

Abdur Rahim

Batch: DevOps-B01-092024
Assignment: Git for DevOps

Assignment 1: Setting Up Git and Basic Operations

- Task Steps:
 - 1. Install Git and configure your global username and email.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment
$ git config --global --list
user.email=abrahimcse@gmail.com
user.name=abrahimcse
```

2. Initialize a new Git repository in a local folder.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment $ mkdir GitHub
```

3. Create a README.md file with an introductory message and stage it.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment

$ cd GitHub/

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub

$ echo "# Welcome to GitHub Assignment Repository" >> README.md
```

4. Commit the changes with a standard commit message.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)
$ git add README.md

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)
$ git commit -m "Initial commit: Added README.md with introductory message"
On branch main
nothing to commit, working tree clean

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)
$ git status
On branch main
nothing to commit, working tree clean
```

5. Modify the README file again, stage, and make a commit.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)
$ vim README.md

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)
$ git commit -am "updated someline in readme file"
warning: in the working copy of 'README.md', LF will be replaced by CRLF the next ti
me Git touches it
[main 4fb1da4] updated someline in readme file
1 file changed, 1 insertion(+)
```



Assignment 2: Creating and Managing Branches

Task Steps:

1. Create a branch called feature-update from the main branch.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)

$ git branch

* main

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)

$ git checkout -b feature-update

Switched to a new branch 'feature-update'

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (feature-update)

$ git branch

* feature-update

main
```

2. Make a change in the feature-update branch and commit it.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (feature-update)
$ vim README.md

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (feature-update)
$ git commit -am "add some line in README file from feature-update branch"
warning: in the working copy of 'README.md', LF will be replaced by CRLF the next time Git t
ouches it
[feature-update 59870e4] add some line in README file from feature-update branch
1 file changed, 1 insertion(+), 1 deletion(-)

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (feature-update)
$
```

3. Switch back to the main branch and merge feature-update.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (feature-update)

§ git checkout main
Switched to branch 'main'
Your branch is ahead of 'origin/main' by 2 commits.
  (use "git push" to publish your local commits)

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)

$ cat README.md
# Welcome to My GitHub Assignment Repository
add second line

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)

$ git merge feature-update
Updating 4fblda4..59870e4
Fast-forward
README.md | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)

$ cat README.md
# Welcome to My GitHub Assignment Repository
add second line
Add some line for feature-Update Branch`
```



4. Create a simulated merge conflict.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)
$ git branch
    feature-update
* main

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)
$ vim README.md

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)
$ git commit -am "Update: Added a line from the main branch"
[main eefa7ab] Update: Added a line from the main branch
1 file changed, 1 insertion(+), 3 deletions(-)

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)
$ git checkout feature-update
Switched to branch 'feature-update'

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (feature-update)
$ vim README.md

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (feature-update)
$ git commit -am "Update: Added a conflicting line from feature-update branch"
[feature-update d6b538c] Update: Added a conflicting line from feature-update branch
1 file changed, 1 insertion(+), 3 deletions(-)
```

5. Attempt to rebase feature-update onto main, resolve any conflicts during the rebase process, and complete the rebase.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (feature-update)

$ git branch

* feature-update
    main

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (feature-update)

$ git rebase main

Auto-merging README.md

CONFLICT (content): Merge conflict in README.md

error: could not apply d6b538c... Update: Added a conflicting line from feature-update branch

hint: Resolve all conflicts manually, mark them as resolved with

hint: "git add/rm <conflicted_files>", then run "git rebase --continue".

hint: You can instead skip this commit: run "git rebase --skip".

hint: To abort and get back to the state before "git rebase", run "git rebase --abort".

hint: Disable this message with "git config advice.mergeConflict false"

Could not apply d6b538c... Update: Added a conflicting line from feature-update branch
```

Conflicts

```
<<<<< HEAD
This change is made in the main branch.

This conflicting change is made in the feature-update branch.
>>>>>> d6b538c (Update: Added a conflicting line from feature-update branch)
```

\$ git add README.md \$ git rebase –continue

```
[detached HEAD db2304b] Update: Added a conflicting line from feature-update branch
1 file changed, 1 insertion(+), 1 deletion(-)
Successfully rebased and updated refs/heads/feature-update.
```



6. Merge feature-update into main after rebasing to compare the process with direct merging.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (feature-update)

$ git checkout main
Switched to branch 'main'
Your branch is ahead of 'origin/main' by 4 commits.
(use "git push" to publish your local commits)

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)

$ git merge feature-update
Updating eefa7ab..db2304b
Fast-forward
README.md | 2 +-
1 file changed, 1 insertion(+), 1 deletion(-)
```

7. Commit the final merged state.

```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/GitHub (main)
$ git commit -am "merge feature-update branch from main branch"
On branch main
Your branch is ahead of 'origin/main' by 5 commits.
(use "git push" to publish your local commits)
nothing to commit, working tree clean
```

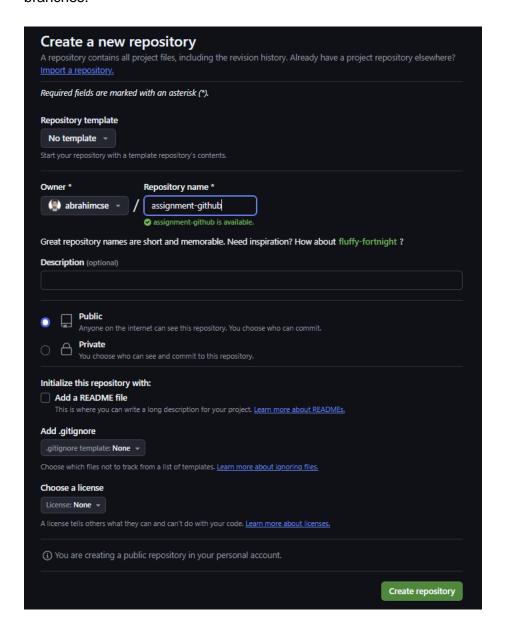


Assignment 3 : GitFlow Workflow with GitHub Integration

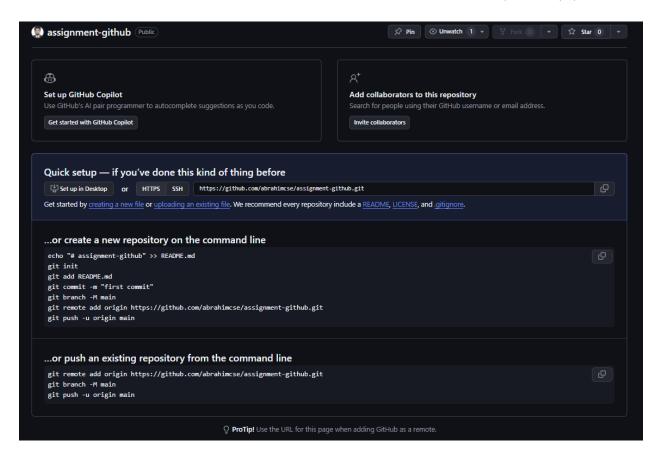
Task Overview:

1. Initial Setup:

 Create a local Git repository, push it to GitHub, and set up main and develop branches.







Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment smkdir assignment-github



```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment
$ cd assignment-github/
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github
$ echo "# assignment-github" >> README.md
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github
Initialized empty Git repository in D:/YourMentors/Assignment/assignment-github/.git/
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (master)
$ git add README.md
warning: in the working copy of 'README.md', LF will be replaced by CRLF the next time Gi
t toucȟes it
 Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (master)
$ git commit -m "first commit"
[master (root-commit) f89581a] first commit
1 file changed, 1 insertion(+)
 create mode 100644 README.md
 Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (master)
$ git branch -M main
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (main)
$ git remote add origin https://github.com/abrahimcse/assignment-github.git
 Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (main)
$ git push -u origin main
Enumerating objects: 3, done.

Counting objects: 100% (3/3), done.

Writing objects: 100% (3/3), 227 bytes | 227.00 KiB/s, done.

Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)

To https://github.com/abrahimcse/assignment-github.git
 * [new branch]
                        main -> main
branch 'main' set up to track 'origin/main'.
```

```
SKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (main)
 git branch
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (main)
$ git checkout -b develop
Switched to a new branch 'develop'
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (develop)
 git branch
 main
Nbdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (develop)
$ git push -u origin develop
Total O (delta O), reused O (delta O), pack-reused O (from O)
remote:
remote: Create a pull request for 'develop' on GitHub by visiting:
             https://github.com/abrahimcse/assignment-github/pull/new/develop
remote:
remote:
To https://github.com/abrahimcse/assignment-github.git
* [new branch] develop -> develop
branch 'develop' set up to track 'origin/develop'.
```

2. Feature Development:

 Create a feature branch from develop, make changes, commit, and push it to GitHub.



```
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (develop)

$ git branch

* develop
main

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (develop)

$ git checkout -b feature

Switched to a new branch 'feature'

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (feature)

$ git branch
develop

* feature
main

Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (feature)

$ echo "This is a feature branch from create a develop branch." > feature.txt
```

```
39VJR MINGW64 /d/YourMentors/Assignment/assignment-github (feature)
$ git add feature.txt
warning: in the working copy of 'feature.txt', LF will be replaced by CRLF the next time Git to
 Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (feature)
$ git -m "feat: Added new feature.txt file"
unknown option: -m
usage: git [-v | --version] [-h | --help] [-C <path>] [-c <name>=<value>]

[--exec-path[=<path>]] [--html-path] [--man-path] [--info-path]

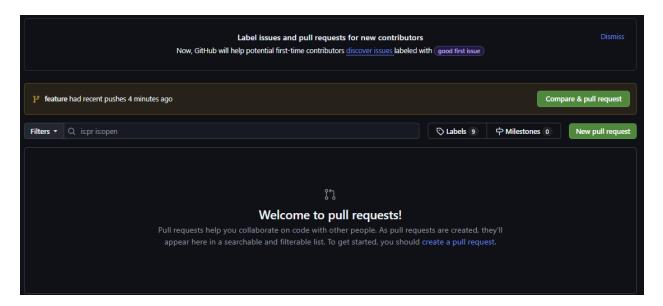
[-p | --paginate | -P | --no-pager] [--no-replace-objects] [--no-lazy-fetch]

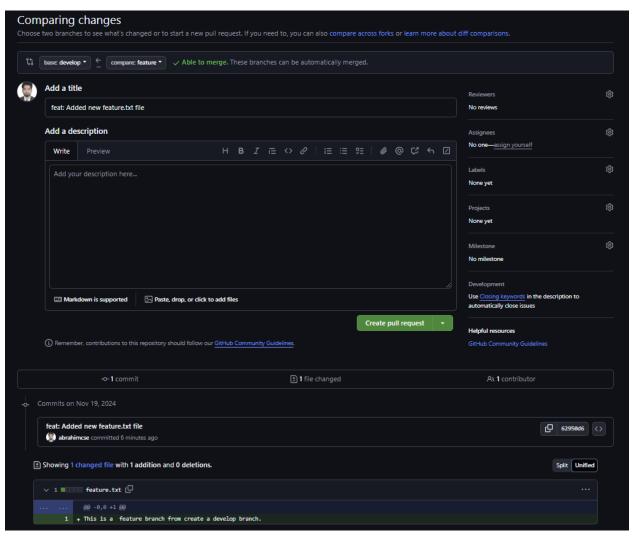
[--no-optional-locks] [--no-advice] [--bare] [--git-dir=<path>]

[--work-tree=<path>] [--namespace=<name>] [--config-env=<name>=<envvar>]
                    <command> [<args>]
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (feature) $ git commit -m "feat: Added new feature.txt file" [feature 62950d6] feat: Added new feature.txt file 1 file changed, 1 insertion(+) create mode 100644 feature.txt
 Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (feature)
$ git push -u origin feature
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 337 bytes | 337.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
 remote:
remote: Create a pull request for 'feature' on GitHub by visiting: remote: https://github.com/abrahimcse/assignment-github/pull/new/feature
remote:
 To https://github.com/abrahimcse/assignment-github.git
* [new branch] feature -> feature
branch 'feature' set up to track 'origin/feature'.
```

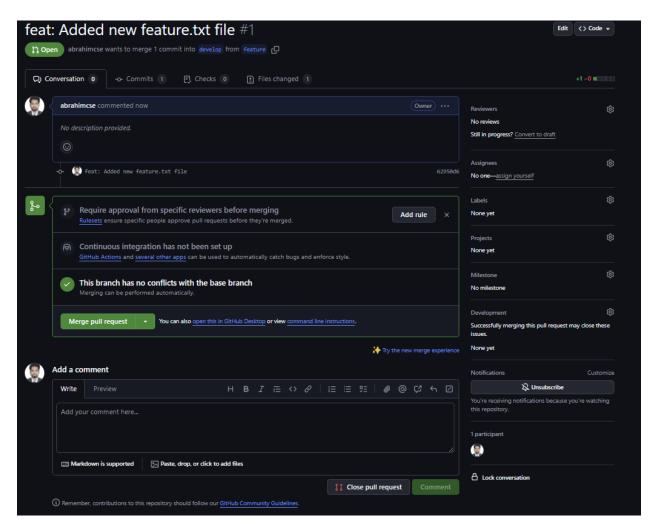
Open a PR to merge the feature branch into develop and complete the PR review process on GitHub.

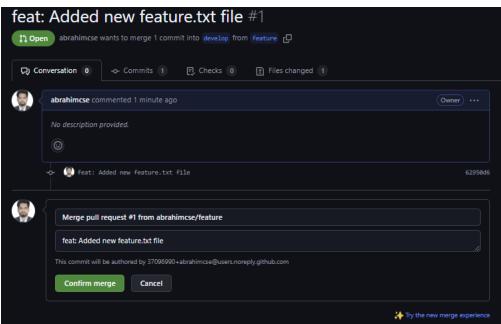




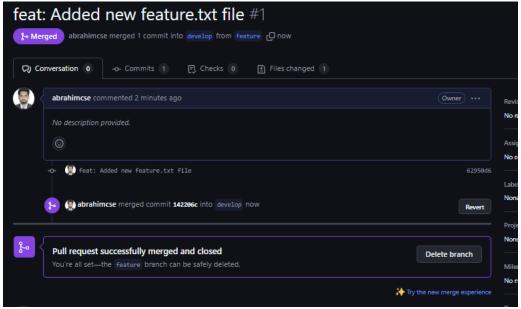












3. Release Preparation:

 Create a release branch from develop, make final adjustments, commit, and push it to GitHub.

```
B9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (feature)
$ git checkout develop
Switched to branch 'develop'
Your branch is up to date with 'origin/develop'.
 Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (develop)
$ git checkout -b release/v1.0
Switched to a new branch 'release/v1.0'
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (release/v1.0) $ echo "Preparing for release v1.0" >> README.md
 Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (release/v1.0)
$ git add README.md
warning: in the working copy of 'README.md', LF will be replaced by CRLF the next time Git touc
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (release/v1.0) $ git commit -m "chore: Preparing for release v1.0" [release/v1.0 aec0cfb] chore: Preparing for release v1.0 1 file changed, 1 insertion(+)
 Nbdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (release/v1.0)
$ git push -u origin release/v1.0
Enumerating objects: 5, done.

Counting objects: 100% (5/5), done.

Writing objects: 100% (3/3), 302 bytes | 302.00 KiB/s, done.

Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'release/v1.0' on GitHub by visiting: remote: https://github.com/abrahimcse/assignment-github/pull/new/release/v1.0
remote:
To https://github.com/abrahimcse/assignment-github.git

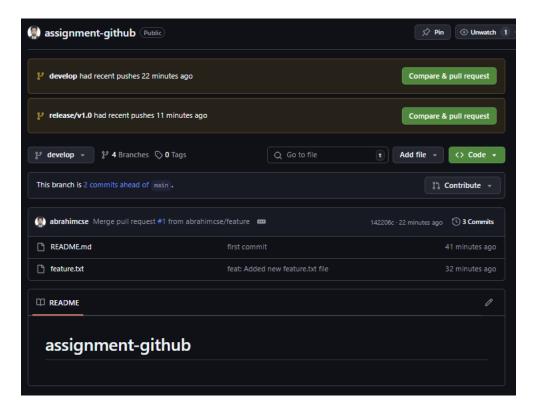
* [new branch] release/v1.0 -> release/v1.0

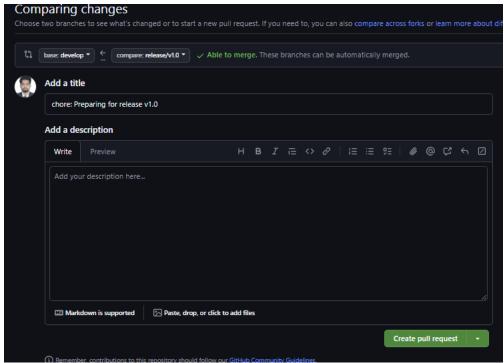
branch 'release/v1.0' set up to track 'origin/release/v1.0'.
```



 Open a PR to merge the release branch into both main and develop, ensuring code review is conducted before merging.

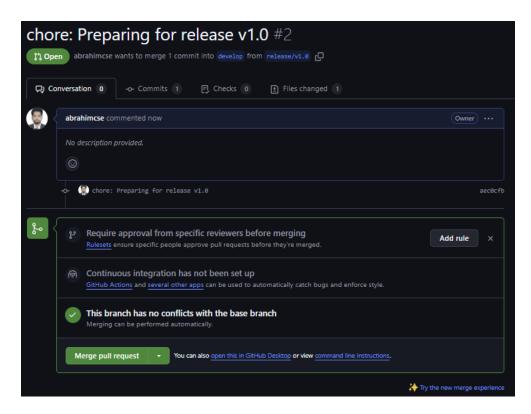
Merge Release into Develop Branch

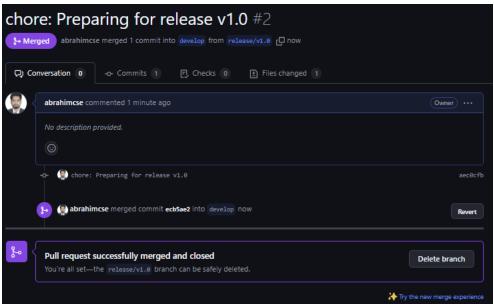




Assignment: Git for DevOps

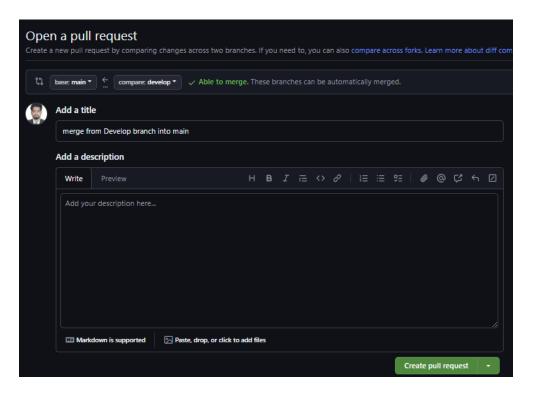


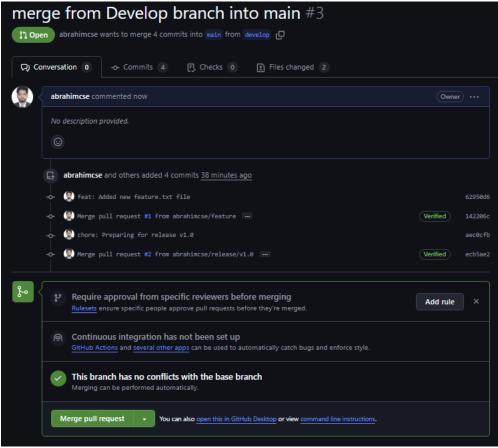




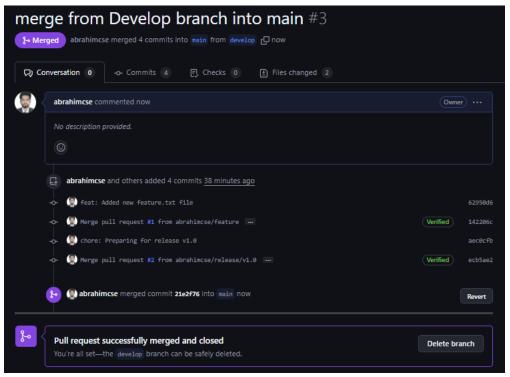
Merge Develop into Main Branch











4. Hotfix Management:

o Create a hotfix branch from main, apply a fix, commit, and push it to GitHub.



```
MINGW64 /d/YourMentors/Assignment/assignment-github (main)
$ git checkout -b hotfix
Switched to a new branch 'hotfix'
 Nbdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (hotfix)
  git branch
   develop
   feature
  main
  release/v1.0
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (hotfix)
$ echo "Hotfix applied to resolve urgent issue." >> README.md
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (hotfix)
$ git add README.md
warning: in the working copy of 'README.md', LF will be replaced by CRLF the next time Git touc
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (hotfix)
$ git commit -m "fix: Applied urgent hotfix"
[hotfix 087f936] fix: Applied urgent hotfix
1 file changed, 1 insertion(+)
Abdur Rahim@DESKTOP-RDB9VJR MINGW64 /d/YourMentors/Assignment/assignment-github (hotfix)
$ git push -u origin hotfix
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Counting objects: 100% (373), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (3/3), 308 bytes | 308.00 KiB/s, done.
Total 3 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'hotfix' on GitHub by visiting: remote: https://github.com/abrahimcse/assignment-github/pull/new/hotfix
remote:
To https://github.com/abrahimcse/assignment-github.git
* [new branch] hotfix -> hotfix
branch 'hotfix' set up to track 'origin/hotfix'.
```

 Open a PR to merge the hotfix branch into both main and develop, completing the review process and merging.



