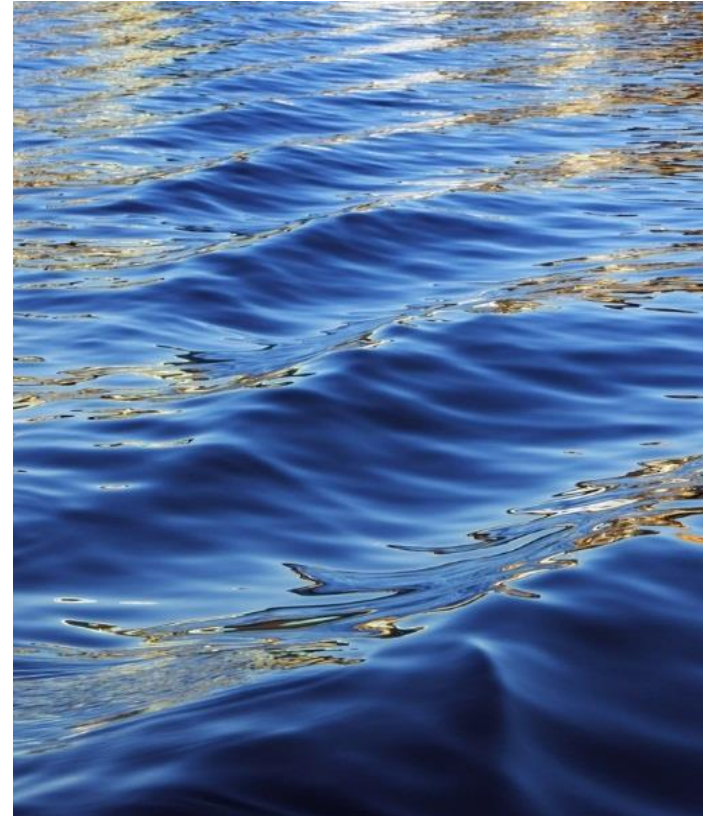




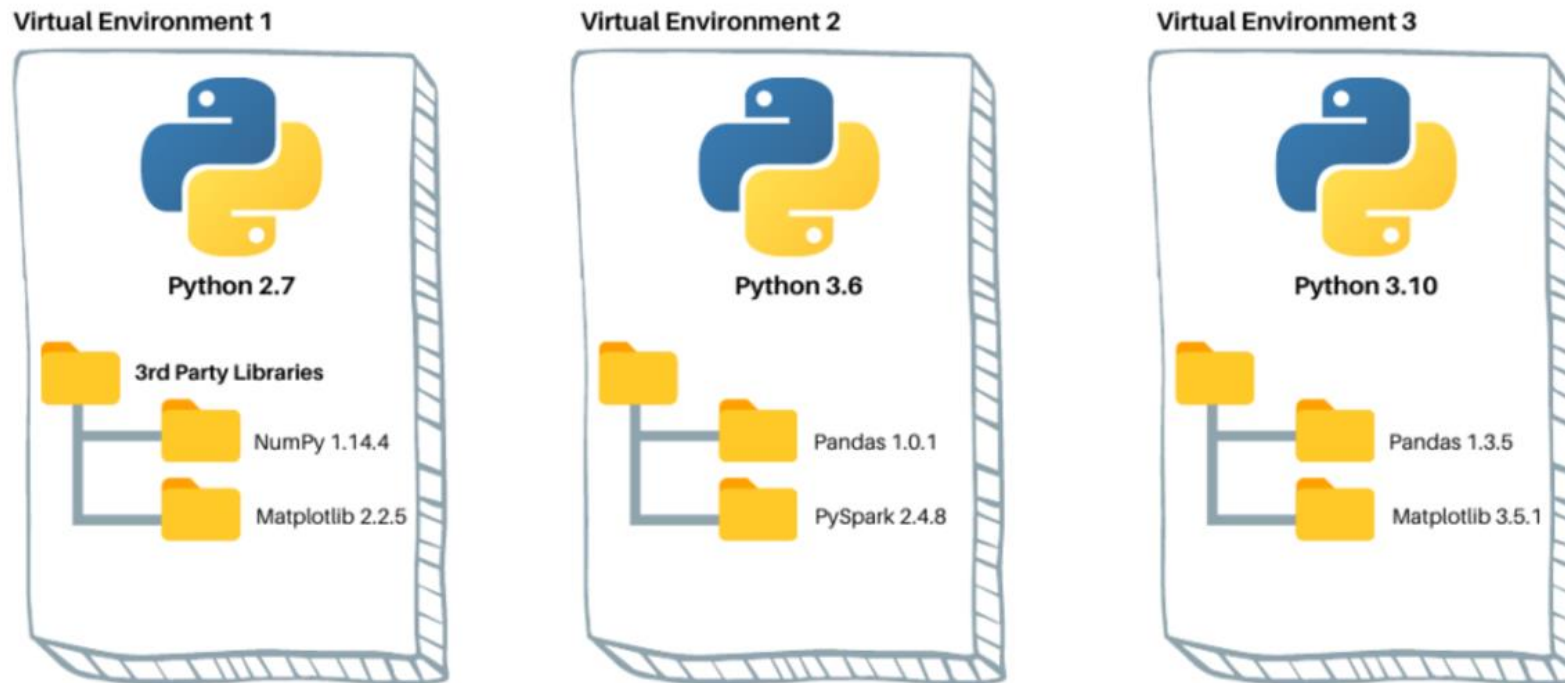
Virtual Environment & Git Hub

Lecture 2



Why you need virtual environments

- ❑ Preventing version conflicts
- ❑ Easy to reproduce and install
- ❑ Works everywhere, even when not administrator (root)



How to create a Python **venv**

If you are running Python 3.4+, you can use the venv module baked into Python:

```
python -m venv <directory>
```

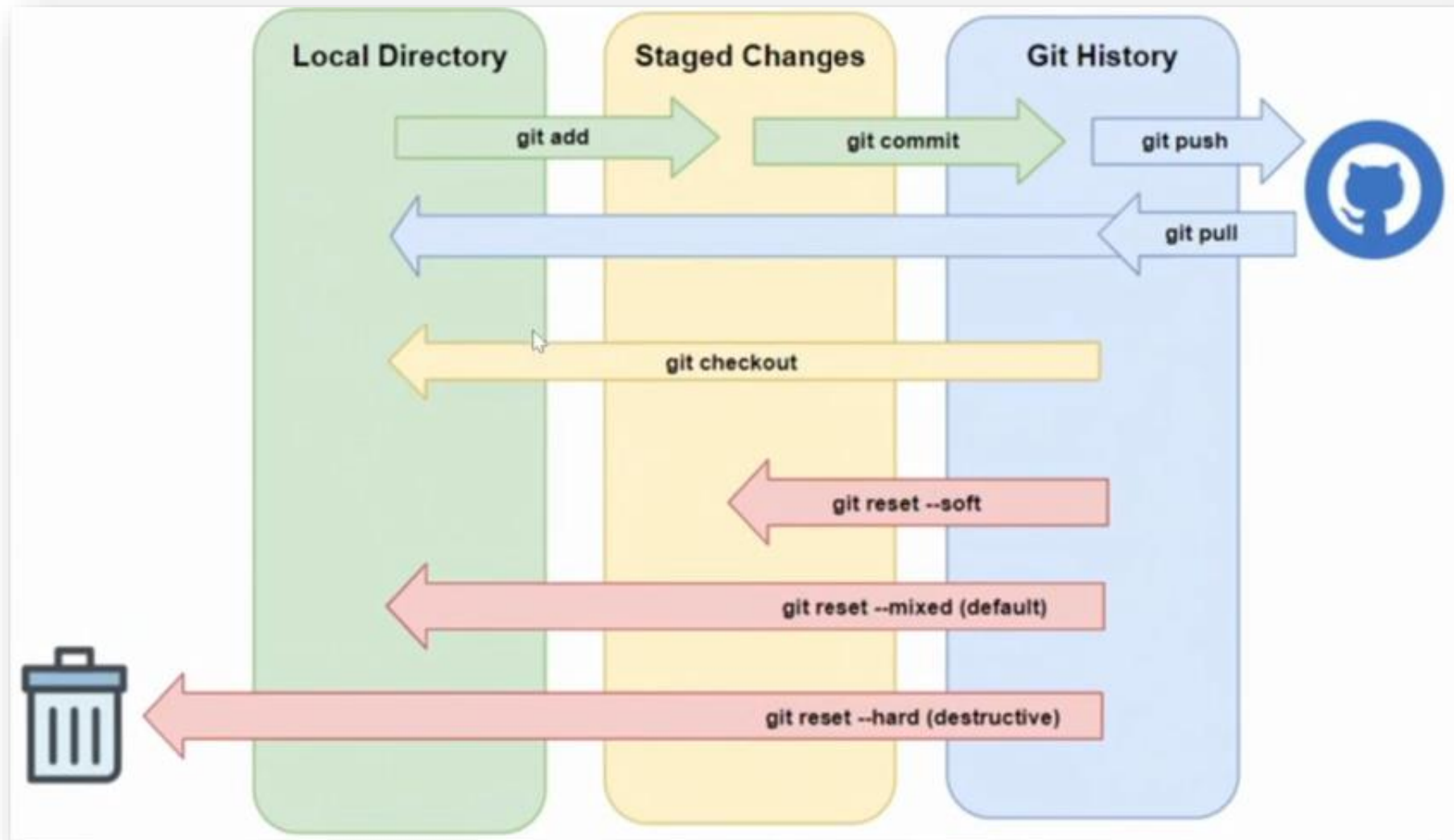
To activate your venv on Windows, you need to run a script that gets installed by venv.

If you created your venv in a directory called myenv, the command would be:

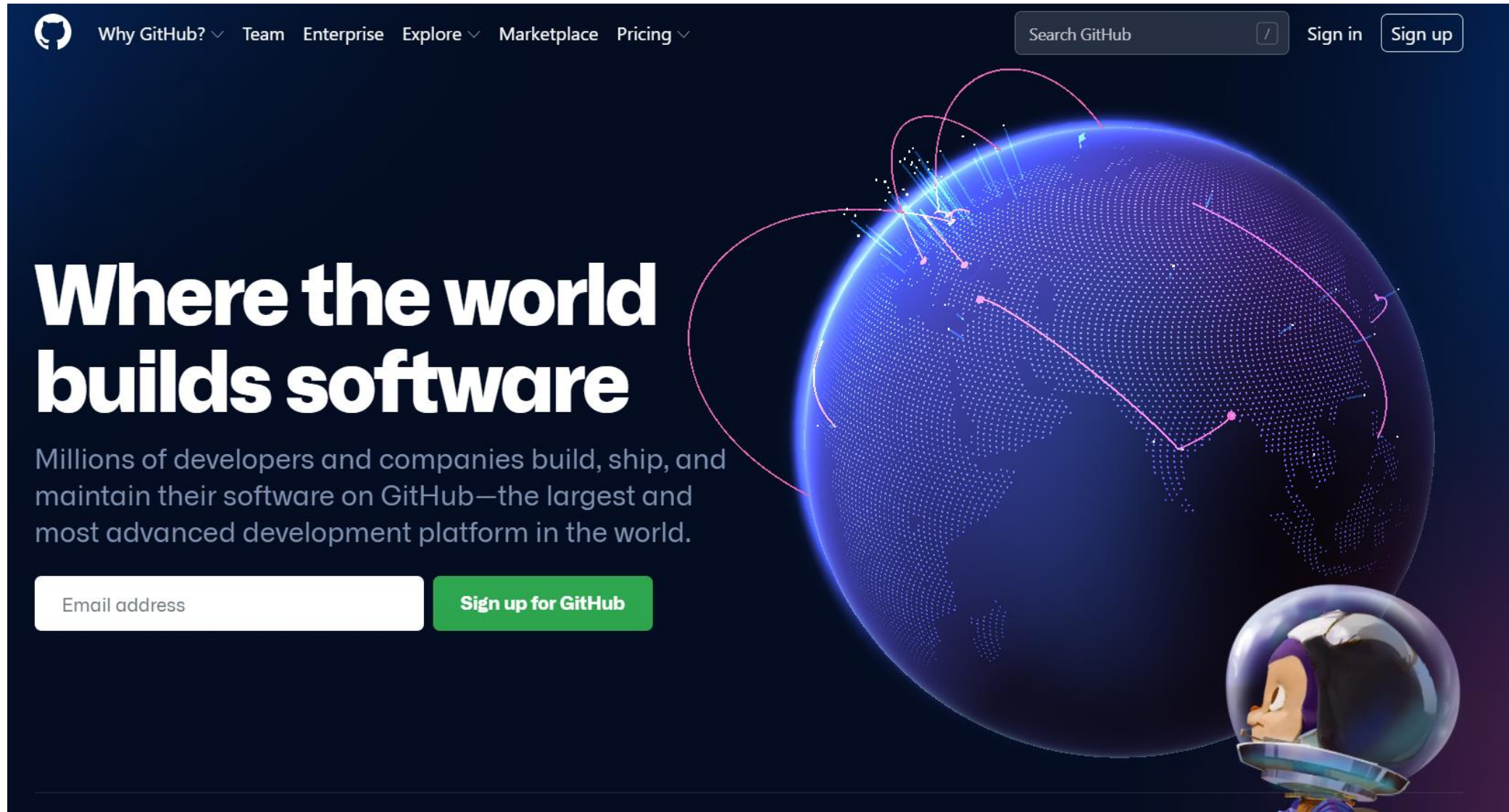
```
# In cmd.exe  
venv\Scripts\activate.bat
```

```
# In PowerShell  
venv\Scripts\Activate.ps1
```

GitHub



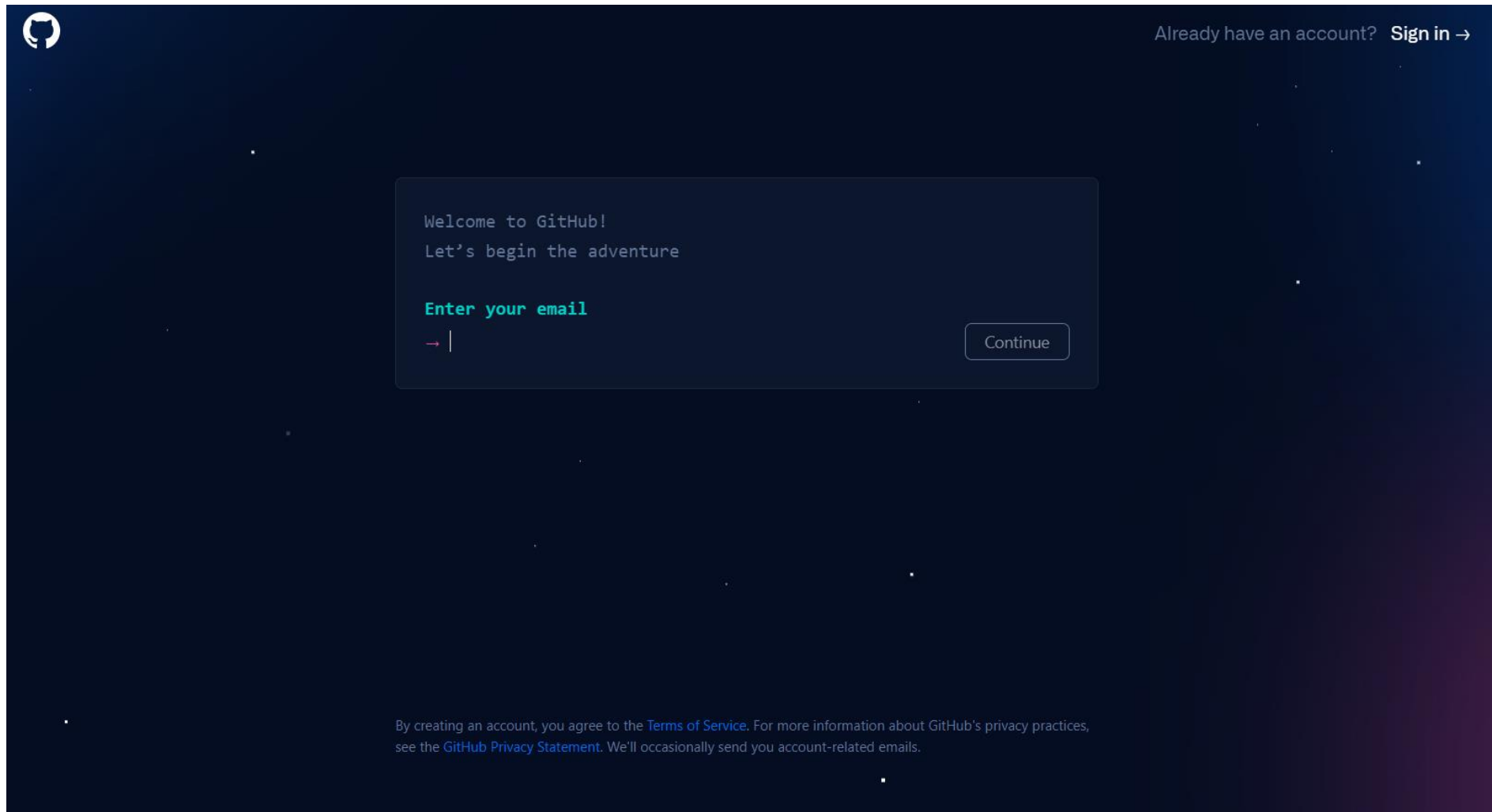
GitHub



GitHub – Sign up

[1] Enter your email & password for GitHub

[2] Enter a username



The image shows the GitHub sign-up interface. At the top left is the GitHub logo. At the top right, it says "Already have an account? [Sign in](#) →". The main content area has a dark blue background. In the center, there's a lighter blue box with the text "Welcome to GitHub!" and "Let's begin the adventure". Below this, it says "Enter your email" in green. There is a text input field with a red cursor and a "Continue" button to its right. At the bottom, there's a small text block: "By creating an account, you agree to the [Terms of Service](#). For more information about GitHub's privacy practices, see the [GitHub Privacy Statement](#). We'll occasionally send you account-related emails."

Welcome to GitHub!
Let's begin the adventure

Enter your email

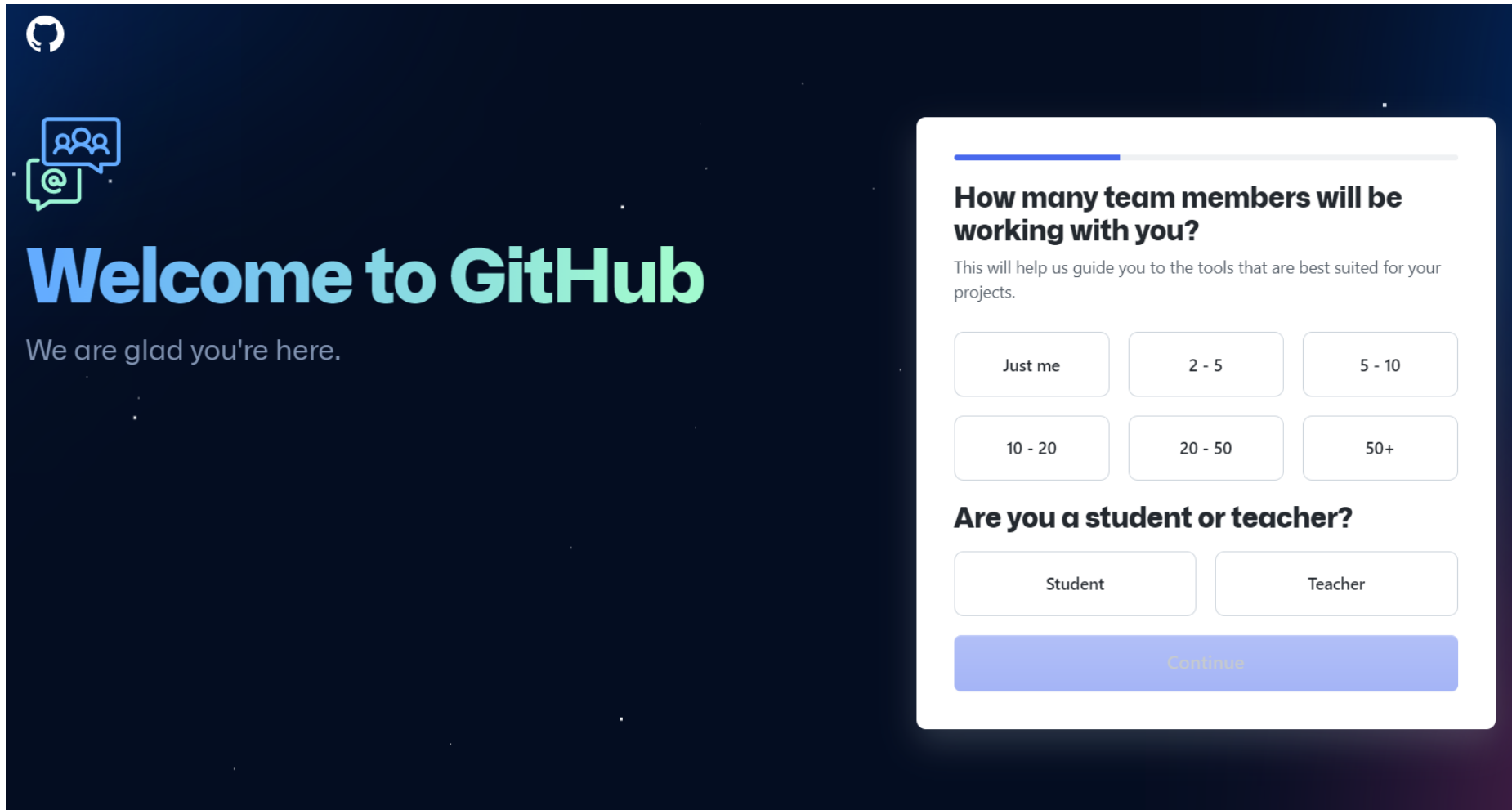
→ |

Continue

By creating an account, you agree to the [Terms of Service](#). For more information about GitHub's privacy practices, see the [GitHub Privacy Statement](#). We'll occasionally send you account-related emails.

GitHub – Sign up

[3] Keep following the instructions



The image shows the GitHub sign-up form. On the left, the GitHub logo is at the top, followed by an icon of two speech bubbles with people icons inside. Below this, the text "Welcome to GitHub" is displayed in a large, bold, light blue font, with "We are glad you're here." in a smaller, lighter blue font underneath. On the right, a white form box contains a progress bar at the top. The first question is "How many team members will be working with you?" with a subtext "This will help us guide you to the tools that are best suited for your projects." Below this are six buttons: "Just me", "2 - 5", "5 - 10", "10 - 20", "20 - 50", and "50+". The second question is "Are you a student or teacher?" with two buttons: "Student" and "Teacher". At the bottom of the form box is a large blue "Continue" button.

Welcome to GitHub
We are glad you're here.

How many team members will be working with you?
This will help us guide you to the tools that are best suited for your projects.

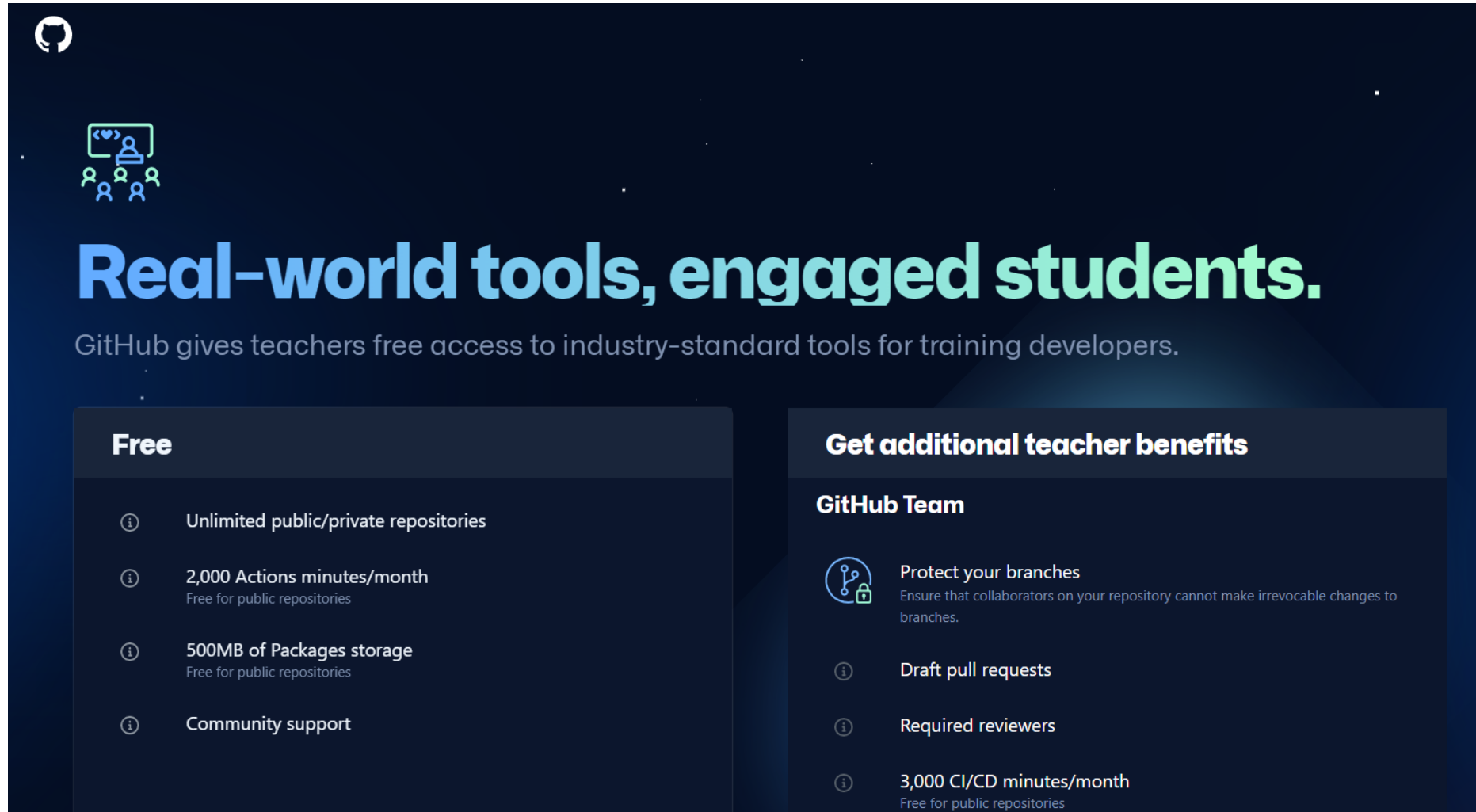
Just me 2 - 5 5 - 10
10 - 20 20 - 50 50+

Are you a student or teacher?
Student Teacher

Continue

GitHub – Sign up

[4] Select a **Free** plan



The screenshot shows the GitHub sign-up page for teachers. At the top left is the GitHub logo. Below it is an icon representing a classroom with a teacher and students. The main heading is "Real-world tools, engaged students." in a large, bold, light blue font. Below this is a subheading: "GitHub gives teachers free access to industry-standard tools for training developers." in a smaller, light blue font. The page is divided into two main sections: "Free" and "Get additional teacher benefits". The "Free" section lists four benefits: "Unlimited public/private repositories", "2,000 Actions minutes/month" (with a note "Free for public repositories"), "500MB of Packages storage" (with a note "Free for public repositories"), and "Community support". The "Get additional teacher benefits" section is titled "GitHub Team" and lists three benefits: "Protect your branches" (with a note "Ensure that collaborators on your repository cannot make irrevocable changes to branches."), "Draft pull requests", and "3,000 CI/CD minutes/month" (with a note "Free for public repositories").

Free

- Unlimited public/private repositories
- 2,000 Actions minutes/month
Free for public repositories
- 500MB of Packages storage
Free for public repositories
- Community support

Get additional teacher benefits

GitHub Team

- Protect your branches
Ensure that collaborators on your repository cannot make irrevocable changes to branches.
- Draft pull requests
- Required reviewers
- 3,000 CI/CD minutes/month
Free for public repositories

GitHub – Sign up

[5] Registration is complete

The screenshot shows the GitHub web interface after a successful sign-up. The top navigation bar includes the GitHub logo, a search bar, and links for Pull requests, Issues, Marketplace, and Explore. On the left sidebar, there's a section for 'Create your first project' with buttons for 'Create repository' and 'Import repository', and a 'Recent activity' section. The main content area features a dark-themed card with the heading 'Learn Git and GitHub without any code!' and two buttons: 'Read the guide' and 'Start a project'. Below this, another card titled 'Introduce yourself' provides instructions on creating a README and displays a sample README content for 'gladiusgit / README.md'. The sample content is a list of five items: a 🦉 icon for a greeting, a 👁 icon for interests, a 🦉 icon for learning, a 🦉 icon for collaboration, and a 📖 icon for contact information. At the bottom of this card are 'Dismiss this' and 'Continue' buttons.

Create your first project

Ready to start building? Create a repository for a new idea or bring over an existing repository to keep contributing to it.

Create repository Import repository

Recent activity

When you take actions across GitHub, we'll provide links to that activity here.

Learn Git and GitHub without any code!

Using the Hello World guide, you'll create a repository, start a branch, write comments, and open a pull request.

Read the guide Start a project

All activity

Introduce yourself

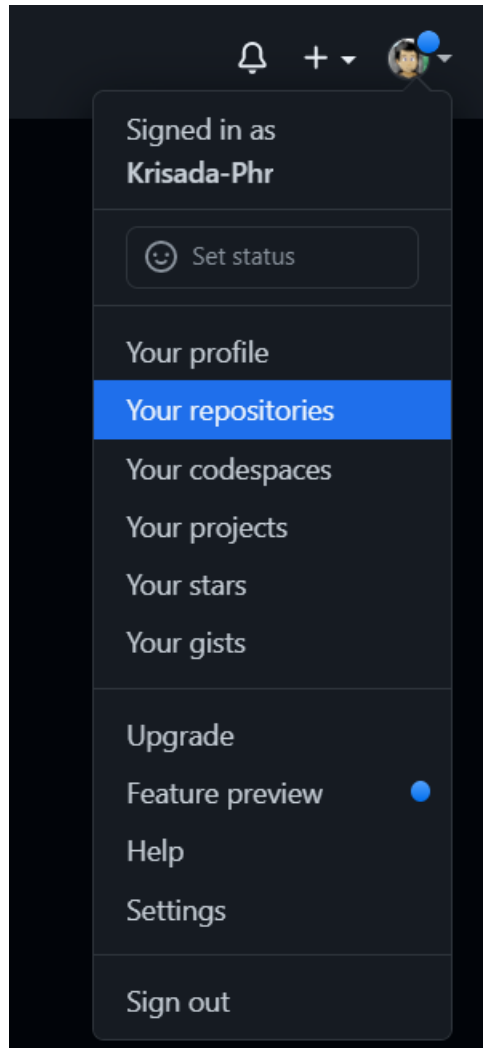
The easiest way to introduce yourself on GitHub is by creating a README in a repository about you! You can start here:

```
gladiusgit / README.md
```

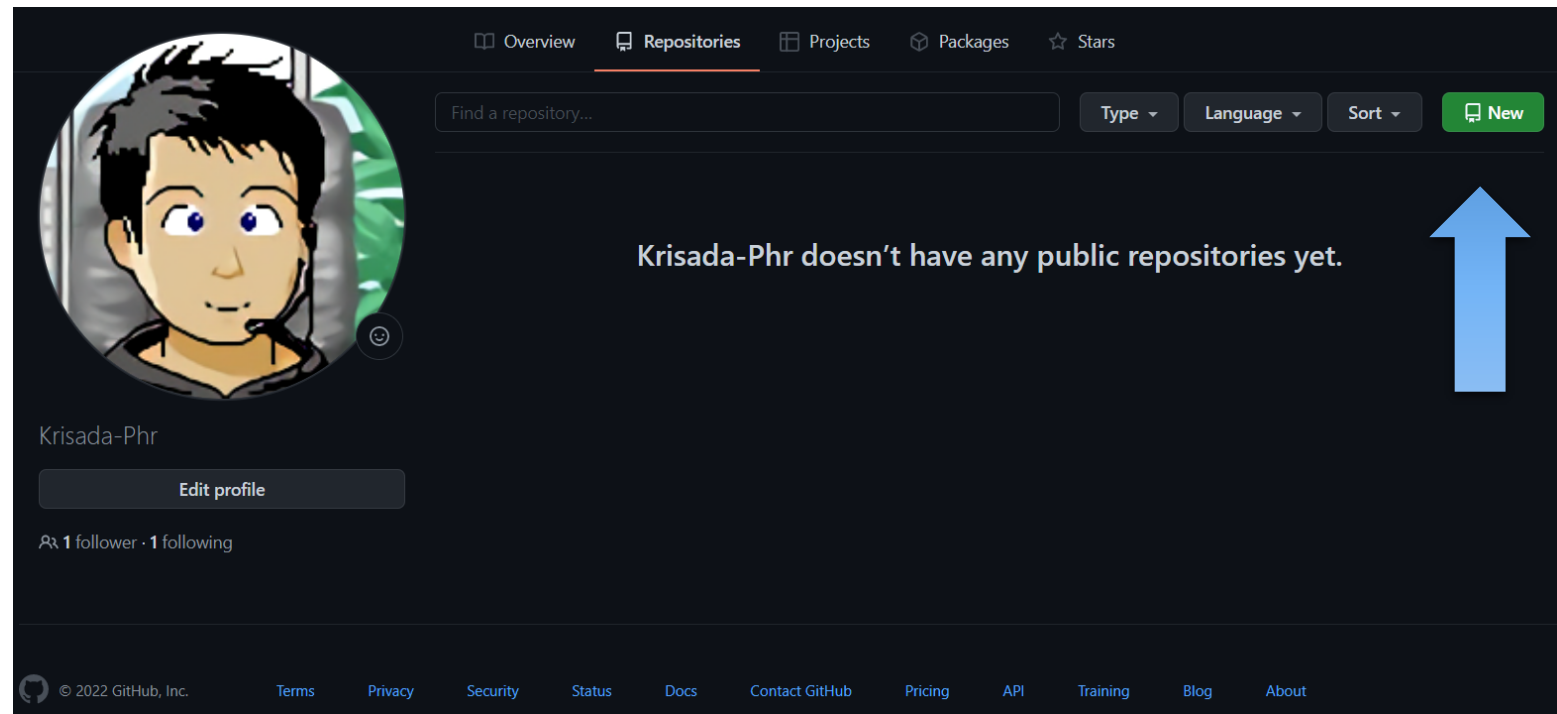
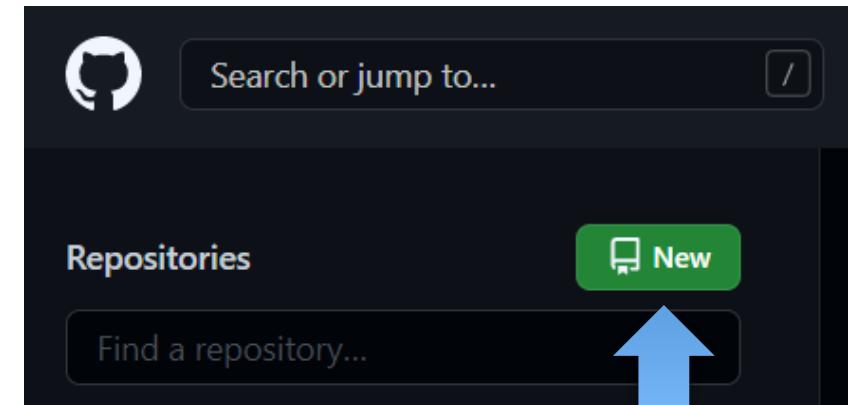
```
1 - 🦉 Hi, I'm @gladiusgit
2 - 👁 I'm interested in ...
3 - 🦉 I'm currently learning ...
4 - 🦉 I'm looking to collaborate on ...
5 - 📖 How to reach me ...
6
```

Dismiss this Continue

GitHub – Create Repository



[1] Click new repository



Repository: a place, building, or receptacle where things are or may be stored.

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository.](#)

Owner *



Krisada-Phr ▾

Repository name *

/ RepoTest



Great repository names are short and memorable. Need inspiration? How about [ubiquitous-giggle?](#)

Description (optional)



Public

Anyone on the internet can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.

Initialize this repository with:

Skip this step if you're importing an existing repository.



Add a README file

This is where you can write a long description for your project. [Learn more.](#)




Add .gitignore

Choose which files not to track from a list of templates. [Learn more.](#)



Choose a license

A license tells others what they can and can't do with your code. [Learn more.](#)

This will set  main as the default branch. Change the default name in your [settings](#).

Create repository

[2] Set repository name

GitHub – Create Repository

The screenshot shows the GitHub interface for a newly created repository named 'RepoTest' by user 'Krisada-Phr'. The repository is private. The top navigation bar includes links for Code, Issues, Pull requests, Actions, Projects, Security, Insights, and Settings. On the right, there are buttons for Unwatch (1), Fork (0), and Star (0). Below the navigation bar, the repository details show the 'main' branch with 1 branch and 0 tags. A commit history table shows one commit: 'Krisada-Phr Initial commit' with hash 'cf414a9' and timestamp 'now'. Below the commit, a file named 'README.md' is listed as the 'Initial commit'. The main content area displays the 'README.md' file content, which includes the text 'RepoTest'. On the right sidebar, the 'About' section states 'No description, website, or topics provided.' and shows 0 stars, 1 watching, and 0 forks. The 'Releases' section states 'No releases published' with a link to 'Create a new release'. The 'Packages' section states 'No packages published' with a link to 'Publish your first package'.

Krisada-Phr / RepoTest Private

Unwatch 1 Fork 0 Star 0

Code Issues Pull requests Actions Projects Security Insights Settings

main 1 branch 0 tags Go to file Add file Code

Commit	Hash	Time	Commits
Krisada-Phr Initial commit	cf414a9	now	1 commit

README.md Initial commit now

README.md

RepoTest

About

No description, website, or topics provided.

Readme 0 stars 1 watching 0 forks

Releases

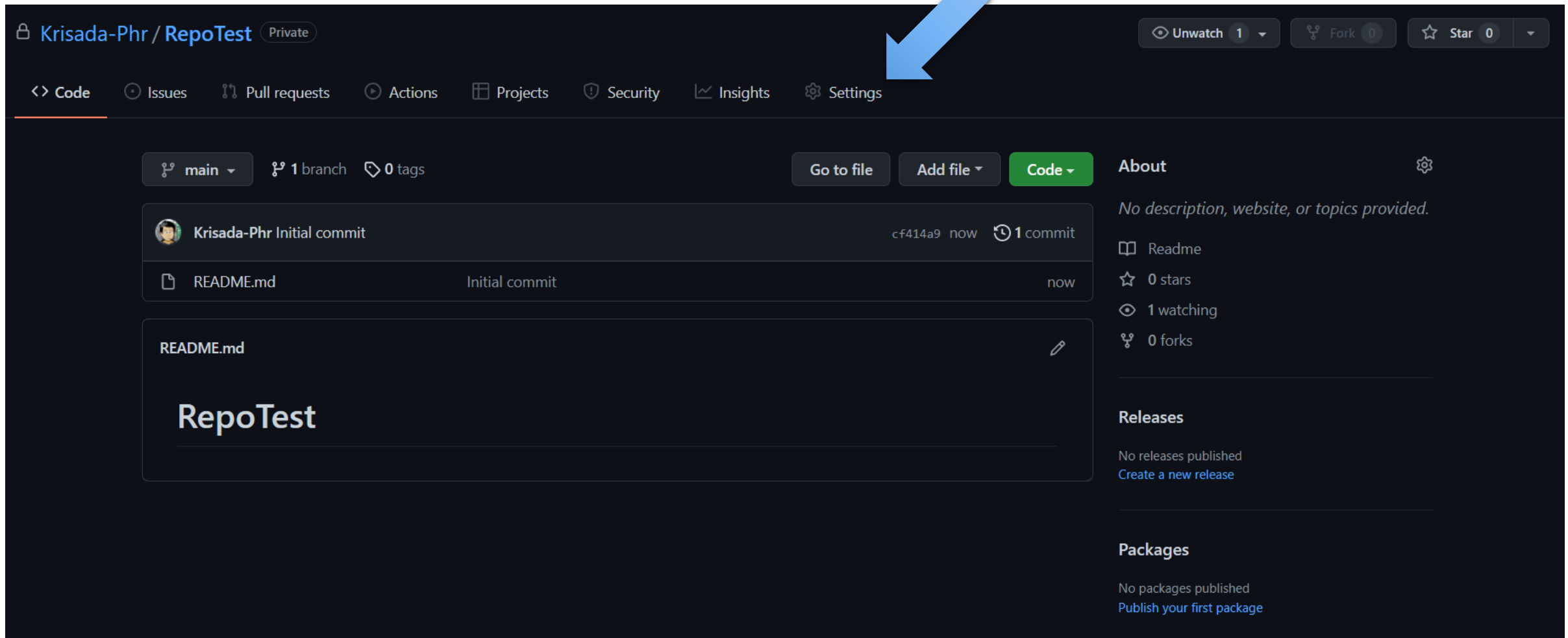
No releases published
[Create a new release](#)

Packages

No packages published
[Publish your first package](#)

GitHub – Delete Repository

[1] Settings



The screenshot shows the GitHub interface for a repository named 'RepoTest' by user 'Krisada-Phr'. The repository is private. The top navigation bar includes links for Code, Issues, Pull requests, Actions, Projects, Security, Insights, and Settings. A blue arrow points to the 'Settings' link. Below the navigation bar, the repository details show the 'main' branch with 1 branch and 0 tags. The commit history shows an initial commit by 'Krisada-Phr' with the message 'Initial commit'. The README file is visible, titled 'RepoTest'. On the right side, the 'About' section shows no description, website, or topics provided. The 'Releases' section shows no releases published. The 'Packages' section shows no packages published.

Krisada-Phr / RepoTest Private

Unwatch 1 Fork 0 Star 0

<> Code Issues Pull requests Actions Projects Security Insights Settings

main 1 branch 0 tags Go to file Add file Code

Krisada-Phr Initial commit cf414a9 now 1 commit

README.md Initial commit now

README.md

RepoTest

About No description, website, or topics provided.

Readme 0 stars 1 watching 0 forks

Releases No releases published Create a new release

Packages No packages published Publish your first package

GitHub – Delete Repository

Danger Zone

Change repository visibility
This repository is currently private.

Change visibility

Transfer ownership
Transfer this repository to another user or to an organization where you have the ability to create repositories.

Transfer

Archive this repository
Mark this repository as archived and read-only.

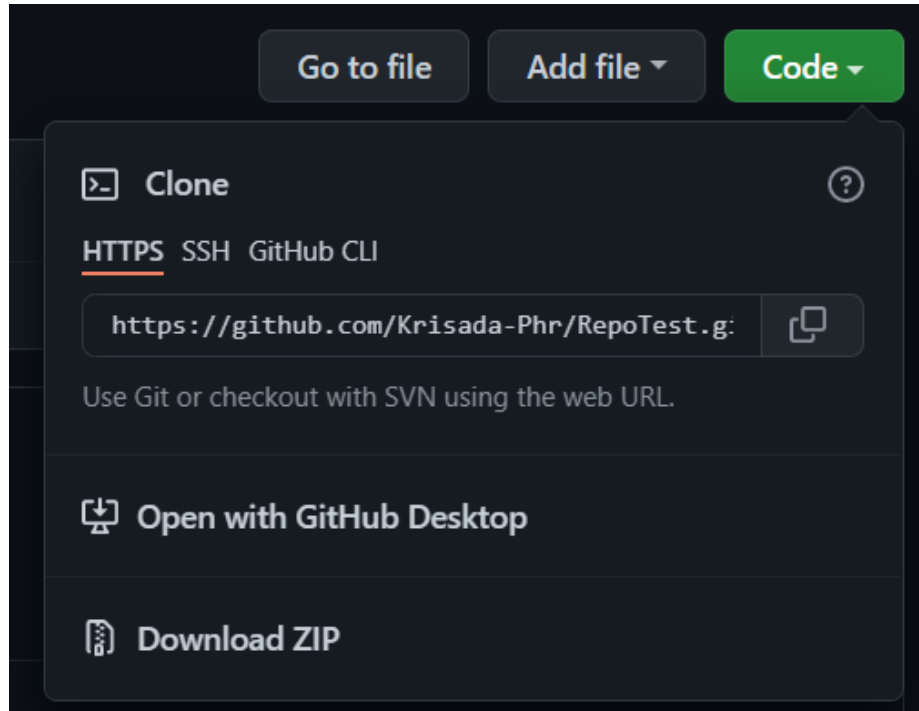
Archive this repository

Delete this repository
Once you delete a repository, there is no going back. Please be certain.

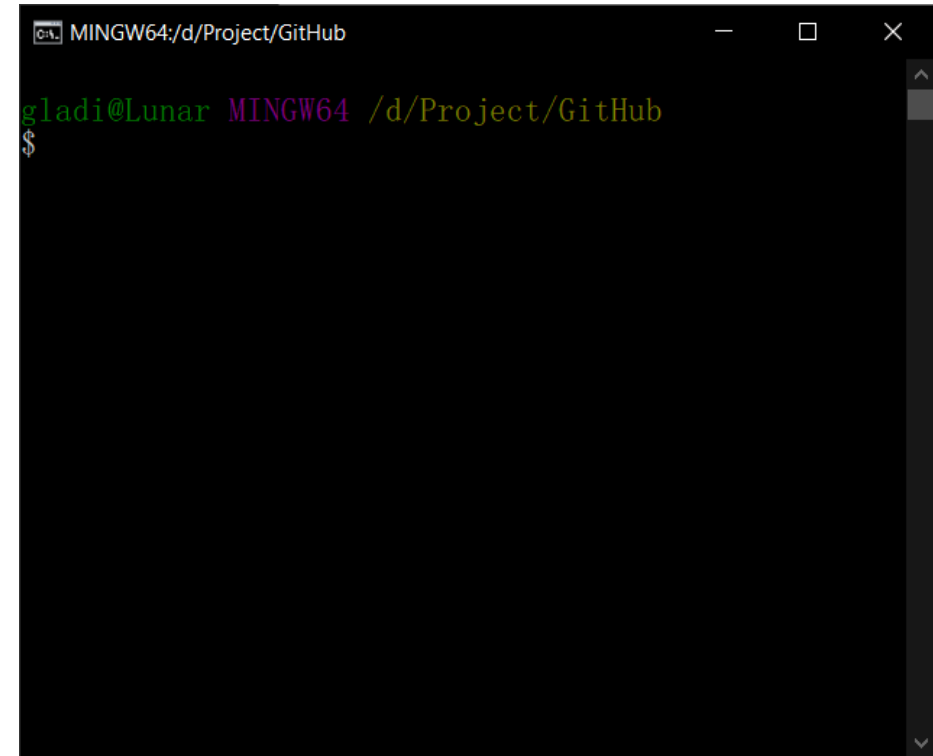
Delete this repository

[2] Click & Confirm

GitHub – Clone Repository (with HTTPS)



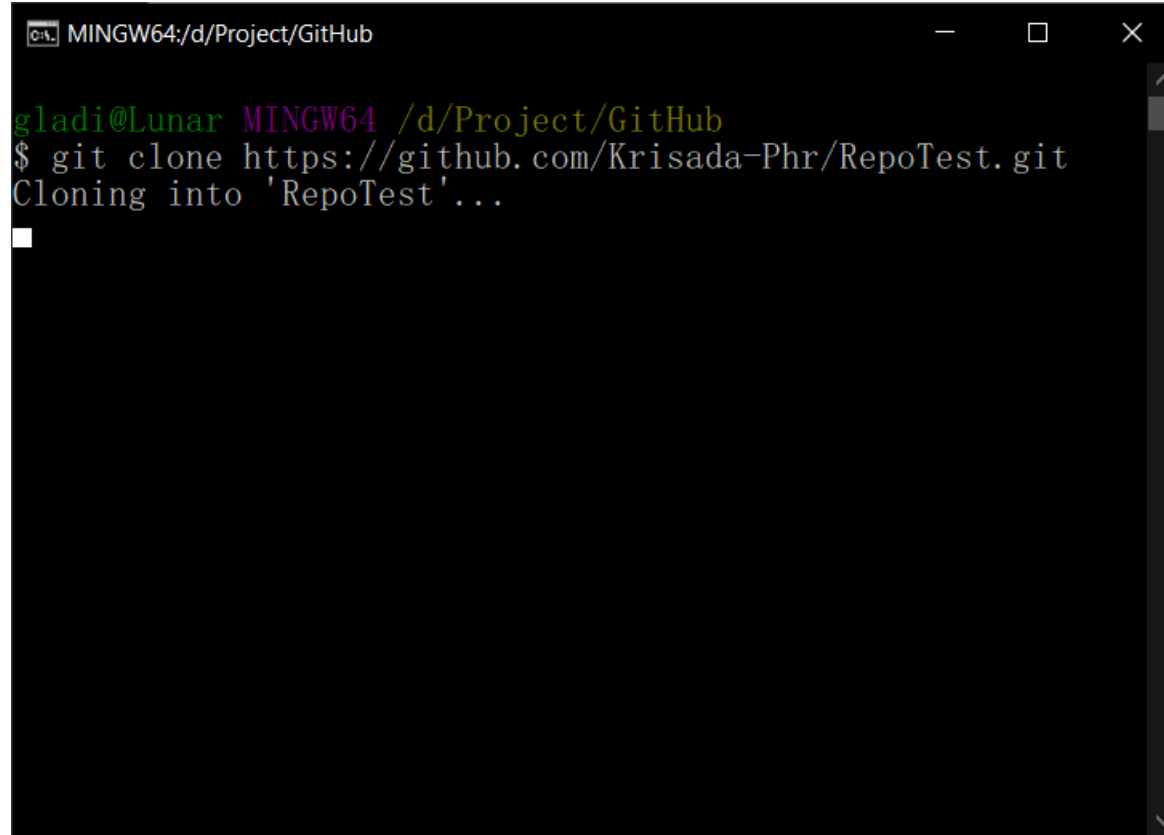
[1] Copy URL from HTTPS



[2] Open Git Bash

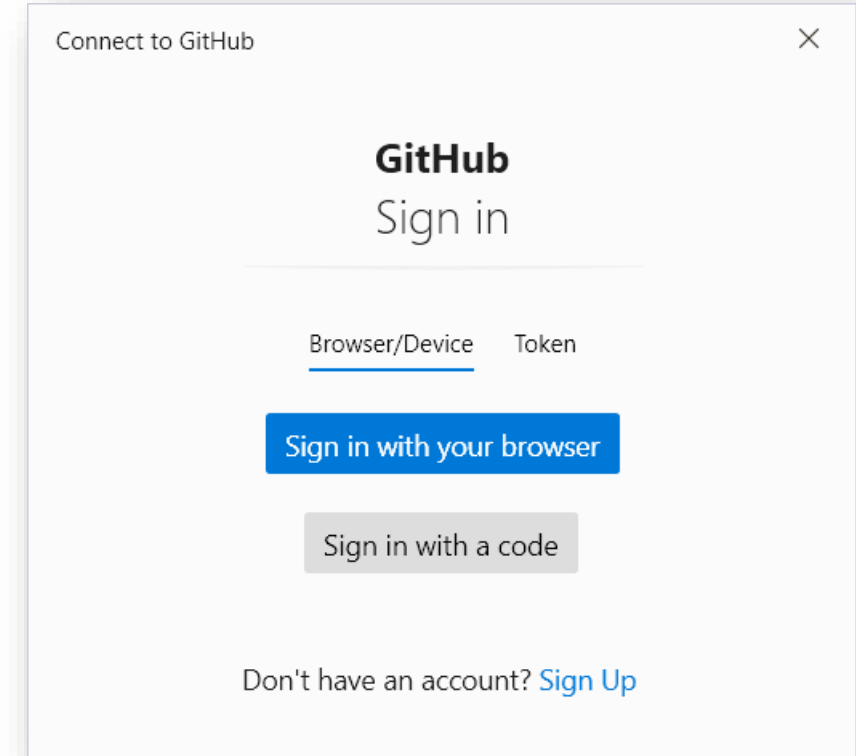
[3] Go to directory you want to clone
(for me D:\Project\GitHub)

GitHub – Clone Repository (with HTTPS)

A terminal window with a black background and white text. The title bar reads 'MINGW64:/d/Project/GitHub'. The prompt is 'gladi@Lunar MINGW64 /d/Project/GitHub'. The command entered is '\$ git clone https://github.com/Krisada-Phr/RepoTest.git'. The output is 'Cloning into 'RepoTest'...' followed by a cursor.

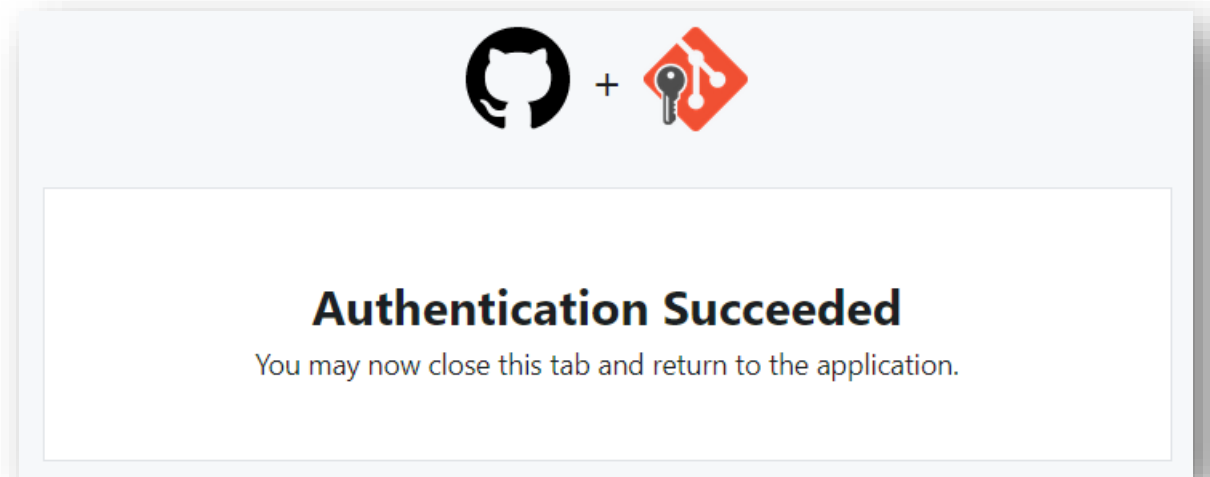
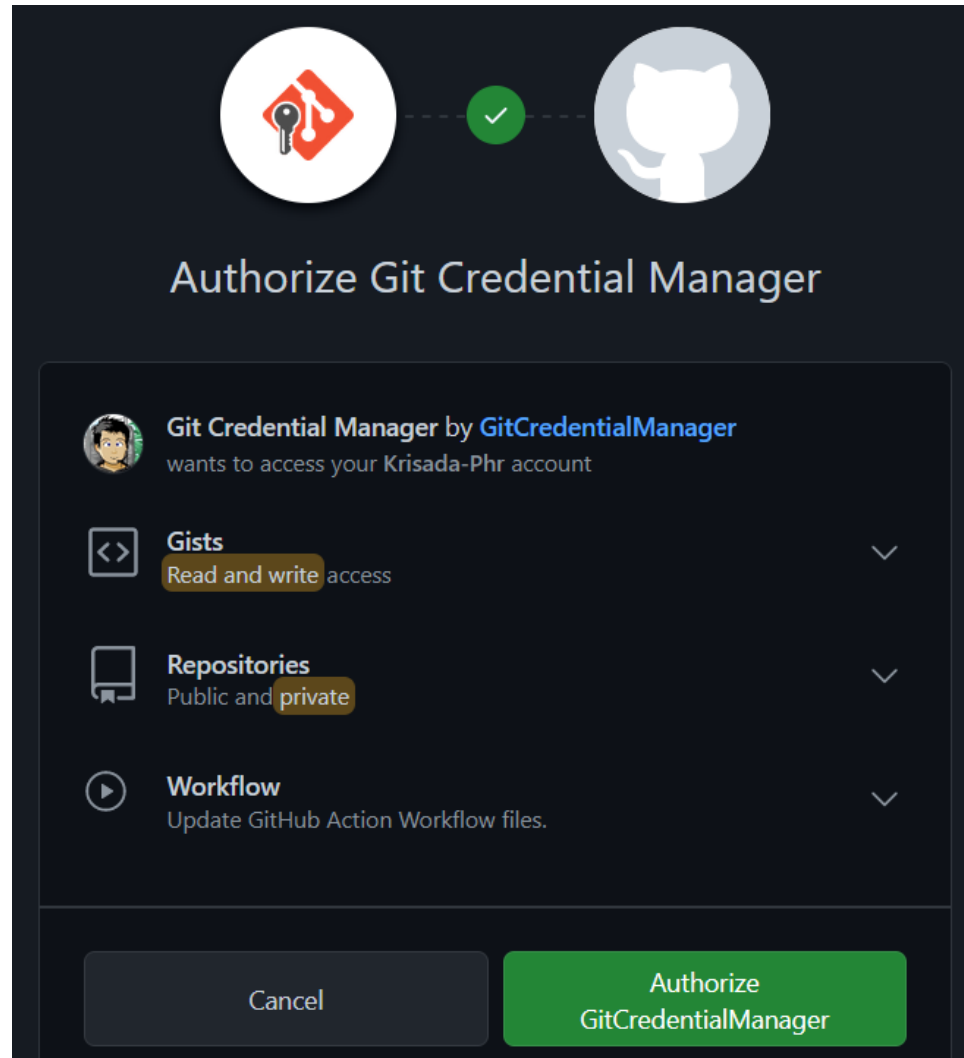
```
MINGW64:/d/Project/GitHub
gladi@Lunar MINGW64 /d/Project/GitHub
$ git clone https://github.com/Krisada-Phr/RepoTest.git
Cloning into 'RepoTest'...
```

[4] Use command git clone “URL”



[5] This popup will show up
(Log-in with GitHub account)

GitHub – Clone Repository (with HTTPS)



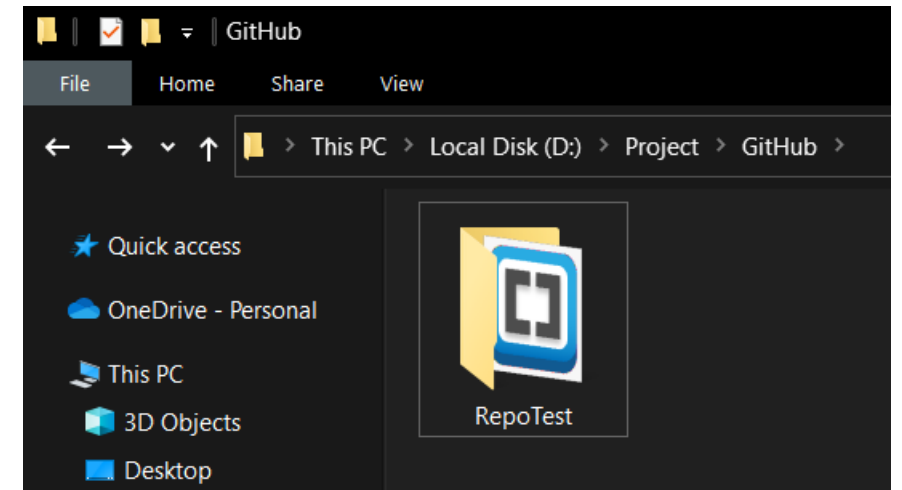
[5] Review information then click [Authorize]

GitHub – Clone Repository (with HTTPS)

```
MINGW64/d/Project/GitHub

gladi@Lunar MINGW64 /d/Project/GitHub
$ git clone https://github.com/Krisada-Phr/RepoTest.git
Cloning into 'RepoTest'...
info: please complete authentication in your browser...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.

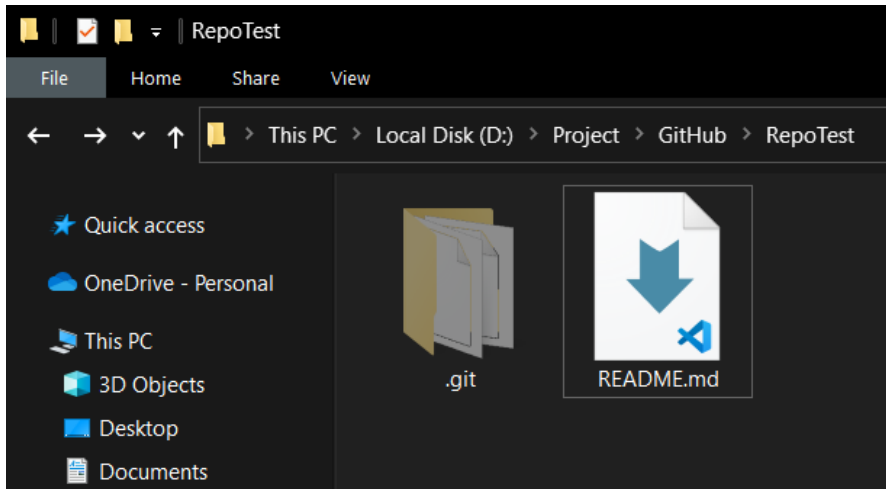
gladi@Lunar MINGW64 /d/Project/GitHub
$
```



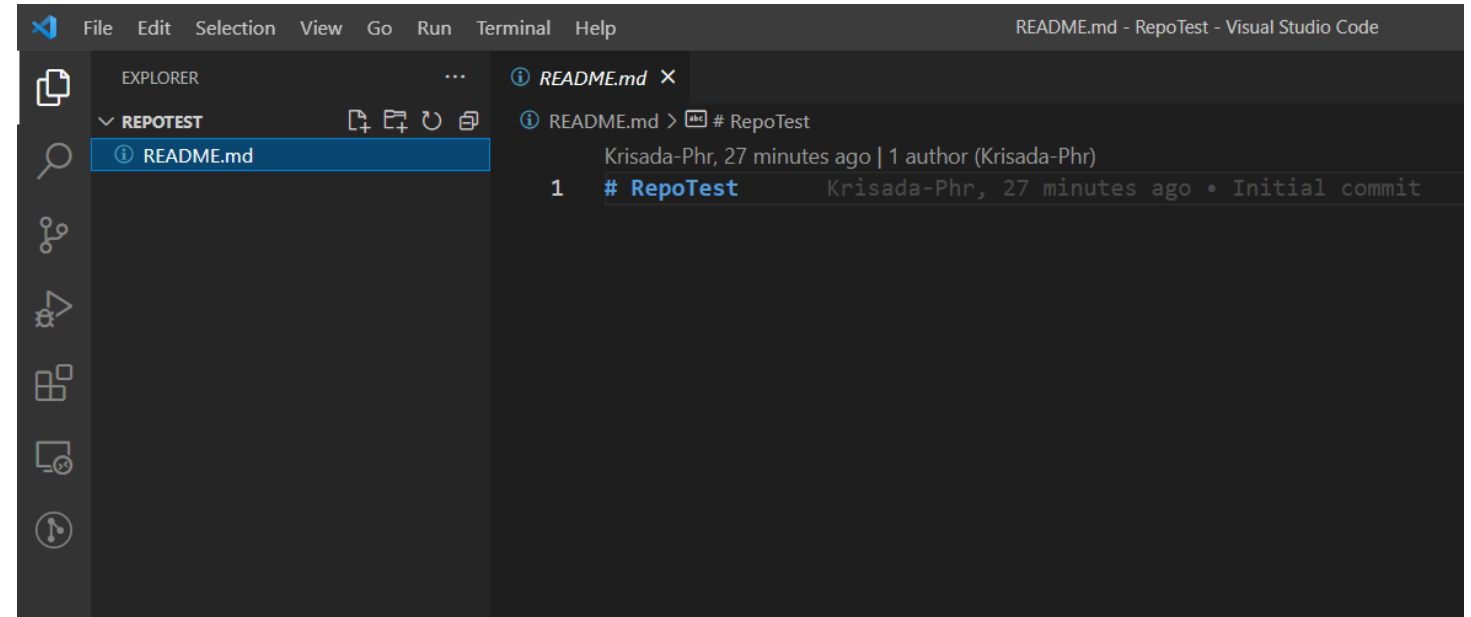
You will see repository folder like this

[6] Check the result

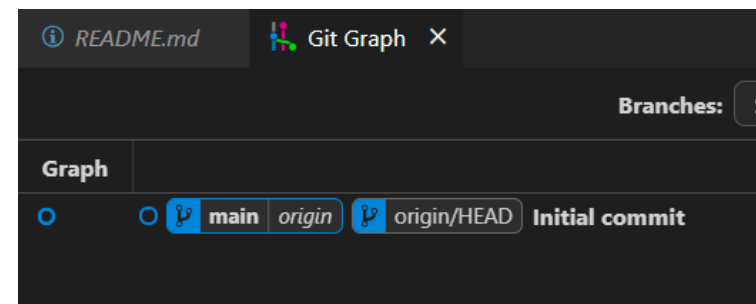
GitHub – Clone Repository (with HTTPS)



In repository folder, you will see [.git] hidden folder (the same thing as you do with Git)

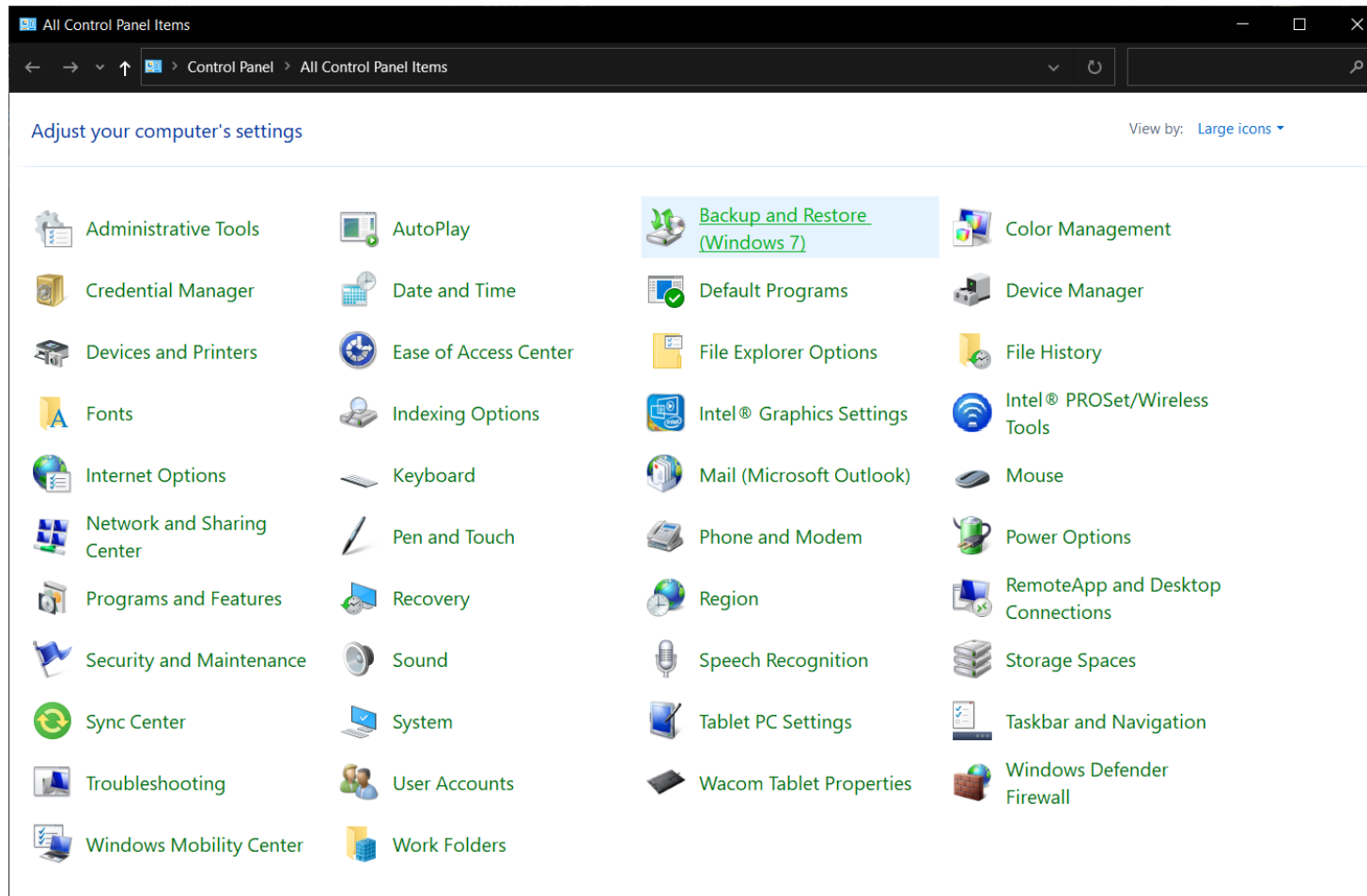


You can open “README.md” file (This is the initial commit)



View Git Graph

GitHub – Clone Repository (with HTTPS)



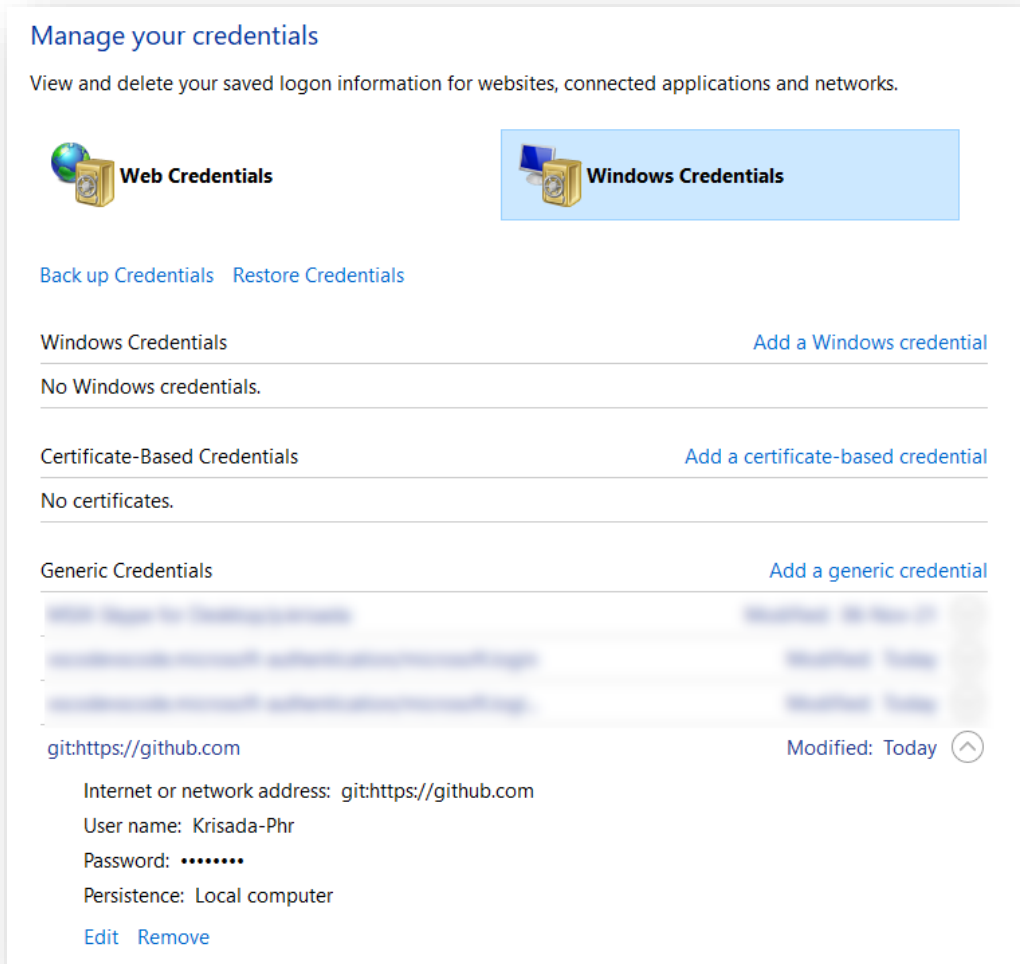
(Optional) We can manage credential by...

[1] Go to Control Panel

[2] Click Credential Manager

Credential : หนังสือรับรอง

GitHub – Clone Repository (with HTTPS)



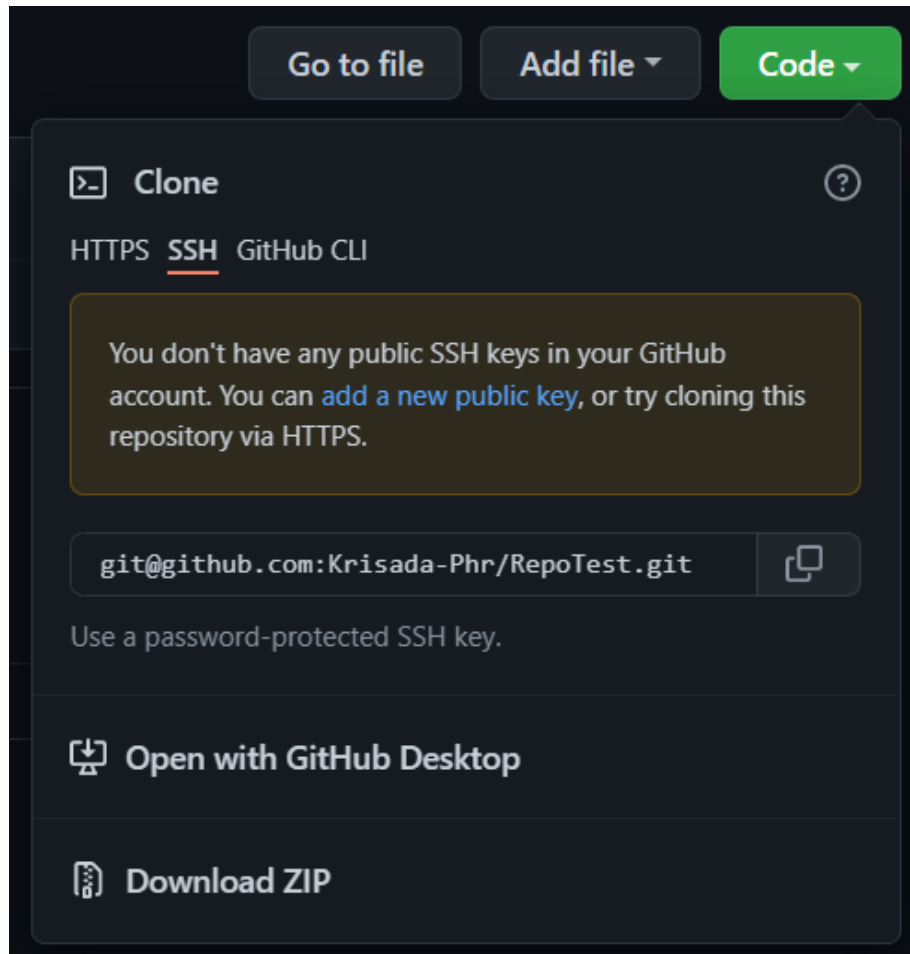
(Optional) We can manage credential by...

[3] Go to Windows Credentials

[4] Find "GitHub"

Now, we can edit / remove credential

GitHub – Clone Repository (with SSH)



The credential might make you feel unhappy
when you work with remote computer
(SSH will use a **Key** for security proposed)

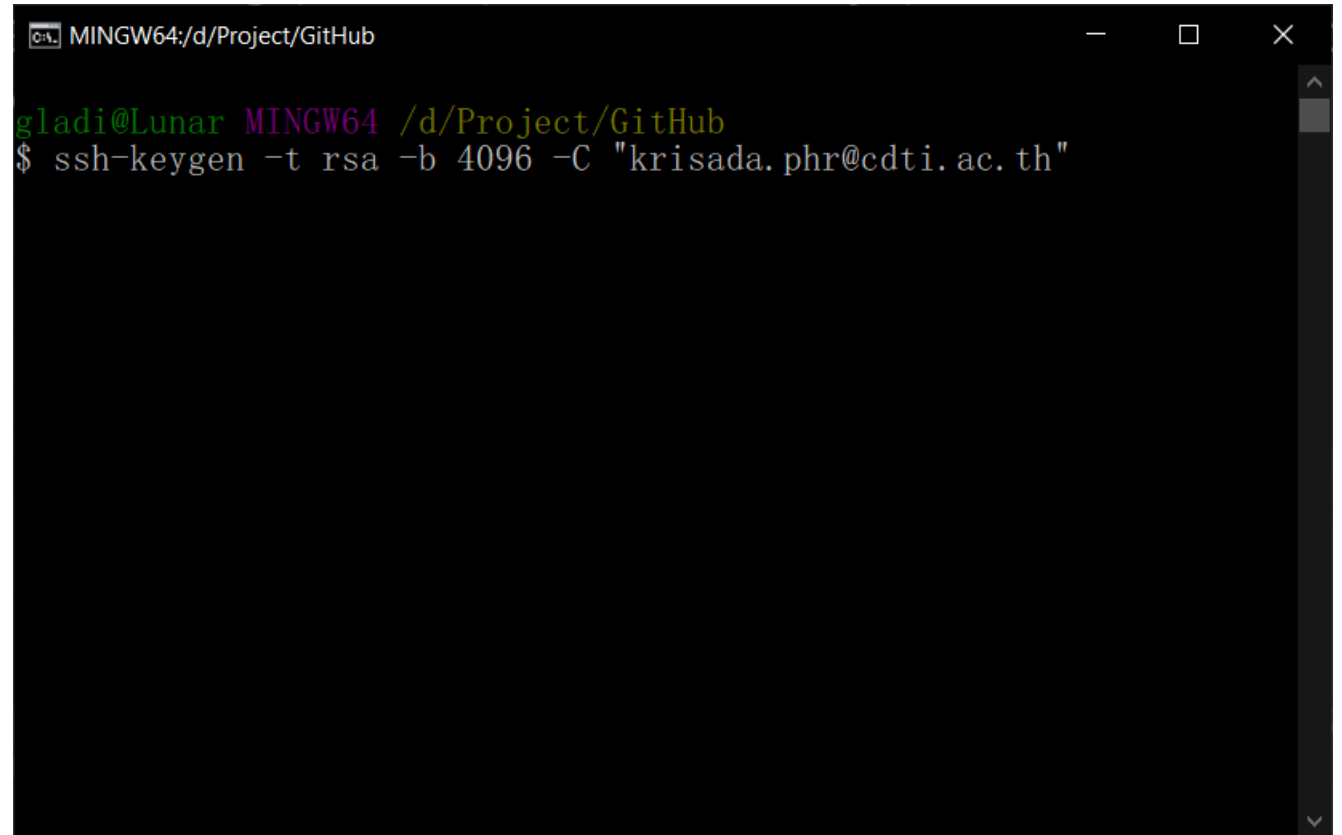
GitHub – Clone Repository (with SSH)

[1] Create authentication key

- **Private key** (we keep this key in Folder)
- **Public key** (upload to GitHub server)

[2] Use the following command to generate

`ssh-keygen -t rsa -b 4096 -C "e-mail"`

A screenshot of a Windows terminal window with a black background and white text. The window title bar shows 'MINGW64:/d/Project/GitHub'. The prompt 'gladi@Lunar MINGW64 /d/Project/GitHub' is visible. The command '\$ ssh-keygen -t rsa -b 4096 -C "krisada.phr@cdti.ac.th"' has been entered and is shown in the terminal. The terminal window has standard Windows window controls (minimize, maximize, close) in the top right corner.

```
MINGW64:/d/Project/GitHub
gladi@Lunar MINGW64 /d/Project/GitHub
$ ssh-keygen -t rsa -b 4096 -C "krisada.phr@cdti.ac.th"
```

GitHub – Clone Repository (with SSH)

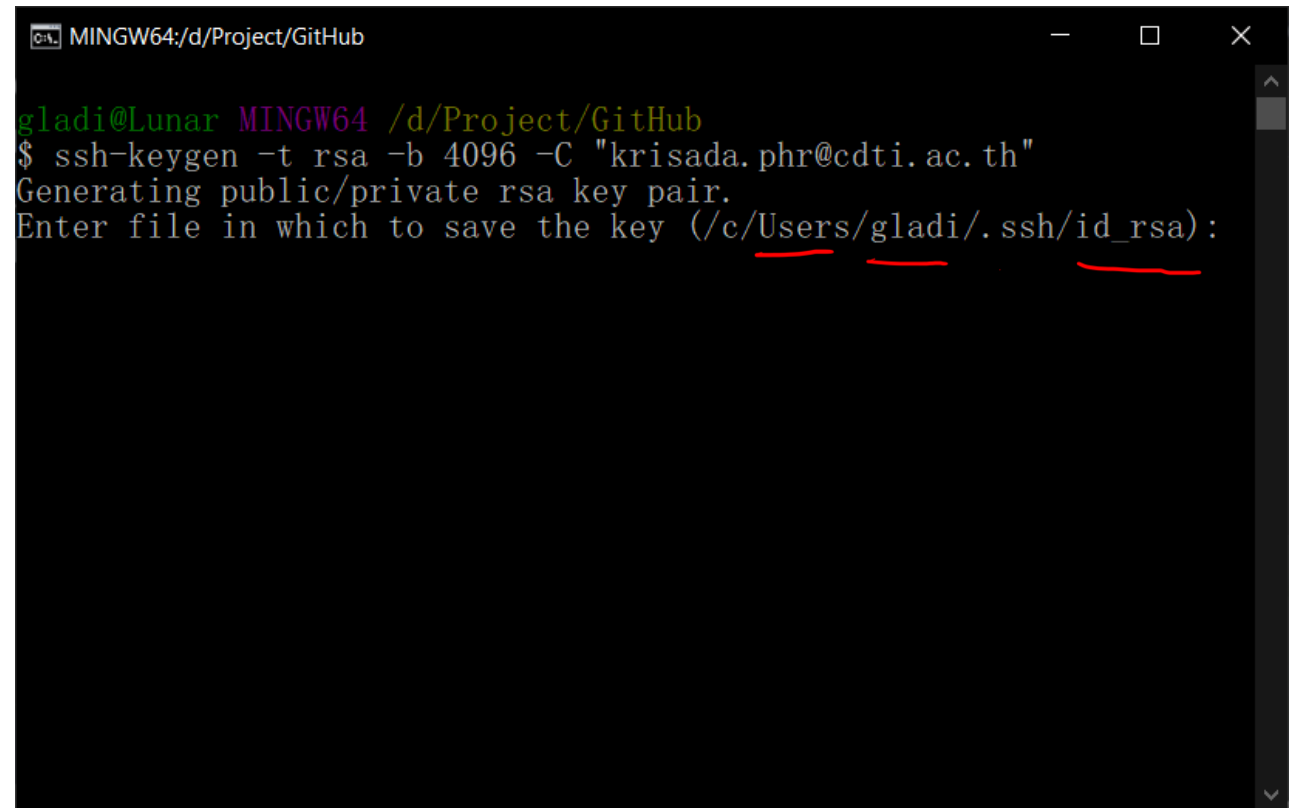
[1] Create authentication key

- **Private key** (we keep this key in Folder)
- **Public key** (upload to GitHub server)

[2] Use the following command to generate

`ssh-keygen -t rsa -b 4096 -C "e-mail"`

[3] Press <enter> to save "key" in default folder



```
MINGW64:/d/Project/GitHub
gladi@Lunar MINGW64 /d/Project/GitHub
$ ssh-keygen -t rsa -b 4096 -C "krisada.phr@cdti.ac.th"
Generating public/private rsa key pair.
Enter file in which to save the key (/c/Users/gladi/.ssh/id_rsa):
```

GitHub – Clone Repository (with SSH)

[4] Enter passphrase

[5] Re-enter passphrase

Key will generate like this

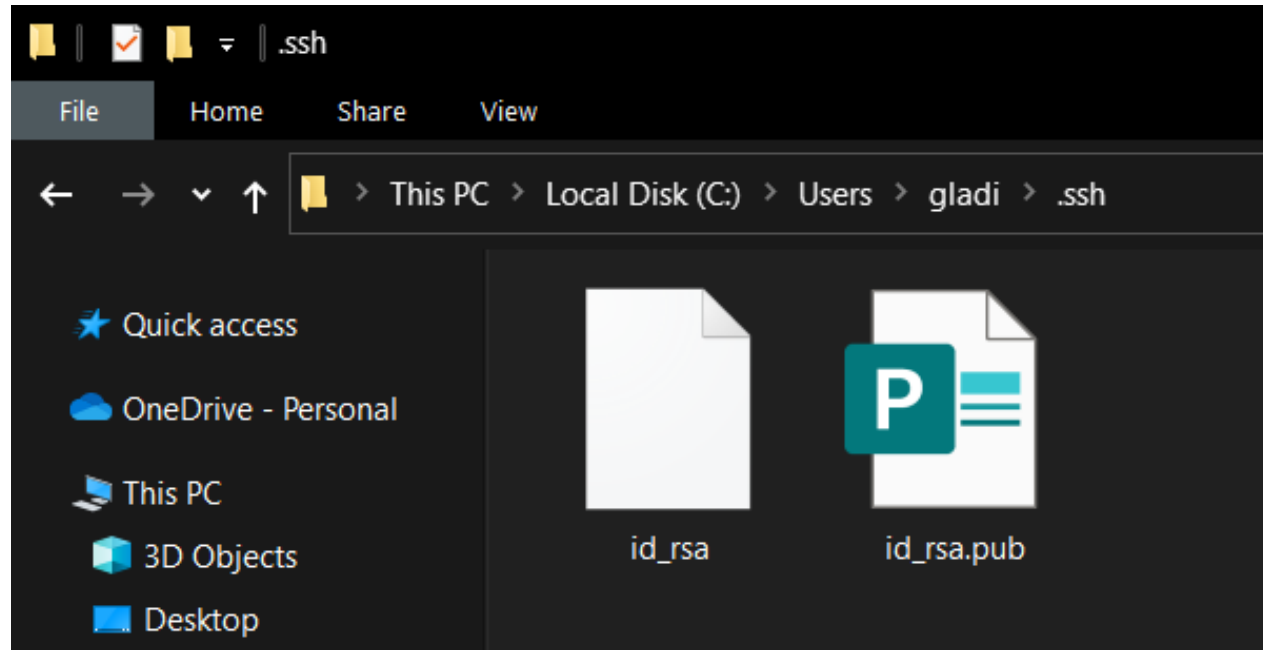
```
MINGW64:/d/Project/GitHub
gladi@Lunar MINGW64 /d/Project/GitHub
$ ssh-keygen -t rsa -b 4096 -C "krisada.phr@cdti.ac.th"
Generating public/private rsa key pair.
Enter file in which to save the key (/c/Users/gladi/.ssh/id_rsa):
Created directory '/c/Users/gladi/.ssh'.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /c/Users/gladi/.ssh/id_rsa
Your public key has been saved in /c/Users/gladi/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:040TzFmwOYLw3yBV+PAKVxhV0ekqjf3MVzcvGA/7QUw krisada.phr@cdti.ac.th
The key's randomart image is:
+---[RSA 4096]-----+
|
|  .    o*+..o
| o o+  .++
| + o=+...E
| .o.*o+.o
| o.=S. .o
| + +=o.. ...
| . =+.+.o .o
|    o= o.. .
|    o. .
+-----[SHA256]-----+
gladi@Lunar MINGW64 /d/Project/GitHub
$
```

GitHub – Clone Repository (with SSH)

[4] Enter passphrase

[5] Re-enter passphrase

Key will generate like this



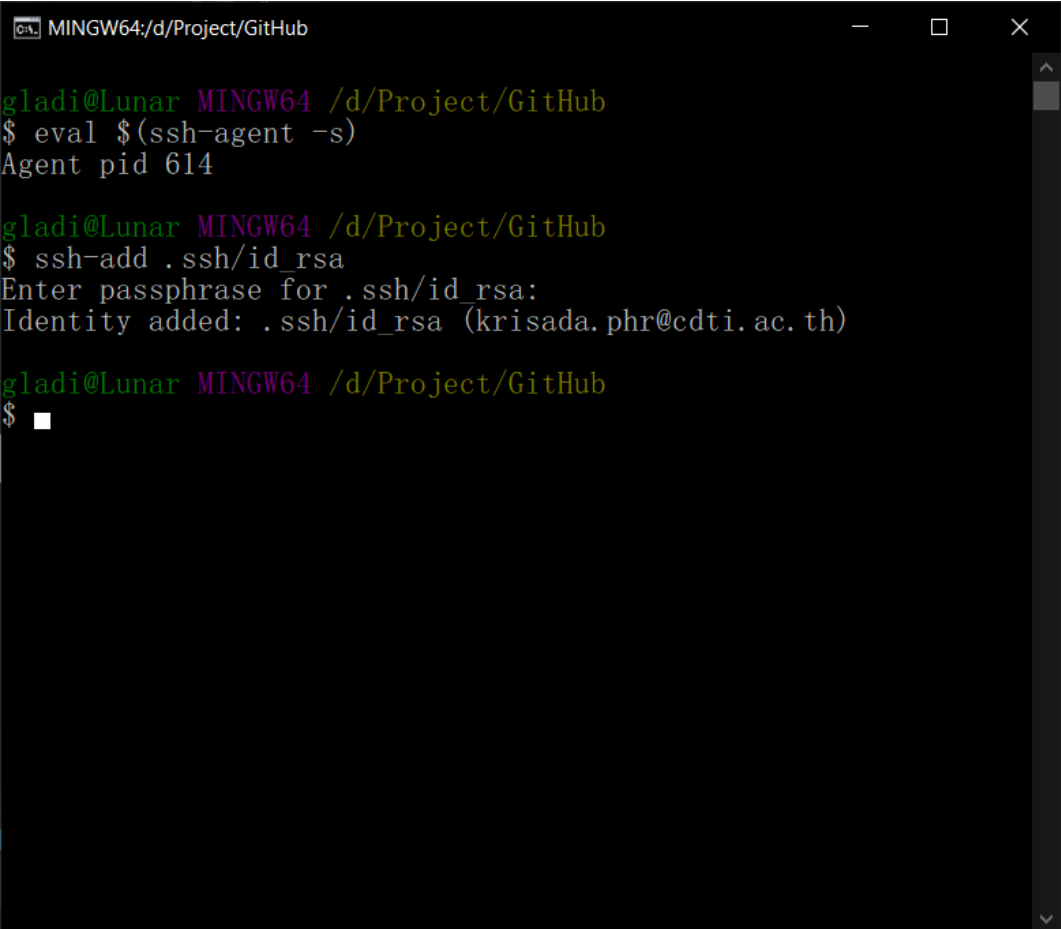
GitHub – Clone Repository (with SSH)

[6] Open ssh agent in Git Bash with the following command

`eval $(ssh-agent -s)`

[7] Add private key (to local computer)

`ssh-add "path of the private key"`

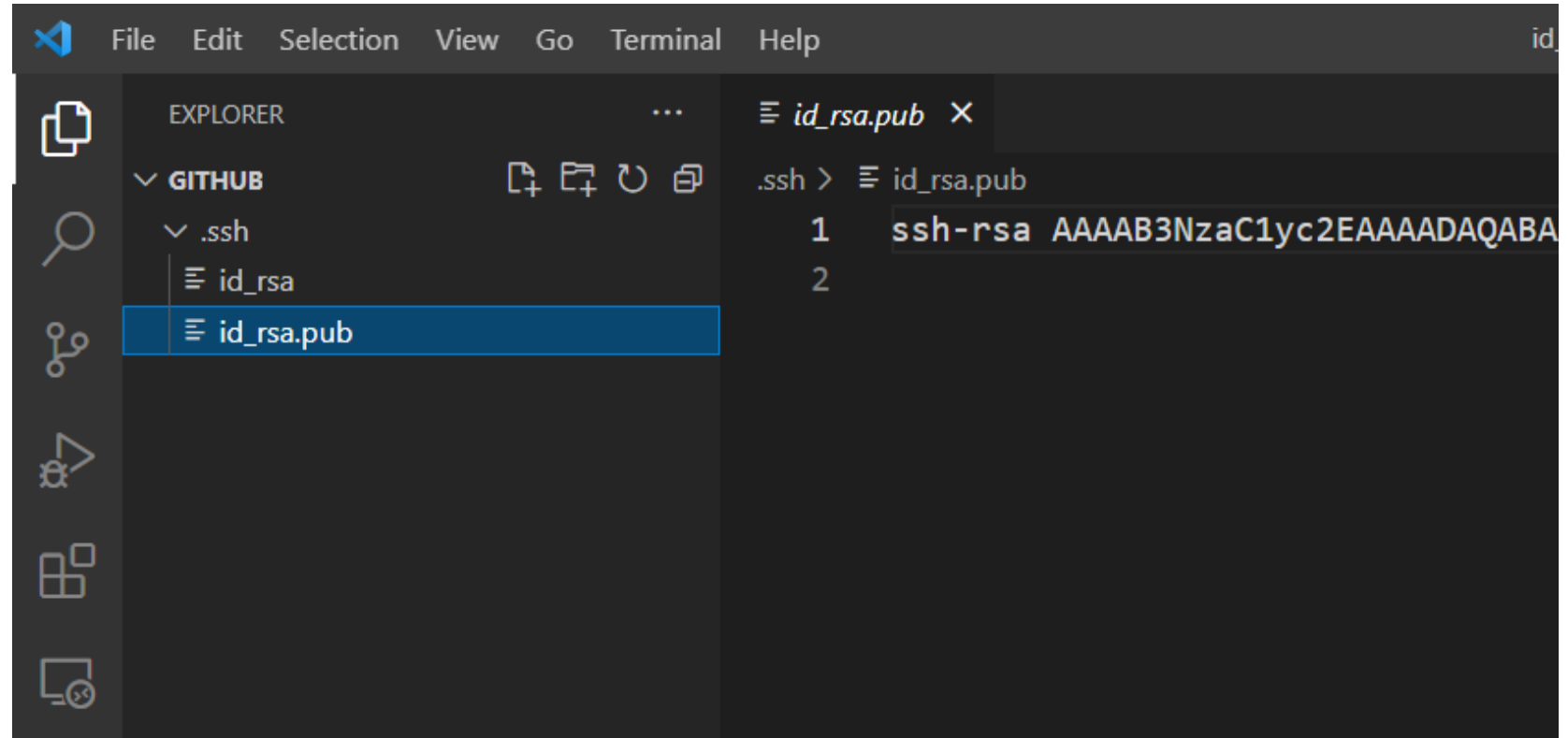
A terminal window titled 'MINGW64:/d/Project/GitHub' showing the execution of SSH-related commands. The user 'gladi@Lunar' is in the 'MINGW64' environment at the path '/d/Project/GitHub'. The first command is 'eval \$(ssh-agent -s)', which outputs 'Agent pid 614'. The second command is 'ssh-add .ssh/id_rsa', which prompts for a passphrase and then outputs 'Identity added: .ssh/id_rsa (krisada.phr@cdti.ac.th)'. The prompt returns to '\$'.

GitHub – Clone Repository (with SSH)

[8] Upload public key to GitHub

Open file [public key] with Text Editor (VS Code)

[9] Copy “key”



The screenshot shows the Visual Studio Code interface. In the Explorer sidebar on the left, the file `id_rsa.pub` is selected under the `.ssh` directory. The main Editor pane displays the contents of `id_rsa.pub`, which is a single line of text: `ssh-rsa AAAAB3NzaC1yc2EAAAADAQAB`. The line is numbered 1 in the left margin.

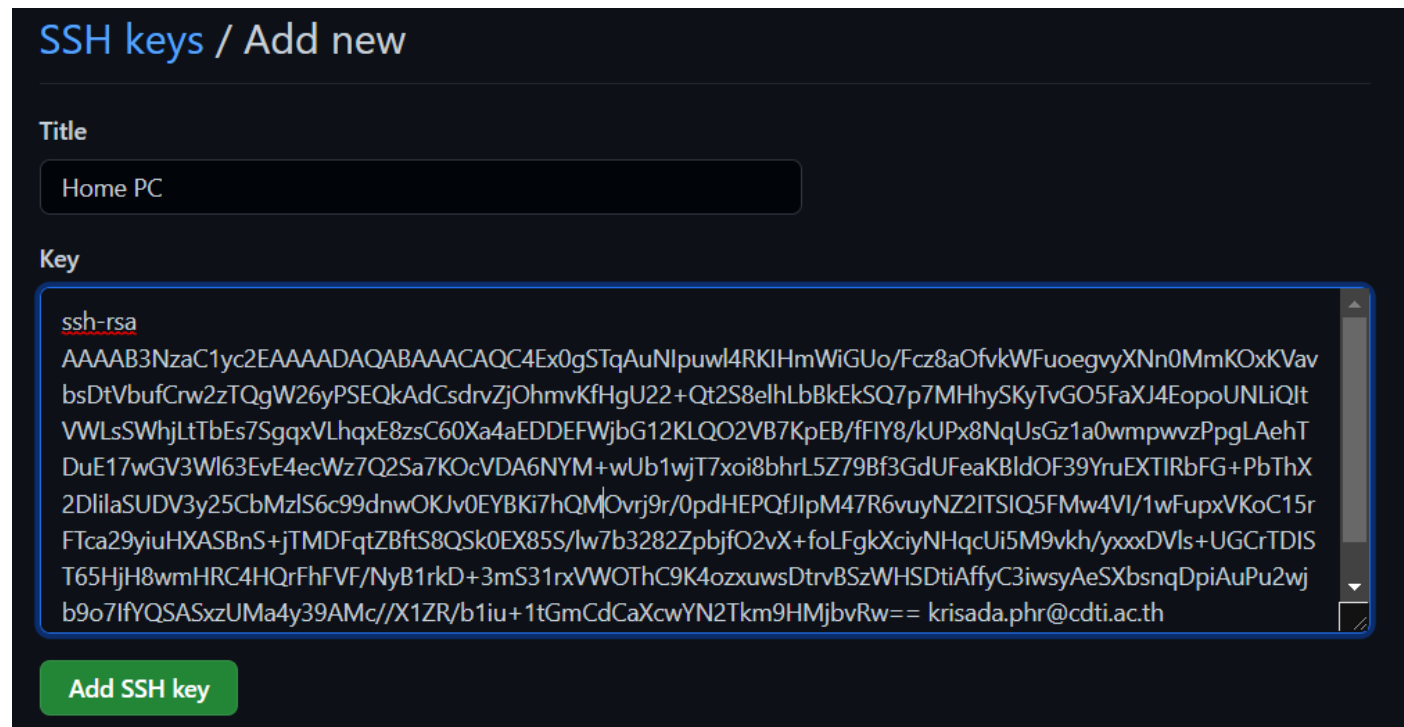
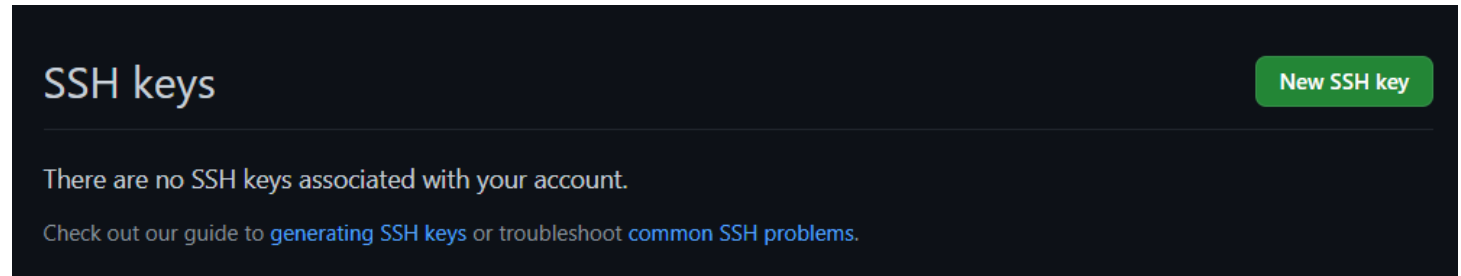
GitHub – Clone Repository (with SSH)

[10] Go to Settings in GitHub

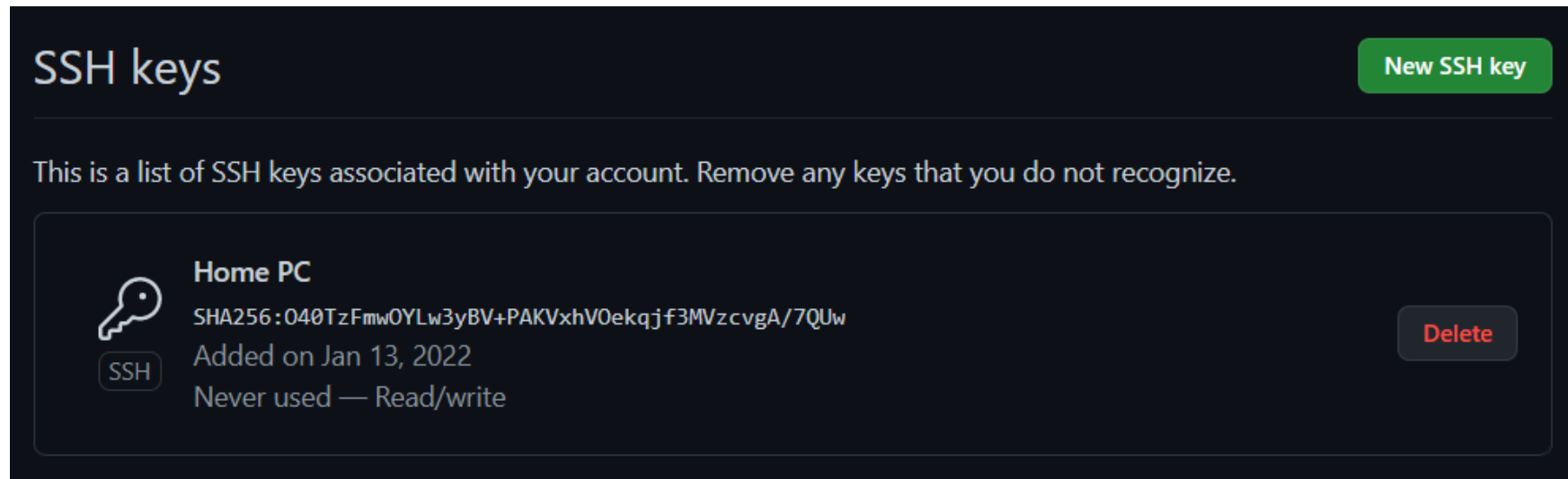
[11] Click “SSH and GPG keys”

[12] New SSH key

[13] Add Title & Key



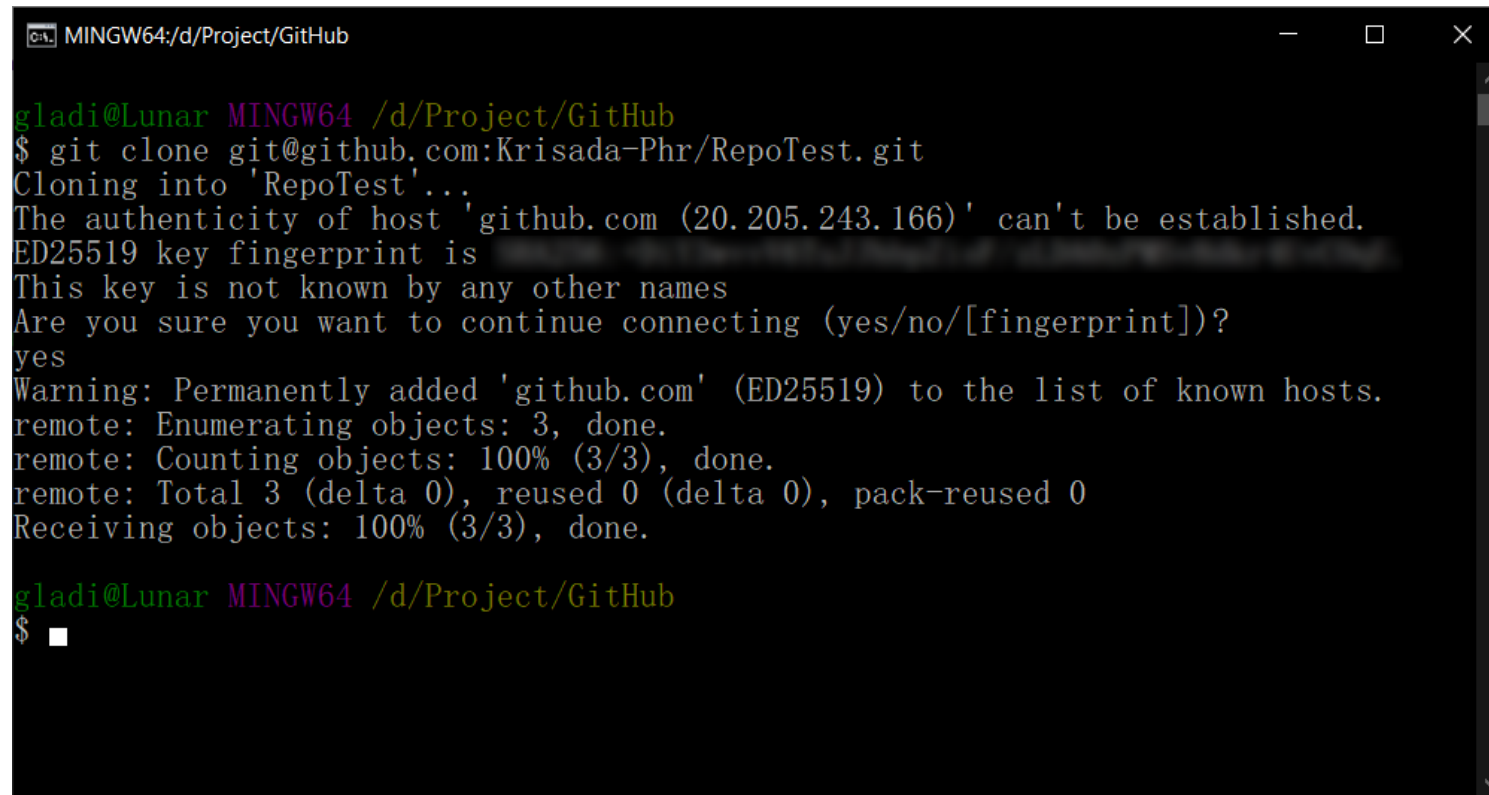
GitHub – Clone Repository (with SSH)



GitHub – Clone Repository (with SSH)

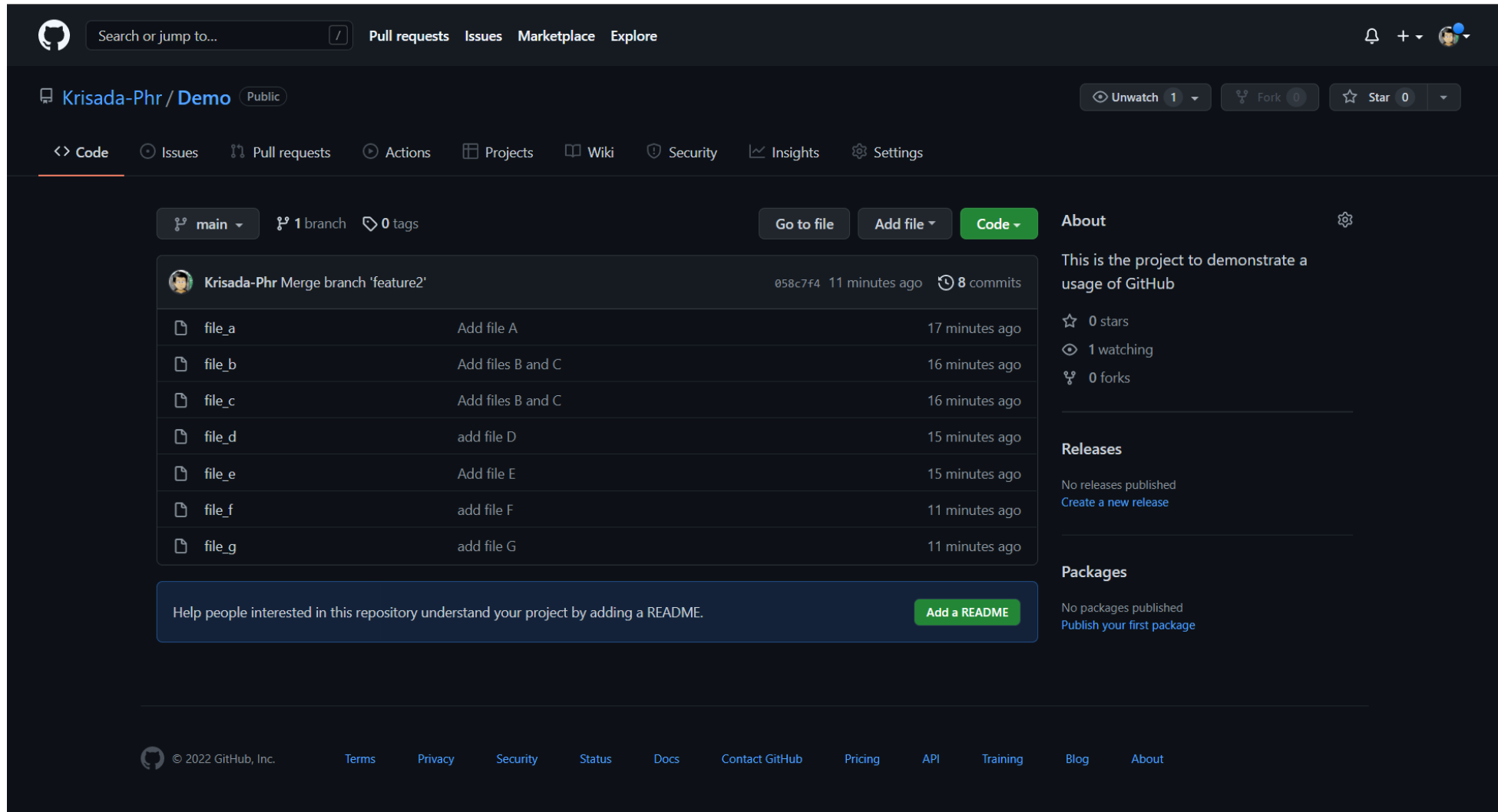
[14] use Git Bash to Clone Repository with SSH

git clone “copy URL from ssh”

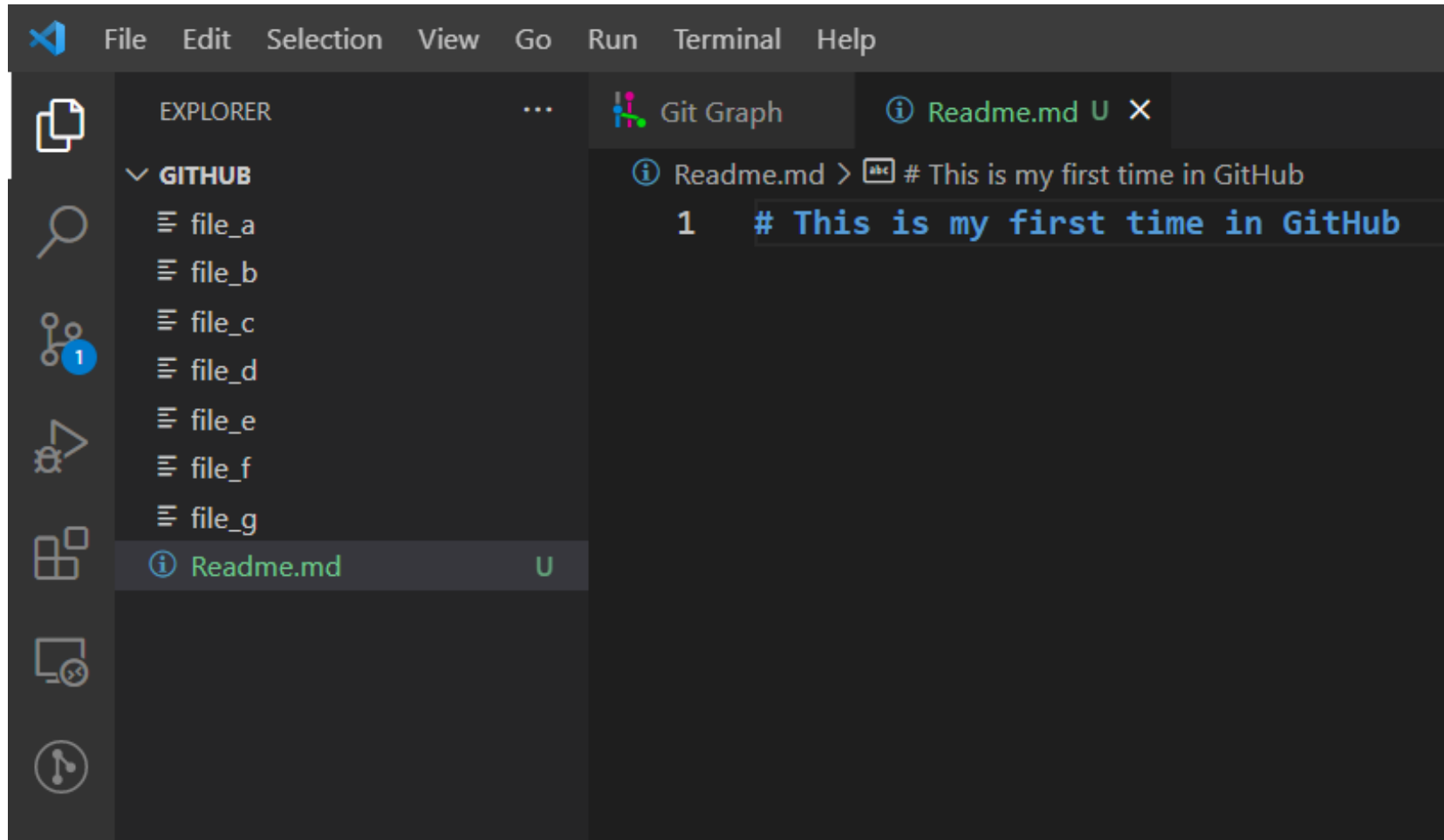


```
MINGW64:/d/Project/GitHub
gladi@Lunar MINGW64 /d/Project/GitHub
$ git clone git@github.com:Krisada-Phr/RepoTest.git
Cloning into 'RepoTest'...
The authenticity of host 'github.com (20.205.243.166)' can't be established.
ED25519 key fingerprint is 
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])?
yes
Warning: Permanently added 'github.com' (ED25519) to the list of known hosts.
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
Receiving objects: 100% (3/3), done.
gladi@Lunar MINGW64 /d/Project/GitHub
$
```

GitHub – Upload existing files to New Repository



GitHub – Add / Edit then Push to GitHub



[1] Add new file to Project

[2] Commit this file

GitHub – Add / Edit then Push to GitHub

```
MINGW64:/d/Project/GitHub

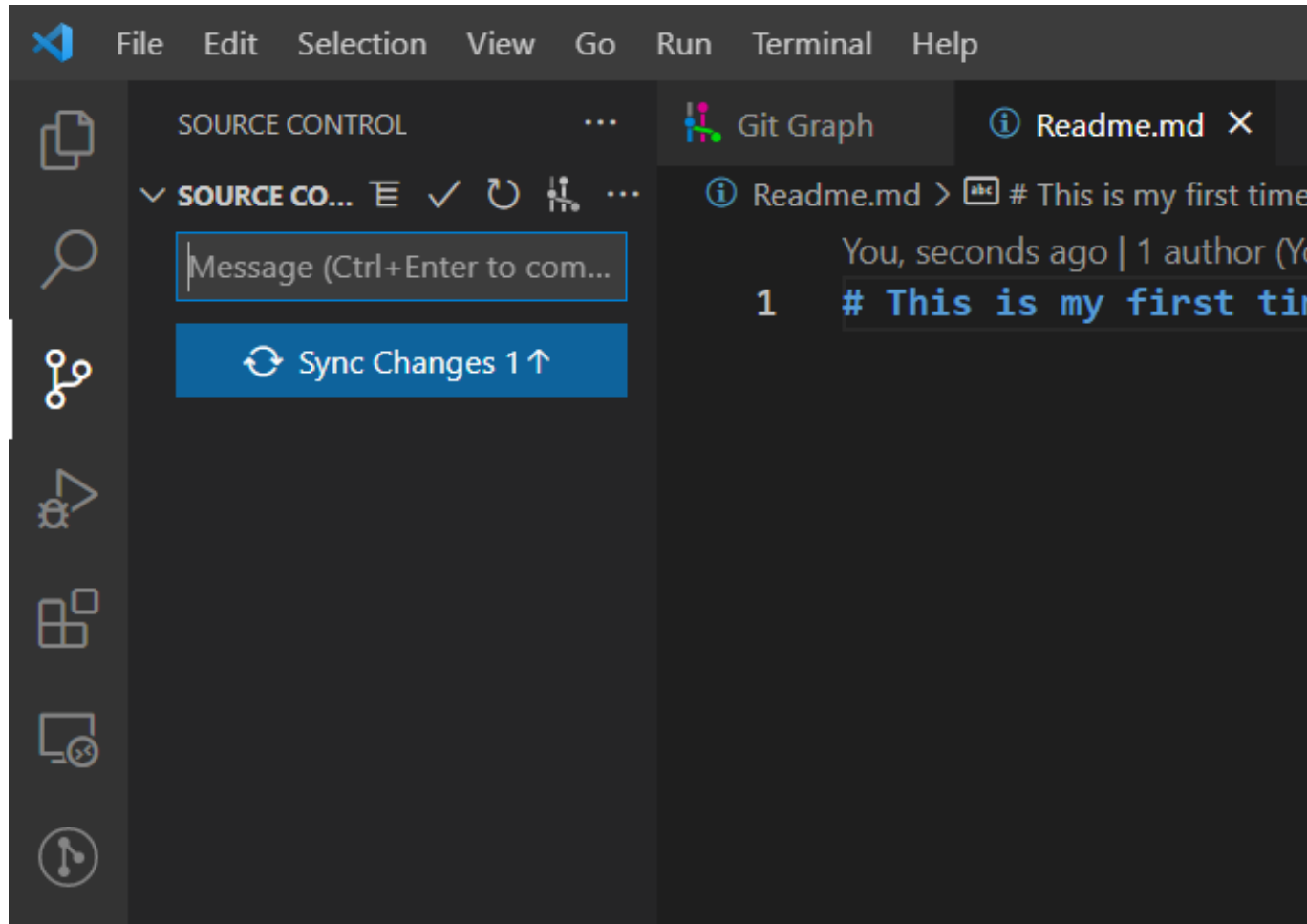
gladi@Lunar MINGW64 /d/Project/GitHub (main)
$ git push origin main
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 308 bytes | 154.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/Krisada-Phr/Demo.git
    058c7f4..eb46a35  main -> main

gladi@Lunar MINGW64 /d/Project/GitHub (main)
$
```

[3] Push to GitHub

`git push origin main`

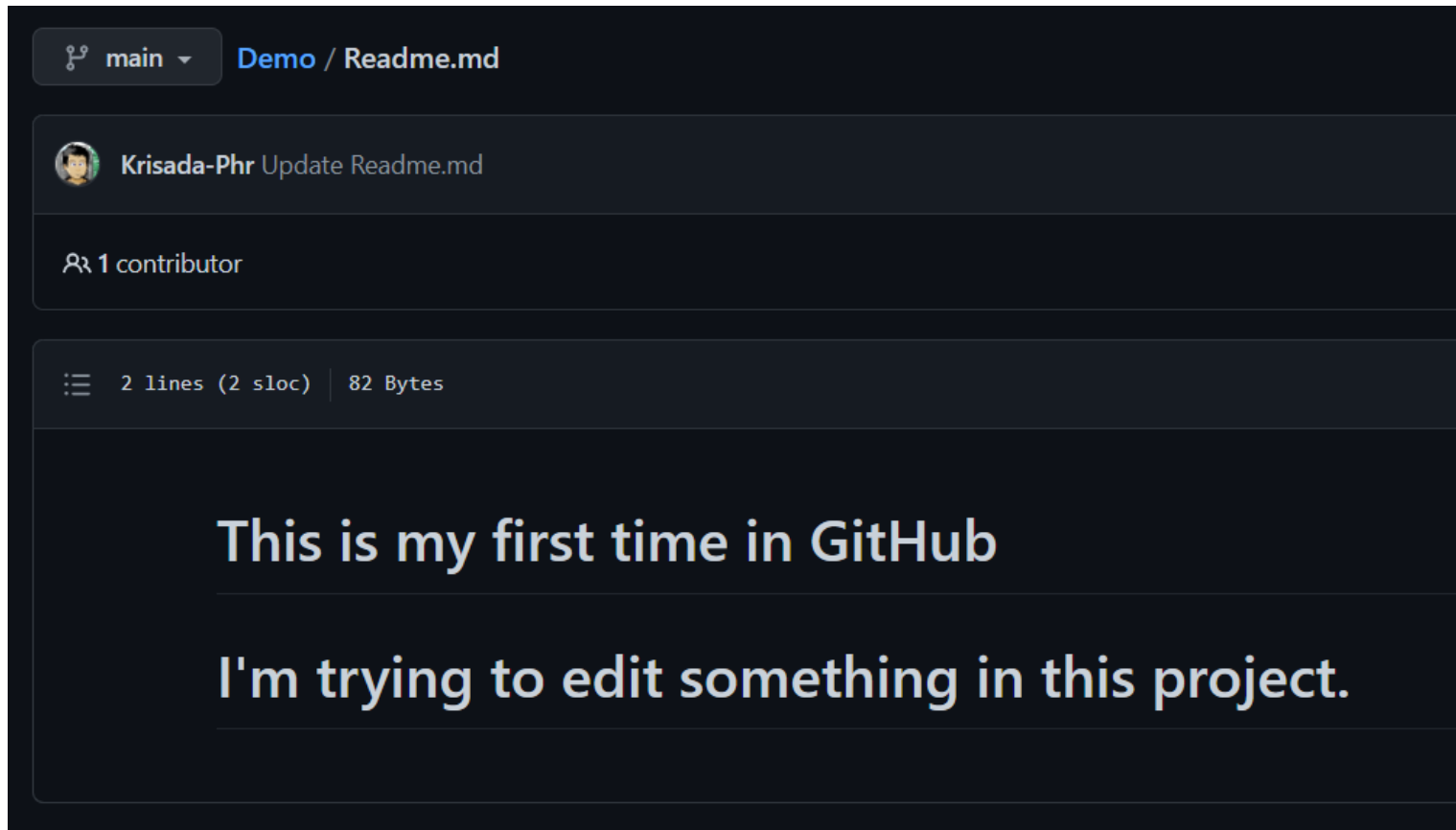
GitHub – Add / Edit then Push to GitHub



Or use Sync Changes in
VS Code

GitHub – Pull from GitHub

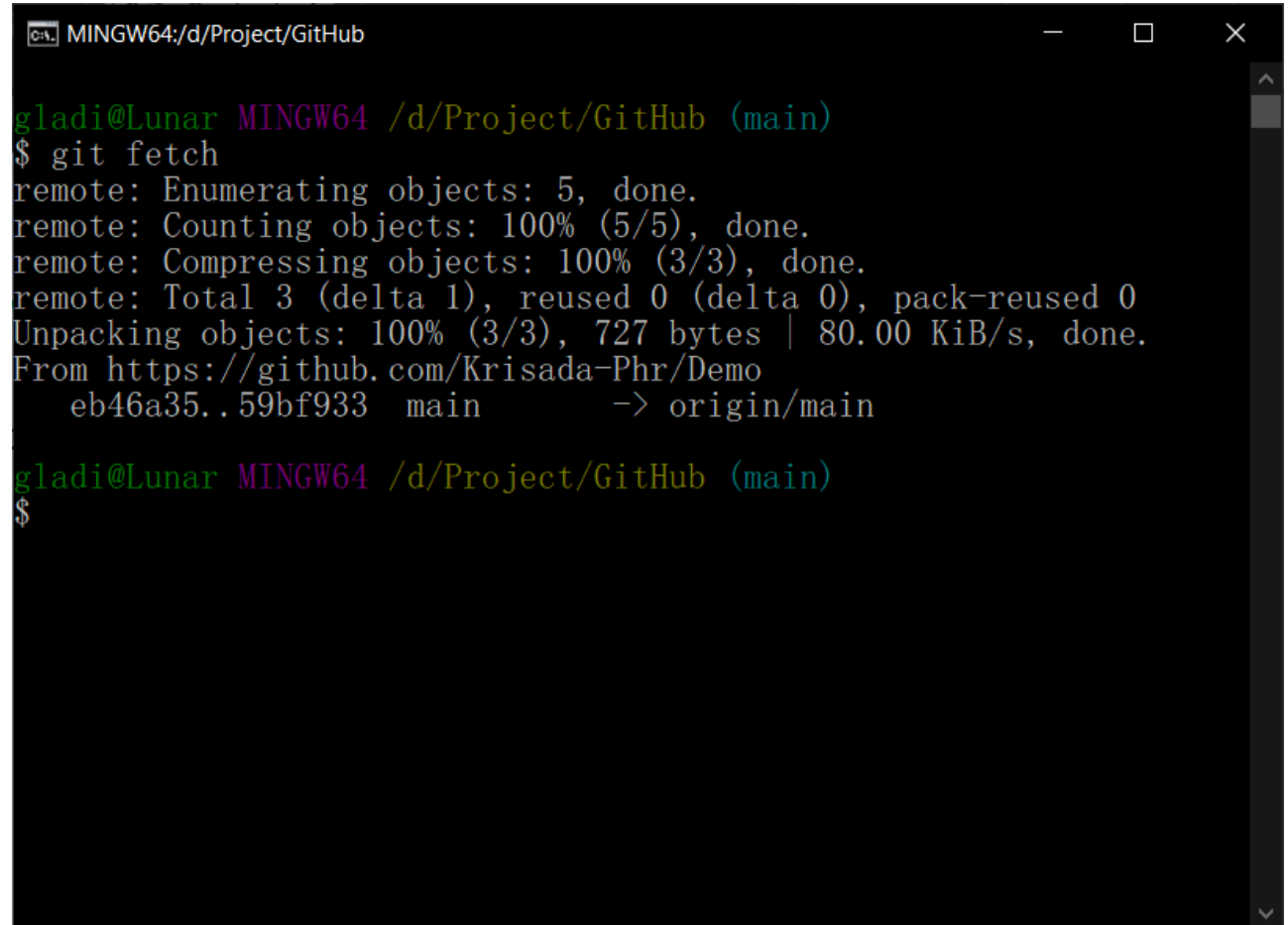
[1] Try to edit file in GitHub (on website)



GitHub – Pull from GitHub

[2] Check from local PC, Is there any change in GitHub

git fetch

A terminal window titled 'MINGW64:/d/Project/GitHub' showing the execution of the 'git fetch' command. The output shows the process of enumerating, counting, and compressing objects from a remote repository, followed by unpacking. It indicates that 3 objects were fetched, with 1 delta and 0 reused. The fetched commit is 'eb46a35..59bf933' on the 'main' branch, which is updated to 'origin/main'.

```
MINGW64:/d/Project/GitHub

gladi@Lunar MINGW64 /d/Project/GitHub (main)
$ git fetch
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
Unpacking objects: 100% (3/3), 727 bytes | 80.00 KiB/s, done.
From https://github.com/Krisada-Phr/Demo
   eb46a35..59bf933  main       -> origin/main

gladi@Lunar MINGW64 /d/Project/GitHub (main)
$
```

GitHub – Pull from GitHub

[3] Pull data from GitHub

git pull

```
MINGW64:/d/Project/GitHub

gladi@Lunar MINGW64 /d/Project/GitHub (main)
$ git pull
Updating eb46a35..59bf933
Fast-forward
 README.md | 3 ++-
1 file changed, 2 insertions(+), 1 deletion(-)

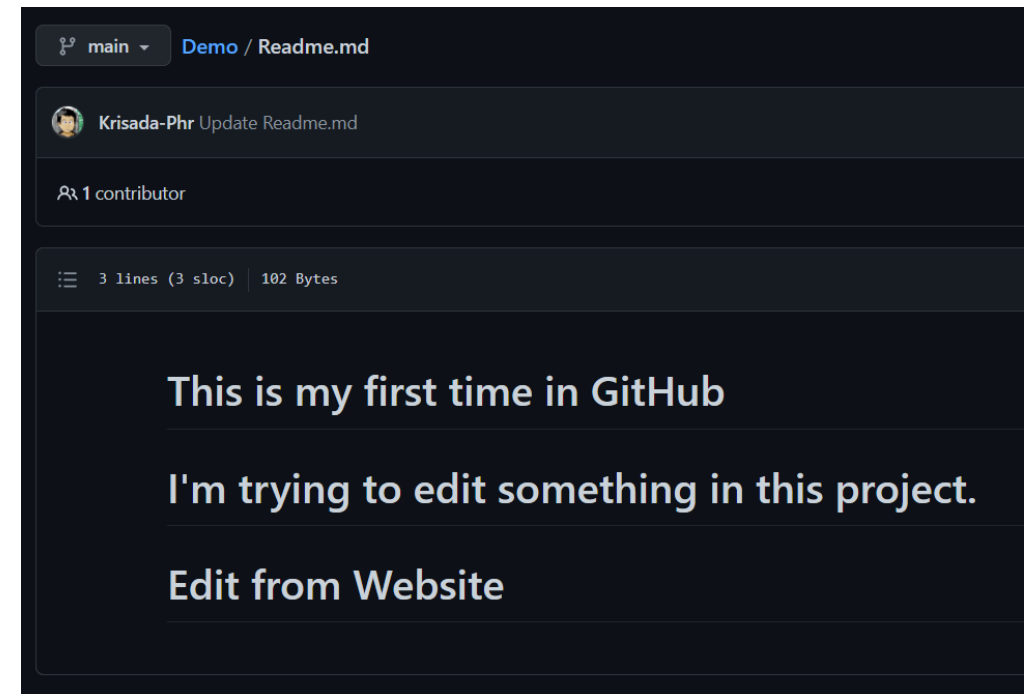
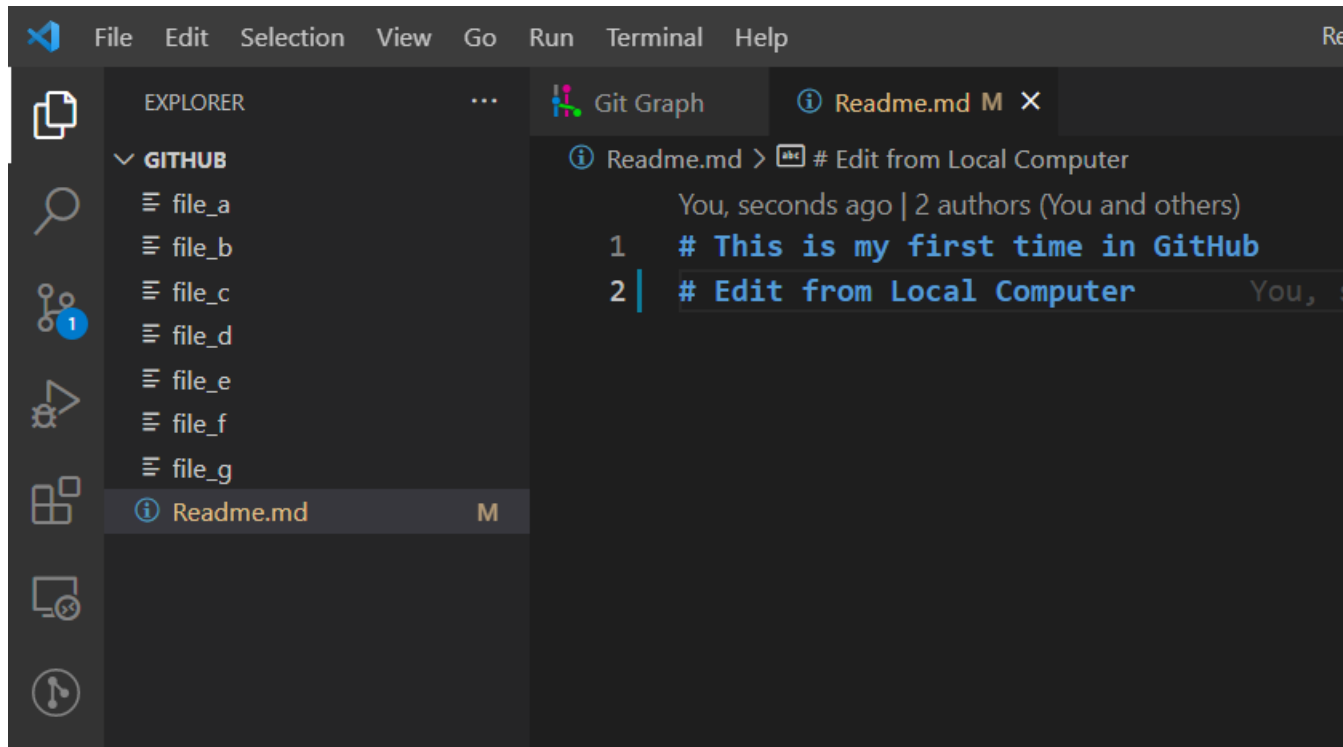
gladi@Lunar MINGW64 /d/Project/GitHub (main)
$
```

```
Git Graph  Readme.md X
Readme.md > # I'm trying to edit something in this project.
Krisada-Phr, 5 minutes ago | 1 author (Krisada-Phr)
1 # This is my first time in GitHub
Krisada-Phr, 5 minutes ago | 1 author (Krisada-Phr)
2 # I'm trying to edit something in this project.
3
```

GitHub – Conflict

[1] Edit Code from Local Computer, then commit (Dev. A)

[2] Edit Code from Website, then commit (Dev. B)



GitHub – Conflict

[3] This will happen when try to push to GitHub

```
MINGW64:/d/Project/GitHub
gladi@Lunar MINGW64 /d/Project/GitHub (main)
$ git push origin main
To https://github.com/Krisada-Phr/Demo.git
! [rejected]        main -> main (fetch first)
error: failed to push some refs to 'https://github.com/Krisada-Phr/Demo.git'
hint: Updates were rejected because the remote contains work that you do
hint: not have locally. This is usually caused by another repository pushing
hint: to the same ref. You may want to first integrate the remote changes
hint: (e.g., 'git pull ...') before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.

gladi@Lunar MINGW64 /d/Project/GitHub (main)
$ █
```


GitHub – Conflict

[4] OK, so we need to Pull before Push to GitHub



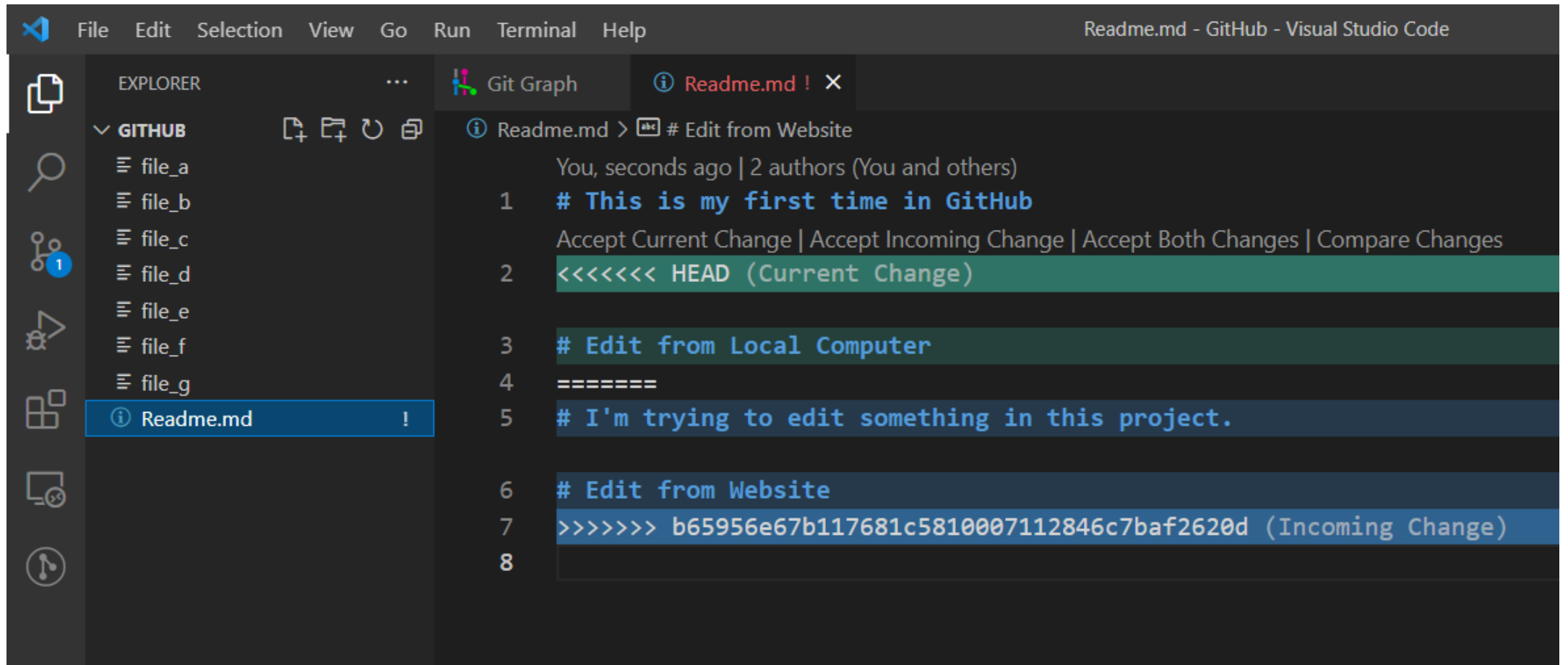
```
MINGW64:/d/Project/GitHub

gladi@Lunar MINGW64 /d/Project/GitHub (main)
$ git pull
Auto-merging Readme.md
CONFLICT (content): Merge conflict in Readme.md
Automatic merge failed; fix conflicts and then commit the result.

gladi@Lunar MINGW64 /d/Project/GitHub (main|MERGING)
$
```

GitHub – Conflict

[5] Open VS Code, **fix the conflict**, then add / commit / push to GitHub

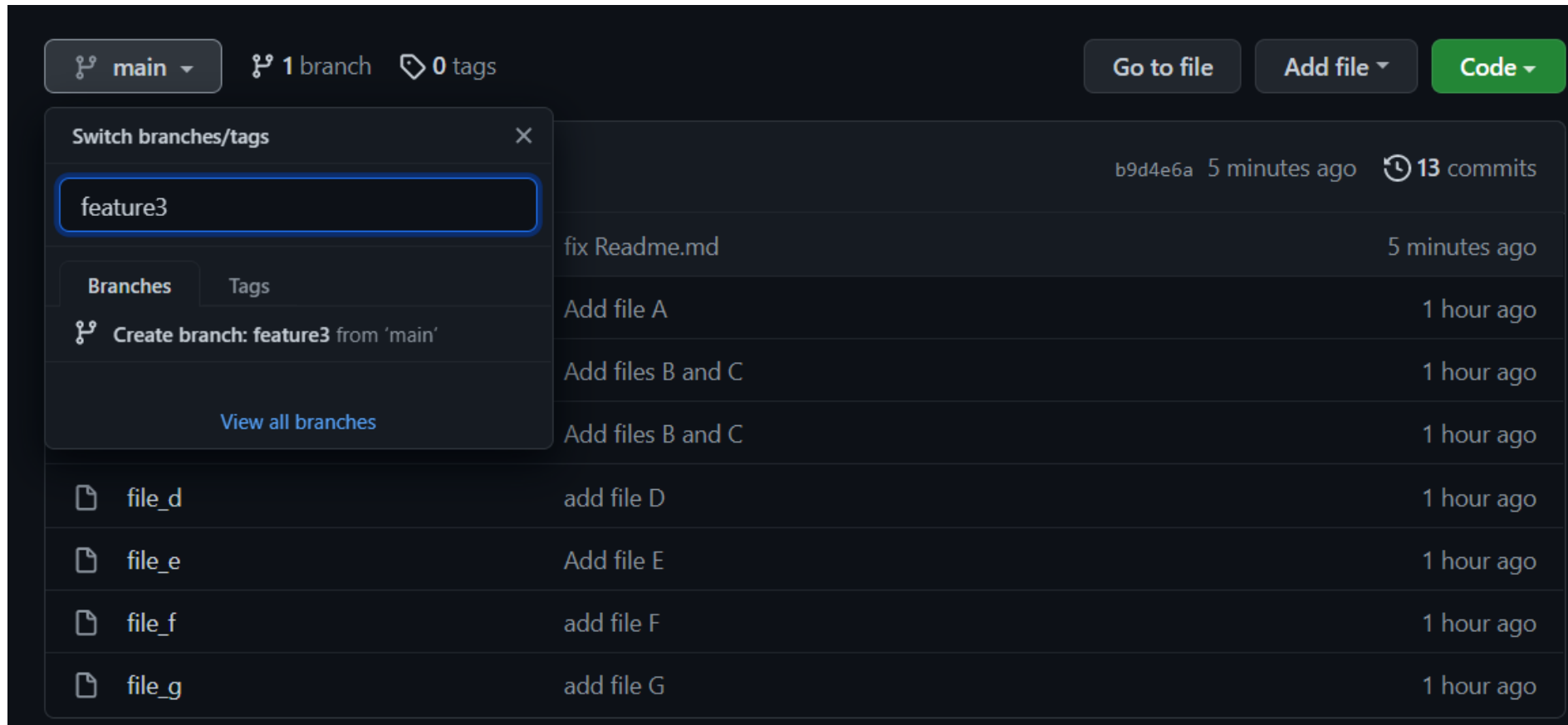


The screenshot shows the Visual Studio Code interface with a merge conflict in the file `Readme.md`. The Explorer sidebar on the left shows the project structure with files `file_a` through `file_g` and `Readme.md`, which has a conflict icon. The main editor displays the conflict resolution options: "Accept Current Change", "Accept Incoming Change", "Accept Both Changes", and "Compare Changes". The conflict is between the local HEAD (Current Change) and an incoming change from a remote branch. The local change is highlighted in green, and the incoming change is highlighted in blue.

```
1  # This is my first time in GitHub
2  <<<<<<< HEAD (Current Change)
3  # Edit from Local Computer
4  =====
5  # I'm trying to edit something in this project.
6  # Edit from Website
7  >>>>>>> b65956e67b117681c5810007112846c7baf2620d (Incoming Change)
8
```

GitHub – Pull Request

[1] Create New branch & add new file (Dev. C)



GitHub – Pull Request

[2] Create file “file_h” (Dev. C)

feature3 had recent pushes less than a minute ago [Compare & pull request](#)

feature3 2 branches 0 tags [Go to file](#) [Add file](#) [Code](#)

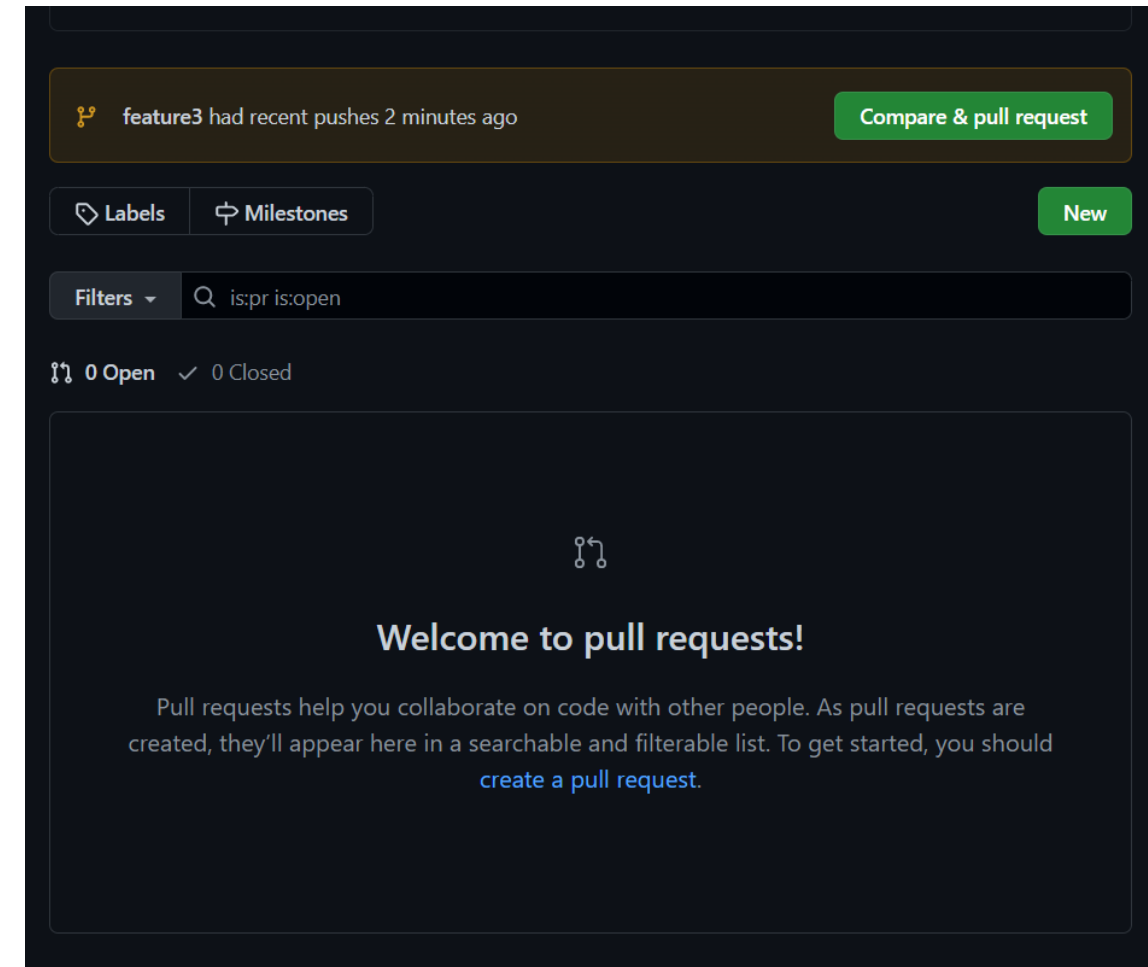
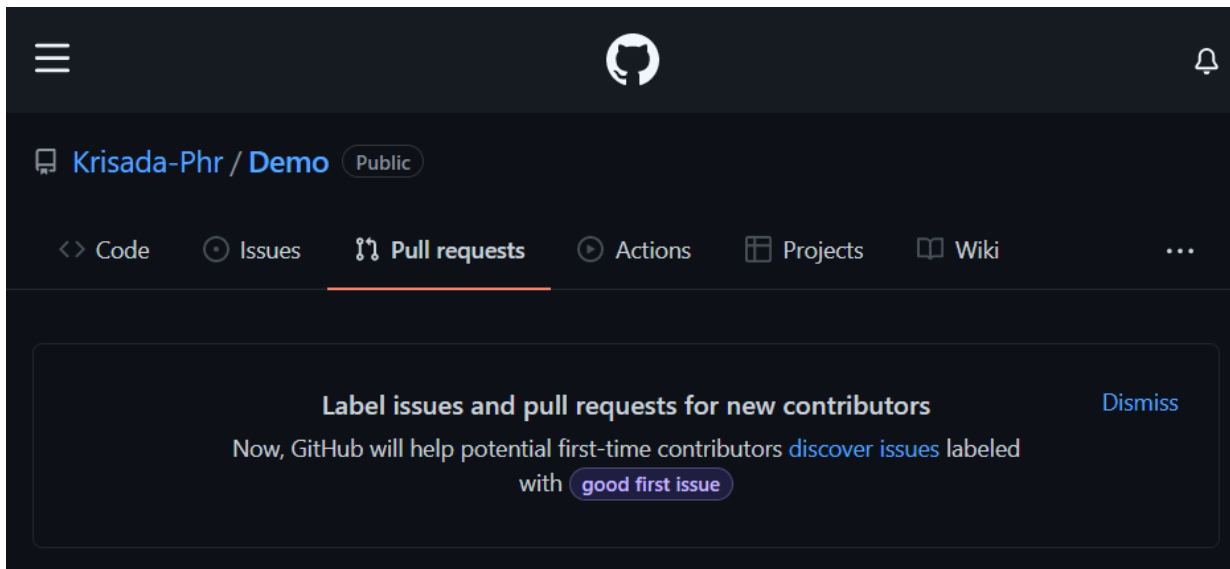
This branch is 1 commit ahead of main. [Contribute](#)

Krisada-Phr Create file_h 88973df now 14 commits

Readme.md	fix Readme.md	7 minutes ago
file_a	Add file A	1 hour ago
file_b	Add files B and C	1 hour ago
file_c	Add files B and C	1 hour ago
file_d	add file D	1 hour ago
file_e	Add file E	1 hour ago
file_f	add file F	1 hour ago
file_g	add file G	1 hour ago
file_h	Create file_h	now

GitHub – Pull Request

[3] Call pull request (Dev. C), [New]




GitHub – Pull Request

[4] Select branch (Dev. C)


Compare changes

Compare changes across branches, commits, tags, and more below. If you need to, you can also [compare across forks](#).

 base: main ▾ ← compare: main ▾



Choose different branches or forks above to discuss and review changes. [Learn about pull requests](#)

Create pull request



Compare and review just about anything

Branches, tags, commit ranges, and time ranges. In the same repository and across forks.

Example comparisons	
 feature3	3 minutes ago
 main@{1day}...main	24 hours ago

GitHub – Pull Request

[5] Review, create pull request.

**Make sure what branches
you want to merge**

The screenshot shows the GitHub 'Comparing changes' page for a pull request. At the top, it says 'Comparing changes' and 'Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).' Below this, there are two dropdown menus: 'base: main' and 'compare: feature3'. A green checkmark indicates 'Able to merge. These branches can be automatically merged.' A box below contains the text 'Discuss and review the changes in this comparison with others.' with a link 'Learn about pull requests' and a green button 'Create pull request'. Below this, a summary bar shows '1 commit', '1 file changed', and '1 contributor'. The 'Commits on Jan 13, 2022' section shows a commit titled 'Create file_h' by 'Krisada-Phr' committed 5 minutes ago. Below the commit, it says 'Showing 1 changed file with 1 addition and 0 deletions.' with 'Split' and 'Unified' tabs. The file list shows 'file_h' with a diff view. The diff shows a single addition: '+ This is File H'.

Comparing changes

Choose two branches to see what's changed or to start a new pull request. If you need to, you can also [compare across forks](#).

base: main ← compare: feature3

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

Discuss and review the changes in this comparison with others.
[Learn about pull requests](#)

Create pull request

1 commit 1 file changed 1 contributor

Commits on Jan 13, 2022

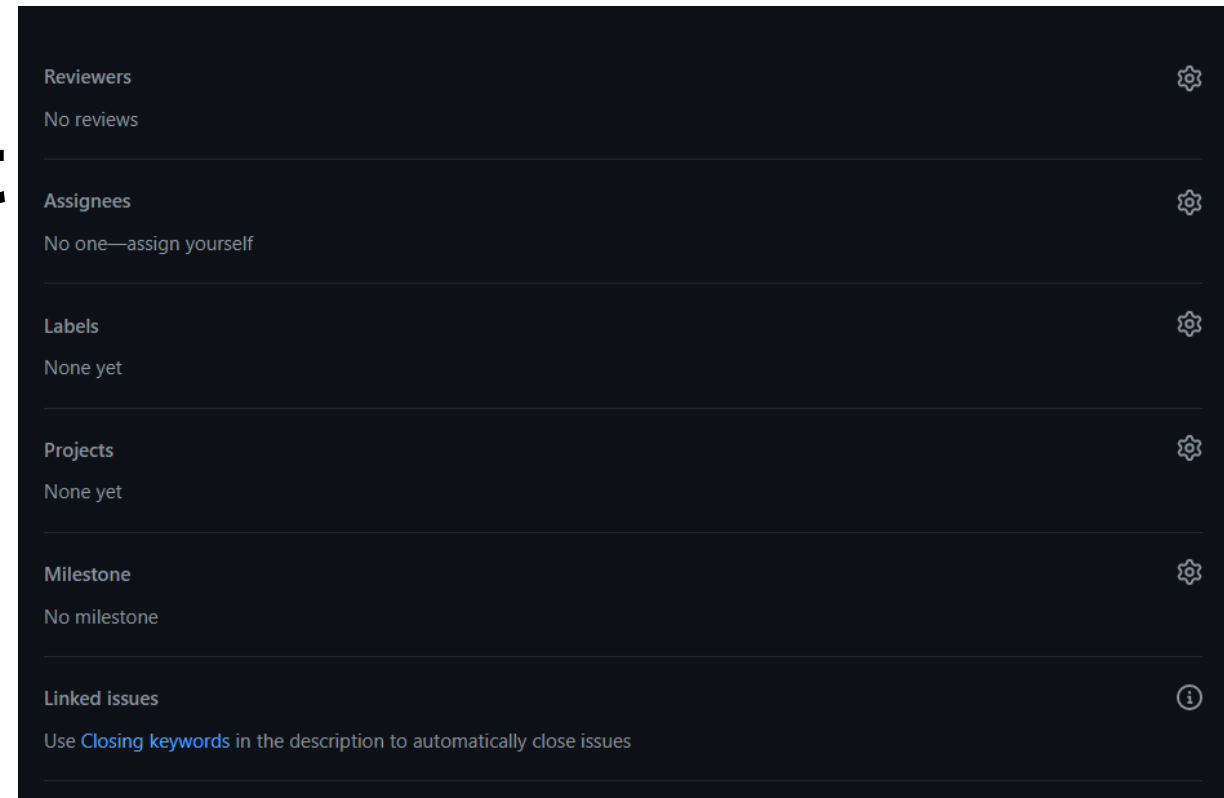
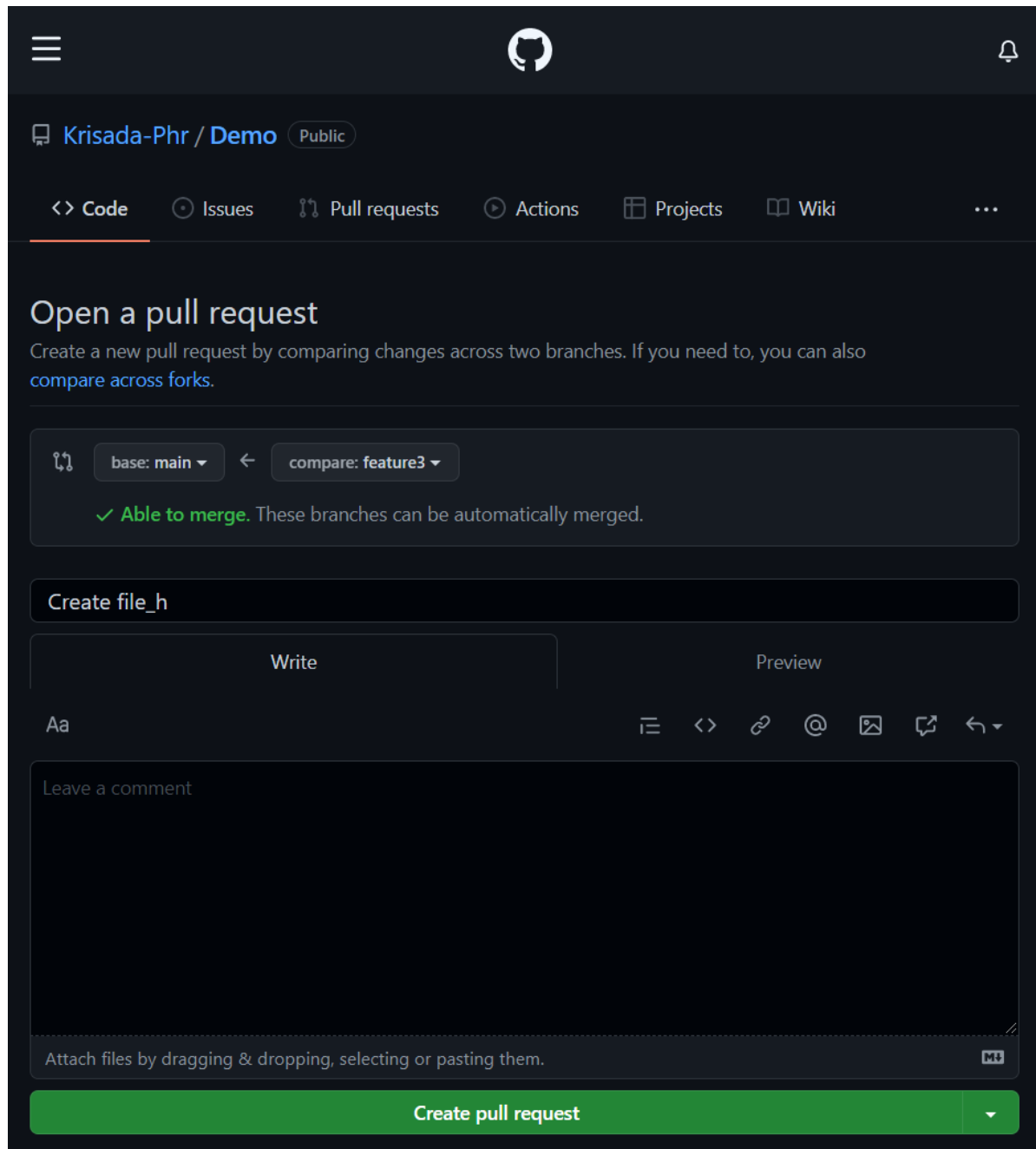
Create file_h
Krisada-Phr committed 5 minutes ago

Showing 1 changed file with 1 addition and 0 deletions. Split Unified

1 file_h

... @@ -0,0 +1 @@

1 + This is File H



[6] Add details

- ☐ Reviewers
- ☐ Assignees
- ☐ Labels

Labels

Apply labels to this pull request

Filter labels

- bug
Something isn't working
- documentation
Improvements or additions to documentation
- duplicate
This issue or pull request already exists
- enhancement
New feature or request
- good first issue
Good for newcomers
- help wanted
Extra attention is needed
- invalid
This doesn't seem right
- question

Edit labels

base: main ← compare: feature3 ✓ Able to merge. These branches can be automatically merged.

Add xxx Feature to Main Project

Write Preview

Add "file_h" to project

Create pull request

Reviewers
No reviews

Assignees
Krisada-Phr

Labels
enhancement

Projects
None yet

Milestone
No milestone

When working as a team, pay attention to paperwork.

GitHub – Pull Request

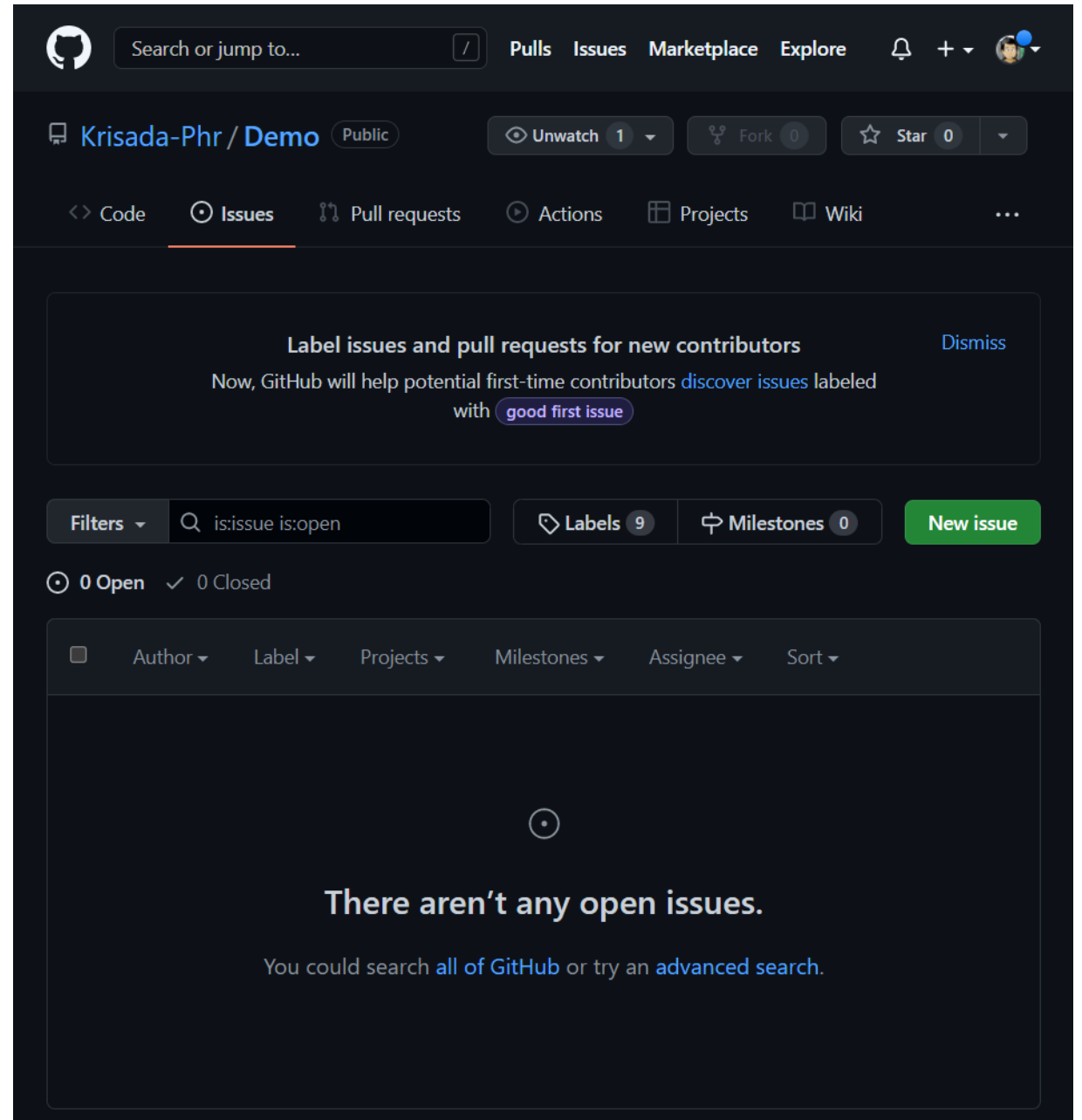
[7] Review, Comment, Merge (Dev. D)

This screenshot shows the GitHub interface for a pull request titled "Add xxx Feature to Main Project #1". The repository is "Krisada-Phr / Demo" and is public. The pull request is from the "feature3" branch to the "main" branch, containing 1 commit. The interface includes navigation tabs for Code, Issues, Pull requests (1), Actions, Projects, Wiki, Security, Insights, and Settings. A comment by "Krisada-Phr" (Owner) states "Add 'file_h' to project". The commit history shows "Create file_h" (Verified, 88973df) and "Krisada-Phr added the enhancement label now". The right sidebar shows "Reviewers" (No reviews), "Assignees" (Krisada-Phr), and "Labels" (enhancement).

This screenshot shows the review interface for the pull request. It includes a green box with status messages: "Continuous integration has not been set up" (GitHub Actions and several other apps can be used to automatically catch bugs and enforce style.) and "This branch has no conflicts with the base branch" (Merging can be performed automatically.). A green button "Merge pull request" is visible, with a note "You can also open this in GitHub Desktop or view command line instructions." Below this is a comment section with a "Write" tab and a "Preview" tab. The comment area has a text input field, a rich text editor toolbar, and a file attachment area. At the bottom, there are buttons for "Close pull request" and "Comment". A "ProTip!" at the bottom suggests "Add comments to specific lines under Files changed."

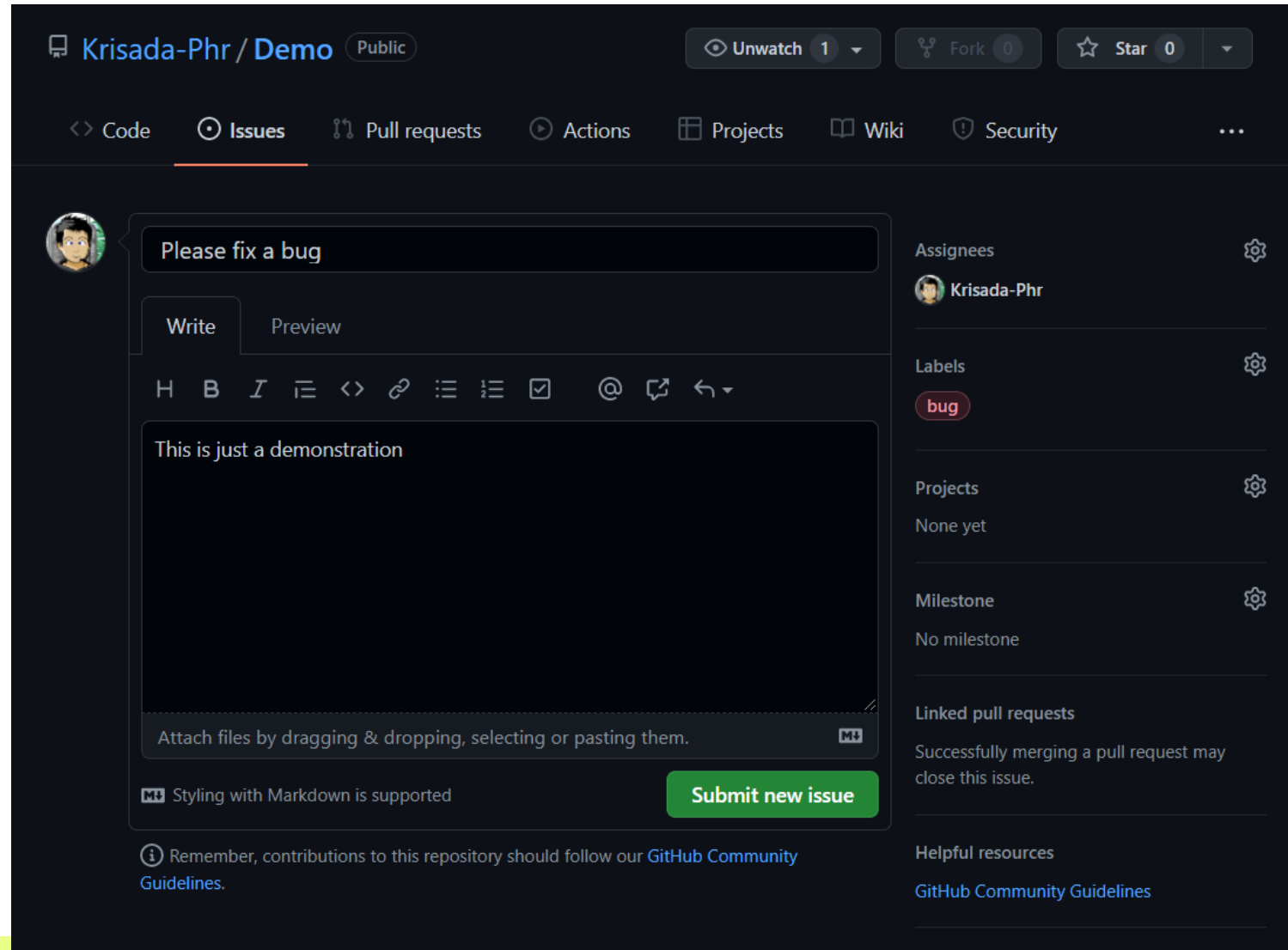
GitHub – Issues

[1] Request what you want.



GitHub – Issues

[2] Write a details.



The screenshot shows the GitHub interface for creating a new issue in the repository 'Krisada-Phr / Demo'. The 'Issues' tab is selected in the top navigation bar. The issue title is 'Please fix a bug'. The 'Write' tab is active in the content editor, which contains the text 'This is just a demonstration'. The editor includes a rich text toolbar with options for bold, italic, code, link, list, and more. A green 'Submit new issue' button is at the bottom right of the editor. To the right of the editor, there are sections for 'Assignees' (showing 'Krisada-Phr'), 'Labels' (with a 'bug' label), 'Projects' (showing 'None yet'), and 'Milestone' (showing 'No milestone'). At the bottom right, there is a section for 'Linked pull requests' with a note about merging. A footer note mentions the GitHub Community Guidelines.

Krisada-Phr / Demo Public

Unwatch 1 Fork 0 Star 0

Code Issues Pull requests Actions Projects Wiki Security

Please fix a bug

Write Preview

H B I

This is just a demonstration

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

Styling with Markdown is supported

Submit new issue

Assignees

Krisada-Phr

Labels

bug

Projects

None yet

Milestone

No milestone

Linked pull requests

Successfully merging a pull request may close this issue.

Helpful resources

GitHub Community Guidelines

Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

GitHub – Issues

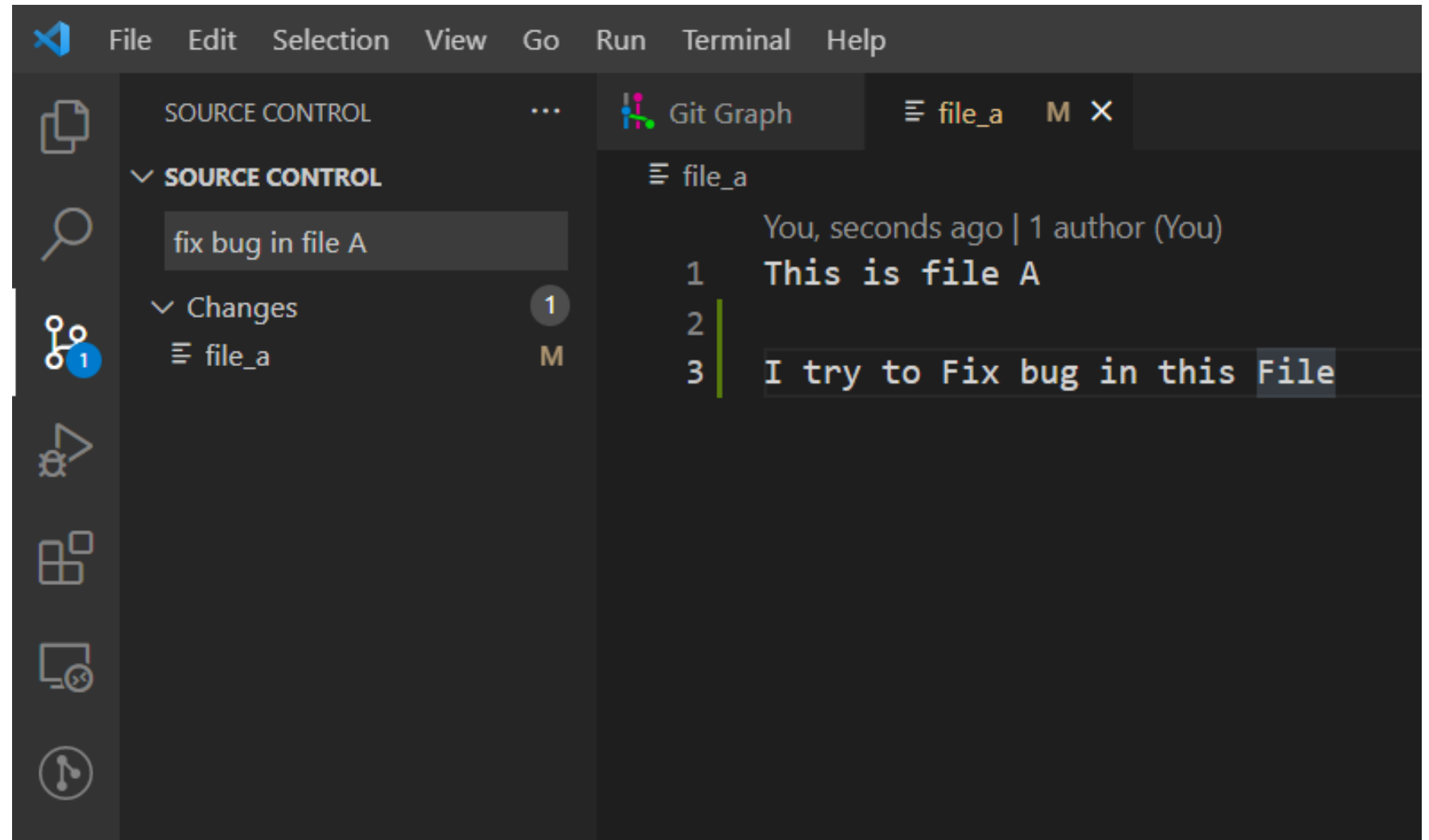
[3] Issues

The screenshot shows the GitHub interface for the repository **Krisada-Phr / Demo**, which is marked as **Private**. The top navigation bar includes links for Pulls, Issues, Marketplace, and Explore. The repository header shows **Unwatch 1**, **Fork 0**, and **Star 0** buttons. Below the header, a tab bar highlights the **Issues 1** tab, with other tabs for Code, Pull requests, Actions, Projects, Security, and Insights. The main content area features a search bar with the filter `is:issue is:open`, **Labels 9**, **Milestones 0**, and a **New issue** button. It also shows **1 Open** and **0 Closed** issue counts. A table of filters (Author, Label, Projects, Milestones, Assignee, Sort) is visible. One issue is listed: **Please fix a bug** (with a **bug** label), opened 39 seconds ago by Krisada-Phr. A **ProTip!** at the bottom suggests excluding one's own issues with the filter `-author:Krisada-Phr`.

GitHub – Issues (รับงาน)

[1] Pull, Edit, Commit

Push to GitHub



GitHub – Issues (รับงาน)

[1] Pull, Edit, Commit

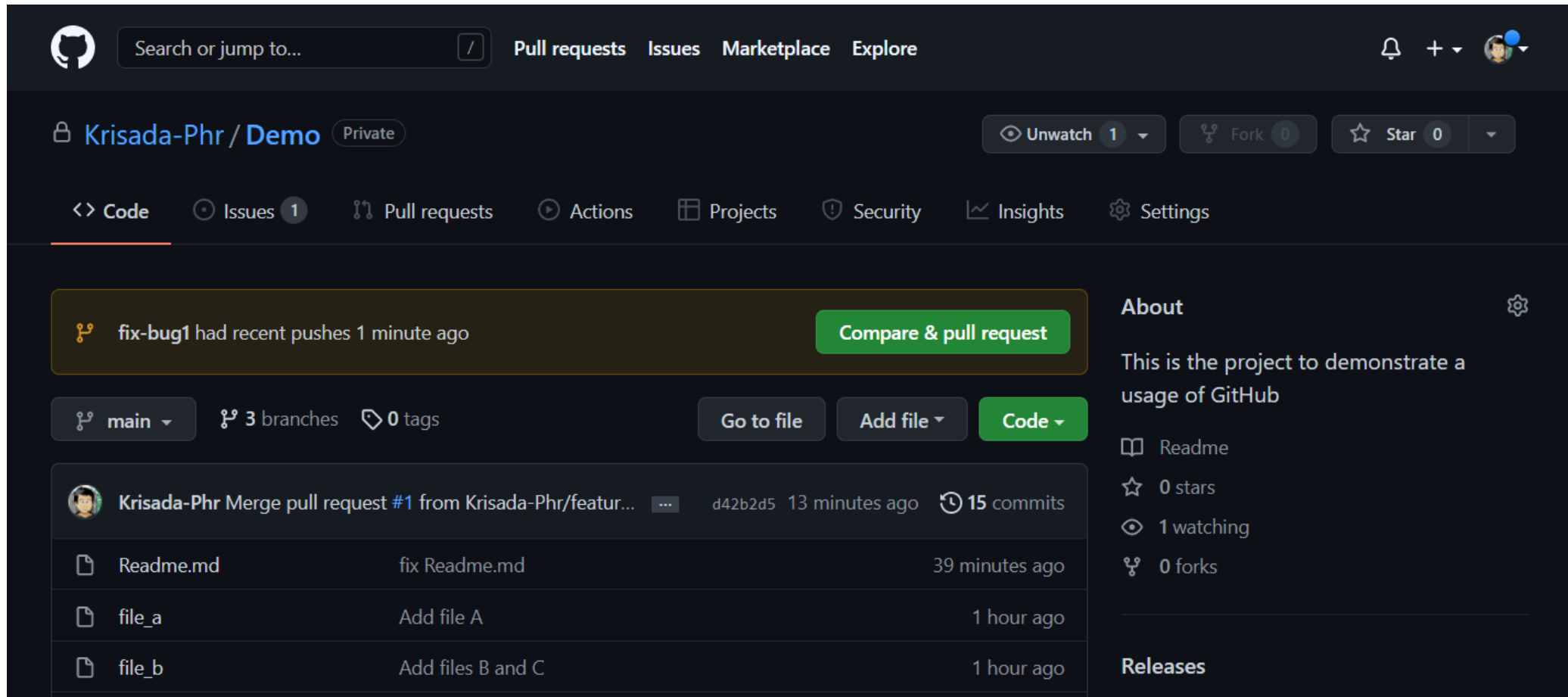
Push to GitHub

```
MINGW64:/d/Project/GitHub
gladi@Lunar MINGW64 /d/Project/GitHub (fix-bug1)
$ git push -u origin fix-bug1
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 301 bytes | 301.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
remote:
remote: Create a pull request for 'fix-bug1' on GitHub by visiting:
remote:   https://github.com/Krisada-Phr/Demo/pull/new/fix-bug1
remote:
To https://github.com/Krisada-Phr/Demo.git
 * [new branch]      fix-bug1 -> fix-bug1
Branch 'fix-bug1' set up to track remote branch 'fix-bug1' from 'origin'.

gladi@Lunar MINGW64 /d/Project/GitHub (fix-bug1)
$
```

GitHub – Issues (รับงาน)

[2] Compare & pull request



The screenshot shows the GitHub web interface for a repository named 'Krisada-Phr / Demo'. The 'Issues' tab is selected, showing a notification for 'fix-bug1' with a 'Compare & pull request' button. Below this, the 'main' branch is selected, showing 3 branches and 0 tags. A table of recent commits is displayed, including 'Merge pull request #1 from Krisada-Phr/featur...', 'fix Readme.md', 'Add file A', and 'Add files B and C'. The right sidebar contains 'About' information and a 'Releases' section.

Search or jump to... Pull requests Issues Marketplace Explore

Krisada-Phr / Demo Private Unwatch 1 Fork 0 Star 0

Code Issues 1 Pull requests Actions Projects Security Insights Settings

fix-bug1 had recent pushes 1 minute ago Compare & pull request

main 3 branches 0 tags Go to file Add file Code

Krisada-Phr Merge pull request #1 from Krisada-Phr/featur... d42b2d5 13 minutes ago 15 commits

Readme.md	fix Readme.md	39 minutes ago
file_a	Add file A	1 hour ago
file_b	Add files B and C	1 hour ago

About This is the project to demonstrate a usage of GitHub

Readme 0 stars 1 watching 0 forks

Releases

GitHub – Issues (รับงาน)

[3] Linked issues

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: main ← compare: fix-bug1 ✓ Able to merge. These branches can be automatically merged.

fix bug in file A

Write Preview

Leave a comment

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

Create pull request

Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

Reviewers

No reviews

Assignees

No one—assign yourself

Labels

None yet

Projects

None yet

Milestone

No milestone

Linked issues

Use [Closing keywords](#) in the description to automatically close issues

Helpful resources

[GitHub Community Guidelines](#)

Linked issues

Use [Closing keywords](#) in the description to automatically close issues



GitHub – Issues (รับงาน)

[3] Linked issues

Linking a pull request to an issue using a keyword

You can link a pull request to an issue by using a supported keyword in the pull request's description or in a commit message (please note that the pull request must be on the default branch).

- close
- closes
- closed
- fix
- fixes
- fixed
- resolve
- resolves
- resolved


GitHub – Issues (รับงาน)

[3] Linked issues

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: main ← compare: fix-bug1 ✓ **Able to merge.** These branches can be automatically merged.


 fix bug in file A

Write Preview H B I ≡ <> 🔗 ≡ ≡ ☑ @ ↗ ↶

fix #2 a bug in this project blah blah blah

 #2 Please fix a bug

Reference an issue, pull request, or discussion

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


Create pull request

GitHub – Issues (รับงาน)

[3] Linked issues

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: main

←

compare: fix-bug1

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



fix bug in file A

Write

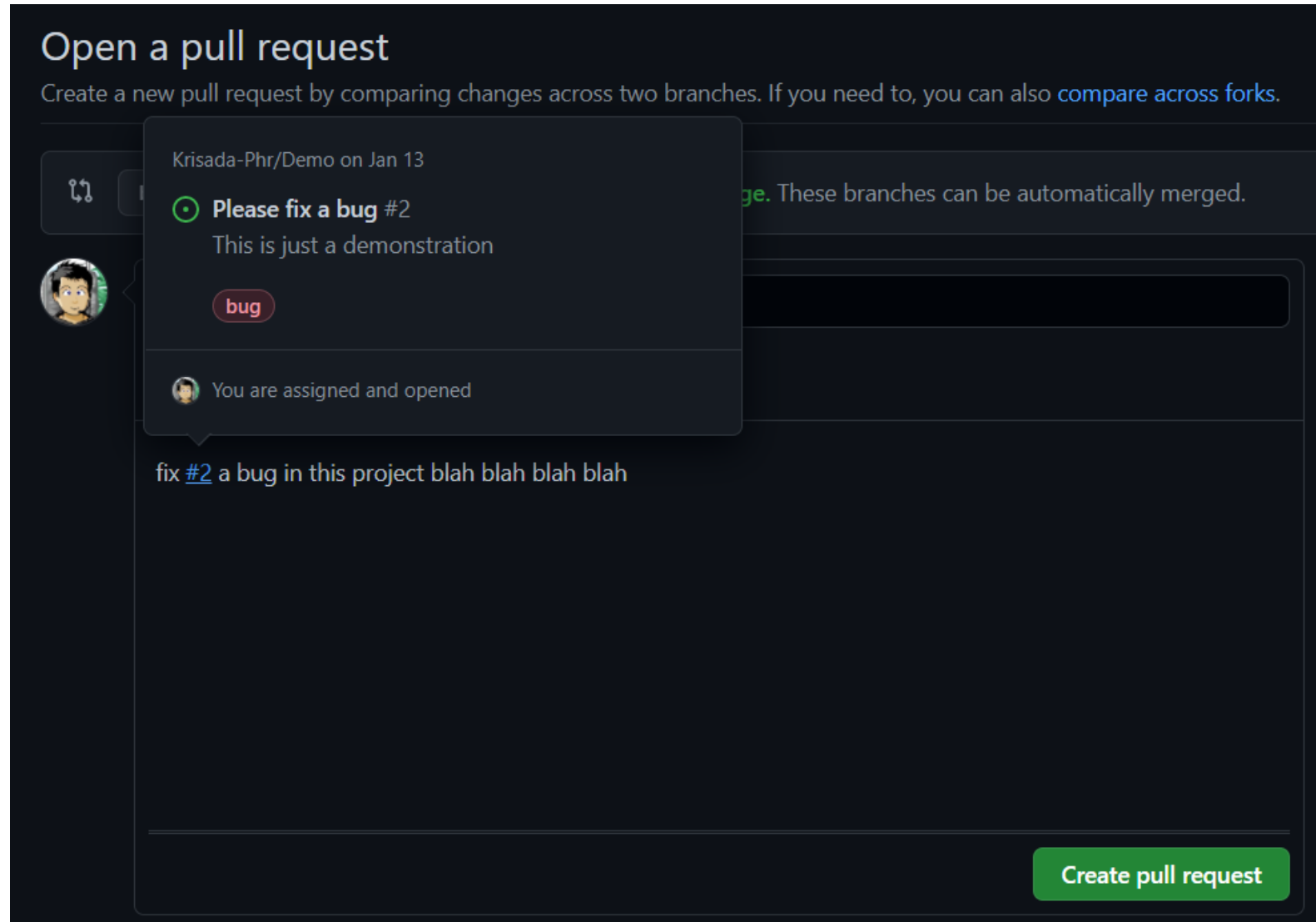
Preview

fix #2 a bug in this project blah blah blah blah

Create pull request

GitHub – Issues (รับงาน)

[3] Linked issues



GitHub – Issues (รับงาน)

[4] Review

The screenshot shows a GitHub Pull Request interface for a repository named "Krisada-Phr". The pull request is titled "fix bug in file A #3" and is currently in the "Open" state. It shows a merge of 1 commit from the "fix-bug1" branch into the "main" branch. The interface includes a navigation bar with links to Code, Issues (1), Pull requests (1), Actions, Projects, Security, Insights, and Settings. Below the title, there are tabs for Conversation (0), Commits (1), Checks (0), and Files changed (1). A comment by Krisada-Phr is visible, stating "fix #2 a bug in this project blah blah blah". The pull request details section shows that the branch has no conflicts with the base branch and provides a "Merge pull request" button. The right sidebar contains sections for Reviewers, Assignees, Labels, Projects, Milestone, and Linked issues.

fix bug in file A #3

Open Krisada-Phr wants to merge 1 commit into main from fix-bug1

Conversation 0 Commits 1 Checks 0 Files changed 1 +3 -1

Krisada-Phr commented now

fix #2 a bug in this project blah blah blah

fix bug in file A 2b16f24

Add more commits by pushing to the **fix-bug1** branch on **Krisada-Phr/Demo**.

Continuous integration has not been set up
GitHub Actions and several other apps can be used to automatically catch bugs and enforce style.

✓ This branch has no conflicts with the base branch
Merging can be performed automatically.

Merge pull request You can also open this in GitHub Desktop or view command line instructions.

Write Preview H B I ≡ <> 🔗 ≡ ≡ ☑ @ ↩ ↶

Reviewers
No reviews

Assignees
No one—assign yourself

Labels
None yet

Projects
None yet

Milestone
No milestone

Linked issues
Successfully merging this pull request may close these issues.

🔍 Please fix a bug

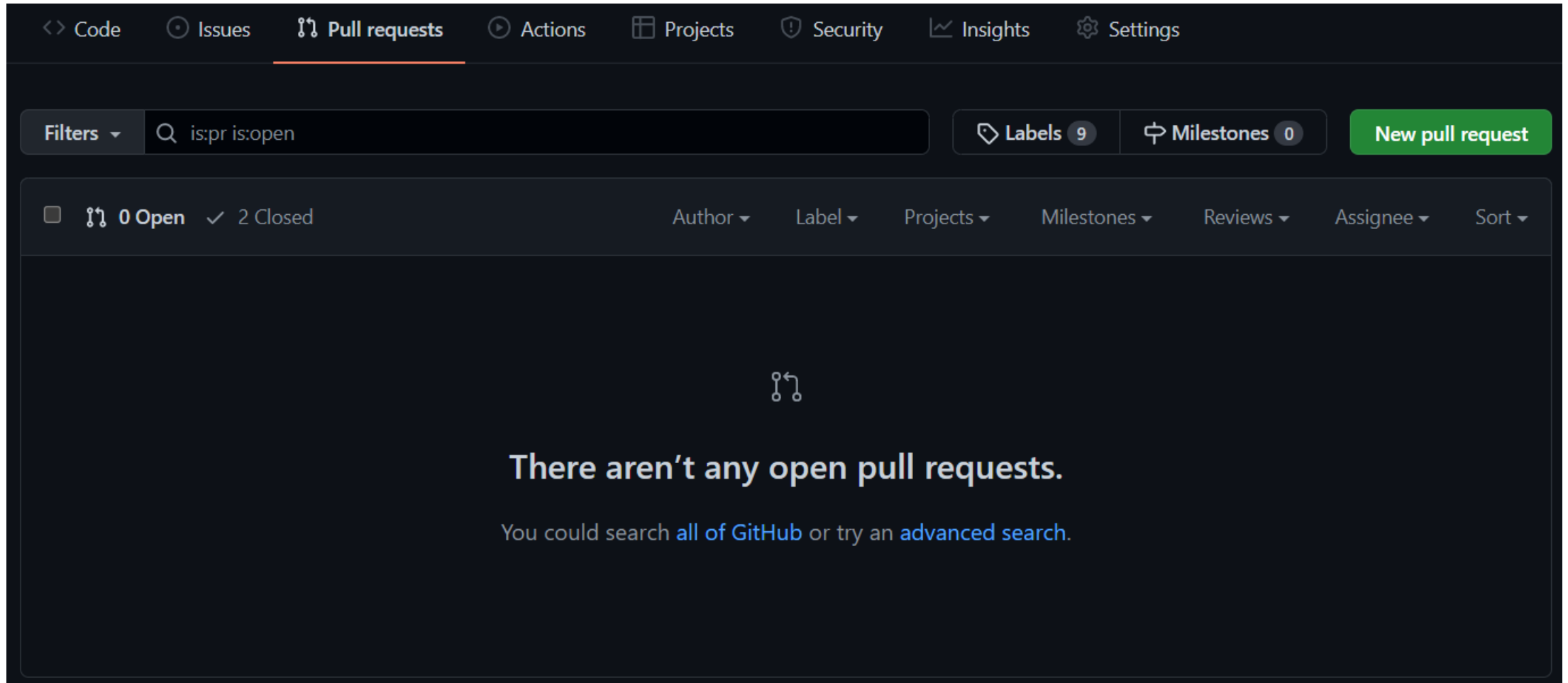
GitHub – Issues (รับงาน)

[4] Review

The screenshot displays a GitHub Pull Request interface. At the top, navigation tabs include Code, Issues (1), Pull requests, Actions, Projects, Security, Insights, and Settings. The main title is "fix bug in file A #3". A status bar indicates "Merged" by Krisada-Phr, who merged 1 commit into the main branch from the fix-bug1 branch. Below this, a summary shows 0 conversations, 1 commit, 0 checks, and 1 file changed, with a net change of +3 lines and -1 line. A comment by Krisada-Phr, posted 2 minutes ago, reads: "fix #2 a bug in this project blah blah blah blah". Below the comment is a commit history section showing the commit "fix bug in file A" (2b16f24) and a merge action by Krisada-Phr. A notification banner states "Pull request successfully merged and closed" and suggests deleting the fix-bug1 branch. At the bottom, there is a "Write" section with a rich text editor and a "Preview" tab. The right sidebar contains metadata sections: Reviewers (No reviews), Assignees (No one—assign yourself), Labels (None yet), Projects (None yet), Milestone (No milestone), and Linked issues (Successfully merging this pull request may close these issues, with a link to "Please fix a bug").

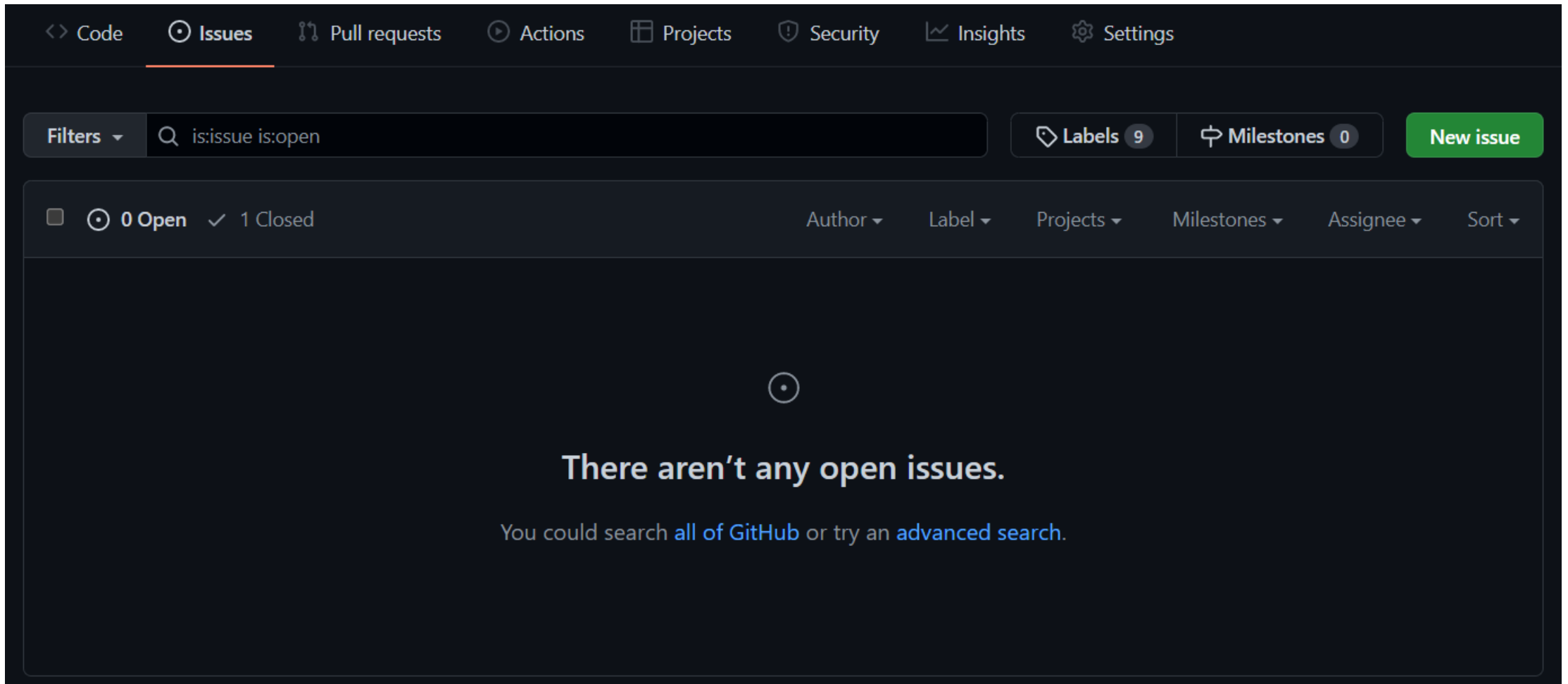
GitHub – Issues (รับงาน)

[4] Review



GitHub – Issues (รับงาน)

[4] Review



Take Home Message

- [1] Software version control with GitHub
- [2] Clone & Manage repository
- [3] Push & Pull your source code from Local PC to GitHub server
- [4] Create an Issue
- [5] Create a Pull request

Teamwork