
LAB 03

NAME: SHUMAIL ZAHRA

REGISTRATION #: 2023-BSE-061

DEPARTMENT: BSE(5B)

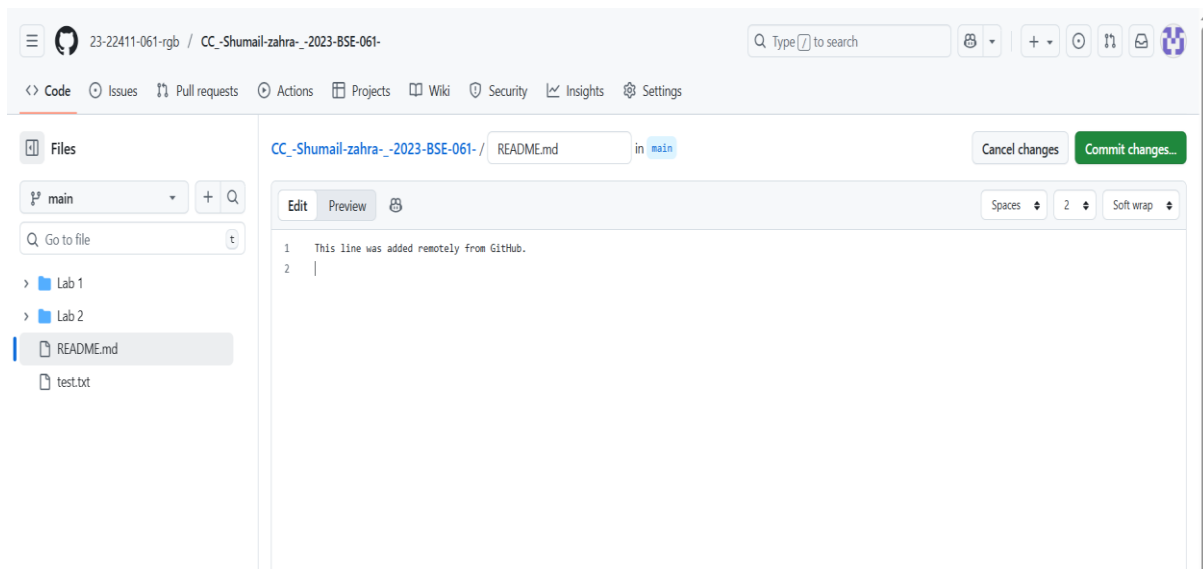
CLOUD COMPUTING LAB

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`.

3

Commit changes

Commit message

Update README.md

Extended description

Remote update to README

☒ 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

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

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.

Commit changes

Commit message

Remote conflicting change

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

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

```

23-22411-061-rgb / CC_-Shumail-zahra-_-2023-BSE-061-

Q Type [f] to search

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Pin Watch 0 Fork 0 Star 0

main 1 Branch 0 Tags

Go to file

Add file Code

About

23-22411-061-rgb Added .gitignore to ignore textfiles directory 8bd584b · 1 minute ago 17 Commits

Lab 1	Added LAB01_package.zip in Lab 1 folder	last week
Lab 2/Lab_02	Removed Lab 2/readme.txt	29 minutes ago
textfiles	Added textfiles directory with three files	3 minutes ago
.gitignore	Added .gitignore to ignore textfiles directory	1 minute ago
README.md	Local conflicting change	11 minutes ago
test.txt	Added Lab 1 and Lab 2 folders	last week

README

This line was added locally. This line was updated locally and remotely safely. Another line added remotely. Another line added locally.

About

No description, website, or topics provided.

Readme

Activity

0 stars

0 watching

0 forks

Releases

No releases published

Create a new release

Packages

No packages published

Publish your first package

Contributors 2

```
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
8bd584b..bd3c93c main -> main
```

23-22411-061-rgb / CC_-Shumail-zahra-_-2023-BSE-061-

Q Type [f] to search

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

CC_-Shumail-zahra-_-2023-BSE-061- Public

Pin Watch 0 Fork 0 Star 0

main 1 Branch 0 Tags

Go to file

Add file Code

About

23-22411-061-rgb Removed tracked textfiles directory bd3c93c · 2 minutes ago 18 Commits

Lab 1	Added LAB01_package.zip in Lab 1 folder	last week
Lab 2/Lab_02	Removed Lab 2/readme.txt	36 minutes ago
.gitignore	Added .gitignore to ignore textfiles directory	8 minutes ago
README.md	Local conflicting change	19 minutes ago
test.txt	Added Lab 1 and Lab 2 folders	last week

README

This line was added locally. This line was updated locally and remotely safely. Another line added remotely. Another line added locally.

About

No description, website, or topics provided.

Readme

Activity

0 stars

0 watching

0 forks

Releases

No releases published

Create a new release

Packages

No packages published

Publish your first package

Contributors 2

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

EditPreview

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
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 --soft HEAD~1
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
# git log --oneline
```

```
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
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
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)
$ 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
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
```

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
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
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
```

```
[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

The screenshot shows the GitHub 'Create a new fork' interface. At the top, the repository is identified as 'Gitea' by 'WaqasSaleem97'. Below this, a description reads 'Gitea Tutorial'. The 'Owner' is set to '23-22411-061-rgb' and the 'Repository name' is 'Gitea'. A checkbox labeled 'Copy the main branch only' is checked. At the bottom right, there is a green 'Create fork' button.

github.com/WaqasSaleem97/Gitea/fork

Issues Pull requests Actions Projects Security Insights

Create a new fork

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

Required fields are marked with an asterisk (*).

Owner * 23-22411-061-rgb / Repository name *

Gitea is available.

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

Description

15 / 350 characters

☒ Copy the `main` branch only
Contribute back to WaqasSaleem97/Gitea by adding your own branch. [Learn more.](#)

You are creating a fork in your personal account.

Create fork

Navigation: Pull requests, Actions, Projects, Wiki, Security, Insights, Settings

Gitea Public
forked from [WaqasSaleem97/Gitea](#)

Buttons: Pin, Watch 0, Fork 0, Star 0

main 1 Branch 0 Tags


Go to file Add file Code

This branch is up to date with [WaqasSaleem97/Gitea:main](#). Contribute Sync fork

WaqasSaleem97 giving the names to databases 421ea28 · 2 weeks ago 2 Commits

compose.yaml giving the names to databases 2 weeks ago

README


Add a README
Help people interested in this repository understand your project by adding a README.
[Add a README](#)

About

Gitea Tautorial

Activity

0 stars

0 watching

0 forks

Releases

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

Packages


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

opulent-goggles-q7576xr9j764fx99q.github.dev

EXPLORER

GITEA

CHAT



Build with agent mode
Let's get started

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

Build Workspace Show Config

AI responses may be inaccurate.

PROBLEMS OUTPUT TERMINAL PORTS

```
● @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) $
```



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-q7576xr9j764fs99q-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	<input type="text" value="shumail_2023bse061"/>
Email Address	<input type="text" value="shumail_2023bse061"/>
Password	<input type="password" value="*****"/>
Confirm Password	<input type="password" value="*****"/>

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 * shumail_2023bse061 ▼
Some organizations may not show up in the dropdown due to a maximum repository count limit.

Repository Name *
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.

Visibility ☐ Make repository private
Only the owner or the organization members if they have rights, will be able to see it.

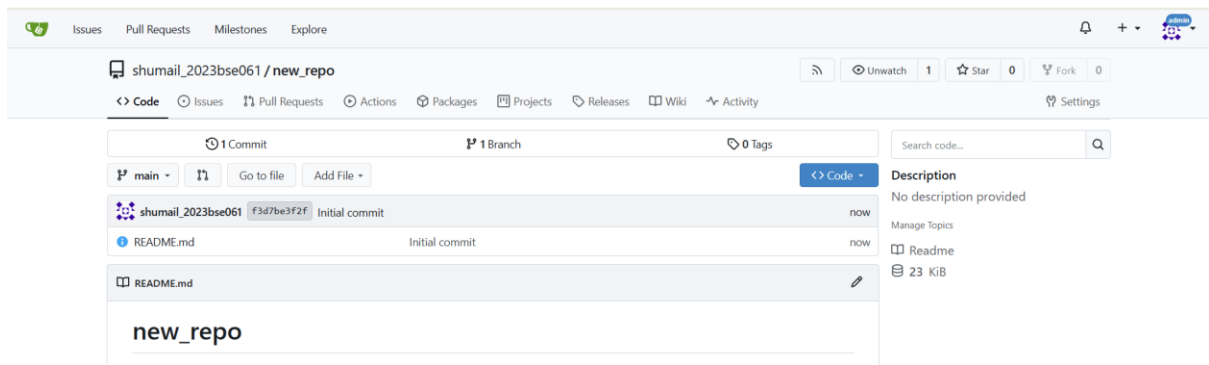
Description

Template

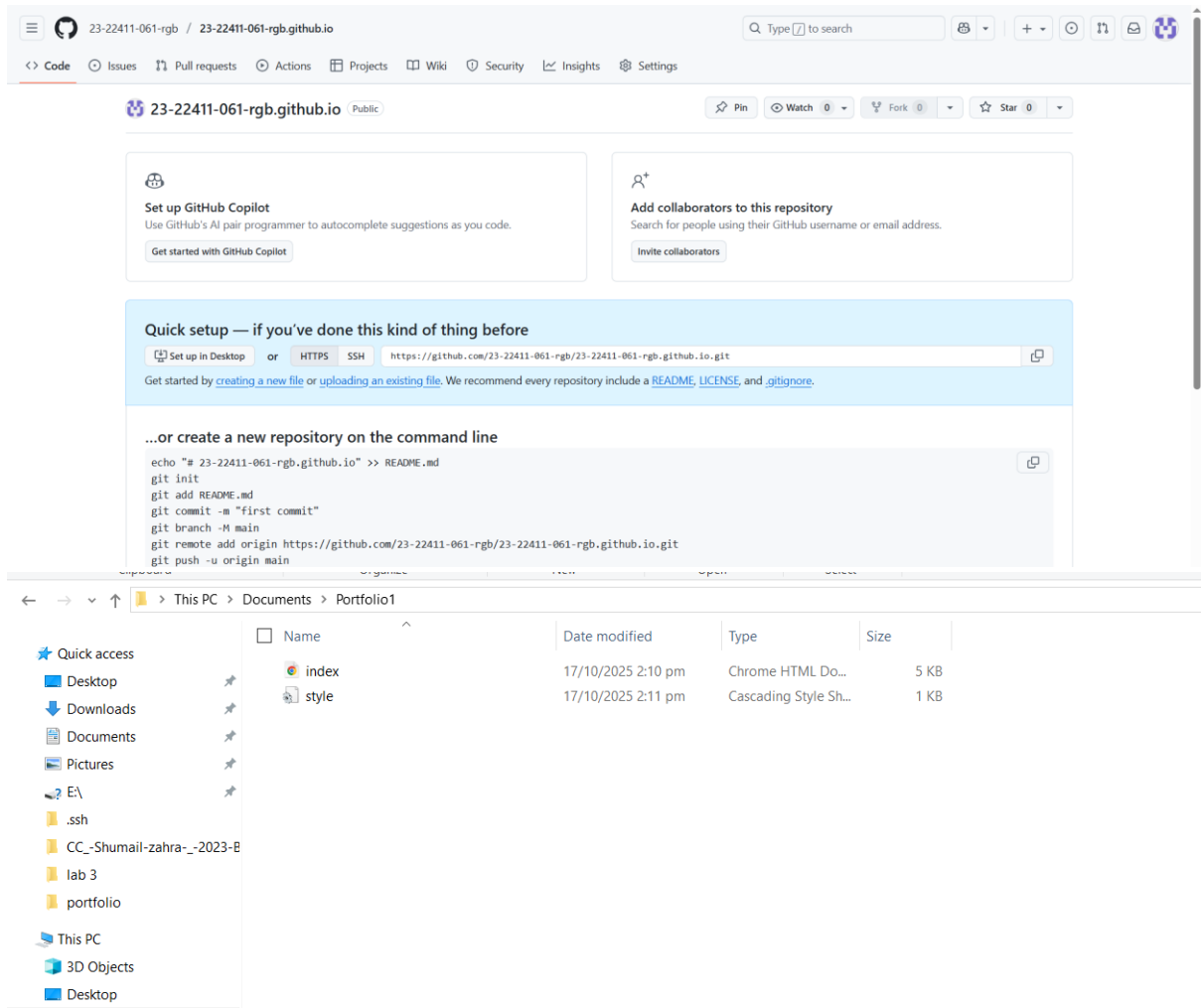
Issue Labels

.gitignore

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.



Task 11 – Creating a GitHub Pages Portfolio Site



```

Syed@DESKTOP-S5OGK51 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-S5OGK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (test-force)
$ git branch -M main

Syed@DESKTOP-S5OGK51 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-S5OGK51 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-S5OGK51 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-S5OGK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ git remote -v
origin https://github.com/23-22411-061-rgb/23-22411-061-rgb.github.io.git (fetch)
origin https://github.com/23-22411-061-rgb/23-22411-061-rgb.github.io.git (push)

Syed@DESKTOP-S5OGK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ git add .

Syed@DESKTOP-S5OGK51 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-S5OGK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ git push origin main
Enumerating objects: 171, done.
Counting objects: 100% (171/171), done.
Delta compression using up to 8 threads
Compressing objects: 100% (154/154), done.
Writing objects: 100% (171/171), 18.61 MiB | 127.05 MiB/s, done.
Total 171 (delta 18), reused 16 (delta 1), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (18/18), done.
To https://github.com/23-22411-061-rgb/23-22411-061-rgb.github.io.git
 * [new branch]      main -> main

```

[←](#)
[→](#)
[🔍](#)
[github.com/23-22411-061-rgb/23-22411-061-rgb.github.io/settings/pages](#)
[🔖](#)
[★](#)

[🔍](#)
[Code](#)
[Issues](#)
[Pull requests](#)
[Actions](#)
[Projects](#)
[Wiki](#)
[Security](#)
[Insights](#)
[Settings](#)

🔧 General

Access

👤 Collaborators

🔒 Moderation options

Code and automation

🌿 Branches

🏷️ Tags

📁 Rules

🔁 Actions

🔗 Models

🔗 Webhooks

🤖 Copilot

🌐 Environments

📁 Codespaces

📄 Pages

Security

🔒 Advanced Security

🔑 Deploy keys

🔒 Secrets and variables

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

[🌐 Visit site](#)
[🚫 Unpublish site](#)

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](#)

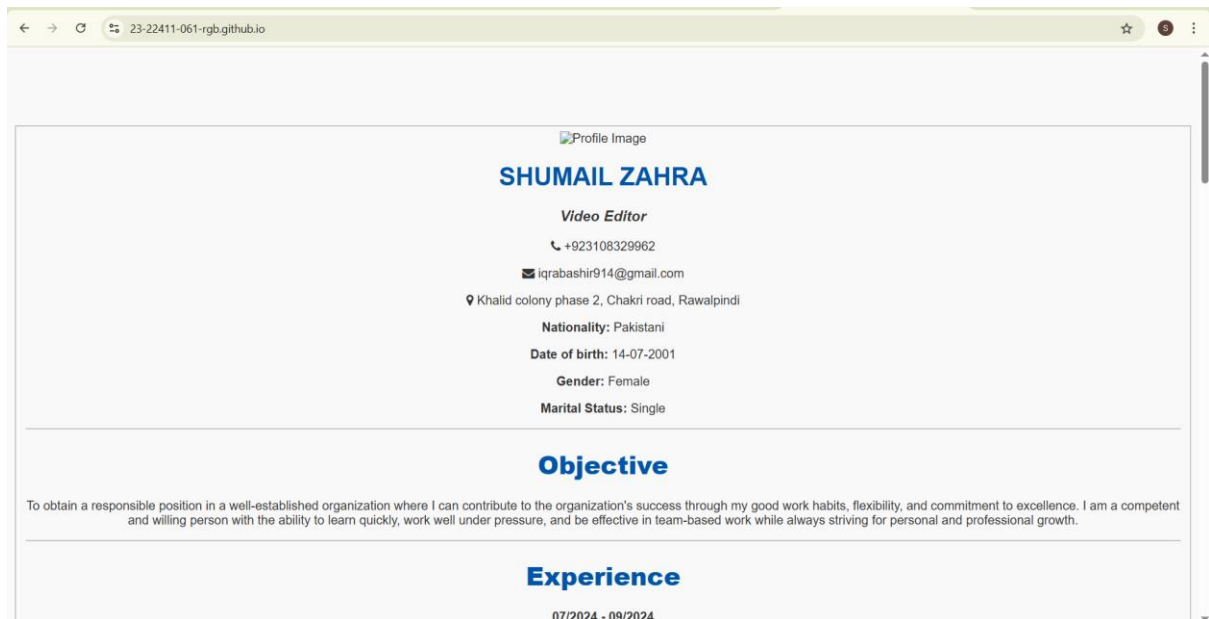
Learn how to [add a Jekyll theme](#) to your site.

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.](#)

[Save](#)
[Remove](#)



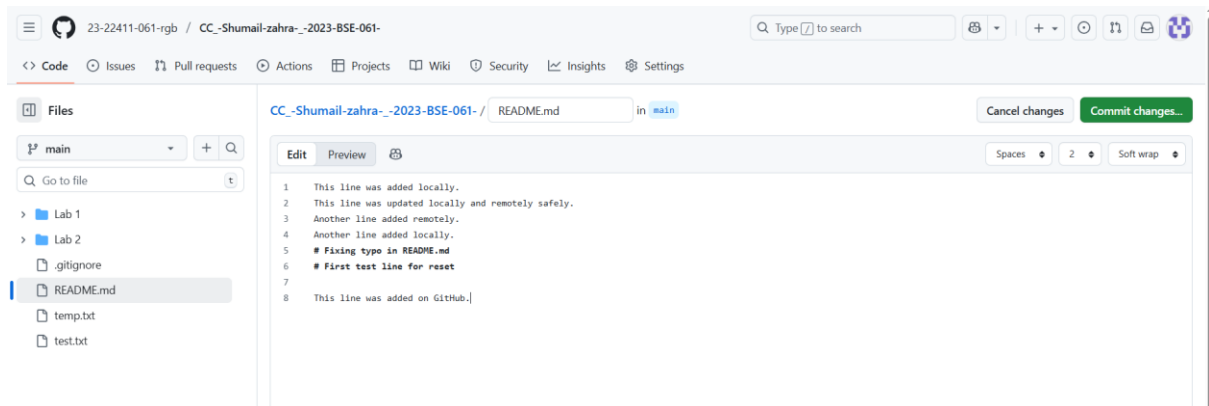
<https://23-22411-061-rgb.github.io/>

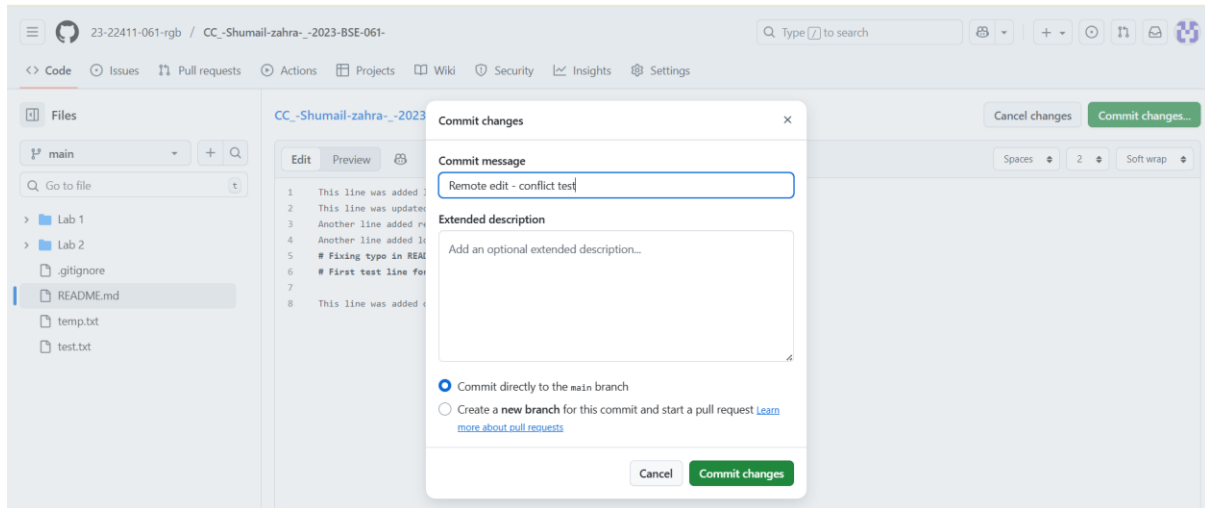
Exam Evaluation Questions

1. Local vs Remote Conflict Resolution

Steps:

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





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.

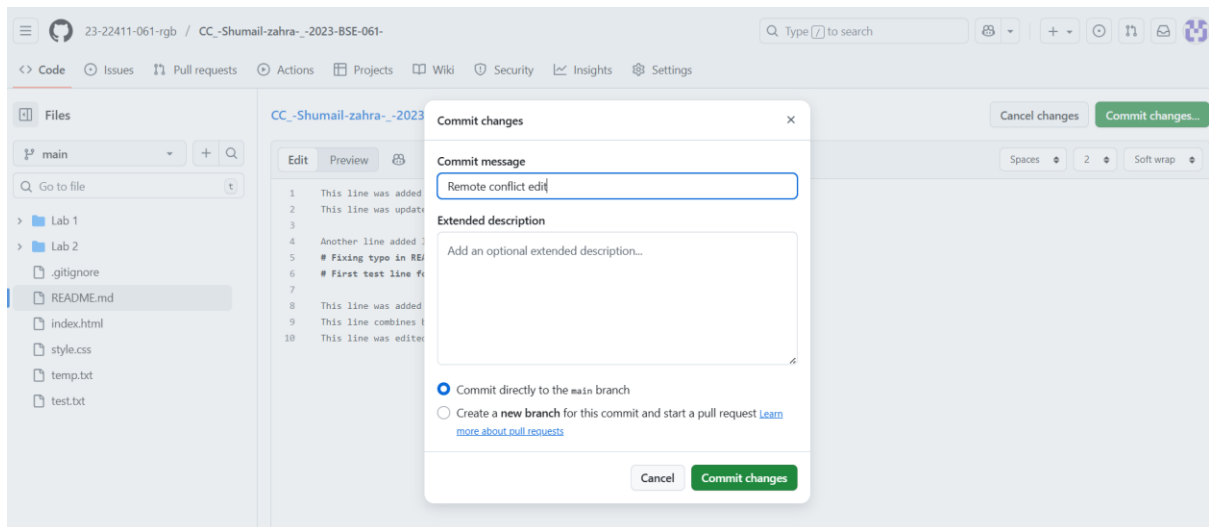
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-_2023-BSE-061- (main)
$ |

```

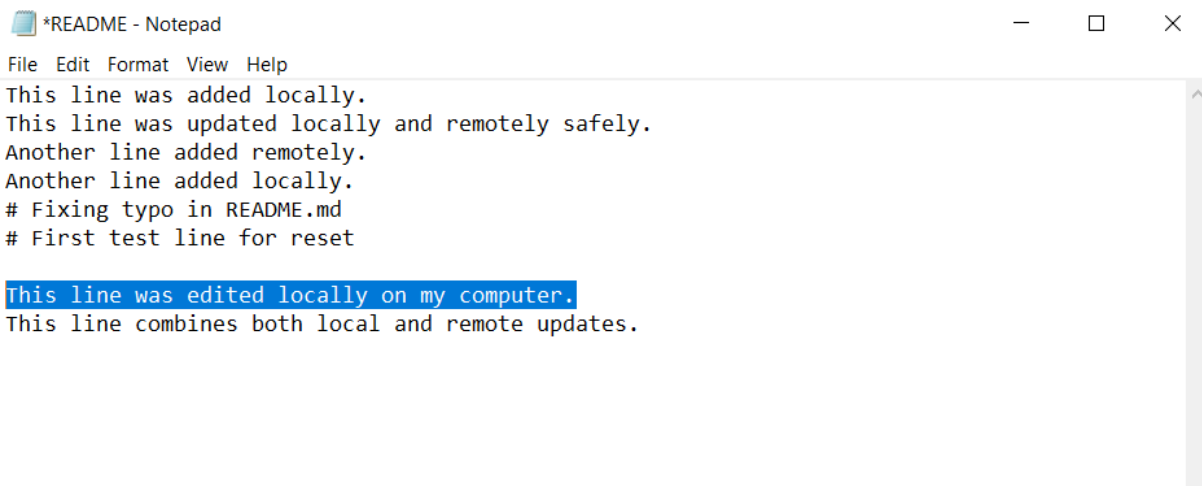
Manual Merge Conflict Handling

Steps:

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



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



```
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

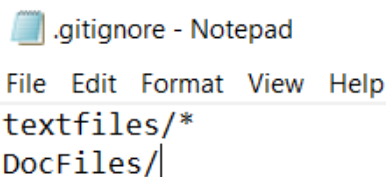
Syed@DESKTOP-S50GK51 MINGW64 ~/CC_-Shumail-zahra_-2023-BSE-061- (main)
$ git commit -m "Add DocFiles folder with sample files"
[main fef676f] Add DocFiles folder with sample files
3 files changed, 5 insertions(+), 3 deletions(-)
create mode 100644 DocFiles/file1.txt
create mode 100644 DocFiles/file2.txt

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.

- Screenshot as Q3_gitignore_added.png



.gitignore - Notepad

File Edit Format View Help

```

textfiles/
DocFiles/

```

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>`.

- Screenshot as Q3_folder_untracked.png

```

fef676f..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
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
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
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
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

```

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.

- 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.

- 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
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
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
aeba7ac Added LAB01_package.zip in Lab 1 folder
05ca9c9 Added placeholder files in Lab 1 and Lab 2 folders
69974fa Added Lab 1 and Lab 2 folders
c5e2f26 Initial commit - Added Lab 1 and Lab 2 folders
```

