INTRO TO GIT

What is Git ?

git

version control system tracking change of a project folder

tracked project = git repository (repo)

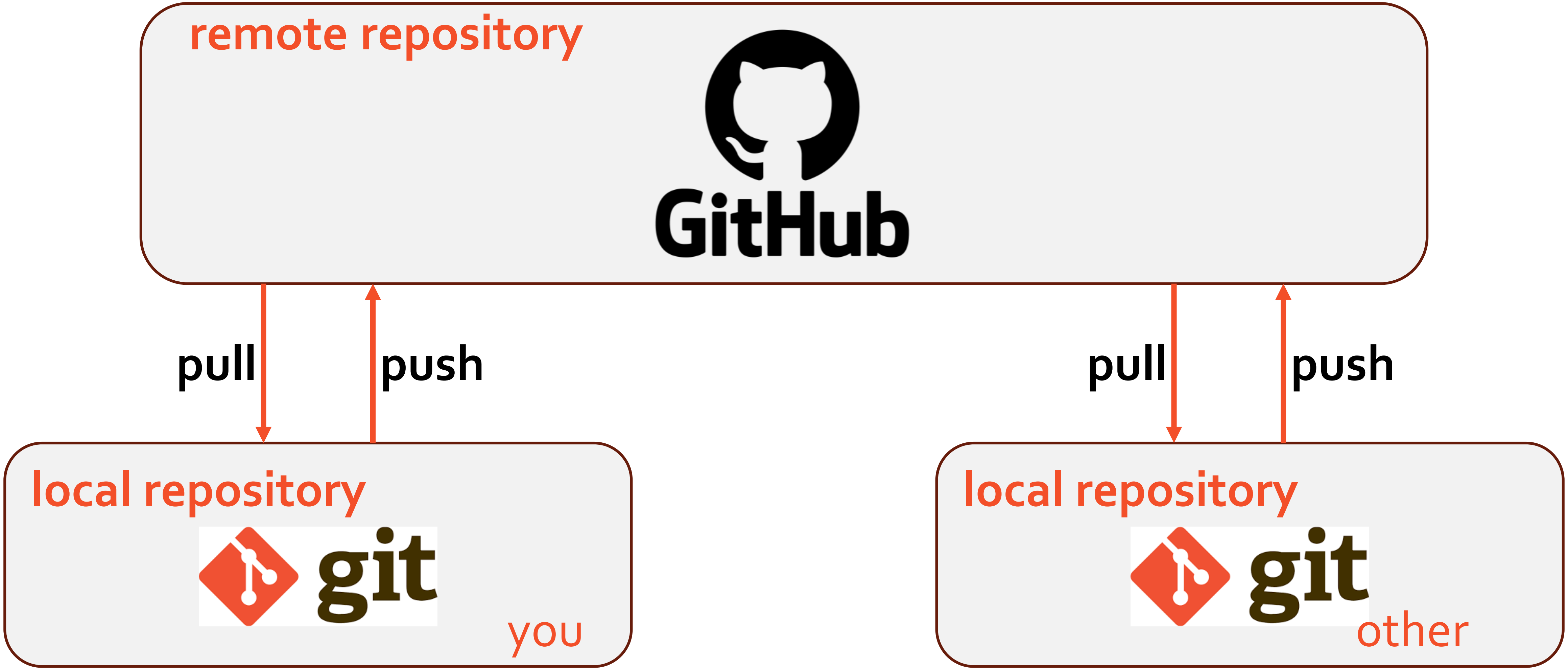
Git vs GitHub

Feature	git	GitHub
Type	Version control system	Hosting platform for Git repos
Runs on	Local machine	Remote machine (Cloud)
Used for	Tracking code changes	Storing and sharing repos

GitHub GitLab

Bitbucket

How Git and GitHub work together



remote repository

GitHub

pull

push

pull

push

local repository

git

you

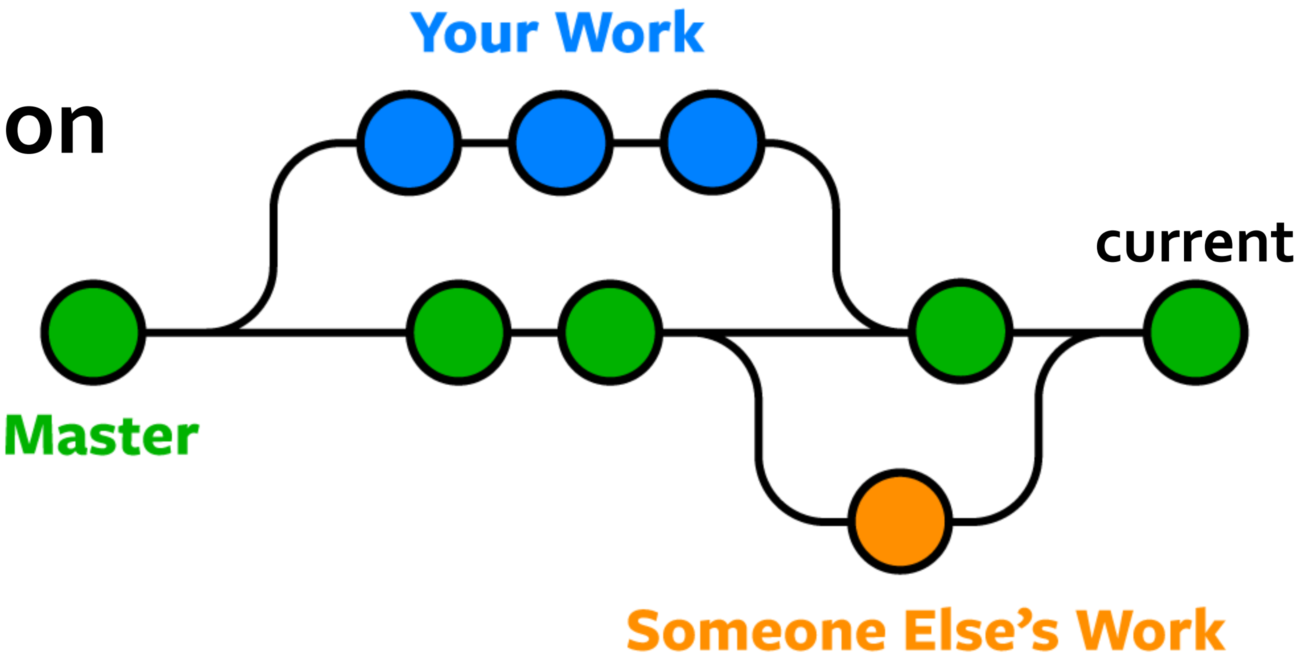
local repository

git

other

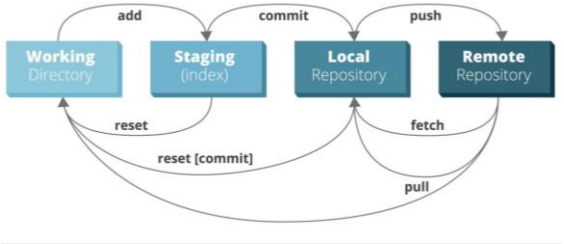
Why Git ?

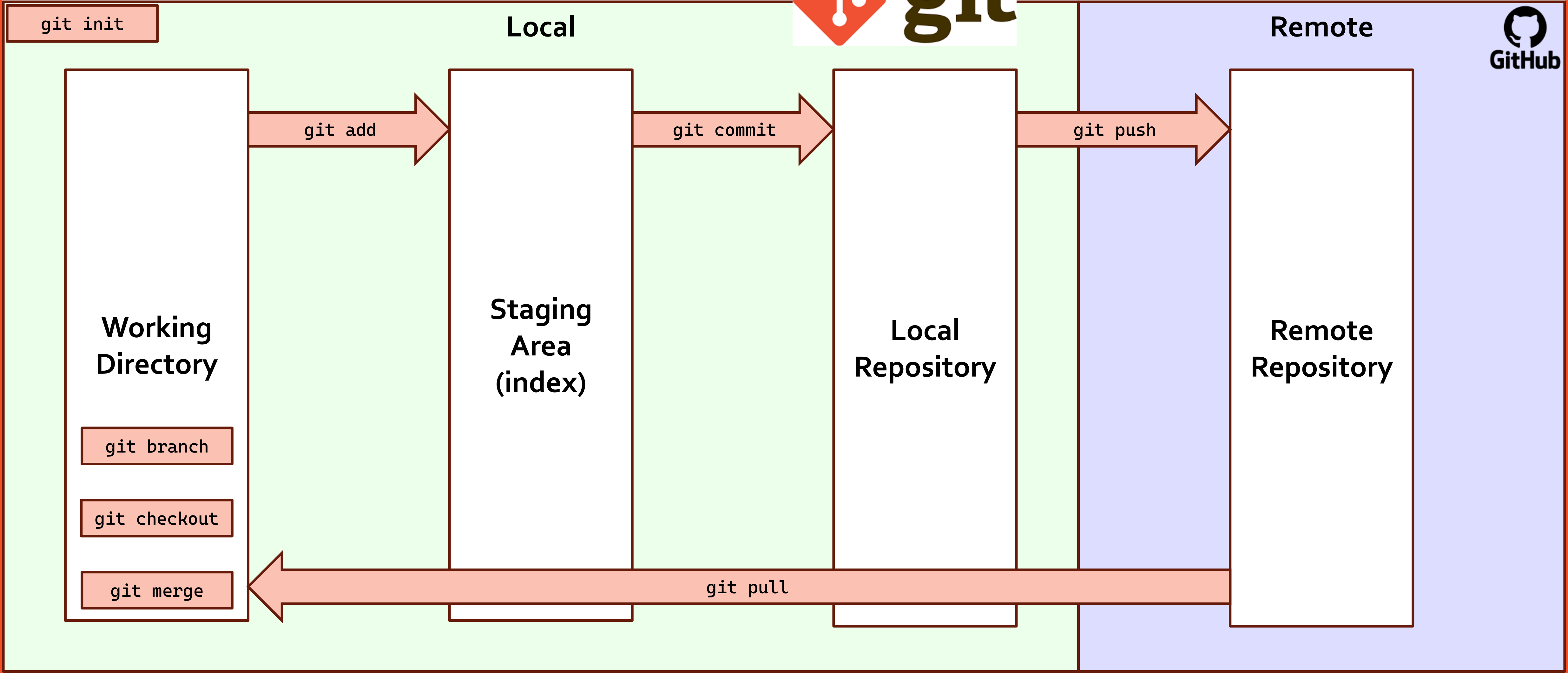
- Tracks changes
- Supports branching and merging
- Allows collaboration



GIT WORKFLOW

Git Workflow





git init

Local

Remote

Working Directory

git add

Staging Area (index)

git commit

Local Repository

git push

Remote Repository

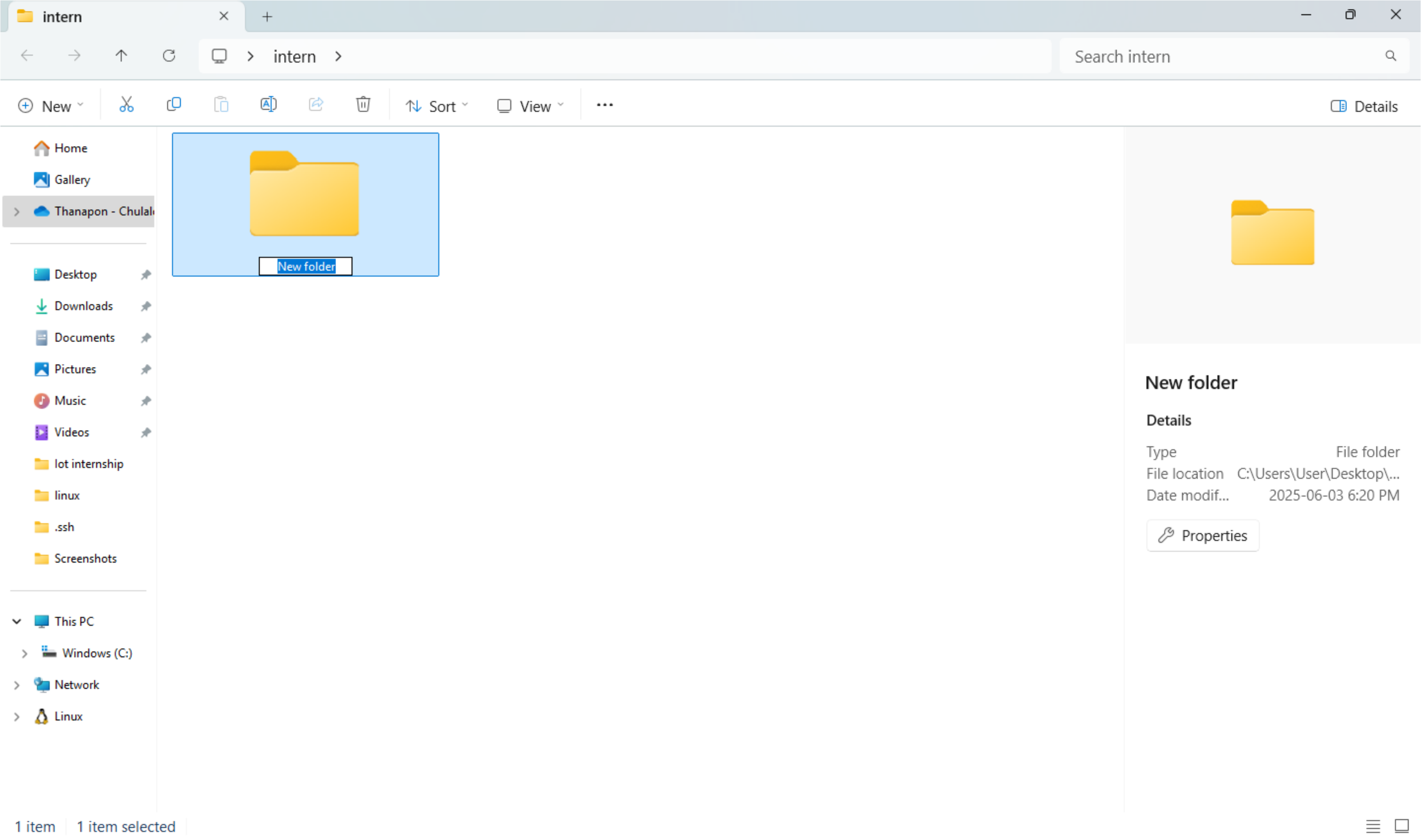
git branch

git checkout

git merge

git pull

Create new project folder

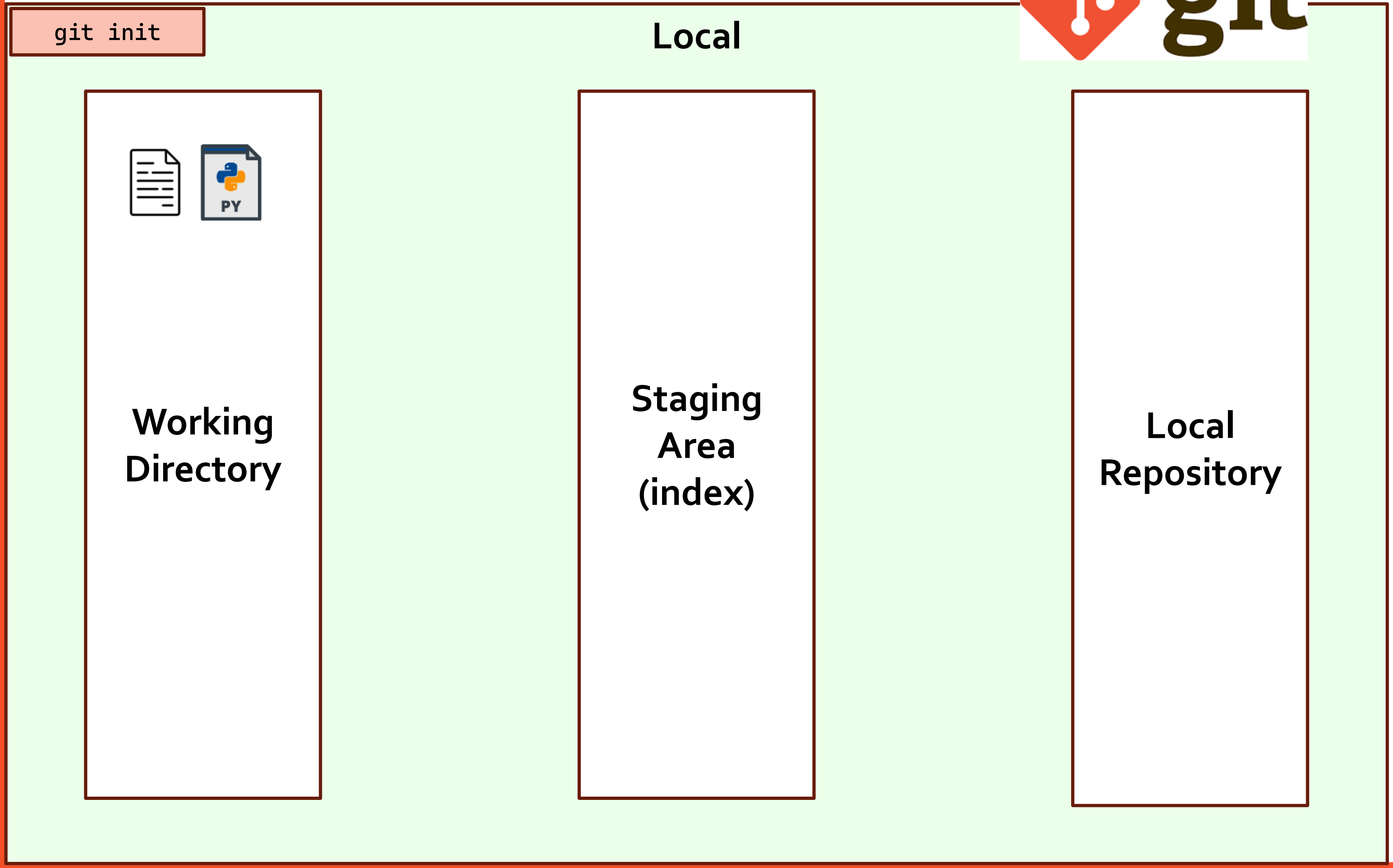


New folder

Details

Type File folder
File location C:\Users\User\Desktop\...
Date modif... 2025-06-03 6:20 PM

Git Workflow



`git init`

Local

Working Directory

Staging Area (index)

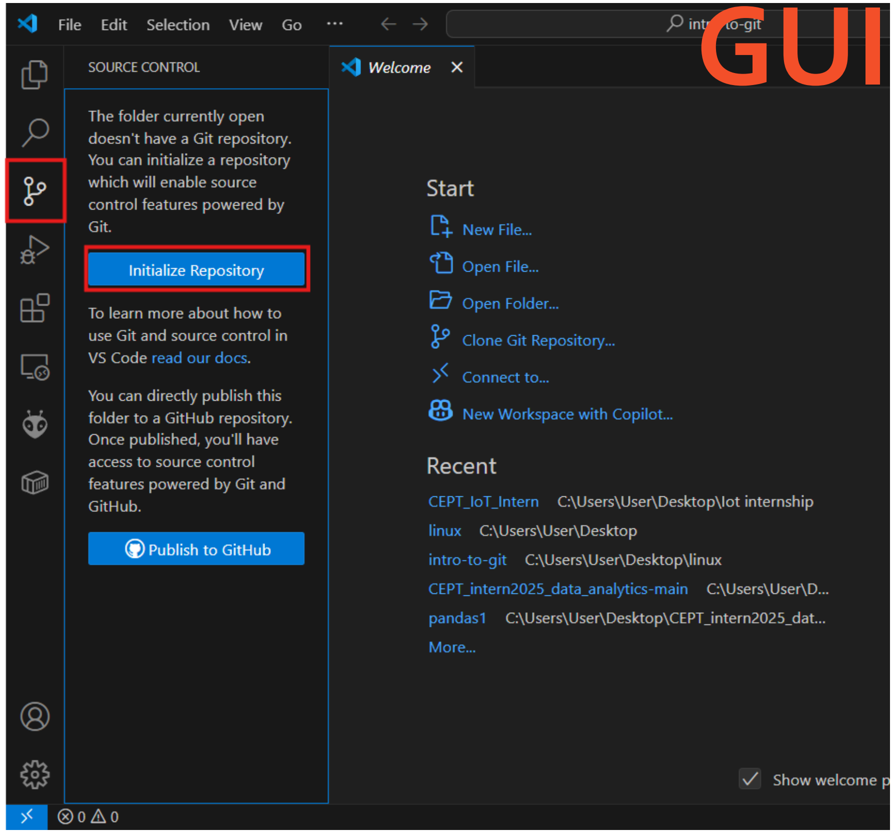
Local Repository

git init

- Creates a new, empty Git repository or reinitializes an existing one

Open your project folder in VScode >> **OR** **Open your project folder in Git Bash >>**

GUI



The folder currently open doesn't have a Git repository. You can initialize a repository which will enable source control features powered by Git.

Initialize Repository

To learn more about how to use Git and source control in VS Code read our docs.

You can directly publish this folder to a GitHub repository. Once published, you'll have access to source control features powered by Git and GitHub.

Publish to GitHub

Start

- New File...
- Open File...
- Open Folder...
- Clone Git Repository...
- Connect to...
- New Workspace with Copilot...

Recent

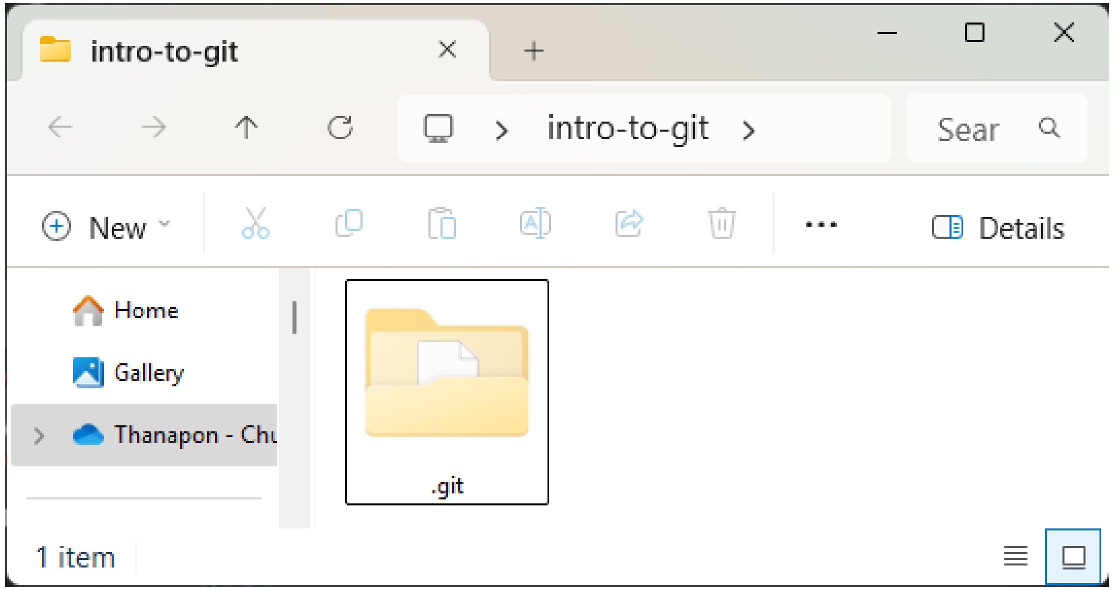
CEPT_IoT_Intern C:\Users\User\Desktop\Iot internship
linux C:\Users\User\Desktop
intro-to-git C:\Users\User\Desktop\linux
CEPT_intern2025_data_analytics-main C:\Users\User\D...
pandas1 C:\Users\User\Desktop\CEPT_intern2025_dat...
More...

Show welcome p

⊗ 0 ⚠ 0

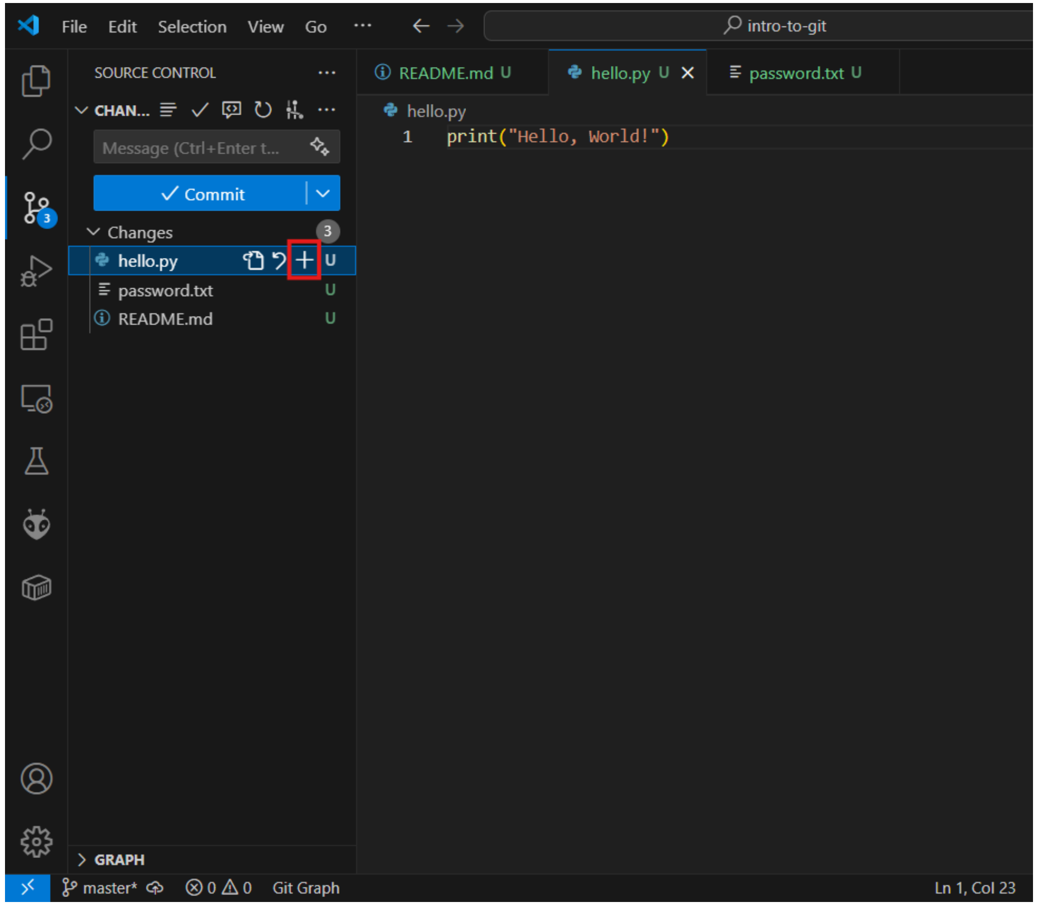
CLI

```
git init
```



git add

- Add files in the working directory to the staging area



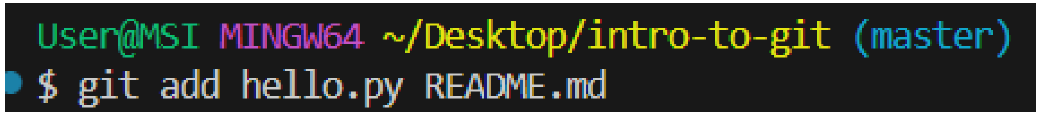
```
print("Hello, World!")
```

Adds all files

```
git add .
```

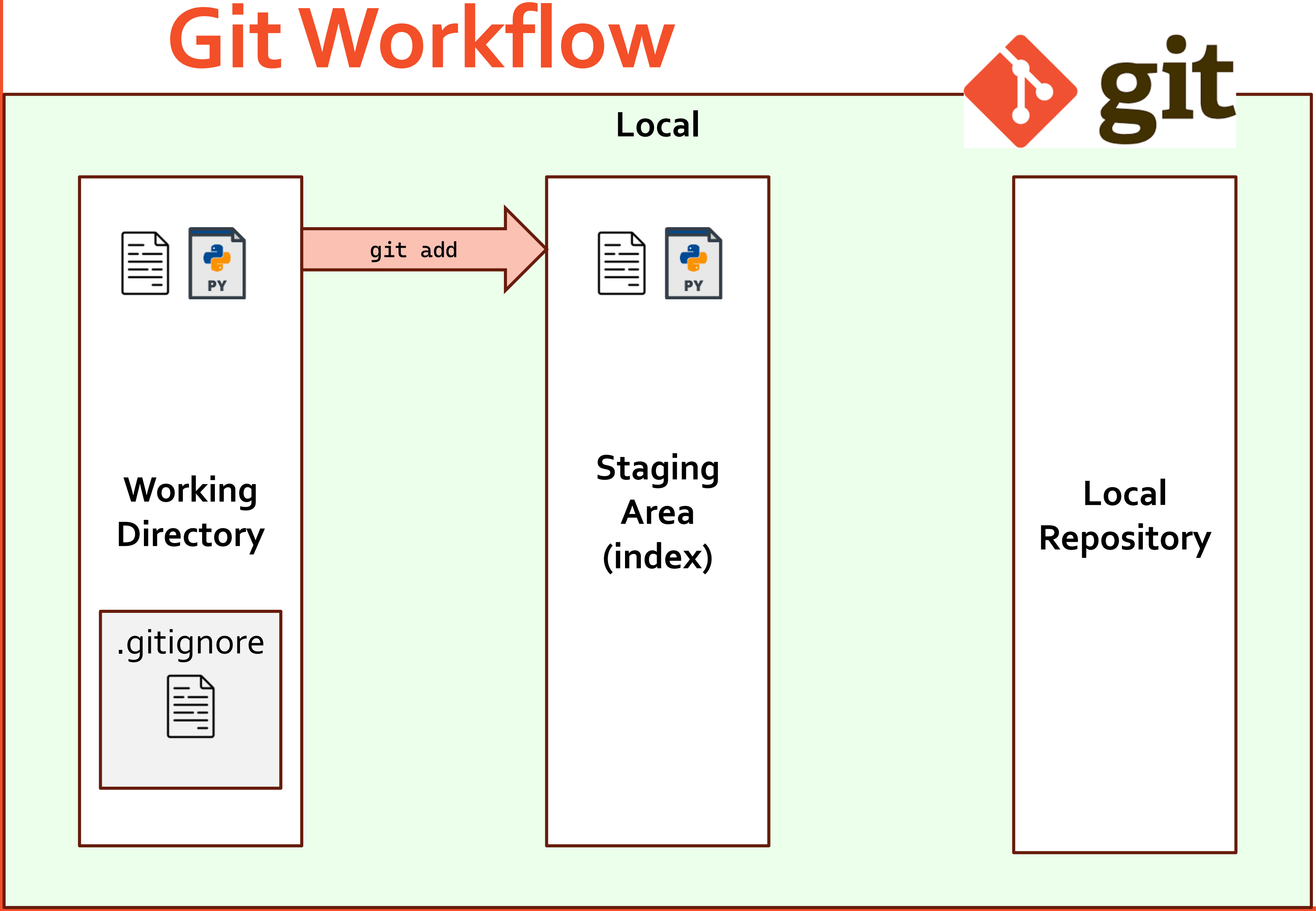
Adds some files

```
git add <file1> <file2>
```



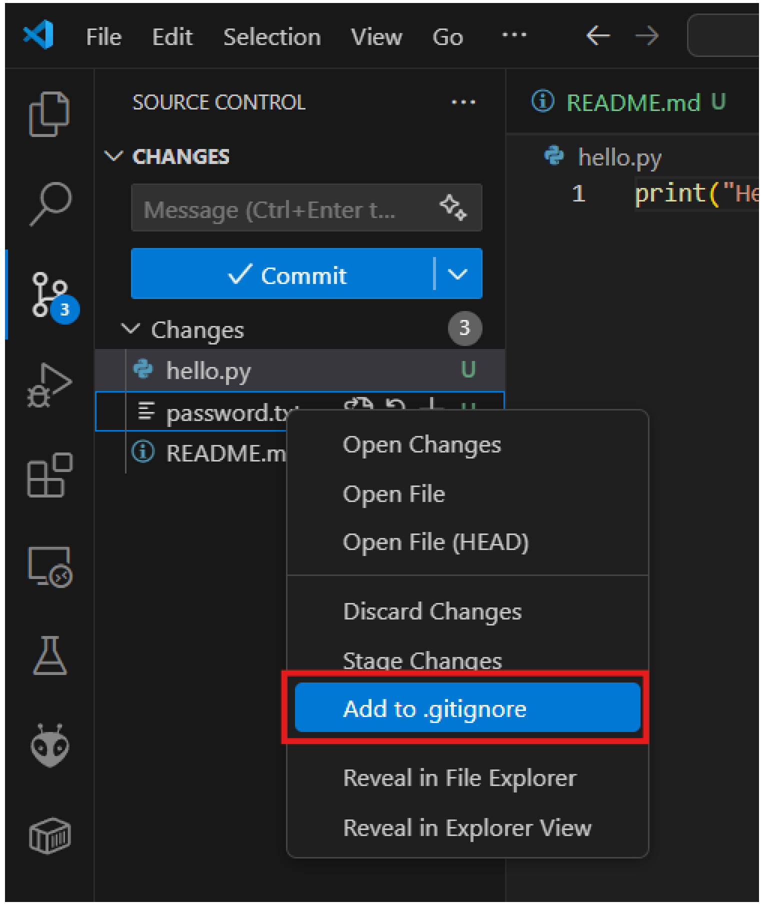
```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git add hello.py README.md
```

Git Workflow



.gitignore

- Special file in a Git repository that tells Git which files or folders to ignore



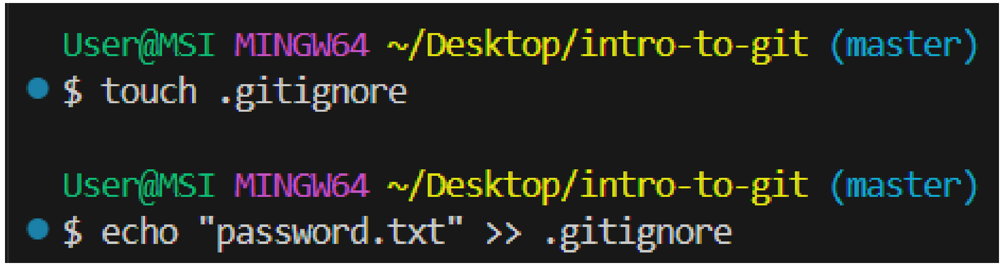
```
1    print("He
```

Create .gitignore file

```
touch .gitignore
```

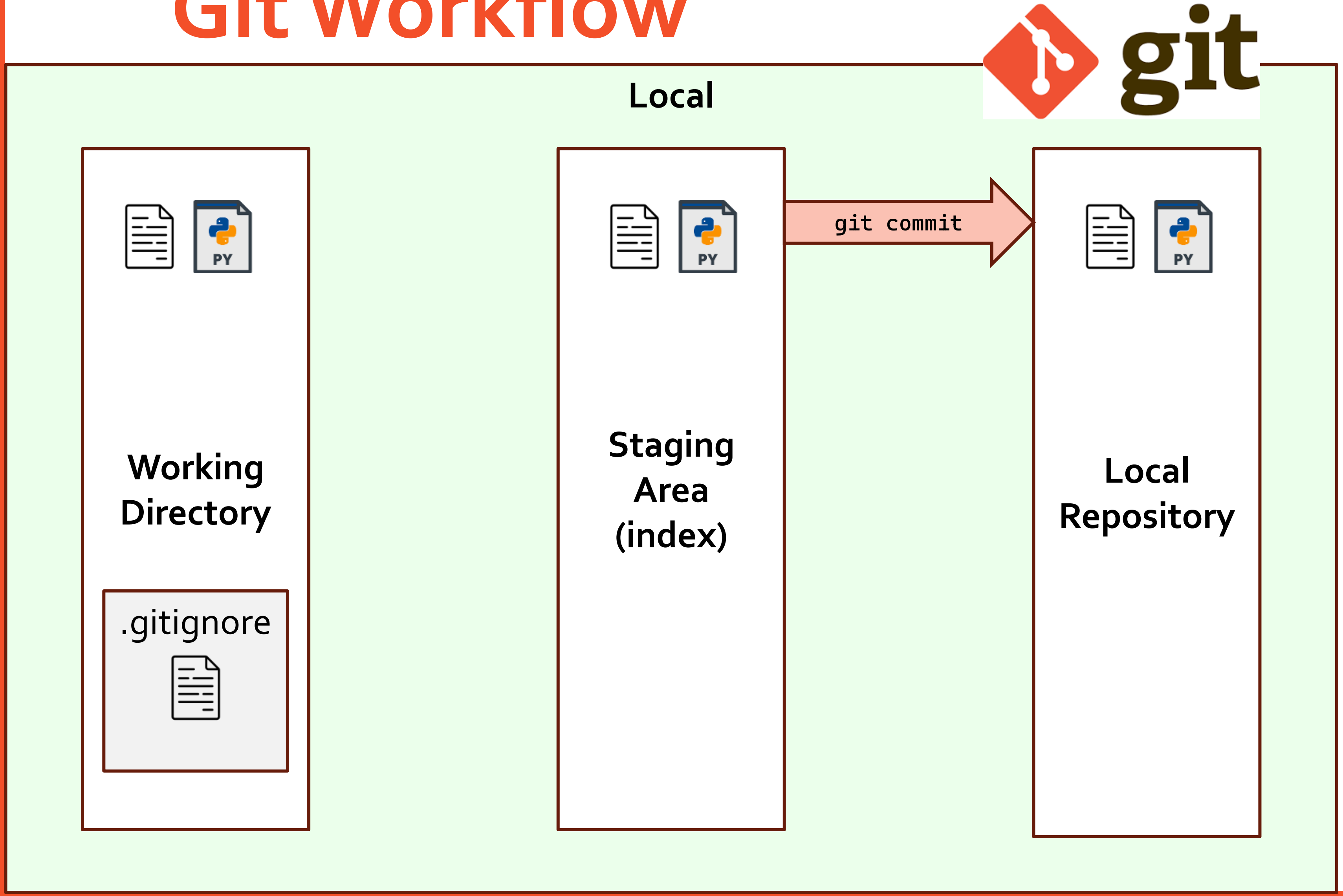
Write <file> into .gitignore

```
echo “<file1>” >> .gitignore
```



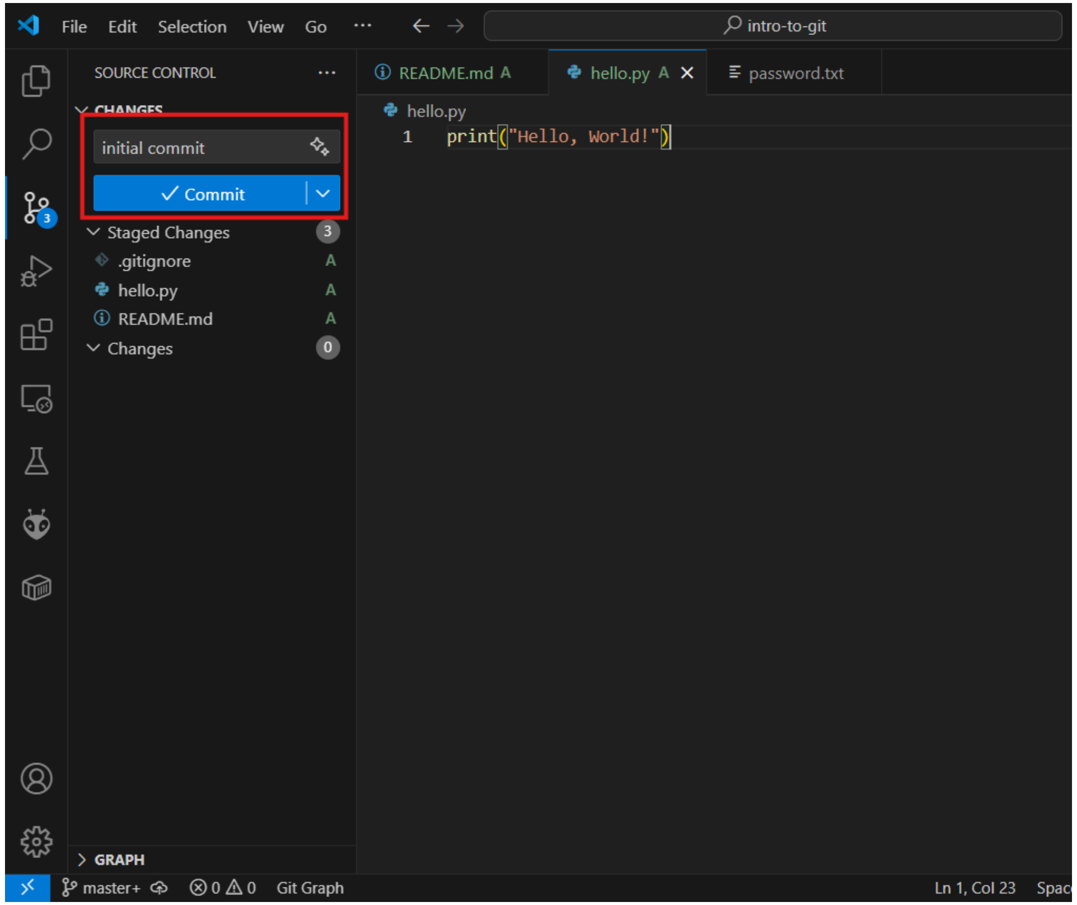
```
  User@MSI MINGW64 ~/Desktop/intro-to-git (master)
● $ touch .gitignore

  User@MSI MINGW64 ~/Desktop/intro-to-git (master)
● $ echo "password.txt" >> .gitignore
```

Git Workflow



git commit

- Creates a snapshot of the changes and saves it to the local repository

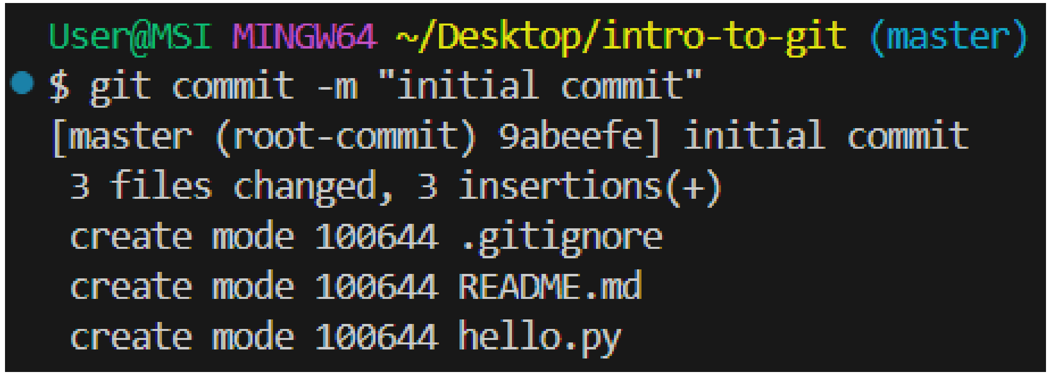


initial commit

hello.py

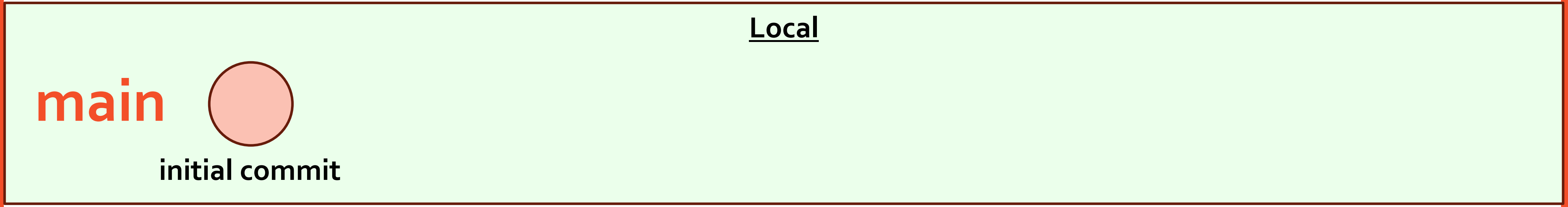
```
print("Hello, World!")
```

```
git commit -m "Your commit message"
```



```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git commit -m "initial commit"
[master (root-commit) 9abeefe] initial commit
 3 files changed, 3 insertions(+)
 create mode 100644 .gitignore
 create mode 100644 README.md
 create mode 100644 hello.py
```

Git Graph

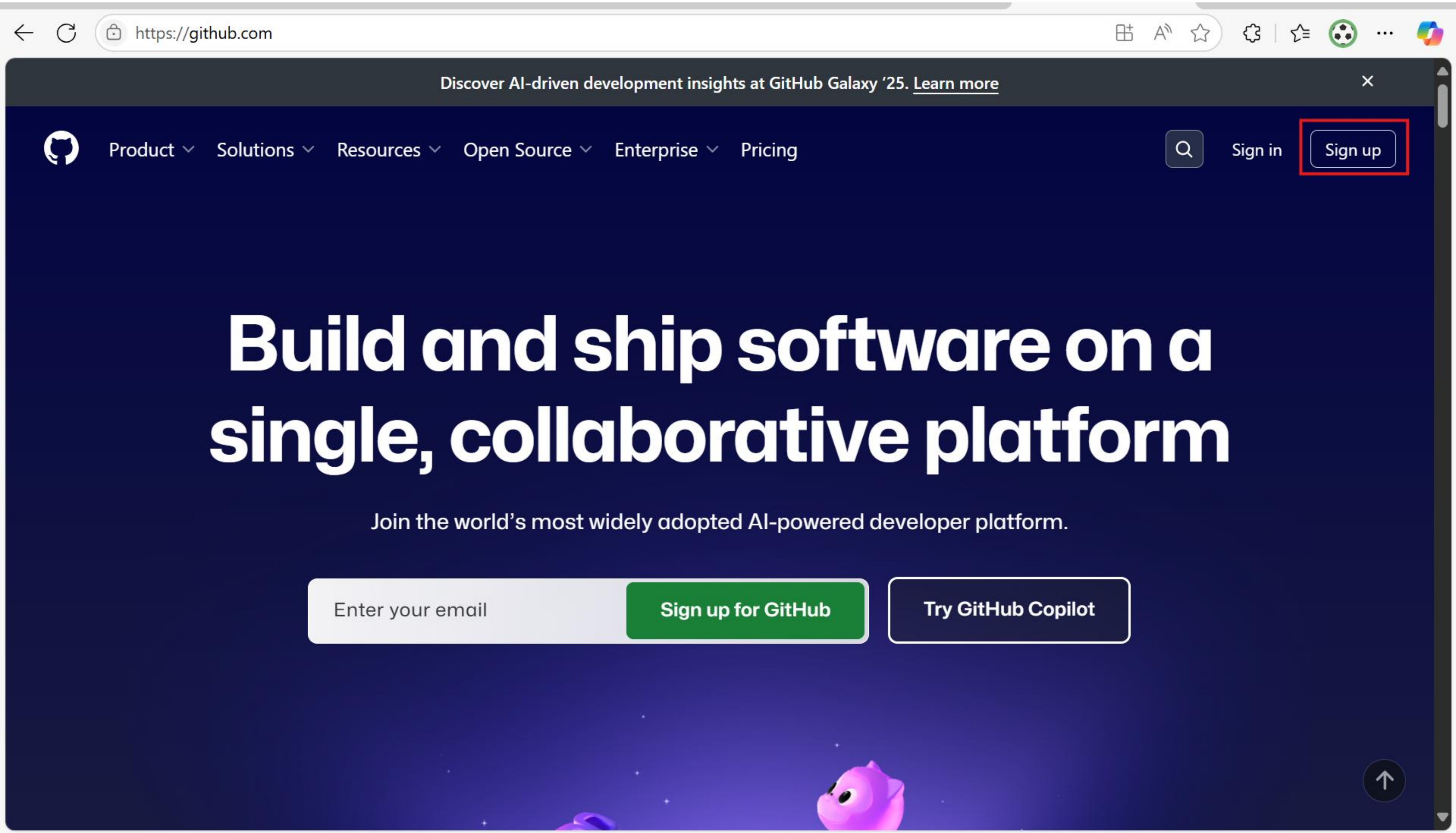


Local

main

initial commit

Create Remote Repository



https://github.com

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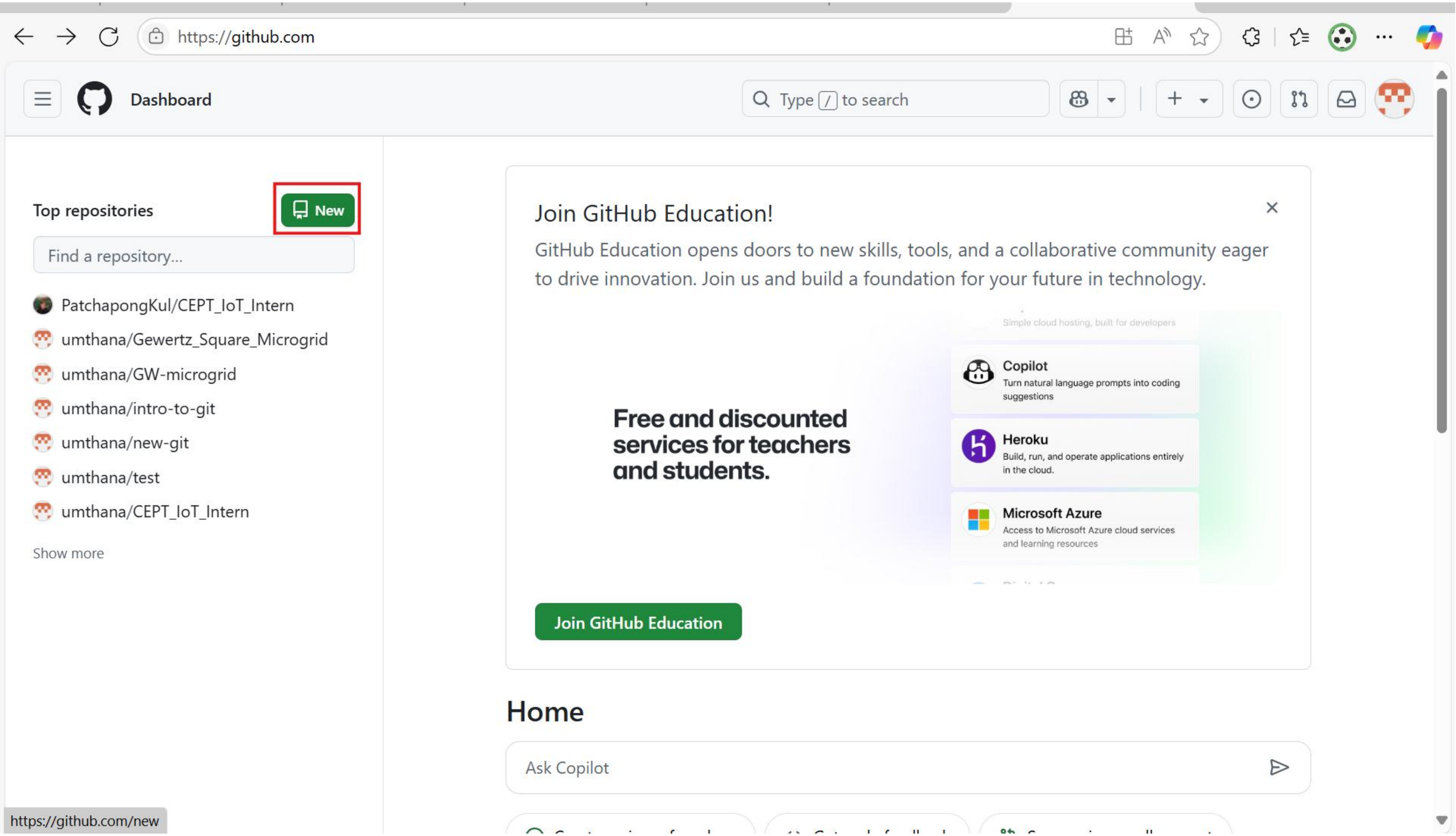
Create Remote Repository



https://github.com

Dashboard

Type / to search

Top repositories

New

Find a repository...

- PatchapongKul/CEPT_IoT_Intern
- umthana/Gewertz_Square_Microgrid
- umthana/GW-microgrid
- umthana/intro-to-git
- umthana/new-git
- umthana/test
- umthana/CEPT_IoT_Intern

Show more

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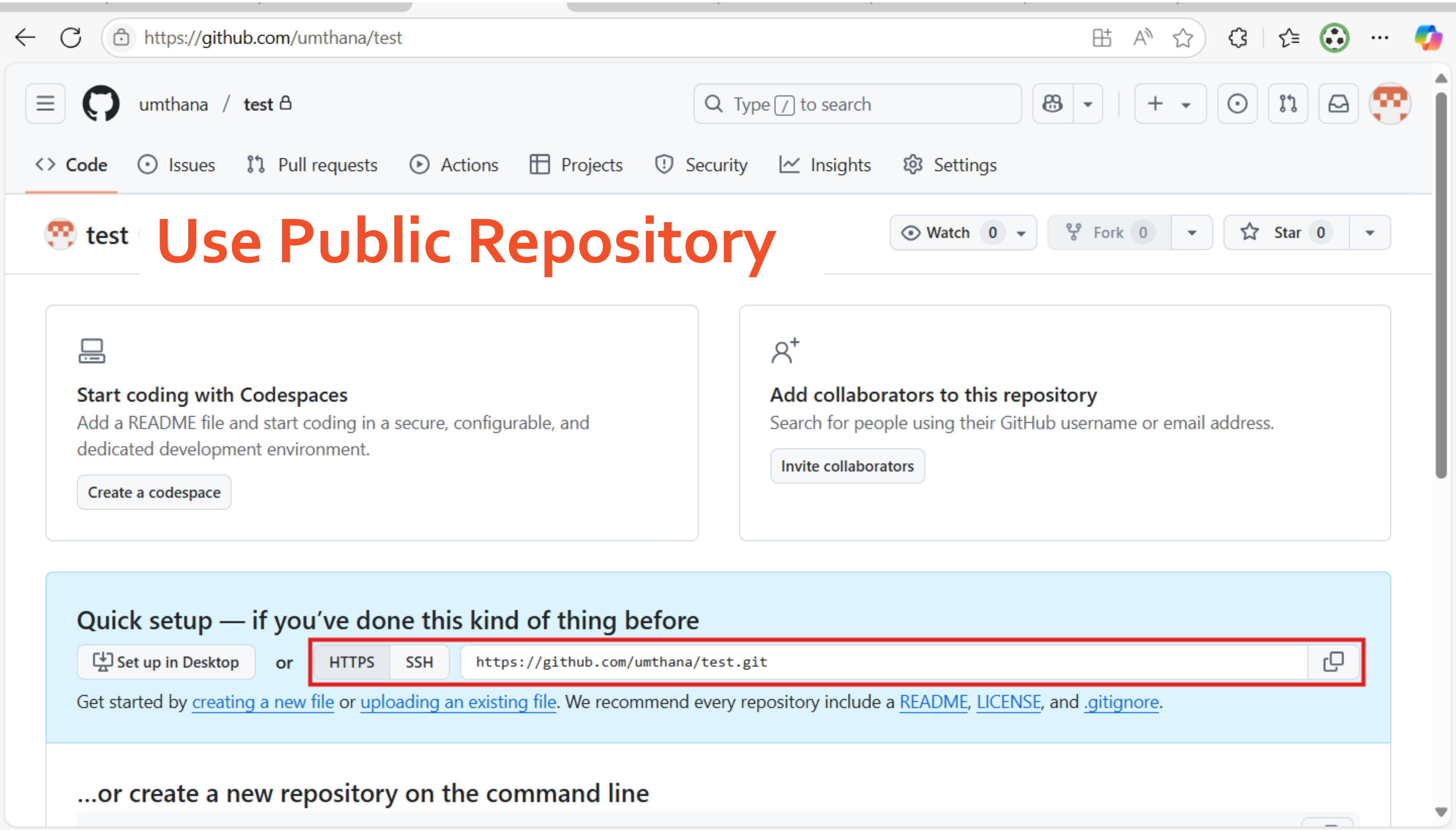
Home

Ask Copilot

https://github.com/new

Add Remote Repository



Use Public Repository

https://github.com/umthana/test

umthana / test

Start coding with Codespaces

Add a README file and start coding in a secure, configurable, and dedicated development environment.

Add collaborators to this repository

Search for people using their GitHub username or email address.

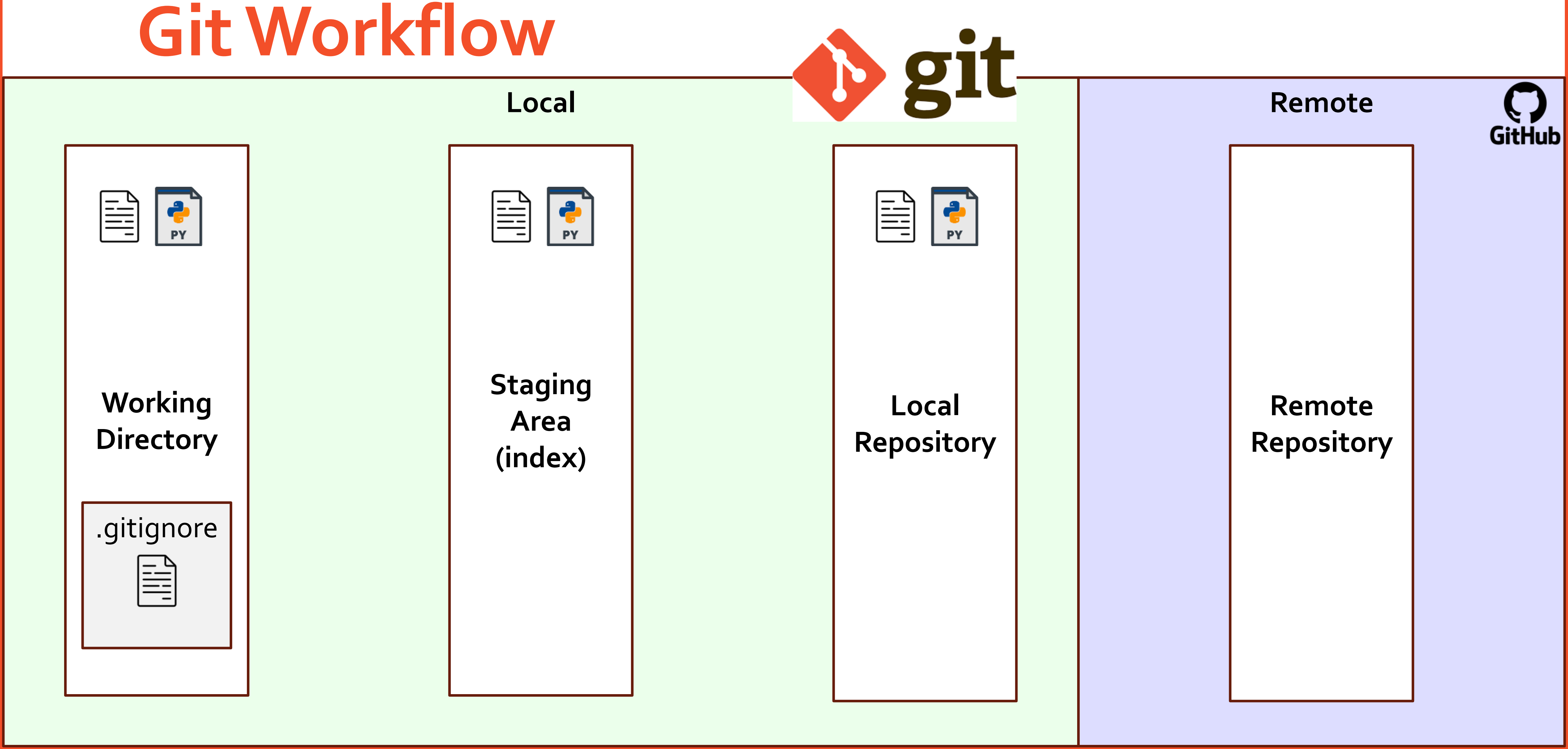
Quick setup — if you've done this kind of thing before

Set up in Desktop or HTTPS SSH `https://github.com/umthana/test.git`

Get started by creating a new file or uploading an existing file. We recommend every repository include a README, LICENSE, and .gitignore.

...or create a new repository on the command line

Git Workflow



Local

Working Directory

.gitignore

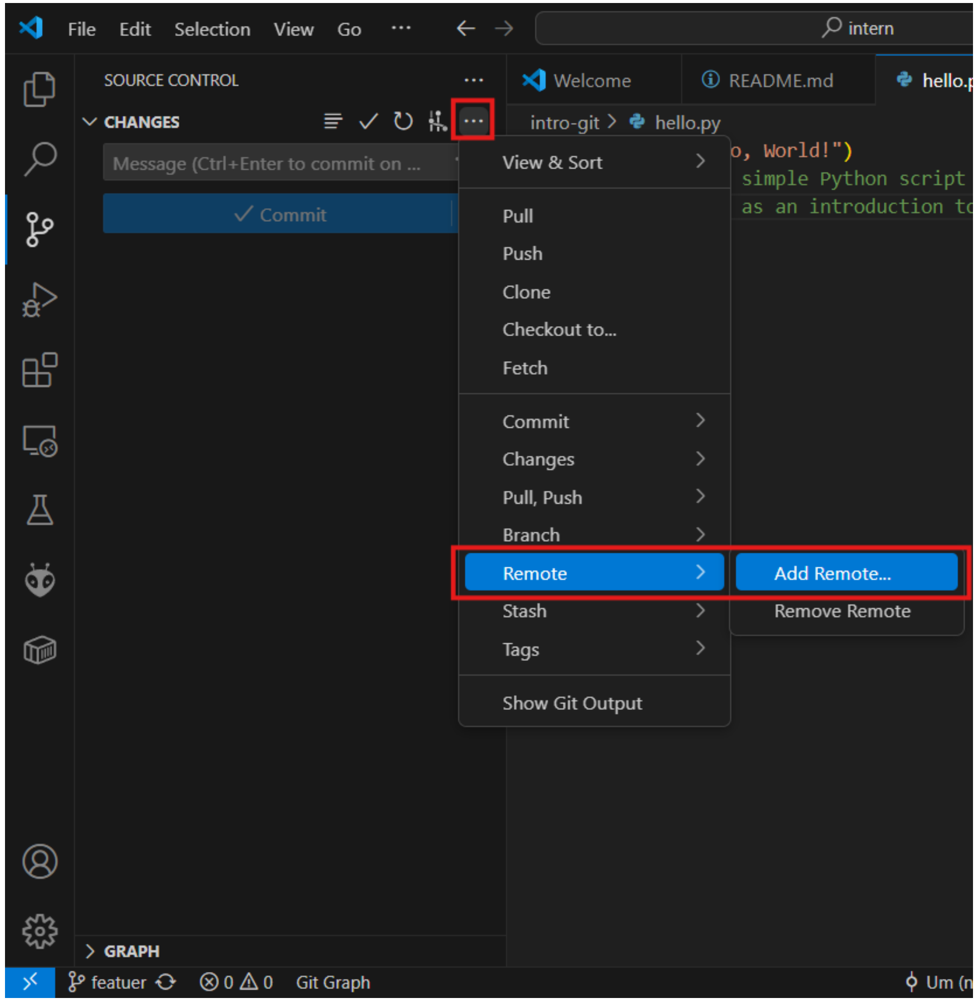
Staging Area (index)

Local Repository

Remote

Remote Repository

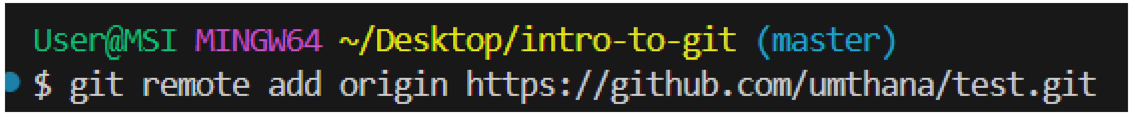
Add Remote Repository



```
o, World!")
 simple Python script
 as an introduction to
```

add remote repositories

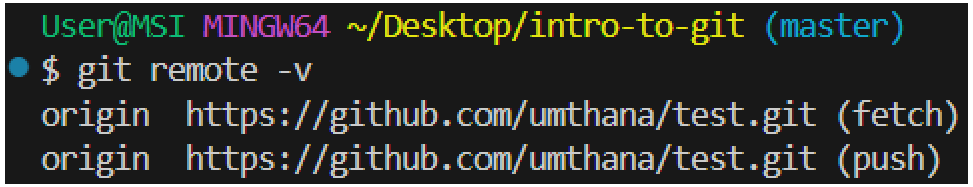
```
git remote add origin
<your_repository_URL>
```



```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git remote add origin https://github.com/umthana/test.git
```

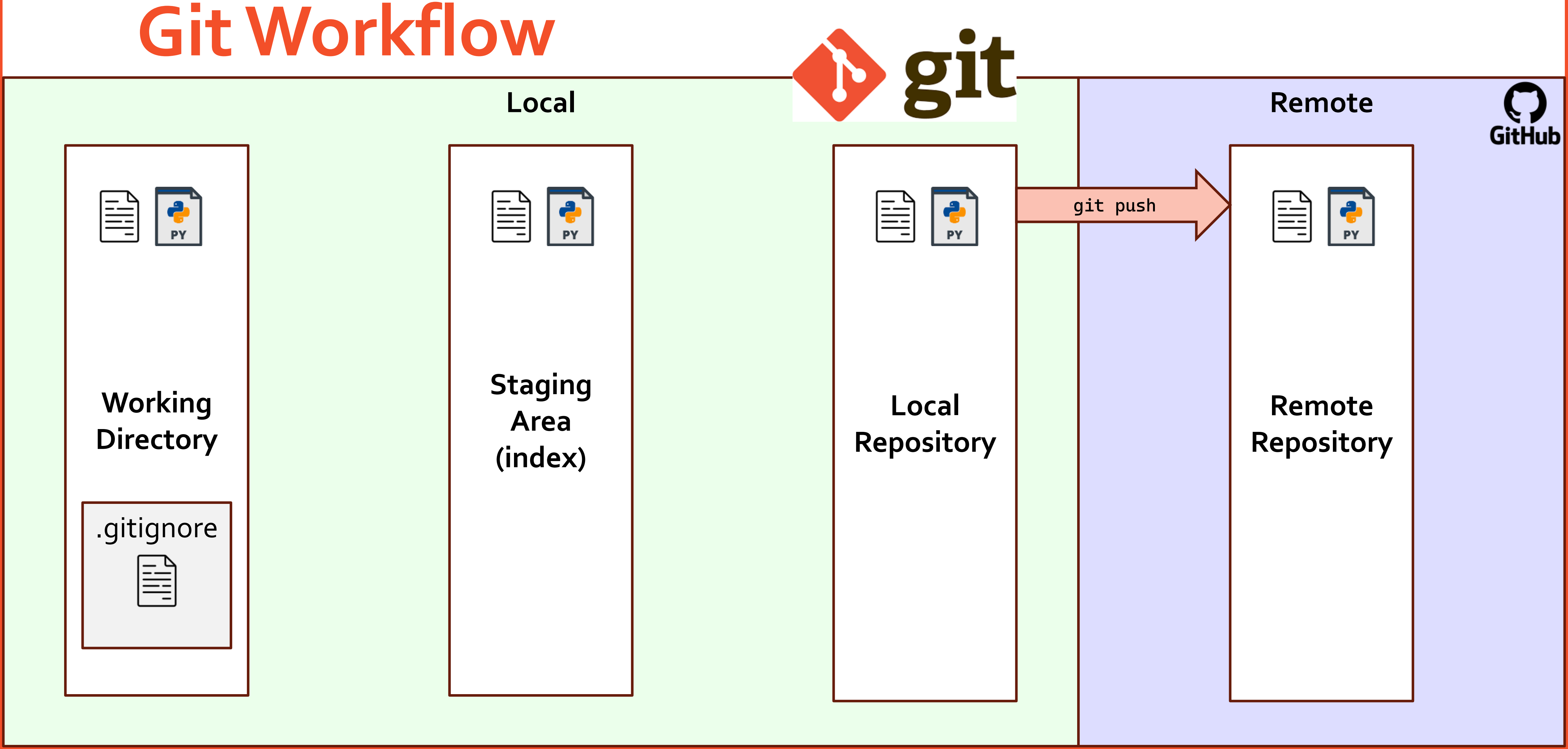
view the remote repositories

```
git remote -v
```



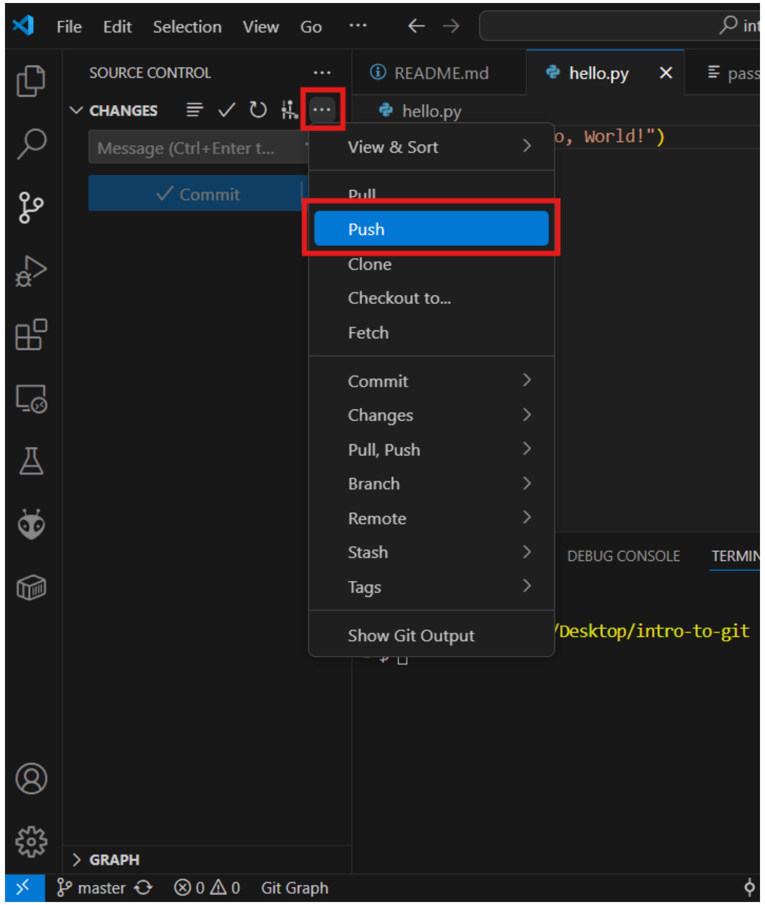
```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git remote -v
origin  https://github.com/umthana/test.git (fetch)
origin  https://github.com/umthana/test.git (push)
```

Git Workflow



git push

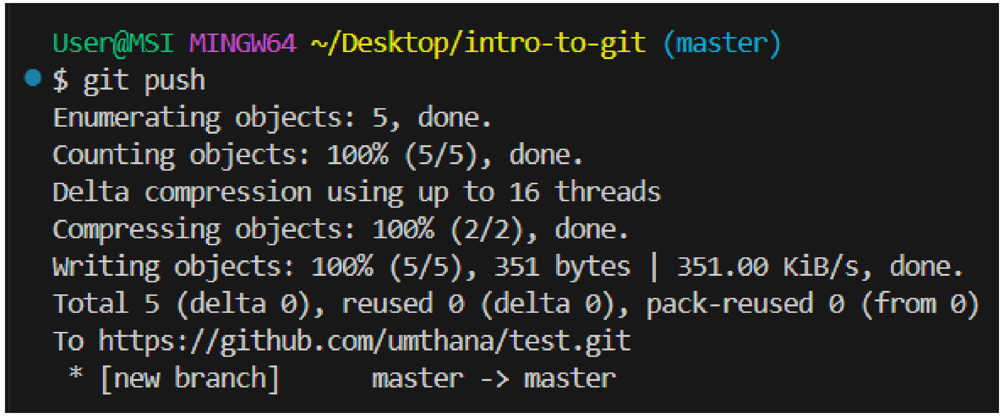
- Uploads your changes from local to the remote repository on GitHub



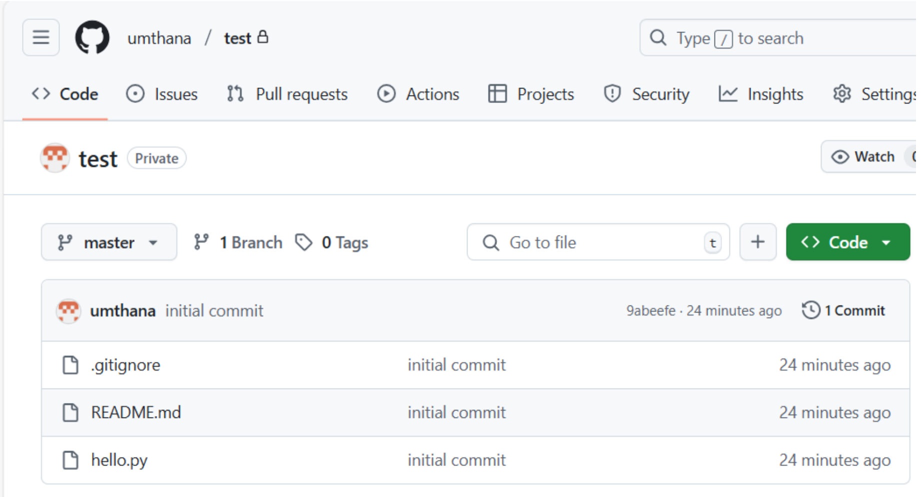
```
o, World!")
```

```
/Desktop/intro-to-git
```

```
git push
```



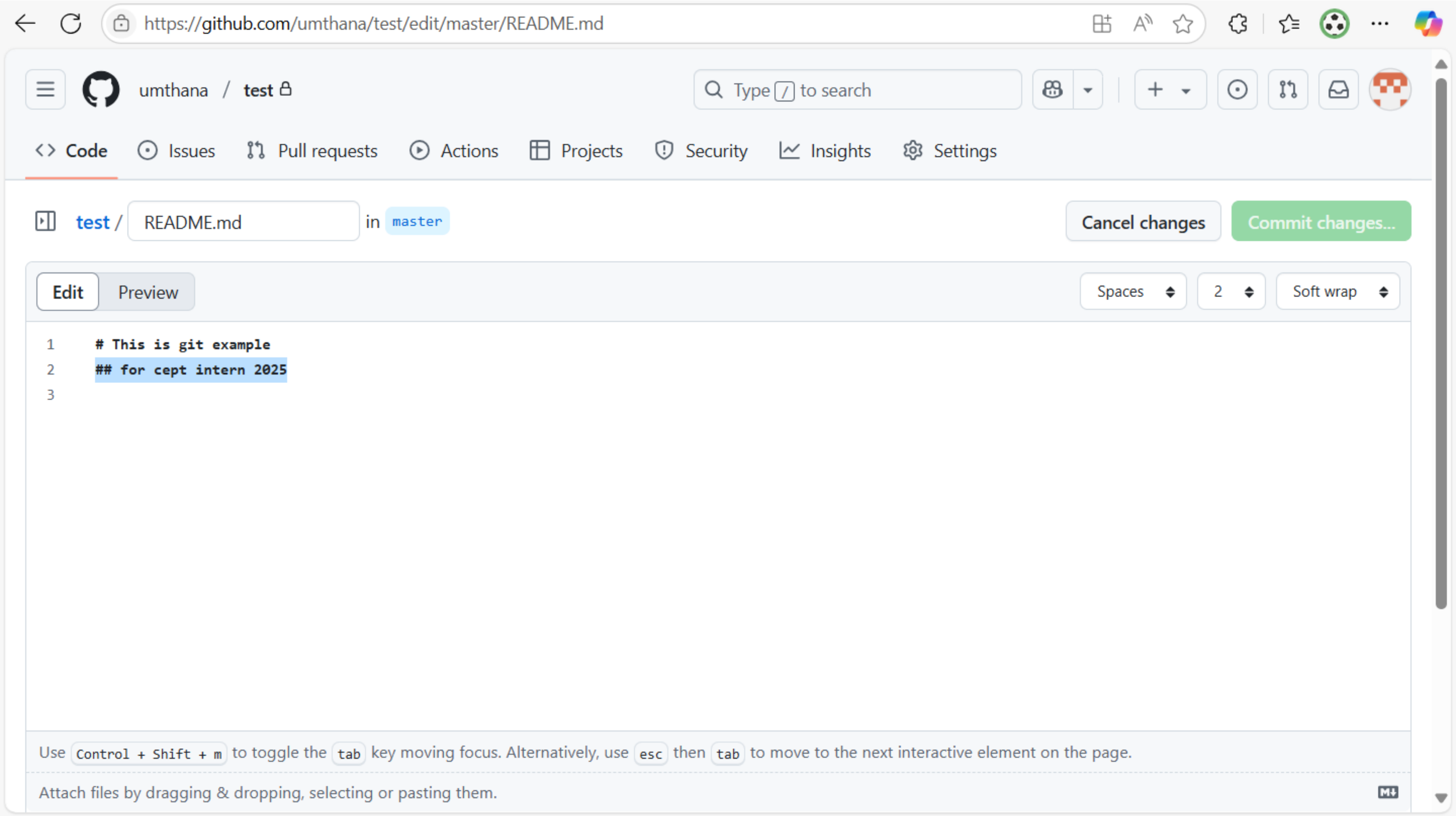
```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 16 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (5/5), 351 bytes | 351.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/umthana/test.git
 * [new branch]      master -> master
```



umthana initial commit 9abeefe · 24 minutes ago 1 Commit

.gitignore	initial commit	24 minutes ago
README.md	initial commit	24 minutes ago
hello.py	initial commit	24 minutes ago

Try edit something in remote repository

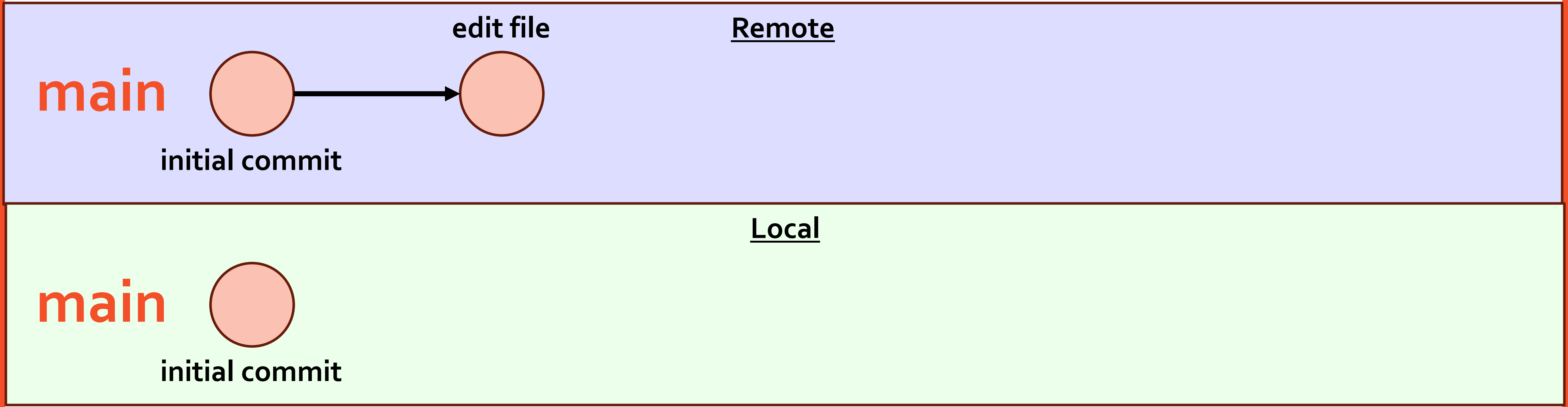


```
# This is git example
## for cept intern 2025
```

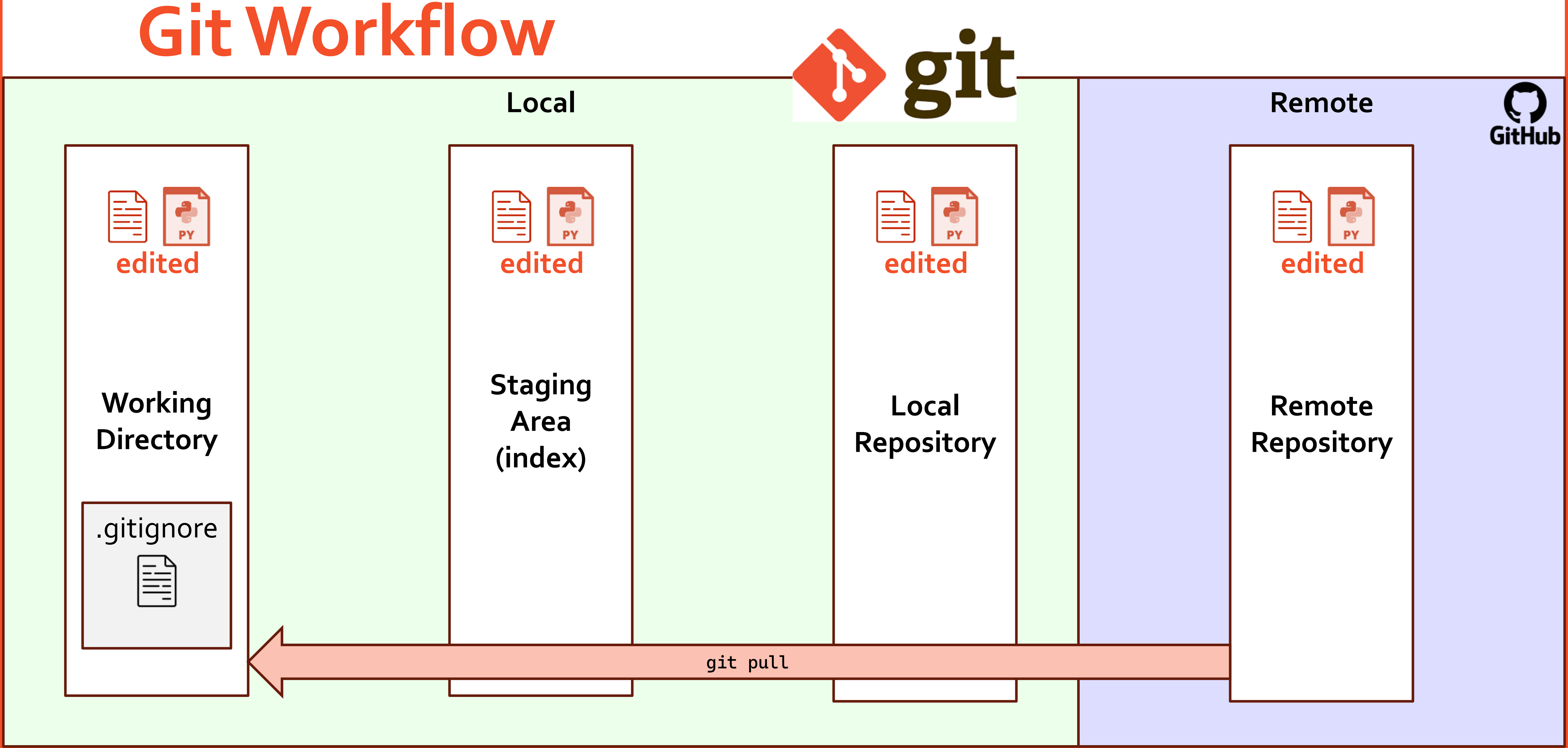
Use Control + Shift + m to toggle the tab key moving focus. Alternatively, use esc then tab to move to the next interactive element on the page.

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

Git Graph

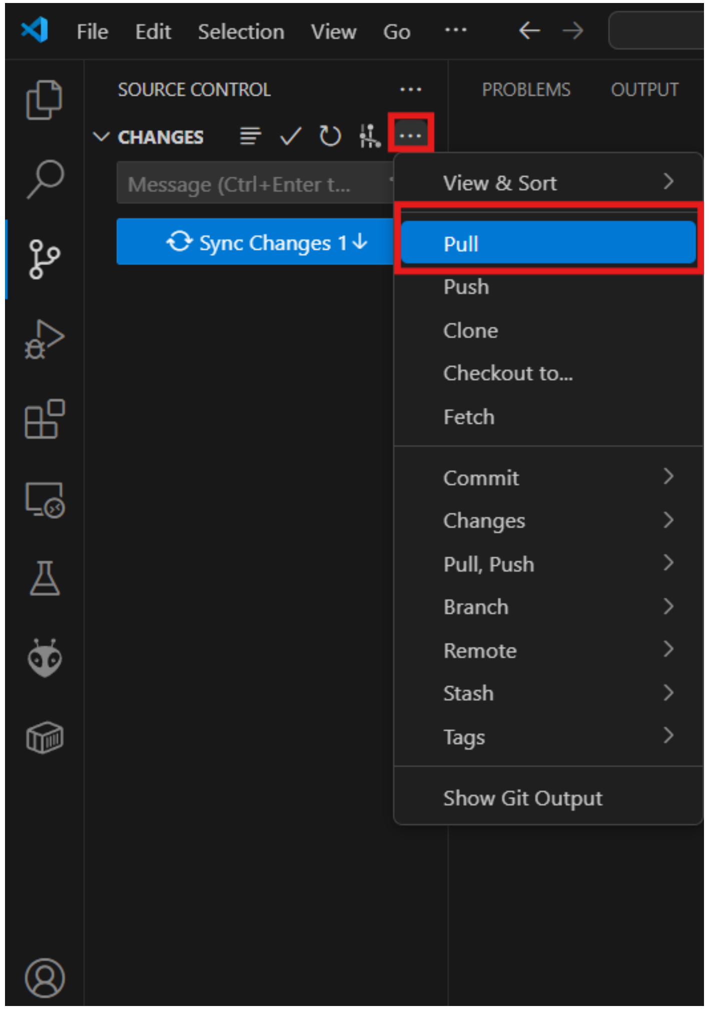

Remote
main
edit file
initial commit
Local
main
initial commit

Git Workflow

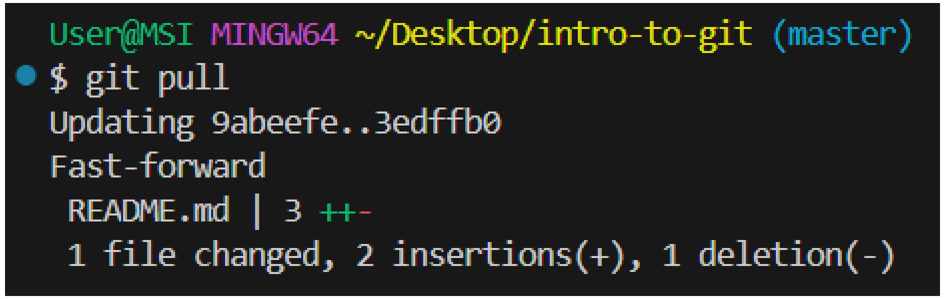


git pull

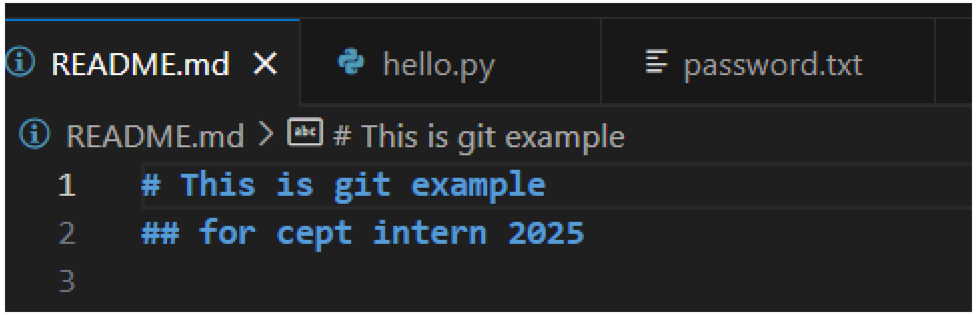
- updating your local with the latest changes from the remote repository



```
git pull
```

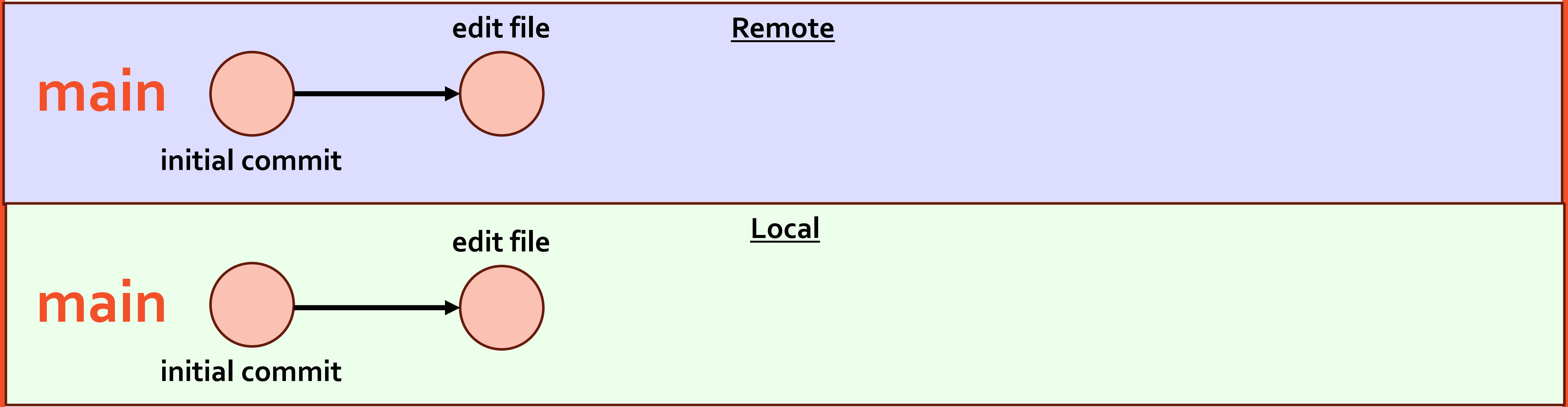


```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git pull
Updating 9abeefe..3edffb0
Fast-forward
 README.md | 3 ++-
 1 file changed, 2 insertions(+), 1 deletion(-)
```



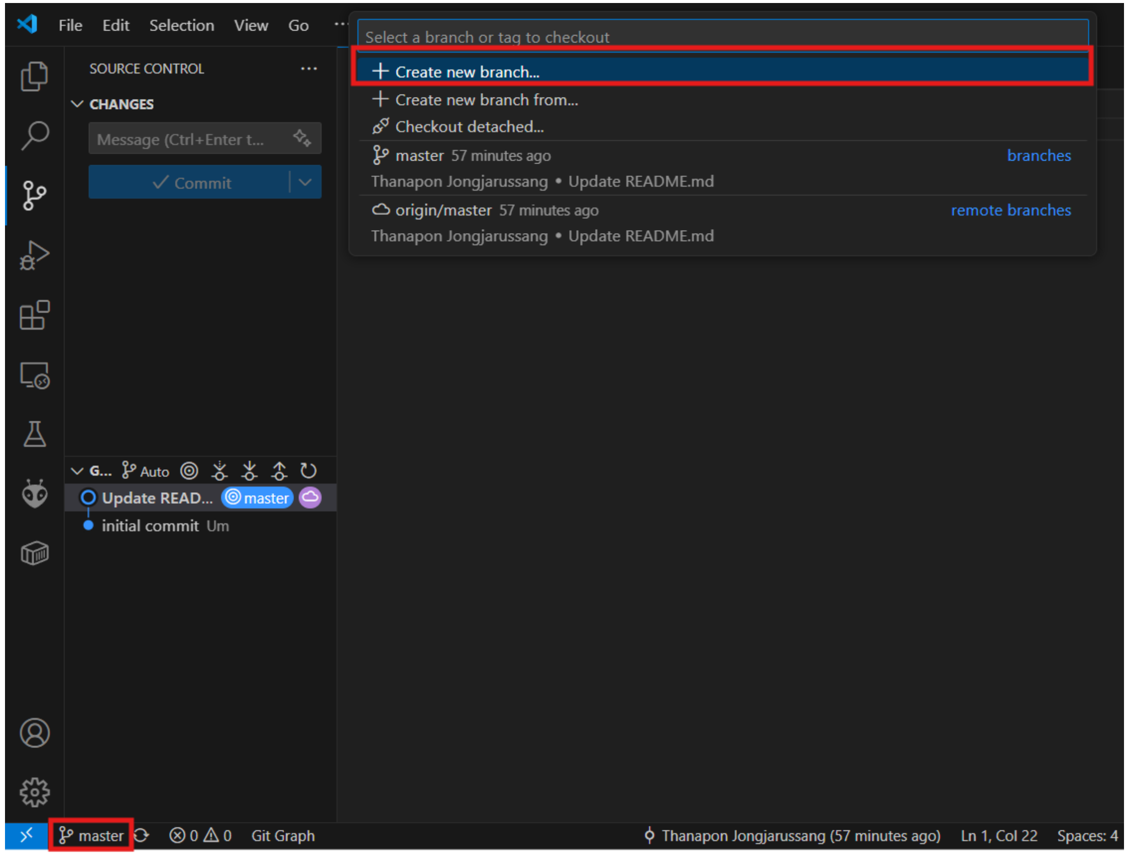
```
# This is git example
## for cept intern 2025

```

Git Graph


edit file
Remote
main
initial commit
Local
edit file
main
initial commit

git branch

- Create a new branch to work without affecting the main project

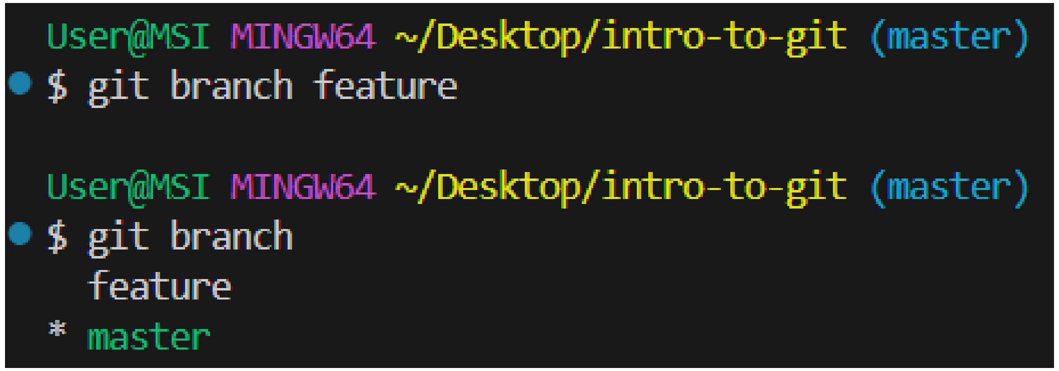

File Edit Selection View Go ···
Select a branch or tag to checkout
+ Create new branch...
+ Create new branch from...
Checkout detached...
master 57 minutes ago
branches
Thanapon Jongjarussang • Update README.md
origin/master 57 minutes ago
remote branches
Thanapon Jongjarussang • Update README.md
SOURCE CONTROL
CHANGES
Message (Ctrl+Enter t...
✓ Commit
G... Auto
Update READ... master
initial commit Um
master
⊗ 0 ⚠ 0
Git Graph
Thanapon Jongjarussang (57 minutes ago)
Ln 1, Col 22
Spaces: 4

List branch

```
git branch
```

Create branch

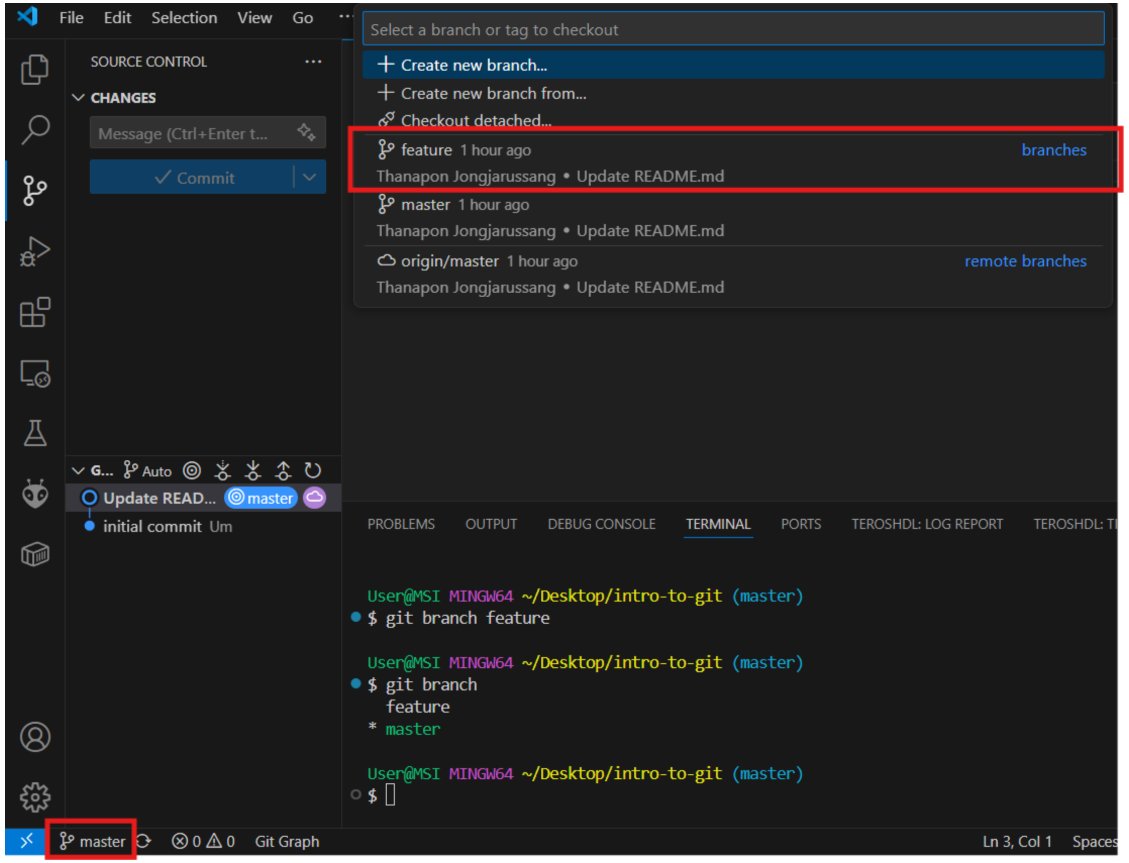
```
git branch <branch_name>
```



```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git branch feature

User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git branch
  feature
* master
```

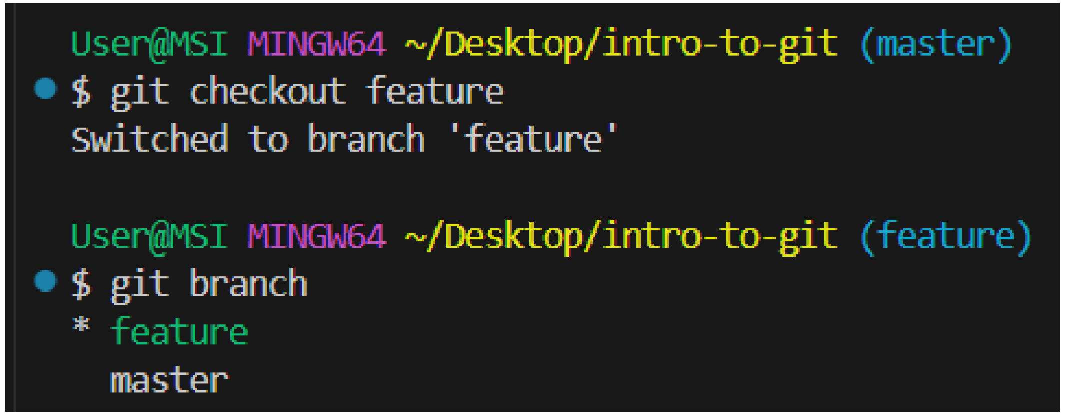
git checkout

- Switch branch



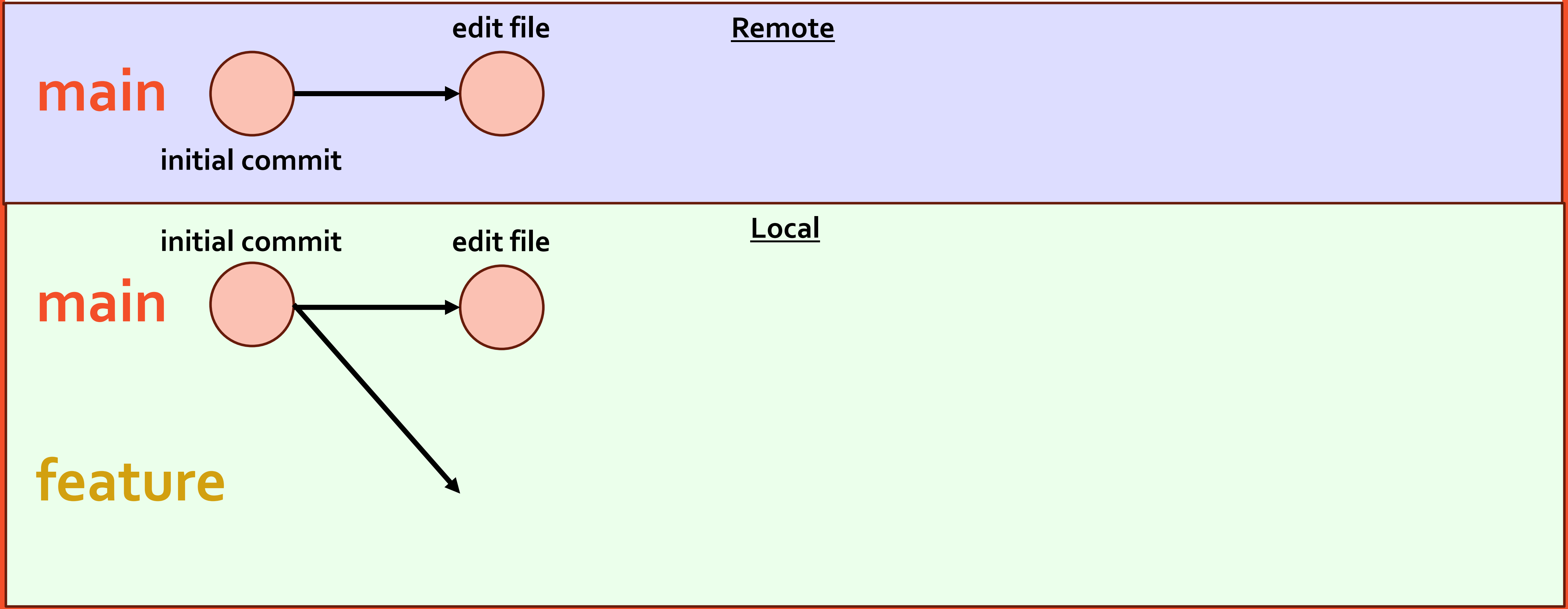
```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git branch feature

User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git branch
  feature
* master

User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ 
```

```
git checkout feature
```

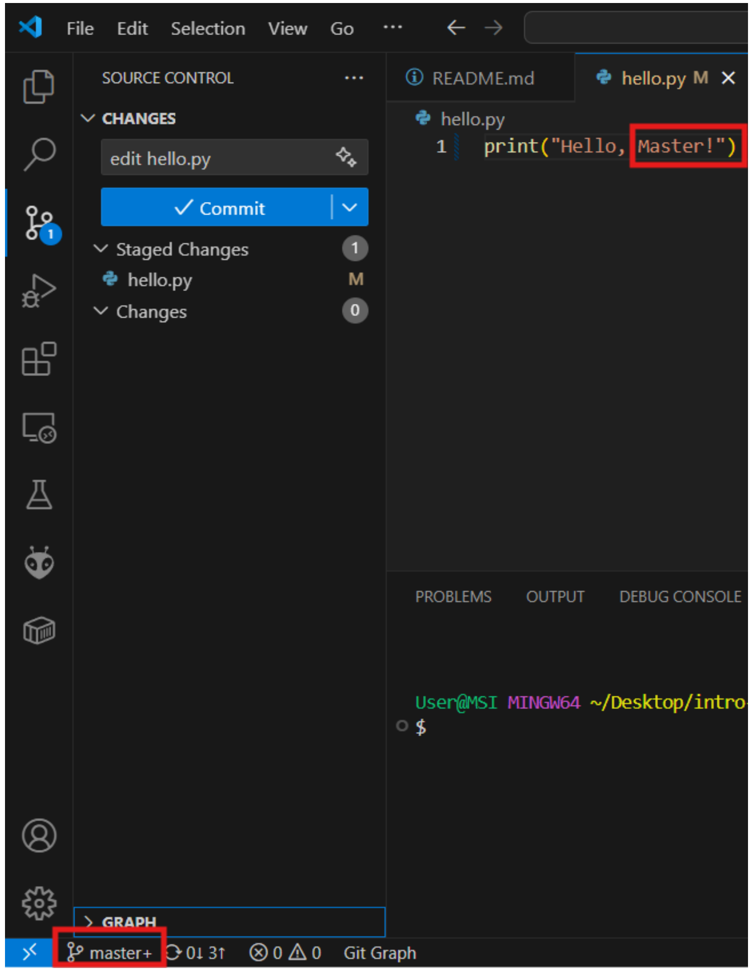


```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git checkout feature
Switched to branch 'feature'

User@MSI MINGW64 ~/Desktop/intro-to-git (feature)
$ git branch
* feature
  master
```

Git Graph

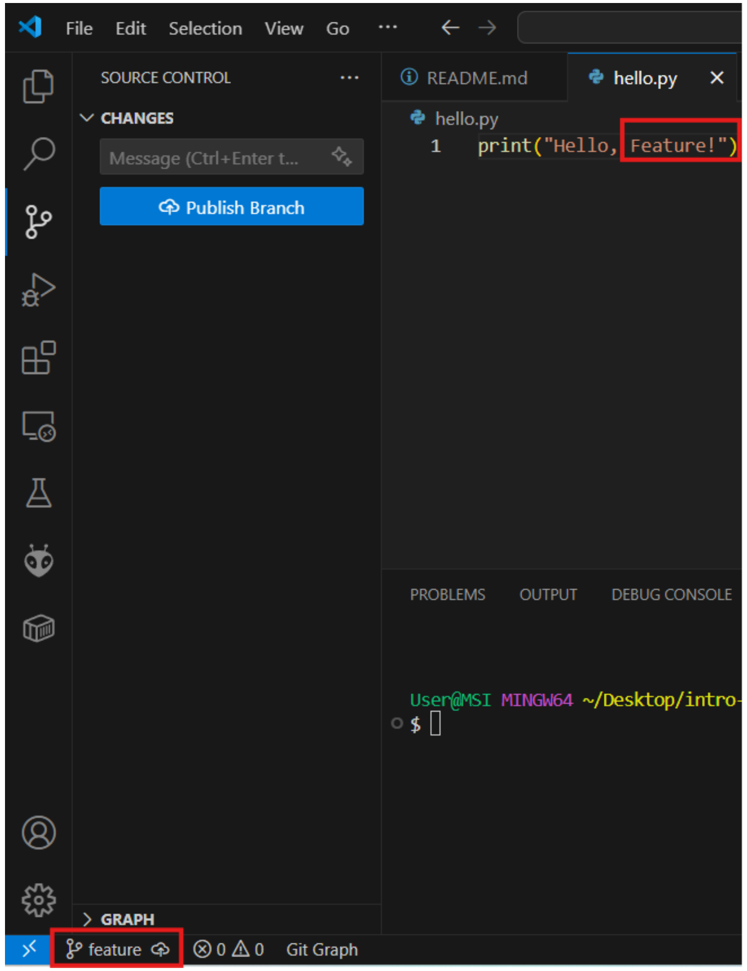

edit file
Remote
main
initial commit
Local
initial commit
edit file
main
feature

Try edit something in master branch and feature branch then commit



```
hello.py
1   print("Hello, Master!")
```

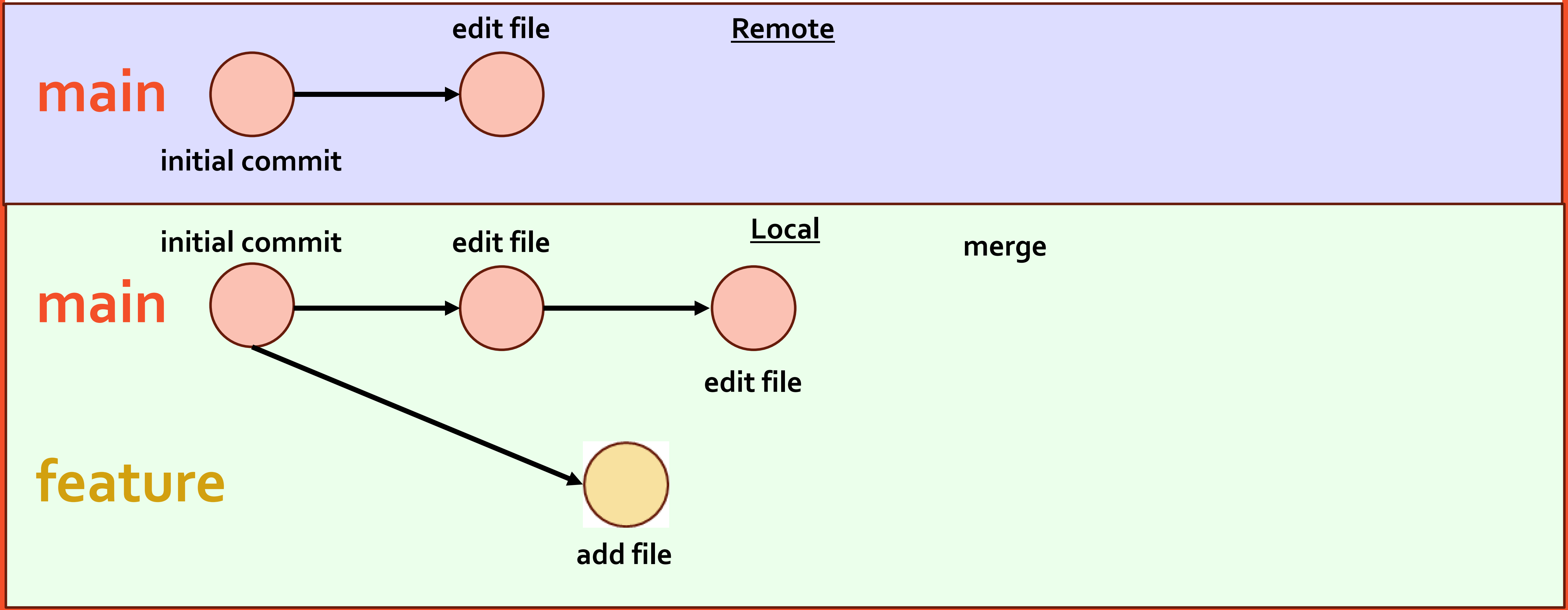
```
User@MSI MINGW64 ~/Desktop/intro
$
```



```
hello.py
1   print("Hello, Feature!")
```

```
User@MSI MINGW64 ~/Desktop/intro
$
```

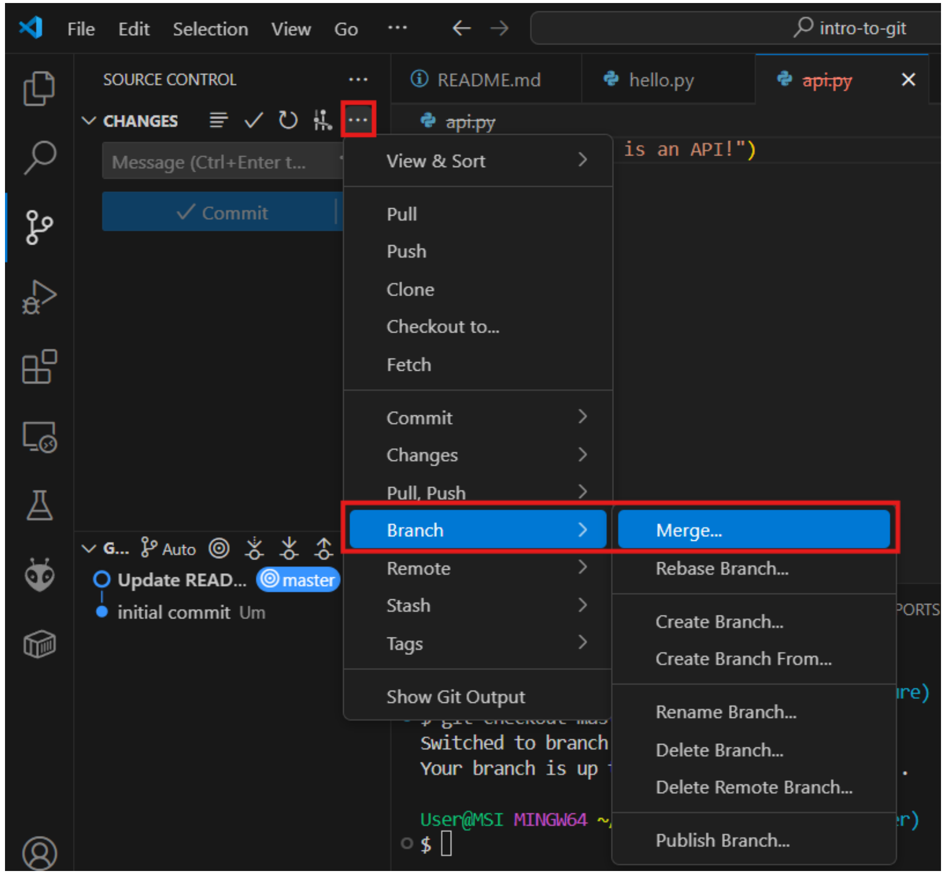
Git Graph


Remote
main
edit file
initial commit
Local
merge
main
initial commit
edit file
edit file
feature
add file

git merge

- Combine changes from one branch into another

WARNING: must check out to main branch before merge

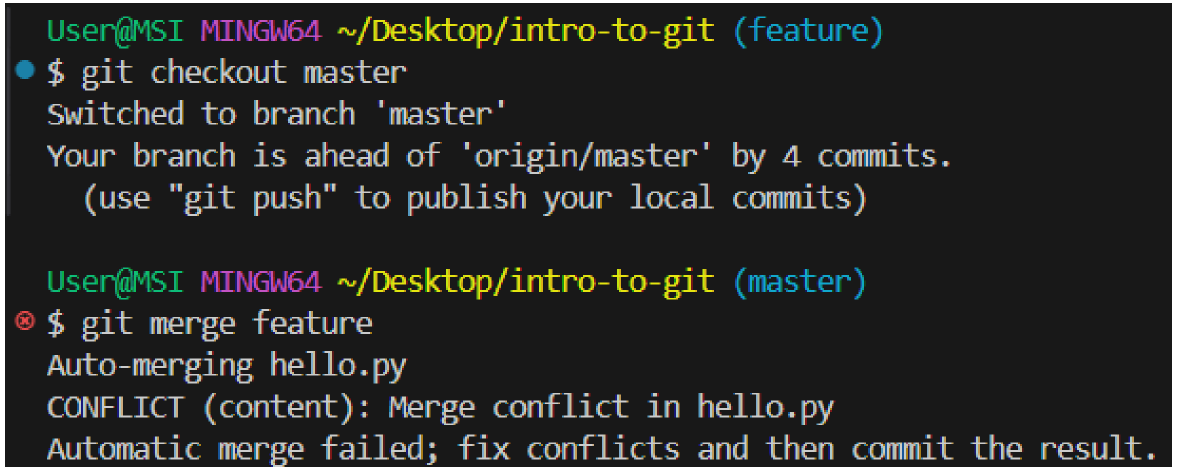


```
is an API!")
```

```
Switched to branch
Your branch is up
User@MSI MINGW64 ~
$ 
```

```
git checkout <main_branch>
```

```
git merge <merged_branch>
```

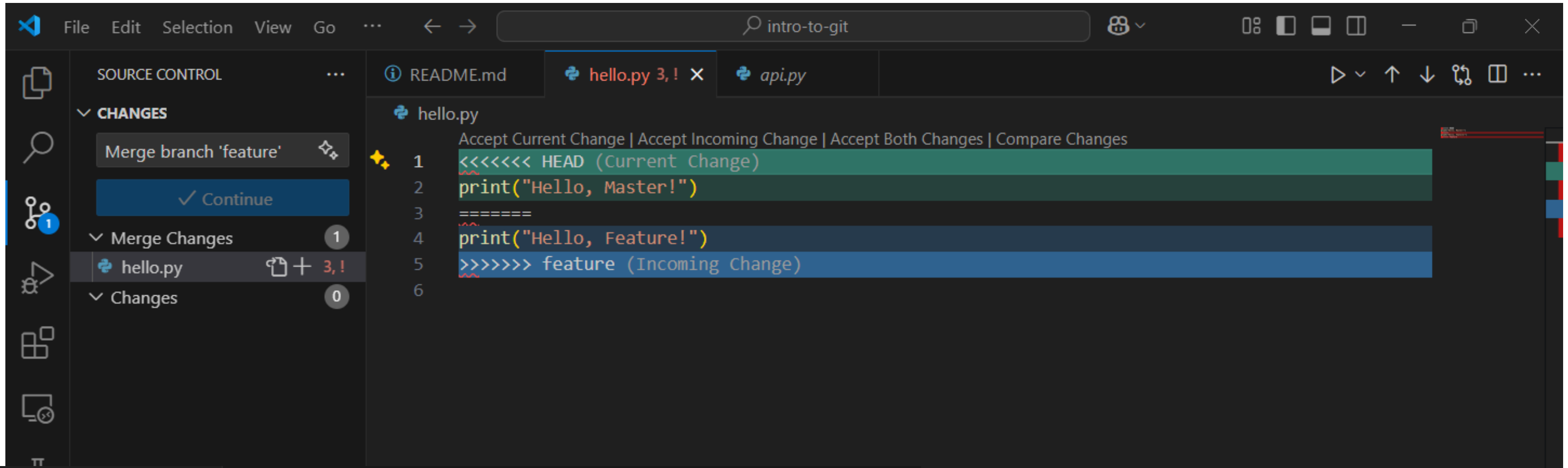


```
User@MSI MINGW64 ~/Desktop/intro-to-git (feature)
$ git checkout master
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 4 commits.
  (use "git push" to publish your local commits)

User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git merge feature
Auto-merging hello.py
CONFLICT (content): Merge conflict in hello.py
Automatic merge failed; fix conflicts and then commit the result.
```

Merging is most likely run into a problem

Merge Conflict

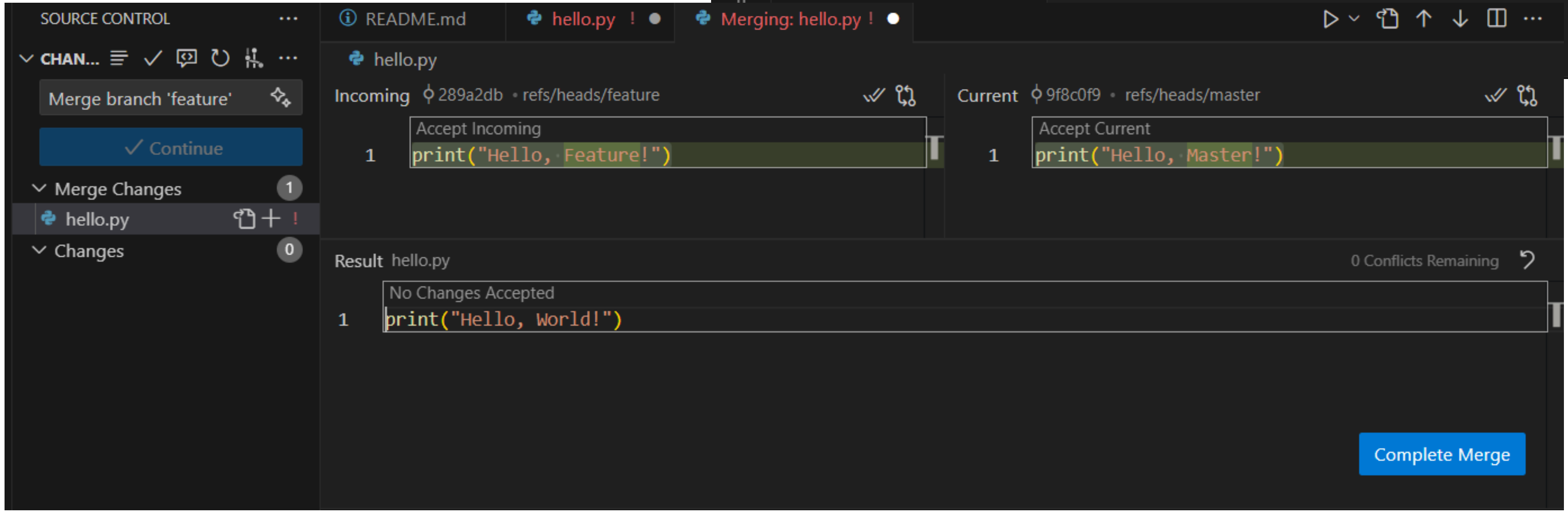
Resolve merge conflict



Merge branch 'feature'

Accept Current Change | Accept Incoming Change | Accept Both Changes | Compare Changes

```
<<<<<<< HEAD (Current Change)
print("Hello, Master!")
=======
print("Hello, Feature!")
>>>>>>> feature (Incoming Change)
```



Merge branch 'feature'

Incoming 289a2db • refs/heads/feature

```
print("Hello, Feature!")
```

Current 9f8c0f9 • refs/heads/master

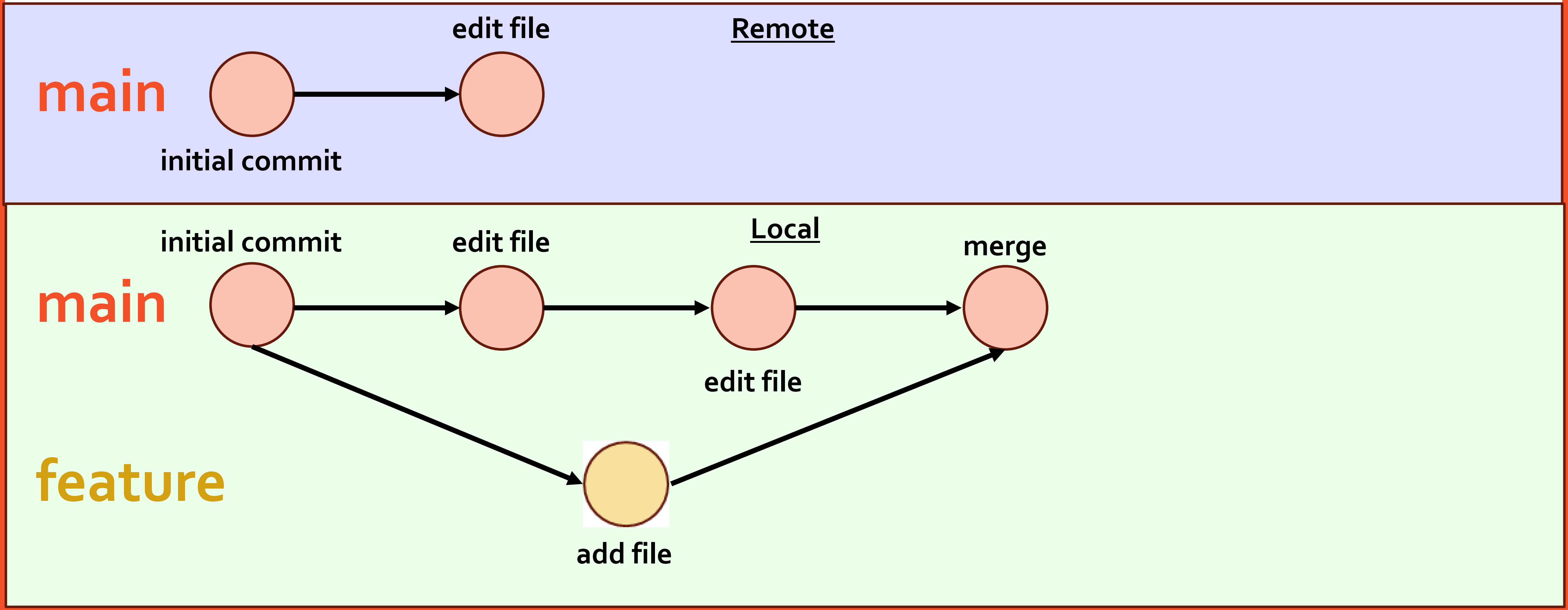
```
print("Hello, Master!")
```

Result hello.py

```
print("Hello, World!")
```

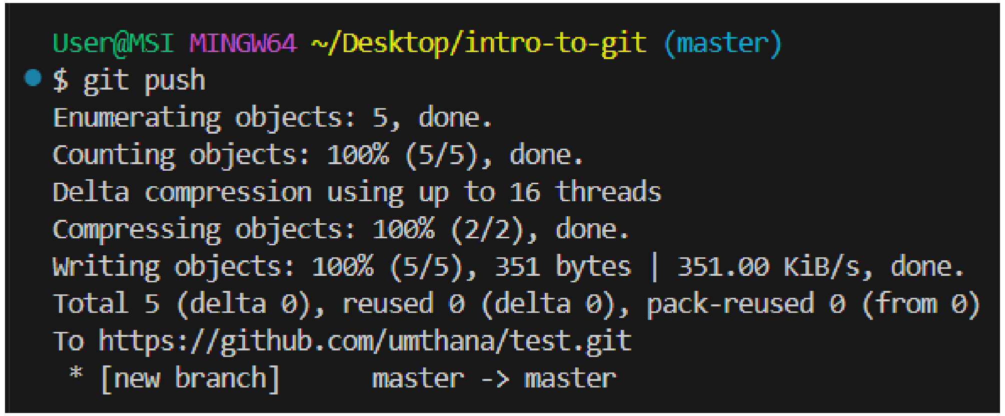
Select which changes to use

Git Graph


Remote
main
edit file
initial commit
Local
main
initial commit
edit file
edit file
merge
feature
add file

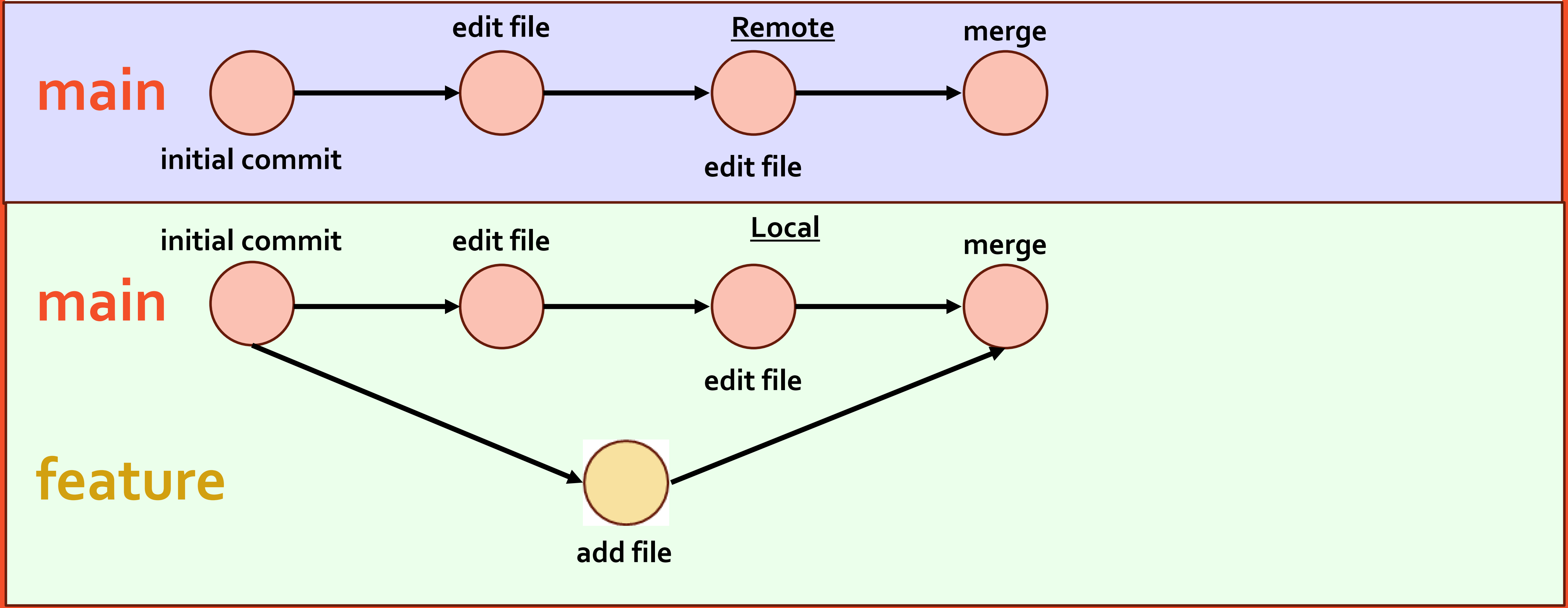
Push to remote repo

```
git push
```

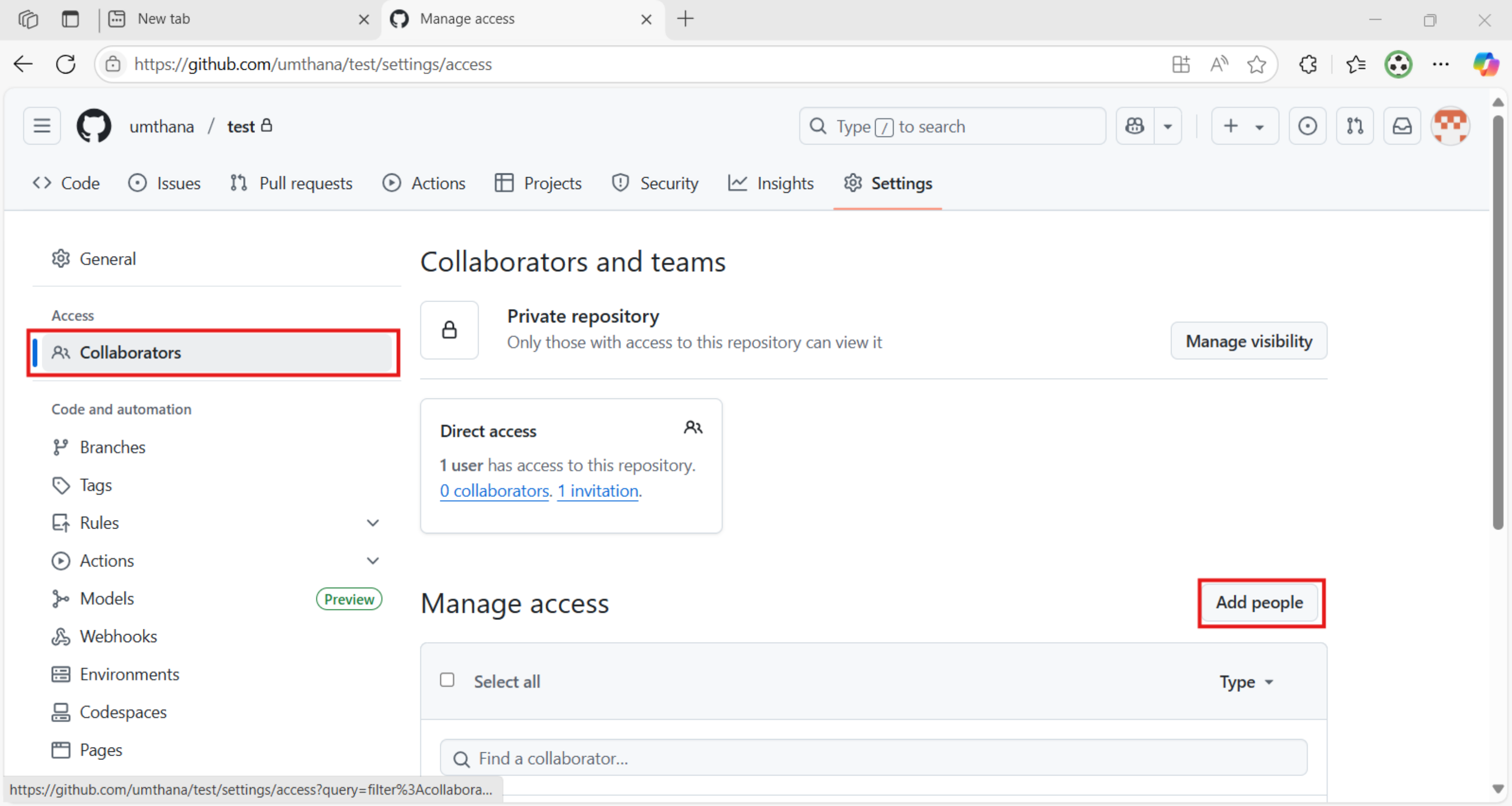


```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 16 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (5/5), 351 bytes | 351.00 KiB/s, done.
Total 5 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/umthana/test.git
 * [new branch]      master -> master
```

Git Graph


Remote
main
edit file
merge
initial commit
edit file
Local
main
initial commit
edit file
merge
edit file
feature
add file

Add your friend as collaborator



Collaborators and teams

Private repository
Only those with access to this repository can view it

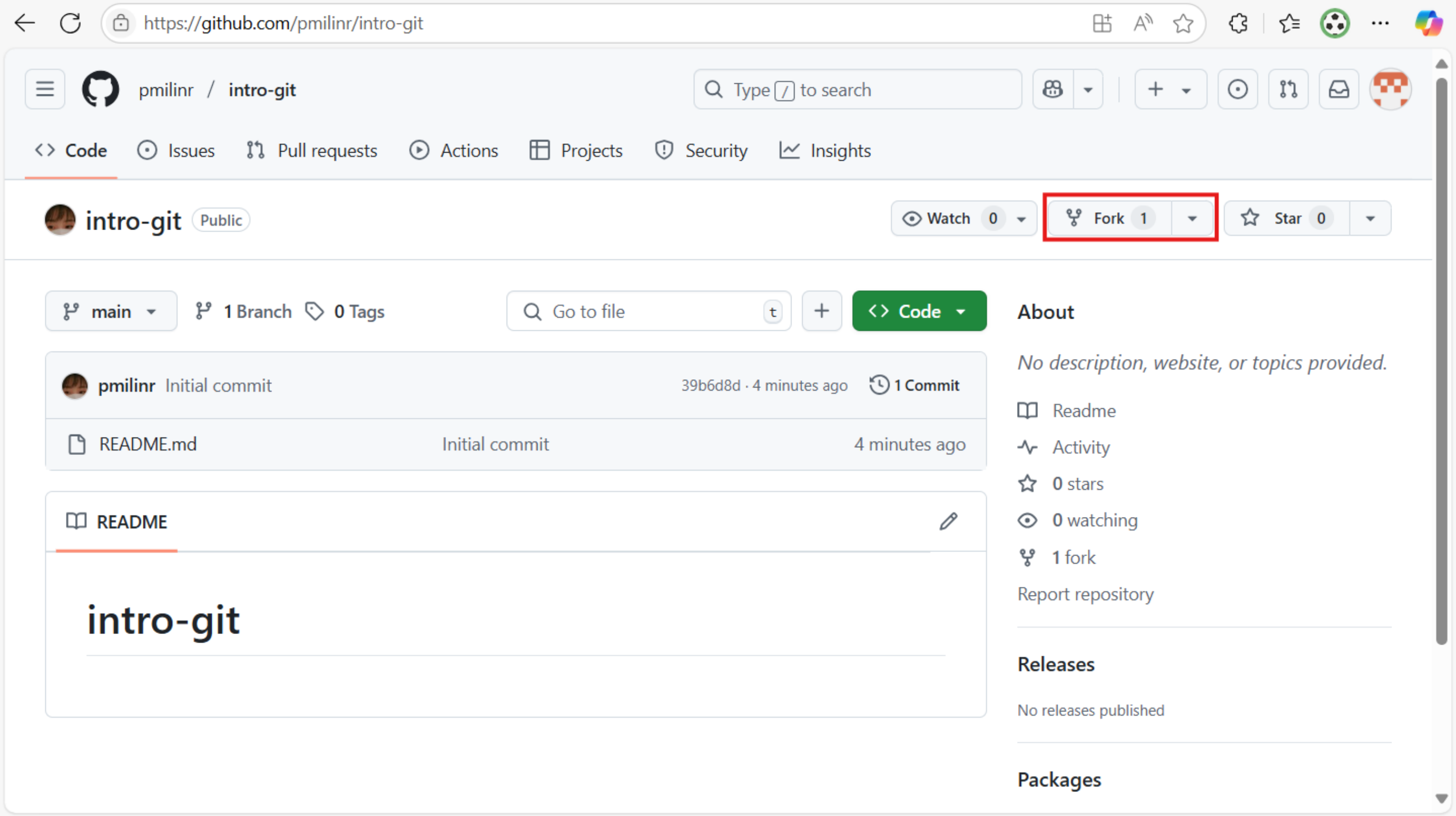
Direct access
1 user has access to this repository.
0 collaborators. 1 invitation.

Manage access

□ Select all

Find a collaborator...

Try pull and edit and push in your friend repo



intro-git Public

pmilinr Initial commit 39b6d8d · 4 minutes ago 1 Commit

README.md Initial commit 4 minutes ago

README

intro-git

About

No description, website, or topics provided.

Readme

Activity

0 stars

0 watching

1 fork

Report repository

Releases

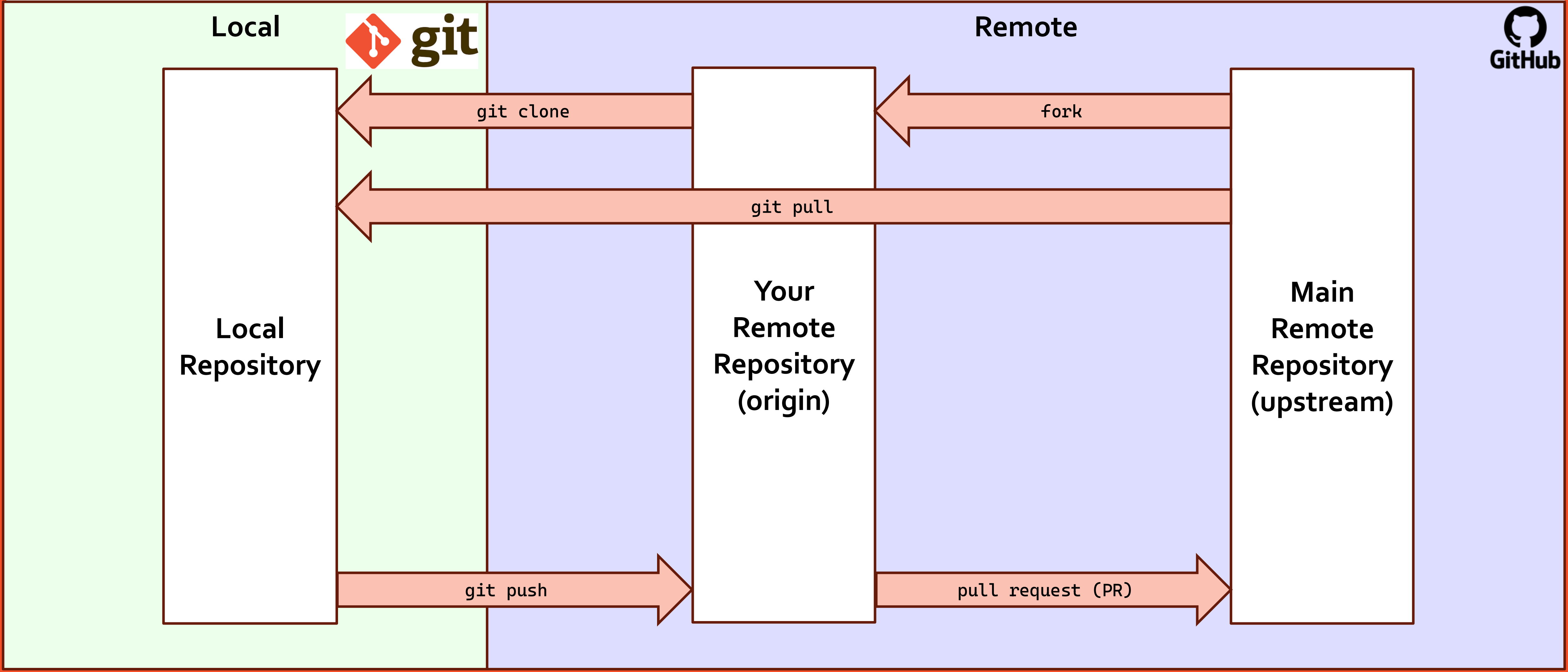
No releases published

Packages

GIT UNOPERATED REPOSITORY

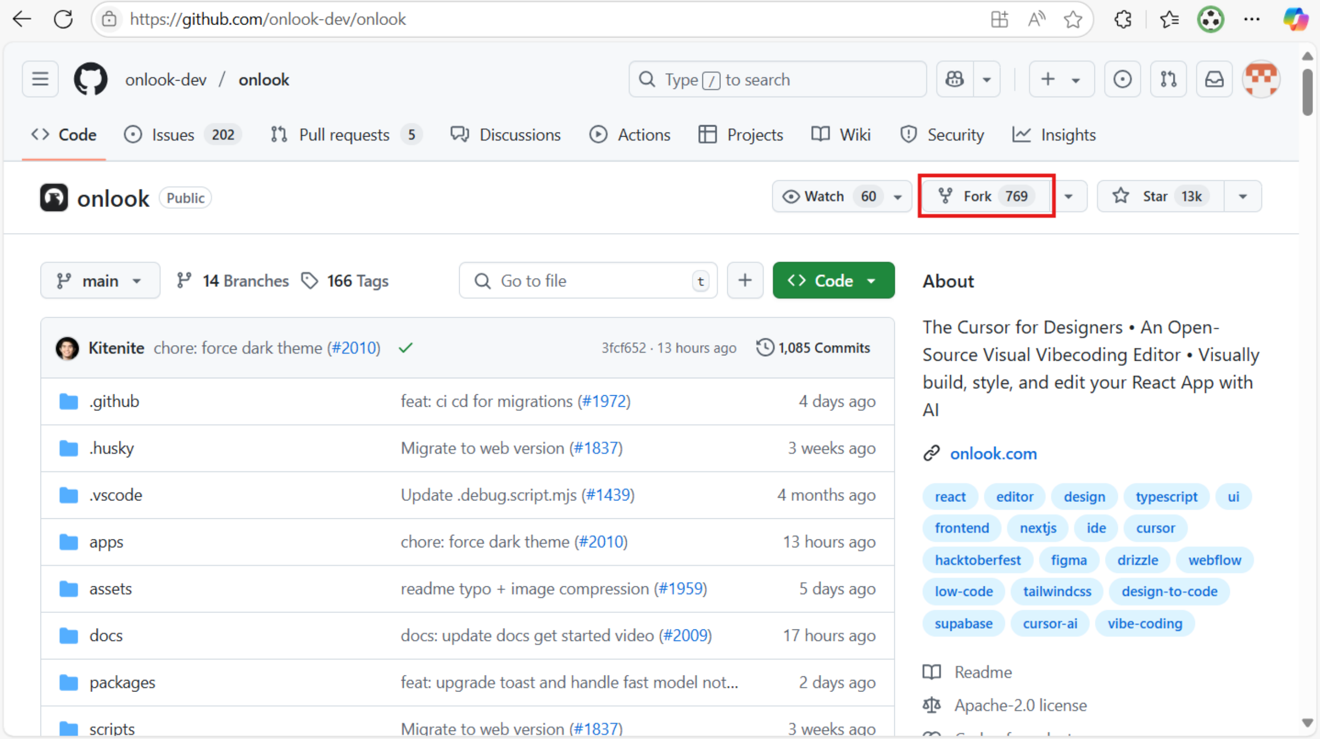
WORKFLOW

Git Unoperated Repository Workflow



fork

- Copy someone else remote repository under your own remote repository



https://github.com/onlook-dev/onlook

onlook-dev / onlook

Type / to search

Code | Issues 202 | Pull requests 5 | Discussions | Actions | Projects | Wiki | Security | Insights

onlook Public

Watch 60 | Fork 769 | Star 13k

main | 14 Branches | 166 Tags | Go to file | + | Code

Kitenite chore: force dark theme (#2010) ✓ 3fcf652 · 13 hours ago 1,085 Commits

.github	feat: ci cd for migrations (#1972)	4 days ago
.husky	Migrate to web version (#1837)	3 weeks ago
.vscode	Update .debug.script.mjs (#1439)	4 months ago
apps	chore: force dark theme (#2010)	13 hours ago
assets	readme typo + image compression (#1959)	5 days ago
docs	docs: update docs get started video (#2009)	17 hours ago
packages	feat: upgrade toast and handle fast model not...	2 days ago
scripts	Migrate to web version (#1837)	3 weeks ago

About

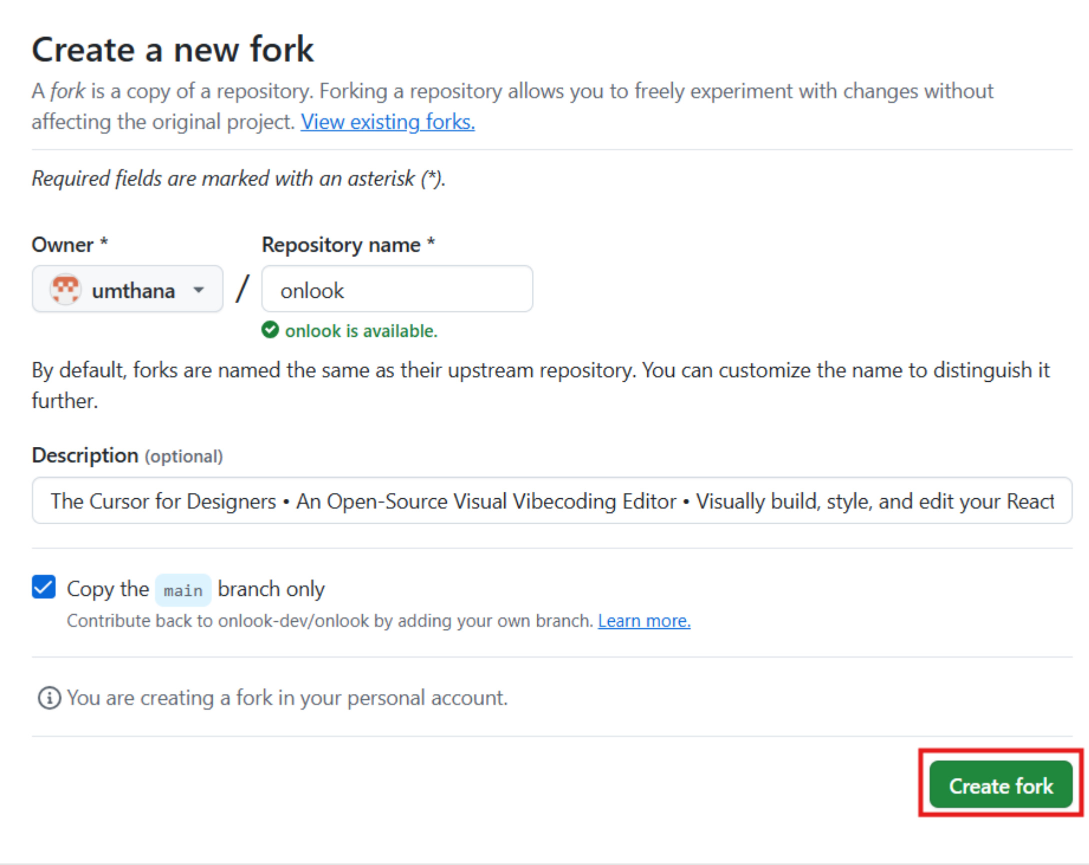
The Cursor for Designers • An Open-Source Visual Vibecoding Editor • Visually build, style, and edit your React App with AI

onlook.com

react, editor, design, typescript, ui, frontend, nextjs, ide, cursor, hacktoberfest, figma, drizzle, webflow, low-code, tailwindcss, design-to-code, supabase, cursor-ai, vibe-coding

Readme

Apache-2.0 license



Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project. View existing forks.

Required fields are marked with an asterisk (*).

Owner *: umthana / Repository name *: onlook

✓ onlook is available.

By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.

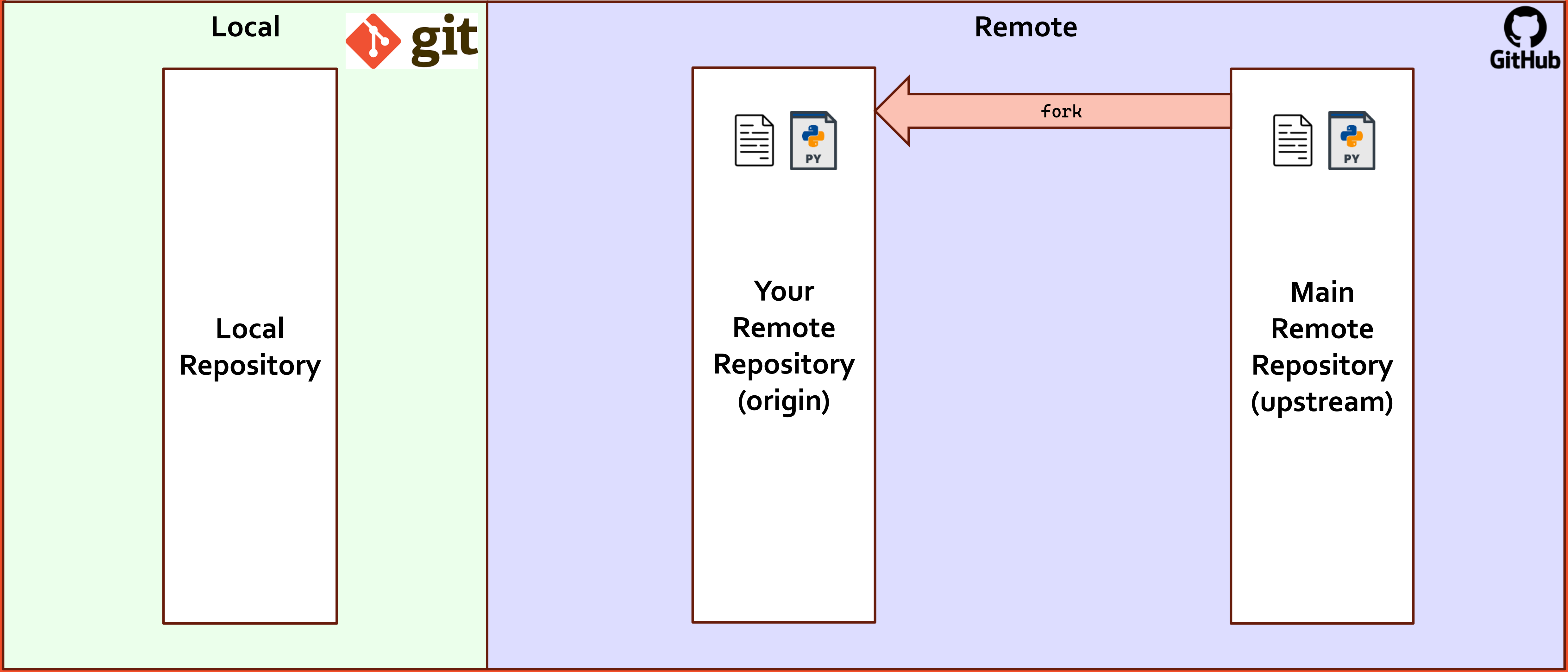
Description (optional): The Cursor for Designers • An Open-Source Visual Vibecoding Editor • Visually build, style, and edit your React

☑ Copy the `main` branch only

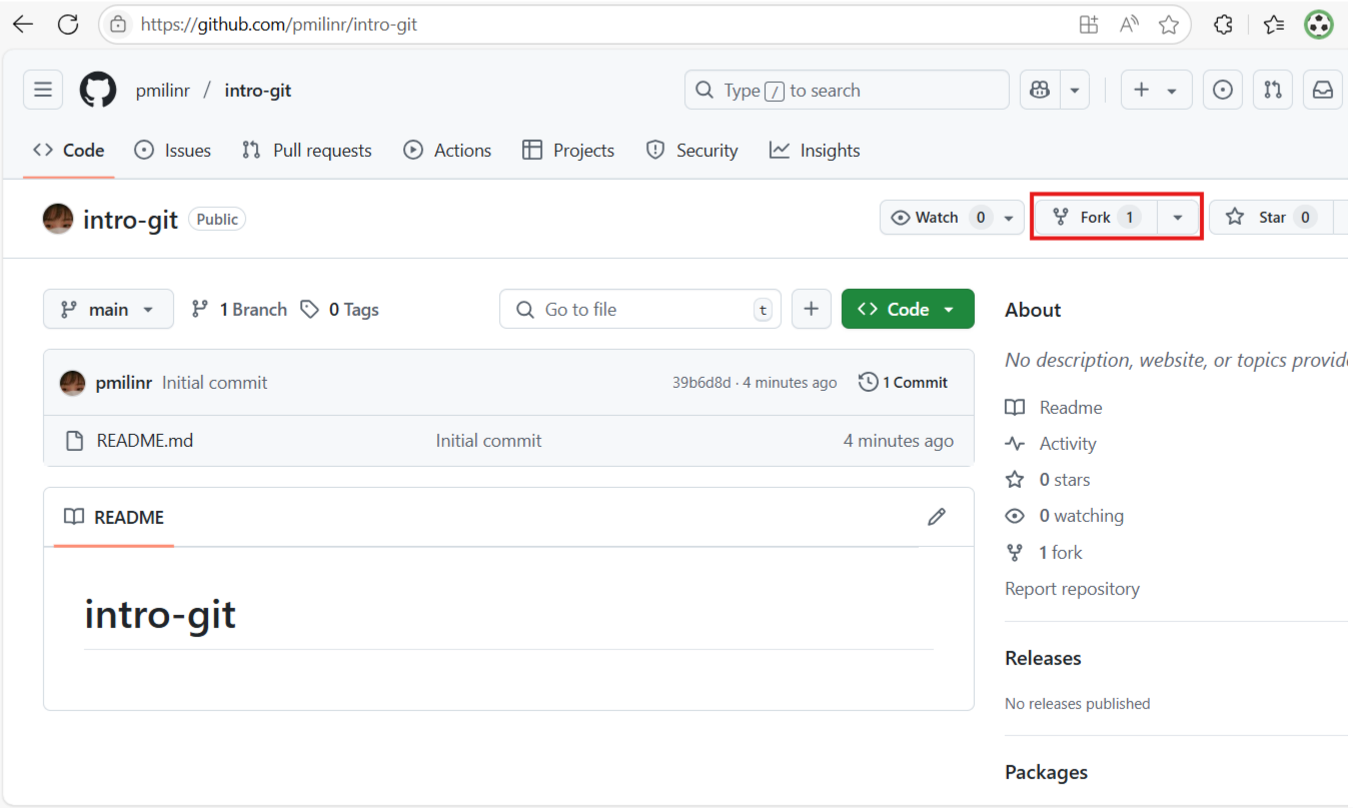
Contribute back to onlook-dev/onlook by adding your own branch. Learn more.

ⓘ You are creating a fork in your personal account.

Git Unoperated Repository Workflow


Local
git
Remote
GitHub
Local Repository
Your Remote Repository (origin)
fork
PY
Main Remote Repository (upstream)
PY

Fork your friend repository



https://github.com/pmilinr/intro-git

pmilinr / intro-git

Code · Issues · Pull requests · Actions · Projects · Security · Insights

intro-git Public

Watch 0 · Fork 1 · Star 0

main · 1 Branch · 0 Tags · Go to file · Code

pmilinr Initial commit · 39b6d8d · 4 minutes ago · 1 Commit

README.md · Initial commit · 4 minutes ago

README

intro-git

About

No description, website, or topics provid

Readme

Activity

0 stars

0 watching

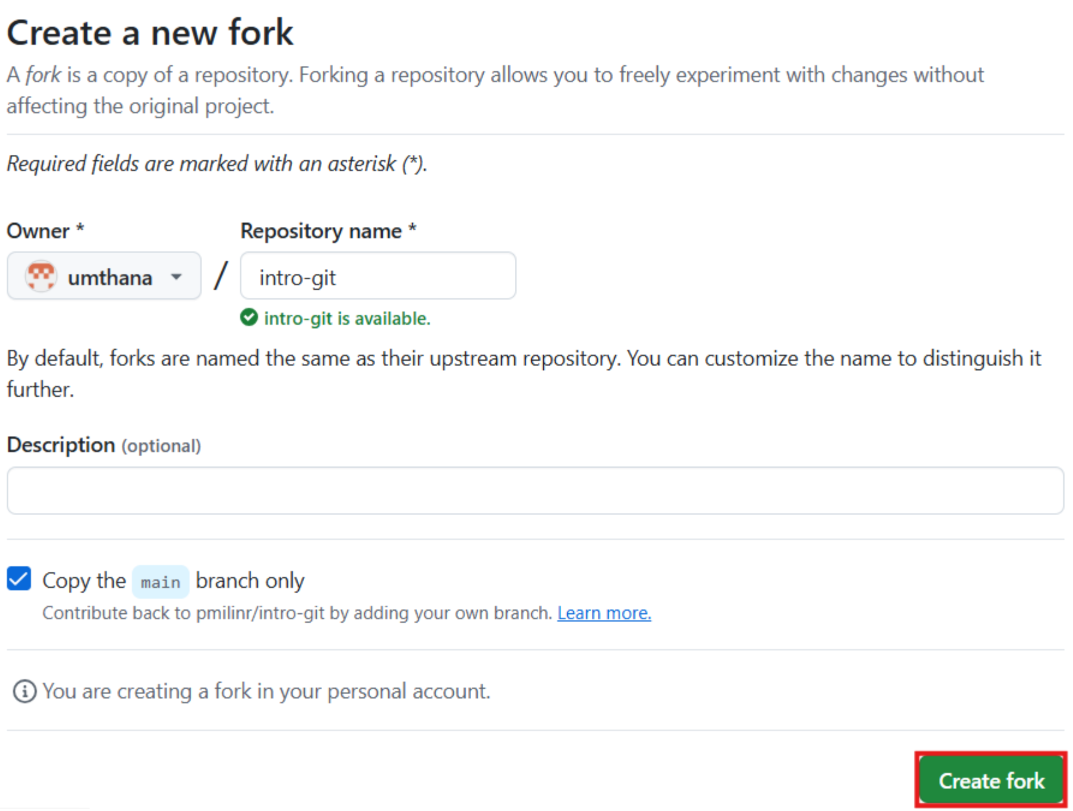
1 fork

Report repository

Releases

No releases published

Packages



Create a new fork

A *fork* is a copy of a repository. Forking a repository allows you to freely experiment with changes without affecting the original project.

Required fields are marked with an asterisk (*).

Owner * umthana / Repository name * intro-git

✓ intro-git is available.

By default, forks are named the same as their upstream repository. You can customize the name to distinguish it further.

Description (optional)

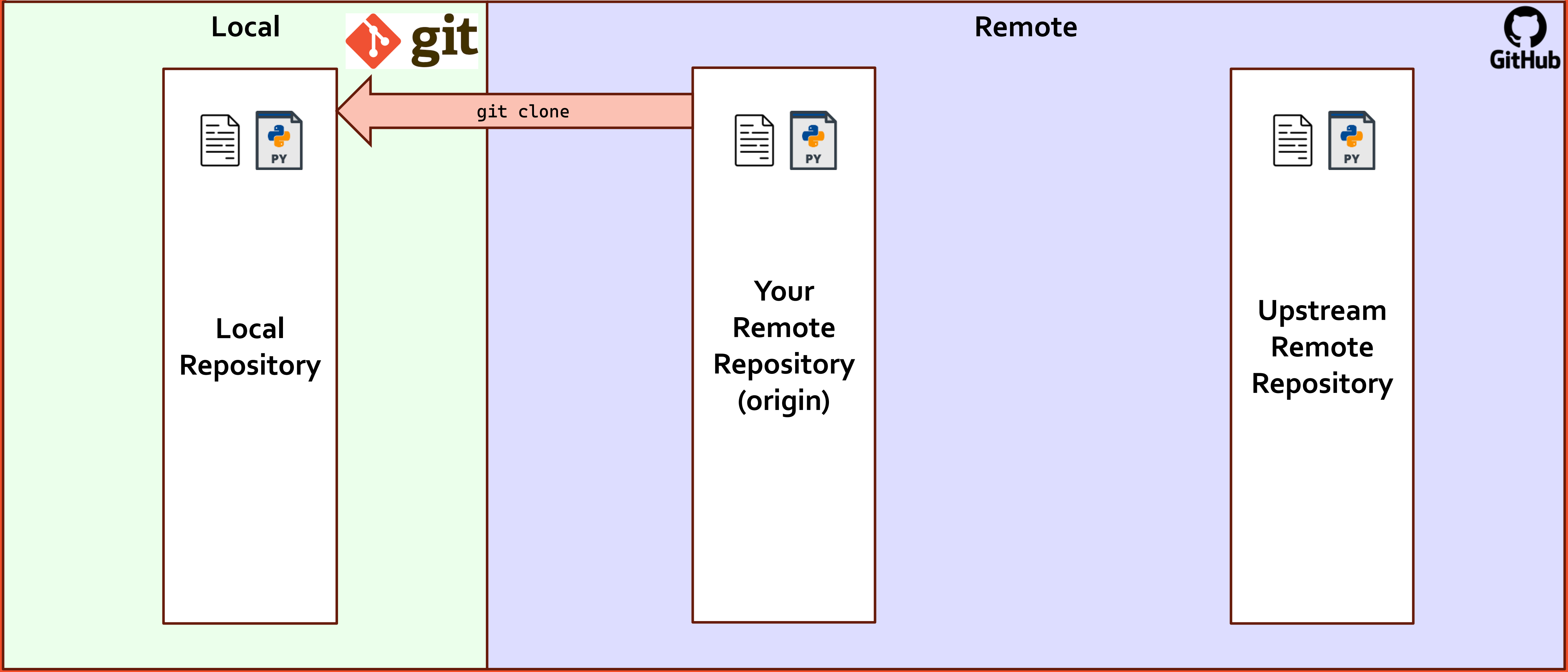
☑ Copy the `main` branch only

Contribute back to pmilinr/intro-git by adding your own branch. Learn more.

ⓘ You are creating a fork in your personal account.

Create fork

Git Unoperated Repository Workflow



Local

Remote

Local Repository

git clone

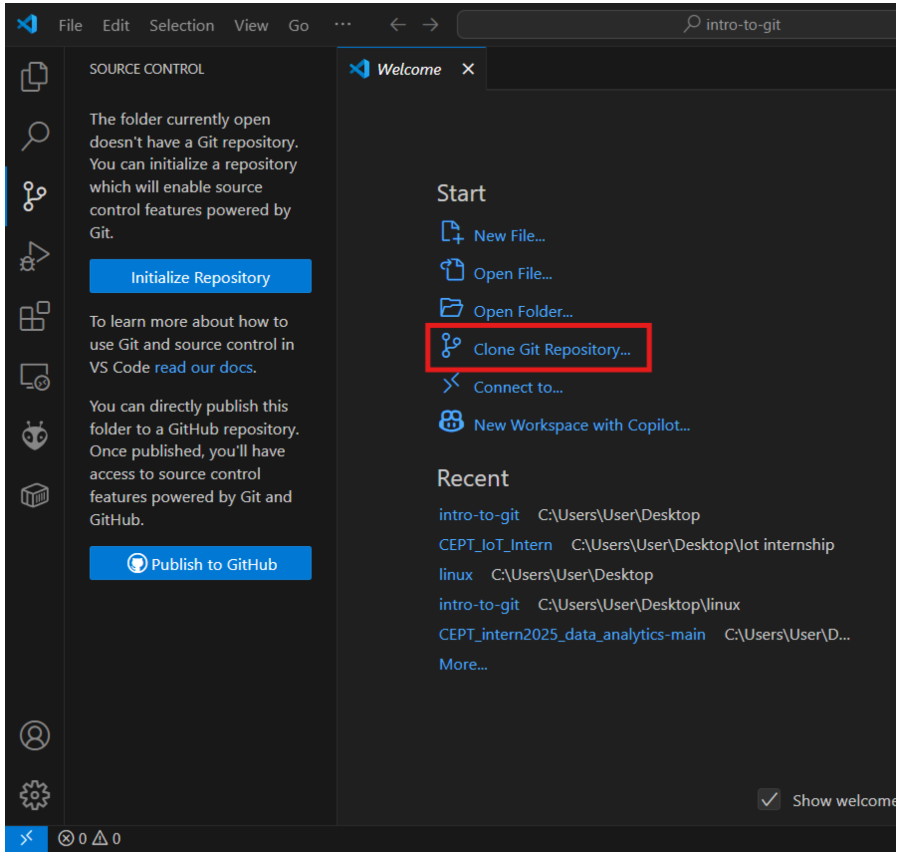
Your Remote Repository (origin)

Upstream Remote Repository

git clone

- Download a remote repository to your local machine.

Open your project folder in VScode >> **OR** **Open your project folder in Git Bash >>**



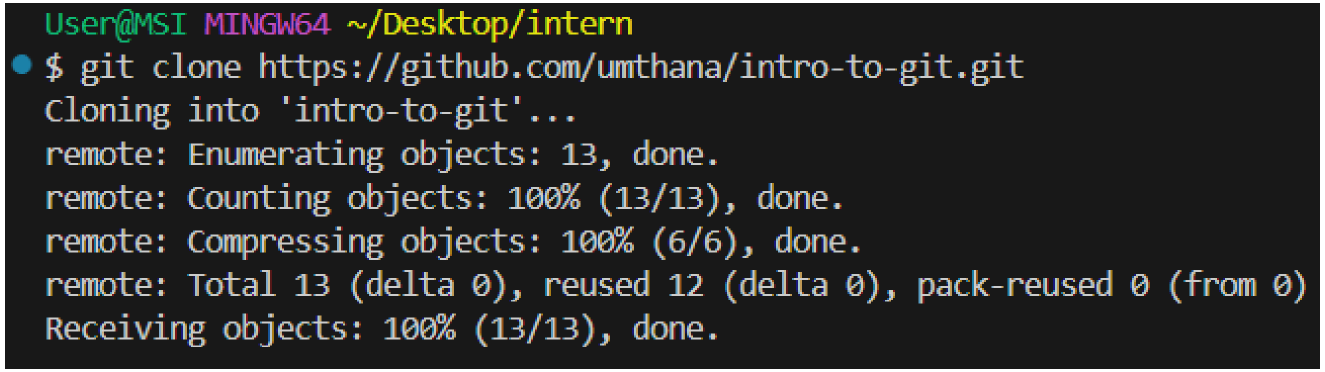
The folder currently open doesn't have a Git repository. You can initialize a repository which will enable source control features powered by Git.

To learn more about how to use Git and source control in VS Code read our docs.

You can directly publish this folder to a GitHub repository. Once published, you'll have access to source control features powered by Git and GitHub.

intro-to-git C:\Users\User\Desktop
CEPT_IoT_Intern C:\Users\User\Desktop\Iot internship
linux C:\Users\User\Desktop
intro-to-git C:\Users\User\Desktop\linux
CEPT_intern2025_data_analytics-main C:\Users\User\D...

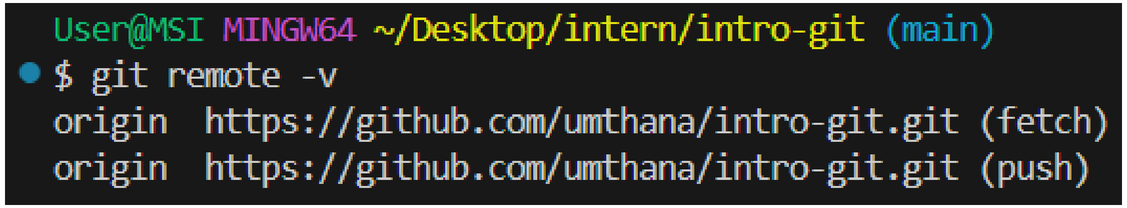
```
git clone <repository_URL>
```



```
User@MSI MINGW64 ~/Desktop/intern
$ git clone https://github.com/umthana/intro-to-git.git
Cloning into 'intro-to-git'...
remote: Enumerating objects: 13, done.
remote: Counting objects: 100% (13/13), done.
remote: Compressing objects: 100% (6/6), done.
remote: Total 13 (delta 0), reused 12 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (13/13), done.
```

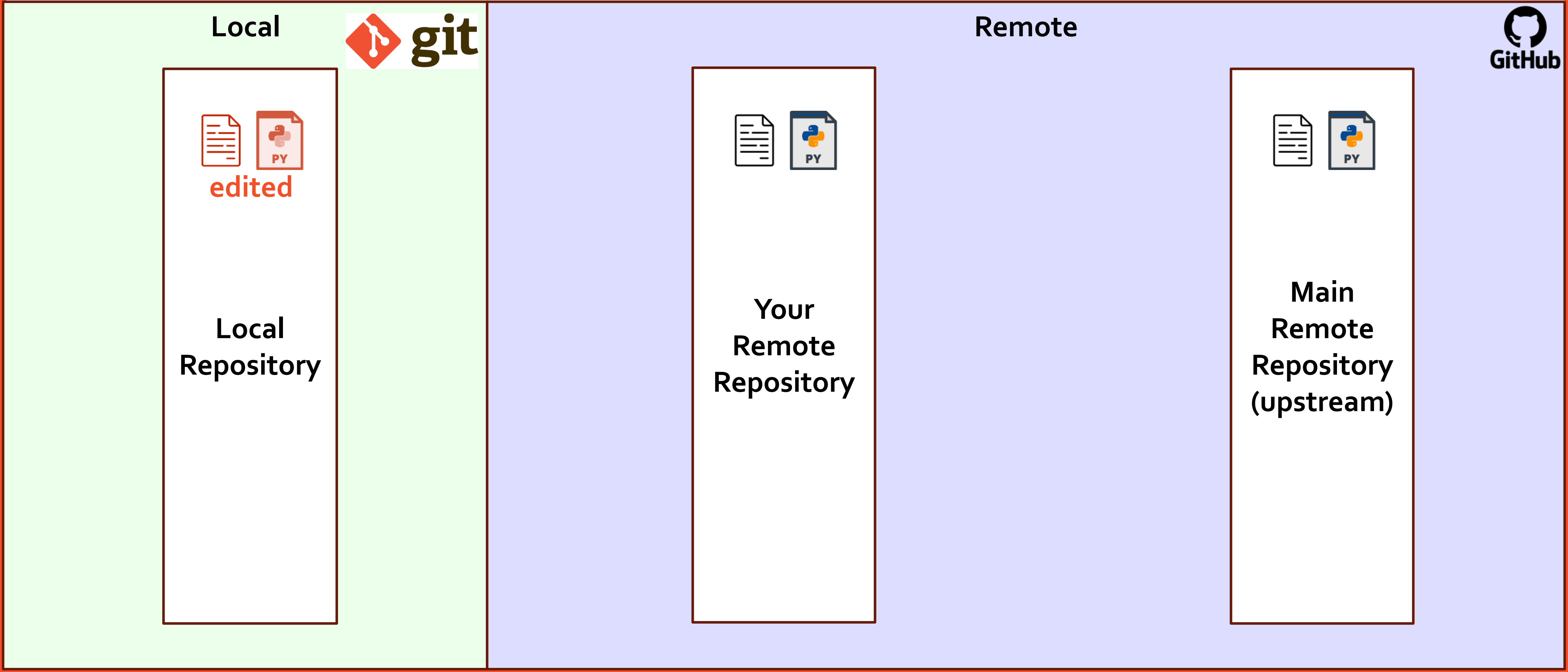
Already add remote repositories

```
git remote -v
```



```
User@MSI MINGW64 ~/Desktop/intern/intro-git (main)
$ git remote -v
origin  https://github.com/umthana/intro-git.git (fetch)
origin  https://github.com/umthana/intro-git.git (push)
```

Git Unoperated Repository Workflow



Local

Remote

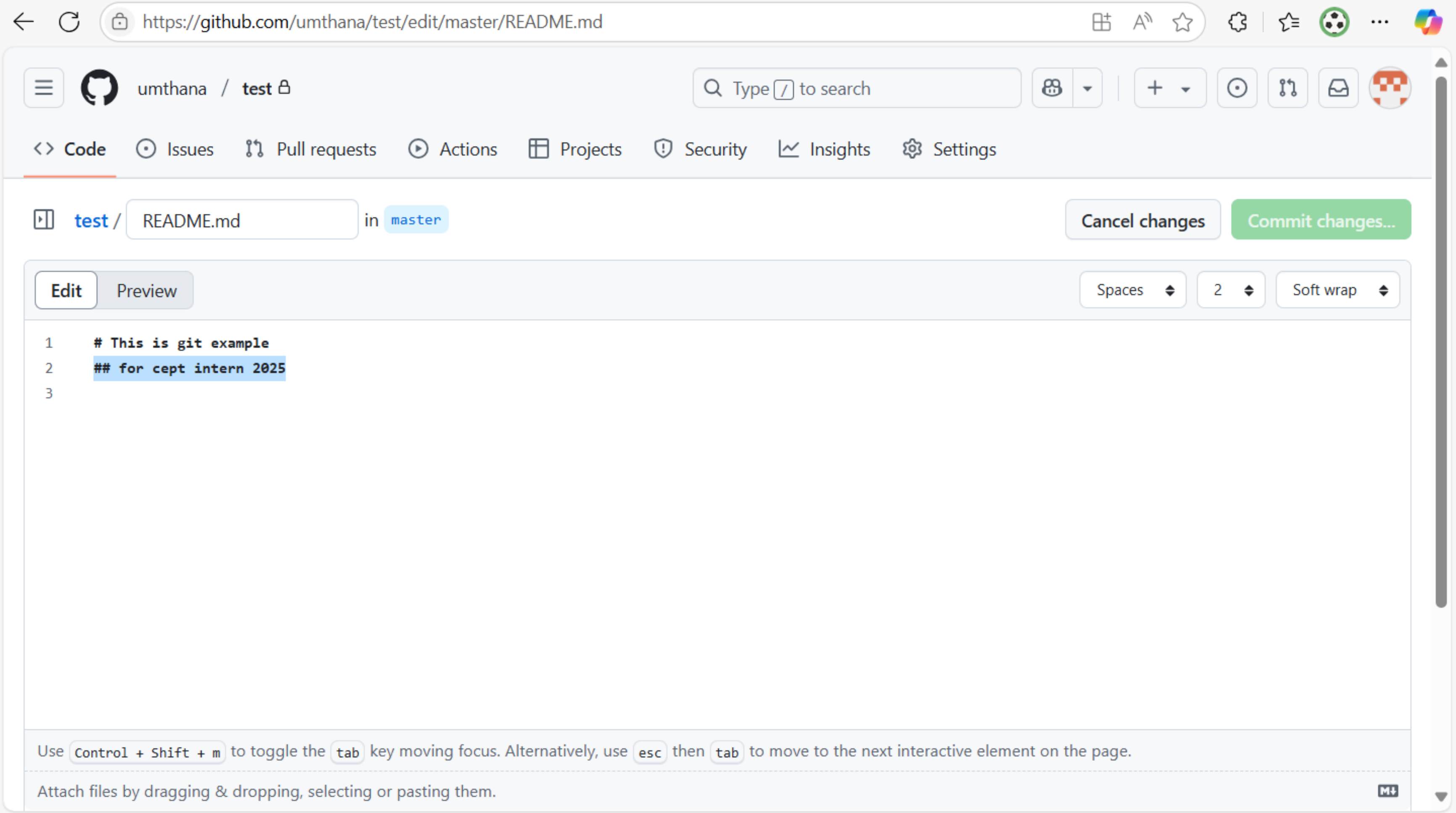
edited

Local Repository

Your Remote Repository

Main Remote Repository (upstream)

Try edit file, create branch then add and commit in local repository



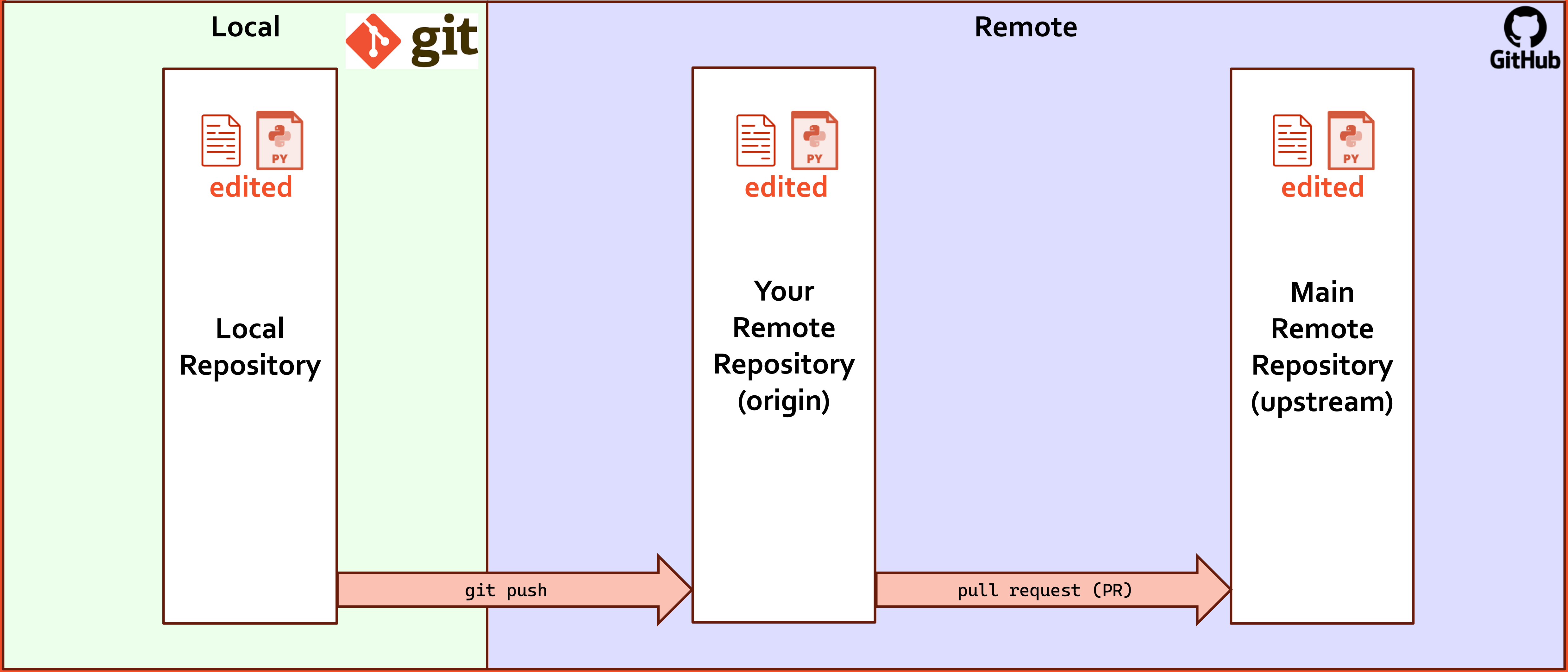
https://github.com/umthana/test/edit/master/README.md

```
# This is git example
## for cept intern 2025
```

Use Control + Shift + m to toggle the tab key moving focus. Alternatively, use esc then tab to move to the next interactive element on the page.

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

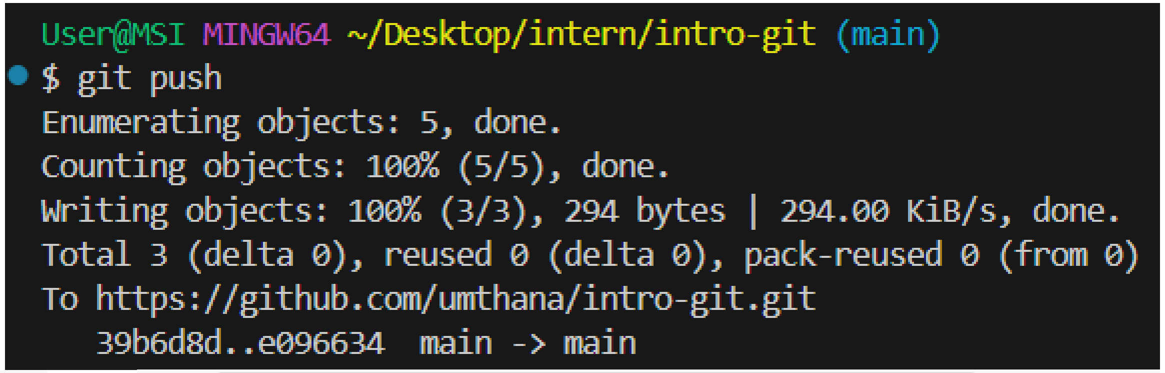
Git Unoperated Repository Workflow



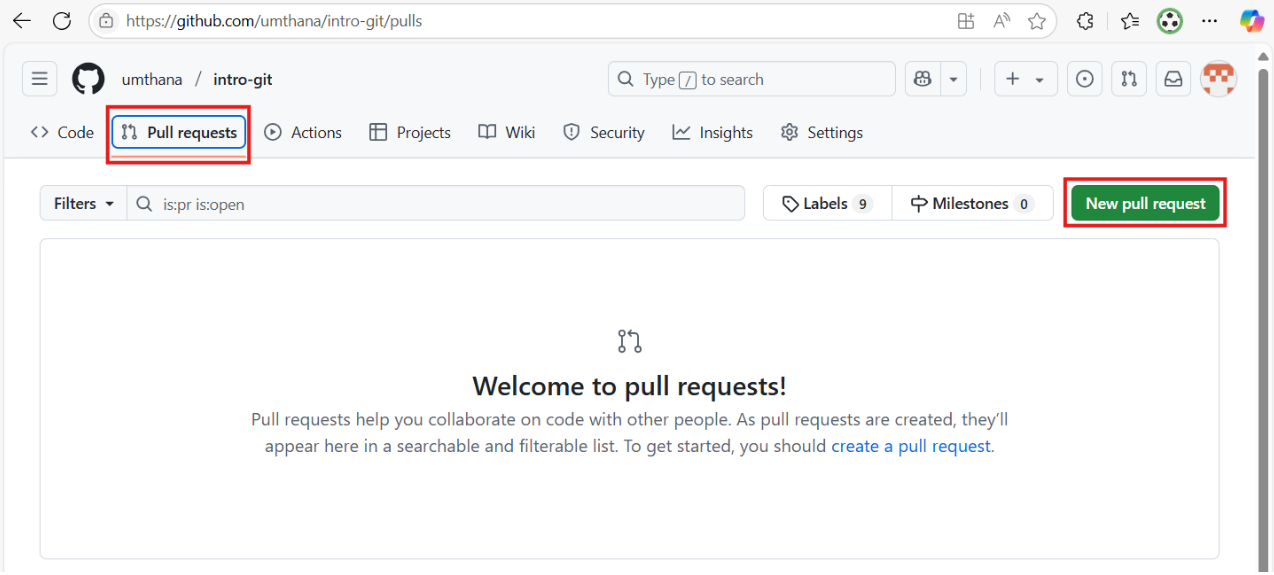
pull request (PR)

- Request to merge your changes into upstream branch

Your remote repository need to update using git push before PR

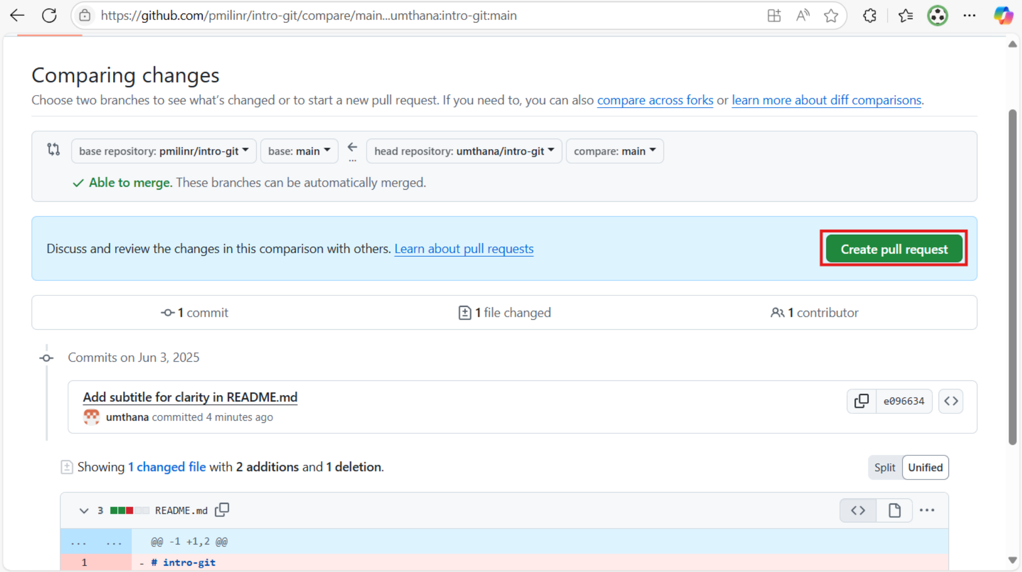


```
User@MSI MINGW64 ~/Desktop/intern/intro-git (main)
$ git push
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Writing objects: 100% (3/3), 294 bytes | 294.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/umthana/intro-git.git
   39b6d8d..e096634  main -> main
```



Welcome to pull requests!

Pull requests help you collaborate on code with other people. As pull requests are created, they'll appear here in a searchable and filterable list. To get started, you should create a pull request.



https://github.com/pmilinr/intro-git/compare/main...umthana:intro-git:main

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 or learn more about diff comparisons.

base repository: pmilinr/intro-git
base: main
head repository: umthana/intro-git
compare: main

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

Discuss and review the changes in this comparison with others. Learn about pull requests

Commits on Jun 3, 2025

Add subtitle for clarity in README.md
umthana committed 4 minutes ago
e096634

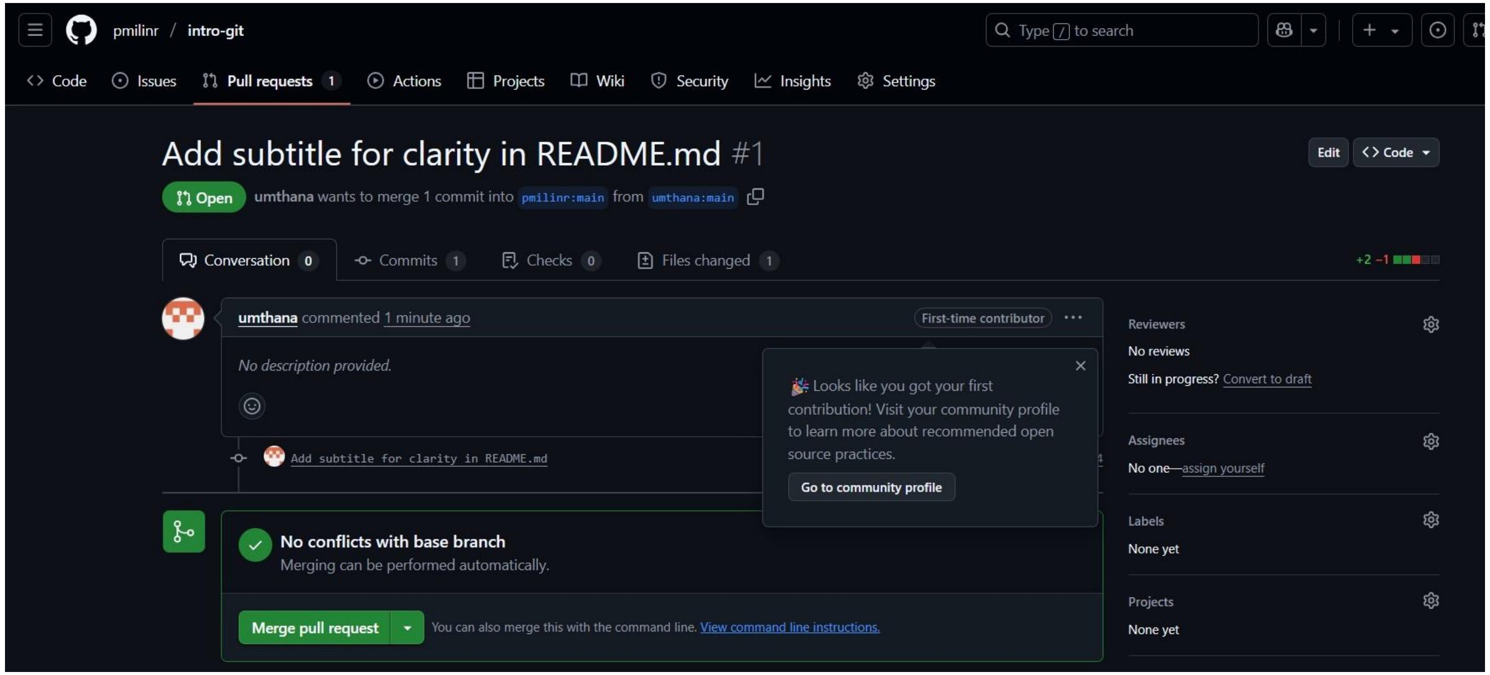
Showing 1 changed file with 2 additions and 1 deletion.

```
... ...  @@ -1 +1,2 @@
1        - # intro-git
```

pull request (PR)

- Request to merge your changes into upstream branch

Your remote repository have been merged to main remote repository



Add subtitle for clarity in README.md #1

umthana wants to merge 1 commit into `pmilinr:main` from `umthana:main`

umthana commented 1 minute ago

No description provided.

`Add subtitle for clarity in README.md`

Looks like you got your first contribution! Visit your community profile to learn more about recommended open source practices.

No conflicts with base branch

Merging can be performed automatically.

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

Reviewers

No reviews

Still in progress? Convert to draft

Assignees

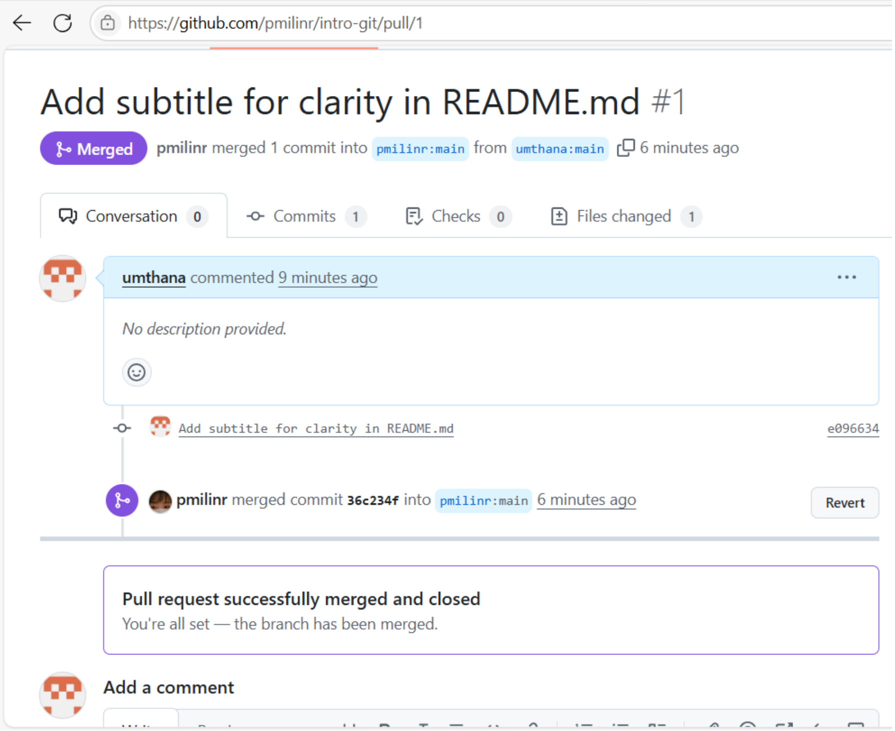
No one—assign yourself

Labels

None yet

Projects

None yet



Add subtitle for clarity in README.md #1

pmilinr merged 1 commit into `pmilinr:main` from `umthana:main` 6 minutes ago

umthana commented 9 minutes ago

No description provided.

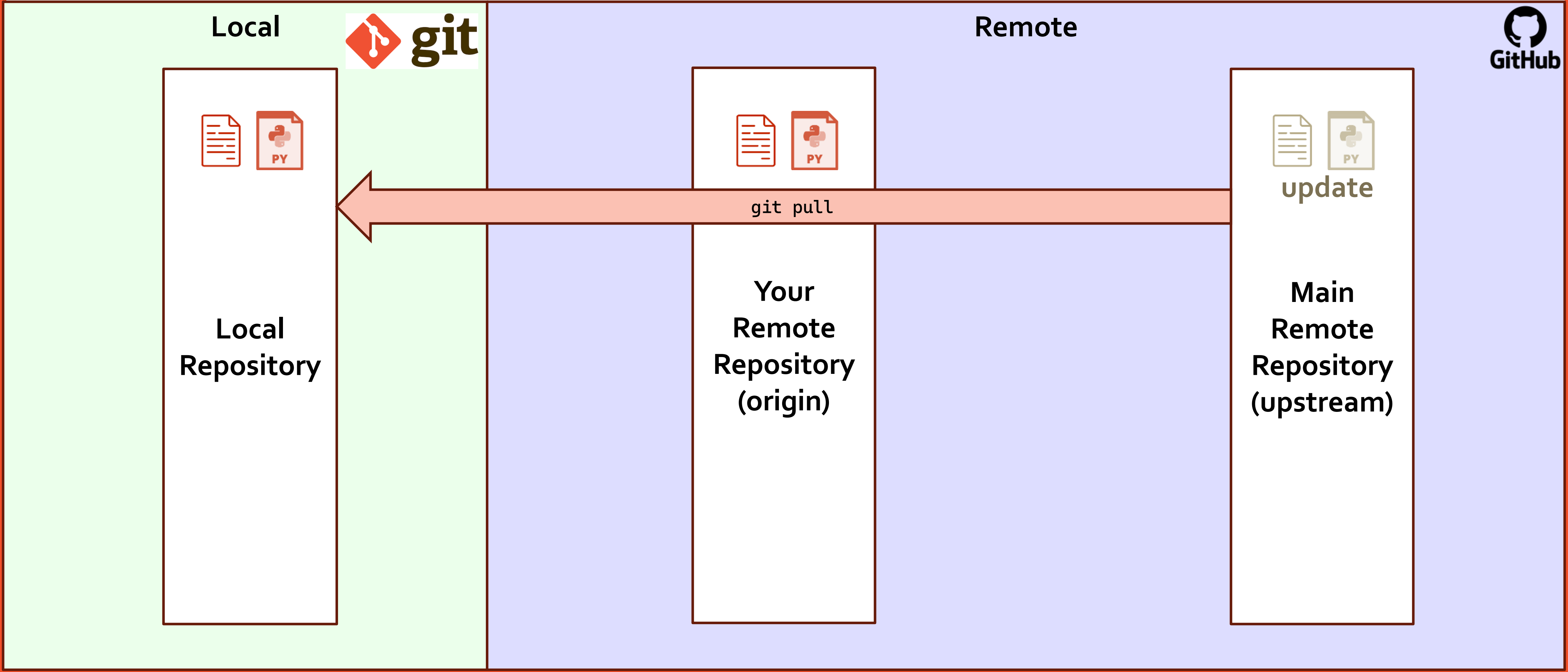
`Add subtitle for clarity in README.md` e096634

pmilinr merged commit **36c234f** into `pmilinr:main` 6 minutes ago

Pull request successfully merged and closed

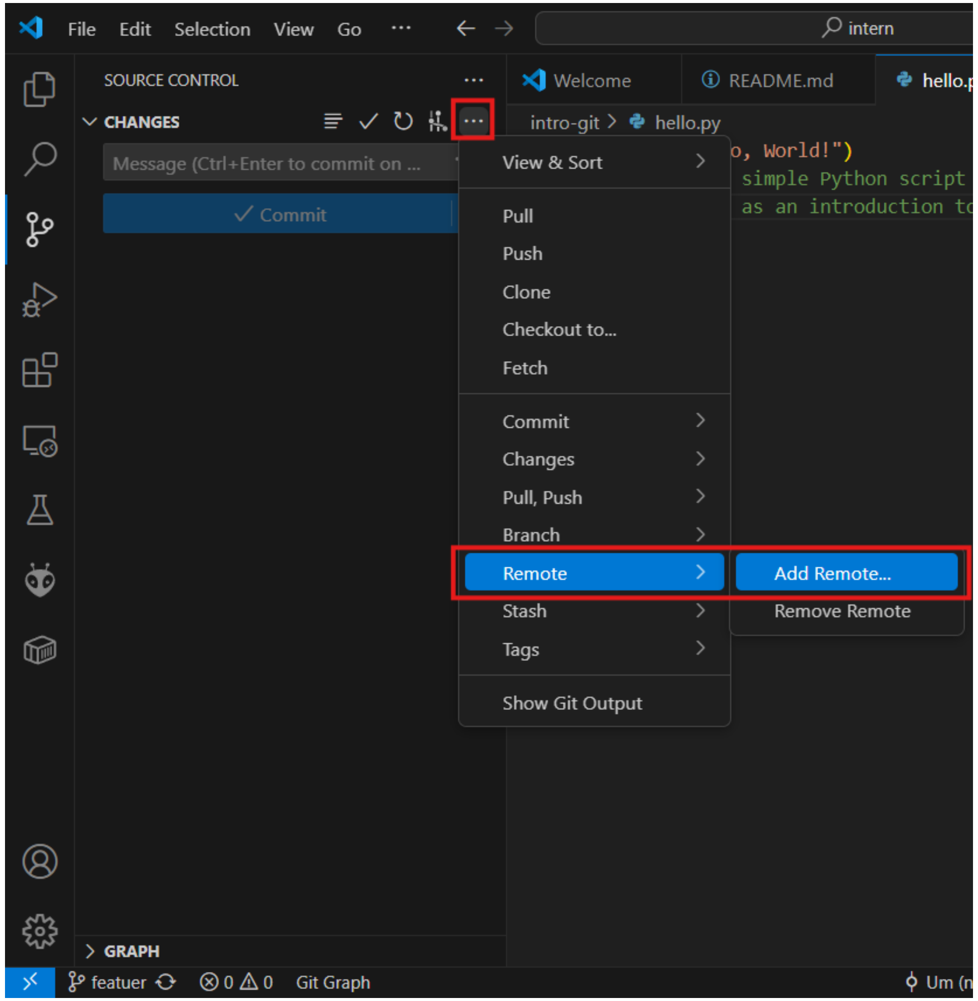
You're all set — the branch has been merged.

Git Unoperated Repository Workflow



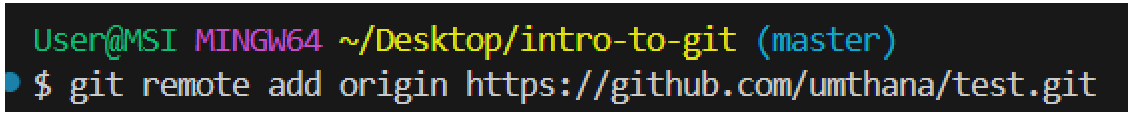
Local
git
Remote
GitHub
Local Repository
git pull
Your Remote Repository (origin)
update
Main Remote Repository (upstream)

Add Remote Main Repository (upstream)



add remote repositories

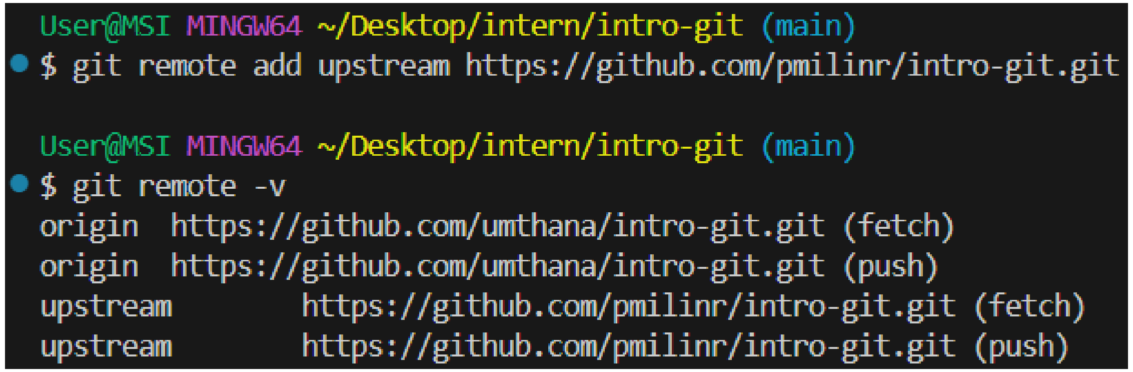
```
git remote add upstream
<main_repository_URL>
```



```
User@MSI MINGW64 ~/Desktop/intro-to-git (master)
$ git remote add origin https://github.com/umthana/test.git
```

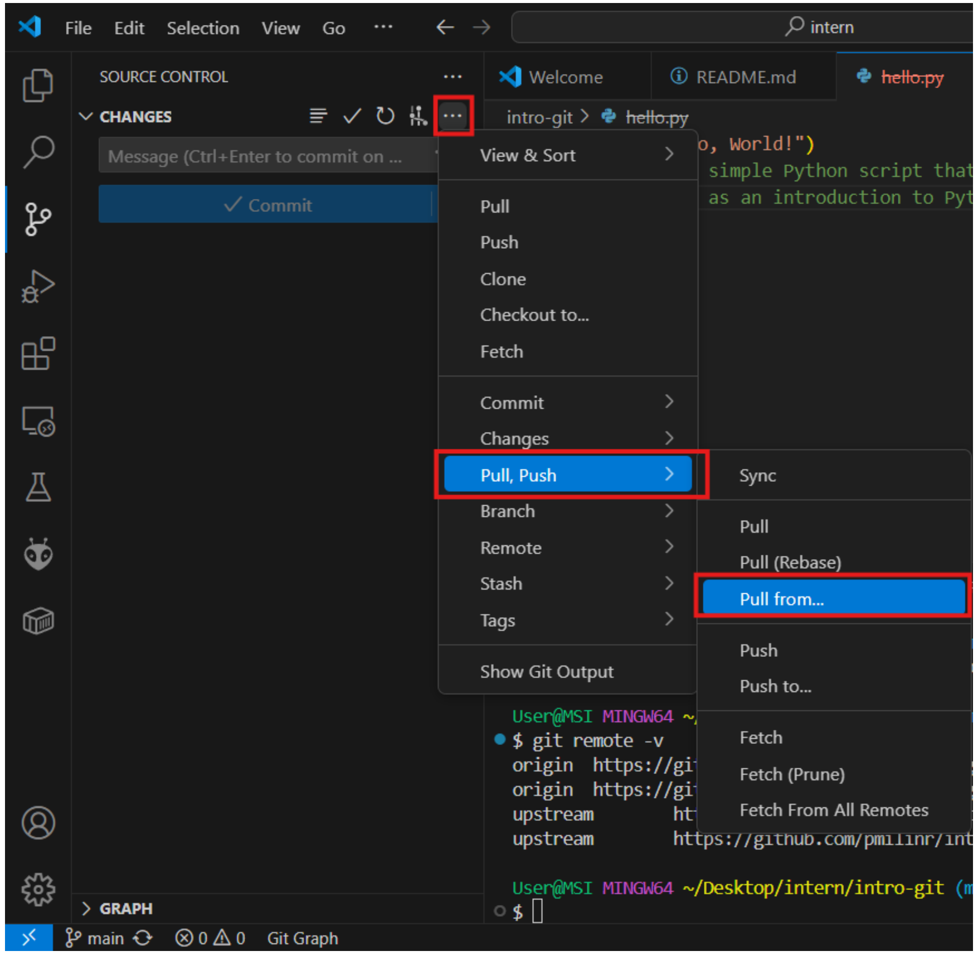
view the remote repositories

```
git remote -v
```



```
User@MSI MINGW64 ~/Desktop/intern/intro-git (main)
$ git remote add upstream https://github.com/pmilinr/intro-git.git

User@MSI MINGW64 ~/Desktop/intern/intro-git (main)
$ git remote -v
origin  https://github.com/umthana/intro-git.git (fetch)
origin  https://github.com/umthana/intro-git.git (push)
upstream        https://github.com/pmilinr/intro-git.git (fetch)
upstream        https://github.com/pmilinr/intro-git.git (push)
```

Pull Remote Main Repository (upstream)

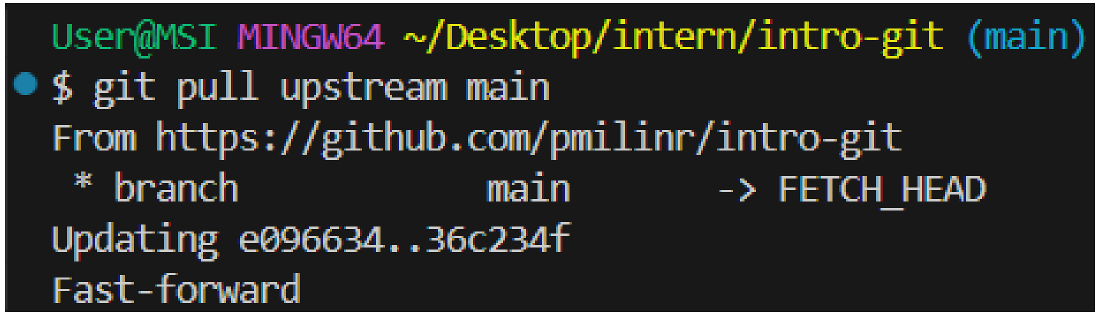


```
o, World!")
 simple Python script that
 as an introduction to Pyt
```

```
User@MSI MINGW64 ~/
$ git remote -v
origin  https://gi
origin  https://gi
upstream        ht
upstream        https://github.com/pmilinr/int

User@MSI MINGW64 ~/Desktop/intern/intro-git (m
$ 
```

pull remote main repositories

```
git pull upstream
<main_repository_URL>
```



```
User@MSI MINGW64 ~/Desktop/intern/intro-git (main)
$ git pull upstream main
From https://github.com/pmilinr/intro-git
 * branch            main       -> FETCH_HEAD
Updating e096634..36c234f
Fast-forward
```