



**FATIMA JINNAH WOMEN UNIVERSITY  
RAWALPINDI**

*Department of Software Engineering*

**SUBJECT: CLOUD COMPUTING LAB**

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Reg No: 2023-BSE-057

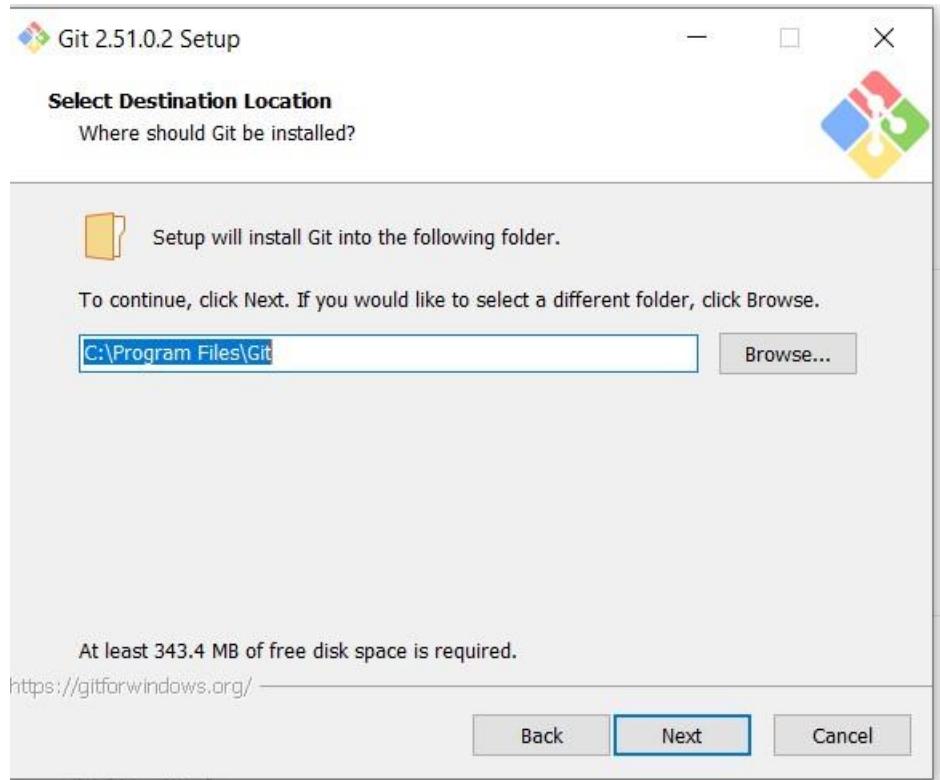
Section: 5-B

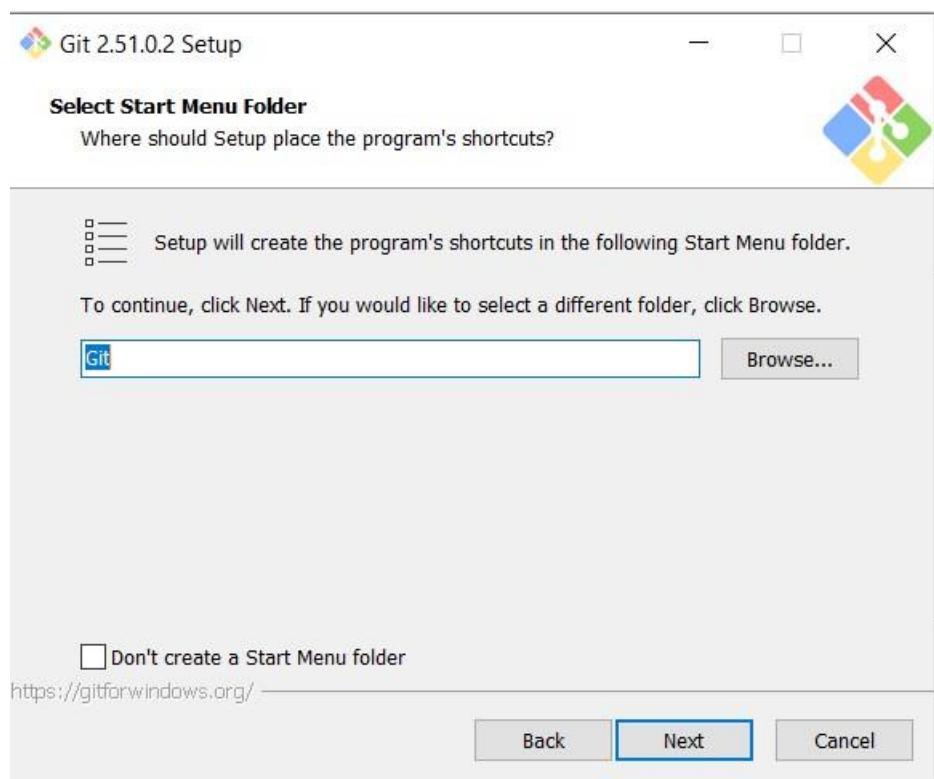
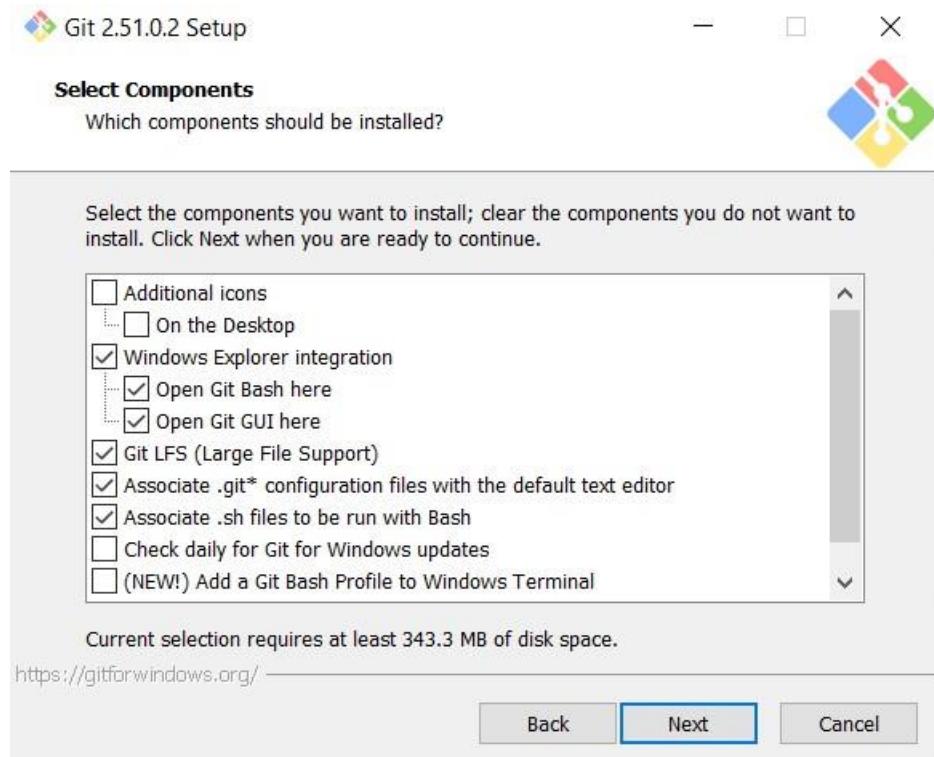
**LAB NO 2:**

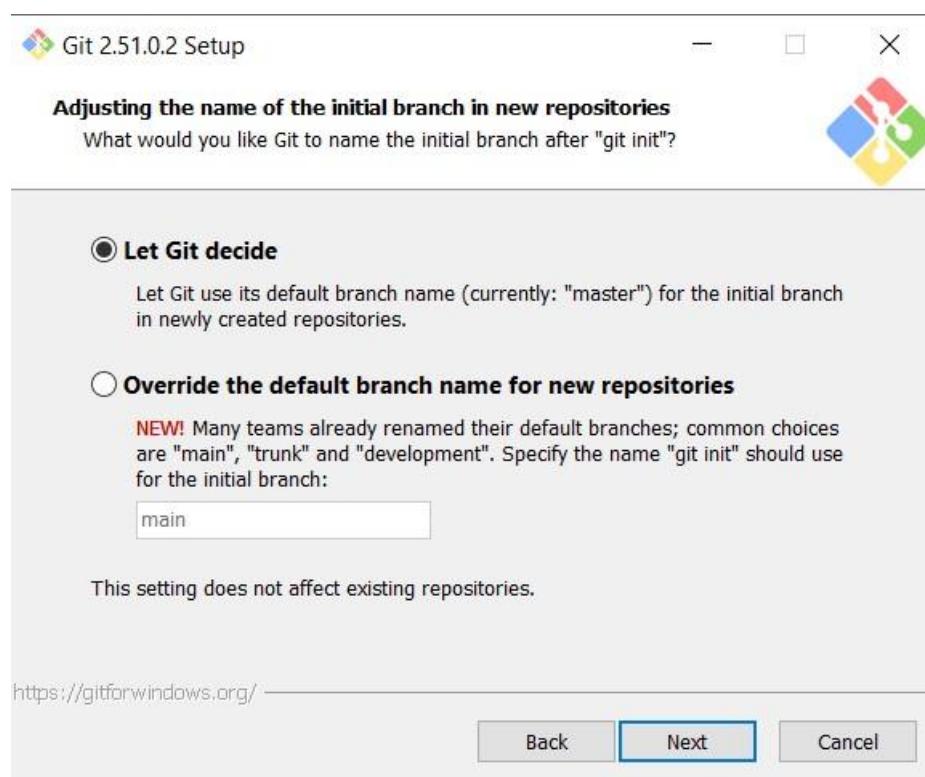
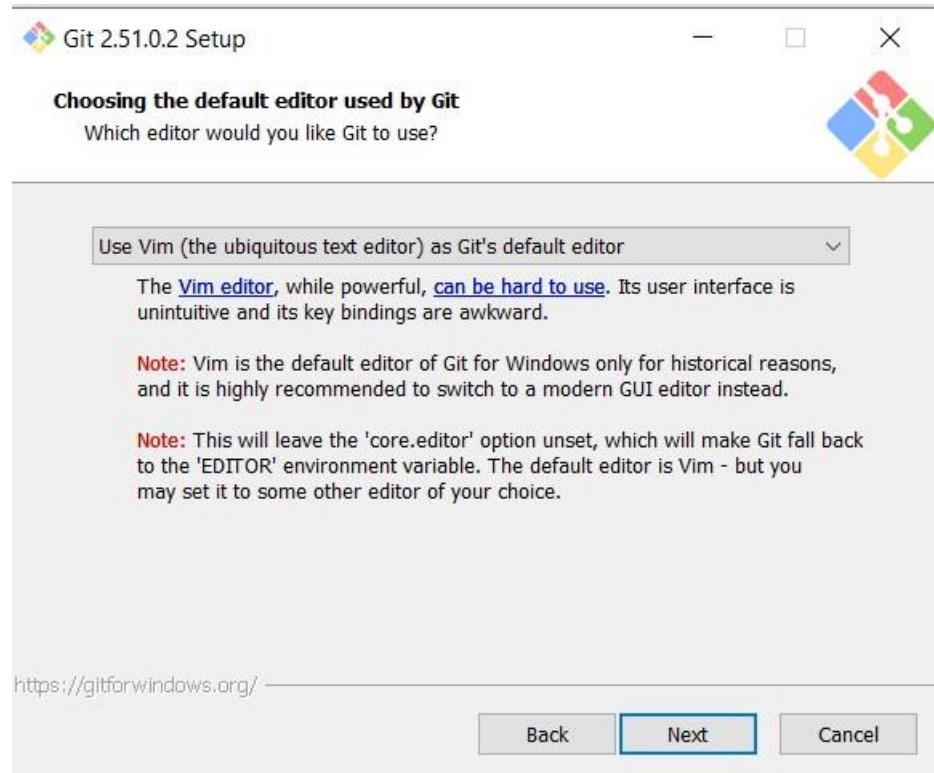
**Git Installation**

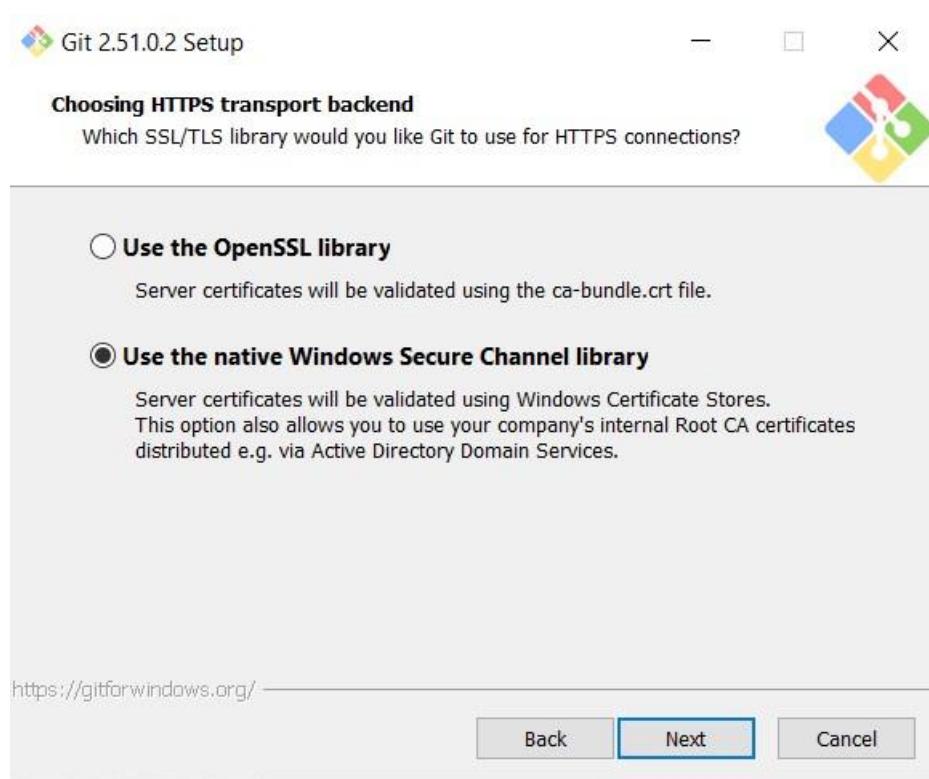
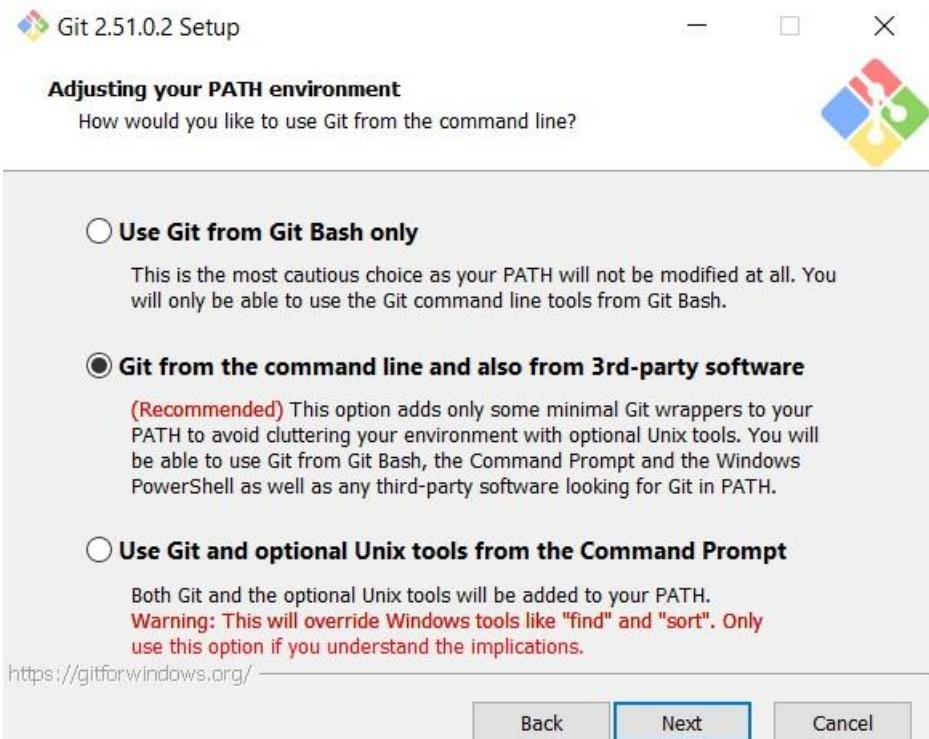
1. Install Git on your PC.

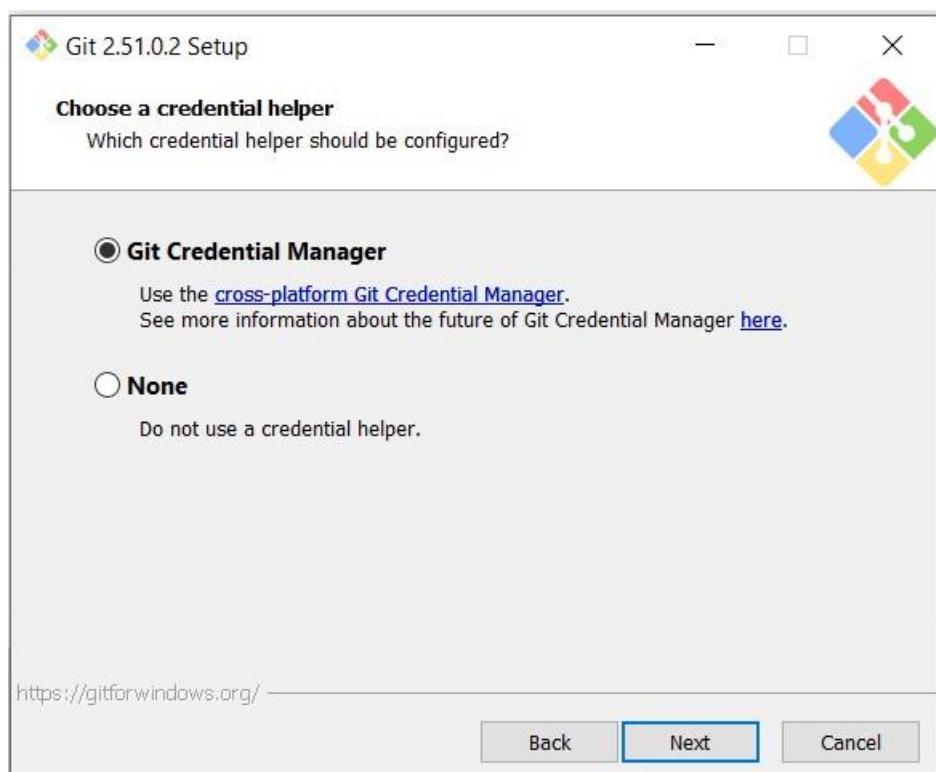
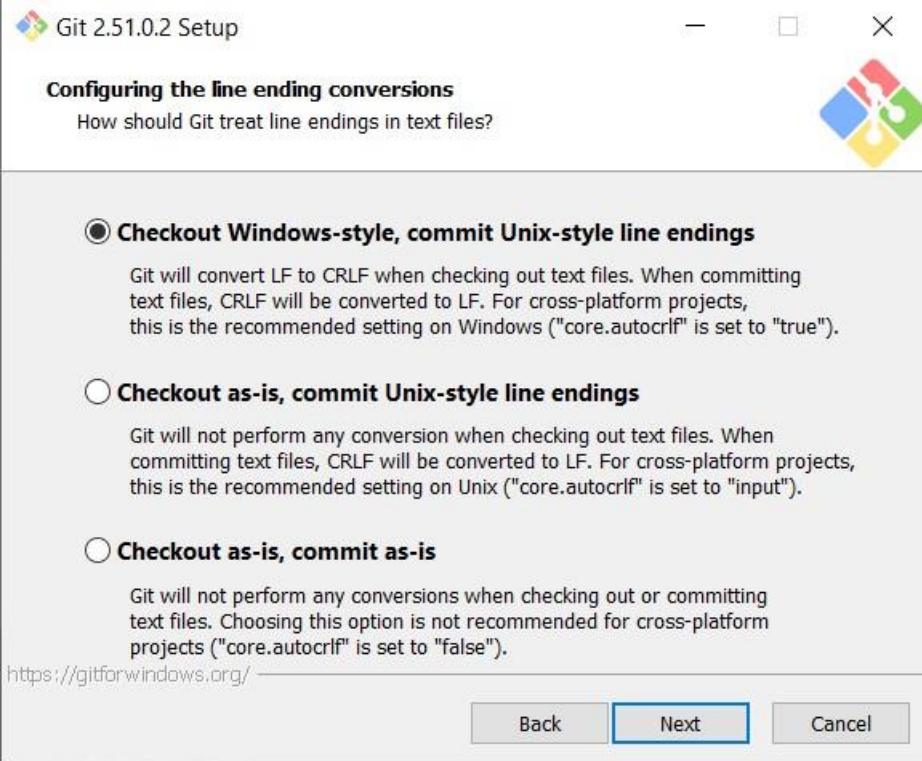
- [Download Git for Windows, Mac, or Linux](https://gitforwindows.org/)

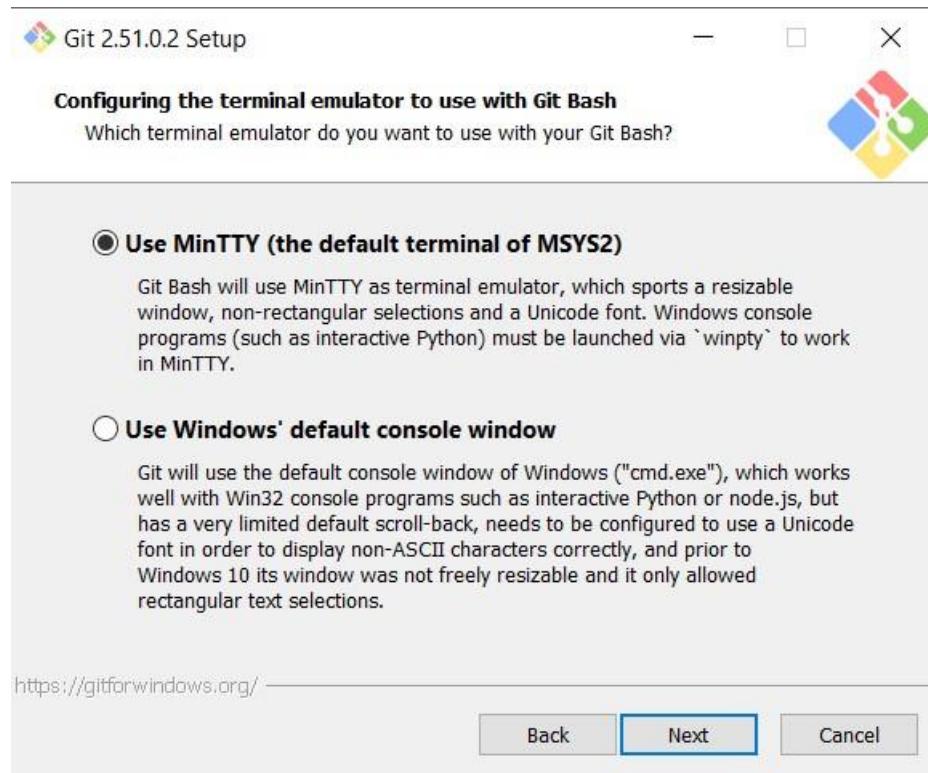
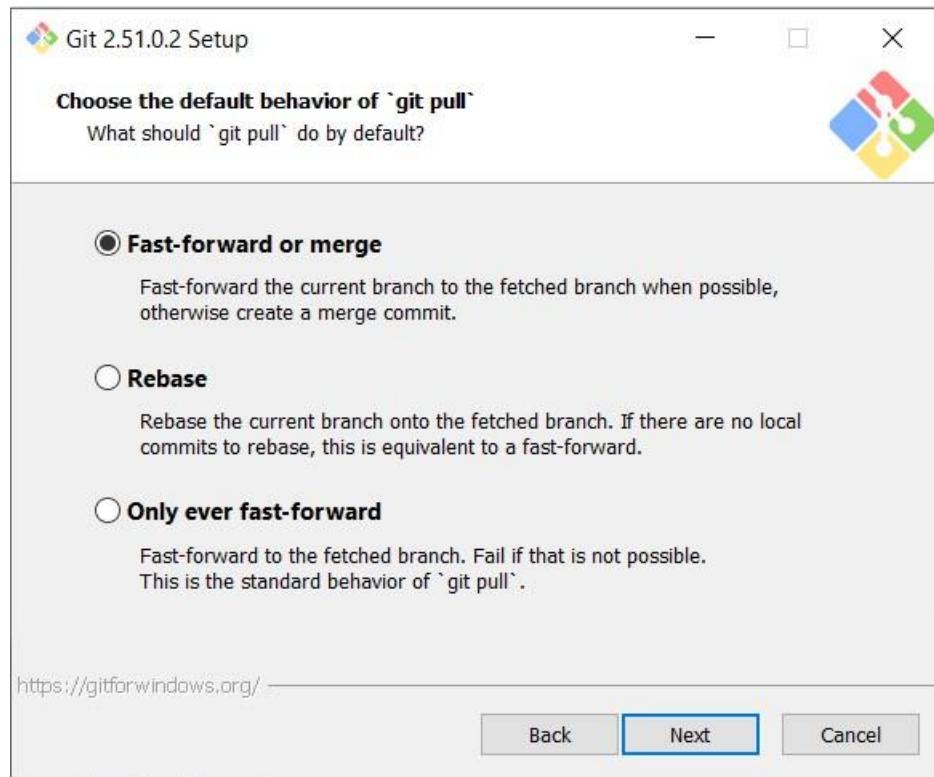


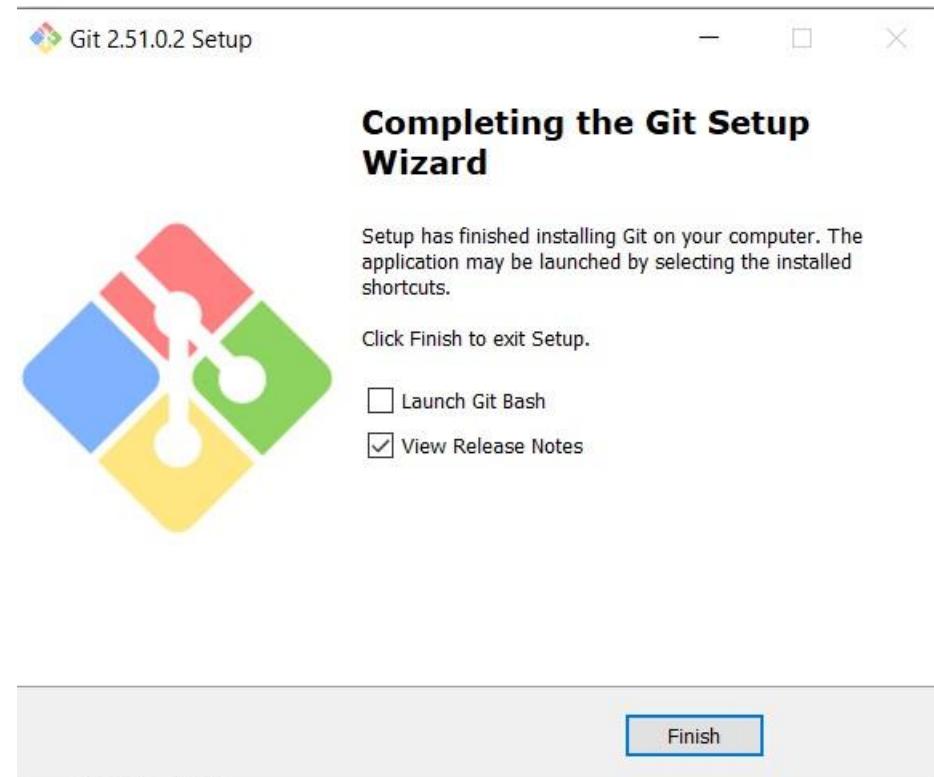
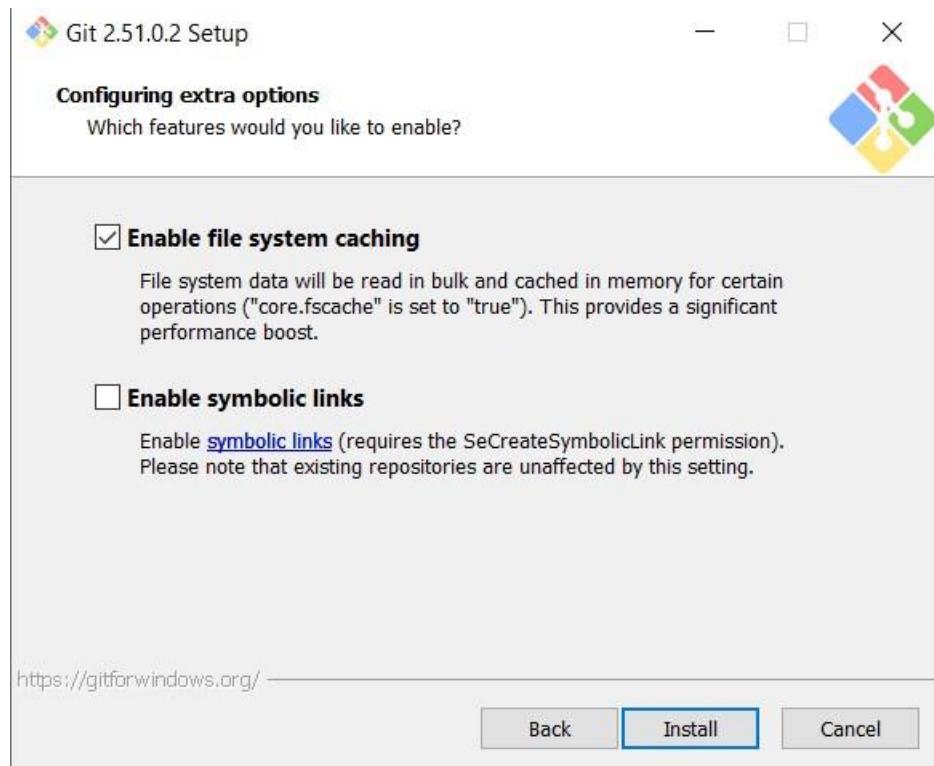












## ○ Task 1:

### Create Private GitHub Repository

1. Create a new private repository named **Lab2** on GitHub.

```
Syed@DESKTOP-S50GK51 MINGW64 ~
$ git --version
git version 2.51.0.windows.2

Syed@DESKTOP-S50GK51 MINGW64 ~
$ |
```

### Create a new repository

Repositories contain a project's files and version history. Have a project elsewhere? [Import a repository](#).  
Required fields are marked with an asterisk (\*).

#### 1 General

Owner \*                          Repository name \*

 23-22411-057-sudo    /    Lab2

Lab2 is available.

Great repository names are short and memorable. How about [literate-system](#)?

#### Description

Lab2 private repository of Cloud computing lab  
46 / 350 characters

#### 2 Configuration

Choose visibility \*                   Private

Choose who can see and commit to this repository

Add README                  On 

READMEs can be used as longer descriptions. [About READMEs](#)

Add .gitignore                  No .gitignore

.gitignore tells git which files not to track. [About ignoring files](#)

Add license                  No license

Licenses explain how others can use your code. [About licenses](#)

2. Take a screenshot of your repo settings showing it's private. Save as `repo_private.png` in your Lab2 repo.

## Danger Zone

### Change repository visibility

This repository is currently private.

[Change visibility](#)

### Disable branch protection rules

Disable branch protection rules enforcement and APIs

[Disable branch protection rules](#)

### Transfer ownership

Transfer this repository to another user or to an organization where you have the ability to create repositories.

[Transfer](#)

### Archive this repository

Mark this repository as archived and read-only.

[Archive this repository](#)

### Delete this repository

Once you delete a repository, there is no going back. Please be certain.

[Delete this repository](#)



Drag additional files here to add them to your repository

Or [choose your files](#)

git\_installation.png

x

repo\_private.png

x



### Commit changes

[Add files via upload](#)

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](#).

[Commit changes](#)

[Cancel](#)

The screenshot shows a GitHub repository named "Lab2". The repository is private. It has 1 branch and 0 tags. There are 2 commits in the main branch. The latest commit, made 4 minutes ago, is titled "Add files via upload" and includes three files: README.md, git\_installation.png, and repo\_private.png. The README file contains the text "Lab2" and a description of it being a private repository for Cloud computing lab.

## O Task 2:

### Connect Repository via SSH

```
PS C:\Users\Syed> ssh-keygen -t ed25519 -C "23-22411-051@ge.fjwu.edu.pk"
>>
Generating public/private ed25519 key pair.
Enter file in which to save the key (C:/Users/Syed/.ssh/id_ed25519):
C:/Users/Syed/.ssh/id_ed25519 already exists.
Overwrite (y/n)?
PS C:\Users\Syed> ssh-keygen -t ed25519 -C "23-22411-051@ge.fjwu.edu.pk" -f "$env:USERPROFILE\.ssh\id_ed25519_lab2"
>>
Generating public/private ed25519 key pair.
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in C:/Users/Syed/.ssh/id_ed25519_lab2
Your public key has been saved in C:/Users/Syed/.ssh/id_ed25519_lab2.pub
The key fingerprint is:
SHA256:/6W+uSuvT0PH9k007xgAioJytfs9TXvEvW2NYcdews 23-22411-051@ge.fjwu.edu.pk
The key's randomart image is:
++-[ED25519 256]++
| . . . . . . |
| . o o . S .o.=o+|
| o . o . .+ . ++0=|
| . . . .+oEoo0|
| .o . oo.=o= |
| .o . 0%+.o|
+---[SHA256]---+
PS C:\Users\Syed> notepad $env:USERPROFILE\.ssh\id_ed25519_lab2.pub
>>
```

 23-22411-057-sudo (23-22411-057-sudo)  
Your personal account

[Go to your personal profile](#)

- [Public profile](#)
- [Account](#)
- [Appearance](#)
- [Accessibility](#)
- [Notifications](#)

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- [Access](#)
- [Billing and licensing](#)
- [Emails](#)
- [Password and authentication](#)
- [Sessions](#)
- [SSH and GPG keys](#)
- [Organizations](#)
- [Enterprises](#)
- [Moderation](#)

### SSH keys

[New SSH key](#)

There are no SSH keys associated with your account.

Check out our guide to [connecting to GitHub using SSH keys](#) or troubleshoot [common SSH problems](#).

### GPG keys

[New GPG key](#)

There are no GPG keys associated with your account.

Learn how to [generate a GPG key and add it to your account](#).

### Vigilant mode

[Flag unsigned commits as unverified](#)  
This will include any commit attributed to your account but not signed with your GPG or S/MIME key.  
Note that this will include your existing unsigned commits.  
[Learn about vigilant mode](#).

```
>>
PS C:\Users\Syed> notepad $env:USERPROFILE\.ssh\id_ed25519_lab2.pub
>>
PS C:\Users\Syed>
```

 23-22411-057-sudo (23-22411-057-sudo)  
Your personal account

[Go to your personal profile](#)

- [Public profile](#)
- [Account](#)
- [Appearance](#)
- [Accessibility](#)
- [Notifications](#)

---

- [Access](#)
- [Billing and licensing](#)
- [Emails](#)
- [Password and authentication](#)

### SSH keys

[New SSH key](#)

This is a list of SSH keys associated with your account. Remove any keys that you do not recognize.

#### Authentication keys

	<b>Lab2 ssh_key</b>	SHA256: /6i+uSuvT0PH9k007xgAioJytfs9TXvEvN2NYcdwv	<a href="#">Delete</a>
<small>SSH</small>	Added on Oct 3, 2025	Never used — Read/write	

Check out our guide to [connecting to GitHub using SSH keys](#) or troubleshoot [common SSH problems](#).

```

PS C:\Users\Syed> cd documents
PS C:\Users\Syed\documents> git clone git@github.com:lab2:yourusername/Lab2.git
>>
Cloning into 'Lab2'...
ssh: Could not resolve hostname github.com:lab2: No such host is known.
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.
PS C:\Users\Syed\documents> Get-ChildItem $env:USERPROFILE\.ssh\config*
>>

    Directory: C:\Users\Syed\.ssh

Mode                LastWriteTime      Length Name
----                -----          ---- 
-a----       10/3/2025   6:14 PM        114 config.txt
-a----       10/3/2025   6:13 PM        102 config1.txt
-a----       10/3/2025   6:14 PM        114 config2.txt

PS C:\Users\Syed\documents> Rename-Item "$env:USERPROFILE\.ssh\config.txt" "$env:USERPROFILE\.ssh\config"
>>
PS C:\Users\Syed\documents> notepad $env:USERPROFILE\.ssh\config
>>
PS C:\Users\Syed\documents> ssh -T git@github.com:lab2
>>
OpenSSH_for_Windows_9.5p1, LibreSSL 3.8.2
debug1: Reading configuration data C:\\\\Users\\\\Syed\\\\.ssh\\\\config
debug1: C:\\\\Users\\\\Syed\\\\.ssh\\\\config line 2: Applying options for github.com:lab2
debug1: Connecting to github.com [20.207.73.82] port 22.
debug1: Connection established.
debug1: identity file C:/\\Users/Syed/.ssh/id_ed25519_lab2 type 3
debug1: identity file C:/\\Users/Syed/.ssh/id_ed25519_lab2-cert type -1
debug1: Local version string SSH-2.0-OpenSSH_for_Windows_9.5
debug1: Remote protocol version 2.0, remote software version 550beff
debug1: compat_banner: no match: 550beff
debug1: Authenticating to github.com:22 as 'git'
debug1: load_hostkeys: fopen C:\\\\Users\\\\Syed\\\\.ssh\\\\known_hosts2: No such file or directory
debug1: load_hostkeys: fopen __PROGRAMDATA__\\\\ssh\\\\ssh_known_hosts: No such file or directory
debug1: load_hostkeys: fopen __PROGRAMDATA__\\\\ssh\\\\ssh_known_hosts2: No such file or directory
debug1: SSH2_MSG_KEXINIT sent

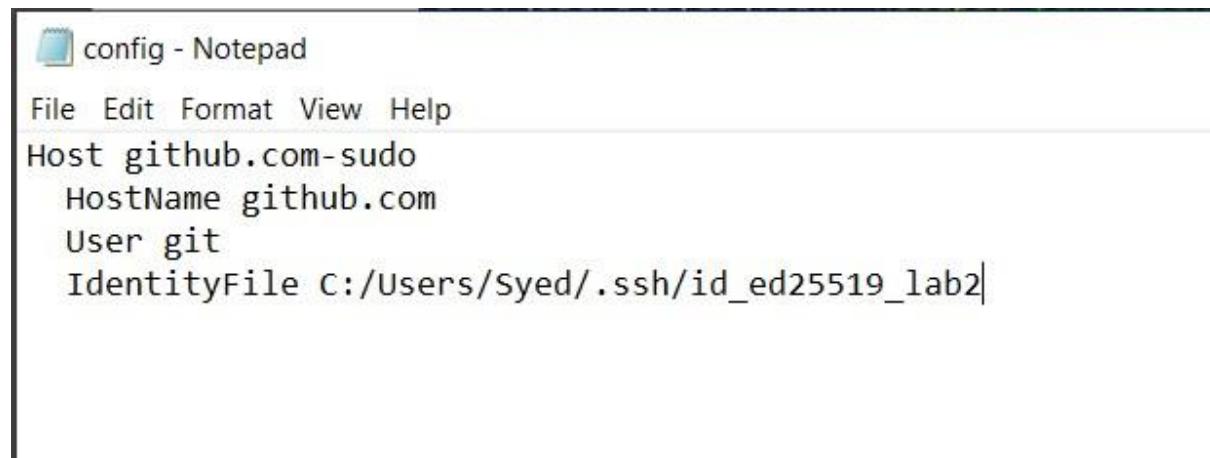
debug1: Found key in C:\\\\Users\\\\Syed\\\\.ssh\\\\known_hosts:4
debug1: ssh_packet_send2_wrapped: resetting send seqnr 3
debug1: rekey out after 134217728 blocks
debug1: SSH2_MSG_NEKEYS sent
debug1: expecting SSH2_MSG_NEKEYS
debug1: ssh_packet_read_poll2: resetting read seqnr 3
debug1: SSH2_MSG_NEKEYS received
debug1: rekey in after 134217728 blocks
debug1: get_agent_identities: ssh_get_authentication_socket: No such file or directory
debug1: Will attempt key: C:/\\Users/Syed/.ssh/id_ed25519_lab2 ED25519 SHA256:/6W+uSuvT0PH9k007xgAioJytfss9TXvEvW2NYcdews explicit
debug1: SSH2_MSG_EXT_INFO received
debug1: kex_input_ext_info: server-sig-algs=<ssh-ed25519-cert-v01@openssh.com,ecdsa-sha2-nistp521-cert-v01@openssh.com,ecdsa-sha2-nistp384-nistp256-cert-v01@openssh.com,sk-ecdsa-sha2-nistp256-cert-v01@openssh.com,rsa-sha2-512-cert-v01@openssh.com,rsa-sha2-256-cert-v01@openssh.com,rsa-sha2-256-ssh-rsa>
debug1: kex_ext_info_check_ver: publickey-hostbound@openssh.com=<0>
debug1: SSH2_MSG_SERVICE_ACCEPT received
debug1: Authentications that can continue: publickey
debug1: Next authentication method: publickey
debug1: Offering public key: C:/\\Users/Syed/.ssh/id_ed25519_lab2 ED25519 SHA256:/6W+uSuvT0PH9k007xgAioJytfss9TXvEvW2NYcdews explicit
debug1: Server accepts key: C:/\\Users/Syed/.ssh/id_ed25519_lab2 ED25519 SHA256:/6W+uSuvT0PH9k007xgAioJytfss9TXvEvW2NYcdews explicit
Authenticated to github.com ([20.207.73.82]:22) using "publickey".
debug1: channel 0: new session [client-session] (inactive timeout: 0)
debug1: Entering interactive session.
debug1: pledge: filesystem
debug1: client_input_global_request: rtype hostkeys-00@openssh.com want_reply 0
debug1: client_input_hostkeys: searching C:\\\\Users\\\\Syed\\\\.ssh\\\\known_hosts for github.com / (none)
debug1: client_input_hostkeys: searching C:\\\\Users\\\\Syed\\\\.ssh\\\\known_hosts2 for github.com / (none)
debug1: client_input_hostkeys: hostkeys file C:\\\\Users\\\\Syed\\\\.ssh\\\\known_hosts2 does not exist
debug1: client_input_hostkeys: no new or deprecated keys from server
debug1: pledge: fork
debug1: client_input_channel_req: channel 0 rtype exit-status reply 0
Hi 23-22411-057-sudo! You've successfully authenticated, but GitHub does not provide shell access.
debug1: channel 0: free: client-session, nchannels 1
Transferred: sent 2112, received 2704 bytes, in 0.8 seconds
Bytes per second: sent 2511.3, received 3215.2
debug1: Exit status 1
PS C:\Users\Syed\documents> ssh -T git@github.com:lab2
>>
Hi 23-22411-057-sudo! You've successfully authenticated, but GitHub does not provide shell access.
PS C:\Users\Syed\documents>

```

```

PS C:\Users\Syed> cd $env:USERPROFILE\.ssh
PS C:\Users\Syed\.ssh> ssh -T git@github.com-lab2
ssh: Could not resolve hostname github.com-lab2: No such host is known.
PS C:\Users\Syed\.ssh> ssh -T git@github.com
ssh: Could not resolve hostname github.com: No such host is known.
PS C:\Users\Syed\.ssh> notepad $env:USERPROFILE\.ssh\config
>>
PS C:\Users\Syed\.ssh> ssh -T git@github.com-sudo
>>
Hi 23-22411-057-sudo! You've successfully authenticated, but GitHub does not provide shell access.
PS C:\Users\Syed\.ssh> git clone git@github.com-sudo:23-22411-057-sudo/Lab2.git
>>
Cloning into 'Lab2'...
remote: Enumerating objects: 7, done.
remote: Counting objects: 100% (7/7), done.
remote: Compressing objects: 100% (6/6), done.
remote: Total 7 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Receiving objects: 100% (7/7), 45.20 KiB | 110.00 KiB/s, done.
PS C:\Users\Syed\.ssh>

```



The screenshot shows a GitHub repository page for "Lab2". The repository has 1 branch and 0 tags. The main branch contains the following files:

File	Commit Message	Time
README.md	Initial commit	1 hour ago
git_installation.png	Add files via upload	1 hour ago
github_ssh_key.png	Add files via upload	now
keygen_shhh.PNG	Add files via upload	now
repo_private.png	Add files via upload	1 hour ago
ssh_keygen.png	Add files via upload	now

## ○ Task 3:

### Configure Git Username and Email

```
PS C:\Users\Syed\documents> git config --global user.name "Saira Ejaz"
PS C:\Users\Syed\documents> git config --global user.email "23-22411-057@se.fjwu.edu.pk"
PS C:\Users\Syed\documents> get config --list
get : The term 'get' is not recognized as the name of a cmdlet, function, script file, or operable pro
again.
At line:1 char:1
+ get config --list
+ ~~~
+ CategoryInfo          : ObjectNotFound: (get:String) [], CommandNotFoundException
+ FullyQualifiedErrorId : CommandNotFoundException

PS C:\Users\Syed\documents> git config --list
diff.astextplain.textconv=astextplain
filter.lfs.clean=git-lfs clean -- %f
filter.lfs.smudge=git-lfs smudge -- %f
filter.lfs.process=git-lfs filter-process
filter.lfs.required=true
http.sslbackend=schannel
core.autocrlf=true
core.fscache=true
core.symlinks=false
pull.rebase=false
credential.helper=manager
credential.https://dev.azure.com.usehttppath=true
init.defaultbranch=master
gui.recentrepo=C:/Users/Syed/xxxxxx
gui.recentrepo=C:/Users/Syed/Lab2
gui.recentrepo=C:/Users/Syed/Pictures/lab 2
user.email=23-22411-057@se.fjwu.edu.pk
user.name=Saira Ejaz
core.sshcommand=C:/Windows/System32/OpenSSH/ssh.exe
core.repositoryformatversion=0
core.filemode=false
core.bare=false
core.logallrefupdates=true
core.symlinks=false
core.ignorecase=true
remote.origin.url=git@github.com:23-22411-061-rgb/lab-2.git
remote.origin.fetch=+refs/heads/*:refs/remotes/origin/*
branch.main.remote=origin
branch.main.merge=refs/heads/master
gui.wmstate=normal
gui.geometry=1109x563+32+32 216 255
PS C:\Users\Syed\documents>
```

```
PS C:\Users\Syed\Documents\lab-2> Move-Item "git_installation.png" "$env:USERPROFILE\Documents\lab-2"
>> Move-Item "repo_private.png" "$env:USERPROFILE\Documents\lab-2"
>> Move-Item "ssh_keygen.png" "$env:USERPROFILE\Documents\lab-2"
>> Move-Item "github_sshkey.png" "$env:USERPROFILE\Documents\lab-2"
>> Move-Item "ssh_clone.png" "$env:USERPROFILE\Documents\lab-2"
>> Move-Item "git_identity.png" "$env:USERPROFILE\Documents\lab-2"
>> Move-Item "git_config_list.png" "$env:USERPROFILE\Documents\lab-2"
>>
PS C:\Users\Syed\Documents\lab-2> cd $env:USERPROFILE\Documents\lab-2
>>
PS C:\Users\Syed\Documents\lab-2> git add *.png
>>
PS C:\Users\Syed\Documents\lab-2> git commit -m "Added all lab screenshots"
>>
[main 80c989d] Added all lab screenshots
 7 files changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 git_config_list.png
 create mode 100644 git_identity.png
 create mode 100644 git_installation.png
 create mode 100644 github_sshkey.png
 create mode 100644 repo_private.png
 create mode 100644 ssh_clone.png
 create mode 100644 ssh_keygen.png
```

```
>>
9c3a1b2 (HEAD -> main, origin/main, origin/HEAD) Added all lab screenshots
6ddb7e Added all lab screenshots
0ba4493 Add files via upload
d806aa2 Add files via upload
956ef3e Delete ssh_keygen.png
87a2995 Delete ssh_clone.png
46d68ac Delete repo_private.png.PNG
ed009f8 Delete github_sshkey.png
034d803 Delete git_installation.png
75b4d48 Delete git_identity.png..PNG
dfa591f Delete git_config_list.png..PNG
7b2b1fa Add files via upload
a873e46 Add files via upload
3baf9bd Add files via upload
PS C:\Users\Syed\Documents\lab-2> git status
>>
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
PS C:\Users\Syed\Documents\lab-2> cd $env:USERPROFILE\Documents\lab-2
>> git add git_identity.png git_config_list.png
>> git commit -m "Added Git identity and config screenshots"
>> git push origin main
>>
On branch main
Your branch is up to date with 'origin/main'.

nothing to commit, working tree clean
Everything up-to-date
```

```

Get-ChildItem "Lab2" -Filter *.png
>> C:\Users\Syed\Documents>

    Directory: C:\Users\Syed\Documents\Lab2

Mode                LastWriteTime        Length Name
----                -----          -----
-a---      10/3/2025  6:47 PM       13844 clone_ssh.PNG
-a---      10/3/2025  8:08 PM      66614 github_ssh_key.png
-a---      10/3/2025  8:08 PM      50735 git_configlist.PNG
-a---      10/3/2025  8:08 PM      12733 git_Identit.PNG
-a---      10/3/2025  6:54 PM       8777 git_installation.png
-a---      10/3/2025  8:08 PM      24984 keygen_sshh.PNG
-a---      10/3/2025  6:54 PM      46191 repo_private.png
-a---      10/3/2025  8:08 PM      44502 ssh_keygen.png

PS C:\Users\Syed\Documents>

```

## ○ Task 4:

Explore the .git Folder

```

PS C:\Users\Syed\Documents> cd Lab2
PS C:\Users\Syed\Documents\Lab2> cd $env:USERPROFILE\Documents\Lab2
PS C:\Users\Syed\Documents\Lab2> ls -Force

    Directory: C:\Users\Syed\Documents\Lab2

Mode                LastWriteTime        Length Name
----                -----          -----
d--h--      10/3/2025  8:09 PM           .git
-a---      10/3/2025  6:47 PM       13844 clone_ssh.PNG
-a---      10/3/2025  8:08 PM      66614 github_ssh_key.png
-a---      10/3/2025  8:08 PM      50735 git_configlist.PNG
-a---      10/3/2025  8:08 PM      12733 git_Identit.PNG
-a---      10/3/2025  6:54 PM       8777 git_installation.png
-a---      10/3/2025  8:08 PM      24984 keygen_sshh.PNG
-a---      10/3/2025  6:54 PM        56 README.md
-a---      10/3/2025  6:54 PM      46191 repo_private.png
-a---      10/3/2025  8:08 PM      44502 ssh_keygen.png

PS C:\Users\Syed\Documents\Lab2>

```

```
PS C:\Users\Syed\Documents\Lab2> Get-ChildItem -Force .git

Directory: C:\Users\Syed\Documents\Lab2\.git

Mode                LastWriteTime      Length Name
----                -----          ---- 
d----       10/3/2025  6:53 PM           hooks
d----       10/3/2025  6:53 PM           info
d----       10/3/2025  6:54 PM           logs
d----       10/3/2025  8:09 PM          objects
d----       10/3/2025  6:54 PM           refs
-a---     10/3/2025  8:07 PM          26 COMMIT_EDITMSG
-a---     10/3/2025  6:54 PM          305 config
-a---     10/3/2025  6:53 PM          73 description
-a---     10/3/2025  8:09 PM          98 FETCH_HEAD
-a---     10/3/2025  6:54 PM          21 HEAD
-a---     10/3/2025  8:08 PM          721 index
-a---     10/3/2025  8:09 PM          41 ORIG_HEAD
-a---     10/3/2025  6:54 PM         112 packed-refs
```

```
PS C:\Users\Syed\Documents\Lab2> ls -Force .git
```

```
Directory: C:\Users\Syed\Documents\Lab2\.git

Mode                LastWriteTime      Length Name
----                -----          ---- 
d----       10/3/2025  6:53 PM           hooks
d----       10/3/2025  6:53 PM           info
d----       10/3/2025  6:54 PM           logs
d----       10/3/2025  8:09 PM          objects
d----       10/3/2025  6:54 PM           refs
-a---     10/3/2025  8:07 PM          26 COMMIT_EDITMSG
-a---     10/3/2025  6:54 PM          305 config
-a---     10/3/2025  6:53 PM          73 description
-a---     10/3/2025  8:09 PM          98 FETCH_HEAD
-a---     10/3/2025  6:54 PM          21 HEAD
-a---     10/3/2025  8:08 PM          721 index
-a---     10/3/2025  8:09 PM          41 ORIG_HEAD
-a---     10/3/2025  6:54 PM         112 packed-refs
```

**In Git Bash:**

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Lab2 (master)
$ cd

Syed@DESKTOP-S50GK51 MINGW64 ~ (main)
$ cd ~/Documents/Lab2

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ ls -a
./ README.md      git_configlist.PNG  keygen_sshh.PNG
../ clone_ssh.PNG  git_installation.png repo_private.png
.git/ git_Identit.PNG  github_ssh_key.png  ssh_keygen.png

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ ls -a .git
./ COMMIT_EDITMSG  HEAD      config      hooks/  info/  objects/  refs/
../ FETCH_HEAD     ORIG_HEAD  description  index   logs/  packed-refs

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ |
```

## O Task 5:

### Local Repository Management

1. Delete existing .git folder

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ cd ~/Documents/Lab2

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ cd

Syed@DESKTOP-S50GK51 MINGW64 ~ (main)
$ rm -rf .git
```

2. Re-initialize Git

```
Syed@DESKTOP-S50GK51 MINGW64 ~
$ git init
Initialized empty Git repository in C:/Users/Syed/.git/
```

3. Add README.md and commit

```
Syed@DESKTOP-S50GK51 MINGW64 ~ (master)
$ echo "# Lab2 Git Practice" > README.md

Syed@DESKTOP-S50GK51 MINGW64 ~ (master)
$ git add README.md
warning: in the working copy of 'README.md', LF will be replaced by CRLF the next time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~ (master)
$ git commit -m "Initial commit"
[master (root-commit) 4d64cc5] Initial commit
 1 file changed, 1 insertion(+)
 create mode 100644 README.md
```

#### 4. Connect to GitHub repo

```
Syed@DESKTOP-S50GK51 MINGW64 ~ (master)
$ git remote add origin git@github.com:23-22411-057-sudo/Lab2.git

Syed@DESKTOP-S50GK51 MINGW64 ~ (master)
$ git push -u origin main
error: src refspec main does not match any
error: failed to push some refs to 'github.com:23-22411-057-sudo/Lab2.git'
```

#### 5. Push to GitHub

```
Syed@DESKTOP-S50GK51 MINGW64 ~ (master)
$ git push -u origin master
ERROR: Repository not found.
fatal: Could not read from remote repository.

Please make sure you have the correct access rights
and the repository exists.

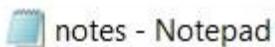
Syed@DESKTOP-S50GK51 MINGW64 ~ (master)
$ |
```

## O Task 6:

### File Status & Staging

#### 1. Create a new file

```
PS C:\Users\Syed\Documents\Lab2> notepad notes.txt
```



#### 2. Check status

```
PS C:\Users\Syed\Documents\Lab2> git status
On branch main
Your branch is up to date with 'origin/main'.

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

nothing added to commit but untracked files present (use "git add" to track)
```

#### 3. Stage and commit

```
PS C:\Users\Syed\Documents\Lab2> git add notes.txt
PS C:\Users\Syed\Documents\Lab2> git commit -m "Add notes.txt"
[main f3e8d8f] Add notes.txt
 1 file changed, 1 insertion(+)
 create mode 100644 notes.txt
PS C:\Users\Syed\Documents\Lab2>
```

## O Task 7:

### Branch Creation Using GitHub GUI

The screenshot shows a GitHub repository named 'Lab2'. The repository is private. It has 2 branches and 0 tags. The main branch is up-to-date with the 'main' branch. There are 4 commits in the '23-22411-057-sudo' branch, which was added via upload. The commits include files like README.md, git\_Identit.PNG, git\_configlist.PNG, git\_installation.png, github\_ssh\_key.png, keygen\_sshh.PNG, repo\_private.png, and ssh\_keygen.png. The commits were made 2 hours ago.

Commit	File	Message	Time
23-22411-057-sudo	README.md	Add files via upload	7eec70a · 2 hours ago
23-22411-057-sudo	git_Identit.PNG	Add files via upload	7eec70a · 2 hours ago
23-22411-057-sudo	git_configlist.PNG	Add files via upload	7eec70a · 2 hours ago
23-22411-057-sudo	git_installation.png	Add files via upload	7eec70a · 2 hours ago
23-22411-057-sudo	github_ssh_key.png	Add files via upload	7eec70a · 2 hours ago
23-22411-057-sudo	keygen_sshh.PNG	Add files via upload	7eec70a · 2 hours ago
23-22411-057-sudo	repo_private.png	Add files via upload	7eec70a · 2 hours ago
23-22411-057-sudo	ssh_keygen.png	Add files via upload	7eec70a · 2 hours ago

```
Syed@DESKTOP-S50GK51 MINGW64 ~ (master)
$ cd ~/Documents/Lab2

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git pull origin bugfix/user-auth-error
From github.com-sudo:23-22411-057-sudo/Lab2
 * branch            bugfix/user-auth-error  -> FETCH_HEAD
 * [new branch]      bugfix/user-auth-error -> origin/bugfix/user-auth-error
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git branch
* main

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ |
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git checkout bugfix/user-auth-error
branch 'bugfix/user-auth-error' set up to track 'origin/bugfix/user-auth-error'.
Switched to a new branch 'bugfix/user-auth-error'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (bugfix/user-auth-error)
$ git branch
* bugfix/user-auth-error
  main

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (bugfix/user-auth-error)
$ |
```

## O Task 8:

### Branch Creation and Push Using Git Bash

1. Create a branch named feature/db-connection using Git Bash:

```
git checkout -b feature/db-connection
```

2. Push the branch to the remote repository: git push origin

```
feature/db-connection
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (bugfix/user-auth-error)
$ git checkout -b feature/db-connection
Switched to a new branch 'feature/db-connection'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature/db-connection)
$ git push origin feature/db-connection
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'feature/db-connection' on GitHub by visiting
remote:     https://github.com/23-22411-057-sudo/Lab2/pull/new/feature/db-connection
remote:
To github.com:sudo:23-22411-057-sudo/Lab2.git
 * [new branch]      feature/db-connection -> feature/db-connection

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature/db-connection)
$ |
```

## O Task 9:

### Branching & Merging

1. Create and switch to a new branch
2. Modify `main.py` (add a function) and commit.
3. Switch back to `main` and merge:
4. Push all branches

```
  main
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature/db-connection)
$ git checkout main
Switched to branch 'main'
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git checkout -b feature-1
Switched to a new branch 'feature-1'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-1)
$ git checkout main
Switched to branch 'main'
Your branch is ahead of 'origin/main' by 1 commit.
  (use "git push" to publish your local commits)

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git add main.py
fatal: pathspec 'main.py' did not match any files

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ ^C

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ ls
README.md      git_configlist.PNG  keygen_sshh.PNG  ssh_keygen.png
clone_ssh.PNG  git_installation.png notes.txt
git_Identit.PNG  github_ssh_key.png  repo_private.png

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ echo "def hello():\n    print('Hello from feature-1')" > main.py

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git add main.py
warning: in the working copy of 'main.py', LF will be replaced by CRLF the next
time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git commit -m "Add new function to main.py"
[main f160fab] Add new function to main.py
 1 file changed, 1 insertion(+)
 create mode 100644 main.py

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (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% (4/4), done.
Writing objects: 100% (6/6), 594 bytes | 84.00 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 github.com-sudo:23-22411-057-sudo/Lab2.git
  7eec70a..f160fab  main -> main

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git push main
fatal: 'main' does not appear to be a git repository
fatal: Could not read from remote repository.
Merge branch 'feature-2'
```

Merge made by the 'ort' strategy.

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git push origin main
Enumerating objects: 2, done.
Counting objects: 100% (2/2), done.
Delta compression using up to 8 threads
Compressing objects: 100% (2/2), done.
Writing objects: 100% (2/2), 338 bytes | 112.00 KiB/s, done.
Total 2 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), done.
To github.com-sudo:23-22411-057-sudo/Lab2.git
  f160fab..a28b864  main -> main
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ 
git push origin feature-1
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
To github.com-sudo:23-22411-057-sudo/Lab2.git
  f3e8d8f..3a2c34d  feature-1 -> feature-1
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ |
```

## O Task 10:

### Pull Request and Branch Review (GitHub GUI)

1. Create a Pull Request

This branch is 4 commits behind [main](#).

File	Commit Message	Time
<a href="#">README.md</a>	Add files via upload	4 hours ago
<a href="#">git_Identit.PNG</a>	Add files via upload	2 hours ago
<a href="#">git_configlist.PNG</a>	Add files via upload	2 hours ago
<a href="#">git_installation.png</a>	Add files via upload	4 hours ago
<a href="#">github_ssh_key.png</a>	Add files via upload	2 hours ago
<a href="#">keygen_shhh.PNG</a>	Add files via upload	2 hours ago
<a href="#">repo_private.png</a>	Add files via upload	4 hours ago
<a href="#">ssh_keygen.png</a>	Add files via upload	2 hours ago

[Open a pull request](#)

Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks. [Learn more about diff comments](#)

## 2. Review and Merge

Pull Request 1 #1

 Open 23-22411-057-sudo wants to merge 4 commits into [feature/db-connection](#) from [main](#) 

Conversation 0    Commits 4    Checks 0    Files changed 2

23-22411-057-sudo commented now

This is My First Pull Request

23-22411-057-sudo added 4 commits 35 minutes ago

- o Add notes.txt f3e8d8f
- o Add new function to main.py f160fab
- o Add new function to main.py 3a2c34d
- o Merge branch 'feature-2' a28b864

No conflicts with base branch  
Merging can be performed automatically.

Merge pull request ▾ You can also merge this with the command line. [View command line instructions](#).

### 3. Delete the branch

The screenshot shows a GitHub pull request merge history. At the top, a comment from user 23-22411-057-sudo is shown, with a link to Reverts #1. Below this, a commit titled "Revert 'Pull Request 1'" is shown, marked as Verified and dated 22ed475. This is followed by a merge commit from 23-22411-057-sudo merging commit cfbe442 into feature/db-connection, with a "Revert" button. A delete commit from 23-22411-057-sudo deleting the revert-1-main branch is also shown, with a "Restore branch" button. A message indicates the pull request was successfully merged and closed. At the bottom, there is a comment input field with "Add a comment" and "Write" and "Preview" buttons.

## O Task 11:

### Detailed Branch Strategy (Develop/Staging)

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git checkout main
Already on 'main'
Your branch is up to date with 'origin/main'.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git pull origin main
From github.com-sudo:23-22411-057-sudo/Lab2
 * branch            main      -> FETCH_HEAD
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git checkout -b develop
Switched to a new branch 'develop'
```

```
Syed@DESKTOP-S5OGK51 MINGW64 ~/Documents/Lab2 (develop)
$ git push origin develop
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'develop' on GitHub by visiting:
remote:     https://github.com/23-22411-057-sudo/Lab2/pull/new/develop
remote:
To github.com:sudo:23-22411-057-sudo/Lab2.git
 * [new branch]      develop -> develop

Syed@DESKTOP-S5OGK51 MINGW64 ~/Documents/Lab2 (develop)
$ git checkout -b staging
Switched to a new branch 'staging'

Syed@DESKTOP-S5OGK51 MINGW64 ~/Documents/Lab2 (staging)
$ git push origin staging
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'staging' on GitHub by visiting:
remote:     https://github.com/23-22411-057-sudo/Lab2/pull/new/staging
remote:
To github.com:sudo:23-22411-057-sudo/Lab2.git
 * [new branch]      staging -> staging
```

## O Bonus Task:

### Simulated Team Collaboration

```
Syed@DESKTOP-S5OGK51 MINGW64 ~/Documents/Lab2 (main)
$ git checkout -b collab
Switched to a new branch 'collab'

Syed@DESKTOP-S5OGK51 MINGW64 ~/Documents/Lab2 (collab)
$ git checkout collab
Already on 'collab'

Syed@DESKTOP-S5OGK51 MINGW64 ~/Documents/Lab2 (collab)
$ git add notes.txt

Syed@DESKTOP-S5OGK51 MINGW64 ~/Documents/Lab2 (collab)
$ git add notes.txt

Syed@DESKTOP-S5OGK51 MINGW64 ~/Documents/Lab2 (collab)
$ git commit -m "I am Saira Ejaz"
On branch collab
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    clone_ssh.PNG

nothing added to commit but untracked files present (use "git add" to track)
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (collab)
$ git push origin collab
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'collab' on GitHub by visiting:
remote:     https://github.com/23-22411-057-sudo/Lab2/pull/new/collab
remote:
To github.com:sudo:23-22411-057-sudo/Lab2.git
 * [new branch]      collab -> collab
i
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (collab)
$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git pull origin main
From github.com:sudo:23-22411-057-sudo/Lab2
 * branch            main      -> FETCH_HEAD
Already up to date.
c1
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git merge collab
Already up to date.
```

### Example Workflow:

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git checkout develop
Already on 'develop'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git pull origin develop
From github.com-sudo:23-22411-057-sudo/Lab2
 * branch            develop    -> FETCH_HEAD
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git merge feature/login-page
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git push origin develop
Everything up-to-date

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git push origin staging
Everything up-to-date

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git merge develop
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git push origin staging
Everything up-to-date
m
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git pull origin main
From github.com-sudo:23-22411-057-sudo/Lab2
 * branch            main      -> FETCH_HEAD
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git merge staging
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git push origin main
Everything up-to-date

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git checkout staging
Switched to branch 'staging'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (staging)
$ git pull origin staging
From github.com-sudo:23-22411-057-sudo/Lab2
 * branch            staging   -> FETCH_HEAD
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git pull origin main
From github.com-sudo:23-22411-057-sudo/Lab2
 * branch           main      -> FETCH_HEAD
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git merge staging
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git push origin main
Everything up-to-date

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git checkout staging
Switched to branch 'staging'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (staging)
$ git pull origin staging
From github.com-sudo:23-22411-057-sudo/Lab2
 * branch           staging     -> FETCH_HEAD
Already up to date.
g
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (staging)
$ git merge develop
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (staging)
$ git push origin staging
Everything up-to-date
gi
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (staging)
$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git pull origin main
From github.com-sudo:23-22411-057-sudo/Lab2
 * branch           main      -> FETCH_HEAD
Already up to date.
s
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git merge staing
merge: staing - not something we can merge

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git merge staging
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git push origin main
Everything up-to-date

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ |
```

## O Task 12:

### Code Review Workflow

#### 1. Create a Pull Request (PR) from a feature branch

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (collab)
$ git checkout main
Switched to branch 'main'
Your branch is up to date with 'origin/main'.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git pull origin main
From github.com-sudo:23-22411-057-sudo/Lab2
 * branch            main      -> FETCH_HEAD
Already up to date.
cl
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git merge collab
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git push origin main
Everything up-to-date

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git checkout -b feature-2
Switched to a new branch 'feature-2'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-2)
$ echo "Print('Feature 2')" > feature2.py

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-2)
$ git add feature2.py
warning: in the working copy of 'feature2.py', LF will be replaced by CRLF the next time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-2)
$ git commit -m "Add feature2.py"
[feature-2 78df11b] Add feature2.py
 1 file changed, 1 insertion(+)
 create mode 100644 feature2.py

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-2)
$ git push origin feature-2
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), 299 bytes | 74.00 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.
remote:
remote: Create a pull request for 'feature-2' on GitHub by visiting:
remote:     https://github.com/23-22411-057-sudo/Lab2/pull/new/feature-2
remote:
To github.com-sudo:23-22411-057-sudo/Lab2.git
 * [new branch]    feature-2 -> feature-2
```

#### 2. On GitHub Website:

The screenshot shows a GitHub repository interface. At the top, there are two notifications: one for 'feature/db-connection' and one for 'feature-2'. Both notifications indicate recent pushes. To the right of each notification is a green button labeled 'Compare & pull request'. Below the notifications is a search bar with the query 'is:pr is:open'. To the right of the search bar are buttons for 'Labels 9', 'Milestones 0', and 'New pull request'. Further down are filters for 'Open' (0) and 'Closed' (2) pull requests, along with dropdown menus for 'Author', 'Label', 'Projects', 'Milestones', 'Reviews', 'Assignee', and 'Sort'. The main content area displays a message: 'There aren't any open pull requests.' followed by a smaller note: 'You could search all of GitHub or try an advanced search.'

## Open a pull request

Create a new pull request by comparing changes across two branches. If you need to, you can also compare across forks. [Learn more about diff comparisons](#)



base: main ▾



compare: feature-2 ▾

...

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



Add a title

Add feature2.py

Add a description

Write

Preview

H B I  $\infty$   $\leftrightarrow$   $\oplus$  |  $\exists$   $\exists$   $\exists$  |

"This PR adds feature2.py for testing Git workflow"

Markdown is supported

Paste, drop, or click to add files

**Create pull request** ▾

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (staging)
$ git checkout develop
Switched to branch 'develop'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git checkout -b feature/login-page
Switched to a new branch 'feature/login-page'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature/login-page)
$ git push origin feature/login-page
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'feature/login-page' on GitHub by visiting:
remote:     https://github.com/23-22411-057-sudo/Lab2/pull/new/feature/login-pa
ge
remote:
To github.com:sudo:23-22411-057-sudo/Lab2.git
 * [new branch]      feature/login-page -> feature/login-page

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature/login-page)
$ git checkout develop
Switched to branch 'develop'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git checkout develop
Already on 'develop'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (develop)
$ git checkout -b bugfix/header-error
Switched to a new branch 'bugfix/header-error'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (bugfix/header-error)
$ git push origin bugfix/header-error
Total 0 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
remote:
remote: Create a pull request for 'bugfix/header-error' on GitHub by visiting:
remote:     https://github.com/23-22411-057-sudo/Lab2/pull/new/bugfix/header-er
ror
remote:
To github.com:sudo:23-22411-057-sudo/Lab2.git
 * [new branch]      bugfix/header-error -> bugfix/header-error

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (bugfix/header-error)
$ |
```

### 3. Assign a Reviewer

In the PR page, on the right sidebar assign a reviewer (your friend, second GitHub account, or just yourself if practicing).

## Manage access

### Add people to Lab2

X

Search by username, full name, or email

Q 23-22411-061



23-22411-061-rgb  
Invite collaborator

Cancel

Add to repository

#### Direct access



1 entity has access to this repository. [0 collaborators](#). [1 invitation](#).

Add people

## Manage access

<input type="checkbox"/> Select all	Type
<input type="text"/> Find a collaborator...	
<input type="checkbox"/> 23-22411-061-rgb	Awaiting 23-22411-061-rgb's response
Pending Invite	



[23-22411-057-sudo](#) invited you to collaborate on  
23-22411-057-sudo/Lab2

[Accept invitation](#)

[Decline invitation](#)

Owners of Lab2 will be able to see:

- Your public profile information
- [Certain activity](#) within this repository
- Country of request origin
- Your access level for this repository
- Your IP address

Is this user sending spam or malicious content?

[Block 23-22411-057-sudo](#)

Lab2 <small>(Private)</small>			<a href="#">Watch</a>
main	10 Branches	0 Tags	<a href="#">Go to file</a> <a href="#">t</a> <a href="#">Add file</a> <a href="#">Code</a>
23-22411-057-sudo Merge branch 'feature-2'	a28b864 · 1 hour ago	<a href="#">8 Commits</a>	
README.md	Initial commit	5 hours ago	
git_Identit.PNG	Add files via upload	3 hours ago	
git_configlist.PNG	Add files via upload	3 hours ago	
git_installation.png	Add files via upload	5 hours ago	
github_ssh_key.png	Add files via upload	3 hours ago	
keygen_sshh.PNG	Add files via upload	3 hours ago	
main.py	Add new function to main.py	1 hour ago	
notes.txt	Add notes.txt	1 hour ago	
repo_private.png	Add files via upload	5 hours ago	
ssh_keygen.png	Add files via upload	3 hours ago	

Add draft note for API endpoint #3

1 Open 23-22411-061-rgb wants to merge 1 commit into `main` from `feature/api-endpoint`

Conversation 0 Commits 1 Checks 0 Files changed 1

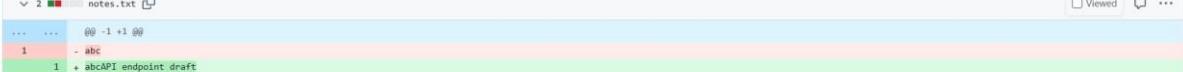
Changes from all commits ▾ File filter ▾ Conversations ▾ Jump to ▾

notes.txt

```
@@ -1 +1 @@
- abc
+ abcAPI endpoint draft
```

0 / 1 files viewed Review in codespace Review changes

Viewed ...



## Add draft note for API endpoint #3

1 Open 23-22411-061-rgb wants to merge 1 commit into `main` from `feature/api-endpoint`

Conversation 0 Commits 1 Checks 0 Files changed 1

Changes from all commits ▾ File filter ▾ Conversations ▾ Jump to ▾

notes.txt

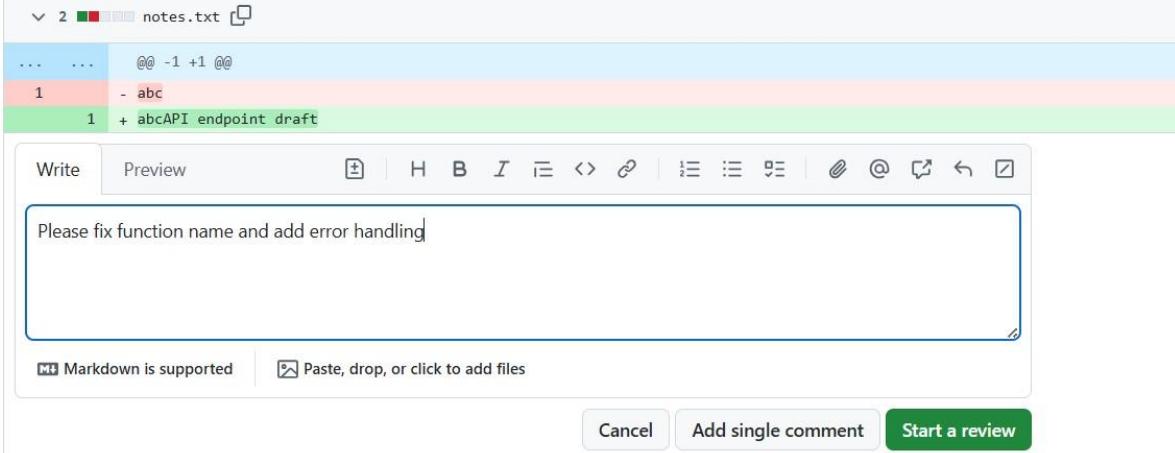
```
@@ -1 +1 @@
- abc
+ abcAPI endpoint draft
```

Write Preview

Please fix function name and add error handling

Markdown is supported Paste, drop, or click to add files

Cancel Add single comment Start a review



#### 4. Reviewer Actions and Approves:

If Athor approves then ok if not then he or shep made changes himself.

```

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-2)
$ git checkout feature-hello
error: pathspec 'feature-hello' did not match any file(s) known to git

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-2)
$ ^C

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-2)
$ git checkout -b feature-hello
Switched to a new branch 'feature-hello'

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ echo "def say_hello():\n    print('Hello World')" > main.py

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ cat main.py
def say_hello():\n    print('Hello World')

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git add main.py
warning: in the working copy of 'main.py', LF will be replaced by CRLF the next time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git commit -m "Add say_hello function with fixed message"
[feature-hello 9d1eb44] Add say_hello function with fixed message
 1 file changed, 1 insertion(+), 1 deletion(-)

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git push origin feature-hello
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), 331 bytes | 66.00 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.
remote:
remote: Create a pull request for 'feature-hello' on GitHub by visiting:
remote:     https://github.com/23-22411-057-sudo/Lab2/pull/new/feature-hello
remote:
To github.com:sudo:23-22411-057-sudo/Lab2.git
 * [new branch]      feature-hello -> feature-hello

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ |

```

## Add draft note for API endpoint #3

[Open](#) 23-22411-061-rgb wants to merge 1 commit into `main` from `feature/api-endpoint` [Diff](#)

The screenshot shows a GitHub pull request interface. At the top, there are tabs for Conversation (0), Commits (1), Checks (0), and Files changed (1). Below these are filters for Changes from all commits, File filter, Conversations, Jump to, and a settings icon.

The main area displays a diff for a file named `notes.txt`. The diff shows:

```

@@ -1 +1 @@
- abc
+ abcAPI endpoint draft

```

Below the diff, there is a text input field containing the note: "Please update say\_hello() so it accepts a name parameter and prints Hello <name> instead of always 'Hello World'". There are "Write" and "Preview" buttons above the text area.

At the bottom, there are buttons for "Cancel", "Add single comment", and "Start a review". A note at the bottom says "Markdown is supported".

## 5. Update the file main.py

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ echo "def say_hello(name):" > main.py

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ echo "    print(f\"Hello {name}\")" >> main.py

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ echo "" >> main.py

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ echo "if __name__ == \"__main__\":" >> main.py

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ echo "    say_hello(\"Saira\")" >> main.py

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ cat main.py
def say_hello(name):
    print(f"Hello {name}")

if __name__ == "__main__":
    say_hello("Saira")

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git add main.py
fatal: pathspec 'main.pay' did not match any files

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git add maain.py
fatal: pathspec 'maain.py' did not match any files

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git main.py
git: 'main.py' is not a git command. See 'git --help'.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git add main.py
warning: in the working copy of 'main.py', LF will be replaced by CRLF the next
time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git commit -m "Update say_hello to accept a name parameter"
[feature-hello 289a0bd] Update say_hello to accept a name parameter
 1 file changed, 5 insertions(+), 1 deletion(-)

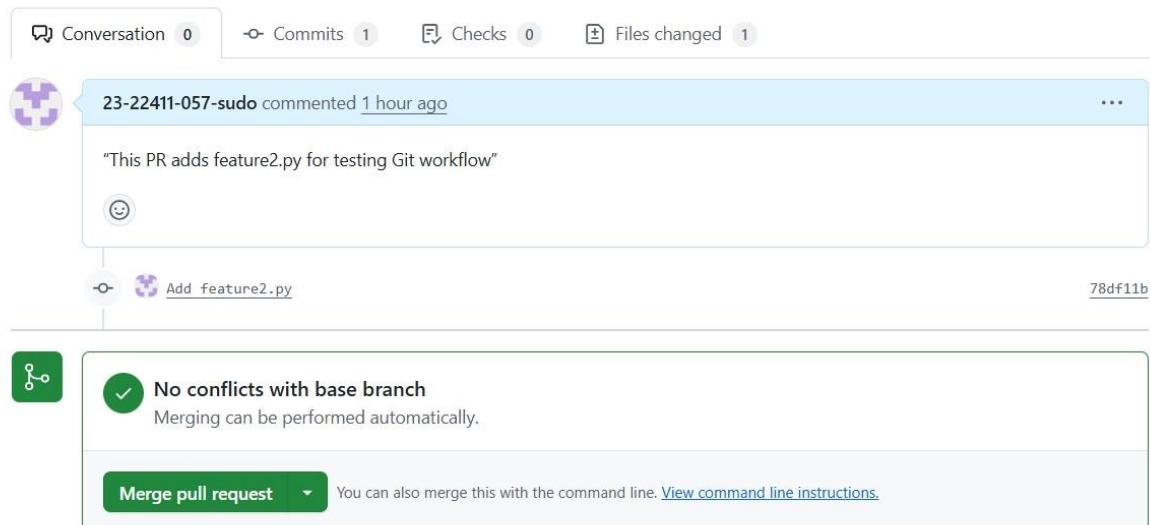
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git push origin feature-hello
Enumerating objects: 5, done.
Counting objects: 100% (5/5), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 370 bytes | 185.00 KiB/s, done.
Total 3 (delta 1), reused 0 (delta 0), pack-reused 0 (from 0)
remote: Resolving deltas: 100% (1/1), completed with 1 local object.
To github.com-sudo:23-22411-057-sudo/Lab2.git
 9d1eb44..289a0bd  feature-hello -> feature-hello

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
```

## 6. Merge the PR:

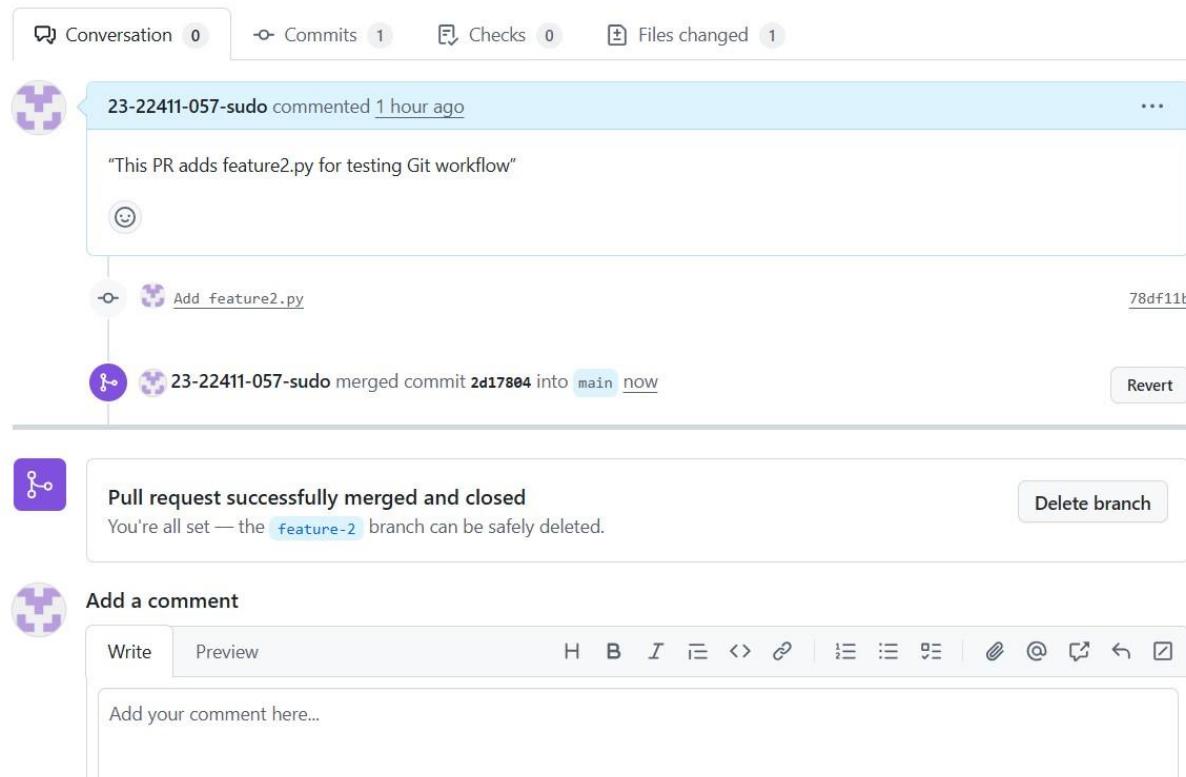
## Add feature2.py #3

 Open 23-22411-057-sudo wants to merge 1 commit into [main](#) from [feature-2](#) 



## Add feature2.py #3

 Merged 23-22411-057-sudo merged 1 commit into main from feature-2 ⏺ now



## 7. Branch handling after merge Delete the branch

 Pull request successfully merged and closed

You're all set — the [feature-2](#) branch can be safely deleted.

[Delete branch](#)

---

 Add a comment

[Write](#) [Preview](#) 

Add your comment here...

---

 Markdown is supported  Paste, drop, or click to add files

 Comment

## Keep the branch

- Keep the branch if you plan more work on it.
  - Document the reason in a file called REVIEW NOTES.md

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ echo "# REVIEW_NOTES.md" > REVIEW_NOTES.md
echo "" >> REVIEW_NOTES.md
echo "## feature-hello branch" >> REVIEW_NOTES.md
echo "- Kept after merge for possible future enhancements." >> REVIEW_NOTES.md
echo "- Original change: Updated say_hello() to accept a name parameter." >> REVIEW_NOTES.md

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ cat REVIEW_NOTES.md
# REVIEW_NOTES.md

## feature-hello branch
- Kept after merge for possible future enhancements.
- Original change: Updated say_hello() to accept a name parameter.

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git add REVIEW_NOTES.md
git commit -m "Add branch handling notes after PR merge"
git push origin feature-hello
warning: in the working copy of 'REVIEW_NOTES.md', LF will be replaced by CRLF the next time Git touches it
[feature-hello 1271070] Add branch handling notes after PR merge
1 file changed, 5 insertions(+)
create mode 100644 REVIEW_NOTES.md
Enumerating objects: 4, done.
Counting objects: 100% (4/4), done.
Delta compression using up to 8 threads
Compressing objects: 100% (3/3), done.
Writing objects: 100% (3/3), 440 bytes | 88.00 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 github.com:sudo-23-22411-057-sudo/Lab2.git
  289a0bd..1271070  feature-hello -> feature-hello

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
```

### ○ Task 13:

## Branch Cleanup Best Practices

- ## 1. Delete the Remote Branch via GitHub UI

 23-22411-057-sudo deleted the `feature-2` branch [now](#)

 **Pull request successfully merged and closed**  
You're all set — the branch has been merged.

 **Add a comment**

Write Preview [H](#) [B](#) [I](#) [≡](#) [↔](#) [∅](#) | [≡](#) [≡](#) [≡](#) | [@](#) [↗](#) [↶](#) [□](#)

Add your comment here...

[Markdown is supported](#) | [Paste, drop, or click to add files](#)

[Comment](#)

 Remember, contributions to this repository should follow our [GitHub Community Guidelines](#).

 **ProTip!** Add `.patch` or `.diff` to the end of URLs for Git's plaintext views.

## 2. Git Bash command to verify deletion (optional)

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git fetch -p
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ git fetch -p
From github.com-sudo:23-22411-057-sudo/Lab2
 - [deleted]          (none)           -> origin/feature-2
remote: Enumerating objects: 4, done.
remote: Counting objects: 100% (4/4), done.
remote: Compressing objects: 100% (4/4), done.
remote: Total 4 (delta 0), reused 0 (delta 0), pack-reused 0 (from 0)
Unpacking objects: 100% (4/4), 3.42 KiB | 102.00 KiB/s, done.
  7eec70a..cfbe442  feature/db-connection -> origin/feature/db-connection
  a28b864..2d17804  main               -> origin/main
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (feature-hello)
$ |
```

## 3. Update your Local Repository

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git branch -d feature-hello
error: the branch 'feature-hello' is not fully merged
hint: If you are sure you want to delete it, run 'git branch -D feature-hello'
hint: Disable this message with "git config set advice.forceDeleteBranch false"

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ git branch
  bugfix/header-error
  bugfix/user-auth-error
  collab
  develop
  feature-1
  feature-2
  feature-hello
  feature/db-connection
  feature/login-page
* main
  staging

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab2 (main)
$ |
```

## Exam Evaluation — Step-by-Step Solution Guide

### Q1 — Advanced Branching & Merge Verification

#### Step 1: Create a new branch

```
git checkout -b Q1-branch
```

#### Step 2: Make a small change and commit

```
echo "This is a test for Q1" >> notes.txt
git add notes.txt
git commit -m "Q1: Added test note"
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab1 (Q1-branch)
$ echo "This is a test for Q1" >> notes.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab1 (Q1-branch)
$ git add notes.txt
warning: in the working copy of 'notes.txt', LF will be replaced by CRLF the
t time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab1 (Q1-branch)
$ git commit -m "Q1: Added test note"
[Q1-branch e59ac6b] Q1: Added test note
 1 file changed, 1 insertion(+)
  create mode 100644 notes.txt

Syed@DESKTOP-S50GK51 MINGW64 ~/Documents/Lab1 (Q1-branch)
$ |
```

#### Step 3: Merge this branch into main

```
git checkout main
git merge Q1-branch
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~ (master)
$ git checkout -b Q1-branch
Switched to a new branch 'Q1-branch'

Syed@DESKTOP-S50GK51 MINGW64 ~ (Q1-branch)
$ git checkout main
error: pathspec 'main' did not match any file(s) known to git

Syed@DESKTOP-S50GK51 MINGW64 ~ (Q1-branch)
$ git merge Q1-branch
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~ (Q1-branch)
$ |
```

#### Step 4: Verify merge history

```
git log --oneline --graph --decorate --all
Syed@DESKTOP-S50GK51 MINGW64 ~ (Q1-branch)
$ git log --oneline --graph --decorate --all
* 4d64cc5 (HEAD -> Q1-branch, master) Initial commit

Syed@DESKTOP-S50GK51 MINGW64 ~ (Q1-branch)
$ |
```

## Q2 — Multi-Stage Workflow Simulation

#### Step 1: Create main, develop, and staging branches

```
git checkout main
git checkout -b develop
git checkout -b staging

Syed@DESKTOP-S50GK51 MINGW64 ~ (Q1-branch)
$ git checkout main
error: pathspec 'main' did not match any file(s) known to git

Syed@DESKTOP-S50GK51 MINGW64 ~ (Q1-branch)
$ git checkout -b develop
Switched to a new branch 'develop'

Syed@DESKTOP-S50GK51 MINGW64 ~ (develop)
$ git checkout -b staging
Switched to a new branch 'staging'

Syed@DESKTOP-S50GK51 MINGW64 ~ (staging)
$ |
```

#### Step 2: Create a feature branch from develop

```
git checkout develop
git checkout -b feature-Q2
echo "Feature Q2 change" >> notes.txt
```

```
git add notes.txt  
git commit -m "Q2: Added feature from develop"
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~ (staging)  
$ git checkout develop  
A     notes.txt  
Switched to branch 'develop'  
  
Syed@DESKTOP-S50GK51 MINGW64 ~ (develop)  
$ git checkout -b feature-Q2  
Switched to a new branch 'feature-Q2'  
  
Syed@DESKTOP-S50GK51 MINGW64 ~ (feature-Q2)  
$ echo "Feature Q2 change" >> notes.txt  
  
Syed@DESKTOP-S50GK51 MINGW64 ~ (feature-Q2)  
$ git add notes.txt  
warning: in the working copy of 'notes.txt', LF will be replaced by CRLF the next time Git touches it  
  
Syed@DESKTOP-S50GK51 MINGW64 ~ (feature-Q2)  
$ git commit -m "Q2: Added feature from develop"  
[feature-Q2 e1cbe8c] Q2: Added feature from develop  
 1 file changed, 2 insertions(+)  
  create mode 100644 notes.txt
```

### Step 3: Merge feature → develop

```
git checkout develop  
git merge feature-Q2
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~ (feature-Q2)  
$ git checkout develop  
Switched to branch 'develop'  
  
Syed@DESKTOP-S50GK51 MINGW64 ~ (develop)  
$ git merge feature-Q2  
Updating 4d64cc5..e1cbe8c  
Fast-forward  
  notes.txt | 2 ++  
  1 file changed, 2 insertions(+)  
  create mode 100644 notes.txt  
  
Syed@DESKTOP-S50GK51 MINGW64 ~ (develop)  
$ |
```

### Step 4: Merge develop → staging

```
git checkout staging  
git merge develop
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~ (develop)
$ git checkout staging
Switched to branch 'staging'

Syed@DESKTOP-S50GK51 MINGW64 ~ (staging)
$ git merge develop
Updating 4d64cc5..e1cbe8c
Fast-forward
 notes.txt | 2 ++
 1 file changed, 2 insertions(+)
 create mode 100644 notes.txt

Syed@DESKTOP-S50GK51 MINGW64 ~ (staging)
$ |
```

### Step 5: Merge staging → main

```
git checkout main
git merge staging

Syed@DESKTOP-S50GK51 MINGW64 ~ (staging)
$ git checkout main
error: pathspec 'main' did not match any file(s) known to git

Syed@DESKTOP-S50GK51 MINGW64 ~ (staging)
$ git merge staging
Already up to date.

Syed@DESKTOP-S50GK51 MINGW64 ~ (staging)
$ |
```

## Q3 — Collaboration & Conflict Resolution

This simulates two users working on the same file

### Step 1: Two users / two branches modify same file

**You:**

```
git checkout -b collab-branch-A
echo "Line from User A" >> team.txt
git add team.txt
git commit -m "User A: Added line"
```

**Collaborator (or simulate yourself):**

```
git checkout -b collab-branch-B main
echo "Line from User B" >> team.txt
git add team.txt
git commit -m "User B: Added line"
```

```
Syed@DESKTOP-S50GK51 MINGW64 ~ (staging)
$ git checkout -b collab-branch-A
Switched to a new branch 'collab-branch-A'

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ echo "Line from User A" >> team.txt

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ echo "Line from User A" >> team.txt

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ git add team.txt
warning: in the working copy of 'team.txt', LF will be replaced by CRLF the next
time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ git commit -m "User A: Added line"
[collab-branch-A f247d9d] User A: Added line
 1 file changed, 2 insertions(+)
 create mode 100644 team.txt

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ git checkout -b collab-branch-B main
fatal: 'main' is not a commit and a branch 'collab-branch-B' cannot be created f
rom it

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ echo "Line from User B" >> team.txt

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ git add team.txt
warning: in the working copy of 'team.txt', LF will be replaced by CRLF the next
time Git touches it

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ git commit -m "User B: Added line"
[collab-branch-A 989c8f6] User B: Added line
 1 file changed, 1 insertion(+)

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ |
```

## Step 2: Try to merge — create conflict

```
git checkout collab-branch-A
git merge collab-branch-B

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ git checkout collab-branch-A
Already on 'collab-branch-A'

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ git merge collab-branch-B
merge: collab-branch-B - not something we can merge

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ |
```

## Step 3: Resolve the conflict

Open `team.txt` in any editor → combine both lines:

 team - Notepad

File Edit Format View Help

Line from User A  
Line from User B

```
Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ git add team.txt

Syed@DESKTOP-S50GK51 MINGW64 ~ (collab-branch-A)
$ git commit -m "Resolved conflict: kept both lines"
warning: could not open directory 'Application Data/': Permission denied
warning: could not open directory 'Cookies/': Permission denied
warning: could not open directory 'Local Settings/': Permission denied
warning: could not open directory 'My Documents/': Permission denied
warning: could not open directory 'NetHood/': Permission denied
warning: could not open directory 'PrintHood/': Permission denied
warning: could not open directory 'Recent/': Permission denied
warning: could not open directory 'SendTo/': Permission denied
warning: could not open directory 'Start Menu/': Permission denied
warning: could not open directory 'Templates/': Permission denied
On branch collab-branch-A
Untracked files:
  (use "git add <file>..." to include in what will be committed)
    .Icecream Video Editor/
    .android/
    .bash_history
    .config/
    .dotnet/
    .gitconfig
    .lesshst
    .nuget/
    .packettracer
    .ssh/
    .viminfo
    .vscode/
  3D Objects/
  AppData/
  Contacts/
  Desktop/
  Documents/
  Downloads/
  Favorites/
  IntelGraphicsProfiles/
  Lab2/
  Links/
  Music/
  NTUSER.DAT
```

