
LAB 03

**NAME: SHUMAIL ZAHRA
REGISTRATION #: 2023-BSE-061
DEPARTMENT: BSE(5B)**

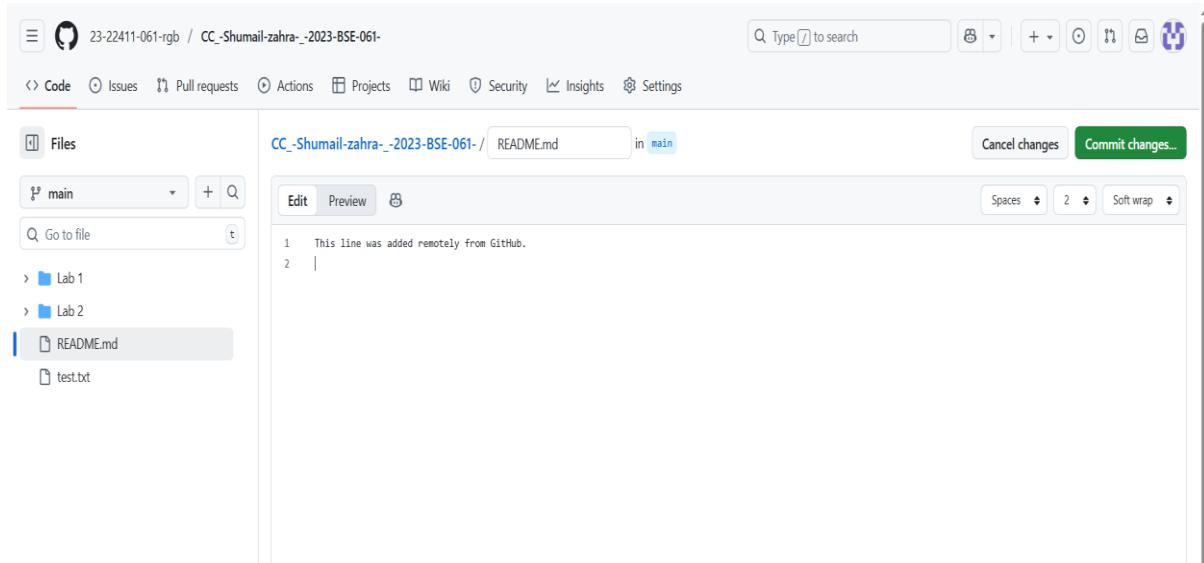
CLOUD COMPUTING LAB

LAB TASK

Task 1 – Handling Local and Remote Commit Conflicts (Pull vs Pull --rebase)

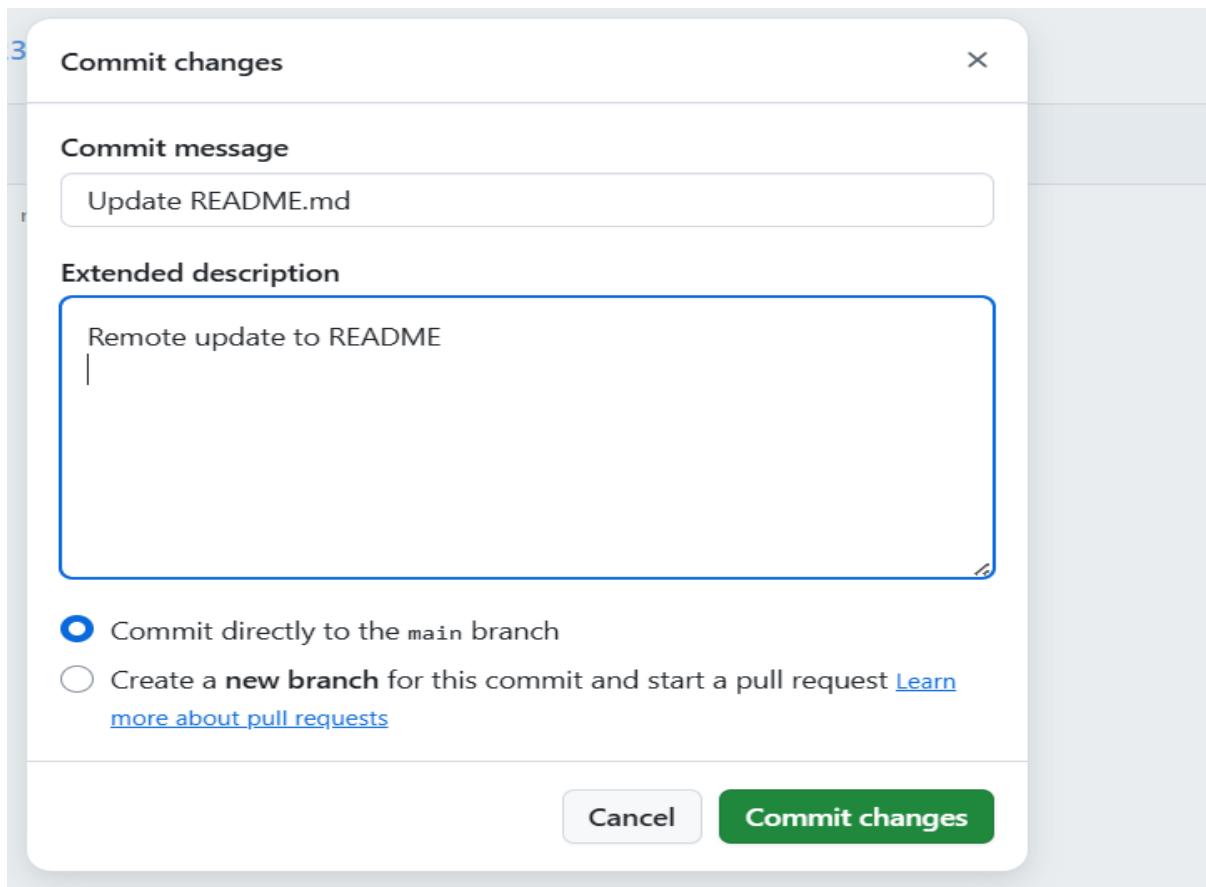
Steps:

1. Open your repository on **GitHub** and edit the README.md file directly in the browser.



Commit your change on GitHub (e.g., message: *Remote update to README*).

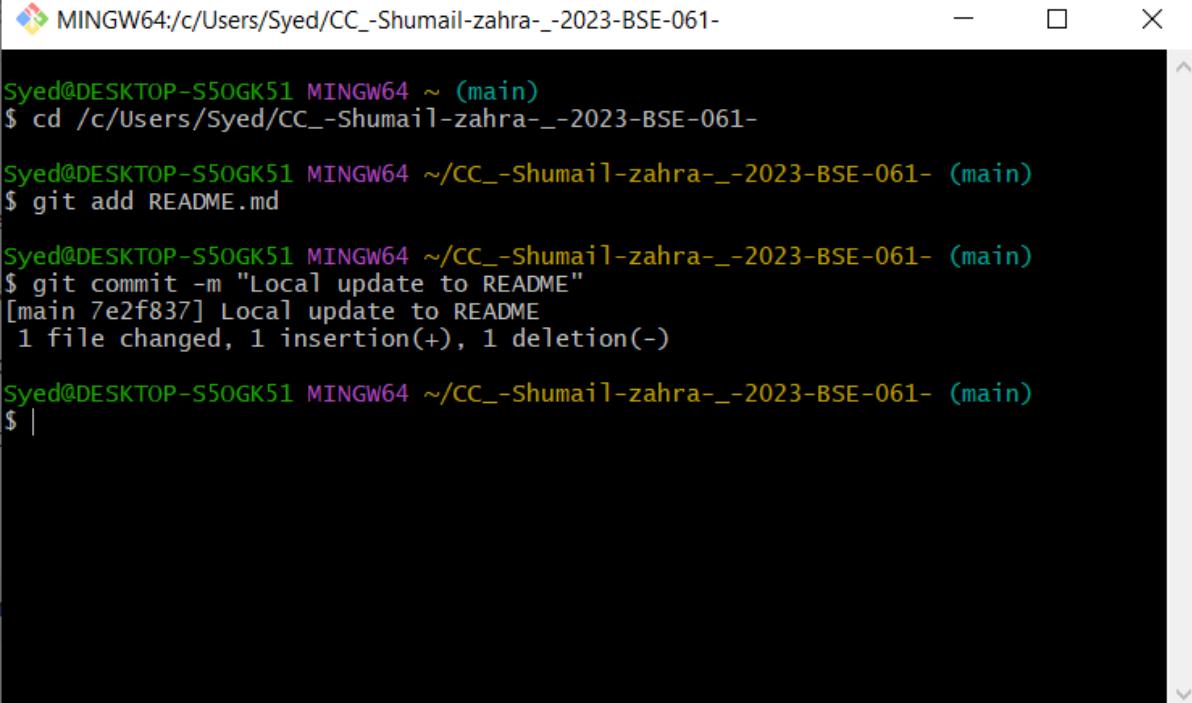
Save a screenshot of your browser showing the change as remote_edit.png.



On your **local machine**, open the same repository folder.

- a. Edit the same README.md file locally, for example:

This line was added locally.



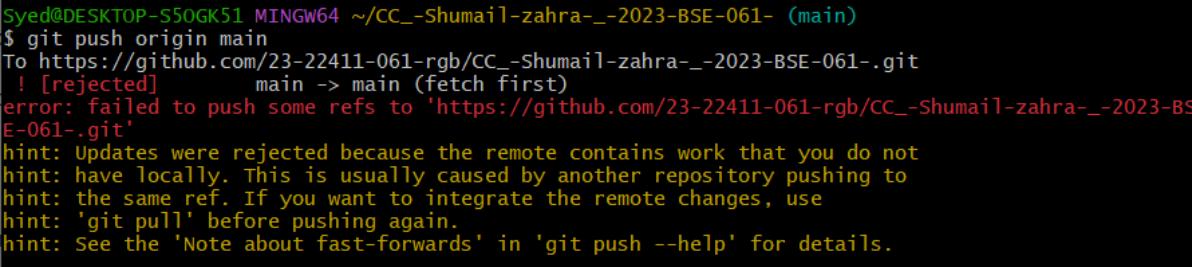
```
MINGW64:/c/Users/Syed/CC_-Shumail-zahra_-2023-BSE-061-  
Syed@DESKTOP-S50GK51 MINGW64 ~ (main)  
$ cd /c/Users/Syed/CC_-Shumail-zahra_-2023-BSE-061-  
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)  
$ git add README.md  
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)  
$ git commit -m "Local update to README"  
[main 7e2f837] Local update to README  
1 file changed, 1 insertion(+), 1 deletion(-)  
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)  
$ |
```

Try to push:

```
git push origin main
```

You'll see an error message similar to:

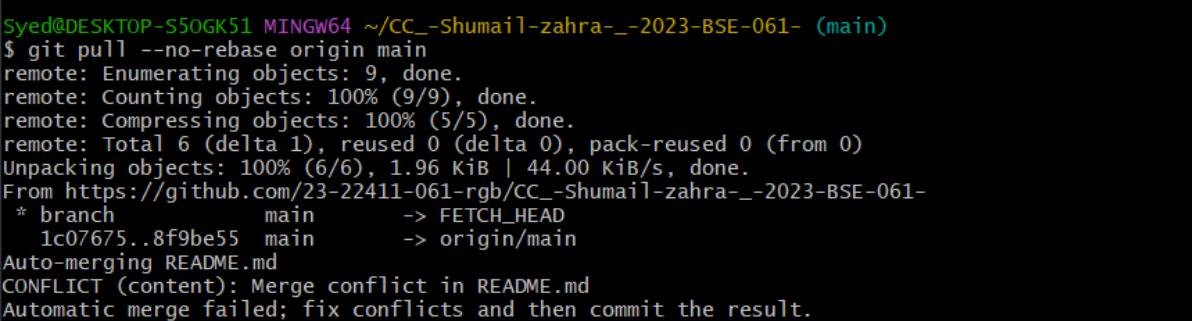
hint: Updates were rejected because the remote contains work that you do not have locally.



```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)  
$ git push origin main  
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git  
! [rejected]      main -> main (fetch first)  
error: failed to push some refs to 'https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git'  
hint: Updates were rejected because the remote contains work that you do not  
hint: have locally. This is usually caused by another repository pushing to  
hint: the same ref. If you want to integrate the remote changes, use  
hint: 'git pull' before pushing again.  
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
```

To fix this, pull the latest changes from remote:

```
git pull --no-rebase origin main
```



```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)  
$ git pull --no-rebase origin main  
remote: Enumerating objects: 9, done.  
remote: Counting objects: 100% (9/9), done.  
remote: Compressing objects: 100% (5/5), done.  
remote: Total 6 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)  
Unpacking objects: 100% (6/6), 1.96 KiB | 44.00 KiB/s, done.  
From https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-  
 * branch            main      -> FETCH_HEAD  
   1c07675..8f9be55  main      -> origin/main  
Auto-merging README.md  
CONFLICT (content): Merge conflict in README.md  
Automatic merge failed; fix conflicts and then commit the result.
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main|MERGING)
$ git push -u origin main
To https://github.com/23-22411-061-rgb/CC_Shumail-zahra--2023-BSE-061-.git
 ! [rejected]      main -> main (non-fast-forward)
error: failed to push some refs to 'https://github.com/23-22411-061-rgb/CC_Shumail-zahra--2023-BSE-061-.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. If you want to integrate the remote changes,
hint: use 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main|MERGING)
$ git add README.md

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main|MERGING)
$ git commit -m "Resolved merge conflict in README.md"
[main 552ed40] Resolved merge conflict in README.md

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git push -u origin main
Enumerating objects: 10, done.
Counting objects: 100% (10/10), done.
Delta compression using up to 8 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 1.05 KiB | 119.00 KiB/s, done.
Total 6 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/23-22411-061-rgb/CC_Shumail-zahra--2023-BSE-061-.git
  8f9be55..552ed40  main -> main
branch 'main' set up to track 'origin/main'.
```

Commit changes

X

Commit message

Remote rebase test

Extended description

Add an optional extended description...

- Commit directly to the `main` branch
- Create a **new branch** for this commit and start a pull request [Learn more about pull requests](#)

Cancel

Commit changes

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main|REBASE 1/2)
$ git add README.md
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main|REBASE 1/2)
$ git rebase --continue
Successfully rebased and updated refs/heads/main.
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git push -u origin main
Enumerating objects: 9, done.
Counting objects: 100% (9/9), done.
Delta compression using up to 8 threads
Compressing objects: 100% (5/5), done.
Writing objects: 100% (6/6), 887 bytes | 110.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 1 local object.
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git
  f2eb4ce..1bc57ac main -> main
branch 'main' set up to track 'origin/main'.
```

Task 2 – Creating and Resolving Merge Conflicts Manually

This task will help you understand how Git handles file conflicts when two people modify the same line of code differently.

Steps

1. On **GitHub (remote)**, open your README.md file and change an existing line. Change it to: This line was updated remotely again.

The screenshot shows a GitHub commit dialog titled "Commit changes". The "Commit message" field contains "Remote conflicting change". The "Extended description" field has a placeholder "Add an optional extended description...". Below the fields are two radio button options: "Commit directly to the main branch" (selected) and "Create a new branch for this commit and start a pull request [Learn more about pull requests](#)". At the bottom are "Cancel" and "Commit changes" buttons. Below the dialog, a preview of the README.md file in Notepad shows the following content:

README - Notepad
File Edit Format View Help
This line was added locally.
This line was updated locally at the same time.|
Another line added remotely.
Another line added locally.

Stage and commit your local change:

```
git add README.md  
git commit -m "Local conflicting change"
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra_-2023-BSE-061- (main)
$ git add README.md

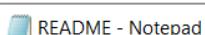
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra_-2023-BSE-061- (main)
$ git commit -m "Local conflicting change"
[main de72be1] Local conflicting change
 1 file changed, 1 insertion(+), 1 deletion(-)

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra_-2023-BSE-061- (main)
$ git push -u origin main
To https://github.com/23-22411-061-rgb/CC_Shumail-zahra_-2023-BSE-061-.git
 ! [rejected]      main -> main (fetch first)
error: failed to push some refs to 'https://github.com/23-22411-061-rgb/CC_Shumail-zahra_-2023-BSE-061-.git'
hint: Updates were rejected because the remote contains work that you do not
hint: have locally. This is usually caused by another repository pushing to
hint: the same ref. If you want to integrate the remote changes, use
hint: 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
```

Instead of using git pull, run:

```
git pull --rebase origin main
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra_-2023-BSE-061- (main)
$ git pull --rebase origin main
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), 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), 1.04 KiB | 44.00 KiB/s, done.
From https://github.com/23-22411-061-rgb/CC_Shumail-zahra_-2023-BSE-061-
 * branch            main      -> FETCH_HEAD
   1bc57ac..1497bf7  main      -> origin/main
Auto-merging README.md
CONFLICT (content): Merge conflict in README.md
error: could not apply de72be1... Local conflicting change
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 set advice.mergeConflict false"
Could not apply de72be1... # Local conflicting change
```



README - Notepad

File Edit Format View Help

This line was added locally.

This line was updated locally and remotely safely.

Another line added remotely.

Another line added locally.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ git pull --rebase origin main
Local conflicting change
```

```
[detached HEAD 009cb58] Local conflicting change
 1 file changed, 1 insertion(+), 1 deletion(-)
Successfully rebased and updated refs/heads/main.
```

Push again:

```
git push -u origin main
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ git push -u origin main
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 529 bytes | 264.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-_2023-BSE-061-.git
 1497bf7..009cb58  main -> main
branch 'main' set up to track 'origin/main'.
```

Task 3 – Managing Ignored Files with .gitignore and Removing Tracked Files

Steps

1. Create a new folder named textfiles inside your repository:

```
mkdir textfiles
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ mkdir textfiles

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ echo "File A content" > textfiles/a.txt
echo "File B content" > textfiles/b.txt
echo "File C content" > textfiles/c.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git add .
warning: in the working copy of 'textfiles/a.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'textfiles/b.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'textfiles/c.txt', LF will be replaced by CRLF the next time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git commit -m "Added textfiles directory with three files"
[main 94dcca1] Added textfiles directory with three files
 3 files changed, 3 insertions(+)
 create mode 100644 textfiles/a.txt
 create mode 100644 textfiles/b.txt
 create mode 100644 textfiles/c.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git push origin main
Enumerating objects: 7, done.
Counting objects: 100% (7/7), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (6/6), 597 bytes | 119.00 KiB/s, done.
Total 6 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git
 009cb58..94dcca1  main -> main
```

Now, create a .gitignore file in the root of your repository:

```
echo "textfiles/*" > .gitignore
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ echo "textfiles/*" > .gitignore

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git add .gitignore
warning: in the working copy of '.gitignore', LF will be replaced by CRLF the next time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git commit -m "Added .gitignore to ignore textfiles directory"
[main 8bd584b] Added .gitignore to ignore textfiles directory
 1 file changed, 1 insertion(+)
 create mode 100644 .gitignore

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (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), 434 bytes | 144.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git
 94dcca1..8bd584b  main -> main
```

The screenshot shows a GitHub repository page. At the top, there's a navigation bar with links for Code, Issues, Pull requests, Actions, Projects, Wiki, Security, Insights, and Settings. The repository name is 'CC_-Shumail-zahra_-2023-BSE-061-' and it's marked as Public. A search bar is at the top right. Below the header, there's a main content area with tabs for 'main' (selected), 'Branch', and 'Tags'. A file list shows recent commits:

- 23-22411-061-rgb Added .gitignore to ignore textfiles directory
- Lab 1 Added LAB01_package.zip in Lab 1 folder
- Lab 2/Lab_02 Removed Lab 2/readme.txt
- textfiles Added textfiles directory with three files
- .gitignore Added .gitignore to ignore textfiles directory
- README.md Local conflicting change
- test.txt Added Lab 1 and Lab 2 folders

On the right side, there are sections for About (no description), Activity (0 stars, 0 forks), Releases (no releases), Packages (no packages published), and Contributors (2). A README file is present with the content: "This line was added locally. This line was updated locally and remotely safely. Another line added remotely. Another line added locally."

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git rm -r --cached textfiles
rm 'textfiles/a.txt'
rm 'textfiles/b.txt'
rm 'textfiles/c.txt'

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git add .

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git commit -m "Removed tracked textfiles directory"
[main bd3c93c] Removed tracked textfiles directory
 3 files changed, 3 deletions(-)
 delete mode 100644 textfiles/a.txt
 delete mode 100644 textfiles/b.txt
 delete mode 100644 textfiles/c.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git push origin main
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (2/2), 359 bytes | 359.00 KiB/s, done.
Total 2 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git
 bd584b..bd3c93c main -> main
```

This screenshot shows the same GitHub repository page after the changes have been pushed. The commit history now includes:

- 23-22411-061-rgb Removed tracked textfiles directory
- Lab 1 Added LAB01_package.zip in Lab 1 folder
- Lab 2/Lab_02 Removed Lab 2/readme.txt
- .gitignore Added .gitignore to ignore textfiles directory
- README.md Local conflicting change
- test.txt Added Lab 1 and Lab 2 folders

The rest of the page, including the About section, Activity, Releases, Packages, and Contributors, remains the same.

Task 4 – Create Temporary Changes and Use git stash

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git checkout -b feature-branch
Switched to a new branch 'feature-branch'

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (feature-branch)
$ git add README.md

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (feature-branch)
$ git commit -m "Changes the README.md file"
On branch feature-branch
nothing to commit, working tree clean
```

CC_-Shumail-zahra--2023-BSE-061- / README.md in main

Edit Preview

```
1 This line was added locally.
2 This line was updated locally and remotely safely.
3 Another line added remotely.
4 Another line added locally.
5 ABCD
6 abcd
7 |
8
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (feature-branch)
$ git stash
Saved working directory and index state WIP on feature-branch: bd3c93c Removed tracked textfiles directory

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (feature-branch)
$ git status
On branch feature-branch
nothing to commit, working tree clean
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (feature-branch)
$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git checkout feature-branch
Switched to branch 'feature-branch'
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (feature-branch)
$ git stash pop
On branch feature-branch
Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
    (use "git restore <file>..." to discard changes in working directory)
      modified: README.md

no changes added to commit (use "git add" and/or "git commit -a")
Dropped refs/stash@{0} (3a70ed90806dc3b6d8827e98f2b7c2ead906b175)
```

Task 5 – Checkout a Specific Commit Using git log

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (feature-branch)
$ git stash
Saved working directory and index state WIP on feature-branch: bd3c93c Removed tracked textfiles directory

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (feature-branch)
$ git checkout 1497bf7
Note: switching to '1497bf7'.

You are in 'detached HEAD' state. You can look around, make experimental
changes and commit them, and you can discard any commits you make in this
state without impacting any branches by switching back to a branch.

If you want to create a new branch to retain commits you create, you may
do so (now or later) by using -c with the switch command. Example:

  git switch -c <new-branch-name>

or undo this operation with:

  git switch -

Turn off this advice by setting config variable advice.detachedHead to false

HEAD is now at 1497bf7 Remote conflicting change
```

Task 6 – Resetting Commits (Soft vs Hard Reset) (With Verification Steps)

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git add README.md

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Added test line"
[main c48a8af] Added test line
 1 file changed, 2 insertions(+)
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git add README.md

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Second test commit"
[main a7bdc3e] Second test commit
 1 file changed, 1 insertion(+)
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git log --oneline
a7bdc3e (HEAD -> main) Second test commit
c48a8af Added test line
bd3c93c (origin/main, feature-branch) Removed tracked textfiles directory
8bd584b Added .gitignore to ignore textfiles directory
94dcca1 Added textfiles directory with three files
009cb58 Local conflicting change
1497bf7 Remote conflicting change
1bc57ac Removed Lab 2/readme.txt
ebfbcec Local rebase test
f2eb4ce Remote rebase test
552ed40 Resolved merge conflict in README.md
7e2f837 Local update to README
8f9be55 Update README.md
4b61000 Delete Lab 2/Lab_02.zip
1c07675 Added Lab_02 in Lab 2 folder
43a791d Added Lab_02.zip in Lab 2 folder
ae8a7ac Added LAB01_package.zip in Lab 1 folder
05ca9c9 Added placeholder files in Lab 1 and Lab 2 folders
59974fa Added Lab 1 and Lab 2 folders
c5e2f26 Initial commit - Added Lab 1 and Lab 2 folders
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra_-2023-BSE-061- (main)
$ cat README.md
This line was added locally.
This line was updated locally and remotely safely.
Another line added remotely.
Another line added locally.
# First test line for reset
# Second test line for reset
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra_-2023-BSE-061- (main)
$ git reset --soft HEAD~1
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra_-2023-BSE-061- (main)
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra_-2023-BSE-061- (main)
$ git log --oneline
c48a8af (HEAD -> main) Added test line
bd3c93c (origin/main, feature-branch) Removed tracked textfiles directory
8bd584b Added .gitignore to ignore textfiles directory
94dcc41 Added textfiles directory with three files
009cb58 Local conflicting change
1497bf7 Remote conflicting change
1bc57ac Removed Lab 2/readme.txt
ebfbcec Local rebase test
f2eb4ce Remote rebase test
552ed40 Resolved merge conflict in README.md
7e2f837 Local update to README
8f9be55 Update README.md
4b61000 Delete Lab 2/Lab_02.zip
1c07675 Added Lab_02 in Lab 2 folder
43a791d Added Lab_02.zip in Lab 2 folder
aeba7ac Added LAB01_package.zip in Lab 1 folder
05ca9c9 Added placeholder files in Lab 1 and Lab 2 folders
59974fa Added Lab 1 and Lab 2 folders
c5e2f26 Initial commit - Added Lab 1 and Lab 2 folders
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra_-2023-BSE-061- (main)
```

```
$ cat README.md
This line was added locally.
This line was updated locally and remotely safely.
Another line added remotely.
Another line added locally.
# First test line for reset
# Second test line for reset
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git reset --hard HEAD~1
HEAD is now at c48a8af Added test line
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git log --oneline
c48a8af (HEAD -> main) Added test line
bd3c93c (origin/main, feature-branch) Removed tracked textfiles directory
8bd584b Added .gitignore to ignore textfiles directory
94dcca1 Added textfiles directory with three files
009cb58 Local conflicting change
1497bf7 Remote conflicting change
1bc57ac Removed Lab 2/readme.txt
ebfbcec Local rebase test
f2eb4ce Remote rebase test
552ed40 Resolved merge conflict in README.md
7e2f837 Local update to README
8f9be55 Update README.md
4b61000 Delete Lab 2/Lab_02.zip
1c07675 Added Lab_02 in Lab 2 folder
43a791d Added lab_02.zip in Lab 2 folder
aea7ac Added LAB01_package.zip in Lab 1 folder
05ca9c9 Added placeholder files in Lab 1 and Lab 2 folders
59974fa Added Lab 1 and Lab 2 folders
c5e2f26 Initial commit - Added Lab 1 and Lab 2 folders
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git status
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   README.md
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git commit -m "Second test commit"
[main 3fb84fe] Second test commit
 1 file changed, 1 insertion(+)
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git log --oneline
c48a8af (HEAD -> main) Added test line
bd3c93c (origin/main, feature-branch) Removed tracked textfiles directory
8bd584b Added .gitignore to ignore textfiles directory
94dcca1 Added textfiles directory with three files
009cb58 Local conflicting change
1497bf7 Remote conflicting change
1bc57ac Removed Lab 2/readme.txt
ebfbcec Local rebase test
f2eb4ce Remote rebase test
552ed40 Resolved merge conflict in README.md
7e2f837 Local update to README
8f9be55 Update README.md
4b61000 Delete Lab 2/Lab_02.zip
1c07675 Added Lab_02 in Lab 2 folder
43a791d Added lab_02.zip in Lab 2 folder
aea7ac Added LAB01_package.zip in Lab 1 folder
05ca9c9 Added placeholder files in Lab 1 and Lab 2 folders
59974fa Added Lab 1 and Lab 2 folders
c5e2f26 Initial commit - Added Lab 1 and Lab 2 folders
```

README - Notepad

```
File Edit Format View Help
This line was added locally.
This line was updated locally and remotely safely.
Another line added remotely.
Another line added locally.
# First test line for reset
```

Task 7 – Amending the Last Commit

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git add .

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Fix log message"
On branch main
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

nothing to commit, working tree clean
```

```
[main 31107f0] Added test line
 Date: Fri Oct 17 10:45:53 2025 +0500
 1 file changed, 2 insertions(+)
```

Task 8 – Reverting a Commit (Safe Undo on Remote Branch)

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ echo "temporary text" >> temp.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git add .
warning: in the working copy of 'temp.txt', LF will be replaced by CRLF the next time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Added temporary text file"
[main ffc8859] Added temporary text file
 1 file changed, 1 insertion(+)

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git push origin main
Enumerating objects: 11, done.
Counting objects: 100% (11/11), done.
Delta compression using up to 8 threads
Compressing objects: 100% (7/7), done.
Writing objects: 100% (9/9), 1.14 KiB | 194.00 KiB/s, done.
Total 9 (delta 4), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (4/4), completed with 2 local objects.
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra--2023-BSE-061-.git
 4d982b9..ffc8859 main -> main
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git log --oneline
ffc8859 (HEAD -> main, origin/main) Added temporary text file
3e28e1d Added temporary text file
ef21c63 Added test line
4d982b9 Update README.md
bd3c93c (feature-branch) Removed tracked textfiles directory
8bd584b Added .gitignore to ignore textfiles directory
94dcc1 Added textfiles directory with three files
009cb58 Local conflicting change
1497bf7 Remote conflicting change
1bc57ac Removed Lab 2/readme.txt
ebfbcec Local rebase test
f2eb2ce Remote rebase test
552ed40 Resolved merge conflict in README.md
7e2f837 Local update to README
8f9be55 Update README.md
4b61000 Delete Lab 2/Lab_02.zip
1c07675 Added Lab_02 in Lab 2 folder
43a791d Added lab_02.zip in Lab 2 folder
ae8a7ac Added LAB01_package.zip in Lab 1 folder
05ca9c9 Added placeholder files in Lab 1 and Lab 2 folders
59974fa Added Lab 1 and Lab 2 folders
c5e2f26 Initial commit - Added Lab 1 and Lab 2 folders
```

[main cbefc4b] Revert "Added temporary text file"
1 file changed, 1 deletion(-)

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git push origin main
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), 473 bytes | 236.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra--2023-BSE-061-.git
  ffc8859..cbefc4b main -> main
```

Task 9 – Force Push (With Caution)

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git checkout -b test-force
Switched to a new branch 'test-force'
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-shumail-zahra_-2023-BSE-061- (test-force)
$ git add README.md
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (test-force)
$ git commit -m "Added force push test line"
[test-force 033dc87] Added force push test line
 1 file changed, 1 insertion(+)
```

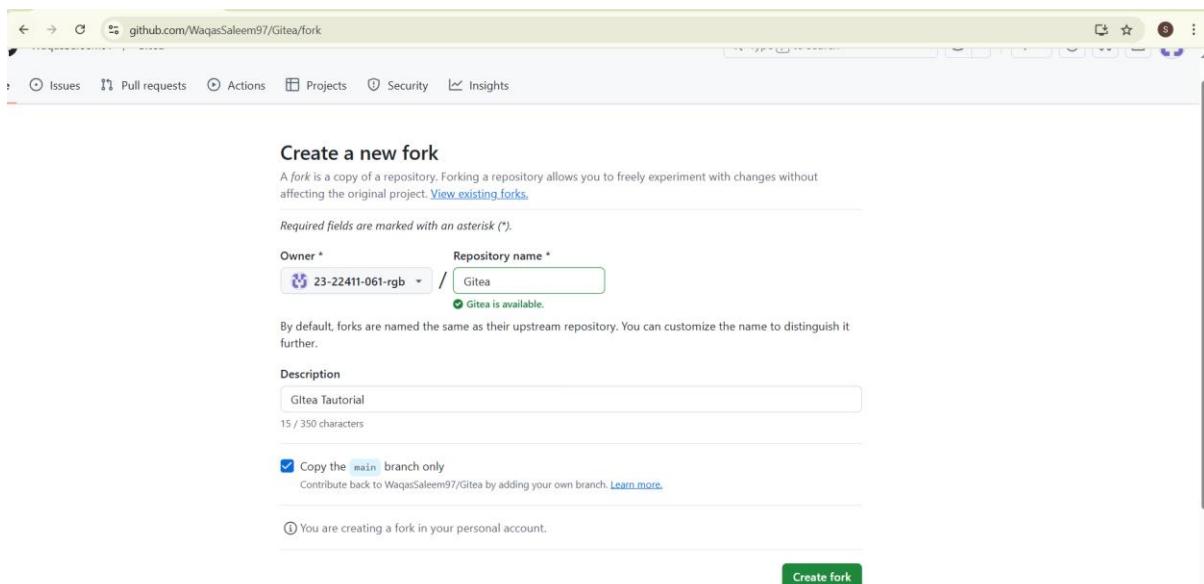
```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (test-force)
$ git push origin test-force
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 439 bytes | 219.00 KiB/s, done.
Total 3 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
remote:
remote: Create a pull request for 'test-force' on GitHub by visiting:
remote:   https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-/pull/new/test-force
remote:
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git
 * [new branch]      test-force -> test-force
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (test-force)
$ git reset --hard HEAD~1
HEAD is now at cbefc4b Revert "Added temporary text file"
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (test-force)
$ git push origin test-force
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git
 ! [rejected]      test-force -> test-force (non-fast-forward)
error: failed to push some refs to 'https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git'
hint: Updates were rejected because the tip of your current branch is behind
hint: its remote counterpart. If you want to integrate the remote changes,
hint: use 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (test-force)
$ git push origin test-force --force
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git
 + 033dc87...cbefc4b test-force -> test-force (forced update)
```

Task 10 – Running Gitea in GitHub Codespaces via Docker Compose



Screenshot of a GitHub repository page for "Gitea".

Repository details:

- Owner: WaqasSaleem97
- Name: Gitea
- Status: Public
- Forked from: WaqasSaleem97/Gitea

Code tab:

- Main branch: main (1 Branch, 0 Tags)
- Last commit: 421ea28 · 2 weeks ago by WaqasSaleem97 · 2 Commits
- File: compose.yaml · giving the names to databases · 2 weeks ago

About section:

- Gitea Tutorial
- Activity
- 0 stars
- 0 watching
- 0 forks

Releases section:

- No releases published
- Create a new release

Packages section:

- No packages published
- Publish your first package

Add a README button:

Add a README

Screenshot of the Visual Studio Code interface showing a workspace named "opulent-goggles-q7576xrj764fx99q.github.dev".

Explorer sidebar:

- EXPLORER
- GITEA (selected)

Terminal:

Build with agent mode

Let's get started

Add context (#), extensions (@), commands

Build Workspace Show Config

All responses may be inaccurate.

```
● @23-22411-061-rgb →/workspaces/Gitea (main) $ docker compose up -d
[+] Running 19/19
  ✓ gitea Pulled
  ✓ db Pulled
[+] Running 5/5
  ✓ Network webnet      Created
  ✓ Volume "gitea_postgres" Created
  ✓ Volume "gitea"        Created
  ✓ Container gitea_db   Started
  ✓ Container gitea       Started
○ @23-22411-061-rgb →/workspaces/Gitea (main) $
```

← → ⌛ opulent-goggles-q7576xr9j764fx99q-3000.app.github.dev ⚙ ⋮



You are about to access a development port served by someone's codespace

⚠ Only continue to visit the website if you trust whoever sent you the link

☒ Personal information you disclose such as credit card numbers or passwords may be available to the developer of this site

⚠ Note that this warning will only be shown once per codespace session.

[Report unsafe page](#) Continue

Next: You'll be redirected to: opulent-goggles-q7576xr9j764fx99q-3000.app.github.dev

- ▶ Email Settings
- ▶ Server and Third-Party Service Settings
- ▼ Administrator Account Settings

Creating an administrator account is optional. The first registered user will automatically become an administrator.

Administrator Username	shumail_2023bse061
Email Address	shumail_2023bse061
Password
Confirm Password

These configuration options will be written into: `/data/gitea/conf/app.ini` ⓘ

Install Gitea

New Repository

A repository contains all project files, including revision history. Already hosting one elsewhere? [Migrate repository](#).

Owner *	<div style="display: flex; align-items: center;"> 👤 <input style="border: 1px solid #ccc; padding: 5px; width: 150px; height: 30px; border-radius: 5px; margin-right: 10px;" type="text" value="shumail_2023bse061"/> ▼ </div> <p>Some organizations may not show up in the dropdown due to a maximum repository count limit.</p>
Repository Name *	<input style="border: 1px solid #ccc; padding: 5px; width: 150px; height: 30px; border-radius: 5px; margin-bottom: 5px;" type="text" value="new_repo"/> <p>Good repository names use short, memorable and unique keywords. A repository named ".profile" or ".profile-private" could be used to add a README.md for the user/organization profile.</p>
Visibility	<input type="checkbox"/> Make repository private Only the owner or the organization members if they have rights, will be able to see it.
Description	<input style="border: 1px solid #ccc; padding: 5px; width: 150px; height: 30px; border-radius: 5px; margin-bottom: 5px;" type="text" value="Enter short description (optional)"/>
Template	<input style="border: 1px solid #ccc; padding: 5px; width: 150px; height: 30px; border-radius: 5px; margin-bottom: 5px;" type="text" value="Select a template."/>
Issue Labels	<input style="border: 1px solid #ccc; padding: 5px; width: 150px; height: 30px; border-radius: 5px; margin-bottom: 5px;" type="text" value="Select an issue label set."/>
.gitignore	<input style="border: 1px solid #ccc; padding: 5px; width: 150px; height: 30px; border-radius: 5px; margin-bottom: 5px;" type="text" value="Select .gitignore templates."/> <p>Choose which files not to track from a list of templates for common languages. Typical artifacts generated by each language's build tools are included on .gitignore by default.</p>

The screenshot shows a GitHub repository page. At the top, there's a navigation bar with links for Issues, Pull Requests, Milestones, and Explore. Below the header, the repository name is 'shumail_2023bse061/new_repo'. The main content area shows a single commit from 'shumail_2023bse061' with the commit hash 'f3d7be3f2f' and the message 'Initial commit'. This commit is dated 'now'. Below the commit, there's a file named 'README.md' with the same 'Initial commit' message and date. A note at the bottom of the repository page says 'new_repo'. On the right side, there's a sidebar with sections for Description (No description provided), Manage Topics, Readme (23 KiB), and Settings.

Task 11 – Creating a GitHub Pages Portfolio Site

The screenshot shows a GitHub repository for '23-22411-061-rgb.github.io'. The repository has 0 stars, 0 forks, and 0 issues. The main page includes sections for 'Set up GitHub Copilot' (with a 'Get started with GitHub Copilot' button) and 'Add collaborators to this repository' (with a 'Invite collaborators' button). Below these, there's a 'Quick setup — if you've done this kind of thing before' section with instructions for setting up on desktop or via HTTPS/SSH, and a command-line guide:

```
echo "# 23-22411-061-rgb.github.io" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main
git remote add origin https://github.com/23-22411-061-rgb/23-22411-061-rgb.github.io.git
git push -u origin main
```

At the bottom of the browser window, there's a Windows File Explorer window showing the contents of the 'Portfolio1' folder. The folder contains two files: 'index' (a Chrome HTML Document, 5 KB) and 'style' (a Cascading Style Sheet, 1 KB).

```

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (test-force)
$ git init
Reinitialized existing Git repository in C:/Users/Syed/CC_Shumail-zahra--2023-BSE-061/.git/
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (test-force)
$ git branch -M main
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git remote add origin https://github.com/23-22411-061-rgb/23-22411-061-rgb.github.io.git
error: remote origin already exists.

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git remote -v
origin https://github.com/23-22411-061-rgb/cc_Shumail-zahra--2023-BSE-061-.git (fetch)
origin https://github.com/23-22411-061-rgb/cc_Shumail-zahra--2023-BSE-061-.git (push)

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git remote set-url origin https://github.com/23-22411-061-rgb/23-22411-061-rgb.github.io.git

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git add .
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Add portfolio site for GitHub Pages"
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git push origin main
Enumerating objects: 1/1, done.
Counting objects: 100% (1/1), done.
Delta compression using up to 8 threads
Compressing objects: 100% (1/1), done.
Writing objects: 100% (1/1), 18.61 MiB | 127.05 MiB/s, done.
Total 1 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), done.
To https://github.com/23-22411-061-rgb/23-22411-061-rgb.github.io.git
 * [new branch]      main -> main

```



General

GitHub Pages

GitHub Pages is designed to host your personal, organization, or project pages from a GitHub repository.

Your site is live at <https://23-22411-061-rgb.github.io/>
Last deployed by [23-22411-061-rgb](#) 3 minutes ago

Build and deployment

Source

Deploy from a branch

Branch

Your GitHub Pages site is currently being built from the [main](#) branch. [Learn more about configuring the publishing source for your site.](#)

main / (root) Save

Learn how to [add a Jekyll theme](#) to your site.

Your site was last deployed to the [github-pages](#) environment by the [pages build and deployment](#) workflow. [Learn more about deploying to GitHub Pages using custom workflows](#)

Custom domain

Custom domains allow you to serve your site from a domain other than [23-22411-061-rgb.github.io](#). [Learn more about configuring custom domains.](#)

Add Remove

Pages

Security

Advanced Security

Deploy keys

Secrets and variables

The screenshot shows a resume website at 23-22411-061-rgb.github.io. The page has a header with a profile image placeholder and the name "SHUMAIL ZAHRA". Below the name are sections for contact information (Video Editor, phone +923108329962, email iqrabashir914@gmail.com), address (Khalid colony phase 2, Chakri road, Rawalpindi), nationality (Pakistani), date of birth (14-07-2001), gender (Female), and marital status (Single). There are two main sections: "Objective" and "Experience". The objective states: "To obtain a responsible position in a well-established organization where I can contribute to the organization's success through my good work habits, flexibility, and commitment to excellence. I am a competent and willing person with the ability to learn quickly, work well under pressure, and be effective in team-based work while always striving for personal and professional growth." The experience section lists a period from 07/2024 - 09/2024.

<https://23-22411-061-rgb.github.io/>

Exam Evaluation Questions

1. Local vs Remote Conflict Resolution

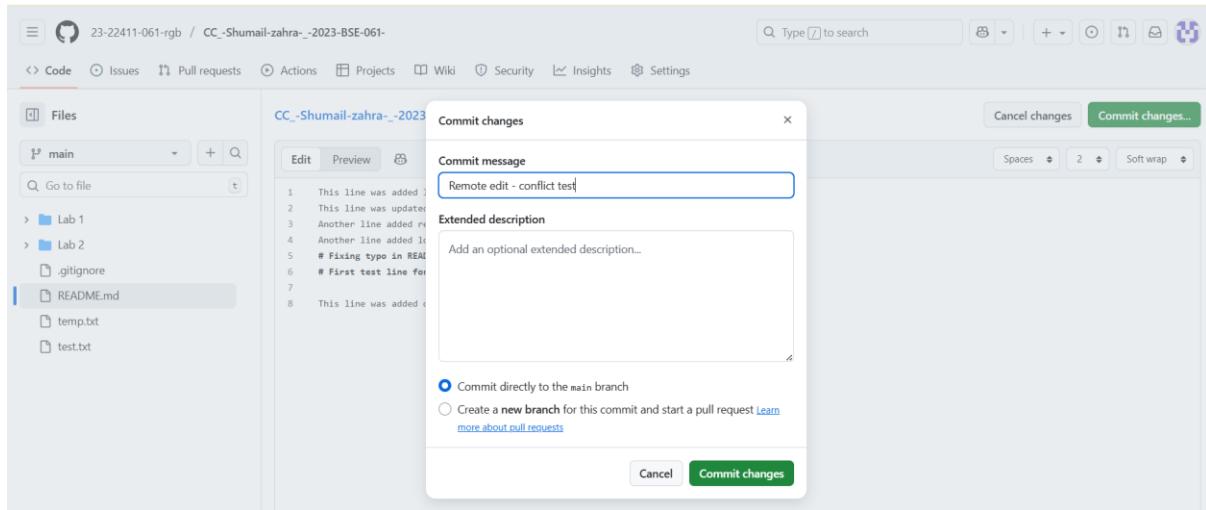
Steps:

1. On GitHub, edit a file (e.g., README.md) and commit the change.

The screenshot shows a GitHub repository interface. The left sidebar shows a tree view of files: Lab 1, Lab 2, .gitignore, README.md (which is selected), temp.txt, and test.txt. The main area shows the content of the README.md file. The file contains the following text:

```
1 This line was added locally.  
2 This line was updated locally and remotely safely.  
3 Another line added remotely.  
4 Another line added locally.  
5 # Fixing typo in README.md  
6 # First test line for reset  
7  
8 This line was added on GitHub.]
```

At the top right, there are buttons for "Cancel changes" and "Commit changes..." with a green background.



2. On your local machine, edit the same file differently (Avoid Conflict) and commit.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git add README.md

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git commit -m "Local edit - conflict test"
[main 6963f03] Local edit - conflict test
 1 file changed, 1 insertion(+)

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ |
```

3. Try to push your local commit and observe the error.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git push origin main
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git
 ! [rejected]      main --> main (fetch first)
error: failed to push some refs to 'https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git'
hint: Updates were rejected because the remote contains work that you do not
hint: have locally. This is usually caused by another repository pushing to
hint: the same ref. If you want to integrate the remote changes, use
hint: 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ |
```

4. Resolve the conflict by running git pull (merge), then push.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git pull origin main
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 951 bytes | 38.00 KiB/s, done.
From https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-
 * branch            main      -> FETCH_HEAD
 * [new branch]      main      -> origin/main
Auto-merging README.md
CONFLICT (content): Merge conflict in README.md
Automatic merge failed; fix conflicts and then commit the result.

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main|MERGING)
$ |
```

5. Repeat with another remote/local change, but resolve using git pull --rebase, then push.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main|MERGING)
$ git add README.md

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main|MERGING)
$ git commit -m "Resolved merge conflict"
[main 1c03ea6] Resolved merge conflict

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git push origin main
Enumerating objects: 17, done.
Counting objects: 100% (17/17), done.
Delta compression using up to 8 threads
Compressing objects: 100% (12/12), done.
Writing objects: 100% (13/13), 6.52 KiB | 477.00 KiB/s, done.
Total 13 (delta 6), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (6/6), completed with 2 local objects.
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-.git
  9c4f82b..1c03ea6  main -> main

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ |
```

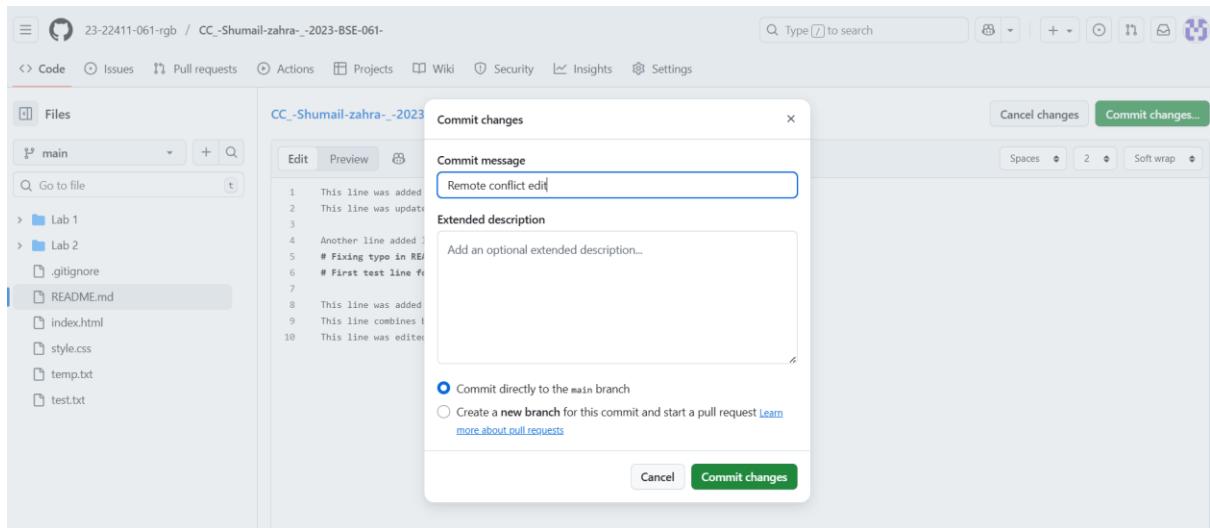
```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git pull --rebase origin main
From https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-2023-BSE-061-
 * branch            main      -> FETCH_HEAD
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ |
```

Manual Merge Conflict Handling

Steps:

1. On GitHub, change a specific line in a file and commit.



2. Locally, change the same line differently and commit.

*README - Notepad

```
File Edit Format View Help
This line was added locally.
This line was updated locally and remotely safely.
Another line added remotely.
Another line added locally.
# Fixing typo in README.md
# First test line for reset

This line was edited locally on my computer.
This line combines both local and remote updates.
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git add README.md

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Local conflicting edit"
On branch main
nothing to commit, working tree clean

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ |
```

3. Try to push your local change and observe the conflict error.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git push origin main
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra--2023-BSE-061-.git
 ! [rejected]      main -> main (fetch first)
error: failed to push some refs to 'https://github.com/23-22411-061-rgb/CC_-Shumail-zahra--2023-BSE-061-.git'
hint: Updates were rejected because the remote contains work that you do not
hint: have locally. This is usually caused by another repository pushing to
hint: the same ref. If you want to integrate the remote changes, use
hint: 'git pull' before pushing again.
hint: See the 'Note about fast-forwards' in 'git push --help' for details.

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ |
```

4. Use git pull --rebase to fetch changes and trigger the conflict.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ git pull --rebase origin main
remote: Enumerating objects: 5, done.
remote: Counting objects: 100% (5/5), done.
remote: Compressing objects: 100% (3/3), done.
remote: Total 3 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (3/3), 977 bytes | 75.00 KiB/s, done.
From https://github.com/23-22411-061-rgb/CC_-Shumail-zahra_-_2023-BSE-061-
 * branch            main      -> FETCH_HEAD
   1c03ea6..a85fbf9  main      -> origin/main
Updating 1c03ea6..a85fbf9
Fast-forward
 README.md | 5 +----
 1 file changed, 3 insertions(+), 2 deletions(-)
```

5. Edit the conflicted file to resolve the conflict manually.

This line was edited locally on my computer.
This line combines both local and remote updates.
This line merges both remote and local updates successfully.

6. Mark the conflict resolved (git add <file>, git rebase --continue) and push.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ git add README.md

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ git rebase --continue
fatal: no rebase in progress

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ ^C

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ git push origin main
Everything up-to-date
```

Managing Ignored and Tracked Files

Steps:

1. Create a new folder (e.g., DocFiles) and add several files inside.

```

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ mkdir DocFiles

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ cd DocFiles

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061-/DocFiles (main)
$ echo "This is document 1" > file1.txt
echo "This is document 2" > file2.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061-/DocFiles (main)
$ cd ..

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ ls DocFiles
file1.txt  file2.txt

```

2. Commit and push the folder/files to GitHub.

```

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git add DocFiles
warning: in the working copy of 'DocFiles/file1.txt', LF will be replaced by CRLF the next time Git touches it
warning: in the working copy of 'DocFiles/file2.txt', LF will be replaced by CRLF the next time Git touches it

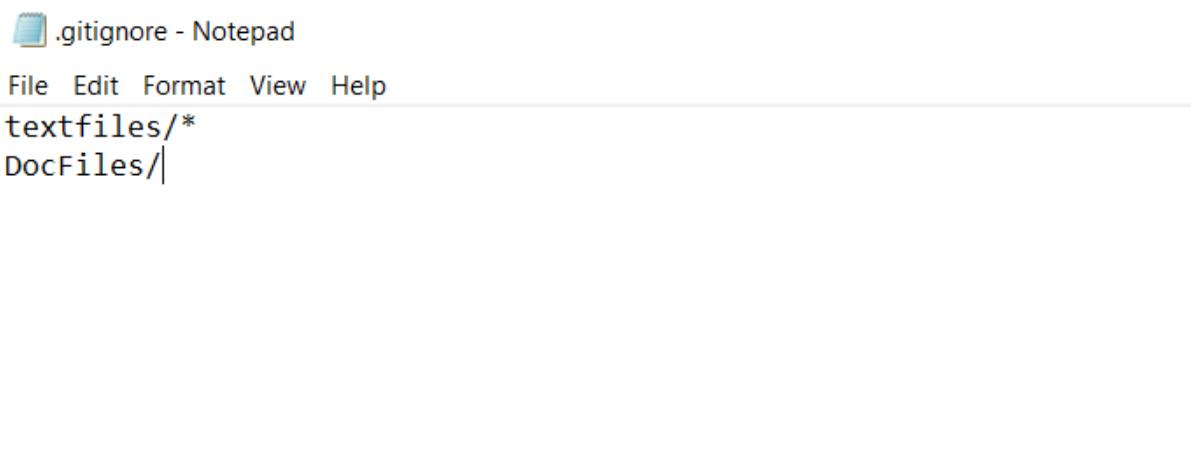
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Add DocFiles folder with sample files"
[main fef676f] Add DocFiles folder with sample files
 3 files changed, 5 insertions(+), 3 deletions(-)
   create mode 100644 DocFiles/file1.txt
   create mode 100644 DocFiles/file2.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git push origin main
Enumerating objects: 8, done.
Counting objects: 100% (8/8), done.
Delta compression using up to 8 threads
Compressing objects: 100% (4/4), done.
Writing objects: 100% (6/6), 710 bytes | 710.00 KiB/s, done.
Total 6 (delta 2), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (2/2), completed with 2 local objects.
To https://github.com/23-22411-061-rgb/CC_Shumail-zahra--2023-BSE-061-.git
 a85fbf9..fef676f  main -> main

```

3. Add the folder to your .gitignore file.

- o Screenshot as Q3_gitignore_added.png



4. Commit and push the .gitignore update.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git add .gitignore

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Add DocFiles to .gitignore"
[main 477591e] Add DocFiles to .gitignore
 1 file changed, 1 insertion(+)

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git push origin main
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), 426 bytes | 426.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra--2023-BSE-061-.git
 fef676f..477591e main -> main
```

5. Remove the folder from tracking using `git rm -r --cached <folder>`.

- o Screenshot as Q3_folder_untracked.png

```
reto/61..477591e main -> main

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git rm -r --cached DocFiles
rm 'DocFiles/file1.txt'
rm 'DocFiles/file2.txt'
```

6. Commit and push the change, then verify the folder is no longer tracked on GitHub.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Stop tracking DocFiles folder"
[main 70cc2c8] Stop tracking DocFiles folder
 2 files changed, 2 deletions(-)
 delete mode 100644 DocFiles/file1.txt
 delete mode 100644 DocFiles/file2.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git push origin main
Enumerating objects: 3, done.
Counting objects: 100% (3/3), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (2/2), 356 bytes | 356.00 KiB/s, done.
Total 2 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To https://github.com/23-22411-061-rgb/CC_-Shumail-zahra--2023-BSE-061-.git
 477591e..70cc2c8 main -> main
```

Commit History Manipulation and Recovery

Steps:

1. Make a change and commit it.

```

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ echo "Version 1 of file" > version.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git add version.txt
warning: in the working copy of 'version.txt', LF will be replaced by CRLF the next time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-shumail-zahra--2023-BSE-061- (main)
$ git commit -m "First commit - added version 1"
[main de253c4] First commit - added version 1
 1 file changed, 1 insertion(+)
 create mode 100644 version.txt

```

2. Make another change and commit again.

```

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ echo "Version 2 of file" > version.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git add version.txt
warning: in the working copy of 'version.txt', LF will be replaced by CRLF the next time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Second commit - updated to version 2"
[main d1d3d5a] Second commit - updated to version 2
 1 file changed, 1 insertion(+), 1 deletion(-)

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ |

```

3. View your commit history.

```

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra--2023-BSE-061- (main)
$ git log --oneline
d1d3d5a (HEAD -> main) Second commit - updated to version 2
de253c4 First commit - added version 1
70ccc2c8 (origin/main) Stop tracking DocFiles folder
477591e Add DocFiles to .gitignore
fef676f Add DocFiles folder with sample files
a85fbf9 Remote conflict edit
1c03ea6 Resolved merge conflict
6963f03 Local edit - conflict test
9c4f82b Remote edit - conflict test
dea0a25 Add CV project with index.html and style.css
806fbf6 Add index.html for GitHub Pages site
cbefc4b Revert "Added temporary text file"
ffc8859 Added temporary text file
3e28e1d Added temporary text file
ef21c63 Added test line
4d982b9 Update README.md
bd3c93c (feature-branch) Removed tracked textfiles directory
8bd584b Added .gitignore to ignore textfiles directory
94dccca1 Added textfiles directory with three files
009cb58 Local conflicting change
1497bf7 Remote conflicting change
1bc57ac Removed Lab 2/readme.txt
ebfbcec Local rebase test
f2eb4ce Remote rebase test
552ed40 Resolved merge conflict in README.md
7e2f837 Local update to README
8f9be55 Update README.md
4b61000 Delete Lab 2/Lab_02.zip
1c07675 Added Lab_02 in Lab 2 folder
43a791d Added lab_02.zip in Lab 2 folder
aea7ac Added LAB01_package.zip in Lab 1 folder
05ca9c9 Added placeholder files in Lab 1 and Lab 2 folders
59974fa Added Lab 1 and Lab 2 folders
c5e2f26 Initial commit - Added Lab 1 and Lab 2 folders

```

4. Perform a soft reset (git reset --soft HEAD~1) and observe your file and history.

- o Screenshot as Q4_soft_reset.png

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git reset --soft HEAD~1

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git status
On branch main
Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
    modified:   version.txt
```

5. Make commit again.

- o Screenshot as Q4_third_commit.png

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git commit -m "Third commit after soft reset"
[main 8d47368] Third commit after soft reset
 1 file changed, 1 insertion(+), 1 deletion(-)
```

6. Perform a hard reset (git reset --hard HEAD~1) and observe the changes.

- o Screenshot as Q4_hard_reset.png

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git reset --hard HEAD~1
HEAD is now at de253c4 First commit - added version 1

Syed@DESKTOP-S50GK51 MINGW64 ~/CC_Shumail-zahra--2023-BSE-061- (main)
$ git log --oneline
de253c4 (HEAD -> main) First commit - added version 1
70cc2c8 (origin/main) Stop tracking DocFiles folder
477591e Add DocFiles to .gitignore
fef676f Add DocFiles folder with sample files
a85fbf9 Remote conflict edit
1c03ea6 Resolved merge conflict
5963f03 Local edit - conflict test
9c4f82b Remote edit - conflict test
dea0a25 Add CV project with index.html and style.css
806fbf6 Add index.html for GitHub Pages site
cbefc4b Revert "Added temporary text file"
ffc8859 Added temporary text file
3e28e1d Added temporary text file
ef21c63 Added test line
4d982b9 Update README.md
bd3c93c (feature-branch) Removed tracked textfiles directory
8bd584b Added .gitignore to ignore textfiles directory
94dccca1 Added textfiles directory with three files
009cb58 Local conflicting change
1497bf7 Remote conflicting change
1bc57ac Removed Lab 2/readme.txt
ebfbcec Local rebase test
f2eb4ce Remote rebase test
552ed40 Resolved merge conflict in README.md
7e2f837 Local update to README
3f9be55 Update README.md
4b61000 Delete Lab 2/Lab_02.zip
1c07675 Added Lab_02 in Lab 2 folder
43a791d Added Lab_02.zip in Lab 2 folder
aea7ac Added LAB01_package.zip in Lab 1 folder
05ca9c9 Added placeholder files in Lab 1 and Lab 2 folders
59974fa Added Lab 1 and Lab 2 folders
c5e2f26 Initial commit - Added Lab 1 and Lab 2 folders
```

