Git and GitHub for Test Automation:

A Practical Self-Explanatory Guide

What Are Git and GitHub?

- **Git**: A tool that keeps track of changes in your code and test scripts. It allows you to save different versions of your work and go back to older ones if needed.
- **GitHub**: A website where you can store and share your Git projects with others. It's great for collaboration and working with a team.

Step 1: Installing Git

To use Git:

1. **Download Git**:
   I went to git-scm.com and downloaded the latest version for my operating system.
2. **Install Git**:
   I ran the installer and kept the default options.
3. **Check Installation**:
   After installation, I opened the terminal (or Command Prompt) and typed:

git –version

```
C:\Users\Yogi>git --version
git version 2.39.1.windows.1
```

If a version number appeared, it meant Git was installed successfully.

Step 2: Setting Up Git

Before using Git, I configured my name and email. This information is needed to identify who made changes.

1. **Set Your Name**: git config --global user.name "Your Name"
2. **Set Your Email**:

git config --global user.email your.email@example.com

```
C:\Users\Yogi>git config --global user.name "Yogi"

C:\Users\Yogi>git config --global user.email "yogeshpandian97@gmail.com"
```

3. **Check Your Settings**:

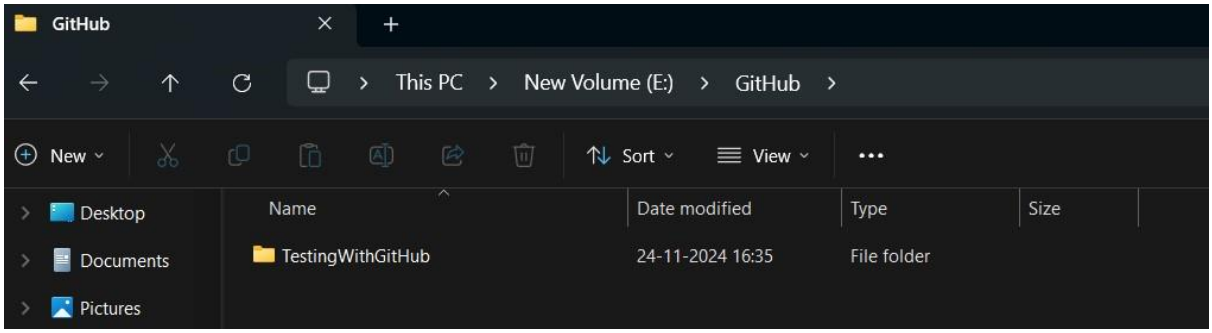
git config –list

```
user.name=Yogi
user.email=yogeshpandian97@gmail.com
core.editor=idea --wait
```

This shows the name and email I just set.

Step 3: Creating a Local Project

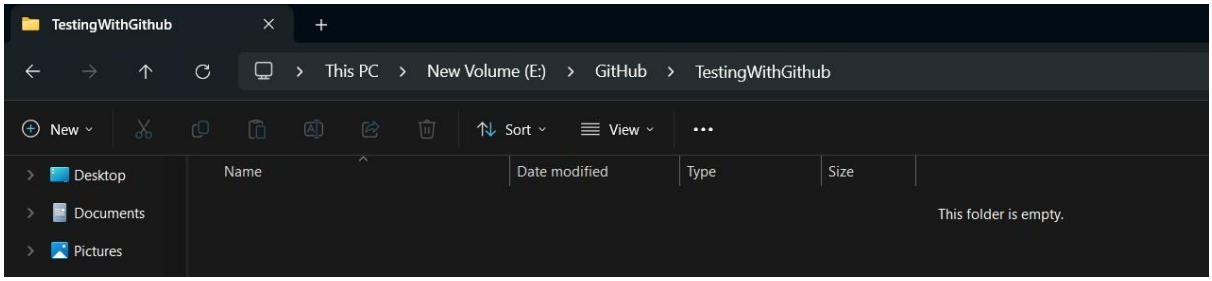
I created a new folder on my system called TestingWithGitHub to store my test scripts. Then, I opened this folder in IntelliJ IDEA so I could work on it directly.



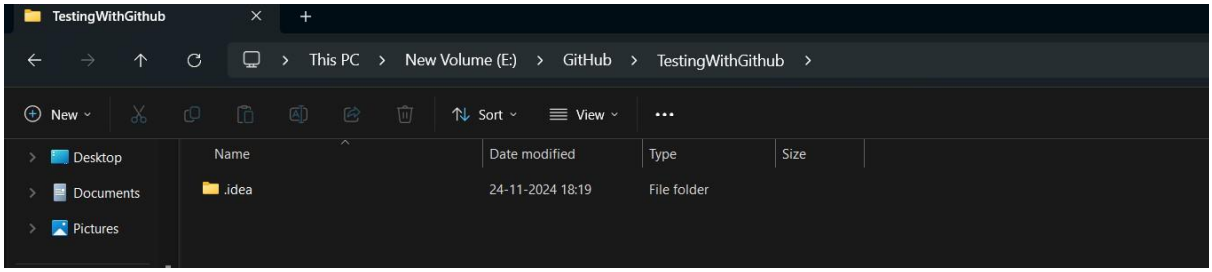
Next, I opened **IntelliJ IDEA**, navigated to **File > Open**, and selected the **TestingWithGitHub** folder.

This made it easy to work within the folder directly from IntelliJ.

Before



After



To start using Git commands, I opened the built-in terminal in IntelliJ. I navigated to the path where the **TestingWithGitHub** folder was located using the cd command:

```
PS E:\GitHub> cd TestingWithGitHub
PS E:\GitHub\TestingWithGitHub>
```

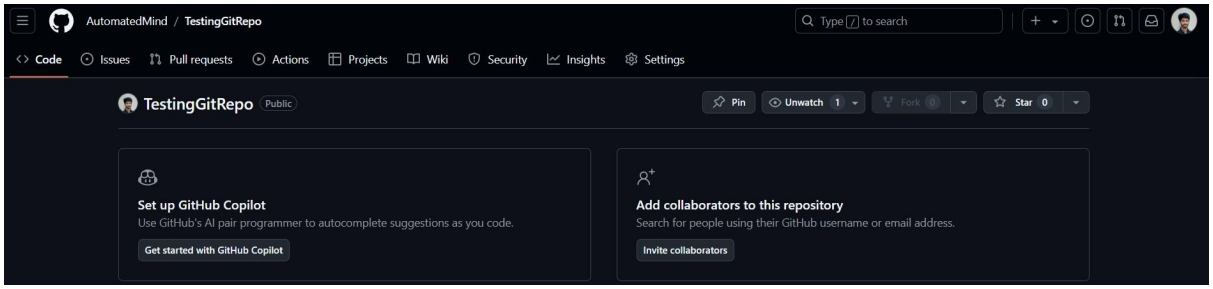
Step 4: Creating a GitHub Repository

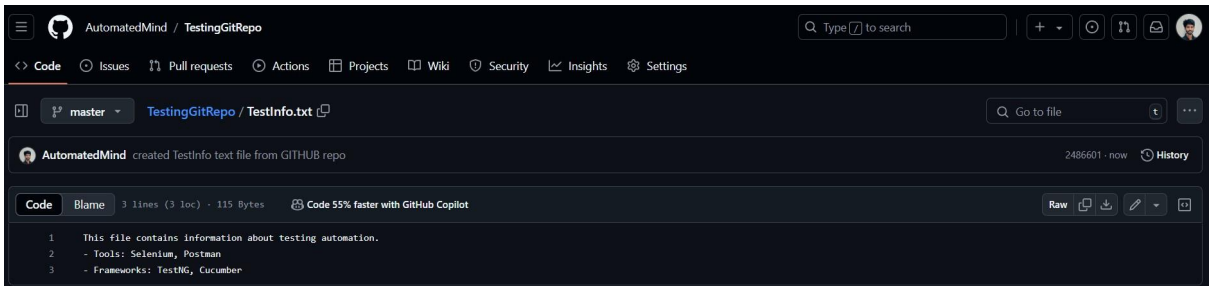
Next, I logged into my GitHub account and created a new repository named TestingGitRepo. In this repository, I added a file called **TestInfo.txt** with the following content:

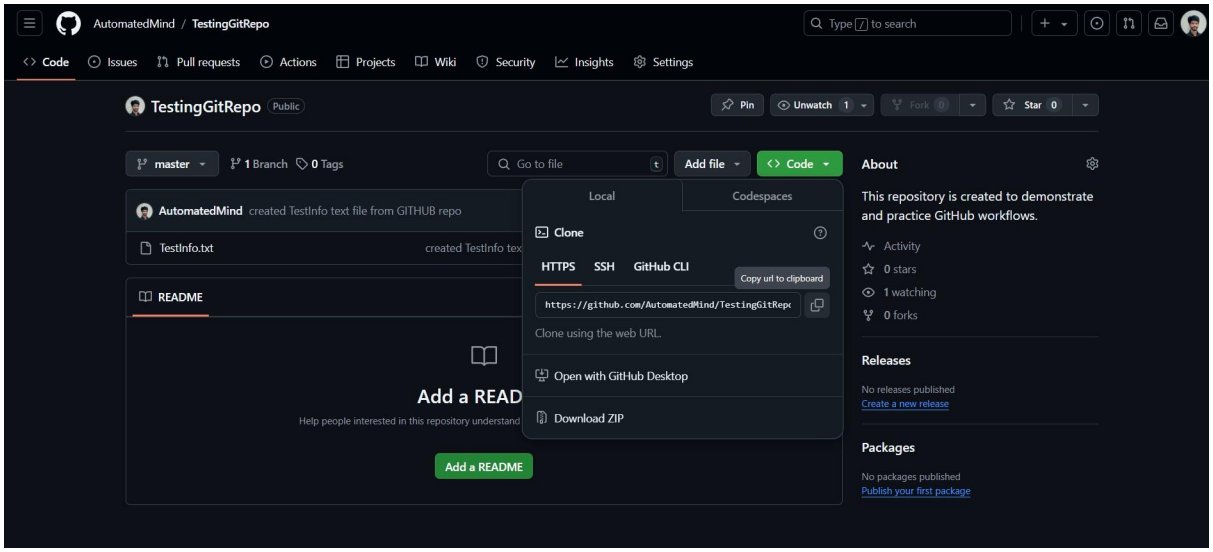
This file contains information about test automation:

- Tools: Selenium, Postman

- Frameworks: TestNG, Cucumber







GitHub provided a URL for this repository, which I copied.

Step 5: Cloning the Repository

To connect my local project with the GitHub repository, I used the **clone** command. In the terminal, I typed: git clone <GitHub-Repo-URL>

```
PS E:\GitHub\TestingWithGitHub> git clone https://github.com/AutomatedMind/TestingGitRepo.git
Cloning into 'TestingGitRepo'...
remote: Enumerating objects: 3, done.
remote: Counting objects: 100% (3/3), done.
remote: Compressing objects: 100% (2/2), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (3/3), done.
PS E:\GitHub\TestingWithGitHub>
```

This command downloaded the GitHub repository into my local system. Now, I could see the **TestingGitRepo** folder and the **TestInfo.txt** file inside IntelliJ.

This copied all the files from the GitHub repository into my local folder.

Step 6: Adding and Committing Files

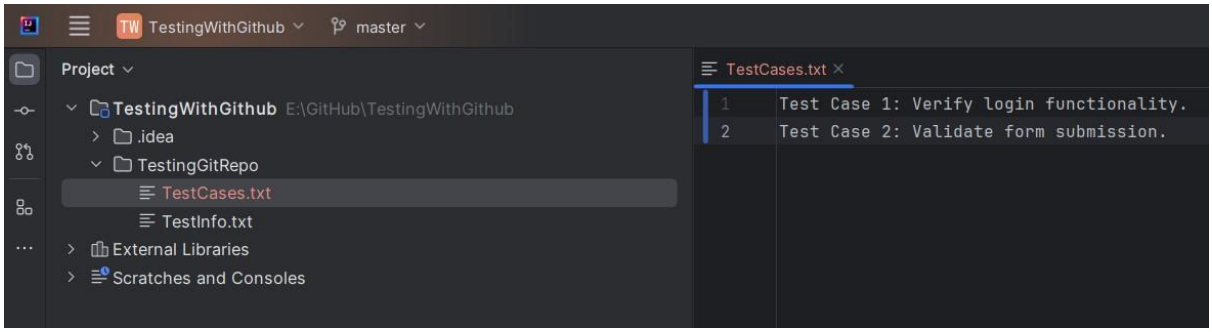
I navigated into the newly cloned repository: cd TestingGitRepo

```
PS E:\GitHub\TestingWithGitHub> cd TestingGitRepo
PS E:\GitHub\TestingWithGitHub\TestingGitRepo>
```

In IntelliJ, I created a new file named **TestCases.txt** with this content:

Test Case 1: Verify login functionality.

Test Case 2: Validate form submission.



The red line of the file indicates the file is untracked which means it is not in git

I saved the file, then checked its status with:

git status

```
PS E:\GitHub\TestingWithGitHub\TestingGitRepo> git status
On branch master
Your branch is up to date with 'origin/master'.

Untracked files:
  (use "git add <file>..." to include in what will be committed)
        TestCases.txt

nothing added to commit but untracked files present (use "git add" to track)
PS E:\GitHub\TestingWithGitHub\TestingGitRepo>
```

The file showed as "untracked," meaning Git was not tracking it yet.

Staging the File

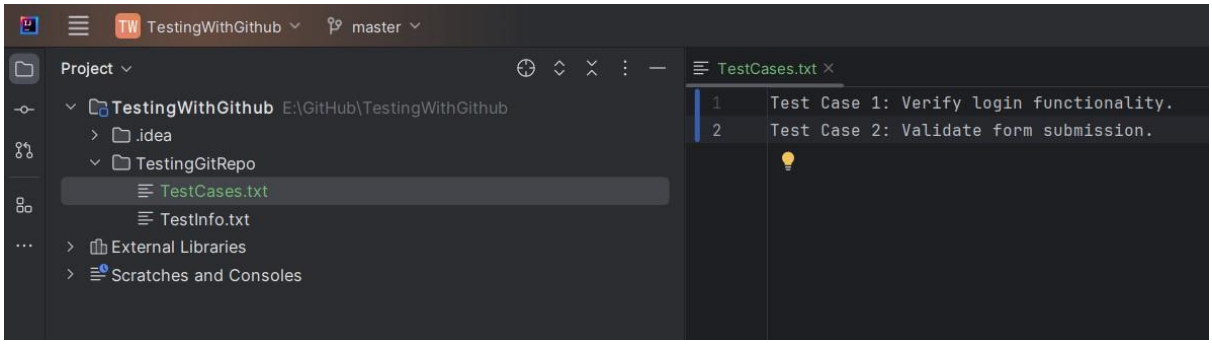
To tell Git to start tracking the file, I staged it using the following command: git

add TestCases.txt

```
PS E:\GitHub\TestingWithGitHub\TestingGitRepo> git add TestCases.txt
PS E:\GitHub\TestingWithGitHub\TestingGitRepo>
```

This moved the file to the **staging area**, which is where changes are prepared before being committed.

Now the colour of the file changed to green which indicates it is staged now



To confirm check the git status

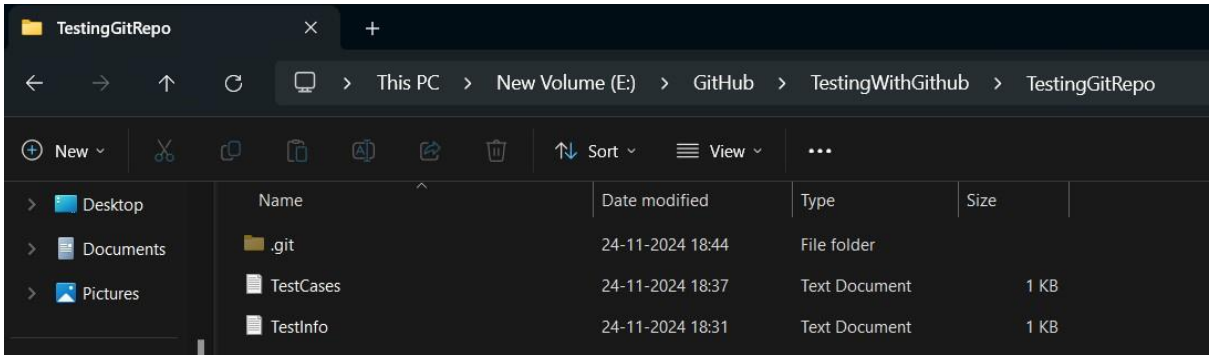
git status

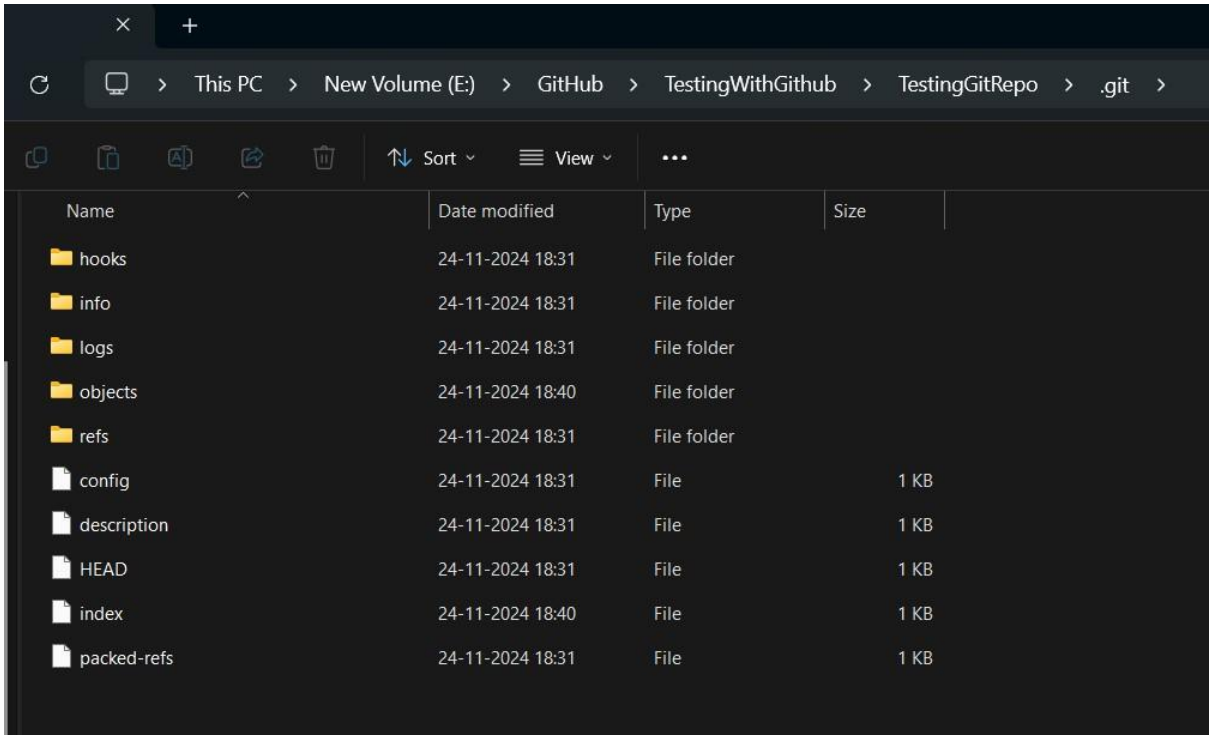
```
PS E:\GitHub\TestingWithGitHub\TestingGitRepo> git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        new file:   TestCases.txt

PS E:\GitHub\TestingWithGitHub\TestingGitRepo>
```

The file **TestCases.txt** is now in the staging area, which means it is ready to be committed to the local repository.

Additional Point: When we refer to the local repository, it is stored in the .git folder, which is created when we clone or initialize a repository. This folder is usually hidden in the project directory.

Once the **TestCases.txt** file is committed, it will be saved as part of the version history in the .git folder (local repository).





Then, I committed the changes with:

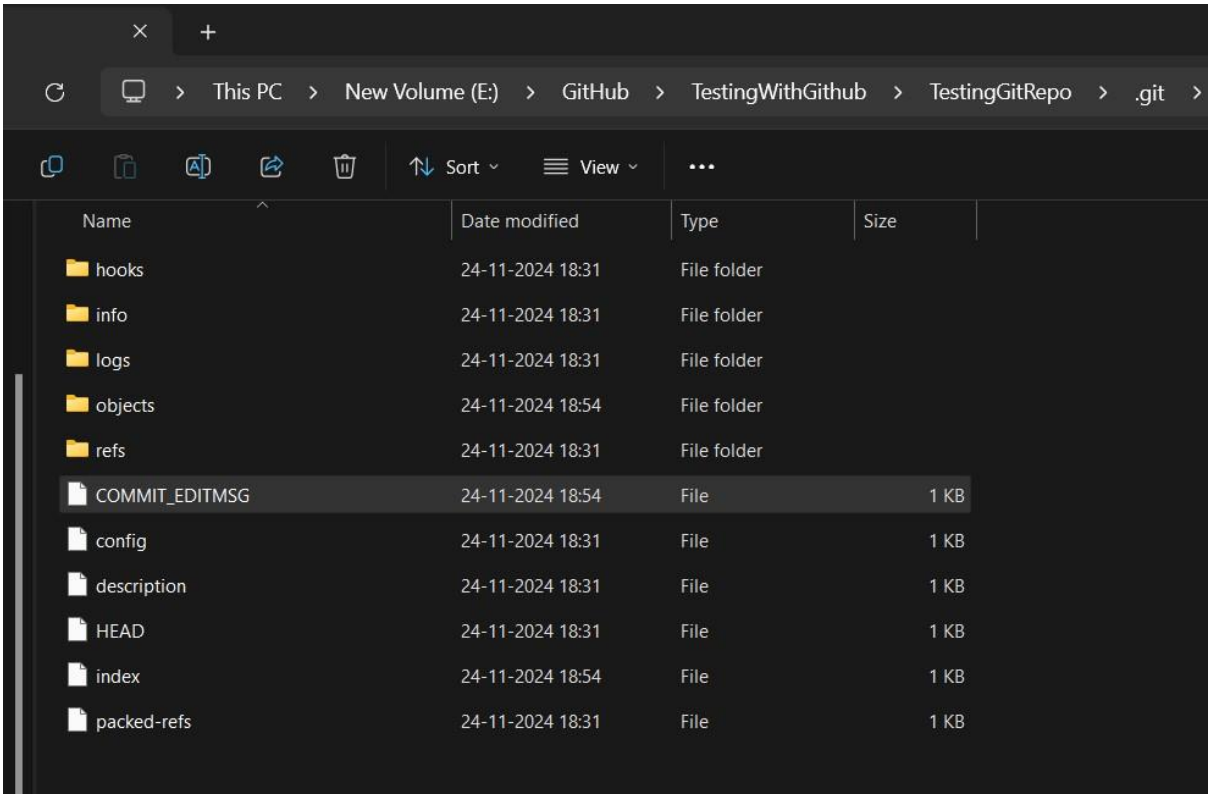
git commit -m "Added TestCases.txt"

```
PS E:\GitHub\TestingWithGitHub\TestingGitRepo> git commit -m "Added TestCases.txt file from editor"
[master 1ee7b92] Added TestCases.txt file from editor
 1 file changed, 2 insertions(+)
 create mode 100644 TestCases.txt
PS E:\GitHub\TestingWithGitHub\TestingGitRepo>
```

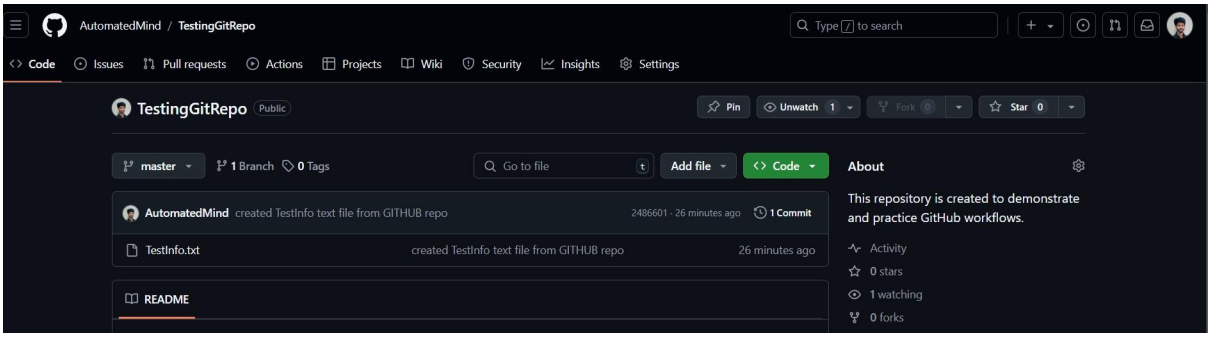
This saved the changes in my local Git repository.

Here’s what happened:

- The commit saved the changes (adding the new file) in my local repository.



- It created a new version of my project's history, but the changes were still local and not yet visible on GitHub.



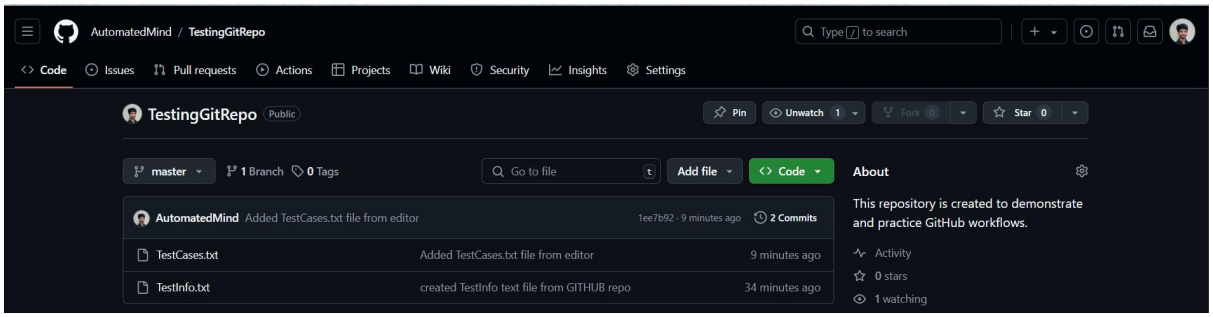
Step 7: Pushing Changes to GitHub

To upload the changes to GitHub, I used:

git push origin master

```
PS E:\GitHub\TestingWithGitHub\TestingGitRepo> git push origin master
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 368 bytes | 368.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/AutomatedMind/TestingGitRepo.git
   2486601..1ee7b92  master -> master
```

Now, the **TestCases.txt** file appeared in my GitHub repository.



Step 8: Creating a New Branch

To organize my work, I created a new branch named **feature-test-cases**: git

checkout -b feature-test-cases

```
PS E:\GitHub\TestingWithGitHub\TestingGitRepo> git checkout -b feature-test-cases
Switched to a new branch 'feature-test-cases'
PS E:\GitHub\TestingWithGitHub\TestingGitRepo>
```

This command created and switched to the new branch.

To verify which branch it points

git branch -a

```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git branch -a
* feature-test-cases
  master
  remotes/origin/HEAD -> origin/master
  remotes/origin/feature-test-cases
  remotes/origin/master
```

Push the branch to the remote repository:

git push origin feature-test-cases

```
PS E:\GitHub\TestingWithGitHub\TestingGitRepo> git push origin feature-test-cases
Enumerating objects: 6, done.
Counting objects: 100% (6/6), done.
Delta compression using up to 12 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 1.31 KiB | 1.31 MiB/s, done.
Total 6 (delta 0), reused 3 (delta 0), pack-reused 0
remote:
remote: Create a pull request for 'feature-test-cases' on GitHub by visiting:
remote:      https://github.com/AutomatedMind/TestingGitRepo/pull/new/feature-test-cases
remote:
To https://github.com/AutomatedMind/TestingGitRepo.git
 * [new branch]      feature-test-cases -> feature-test-cases
PS E:\GitHub\TestingWithGitHub\TestingGitRepo>
```

Note:

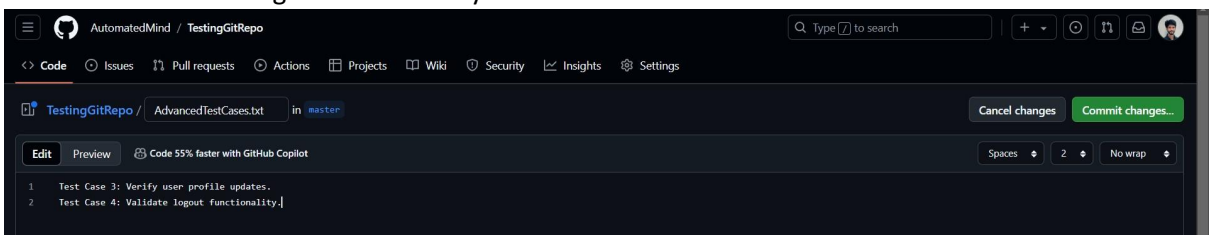
Creating a branch only? No need to stage or commit before pushing.

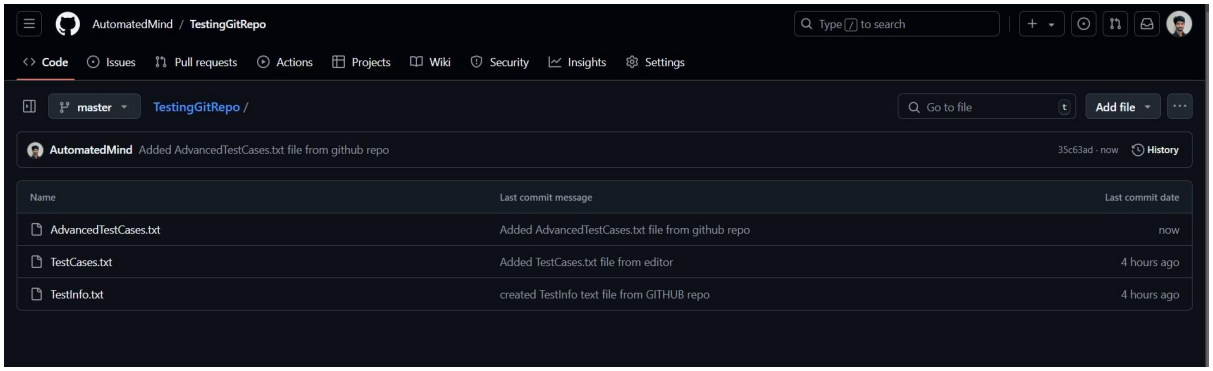
Made changes in the branch? You must stage and commit before pushing.

I then added a file called **AdvancedTestCases.txt** on GitHub with the content:

Test Case 3: Verify user profile updates.

Test Case 4: Validate logout functionality.

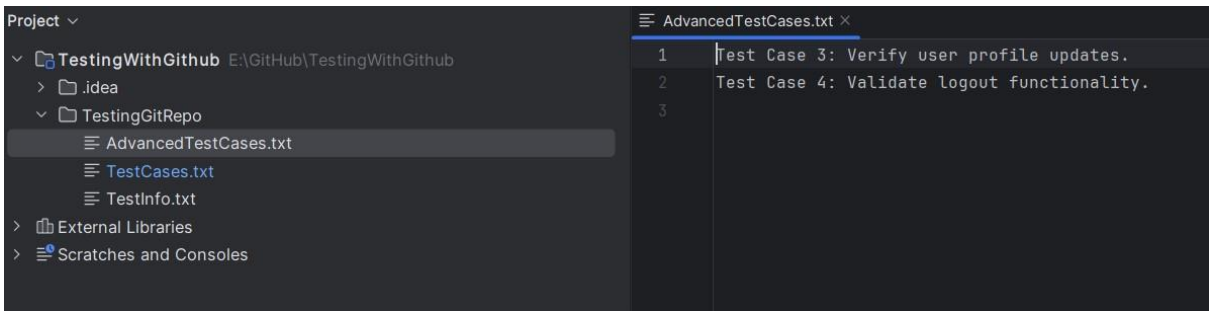




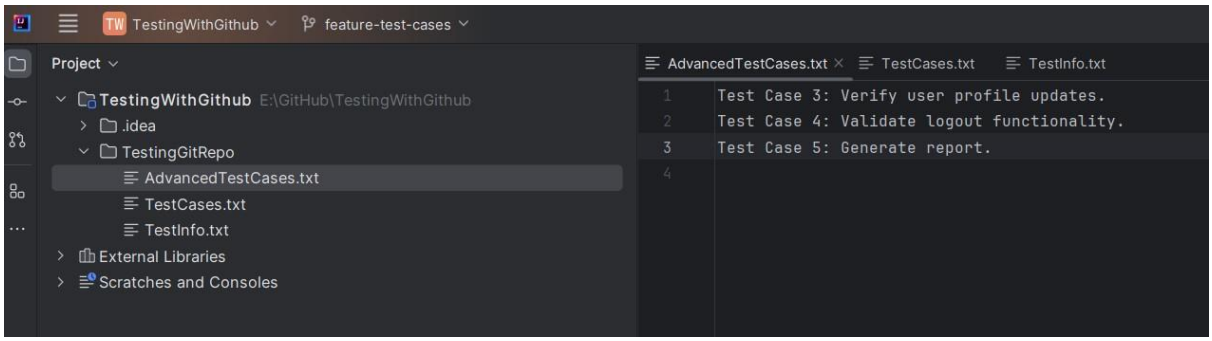
To pull this file into my local repository, I ran:

git pull origin feature-test-cases

```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git pull origin feature-test-cases
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 1.02 KiB | 6.00 KiB/s, done.
From https://github.com/AutomatedMind/TestingGitRepo
 * branch            feature-test-cases -> FETCH_HEAD
   1ee7b92..1bff1cb  feature-test-cases -> origin/feature-test-cases
Updating 1ee7b92..1bff1cb
Fast-forward
 AdvancedTestCases.txt | 2 ++
 1 file changed, 2 insertions(+)
 create mode 100644 AdvancedTestCases.txt
```

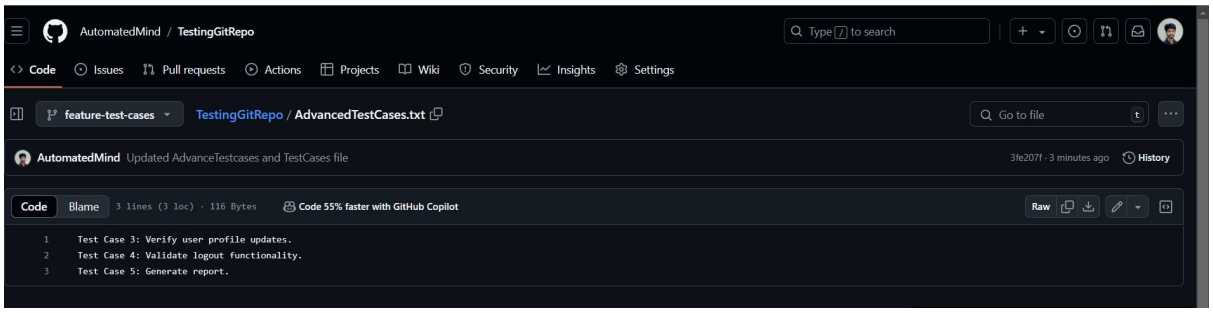


Again, I made changes in AdvancedTestCases and TestCases text file.



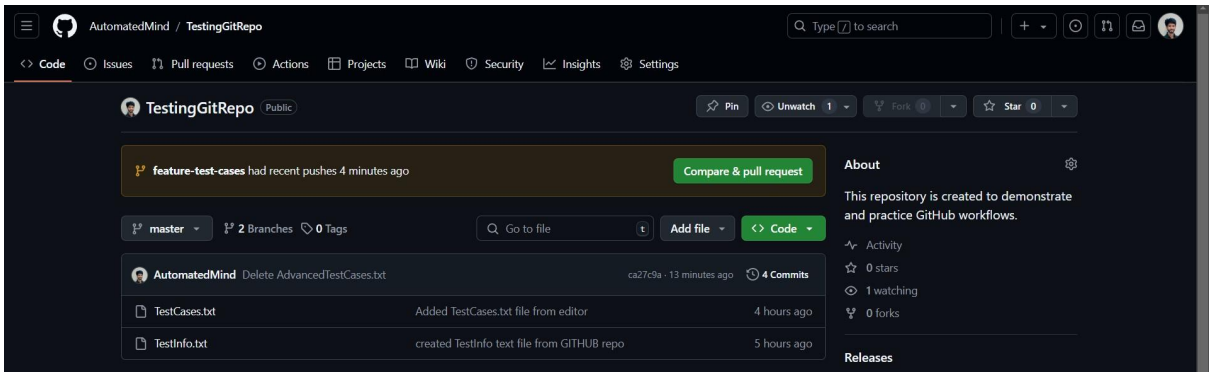
Since I Made changes in the branch I did stage and commit before pushing

```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git add .
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git commit -m "Updated AdvanceTestcases and TestCases file"
[feature-test-cases 3fe207f] Updated AdvanceTestcases and TestCases file
 2 files changed, 2 insertions(+), 2 deletions(-)
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git push origin feature-test-cases
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (4/4), 440 bytes | 440.00 KiB/s, done.
Total 4 (delta 1), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/AutomatedMind/TestingGitRepo.git
   1bff1cb..3fe207f  feature-test-cases -> feature-test-cases
```



I could see the changes in feature-test-case branch in GITHUB repo after push. Verify

master branch **from GITHUB**



From local git

checkout master

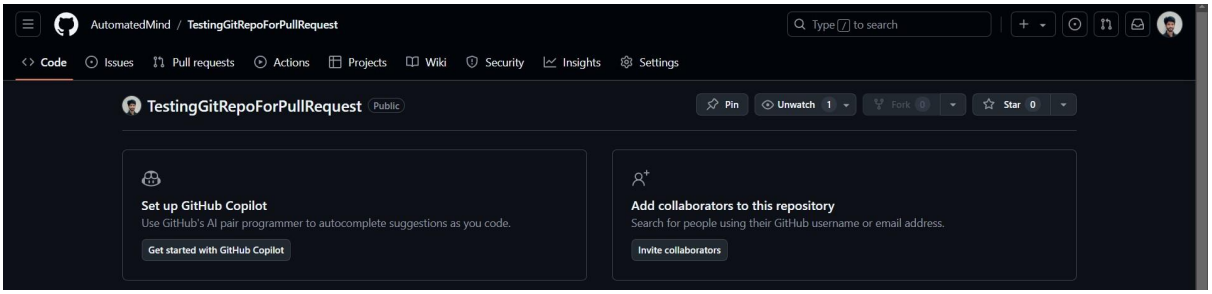
```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git checkout master
Switched to branch 'master'
Your branch is behind 'origin/master' by 1 commit, and can be fast-forwarded.
  (use "git pull" to update your local branch)
```

The newly added file is present only in new branch which is feature-test-case and not in master.

Step 9: Managing Multiple Repositories

I wanted to practice managing more than one repository.

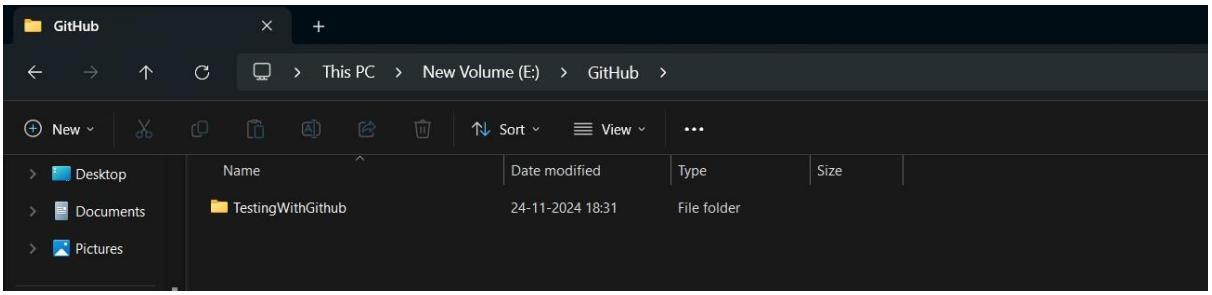
1. **Created a New Repository**:
   On GitHub, I created another repository called **TestingGitRepoForPullRequest**.



2. **Initialized Git**:
   Before initialize it have the proper folder structure

   In my local folder, I navigated to Base project folder **TestingWithGithub**

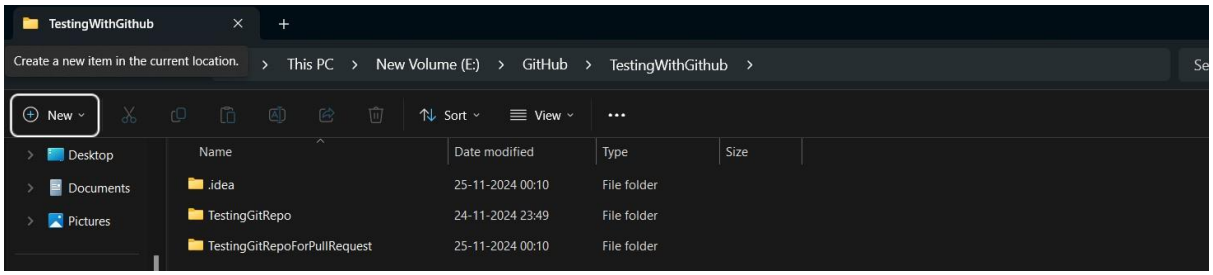
```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> cd..
PS E:\GitHub\TestingWithGithub>
```



Now I created a new directory mkdir

TestingGitRepoForPullRequest

```
PS E:\GitHub\TestingWithGithub> mkdir TestingGitRepoForPullRequest


    Directory: E:\GitHub\TestingWithGithub


Mode                 LastWriteTime         Length Name
----                 -------------         ------ ----
d-----        25-11-2024     00:09                TestingGitRepoForPullRequest
```

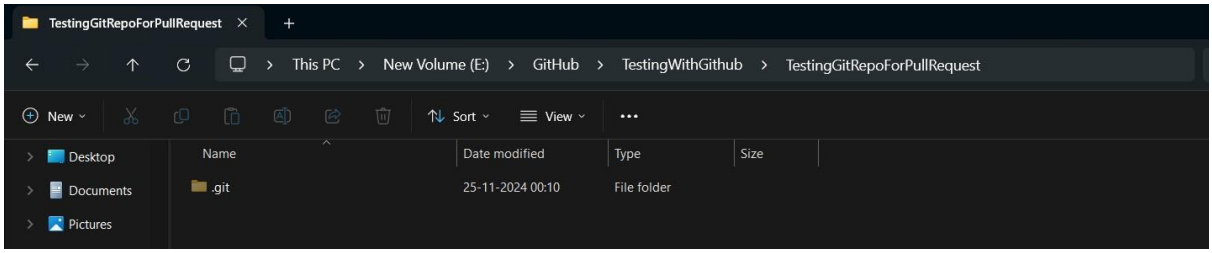


Then navigate to new repo and initialize git

git init

```
PS E:\GitHub\TestingWithGithub> cd TestingGitRepoForPullRequest
PS E:\GitHub\TestingWithGithub\TestingGitRepoForPullRequest> git init
Initialized empty Git repository in E:/GitHub/TestingWithGithub/TestingGitRepoForPullRequest/.git/
```

This created a .git folder to track the project.



1. **Adding and Committing Files**:
   I created a file named **TestPlan.txt** with this content:

Test Plan: Automation scripts for E2E testing.

Tools: Selenium, Postman, TestNG. Then,

I staged and committed the file: git add .

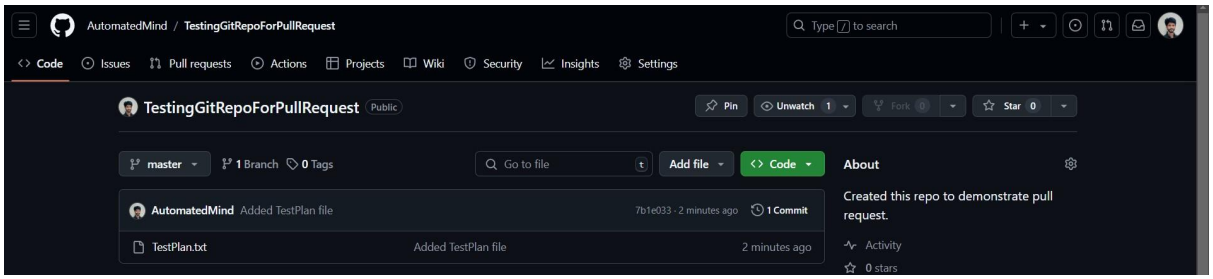
git commit -m "Added TestPlan.txt"

```
PS E:\GitHub\TestingWithGithub\TestingGitRepoForPullRequest> git init
Initialized empty Git repository in E:/GitHub/TestingWithGithub/TestingGitRepoForPullRequest/.git/
PS E:\GitHub\TestingWithGithub\TestingGitRepoForPullRequest> git add TestPlan.txt
PS E:\GitHub\TestingWithGithub\TestingGitRepoForPullRequest> git commit -m "Added TestPlan file"
[master (root-commit) 7b1e033] Added TestPlan file
 1 file changed, 2 insertions(+)
 create mode 100644 TestPlan.txt
```

2. **Connected to GitHub**:
   I linked my local folder to the GitHub repository using:

git remote add origin <GitHub-Repo-URL>

```
PS E:\GitHub\TestingWithGithub\TestingGitRepoForPullRequest> git remote add origin https://github.com/AutomatedMind/TestingGitRepoForPullRequest.git
PS E:\GitHub\TestingWithGithub\TestingGitRepoForPullRequest> git push origin master
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 12 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 302 bytes | 302.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0
To https://github.com/AutomatedMind/TestingGitRepoForPullRequest.git
 * [new branch]      master -> master
PS E:\GitHub\TestingWithGithub\TestingGitRepoForPullRequest>
```



Step 10: Merging Changes

To merge changes from one branch to another:

1. Switched to the **master** branch:

git checkout master

```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git checkout master
Switched to branch 'master'
Your branch is behind 'origin/master' by 1 commit, and can be fast-forwarded.
  (use "git pull" to update your local branch)
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git branch -a
  feature-test-cases
* master
  remotes/origin/HEAD -> origin/master
  remotes/origin/feature-test-cases
  remotes/origin/master
```

2. Merged the changes:

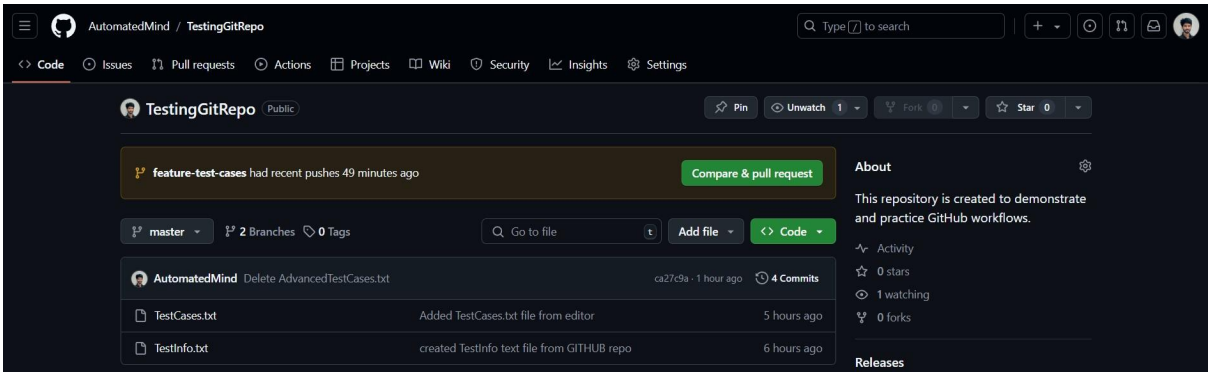
git merge feature-test-cases

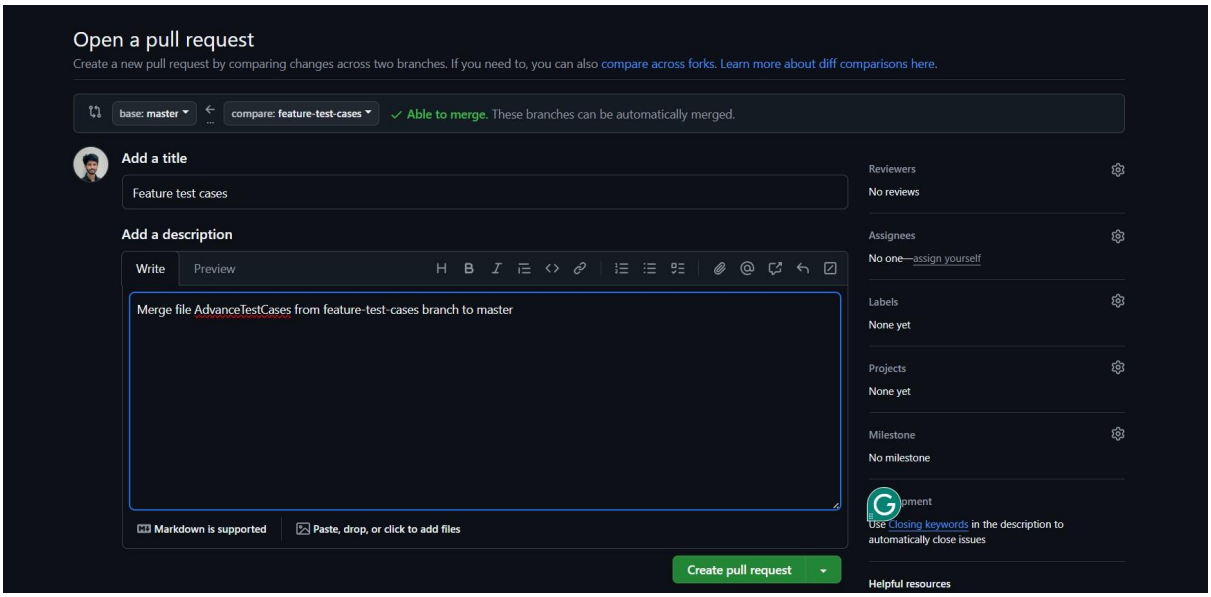
```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git merge feature-test-cases
Updating 1ee7b92..bf933b5
Fast-forward
 AdvancedTestCases.txt | 3 +++
 TestCases.txt         | 3 +--
 2 files changed, 4 insertions(+), 2 deletions(-)
 create mode 100644 AdvancedTestCases.txt
```

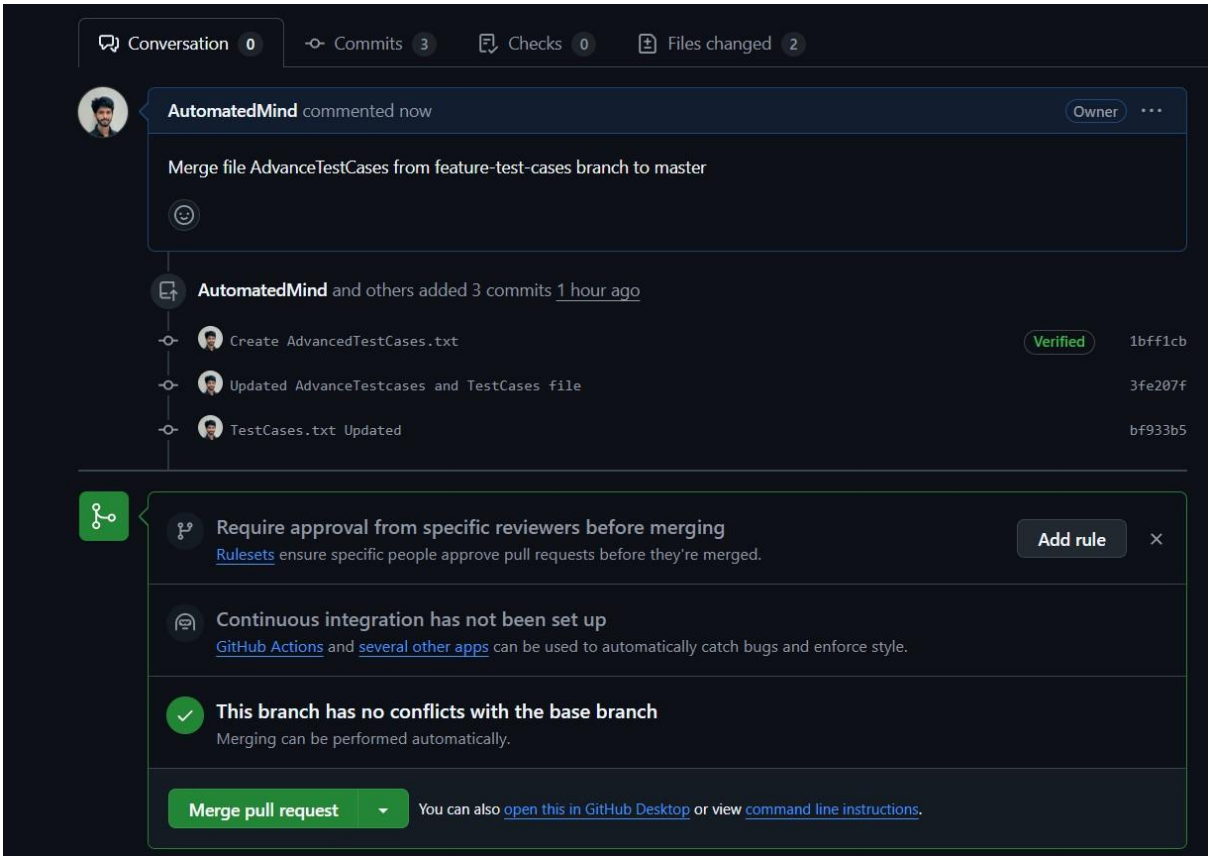
After merge now the AdvancedTestCases.txt file is merged to master from feature-test-cases branch

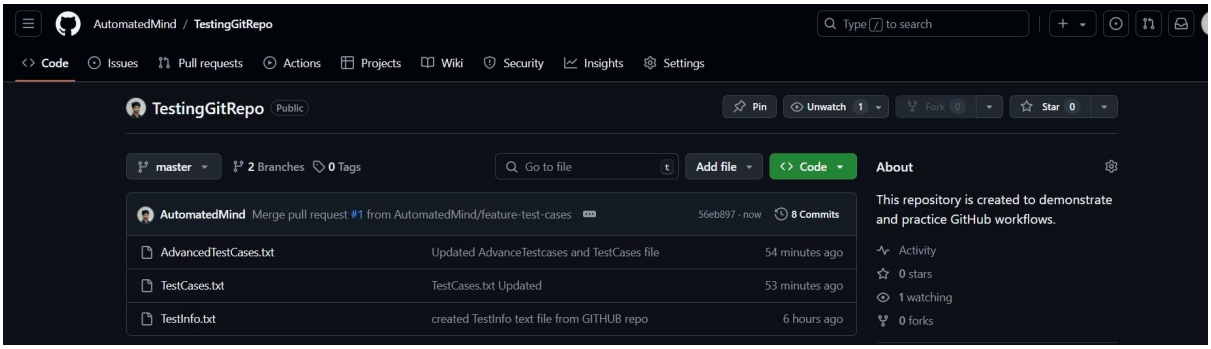
3. Created a pull request on GitHub for review and merged it.

   Still in GITHUB repo the AdvancedTestCases.txt file is missing even after merge, because we merged in local repo but to merge in remote repo master or main branch we need to raise a pull request.


AutomatedMind / TestingGitRepo
Type / to search
Code
Issues
Pull requests
Actions
Projects
Wiki
Security
Insights
Settings
TestingGitRepo
Public
Pin
Unwatch 1
Fork 0
Star 0
feature-test-cases had recent pushes 49 minutes ago
Compare & pull request
master
2 Branches
0 Tags
Go to file
Add file
Code
AutomatedMind Delete AdvancedTestCases.txt
ca27c9a · 1 hour ago
4 Commits
TestCases.txt
Added TestCases.txt file from editor
5 hours ago
TestInfo.txt
created TestInfo text file from GITHUB repo
6 hours ago
About
This repository is created to demonstrate and practice GitHub workflows.
Activity
0 stars
1 watching
0 forks
Releases


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 comparisons here.
base: master
compare: feature-test-cases
Able to merge. These branches can be automatically merged.
Add a title
Feature test cases
Add a description
Write
Preview
Merge file AdvanceTestCases from feature-test-cases branch to master
Markdown is supported
Paste, drop, or click to add files
Create pull request
Reviewers
No reviews
Assignees
No one—assign yourself
Labels
None yet
Projects
None yet
Milestone
No milestone
Use Closing keywords in the description to automatically close issues
Helpful resources


Conversation 0
Commits 3
Checks 0
Files changed 2
AutomatedMind commented now
Owner
Merge file AdvanceTestCases from feature-test-cases branch to master
AutomatedMind and others added 3 commits 1 hour ago
Create AdvancedTestCases.txt
Verified
1bff1cb
Updated AdvanceTestcases and TestCases file
3fe207f
TestCases.txt Updated
bf933b5
Require approval from specific reviewers before merging
Rulesets ensure specific people approve pull requests before they're merged.
Add rule
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.

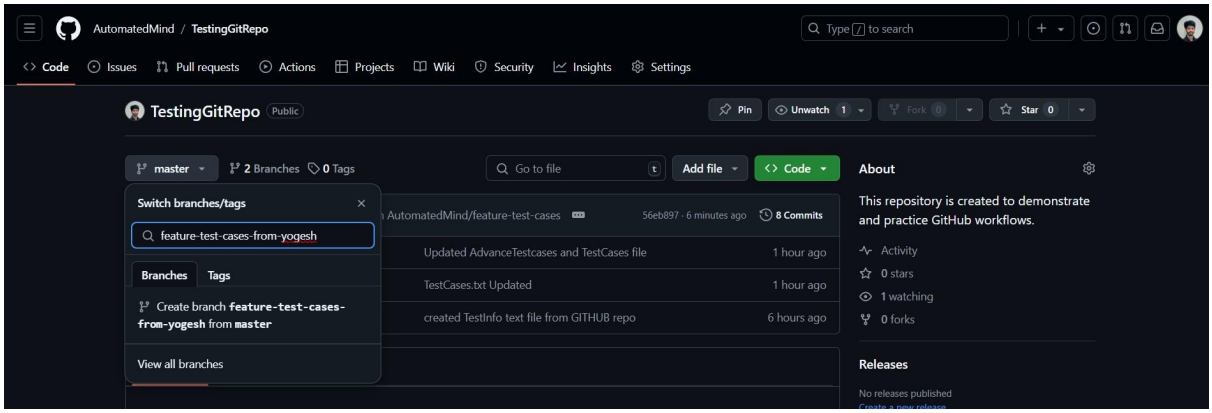


Now I could see the merged file in master branch.

Step 11: Conflict

To demonstrate conflict I have created one more branch from master This

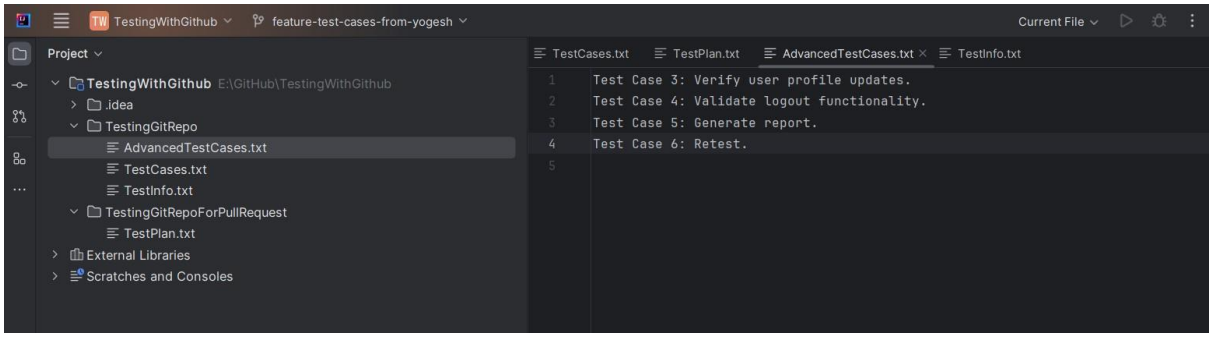
time from GITHUB



Switched to new branch

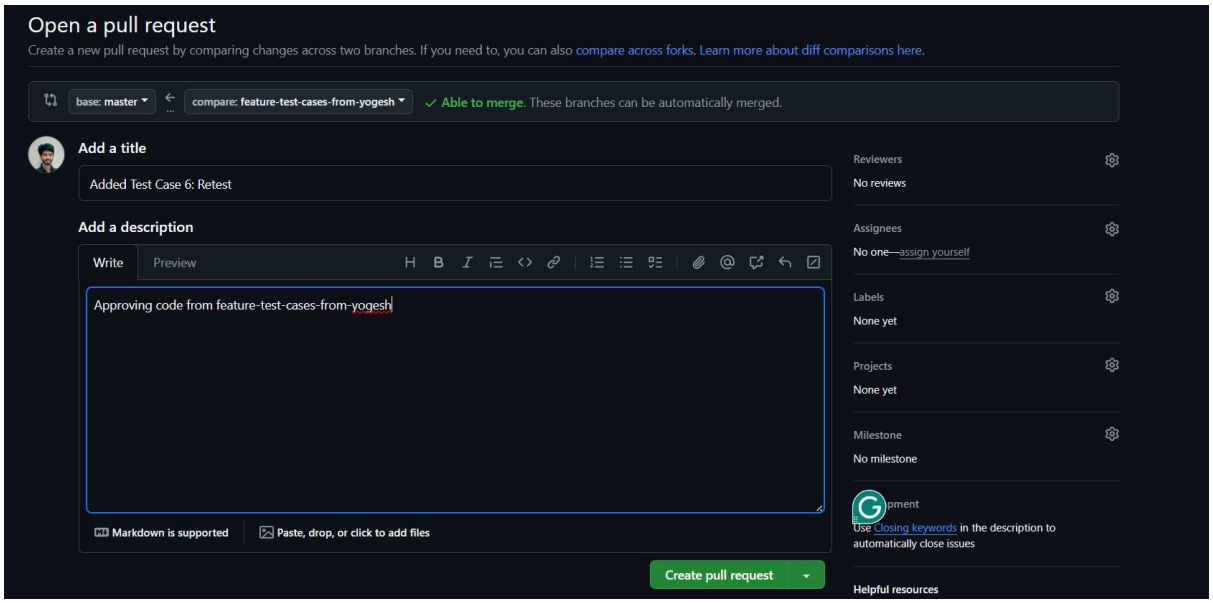
```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git branch -a
  feature-test-cases
* master
  remotes/origin/HEAD -> origin/master
  remotes/origin/feature-test-cases
  remotes/origin/feature-test-cases-from-yogesh
  remotes/origin/master
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git checkout feature-test-cases-from-yogesh
Switched to a new branch 'feature-test-cases-from-yogesh'
branch 'feature-test-cases-from-yogesh' set up to track 'origin/feature-test-cases-from-yogesh'.
PS E:\GitHub\TestingWithGithub\TestingGitRepo>
```

Updating the file AdvancedTestCases.txt

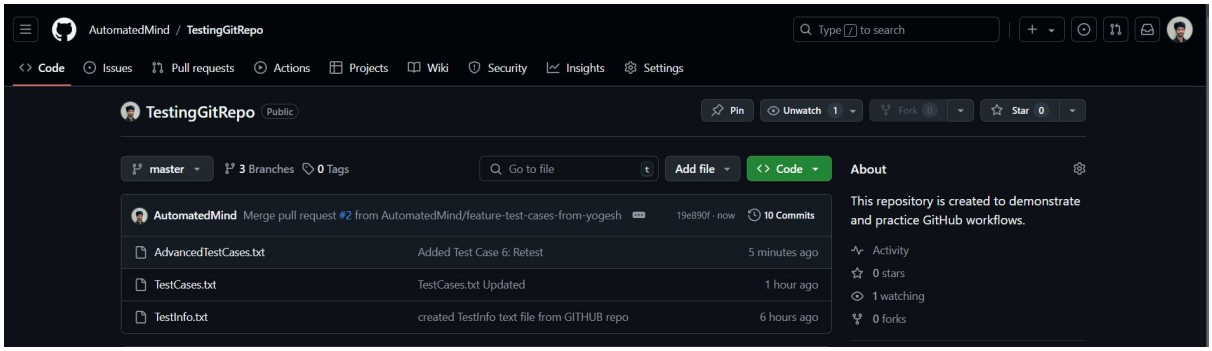


Now merged this file to master from feature-test-cases-from-yogesh, but still the changes are reflected in local to make the changes in remote repo. Raise a pull request and merge.

```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git add .
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git commit -m "Added Test Case 6: Retest"
[feature-test-cases-from-yogesh 9782dfb] Added Test Case 6: Retest
 1 file changed, 1 insertion(+)
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git push origin feature-test-cases-from-yogesh
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 318 bytes | 318.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/AutomatedMind/TestingGitRepo.git
   56eb897..9782dfb  feature-test-cases-from-yogesh -> feature-test-cases-from-yogesh
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git checkout master
Switched to branch 'master'
Your branch is up to date with 'origin/master'.
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git merge feature-test-cases-from-yogesh
Updating 56eb897..9782dfb
Fast-forward
 AdvancedTestCases.txt | 1 +
 1 file changed, 1 insertion(+)
```



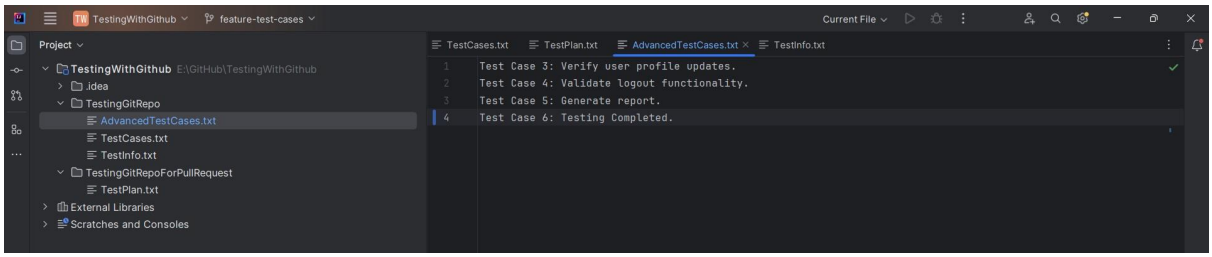
Now the changes merged in master remote repo



Again, make the changes in same file AdvancedTestCases.txt but from different branch feature-testcases.

```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git checkout feature-test-cases
Switched to branch 'feature-test-cases'
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git branch -a
* feature-test-cases
  feature-test-cases-from-yogesh
  master
  remotes/origin/HEAD -> origin/master
  remotes/origin/feature-test-cases
  remotes/origin/feature-test-cases-from-yogesh
  remotes/origin/master
PS E:\GitHub\TestingWithGithub\TestingGitRepo>
```

Updating the file AdvancedTestCases.txt



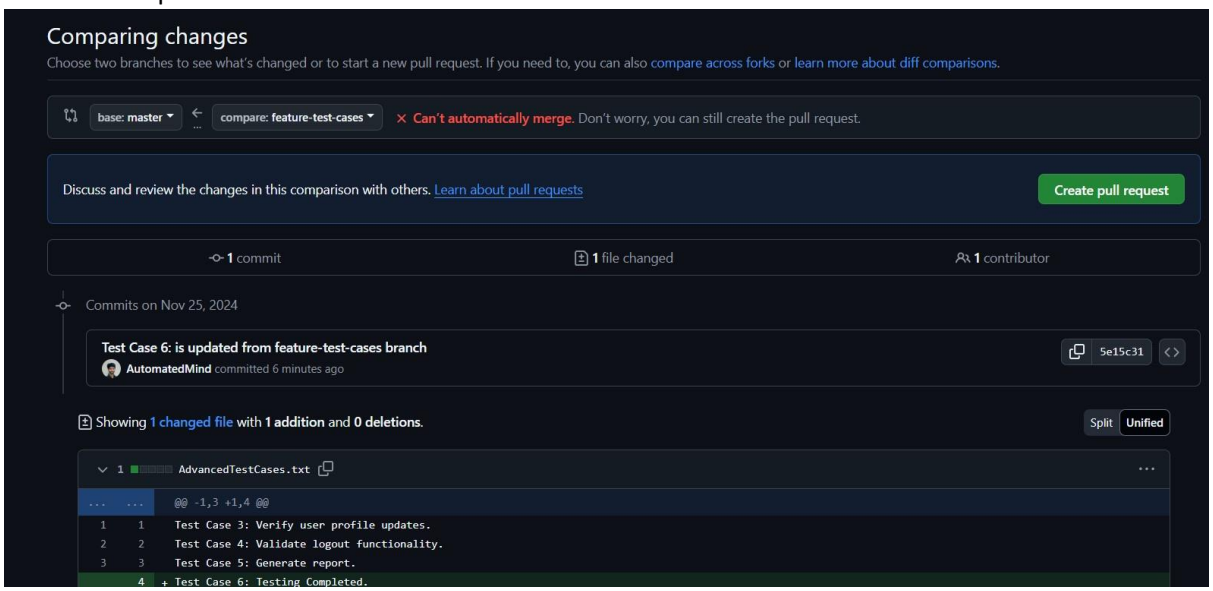
Now merged this file to master from feature-test-cases, but still the changes are reflected in local to make the changes in remote repo. Raise a pull request and merge.

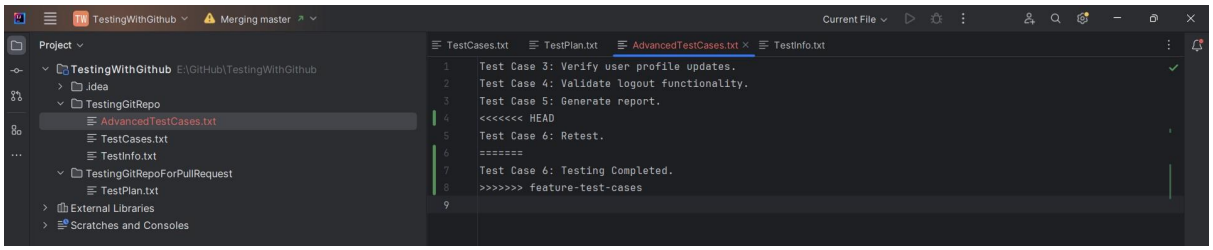
```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git add .
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git commit -m "Test Case 6: is updated from feature-test-cases branch"
[feature-test-cases 5e15c31] Test Case 6: is updated from feature-test-cases branch
 1 file changed, 1 insertion(+)
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git push origin feature-test-cases
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 12 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 342 bytes | 342.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/AutomatedMind/TestingGitRepo.git
   bf933b5..5e15c31  feature-test-cases -> feature-test-cases
```

Merge to master and make a pull request

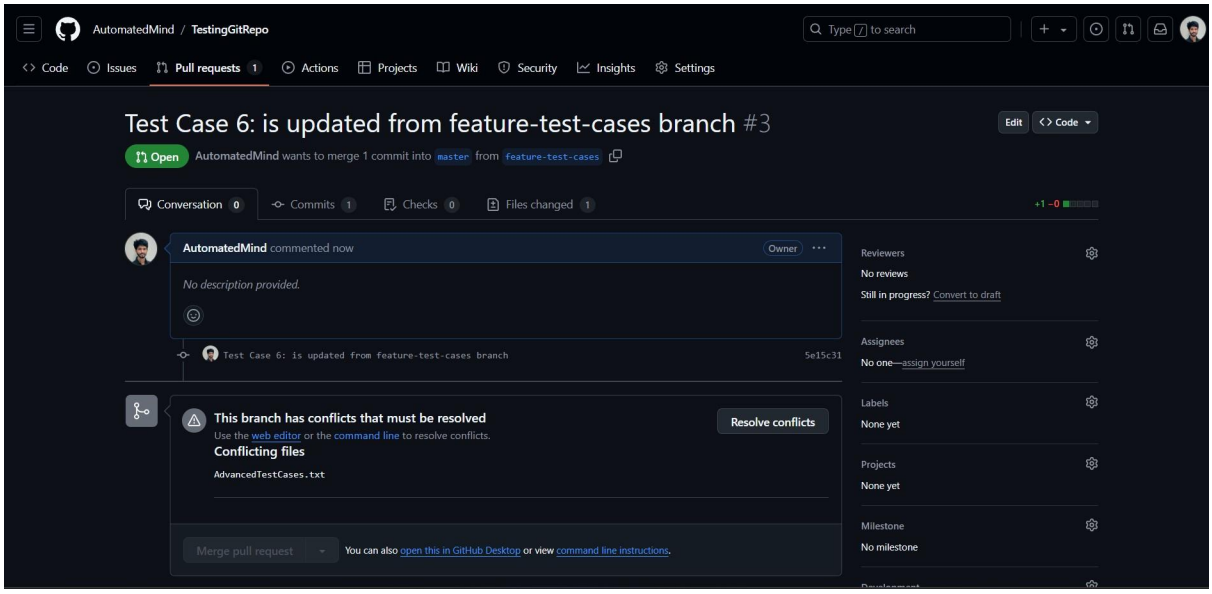
```
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git checkout master
Switched to branch 'master'
Your branch is ahead of 'origin/master' by 1 commit.
  (use "git push" to publish your local commits)
PS E:\GitHub\TestingWithGithub\TestingGitRepo> git merge feature-test-cases
Auto-merging AdvancedTestCases.txt
CONFLICT (content): Merge conflict in AdvancedTestCases.txt
Automatic merge failed; fix conflicts and then commit the result.
PS E:\GitHub\TestingWithGithub\TestingGitRepo>
```

You will instantly see the Conflict message because I tried updating the same file from different branch and I pushed both of them to master branch.

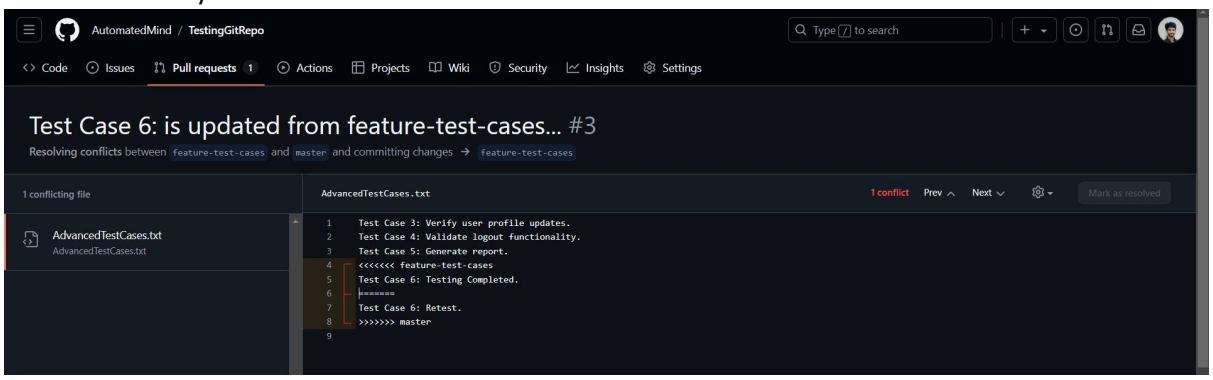


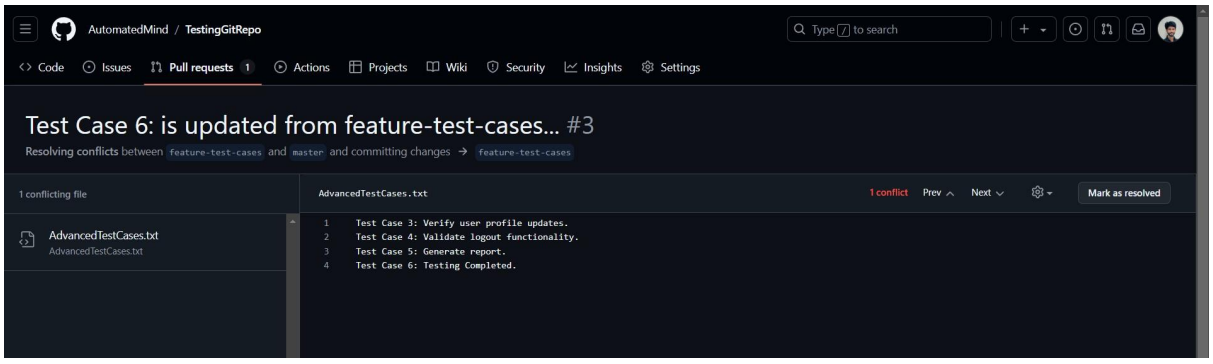


To resolve this approve the pull request and click on **Resolve conflicts** button



Resolve manually





Quick Revision: Git Terminologies and Commands (With Examples)

---

1. Git

- **Purpose**: Checks if Git is installed on your system.
- **Command**:
  `git --version`
- **Example Output**:
  `git version 2.42.0`

---

2. GitHub

- **Purpose**: A cloud platform to store, manage, and collaborate on Git repositories.

---

3. Git Config

- **Purpose**: Set your identity for commit messages.
- **Commands & Examples**:

```
git config --global user.name "Yogesh Pandian"
git config --global user.email "yogesh.pandian@example.com"
git config --list
```

- **Output**:

```
user.name=Yogesh Pandian
user.email=yogesh.pandian@example.com
```

---

4. Git Repository

- **Purpose**: Initialize a Git project in your local folder.
- **Command**:
  `git init`
- **Example**:

```
mkdir my-project
cd my-project
git init
```

- **Output**:

```
Initialized empty Git repository in /Users/yourname/my-project/.git/
```

---

5. Clone

- **Purpose**: Copy an existing GitHub repo to your machine.
- **Command**:
  `git clone https://github.com/username/repo.git`

- **Example**:

```
git clone https://github.com/octocat/Hello-World.git
```

---

6. Add

- **Purpose**: Stage changes (new or modified files) for commit.
- **Command**:
  `git add filename`
- **Example**:

```
git add index.html
```

---

7. Commit

- **Purpose**: Save staged changes with a message.
- **Command**:
  `git commit -m "Meaningful commit message"`
- **Example**:

```
git commit -m "Added login functionality"
```

---

8. Push

- **Purpose**: Upload local commits to GitHub.
- **Command**:
  `git push origin branch-name`
- **Example**:

```
git push origin main
```

---

9. Pull

- **Purpose**: Get the latest changes from GitHub.
- **Command**:
  `git pull origin branch-name`
- **Example**:

```
git pull origin main
```

---

10. Branch

- **Purpose**: Create and switch between versions.
- **Commands & Examples**:

```
git branch feature-ui         # Create branch
git checkout -b bug-fix       # Create and switch
git checkout main             # Switch to main
```

---

11. Merge

- **Purpose**: Combine another branch into current one.
- **Commands & Example**:

```
git checkout main             # Switch to main
git merge feature-ui          # Merge feature-ui into main
```

---

12. Status

- **Purpose**: View current file status (tracked, staged, etc.)
- **Command**:
  `git status`
- **Example Output**:

```
Changes to be committed:
  modified: index.html
```

---

13. Remote

- **Purpose**: Link your local project to a GitHub repo.
- **Command**:
  `git remote add origin <repo-url>`
- **Example**:

```
git remote add origin https://github.com/johndoe/my-project.git
```
